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Table of Superdeformed Nuclear Bands and Fission Isomers*

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Introduction

A minimum in the second potential well of deformed nuclei was predicted[1] and the associated shell gaps are illustrated in the harmonic oscillator potential shell energy surface calculations shown in figure 1[2,3]. A strong superdeformed minimum in ^{152}Dy was predicted for β_2~0.65[4,5,6]. Subsequently, a discrete set of γ-ray transitions in ^{152}Dy was observed[7] and assigned to the predicted superdeformed band. Extensive research at several laboratories has since focused on searching for other mass regions of large deformation[8-12]. A new generation of γ-ray detector arrays (Gammasphere, Eurogam, and GASP) is already producing a wealth of information about the mechanisms for feeding and deexciting superdeformed bands. These bands have been found in three distinct regions near A=130, 150, and 190. This research extends upon previous work in the actinide region near A=240 where fission (shape) isomers were identified and also associated with the second potential well[13]. Quadrupole moment measurements for selected cases in each mass region are consistent with assigning the bands to excitations in the second local minimum.

As part of our committmont to maintain nuclear structure data as current as possible in the Evaluated Nuclear Structure Reference File (ENSDF)[14] and the *Table of Isotopes*[15], we have updated the information on superdeformed nuclear bands. As of April, 1994, we have compiled data from 86 superdeformed bands and 46 fission isomers identified in 73 nuclides for this report. Partial data for superdeformed bands and fission isomers are shown in the band drawings.

For each nuclide there is a complete level table listing both normal and superdeformed band assignments; level energy, spin, parity, half-life, magnetic moments, decay branchings; and the energies, final levels, relative intensities, multipolarities, and mixing ratios for transitions deexciting each level. Mass excess, decay energies, and proton and neutron separation energies are also provided from the evaluation of Audi and Wapstra [16].

For superdeformed bands we provide the following quantities.

Level energies: For SD bands, since the absolute level energies are not yet known, only relative values are given. In the drawings the SD bands are shown with a common baseline for convenient display of multiple bands in a nucleus.

Level half-lives: Measured values are quoted in the tables only.

Level spins: The spin value is generally given only for the first member of the SD band. This value is typically suggested by the authors and has some uncertainty (~1-2 ħ) associated with it. Since linking to normal states is unobserved, except for tentative assignments in ^{133,135}Nd, there is no direct confirmation of these spins. The cascading transitions are all assumed as E2 which is consistent with angular correlation data and short level half-lives in several cases. The parities are not shown because of insufficient evidence at this time.

γ-ray energies: The energies are adopted from the most complete set of data for each band. We have not averaged values because uncertainties are not usually available. Typical energy uncertainties range from 0.1-0.3 keV for intense transitions to 2 kev for weaker γ-rays.

γ-ray intensities: The values given are relative intensities normalized to 1.0 for the most intense transition in the cascade. These values are generally read off of the intensity figures in the papers. Correction for internal conversion is assumed to have been applied. When more than one measurement exists, the most complete set of intensities has been chosen. Absolute intensities can be obtained by multiplying the relative intensities by the %-feeding in Table I.

Moments: Transition Quadrupole moments for SD states are deduced from Doppler broadening of γ-rays. The SD quadrupole moment is typically an average value for the band corresponding to the intrinsic (transition) moment. For fission isomers the quadrupole moments are also intrinsic. The values appear in the summary tables only.

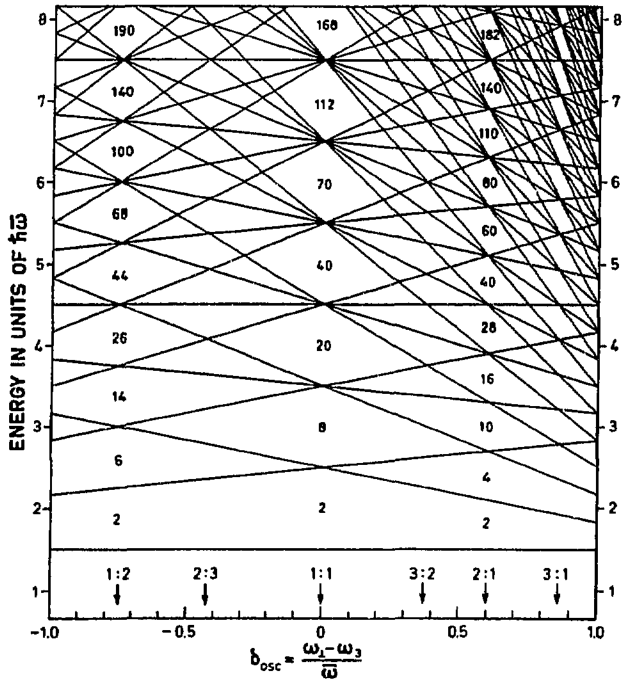


Figure 1. Single-particle level energies calculated for an axially symmetric harmonic oscillator (from reference 2).

The following calculated quantities[17,18] are provided (E_γ in MeV):

Rotational frequency:

$$\hbar\omega(J)=\frac{E_\gamma((J+2)\rightarrow J)+(E_\gamma(J\rightarrow(J-2))}{4}\ MeV$$

Kinetic moment of inertia†:

$$I_1(J)=\frac{2J-1}{E_\gamma(J\rightarrow(J-2))}\hbar^2\ MeV^{-1}$$

Dynamic moment of inertia:

$$I_2(J)=\frac{4}{E_\gamma((J+2)\rightarrow J)-E_\gamma(J\rightarrow(J-2))}\hbar^2\ Mev^{-1}$$

We have not attempted to label bands according to particle or intruder configurations or according to their isospectral behavior. The reader is referred to the original papers for information about reactions populating these bands and fission isomers. References with keyword abstracts have been provided from the Nuclear Structure Reference (NSR) file[19]. They are divided into three sections for superdeformed band experiment, superdeformed band theory, and fission isomers. The theoretical references before 1986 were not completely scanned for superdeformation.

We express our gratitude to the many nuclear data evaluators for creating the ENSDF file and to the staff at the National Nuclear Data Center at Brookhaven National Laboratory for maintaining ENSDF. Many useful suggestions were provided by members of the high-spin physics group at Lawrence Berkeley Laboratory. Special recognition should go to S.Y. Frank Chu, J.A. Cizewski, J.D. Garrett, and J.C. Waddington for their detailed comments and suggestions. This work was supported by the Director, Office of Energy Research, Office of High-Energy and Nuclear Physics, Nuclear Physics Division of the U.S. Department of Energy under contract DE-AC03-76SF00098, subcontract LBL no. 4573810; and by the Natural Sciences and Engineering Research Council (NSERC) of Canada.

†Approximate since spins are uncertain.

References:

1. V.M. Strutinski, Nucl. Physics **A95**, 420 (1967); ibid **A122**, 1 (1968).
2. A. Bohr and B.R. Mottelson, Nuclear Structure, Vol. II, p. 591, New York, Benjamin (1975).
3. J.R. Nix, Ann. Rev. of Nucl. Sci. 22, 65 (1972).
4. T. Bengtsson *et al*, Phys. Scr. 24, 200(1981).
5. K. Neergard *et al*, Nucl. Phys. **A262**, 61 (1976).
6. G. Andersson *et al*, Nucl. Phys. **A268**, 205 (1976).
7. P.J. Twin *et al*, Phys. Rev. Lett. 57, 811 (1986).
8. J.F. Sharpey-Schafer and J. Simpson, Prog. Part. Nucl. Phys. 21, 293 (1988).
9. P.J. Nolan and P.J. Twin, Ann. Rev. Nucl. Part. Sci. 38, 533 (1988).
10. R.V.F. Janssens and T.L. Khoo, Ann. Rev. Nucl. part. Sci. 41, 321 (1991).
11. J.F. Sharpey-Schafer, Progr. Part. Nucl. Phys. 28, 187 (1992).
12. X.-L. Han and C.-L. Wu, At. Data and Nucl. Data Tables 52, 43 (1992).
13. S.M. Polikanov *et al*, Soviet Phys. JETP 15, 1016 (1962).
14. Evaluated Nuclear Structure Data File (ENSDF), maintained at the National Nuclear Data Center, Brookhaven National Laboratory, Upton, NY.
15. *Table of Isotopes*, to be published in 1995.
16. G. Audi and A.H. Wapstra, Nucl. Phys. **A565**, 1 (1993).
17. A. Bohr and B.R. Mottelson, Phys. Scr. 24, 71 (1981).
18. F.S. Stephens, Phys. Scr. T5, 5 (1983).
19. Nuclear Structure Reference file (NSR), scanned by S. Ramavataram, maintained at the National Nuclear Data Center, Brookhaven National Laboratory, Upton, NY.

Table I

Summary of Superdeformed Bands

Nuclide	Band	E_γ-range (N_γ)	J-range	%-feeding	Q_0[a]	Principal References
^{130}La	SD-1	762-1412 (9)	(16)-(34)	10		89Go13
^{131}Ce	SD-1	592-1732 (16)	(29/2)-(93/2)	5	5.5 *5*	88Lu01,90He12,93Mu09
^{132}Ce	SD-1	809-2201 (19)	(18)-(56)	5	8.0 *7*	87Ki02,90Di01,93SaZZ
	SD-2	847-1548 (11)	(J)-(J+22)	1		93SaZZ
	SD-3	864-1533 (10)	(J)-(J+20)	0.8		93SaZZ
^{133}Pr	SD-1	840-1489 (10)	(J)-(J+20)	0.5		93WiZX
	SD-2[d]					93WiZX
	SD-3[d]					93WiZX
	SD-4[d]					93WiZX
^{133}Nd	SD-1[b]	345-1631 (18)	(17/2)-(89/2)	20	6.0 *7*	87Wa18,92Mu09,93Ba20
^{134}Nd	SD-1	591-1473 (13)	(14)-(40)	5		87Be32,87Wa18
^{135}Nd	SD-1[b]	546-1449 (14)	(25/2)-(81/2)	10	7.4 *10*[c]	87Be57,90Di01,93Wi09
^{136}Nd	SD-1	718-1480 (12)	(16)-(40)	2		87Be32
^{137}Nd	SD-1	635-1431 (14)	(25/2)-(81/2)	13	4.0 *5*	87Wa18,92Mu09
^{142}Sm	SD-1	800-1603 (14)	(29)-(57)	0.5 *1*		93Ha03
^{143}Eu	SD-1	484-1743 (22)	(37/2)-(125/2)	1.1	13 *1*	93At01
^{144}Eu	SD-1[b]			0.1		93Mu16
^{144}Gd	SD-1	846-1418 (14)	(J)-(J+28)	0.2		94LuAA
^{146}Gd	SD-1	826-1533 (15)	(33)-(63)	0.65 *19*	12 *2*	90He14,91Rz01,92HaZR
	SD-2	807-1532 (14)	(32)-(60)	0.39(12)	8 *2*	92StZU
^{147}Gd	SD-1	697-1516 (17)	(55/2)-(123/2)	0.87 *19*		91Zu01,92HaZR
	SD-2	731-1559 (16)	(61/2)-(125/2)	0.57 *15*		
^{148}Gd	SD-1	652-1580 (18)	(27)-(63)	1.30 *15*		88De10,92HaZR
	SD-2	788-1437 (14)	(32)-(60)	0.62 *20*		
^{149}Gd	SD-1	618-1730 (22)	(51/2)-(139/2)	2.5	17 *2*	88Ha02,90Ha31,93Fl03,93Fl07
	SD-2	877-1506 (14)	(71/2)-(127/2)	1.0		
	SD-3	896-1485 (12)	(77/2)-(125/2)	0.3		
	SD-4[d]					93Fl03
	SD-5[d]					93Fl03
	SD-6[d]					93Fl03
	SD-7[d]					93Fl03
	SD-8[d]					93Fl03
^{150}Gd	SD-1	780-1494 (17)	(30)-(64)	1.0	17 *3*	90By01,91Fa07,93Be37
	SD-2	728-1584 (19)	(29^-)-(67^-)	0.5		
	SD-3	617-1567 (19)	(24^-)-(62^-)	0.45		
	SD-4	688-1600 (18)	(27^-)-(63^-)	0.4		93Be37
	SD-5[d]			0.4		93Be37
^{150}Tb	SD-1	598-1487 (18)	(24)-(60)	1.0		89De10,90Ha31
^{151}Tb	SD-1	728-1535 (18)	(57/2)-(129/2)	1.0		90By01,92Mu10,93Be29,93Cu06
	SD-2	602-1497 (20)	(49/2)-(129/2)	0.3		
^{151}Dy	SD-1	522-1490 (20)	(47/2)- (127/2)	1.3		88Ra19,92Mu10
^{152}Dy	SD-1	602-1449 (19)	(22)-(60)	1.47 *7*	18 *3*	91Be12,92Sm01
	SD-2	855-1482 (15)	(J)-(J+30)	0.21 *3*		
	SD-3[d]			0.15 *3*		93DaZV
	SD-4[d]			0.10 *5*		93DaZV
^{153}Dy	SD-1	810-1406 (14)	(71/2)-(127/2)	0.25		89Jo04
	SD-2	816-1388 (13)	(71/2)-(123/2)	0.18		
	SD-3	895-1410 (12)	(77/2)-(125/2)	0.13		

Table I (continued)

Summary of Superdeformed Bands

Nuclide	Band	E_γ-range (N_γ)	J-range	%-feeding	Q_0[a]	Principal References
^{191}Au	SD-1	229-678 (13)	(19/2)-(71/2)	0.15		93Vo04
^{189}Hg	SD-1	366-708 (10)	(29/2)-(69/2)	0.5		92Be18
^{190}Hg	SD-1	360-812 (14)	(14)-(42)		18 *3*	91Dr04,93Ca23
^{191}Hg	SD-1	351-754 (12)	(29/2,31/2)-(77/2,79/2)	2.0	18 *3*	90Ca18,89Mo08
	SD-2	292-699 (12)	(25/2)-(73/2)	1.0	~18	
	SD-3	312-708 (12)	(27/2)-(75/2)	0.8		
^{192}Hg	SD-1	215-882 (20)	(8)-(48)	2.0	20 *2*	92La07,90Mo16,93Ha20,94GaAA
^{193}Hg	SD-1	233-881 (20)	(19/2)-(99/2)	1.6	e	93Jo09,90He09,90Cu05,93Fa07
	SD-2[f]	254-876 (19)	(21/2)-(97/2)	2.1		
	SD-3	234-860 (19)	(19/2)-(95/2)	0.9		
	SD-4[f]	254-876 (19)	(21/2)-(97/2)	2.1		
	SD-5	291-831 (16)	(27/2,29/2)-(91/2,93/2)	1.1		
	SD-6	240-858 (17)	(J)-(J+34)			
^{194}Hg	SD-1	254-843(18)	(10)-(46)	7.0	17.2 *20*	92ShZR,90St12,90Be11,90Ri05
	SD-2	262-793 (16)	(11)-(43)			
	SD-3	201-807 (18)	(8)-(44)	2.0	17.6 *30*	94HuAA
^{191}Tl	SD-1	318-656 (10)	(J)-(J+20)	0.4		92PiZR,92YuZY,94PiAA
	SD-2	378-633 (8)	(J)-(J+16)	0.4		
^{192}Tl	SD-1	358-629 (8)	(J)-(J+16)	0.9		92Li21
	SD-2	378-637 (8)	(J)-(J+16)	0.5		
	SD-3	376-641 (8)	(J)-(J+16)	1.1		
	SD-4	357-619 (8)	(J)-(J+16)	0.7		
	SD-5	381-642 (8)	(J)-(J+16)	0.5		
	SD-6	406-634 (7)	(J)-(J+14)	0.3		
^{193}Tl	SD-1	228-678(13)	(19/2)-(71/2)	0.5		90Fe07
	SD-2	248-685(13)	(21/2)-(73/2)	0.5		
^{194}Tl	SD-1	268-704(13)	(12)-(38)	1.5		91Az03,90St11
	SD-2	209-686(14)	(9)-(37)	1.0		
	SD-3	241-718(14)	(10,11)-(38,39)	0.9		
	SD-4	220-703(14)	(9,10)-(37,38)	0.6		
	SD-5	188-628(13)	(8,9)-(34,35)	0.6		
	SD-6	207-613(12)	(9,10)-(33,34)	0.8		
^{195}Tl	SD-1	330-716(12)	(29/2)-(77/2)	0.5		91Az04
	SD-2	251-680(10)	(31/2)-(71/2)	0.25		
^{192}Pb	SD-1	263-636(11)	(10,11)-(32,33)			91He11,93Pl01[g]
^{194}Pb	SD-1	170-739(16)	(6)-(38)	1.0	20 *3*	90Hu10,90Br10,93Wi02,93Ha20
^{196}Pb	SD-1	170-689(14)	(4)-(32)	1.3	18.3 *30*	91Wa14,93Mo19,93Da04
^{198}Pb	SD-1?	304-553(7)	(12)-(26)			91Wa14

[a] Transition or intrinsic quadrupole moment in eb.

[b] Linking transitions to normal states have been reported by 93Lu04 (for ^{133}Nd) and 93Wi09 (for ^{135}Nd).

[c] Q_0=1.4 eb reported for first member of SD band (93Wi09).

[d] Discrete γ-ray data are not yet available for this band.

[e] g_k(intrinsic)=−0.61 *11* (93Jo09).

[f] Unresolved bands.

[g] Report non-observation of SD band in ^{192}Pb.

Table II

Summary of Fission (Shape) Isomers

Nuclide	E(Isomer)[a]	J^{π}	$t_{1/2}$	%IT[b]	Q_0	Selected references
^{236}U	2750 *10*[cd]	(0+)	120 ns *2*	87 *6*	32 *5*	78Gu02,80Me15,89Ma57,90Ma59
^{238}U	2557.6 *5*[cd]	0+	298 ns *18*	~95	29 *3*	69La14,79Ul01,82Go02,92St05
	2557.6+y		>1 ns			89Me40
^{237}Np	2800 *400*		45 ns *5*	e		73Wo03,77Mi09
^{235}Pu	3000 *200*		25 ns *5*			69Me11,70Bu02,78SoZP,89SoZZ
^{236}Pu	~3000	(0+)	37 ps *4*		37^{+14}_{-8}	74MeYP,77Me08
	4000 *200*		34 ns *8*			69La14,71Br39
^{237}Pu	~2600		85 ns *15*		f	69La14,79Gu03,82Ra04
	~2900		1.1 µs *1*			70Po01,73Va16,79Gu03
^{238}Pu	~2400		0.6 ns *2*			73Li01,74MeYP
	~3500	(0+)	6.0 ns *15*			70Bu02,71Br39,73Na35,92DeZZ
^{239}Pu	3100 *200*[c]	(5/2+)	7.5 µs *10*		36 *4*	70Po01,77Ha01,79Ba02
	~3300[d]	(9/2-)	2.6^{+40}_{-12} ns			77GoZH,80Gu20
^{240}Pu	~2800[c]	(0+)	3.7 ns *3*			71Br39,72Sp06,73Be10,86De04
^{241}Pu	~2200		21 µs *3*			70Po01,70Ga10,73Be05
	~2300		32 ns *5*			69La14,81Gu04
^{242}Pu	~2200		3.5 ns *6*			74Me10,75Me28
	2200+y		28 ns			69La14,70Po01
^{243}Pu	1700 *300*		45 ns *15*			69La14,70Vi05,80Bj02
^{244}Pu	x		0.40 ns *10*			74MoYC
^{245}Pu	2000 *400*		90 ns *30*			71Au06,80Bj02
^{237}Am	~2400		5 ns *2*			70Po01,71Br39,73Br38
^{238}Am	~2500		35 µs *10*			67Bo23,72Br35,73Fl03
^{239}Am	2500 *200*	(7/2+)	163 ns *12*		g	69La14,72Br35,85Ra28
^{240}Am	3000 *200*		0.94 ms *4*		32.7 *20*[h]	71Br39,79Be46,85Jo04
^{241}Am	~2200		1.0 µs *3*			69La14,72Br35,73Be04,93Ku16
^{242}Am	2200 *80*		14.0 ms *10*			62Po09,63Pe27,85Ku18,92Ba67
^{243}Am	2300 *200*		5.5 µs *5*			70Po01,72Wo07,87Gu03
^{244}Am	2800 *400*		0.90 ms *15*			68BJ04,69Bo25,72Wo07
	2800+y		~6.5 µs			69SlZZ
^{245}Am	2400 *400*		0.64 µs *6*			72Wo07,73Br38,80Bj02
^{246}Am	~2000		73 µs *10*			72Wo07,83Po14
^{240}Cm	~2000		10 ps *3*			76Sl01
	~3000		55 ns *12*			76Sl01,78Ul01
^{241}Cm	~2300		15.3 ns *10*			69Me11,71Br39,72Vy07
^{242}Cm	1300 *200*		40 ps *15*			75Me28,76Sl01
	~2800		0.18 µs 7			71Re11,71Br39,73Br38
^{243}Cm	1900 *300*		42 ns *6*			69MeZX,71Re11,80Bj02
^{244}Cm	~2200		<5 ps			69Me11,71Re11,80Bj02,80Me15
	~3500		>100 ns			69Me11,80Me15,89Ha40
^{245}Cm	2100 *300*		13.2 ns *18*			71Br39,72Wo07,80Bj02
^{242}Bk	x		9.5 ns *20*			72Wo07
	x+y		0.60 µs *10*			72Wo07
^{243}Bk	~2200[i] (?)		5 ns (?)			72Ga42,72Vy07
^{244}Bk	x		0.82 µs *6*			72Ga42,72Wo07
^{245}Bk	~1560		2 ns *1*			71Re11,72Ga42,72We09

[a] Systematics of fission isomers suggest x=1600-2600; y<1000

[b] %SF(^{236}U isomer)=13 *6*, %SF(^{238}U isomer)5. For all other isomers, only SF decay has been observed.

[c] Rotational bands built on these states are shown in the figures.

[d] Deexcitation to normal states is shown in the figures.

[e] Some evidence for isomeric decay has been reported.

[f] g-factor=–0.45 *3*

[g] g-factor=0.74 *5*

[h] Q_0=29.0 *13* (85Jo04)

[i] Questionable existence

$^{130}_{57}$La

Δ: (−81670) S_n: (8400) S_p: (3890) Q_{EC}: (5600) Q_α: (250)

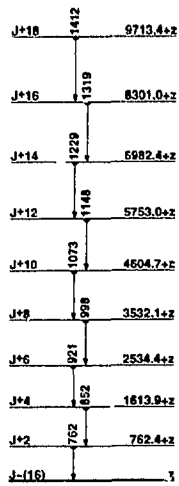
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 3(+), 8.7 *1* m, %EC+%β+=100
130.8 *5*(?), (1+) γ_0 **130.8** *5* ($\dagger_\gamma$100)
0+x
5.1+x *5*, (4)
45.1+x *8*
88.4+x *7*, (3−)
113.9+x *4*, (5) γ_{0+x} **113.9** *5* ($\dagger_\gamma$100)
150.3+x *7*, (5) γ_{45+x} **105.2** *5* ($\dagger_\gamma$100)
160.3+x *5*, (4)
180.4+x *6*, (4−) γ_{88+x} **72.0** *3* ($\dagger_\gamma$100 *3*) γ_{114+x} **46.4** *10* ($\dagger_\gamma$<16)
279.1+x *6*, (5−) $\gamma_{180.4+x}$ **118.7** *3* ($\dagger_\gamma$100.0 *6*) (M1) γ_{88+x} **190.7** *5* ($\dagger_\gamma$2.8 *9*)
385.4+x *4*, (6+) γ_{279+x} **106.4** *5* ($\dagger_\gamma$7.2 *6*) $\gamma_{180.3+x}$ **225.1** *3* ($\dagger_\gamma$27.3 *13*) Q γ_{150+x} **235.1** *5* ($\dagger_\gamma$>55) D γ_{114+x} **271.5** *3* ($\dagger_\gamma$100 *4*) D γ_{5+x} **380.3** *3* ($\dagger_\gamma$40.1 *18*) Q γ_{0+x} **385.4** *6* ($\dagger_\gamma$13.1 *9*)
456.3+x *6*, (6−) γ_{279+x} **177.2** *3* ($\dagger_\gamma$100.0 *14*) (M1) $\gamma_{180.4+x}$ **295.9** *3* ($\dagger_\gamma$16.7 *5*) (E2)
522.9+x *5*, (7+) γ_{385+x} **137.5** *3* ($\dagger_\gamma$100) (M1)
677.5+x *6*, (7−) γ_{456+x} **221.2** *3* ($\dagger_\gamma$100.0 *17*) (M1) γ_{279+x} **398.4** *3* ($\dagger_\gamma$48.9 *15*) (E2)
802.3+x *6*, (8+) γ_{523+x} **279.4** *3* ($\dagger_\gamma$100 *4*) (M1) γ_{385+x} **416.9** *10* ($\dagger_\gamma$<1.1)
947.0+x *6*, (8−) γ_{678+x} **269.5** *5* ($\dagger_\gamma$88 *4*) (M1) γ_{456+x} **490.7** *3* ($\dagger_\gamma$100 *3*) (E2)
1048.6+x *6*, (9+) γ_{802+x} **246.3** *3* ($\dagger_\gamma$100.0 *23*) (M1) γ_{523+x} **525.7** *3* ($\dagger_\gamma$49.3 *22*) (E2)
1250.2+x *7*, (9−) γ_{947+x} **303.2** *3* ($\dagger_\gamma$59.6 *15*) (M1) γ_{678+x} **572.7** *3* ($\dagger_\gamma$100 *3*) (E2)
1422.8+x *6*, (10+) γ_{1049+x} **374.3** *5* ($\dagger_\gamma$100 *3*) γ_{802+x} **620.6** *3* ($\dagger_\gamma$40 *3*) (E2)
1597.3+x *7*, (10−) γ_{1250+x} **347.1** *5* ($\dagger_\gamma$39 *2*) γ_{947+x} **650.3** *3* ($\dagger_\gamma$100 *2*) (E2)
1748.5+x *6*, (11+) γ_{1423+x} **325.7** *3* ($\dagger_\gamma$47.7 *20*) (M1) γ_{1049+x} **700.0** *3* ($\dagger_\gamma$100 *5*) (E2)
1970.1+x *7*, (11−) γ_{1597+x} **372.8** *5* ($\dagger_\gamma$40 *2*) γ_{1250+x} **719.9** *3* ($\dagger_\gamma$100 *2*) (E2)
2194.1+x *6*, (12+) γ_{1749+x} **445.6** *5* ($\dagger_\gamma$100 *6*) γ_{1423+x} **771.3** *3* ($\dagger_\gamma$74 *6*) (E2)
2384.4+x *7*, (12−) γ_{1970+x} **414.3** *5* ($\dagger_\gamma$55.1 *18*) (M1) γ_{1597+x} **787.1** *3* ($\dagger_\gamma$100 *4*) (E2)
2586.7+x *6*, (13+) γ_{2194+x} **392.6** *3* ($\dagger_\gamma$37.3 *19*) (M1) γ_{1749+x} **838.2** *3* ($\dagger_\gamma$100 *5*) (E2)
2818.2+x *7*, (14−) γ_{2384+x} **433.8** *5* ($\dagger_\gamma$10.6 *16*) (M1) γ_{1970+x} **848.1** *3* ($\dagger_\gamma$100 *4*) (E2)
3096.2+x *7*, (14+) γ_{2587+x} **509.5** *5* ($\dagger_\gamma$81 *6*) γ_{2194+x} **902.1** *5* ($\dagger_\gamma$100 *6*)
3289.6+x *7*, (14−) γ_{2818+x} **471.3** *5* ($\dagger_\gamma$17 *3*) (M1) γ_{2384+x} **905.1** *5* ($\dagger_\gamma$100 *3*)
3541.6+x *7*, (15+) γ_{3096+x} **445.4** *5* ($\dagger_\gamma$24 *4*) γ_{2587+x} **954.9** *5* ($\dagger_\gamma$100 *4*)
3771.4+x *8*, (15−) γ_{3290+x} **481.8** *5* (M1) γ_{2818+x} **953.1** *10*
4105.1+x *7*, (16+) γ_{3542+x} **563.5** *5* ($\dagger_\gamma$49 *6*) (M1) γ_{3096+x} **1008.9** *5* ($\dagger_\gamma$100 *6*) (E2)
4271.6+x *8*, (16−) γ_{3771+x} **500.2** *10* ($\dagger_\gamma$28 *7*) γ_{3290+x} **982.0** *5* ($\dagger_\gamma$100 *7*) (E2)
4589.7+x *8*, (17+) γ_{4105+x} **484.6** *7* ($\dagger_\gamma$20 *5*) γ_{3542+x} **1048.1** *5* ($\dagger_\gamma$100 *7*) (E2)
4720.3+x *8*, (17−) γ_{4272+x} **448.6** *5* ($\dagger_\gamma$71 *9*) (M1) γ_{3771+x} **948.8** *7* ($\dagger_\gamma$100 *9*)
5185.0+x *9*, (18−) γ_{4720+x} **464.8** *5* ($\dagger_\gamma$100 *5*) (M1) γ_{4272+x} **913.4** *7* ($\dagger_\gamma$93 *5*) (E2)
5185.2+x *8*, (18+) γ_{4590+x} **595.6** *7* ($\dagger_\gamma$33 *9*) (M1) γ_{4105+x} **1080.2** *7* ($\dagger_\gamma$100 *11*) (E2)
5644.6+x *8*, (19−) $\gamma_{5185.0+x}$ **459.4** *5* ($\dagger_\gamma$69 *6*) (M1) γ_{4720+x} **924.2** *5* ($\dagger_\gamma$100 *6*) (E2)
5696.8+x *10*, (19+) $\gamma_{5185.0+x}$ **511.7** *10* ($\dagger_\gamma$30 *10*) γ_{4590+x} **1107** *1* ($\dagger_\gamma$100 *10*) (E2)
6156.9+x *8*, (20−) γ_{5645+x} **512.4** *5* ($\dagger_\gamma$55 *6*) (M1) $\gamma_{5185.0+x}$ **971.8** *5* ($\dagger_\gamma$100 *6*) (E2)
6658.2+x *10*, (21−) γ_{6157+x} **501.5** *10* ($\dagger_\gamma$31 *5*) γ_{5645+x} **1013.4** *7* ($\dagger_\gamma$100 *5*) (E2)
6818.8+x *18*, (21+) γ_{5697+x} **1122.0** *14* ($\dagger_\gamma$100) (E2)
7203.3+x *11*, (22−) γ_{6658+x} **545.0** *10* γ_{6157+x} **1046.5** *10* (E2)
7759.0+x *12*, (23−) γ_{7203+x} **555.8** *10* ($\dagger_\gamma$11 *6*) γ_{6658+x} **1100.8** *10* ($\dagger_\gamma$100 *6*) (E2)
7949.0+x *23*, (23+) γ_{6819+x} **1131.0** *14* ($\dagger_\gamma$100) (E2)
8282.7+x *13*, (24−) γ_{7759+x} **523.7** *10* ($\dagger_\gamma$11 *6*) (M1) γ_{7203+x} **1079.5** *10* ($\dagger_\gamma$100 *6*) (E2)
0+y, (7)
86.9+y *8*, (9)
358.8+y *5*, (9) γ_{0+y} **358.8** *5* ($\dagger_\gamma$100) Q
489.7+y *6*, (10) γ_{358+y} **130.9** *3* ($\dagger_\gamma$100 *7*) D γ_{87+y} **402.8** *5* ($\dagger_\gamma$57 *5*)
732.6+y *7*, (11) γ_{490+y} **242.9** *3* ($\dagger_\gamma$100) (M1)
1046.6+y *8*, (12) γ_{733+y} **314.0** *3* ($\dagger_\gamma$100) (M1)
1418.2+y *8*, (13) γ_{1047+y} **371.6** *3* ($\dagger_\gamma$100) (M1)
1841.2+y *9*, (14) γ_{1418+y} **423.0** *3* ($\dagger_\gamma$100) (M1)
2305.6+y *9*, (15) γ_{1841+y} **464.4** *3* ($\dagger_\gamma$100) (M1)
2807.9+y *10*, (16) γ_{2306+y} **502.3** *5* ($\dagger_\gamma$100 *9*) (M1) γ_{1841+y} **966.7** *7* ($\dagger_\gamma$18 *2*) (E2)
3340.0+y *11*, (17) γ_{2808+y} **532.1** *5* ($\dagger_\gamma$100 *10*) (M1) γ_{2306+y} **1034.4** *12* ($\dagger_\gamma$31 *5*) (E2)
3889.5+y *11*, (18) γ_{3340+y} **549.5** *5* ($\dagger_\gamma$100 *13*) (M1) γ_{2808+y} **1081.6** *12* ($\dagger_\gamma$52 *7*) (E2)
4462.0+y *12*, (19) γ_{3890+y} **572.5** *5* ($\dagger_\gamma$100 *13*) (M1) γ_{3340+y} **1122.0** *12* ($\dagger_\gamma$33 *5*) (E2)
5054.8+y *14*, (20) γ_{4462+y} **592.8** *10* ($\dagger_\gamma$100 *25*) (M1) γ_{3890+y} **1165.3** *12* ($\dagger_\gamma$83 *25*) (E2)
5638.0+y *17*, (21) γ_{5055+y} **583.2** *10* ($\dagger_\gamma$100) (M1)

A z, J=(16)
A 762.4+z, J+2 γ_z **762.4** ($\dagger_\gamma$0.35) $I^{(1)}$=45.9, $I^{(2)}$=44.9, ħω=0.403
A 1613.9+z, J+4 γ_{762+z} **851.5** ($\dagger_\gamma$0.80) $I^{(1)}$=45.8, $I^{(2)}$=58.0, ħω=0.443
A 2534.4+z, J+6 γ_{1614+z} **920.5** ($\dagger_\gamma$1.00) $I^{(1)}$=46.7, $I^{(2)}$=51.8, ħω=0.480
A 3532.1+z, J+8 γ_{2534+z} **997.7** ($\dagger_\gamma$1.00) $I^{(1)}$=47.1, $I^{(2)}$=53.4, ħω=0.518
A 4604.7+z, J+10 γ_{3532+z} **1072.6** ($\dagger_\gamma$1.00) $I^{(1)}$=47.5, $I^{(2)}$=52.8, ħω=0.555
A 5753.0+z, J+12 γ_{4605+z} **1148.3** ($\dagger_\gamma$0.75) $I^{(1)}$=47.9, $I^{(2)}$=49.3, ħω=0.594
A 6982.4+z, J+14 γ_{5753+z} **1229.4** ($\dagger_\gamma$0.65) $I^{(1)}$=48.0, $I^{(2)}$=44.8, ħω=0.637
A 8301.0+z, J+16 γ_{6982+z} **1318.6** ($\dagger_\gamma$0.50) $I^{(1)}$=47.8, $I^{(2)}$=42.6, ħω=0.683
A 9713.4+z, J+18 γ_{8301+z} **1412.4** ($\dagger_\gamma$0.40) $I^{(1)}$=47.4



SD band

$^{130}_{57}$La

$^{131}_{58}$Ce

Δ: −79700 *400* S_n: (8300) S_p: (5300) Q_{EC}: 4000 *400* Q_α: 700 *400*

Nuclear Bands

- *A* $\nu h_{11/2}$
- *B* $\nu g_{7/2}$
- *C* $\nu g_{7/2}\pi h_{11/2}$
- *D* 3 QP band
- *E* $\nu h_{11/2}(\pi h_{11/2})^2$
- *F* SD band

Levels and γ-ray branchings:

B 0, (7/2$^+$), 10.3 *3* m, %EC+%β$^+$=100
0+x, (1/2$^+$), 5.0 *10* m, %EC+%β$^+$=100
72.82+x *4*, (3/2$^+$) γ_{0+x}**72.826** (I_γ64 *6*)
A 162.00 *9*, (9/2$^-$), 70 *5* ns γ_0**161.91** (I_γ100) (E1)
B 257.31 *19*, (9/2$^+$) γ_0**257.22** (I_γ100) M1+E2
266.16+x *5* γ_{73+x}**193.366** (I_γ5.6 *5*) γ_{0+x}**266.137** (I_γ100)
279.54+x *5* γ_{73+x}**205.728** (I_γ56 *4*) γ_{0+x}**279.557** (I_γ100 *10*)
285.40+x *5* γ_{73+x}**212.557** (I_γ56 *4*) γ_{0+x}**285.397** (I_γ100 *10*)
A 300.24 *13*, (11/2$^-$) γ_{162}**138.21** (I_γ100) M1+E2
324.33+x *6* γ_{73+x}**251.477** (I_γ40.3 *26*) γ_{0+x}**324.358** (I_γ100 *9*)
364.81+x *6* γ_{286+x}**79.36** *10* (I_γ14 *4*) γ_{73+x}**292.047** (I_γ100 *10*) γ_{0+x}**364.72** (I_γ74 *20*)
384.70 *10* γ_{162}**222.63** *10* (I_γ100 *9*) γ_0**385.02** (I_γ45 *14*)
407.82+x *9* γ_{286+x}**128.22** (I_γ5.3 *21*) γ_{73+x}**334.95** *10* (I_γ100 *11*)
440.58 *10* γ_{162}**278.53** *18* (I_γ18 *7*) γ_0**440.60** *12* (I_γ100 *10*)
B 542.54 *21*, (11/2$^+$) γ_{257}**285.22** (I_γ100 *20*) γ_0**543.55** (I_γ91 *9*) E2
581.73+x *15* γ_{266+x}**315.52** (I_γ100 *11*) γ_{0+x}**581.82** (I_γ80 *18*)
585.02+x *11* γ_{280+x}**305.42** *10* (I_γ100)
588.94 *13* γ_{162}**426.94** *12* (I_γ100)
599.96 *21* γ_{300}**299.63** (I_γ95 *40*) γ_{162}**438.05** (I_γ=100)
A 636.89 *24*, (13/2$^-$) γ_{300}**335.43** (I_γ100 *7*) M1+E2 γ_{162}**475.34** (I_γ27 *4*) E2
785.26+x *8* γ_{408+x}**377.25** *17* (I_γ21 *5*) γ_{365+x}**420.45** *15* (I_γ100 *15*) γ_{73+x}**712.46** *12* (I_γ51 *6*) γ_{0+x}**785.42** (I_γ37 *5*)
A 809.8 *3*, (15/2$^-$) γ_{637}**173.02** (I_γ14 *3*) M1+E2 γ_{300}**509.45** (I_γ100 *17*)
865.59+x *12* γ_{585+x}**280.42** *16* (I_γ100 *40*) γ_{280+x}**586.15** *13* (I_γ72 *14*)
B 866.0 *4*, (13/2$^+$) γ_{543}**323.43** (I_γ18 *4*) M1+E2 γ_{257}**609.46** (I_γ100 *18*) E2
884.18 *19* γ_{600}**284.22** (I_γ100 *40*) γ_{385}**499.52** (I_γ95 *20*)
947.42 *21* γ_{257}**690.6** (I_γ100) γ_{162}**785.42** (I_γ550 *67*)
1054.63+x *8* γ_{408+x}**646.5** (I_γ≈17) γ_{365+x}**769.21** *10* (I_γ92 *8*) γ_{280+x}**775.12** *10* (I_γ100 *6*)
1176.5 *5*, (15/2$^-$) γ_{810}**367** γ_{637}**539.55** (I_γ100 *13*) M1+E2
B 1211.9 *5*, (15/2$^+$) γ_{866}**345.94** (I_γ8 *3*) γ_{543}**669.17** (I_γ100 *8*) E2
1213.43+x *11* γ_{785+x}**428.158** (I_γ100 *14*) γ_{365+x}**848.72** (I_γ17 *4*)
A 1295.1 *4*, (17/2$^-$) γ_{810}**485.54** (I_γ84 *11*) M1+E2 γ_{637}**657.86** (I_γ100 *17*) E2
1408.6 *11*
A 1451.7 *6*, (19/2$^-$) γ_{1295}**156** γ_{810}**641.76** (I_γ100) E2
B 1590.8 *6*, (17/2$^+$) γ_{1212}**379** γ_{866}**724.87** (I_γ100) E2
1695.8 *7*, (17/2$^-$) γ_{1177}**519.35** (I_γ100) M1+E2
1805.3 *7*, (19/2$^-$) γ_{1295}**510**(?) γ_{1177}**629** γ_{810}**996**
B 1976.2 *7*, (19/2$^+$) γ_{1591}**385**(?) γ_{1212}**764.37** (I_γ100) E2
1994.26+x *15* γ_{1055+x}**940.2** (I_γ≈23) γ_{324+x}**1669.72** (I_γ71 *10*) γ_{73+x}**1921.83** (I_γ100 *16*) γ_{0+x}**1994.33** (I_γ71 *16*)
A 2067.4 *7*, (21/2$^-$) γ_{1452}**615** γ_{1295}**773**
A 2202.0 *8*, (23/2$^-$) γ_{2067}**135** γ_{1452}**749.97** (I_γ100) E2
2286.5 *11* γ_{1409}**878**
2313.3 *10*(?), (19/2$^-$) γ_{1696}**617.56**(?) (I_γ100) M1+E2
D 2352.0 *8*, (19/2$^+$) γ_{1409}**943** γ_{1212}**1140**
B 2386.6 *8*, (21/2$^+$) γ_{1976}**411** γ_{1591}**795.68** (I_γ100) E2
D 2505.3 *8*, (21/2$^+$) γ_{2352}**153** γ_{2287}**219** γ_{1976}**529** γ_{1591}**915**
2563.7 *8*, (23/2$^-$) γ_{2067}**496** γ_{1805}**759** γ_{1452}**1112**
D 2685.1 *8*, (23/2$^+$) γ_{2505}**180** γ_{2387}**298** γ_{2352}**333** γ_{1976}**709**
C 2761.1 *9*, (23/2$^+$) γ_{2387}**375** γ_{1976}**784.67** (I_γ100) E2
D 2909.1 *10*, (25/2$^+$) γ_{2685}**224** γ_{2505}**404**
A 2912.3 *9*, (25/2$^-$) γ_{2202}**710** γ_{2067}**845**
A 3028.7 *10*, (27/2$^-$) γ_{2202}**826.68** (I_γ100) E2
C 3035.5 *10*, (25/2$^+$) γ_{2761}**274** γ_{2387}**649**
E 3069.4 *11*, (25/2$^-$) γ_{2912}**157** γ_0**1086**(?)
D 3198.1 *11*, (27/2$^+$) γ_{2909}**289** γ_{2685}**513**
C 3271.9 *11*, (27/2$^+$) γ_{3036}**236** γ_{2761}**511**
E 3287.4 *9*, (27/2$^-$) γ_{3069}**218** γ_{3029}**258**(?) γ_{2912}**375** γ_{2564}**724**
D 3522.1 *12*, (29/2$^+$) γ_{3198}**324** γ_{2909}**613**
C 3539.2 *12*, (29/2$^+$) γ_{3272}**267** γ_{3036}**504**
E 3543.9 *11*, (29/2$^-$) γ_{3287}**257** γ_{3069}**475**(?) γ_{3029}**515**
E 3817.7 *11*, (31/2$^-$) γ_{3544}**274** γ_{3287}**530** γ_{3029}**789**
C 3840.0 *13*, (31/2$^+$) γ_{3539}**301** γ_{3272}**568**
D 3893.1 *13*, (31/2$^+$) γ_{3522}**371** γ_{3198}**695**
A 3920.7 *14*, (31/2$^-$) γ_{3029}**892**
E 4152.8 *12*, (33/2$^-$) γ_{3818}**335** γ_{3544}**609**
C 4177.2 *14*, (33/2$^+$) γ_{3840}**337** γ_{3539}**638**
D 4313.1 *13*, (33/2$^+$) γ_{3893}**420** γ_{3522}**791**
E 4510.7 *13*, (35/2$^-$) γ_{4153}**358** γ_{3818}**693**
C 4548.8 *14*, (35/2$^+$) γ_{4177}**371** γ_{3840}**709**
D 4745.1 *14*, (35/2$^+$) γ_{4313}**432** γ_{3893}**852**
A 4842.9 *17*, (35/2$^-$) γ_{3921}**922**
E 4908.9 *13*, (37/2$^-$) γ_{4511}**398** γ_{4153}**756**
C 4954.8 *15*, (37/2$^+$) γ_{4549}**405** γ_{4177}**778**
D 5244.1 *17*, (37/2$^+$) γ_{4313}**931**
E 5341.5 *14*, (39/2$^-$) γ_{4909}**432** γ_{4511}**831**
C 5389.4 *16*, (39/2$^+$) γ_{4955}**434** γ_{4549}**841**
D 5714.1 *18*, (39/2$^+$) γ_{4745}**969**
E 5796.6 *15*, (41/2$^-$) γ_{5342}**455** γ_{4909}**888**
A 5804.8 *20*, (39/2$^-$) γ_{4843}**962**
C 5859.6 *17*, (41/2$^+$) γ_{5389}**470** γ_{4955}**905**
E 6292.8 *15*, (43/2$^-$) γ_{5797}**496** γ_{5342}**951**
C 6351.4 *19*, (43/2$^+$) γ_{5860}**491**(?) γ_{5389}**962**
D 6742.1 *20*, (43/2$^+$) γ_{5714}**1028**
E 6808.7 *18*, (45/2$^-$) γ_{6293}**515**(?) γ_{5797}**1012**
C 6879.8 *19*, (45/2$^+$) γ_{6351}**529**(?) γ_{5860}**1020**
E 7354.6 *19*, (47/2$^-$) γ_{6809}**547**(?) γ_{6293}**1062**
C 7421.4 *21*, (47/2$^+$) γ_{6351}**1070**
D 7801.1 *23*, (49/2$^+$) γ_{6742}**1059**
E 7931.7 *21*, (49/2$^-$) γ_{6809}**1123**
C 8008.6 *22*, (49/2$^+$) γ_{6880}**1129**
C 8576.4 *23*(?), (51/2$^+$) γ_{7421}**1155**(?)
F y, J=(29/2)
F 592+y, J+2 γ_y**592** (I_γ0.60) $I^{(1)}$=54.1, $I^{(2)}$=57.1, ℏω=0.314
F 1254+y, J+4 γ_{592+y}**662** (I_γ1.00) $I^{(1)}$=54.4, $I^{(2)}$=56.3, ℏω=0.349
F 1987+y, J+6 γ_{1254+y}**733** (I_γ0.90) $I^{(1)}$=54.6, $I^{(2)}$=55.6, ℏω=0.385
F 2792+y, J+8 γ_{1987+y}**805** (I_γ0.90) $I^{(1)}$=54.7, $I^{(2)}$=57.1, ℏω=0.420
F 3667+y, J+10 γ_{2792+y}**875** (I_γ0.95) $I^{(1)}$=54.9, $I^{(2)}$=58.0, ℏω=0.455
F 4611+y, J+12 γ_{3667+y}**944** (I_γ0.90) $I^{(1)}$=55.1, $I^{(2)}$=58.0, ℏω=0.489
F 5624+y, J+14 γ_{4611+y}**1013** (I_γ0.85) $I^{(1)}$=55.3, $I^{(2)}$=58.0, ℏω=0.524
F 6706+y, J+16 γ_{5624+y}**1082** (I_γ0.70) $I^{(1)}$=55.5, $I^{(2)}$=56.3, ℏω=0.559
F 7859+y, J+18 γ_{6706+y}**1153** (I_γ0.60) $I^{(1)}$=55.5, $I^{(2)}$=54.8, ℏω=0.595
F 9085+y, J+20 γ_{7859+y}**1226** (I_γ0.50) $I^{(1)}$=55.5, $I^{(2)}$=51.9, ℏω=0.632
F 10388+y, J+22 γ_{9085+y}**1303** (I_γ0.40) $I^{(1)}$=55.3, $I^{(2)}$=50.6, ℏω=0.671
F 11770+y, J+24 $\gamma_{10388+y}$**1382** (I_γ0.40) $I^{(1)}$=55.0, $I^{(2)}$=46.0, ℏω=0.713
F 13239+y, J+26 $\gamma_{11770+y}$**1469** (I_γ0.30) $I^{(1)}$=54.5, $I^{(2)}$=48.2, ℏω=0.755
F 14791+y, J+28 $\gamma_{13239+y}$**1552** $I^{(1)}$=54.1, $I^{(2)}$=46.0, ℏω=0.798
F 16430+y, J+30 $\gamma_{14791+y}$**1639** $I^{(1)}$=53.7, $I^{(2)}$=43.0, ℏω=.843 $I^{(1)}$=53.7
F 18162+y, J+32 $\gamma_{16430+y}$**1732** $I^{(1)}$=53.1

$^{132}_{58}$Ce

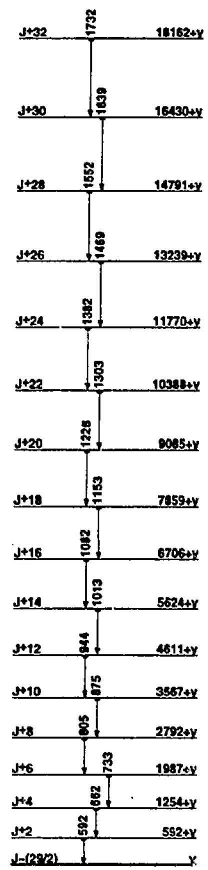
Δ: (−82450) S_n: (10800) S_p: (6000) Q_{EC}: (1290) Q_α: (540)

Nuclear Bands

- *A* SD-1 band
- *B* SD-2 band
- *C* SD-3 band

Levels and γ-ray branchings:

0, 0$^+$, 3.51 *11* h, %EC+%β$^+$=100
325.54 *15*, 2$^+$, 41 *3* ps γ_0**325.52** (I_γ100) E2
822.36 *16*, (2$^+$) γ_{326}**496.92** (I_γ100 *12*) γ_0**822.42** (I_γ69 *7*)
859.13 *24*, 4$^+$, 3.7 *7* ps γ_{326}**533.13** (I_γ100) E2
1199.66 *20*, (3$^+$) γ_{859}**340.55** (I_γ<3.5) γ_{822}**377.22** (I_γ25 *6*) γ_{326}**874.22** (I_γ100 *10*)
1383.94 *23*, (4$^+$) γ_{859}**524.62** (I_γ74 *22*) γ_{822}**561.82** (I_γ100 *22*)



SD band

$^{131}_{58}$Ce

$^{132}_{58}$Ce (Continued)

1497.56 *24* γ_{822} *675.2 2* (†$_\gamma$100 *13*) γ_{326} *1172.06* (†$_\gamma$16 *8*)
1542.8 *6*, 6$^+$, 0.7 *4* ps γ_{859} *683.75* (†$_\gamma$100) E2
1656.2 *5*, (5$^+$) γ_{1200} *456.54* (†$_\gamma$100)
1734.56 *25* γ_{822} *912.2 2* (†$_\gamma$100 *30*) γ_{326} *1409.08* (†$_\gamma$44 *15*)
1893.0(?) γ_{1200} *692.7* γ_{859} ≈*1034* γ_{822} ≈*1071*
2330.7 *8*, 8$^+$, 0.7 *2* ps γ_{1543} *787.95* (†$_\gamma$100) E2
2340.8, (8$^-$,9$^-$), 13 *1* ms γ_{1543} *798* (†$_\gamma$100)
2507.6 *6* γ_{1498} *1010.09* (†$_\gamma$100 *19*) γ_{1200} *1308.06* (†$_\gamma$58 *12*)
3158.5 *11*, 10$^+$, 0.83 *21* ps γ_{2331} *827.79* (†$_\gamma$100) E2
3309.6, 10$^+$ γ_{3159} *151* (†$_\gamma$17) γ_{2331} *979* (†$_\gamma$100)
3670.7 *12*, 12$^+$, 7.7 *4* ps γ_{3310} *361* (†$_\gamma$32) E2 γ_{3159} *512.26* (†$_\gamma$100) E2
4240.4 *13*, 14$^+$, 1.73 *7* ps γ_{3671} *569.76* (†$_\gamma$100) E2
4939.0 *15*, 16$^+$, 0.43 *4* ps γ_{4240} *698.67* (†$_\gamma$100) E2
5762.4 *18*, 18$^+$, 0.32 *2* ps γ_{4939} *823.49* (†$_\gamma$100) E2
6701, 20$^+$ γ_{5762} *939* (†$_\gamma$100) (E2)
7732, 22$^+$ γ_{6701} *1031* (†$_\gamma$100) (E2)
8845, 24$^+$ γ_{7732} *1113* (†$_\gamma$100) (E2)
10032, 26$^+$ γ_{8845} *1187* (†$_\gamma$100) (E2)
11272, 28$^+$ γ_{10032} *1240* (†$_\gamma$100) (E2)

A x, J=(18)
A 809+x, J+2, 59 *20* fs γ_x *809* (†$_\gamma$0.85 *10*) $I^{(1)}$=48.2, $I^{(2)}$=71.4, ħω=0.418
A 1674+x, J+4, 62 *14* fs γ_{809+x} *865* (†$_\gamma$1.00 *7*) $I^{(1)}$=49.7, $I^{(2)}$=62.5, ħω=0.449
A 2603+x, J+6, 28 *12* fs γ_{1674+x} *929* (†$_\gamma$1.1[illegible] *12*) $I^{(1)}$=50.6, $I^{(2)}$=60.6, ħω=0.481
A 3598+x, J+8, <17 fs γ_{2603+x} *995* (†$_\gamma$1.03 *13*) $I^{(1)}$=51.3, $I^{(2)}$=61.5, ħω=0.514
A 4658+x, J+10, <21 fs γ_{3598+x} *1060* (†$_\gamma$1.05 *9*) $I^{(1)}$=51.9, $I^{(2)}$=59.7, ħω=0.547
A 5785+x, J+12, 14 *7* fs γ_{4658+x} *1127* (†$_\gamma$0.91 *3*) $I^{(1)}$=52.4, $I^{(2)}$=58.8, ħω=0.581
A 6980+x, J+14, 10 *8* fs γ_{5785+x} *1195* (†$_\gamma$0.94 *7*) $I^{(1)}$=52.7, $I^{(2)}$=58.0, ħω=0.615
A 8244+x, J+16, <14 fs γ_{6980+x} *1264* (†$_\gamma$0.84 *3*) $I^{(1)}$=53.0, $I^{(2)}$=56.3, ħω=0.650
A 9579+x, J+18, <7 fs γ_{8244+x} *1335* (†$_\gamma$0.62 *11*) $I^{(1)}$=53.2, $I^{(2)}$=54.1, ħω=0.686
A 10988+x, J+20, <10 fs γ_{9579+x} *1409* (†$_\gamma$0.51 *9*) $I^{(1)}$=53.2, $I^{(2)}$=50.6, ħω=0.724
A 12476+x, J+22, <10 fs $\gamma_{10988+x}$ *1488* (†$_\gamma$0.29 *7*) $I^{(1)}$=53.1, $I^{(2)}$=50.6, ħω=0.764
A 14043+x, J+24, <24 fs $\gamma_{12476+x}$ *1567* (†$_\gamma$0.39 *3*) $I^{(1)}$=53.0, $I^{(2)}$=47.1, ħω=0.805
A 15695+x, J+26, <7 fs $\gamma_{14043+x}$ *1652* (†$_\gamma$0.46 *5*) $I^{(1)}$=52.7, $I^{(2)}$=44.4, ħω=0.849
A 17437+x, J+28 $\gamma_{15695+x}$ *1742* (†$_\gamma$0.21 *7*) $I^{(1)}$=52.2, $I^{(2)}$=42.6, ħω=0.895
A 19273+x, J+30 $\gamma_{17437+x}$ *1836* (†$_\gamma$0.25 *10*) $I^{(1)}$=51.7, $I^{(2)}$=42.6, ħω=0.942
A 21203+x, J+32 $\gamma_{19273+x}$ *1930* $I^{(1)}$=51.3, $I^{(2)}$=40.0, ħω=0.990
A 23233+x, J+34 $\gamma_{21203+x}$ *2030* $I^{(1)}$=50.7, $I^{(2)}$=47.6, ħω=1.036
A 25347+x, J+36 $\gamma_{23233+x}$ *2114* $I^{(1)}$=50.6, $I^{(2)}$=46.0, ħω=1.079
A 27548+x, J+38 $\gamma_{25347+x}$ *2201* $I^{(1)}$=50.4 $I^{(1)}$=50.4 $I^{(1)}$=50.4
B y, J
B 847+y, J+2 γ_y *847* $I^{(2)}$=66.7, ħω=0.439
B 1754+y, J+4 γ_{847+y} *907* $I^{(2)}$=58.8, ħω=0.471
B 2729+y, J+6 γ_{1754+y} *975* $I^{(2)}$=59.7, ħω=0.504
B 3771+y, J+8 γ_{2729+y} *1042* $I^{(2)}$=59.7, ħω=0.538
B 4880+y, J+10 γ_{3771+y} *1109* $I^{(2)}$=57.1, ħω=0.572
B 6059+y, J+12 γ_{4880+y} *1179* $I^{(2)}$=58.0, ħω=0.607
B 7307+y, J+14 γ_{6059+y} *1248* $I^{(2)}$=55.6, ħω=0.642
B 8627+y, J+16 γ_{7307+y} *1320* $I^{(2)}$=55.6, ħω=0.678
B 10019+y, J+18 γ_{8627+y} *1392* $I^{(2)}$=52.6, ħω=0.715
B 11487+y, J+20 $\gamma_{10019+y}$ *1468* $I^{(2)}$=50.0, ħω=0.754
B 13035+y, J+22 $\gamma_{11487+y}$ *1548*

C z, J
C 864+z, J+2 γ_z *864* $I^{(2)}$=64.5, ħω=0.448
C 1790+z, J+4 γ_{864+z} *926* $I^{(2)}$=54.8, ħω=0.481
C 2789+z, J+6 γ_{1790+z} *999* $I^{(2)}$=59.7, ħω=0.516
C 3855+z, J+8 γ_{2789+z} *1066* $I^{(2)}$=58.8, ħω=0.550
C 4989+z, J+10 γ_{3855+z} *1134* $I^{(2)}$=54.8, ħω=0.585
C 6196+z, J+12 γ_{4989+z} *1207* $I^{(2)}$=51.9, ħω=0.623
C 7480+z, J+14 γ_{6196+z} *1284* $I^{(2)}$=52.6, ħω=0.661
C 8840+z, J+16 γ_{7480+z} *1360* $I^{(2)}$=45.5, ħω=0.702
C 10288+z, J+18 γ_{8840+z} *1448* $I^{(2)}$=47.1, ħω=0.745
C 11821+z, J+20 $\gamma_{10288+z}$ *1533*

$^{133}_{59}$Pr

Δ: (−78060) S_n: (10800) S_p: (2900) Q_{EC}: (4300) Q_α: (860)

Nuclear Bands

A SD band

Levels:

0 5/2(+), 6.5 3 m, %EC+%β^+=100

A x, J

A 840+x, J+2 γ_x *840* $I^{(2)}$*=58.8, ħω=0.437*

A 1748+x, J+4 γ_{840+x} *908* $I^{(2)}$*=57.1, ħω=0.472*

A 2726+x, J+6 γ_{1748+x} *978* $I^{(2)}$*=56.3, ħω=0.507*

A 3775+x, J+8 γ_{2726+x} *1049* $I^{(2)}$*=55.6, ħω=0.542*

A 4896+x, J+10 γ_{3775+x} *1121* $I^{(2)}$*=56.3, ħω=0.578*

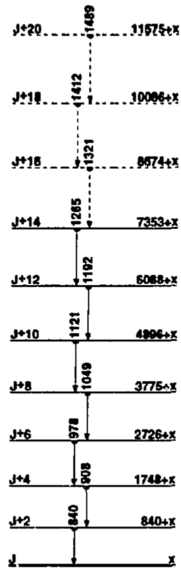
A 6088+x, J+12 γ_{4896+x} *1192* $I^{(2)}$*=54.8, ħω=0.614*

A 7353+x, J+14 γ_{6088+x} *1265* $I^{(2)}$*=71.4, ħω=0.647*

A 8674+x (?), J+16 γ_{7353+x} *1321* (?) $I^{(2)}$*=44.0, ħω=0.683*

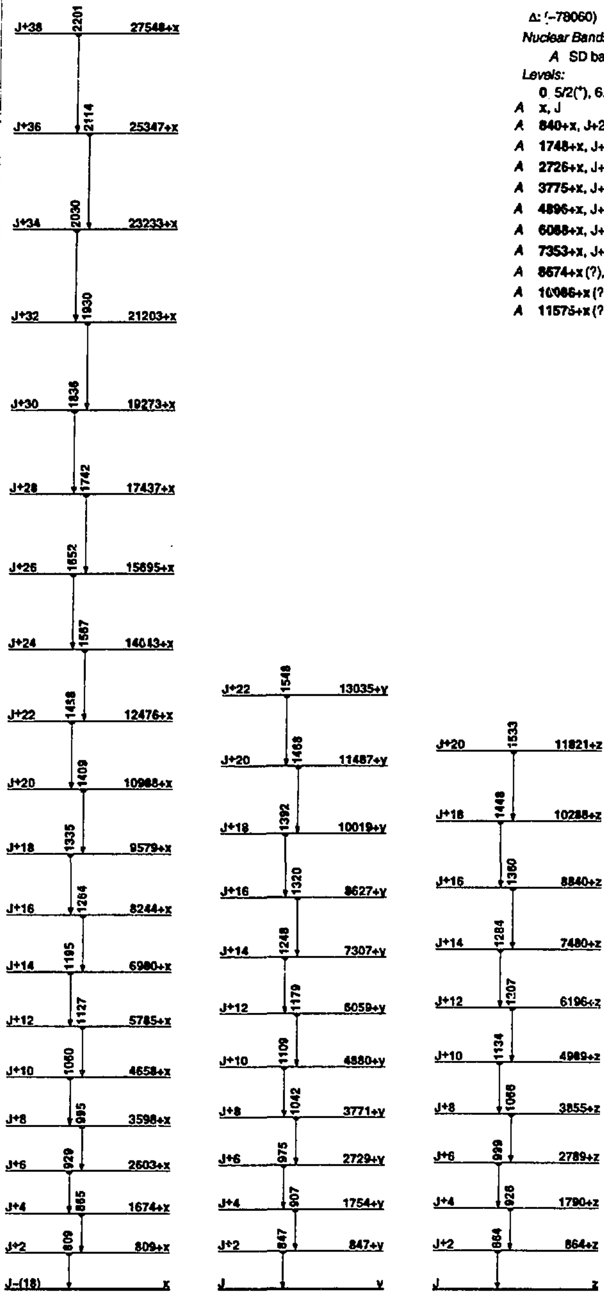
A 10086+x (?), J+18 γ_{8674+x} *1412* (?) $I^{(2)}$*=51.9, ħω=0.725*

A 11575+x (?), J+20 $\gamma_{10086+x}$ *1489* (?)



SD band

$^{133}_{59}$Pr



SD-1 band SD-2 band SD-3 band

$^{132}_{58}$Ce

$^{133}_{60}$Nd

Δ: (−72500) S_n: (8900) S_p: (4400) Q_{EC}: (5600) Q_α: (1400)

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 70 *10* s, %EC+%β^+=100

0+x, (9/2⁻), <2 m, %EC+%β^+=100

162.9+x, (11/2⁻) γ_{0+x} *162.8* ($\dagger_\gamma$100) M1+E2

470.7+x, (13/2⁻) γ_{163+x} *307.7* ($\dagger_\gamma$91 *18*) M1+E2 γ_{0+x} *470.8* ($\dagger_\gamma$100 *12*) E2

660.8+x, (15/2⁻) γ_{471+x} *190.3* ($\dagger_\gamma$19 *4*) M1+E2 γ_{163+x} *498.0* ($\dagger_\gamma$100) E2

974.3+x, (15/2⁻) γ_{471+x} *503.6* ($\dagger_\gamma$=100)

1088.9+x, (17/2⁻) γ_{661+x} *428.3* ($\dagger_\gamma$100 *16*) M1+E2 γ_{471+x} *618*

1284.8+x, (19/2⁻) γ_{661+x} *624.0* ($\dagger_\gamma$100) E2

1994.4+x, (23/2⁻) γ_{1285+x} *709.6* ($\dagger_\gamma$<100) E2

2765+x, (27/2⁻) γ_{1994+x} *770.5* ($\dagger_\gamma$100) (E2)

A y, (17/2) *γ667* *γ1189*

A 345+y, (21/2) γ_y *345* $I^{(1)}$=*58.0*, $I^{(2)}$=*41.7*, $\hbar\omega$=*0.197* *γ409*

A 786+y, (25/2) γ_{345+y} *441* ($\dagger_\gamma$0.65) $I^{(1)}$=*54.4*, $I^{(2)}$=*54.8*, $\hbar\omega$=*0.239*

A 1300+y, (29/2) *γ307* γ_{786+y} *514* ($\dagger_\gamma$0.70) $I^{(1)}$=*54.5*, $I^{(2)}$=*44.4*, $\hbar\omega$=*0.279* *γ633*

A 1904+y, (33/2) γ_{1300+y} *604* ($\dagger_\gamma$1.00) $I^{(1)}$=*53.0*, $I^{(2)}$=*50.6*, $\hbar\omega$=*0.322*

A 2587+y, (37/2) γ_{1904+y} *683* ($\dagger_\gamma$0.90) $I^{(1)}$=*52.7*, $I^{(2)}$=*50.6*, $\hbar\omega$=*0.361*

A 3349+y, (41/2) γ_{2587+y} *762* ($\dagger_\gamma$1.00) $I^{(1)}$=*52.5*, $I^{(2)}$=*54.1*, $\hbar\omega$=*0.400*

A 4185+y, (45/2) γ_{3349+y} *836* ($\dagger_\gamma$0.75) $I^{(1)}$=*52.6*, $I^{(2)}$=*58.8*, $\hbar\omega$=*0.435*

A 5089+y, (49/2) γ_{4185+y} *904* ($\dagger_\gamma$0.75) $I^{(1)}$=*53.1*, $I^{(2)}$=*63.5* $\hbar\omega$=*0.468*

A 6056+y, (53/2) γ_{5089+y} *967* ($\dagger_\gamma$0.60) $I^{(1)}$=*53.8*, $I^{(2)}$=*64.5*, $\hbar\omega$=*0.499*

A 7085+y, (57/2) γ_{6056+y} *1029* ($\dagger_\gamma$0.60) $I^{(1)}$=*54.4*, $I^{(2)}$=*63.5*, $\hbar\omega$=*0.530*

A 8177+y, (61/2) γ_{7085+y} *1092* ($\dagger_\gamma$0.40) $I^{(1)}$=*54.9*, $I^{(2)}$=*60.6*, $\hbar\omega$=*0.563*

A 9335+y, (65/2) γ_{8177+y} *1158* ($\dagger_\gamma$0.20) $I^{(1)}$=*55.3*, $I^{(2)}$=*57.1*, $\hbar\omega$=*0.597*

A 10563+y, (69/2) γ_{9335+y} *1228* ($\dagger_\gamma$0.20) $I^{(1)}$=*55.4*, $I^{(2)}$=*55.6*, $\hbar\omega$=*0.632*

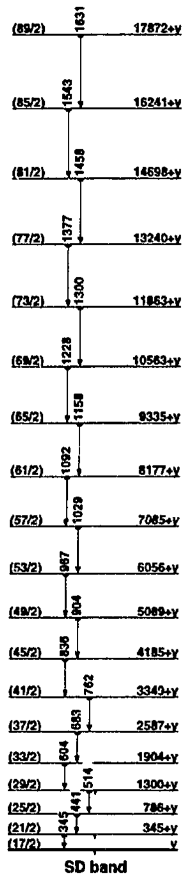
A 11863+y, (73/2) $\gamma_{10563+y}$ *1300* ($\dagger_\gamma$0.10) $I^{(1)}$=*55.4*, $I^{(2)}$=*51.9*, $\hbar\omega$=*0.669*

A 13240+y, (77/2) $\gamma_{11863+y}$ *1377* ($\dagger_\gamma$0.05) $I^{(1)}$=*55.2*, $I^{(2)}$=*49.4*, $\hbar\omega$=*0.709*

A 14698+y, (81/2) $\gamma_{13240+y}$ *1458* $I^{(1)}$=*54.9*, $I^{(2)}$=*47.1*, $\hbar\omega$=*0.750*

A 16241+y, (85/2) $\gamma_{14698+y}$ *1543* $I^{(1)}$=*54.4*, $I^{(2)}$=*45.5*, $\hbar\omega$=*0.793*

A 17872+y, (89/2) $\gamma_{16241+y}$ *1631* $I^{(1)}$=*54.0*



$^{133}_{60}$Nd

$^{134}_{60}$Nd

Δ: (−75760) S_n: (11400) S_p: (5000) Q_{EC}: 2770 *150* Q_α: (1300)

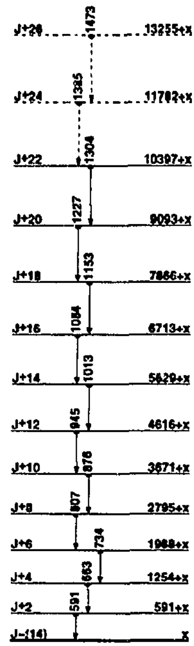
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 0⁺, 8.5 *15* m, %EC+%β⁺=100
294.30 *16*, 2⁺, 64 *4* ps, μ=+1.23 *36* γ_0*294.22* (I_γ100) E2
753.73 *16*, (2⁺) γ_{294}*459.32* (I_γ90 *10*) γ_0*753.82* (I_γ100 *10*)
788.97 *21*, 4⁺, <3.5 ps γ_{294}*494.72* (I_γ100) E2
1089.02 *21*, (3⁺) γ_{754}*335.33* (I_γ24 *5*) γ_{294}*794.72* (I_γ100 *8*)
1313.01 *21*, (4⁺) γ_{789}*523.82* (I_γ52 *10*) γ_{754}*559.22* (I_γ100 *15*)
1383.8 *4* γ_{789}*594.74* (I_γ60 *26*) γ_0*1384.05* (I_γ100 *30*)
1420.10 *25*, 6⁺, <9 ps γ_{789}*631.32* (I_γ100) E2
1605.0 *3* γ_{1089}*516.03* (I_γ100 *14*) γ_{754}*851.33* (I_γ34 *7*)
1669.3 *6* γ_{294}*1375.05* (I_γ100)
1670.9 *5* γ_{789}*881.94* (I_γ100)
1697.6 *4*, (5⁺) γ_{1089}*608.63* (I_γ100)
1910.6 *3*, (6⁺) γ_{1420}*491 1* (I_γ<20) γ_{1313}*597.32* (I_γ100 *10*)
1956.2 *3*, (5⁻) γ_{789}*1167.32* (I_γ100) (E1)
2036.4 *5* γ_{789}*1247.44* (I_γ100)
2126.5 *3*, 8⁺ γ_{1420}*706.42* (I_γ100) E2
2231.6 *6* γ_{789}*1442.65* (I_γ100)
2293.1 *4*, (8⁻), 410 *30* μs, %IT=100 γ_{2127}*166.63* (I_γ100 *7*) E1 γ_{1420}*874* (I_γ7 *2*)
2340.6 *3*, (7⁻) γ_{1956}*384.62* (I_γ34 *5*) (E2) γ_{1420}*920.42* (I_γ100 *2*) (E1)
2412.5 *3*, (6⁻) γ_{1420}*992.42* (I_γ100)
2457.2 *3*, (8⁺) γ_{1911}*556.32* (I_γ100 *7*) γ_{1420}*1047.32* (I_γ95 *9*)
2728.5 *3*, (8⁻) γ_{2413}*316.02* (I_γ33 *5*) (E2) γ_{2341}*387.82* (I_γ100 *11*) D
2816.9 *4*, 10⁺, 9.0 *14* ps, μ=0 γ_{2127}*690.42* (I_γ100) E2
2840.7 *4*, (9⁻) γ_{2341}*500.12* (I_γ100) (E2)
3052.0 *3*, (10⁺) γ_{2457}*594.72* (I_γ100 *7*) γ_{2127}*925.62* (I_γ100 *10*) (E2)
3200.2 *4*, (10⁻) γ_{2729}*471.72* (I_γ100) (E2)
3436.5 *4*, (12⁺) γ_{3052}*384.62* (I_γ83 *4*) (E2) γ_{2817}*619.52* (I_γ100 *6*)
3453.0 *4*, (11⁻) γ_{2841}*612.32* (I_γ100) (E2)
3483.0 *4*, 12⁺ γ_{2817}*666.02* (I_γ100) E2
3863.0 *5*, (12⁻) γ_{3200}*662.82* (I_γ100) (E2)
4028.2 *4*, (14⁺) γ_{3483}*545* γ_{3437}*591.72* (I_γ100) (E2)
4175.4 *5*, (13⁻) γ_{3453}*722.42* (I_γ100) (E2)
4183.7 *5*, 14⁺ γ_{3483}*700.72* (I_γ100) E2
4607.5 *5*, (14⁻) γ_{3863}*744.52* (I_γ100) (E2)
4776.7 *5*, (16⁺) γ_{4028}*748.52* (I_γ100) (E2)
4942.7 *5*, 16⁺ γ_{4184}*759.02* (I_γ100) E2
4947.9 *5*, (15⁻) γ_{4175}*772.52* (I_γ100) (E2)
5345.9 *5*, (16⁻) γ_{4608}*738.42* (I_γ100) (E2)
5629.7 *11*, (18⁺) γ_{4777}*853 1* (I_γ100) (E2)
5711.0 *6*, (17⁻) γ_{4948}*763.12* (I_γ100)
5777.7 *11*, 18⁺ γ_{4943}*835 1* (I_γ100) E2
6082.5 *6*, (18⁻) γ_{5346}*736.62* (I_γ100)
6488.0 *12*, (19⁻) γ_{5711}*777* (I_γ100)
6531.7 *15*, (20⁺) γ_{5630}*902* (I_γ100)
6710.7 *15*, 20⁺ γ_{5778}*933* (I_γ100) E2
6891.5 *12*, (20⁻) γ_{6083}*809* (I_γ100)
7358.0 *15*, (21⁻) γ_{6488}*870* (I_γ100)
7467.7 *18*, (22⁺) γ_{6532}*936* (I_γ100)
7744.7 *18*, (22⁺) γ_{6711}*1034* (I_γ100)
7804.5 *16*, (22⁻) γ_{6892}*913* (I_γ100)
8328.0 *18*, (23⁻) γ_{7358}*970* (I_γ100)
8453.7 *21*, (24⁺) γ_{7468}*986* (I_γ100)
8812.5 *19*, (24⁻) γ_{7805}*1008* (I_γ100)
8869.7 *21*, (24⁺) γ_{7745}*1125* (I_γ100)
9371.1 *21*, (25⁻) γ_{8328}*1043* (I_γ100)
9501.7 *23*, (26⁺) γ_{8454}*1048* (I_γ100)
10079.7 *23*, (26⁺) γ_{8870}*1210* (I_γ100)
10616.7 *25*, (28⁺) γ_{9502}*1115* (I_γ100)
11787 *3*, (30⁺) γ_{10617}*1170* (I_γ100)

A x, J=(14)
A 591+x, J+2 γ_x*591* (I_γ0.5 *1*) $I^{(1)}$=*52.5*, $I^{(2)}$=*55.6*, ħω=*0.314*
A 1254+x, J+4 γ_{591+x}*663* (I_γ1.0 *1*) $I^{(1)}$=*52.8*, $I^{(2)}$=*56.3*, ħω=*0.349*
A 1988+x, J+6 γ_{1254+x}*734* (I_γ1.1 *1*) $I^{(1)}$=*53.1*, $I^{(2)}$=*54.8*, ħω=*0.385*
A 2795+x, J+8 γ_{1988+x}*807* (I_γ0.9 *1*) $I^{(1)}$=*53.3*, $I^{(2)}$=*58.0*, ħω=*0.421*
A 3671+x, J+10 γ_{2795+x}*876* (I_γ1.0 *1*) $I^{(1)}$=*53.7*, $I^{(2)}$=*58.0*, ħω=*0.455*
A 4616+x, J+12 γ_{3671+x}*945* (I_γ1.1 *1*) $I^{(1)}$=*54.0*, $I^{(2)}$=*58.8*, ħω=*0.489*
A 5629+x, J+14 γ_{4616+x}*1013* (I_γ1.0 *1*) $I^{(1)}$=*54.3*, $I^{(2)}$=*56.3*, ħω=*0.524*
A 6713+x, J+16 γ_{5629+x}*1084* (I_γ0.8 *1*) $I^{(1)}$=*54.4*, $I^{(2)}$=*58.0*, ħω=*0.559*
A 7866+x, J+18 γ_{6713+x}*1153* (I_γ0.6 *1*) $I^{(1)}$=*54.6*, $I^{(2)}$=*54.1*, ħω=*0.595*
A 9093+x, J+20 γ_{7866+x}*1227* (I_γ0.5 *1*) $I^{(1)}$=*54.6*, $I^{(2)}$=*51.9*, ħω=*0.633*
A 10397+x, J+22 γ_{9093+x}*1304* (I_γ0.5 *1*) $I^{(1)}$=*54.4*, $I^{(2)}$=*49.4*, ħω=*0.672*
A 11782+x(?), J+24 $\gamma_{10397+x}$*1385*(?) (I_γ0.3 *1*) $I^{(1)}$=*54.2*, $I^{(2)}$=*45.5*, ħω=*0.714*
A 13255+x(?), J+26 $\gamma_{11782+x}$*1473*(?) (I_γ0.4 *1*) $I^{(1)}$=*53.6*



SD band

$^{134}_{60}$Nd

$^{135}_{60}$Nd

Δ: (−76160) S_n: (8500) S_p: (4900) Q_{EC}: (4750) Q_α: (1100)

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 9/2(⁻), 12.4 *6* m, %EC+%β^+=100

0+x (?), 5.5 *5* m, %EC+%β^+=100

198.5 *2*, (11/2⁻) γ_0 ***198.5*** *2* (I_γ100) M1+E2

463.5 *1* (?) γ_0 ***463.5*** *1* (I_γ100)

560.5 *4*, (13/2⁻) γ_{198} ***362.2*** *4* (I_γ100 *10*) M1+E2 γ_0 ***560.3*** *6* (I_γ45 *5*)

792.8 *4*, (15/2⁻) γ_{561} ***232.2*** *3* (I_γ39 *4*) M1+E2 γ_{198} ***594.1*** *6* (I_γ100 *10*) E2

1158.8 *6* (?) γ_{198} ***962.0*** *10* (I_γ≈70) γ_0 ***1158.2*** *6* (I_γ100 *30*)

1176.9 *2* γ_{464} ***713.4*** *2* (I_γ81 *10*) γ_{198} ***978.3*** *2* (I_γ100 *7*) γ_0 ***1177.0*** *3* (I_γ46 *5*)

1269.6 *5*, (17/2⁻) γ_{793} ***476.5*** *5* (I_γ100 *10*) M1+E2 γ_{561} ***709.6*** *7* (I_γ53 *6*) E2

1520.2 *6*, (19/2⁻) γ_{1270} ***250.6*** *3* (I_γ9 *3*) γ_{793} ***727.6*** *7* (I_γ100 *10*) E2

A y, J=(25/2), 1.7 *6* ps γ***549.6*** (I_γ0.18 *6*) γ***620.3*** (I_γ0.10 *3*) γ***767***(?) (I_γ<0.1) γ***949***(?)

A **545.9+y**, J+2, 1.0 *4* ps γ***529.4*** (I_γ0.20 *6*) γ_y***545.9*** (I_γ0.83 *8*) *$I^{(1)}$=51.3, $I^{(2)}$=70.4, ħω=0.287*

A **1148.6+y**, J+4, 0.44^{+26}_{-8} *ps* γ_{546+y}***602.7*** (I_γ1.05 *10*) *$I^{(1)}$=53.1, $I^{(2)}$=54.2, ħω=0.320*

A **1825.1+y**, J+6, 0.21^{+14}_{-8} *ps* γ_{1149+y}***676.5*** (I_γ0.80 *8*) *$I^{(1)}$=53.2, $I^{(2)}$=55.0, ħω=0.356*

A **2574.3+y**, J+8, <0.15 ps γ_{1825+y}***749.2*** (I_γ0.75 *8*) *$I^{(1)}$=53.4, $I^{(2)}$=58.7, ħω=0.392*

A **3391.7+y**, J+10 γ_{2574+y}***817.4*** (I_γ0.65 *7*) *$I^{(1)}$=53.8, $I^{(2)}$=61.4, ħω=0.425*

A **4274.2+y**, J+12 γ_{3392+y}***882.5*** (I_γ0.66 *7*) *$I^{(1)}$=54.4, $I^{(2)}$=62.4, ħω=0.457*

A **5220.8+y**, J+14 γ_{4274+y}***946.6*** (I_γ0.55 *7*) *$I^{(1)}$=54.9, $I^{(2)}$=62.0, ħω=0.489*

A **6231.9+y**, J+16 γ_{5221+y}***1011.1*** (I_γ0.42 *6*) *$I^{(1)}$=55.4, $I^{(2)}$=59.6, ħω=0.522*

A **7310.1+y**, J+18 γ_{6232+y}***1078.2*** (I_γ0.33 *6*) *$I^{(1)}$=55.6, $I^{(2)}$=59.1, ħω=0.556*

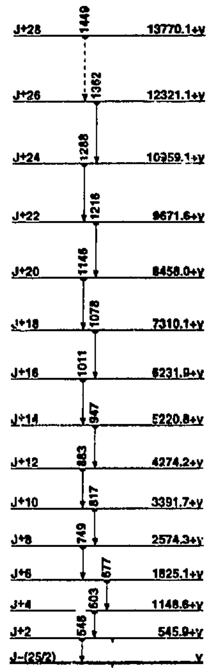
A **8456.0+y**, J+20 γ_{7310+y}***1145.9*** (I_γ0.25 *6*) *$I^{(1)}$=55.9, $I^{(2)}$=57.4, ħω=0.590*

A **9671.6+y**, J+22 γ_{8456+y}***1215.6*** (I_γ0.16 *5*) *$I^{(1)}$=55.9, $I^{(2)}$=55.6, ħω=0.626*

A **10959.1+y**, J+24 γ_{9672+y}***1287.5*** (I_γ0.09 *4*) *$I^{(1)}$=55.9, $I^{(2)}$=53.7, ħω=0.662*

A **12321.1+y**, J+26 $\gamma_{10959+y}$***1362*** (I_γ<0.1) *$I^{(1)}$=55.8, $I^{(2)}$=46.0, ħω=0.703*

A **13770.1+y**, J+28 $\gamma_{12321+y}$***1449***(?) *$I^{(1)}$=55.2*



SD band

$^{135}_{60}$Nd

$^{136}_{60}$Nd

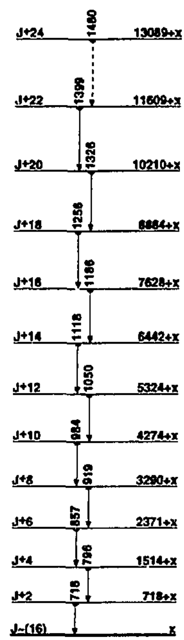
Δ: −79160 *60* S_n: (11070) S_p: 5540 *160* Q_{EC}: 2211 *25* Q_α: (860)

Nuclear Bands

- *A* GS band
- *B* γ band
- *C* $\pi h_{11/2}\pi g_{7/2}$ α=−1
- *D* $\pi h_{11/2}\pi g_{7/2}$ α=0
- *E* Aligned $(\nu h_{11/2})^2$
- *F* Aligned $(\pi h_{11/2})^2$
- *G* $\nu h_{11/2}\nu g_{7/2}$? α=−1, γ=−60°
- *H* $h_{11/2}g_{7/2}$ α=−1
- *I* $\nu h_{11/2}\nu g_{7/2}$? α=0, γ=−60°
- *J* $h_{11/2}g_{7/2}$
- *K* SD band

Levels and γ-ray branchings:

A **0**, 0⁺, 50.65 *33* m, %EC+%β⁺=100
A **373.6** *3*, 2⁺ γ_0***373.8*** *2* (†$_\gamma$100) E2
B **862.51** *16*, 2⁺ γ_{374}***488.7*** *2* (†$_\gamma$98 *10*) E2+M1 γ_0***862.5*** *2* (†$_\gamma$100 *10*) E2
A **976.3** *4*, 4⁺ <9 ps γ_{374}***602.7*** *2* (†$_\gamma$100) E2
B **1231.04** *18*, (3)⁺ γ_{976}***254.7*** *2* (†$_\gamma$≈2) γ_{863}***368.7*** *2* (†$_\gamma$27 *3*) γ_{374}***857.2*** *2* (†$_\gamma$100 *10*) E2+M1
B **1541.77** *20*, (4⁺) γ_{976}***565.2*** *2* (†$_\gamma$33 *4*) γ_{863}***679.2*** *2* (†$_\gamma$100 *10*)
A **1746.8** *5*, 6⁺, <14 ps γ_{976}***770.3*** *2* (†$_\gamma$100) E2
1775.6 *3* γ_{374}***1401.8*** *2* (†$_\gamma$100)
1817.83 *21* γ_{1231}***586.9*** *2* (†$_\gamma$100 *10*) γ_{863}***955.2*** *2* (†$_\gamma$100 *10*)
1926.03 *24* γ_{1231}***695.0*** *2* (†$_\gamma$100)
C **2035.9** *5*, 5(⁻) γ_{976}***1059.4*** *2* (†$_\gamma$100) D
B **2045.9** *5*, (5⁺) γ_{1542}***503.7*** *2* (†$_\gamma$4.3 *4*) γ_{1231}***814.7*** *2* (†$_\gamma$100 *10*) Q γ_{976}***1069.1*** *2* (†$_\gamma$16.1 *16*)
2181.2 *3* γ_{976}***1204.7*** *2* (†$_\gamma$100)
2227.93 *24*, (3,4,5) γ_{2036}***192.4*** *2* (†$_\gamma$74 *8*) γ_{976}***1251.3*** *2* (†$_\gamma$100 *10*)
2346.22 *25* γ_{2046}***300.6*** *2* (†$_\gamma$100 *10*) γ_{1926}***420.2*** *2* (†$_\gamma$31 *3*)
2416.7 *3* γ_{2046}***371.1*** *2* (†$_\gamma$100)
C **2439.9** *5*, 7(⁻), 21 *7* ps γ_{2036}***404.5*** *2* (†$_\gamma$29.4 *10*) E2 γ_{1747}***693.1*** *2* (†$_\gamma$100.0 *14*)
D **2483.9** *5*, 6(⁻) γ_{2046}***438.1*** *4* (†$_\gamma$59 *9*) γ_{2036}***448.0*** *5* (†$_\gamma$77 *9*) D γ_{1747}***737.1*** *5* (†$_\gamma$100 *18*) D
2522.9 *3* γ_{863}***1660.4*** *2* (†$_\gamma$100)
A **2632.7** *7*, 8⁺, <7 ps γ_{1747}***886.1*** *3* (†$_\gamma$100) E2
D **2757.8** *5*, 8(⁻) γ_{2484}***273.9*** *3* (†$_\gamma$66 *4*) Q γ_{2440}***317.9*** *3* (†$_\gamma$100 *4*) D
C **2941.1** *5*, 9(⁻), 6 *2* ps γ_{2440}***501.2*** *3* (†$_\gamma$100) E2
D **3244.4** *6*, (10⁻) γ_{2941}***303.3*** *3* (†$_\gamma$31 *3*) D γ_{2758}***486.5*** *3* (†$_\gamma$100 *4*) Q
E **3278.7** *6*, 10⁺ γ_{2633}***645.8*** *3* (†$_\gamma$100) Q
F **3296.5** *6*, 10⁺, 51 *6* ps, μ=+11.7 *39* γ_{2941}***355.4*** *3* (†$_\gamma$35.9 *9*) γ_{2633}***663.5*** *3* (†$_\gamma$100.0 *21*) E2
A **3552.6** *6*, 10⁺ γ_{2633}***919.7*** *3* (†$_\gamma$100) Q
C **3602.3** *6*, 11(⁻) γ_{2941}***661.2*** *3* (†$_\gamma$100) Q
F **3686.5** *6*, 12⁺, 19 *3* ps, μ=+14.0 *46* γ_{3297}***390.1*** *3* (†$_\gamma$100) E2
G **3768.2** *7*, (9⁻) γ_{2633}***1135.1*** *5* (†$_\gamma$100) D
E **3997.3** *7*, (12⁺) γ_{3279}***718.6*** *3* (†$_\gamma$100) Q
D **4016.8** *8*, (12⁻) γ_{3244}***772.4*** *5* (†$_\gamma$100)
G **4320.0** *6*, (11⁻) γ_{3768}***551.8*** *3* (†$_\gamma$29 *3*) Q γ_{3553}***767.5*** *3* (†$_\gamma$100 *3*) D
F **4347.5** *6*, 14⁺, <4 ps γ_{3687}***661.0*** *3* (†$_\gamma$100) E2
C **4426.6** *6*, (13⁻) γ_{3602}***824.3*** *3* (†$_\gamma$4.7 *3*) Q
H **4455.7** *7*, (12) γ_{3687}***769.2*** *5* (†$_\gamma$15.7 *9*)
E **4849.1** *8*, (14⁺) γ_{3997}***851.8*** *3* (†$_\gamma$100) Q
J **4855.9** *7*, (13) γ_{3687}***1169.3*** *5* (†$_\gamma$100) D
I **5022.5** *7*, (12⁻) γ_{4320}***702.5*** *3* (†$_\gamma$100) D
D **5022.7** *8*, (14⁻) γ_{4017}***1005.9*** *3* (†$_\gamma$100) Q
G **5032.0** *7*, (13⁻) γ_{4320}***711.9*** *5* (†$_\gamma$100) Q
H **5132.7** *8*, (14) γ_{4456}***677.0*** *5* (†$_\gamma$74 *12*) Q γ_{4348}***785.2*** *5* (†$_\gamma$100 *6*) D
F **5192.2** *7*, (16⁺) γ_{4348}***844.7*** *3* (†$_\gamma$100) Q
C **5415.8** *7*, (15⁻) γ_{4427}***989.1*** *3* (†$_\gamma$1.9 *3*) Q
J **5570.2** *7*, (15) γ_{4856}***714.3*** *3* (†$_\gamma$93 *22*) Q γ_{4348}***1222.7*** *4* (†$_\gamma$100 *36*) D
I **5695.6** *7*, (14⁻) γ_{5032}***663.3*** *5* (†$_\gamma$72 *21*) $\gamma_{5022.5}$***673.1*** *3* (†$_\gamma$100 *7*) Q
E **5844.1** *8*, (16⁺) γ_{4849}***994.9*** *3* (†$_\gamma$100) Q
G **5876.0** *9*(?), (15⁻) γ_{5032}***844.0*** *5*(?)
H **5942.2** *9*, (16) γ_{5133}***809.5*** *5* (†$_\gamma$100)
D **6040.4** *9*, (16⁻) $\gamma_{5022.7}$***1017.7*** *3* (†$_\gamma$100) Q
F **6191.7** *7*, (18⁺) γ_{5192}***999.5*** *3* (†$_\gamma$100) Q
C **6360.6** *7*, (17⁻) γ_{5416}***944.8*** *3* (†$_\gamma$84 *8*) Q γ_{5192}***1168.4*** *3* (†$_\gamma$100 *8*) D
J **6472.1** *9*(?), (17) γ_{5570}***901.9*** *5*(?)
I **6522.7** *8*, (16⁻) γ_{5696}***827.1*** *3* (†$_\gamma$100)
D **6675.9** *9*, (18⁻) γ_{6040}***635.5*** *3* (†$_\gamma$100)
E **6756.3** *9*, (18⁺) γ_{5844}***912.2*** *3* (†$_\gamma$100) Q
G **6771.0** *14*(?), (17⁻) γ_{5876}***895*** *1*(?)
H **6930.8** *10*, (18) γ_{5942}***988.6*** *5* (†$_\gamma$100) Q
C **7142.1** *8*, (19⁻) γ_{6361}***781.5*** *4* (†$_\gamma$100) Q
F **7238.1** *9*, (20⁺) γ_{6192}***1046.4*** *5* (†$_\gamma$100) Q
I **7374.4** *9*(?), (18⁻) γ_{6523}***851.7*** *3*(?)
J **7497.1** *14*(?), (19) γ_{6472}***1025*** *1*(?)
D **7533.4** *10*, (20⁻) γ_{6676}***857.5*** *4* (†$_\gamma$100)
H **8025.8** *14*(?), (20) γ_{6931}***1095*** *1*(?)
C **8050.1** *9*, (21⁻) γ_{7142}***908.0*** *5* (†$_\gamma$100) Q
F **8329.1** *14*(?), (22⁺) γ_{7238}***1091*** *1*(?)
D **8566.4** *14*(?), (22⁻) γ_{7533}***1033*** *1*(?)
C **9072.7** *11*(?), (23⁻) γ_{8050}***1022.6*** *5*(?)
D **9728.4** *18*(?), (24⁻) γ_{8566}***1162*** *1*(?)
C **10175.7** *15*(?), (25⁻) γ_{9073}***1103*** *1*(?)
K **x**, J=(16)
K **718+x**, J+2 γ_x***718*** (†$_\gamma$0.4 *1*) $I^{(1)}$=48.7, $I^{(2)}$=51.3, ħω=0.379
K **1514+x**, J+4 γ_{718+x}***796*** (†$_\gamma$1.0 *1*) $I^{(1)}$=49.0, $I^{(2)}$=65.6, ħω=0.413
K **2371+x**, J+6 γ_{1514+x}***857*** (†$_\gamma$1.1 *1*) $I^{(1)}$=50.2, $I^{(2)}$=64.5, ħω=0.444
K **3290+x**, J+8 γ_{2371+x}***919*** (†$_\gamma$1.0 *1*) $I^{(1)}$=51.1, $I^{(2)}$=61.5, ħω=0.476
K **4274+x**, J+10 γ_{3290+x}***984*** (†$_\gamma$0.9 *1*) $I^{(1)}$=51.8, $I^{(2)}$=60.6, ħω=0.508
K **5324+x**, J+12 γ_{4274+x}***1050*** (†$_\gamma$0.8 *1*) $I^{(1)}$=52.4, $I^{(2)}$=58.8, ħω=0.542
K **6442+x**, J+14 γ_{5324+x}***1118*** (†$_\gamma$0.7 *1*) $I^{(1)}$=52.8, $I^{(2)}$=58.8, ħω=0.576
K **7628+x**, J+16 γ_{6442+x}***1186*** (†$_\gamma$0.6 *1*) $I^{(1)}$=53.1, $I^{(2)}$=57.1, ħω=0.611
K **8884+x**, J+18 γ_{7628+x}***1256*** (†$_\gamma$0.5 *1*) $I^{(1)}$=53.3, $I^{(2)}$=57.1, ħω=0.645
K **10210+x**, J+20 γ_{8884+x}***1326*** (†$_\gamma$0.4 *1*) $I^{(1)}$=53.5, $I^{(2)}$=54.8, ħω=0.681
K **11609+x**, J+22 $\gamma_{10210+x}$***1399*** (†$_\gamma$0.3 *1*) $I^{(1)}$=53.6, $I^{(2)}$=49.4, ħω=0.720
K **13089+x**, J+24 $\gamma_{11609+x}$***1480***(?) (†$_\gamma$0.2 *1*) $I^{(1)}$=53.4



SD band

$^{136}_{60}$Nd

$^{137}_{60}$Nd

Δ: −79510 *70* S_n: 8430 *60* S_p: 5430 *60* Q_{EC}: 3690 *50* Q_α: (450)

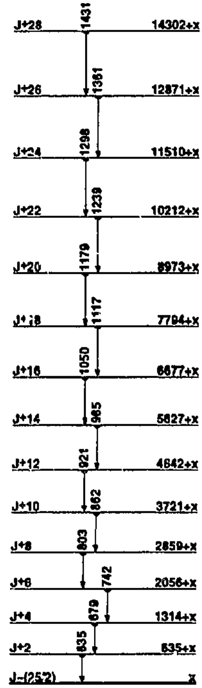
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 1/2$^+$, 38.5 *15* m, %EC+%β^+=100
108.6 *2*, 3/2$^+$ γ_0 ***108.6*** *2* ($\dagger_\gamma$100) M1(+E2)
268.7 *3*, (3/2)$^+$ γ_{109} ***160.5*** *4* ($\dagger_\gamma$19.4 *4*) M1,E2 γ_0 ***268.7*** *3* ($\dagger_\gamma$100.0 *8*) M1,E2
286.0 *2*, 5/2$^+$ γ_{109} ***177.5*** *2* ($\dagger_\gamma$100.0 *3*) M1(+E2) γ_0 ***286.0*** *2* ($\dagger_\gamma$39.9 *2*) E2
519.6 *5*, 11/2$^-$, 1.60 *15* s, %IT=100 γ_{286} ***233.6*** *3* ($\dagger_\gamma$100) E3
614.9 *6*, 7/2$^+$ γ_{286} ***328.5*** *5* ($\dagger_\gamma$47 *1*) M1,E2 γ_{109} ***506.0*** *10* ($\dagger_\gamma$100 *25*)
797.8 *6* γ_{286} ***512.0*** *10* (?) γ_{269} ***529.2*** *4* ($\dagger_\gamma$100)
834.5 *6*, (7/2$^+$) γ_{286} ***548.8*** *3* ($\dagger_\gamma$100 *2*) γ_{269} ***565.6*** *3* ($\dagger_\gamma$<66)
851.5 *6*, (7/2$^+$) γ_{286} ***565.6*** *3* ($\dagger_\gamma$<395) γ_{109} ***743.3*** *4* ($\dagger_\gamma$100 *6*)
976.8 *6*, 9/2$^-$ γ_{520} ***457.3*** *5* ($\dagger_\gamma$100 *2*) γ_{286} ***690.8*** *3* ($\dagger_\gamma$69 *2*) M2
1100.0 *10*, (13/2$^-$) γ_{520} ***581*** *1* ($\dagger_\gamma$100) D+Q
1188.6 *6*, (15/2$^-$) γ_{520} ***669.0*** *3* ($\dagger_\gamma$100) Q
1374.5 *7*, (7/2$^-$,5/2$^-$) γ_{977} ***397.7*** *3* ($\dagger_\gamma$100 *3*) γ_{615} ***759.5*** *5* ($\dagger_\gamma$91 *3*)
1510.6 *8*, (11/2$^-$) γ_{1100} ***410.6*** *5* ($\dagger_\gamma$100 *2*) M1,E2 γ_{977} ***533.8*** *4* ($\dagger_\gamma$<75)
  γ_{852} ***658.6*** *3* ($\dagger_\gamma$7.5 *5*)
1682.0 *14*, (15/2$^-$) γ_{1189} ***493.5*** (?) ($\dagger_\gamma$10 *1*) γ_{1100} ***582*** *1* ($\dagger_\gamma$100 *8*) M1+E2
1707.1 *8*, (9/2,11/2) γ_{615} ***1092.2*** *5* ($\dagger_\gamma$100)
1788.5 (?) γ_{1375} ***414.0*** *5* ($\dagger_\gamma$100) M1,E2
1894.4 *14*, (17/2$^-$) γ_{1189} ***705.6*** *3* ($\dagger_\gamma$100 *3*) M1+E2 γ_{1100} ***794*** *1* ($\dagger_\gamma$26 *4*) Q
1899.5 *8*, 9/2$^-$,11/2$^+$ γ_{1707} ***192.8*** *4* ($\dagger_\gamma$8.3 *5*) γ_{1511} ***389.2*** *3* ($\dagger_\gamma$43.5 *5*) M1,E2
  γ_{1375} ***525.1*** *4* ($\dagger_\gamma$20.7 *12*) γ_{1100} ***798.6*** *5* ($\dagger_\gamma$7.3 *5*) γ_{977} ***923.0*** *5* ($\dagger_\gamma$35.2 *10*)
  γ_{852} ***1047.6*** *5* ($\dagger_\gamma$10.4 *5*) γ_{835} ***1064.7*** *5* ($\dagger_\gamma$14.5 *5*) γ_{615} ***1284.7*** *5* ($\dagger_\gamma$100 *2*)
1978.5 *15*, (19/2$^-$) γ_{1682} ***295.0*** *3* ($\dagger_\gamma$86 *4*) Q γ_{1189} ***790*** *1* ($\dagger_\gamma$100 *15*) Q
1987.7 *9*, (9/2,11/2) γ_{1788} ***199.0*** *5* γ_{798} ***1189.9*** *5* ($\dagger_\gamma$100 *3*)
2222.5 *16*, (19/2$^+$) γ_{1894} ***328.1*** *3* ($\dagger_\gamma$100) D
2370.2 *10*, $^-$ γ_{1900} ***470.7*** *3* ($\dagger_\gamma$100 *1*) M1,E2 γ_{1375} ***994.7*** *5* ($\dagger_\gamma$11.5 *10*)
2433.3 *10* γ_{1900} ***533.8*** *4* ($\dagger_\gamma$100)
2629.1 *17*, (23/2$^+$) γ_{2223} ***406.7*** *3* ($\dagger_\gamma$100) Q
2722.5 *10* γ_{2370} ***352.3*** *3* ($\dagger_\gamma$100 *3*) M1,E2 γ_{1988} ***735.0*** *5* ($\dagger_\gamma$27 *1*) γ_{1900} ***821.7*** *5*
  ($\dagger_\gamma$60 *3*)
2803.9 *10* γ_{2433} ***370.6*** *3* ($\dagger_\gamma$100 *1*) M1,E2 γ_{2370} ***434.0*** *3* ($\dagger_\gamma$22.9 *12*)
  γ_{1511} ***1293.5*** *5* ($\dagger_\gamma$36 *1*)
2818.8 *17*, (21/2$^-$) γ_{1894} ***924.5*** ($\dagger_\gamma$100)

A x, J=(25/2)
A 635+x, J+2 γ_x ***635*** ($\dagger_\gamma$0.60 *7*) *$I^{(1)}$=44.1, $I^{(2)}$=90.9, ℏω=0.329*
A 1314+x, J+4 γ_{635+x} ***679*** ($\dagger_\gamma$0.85 *8*) *$I^{(1)}$=47.1, $I^{(2)}$=63.5, ℏω=0.355*
A 2056+x, J+6 γ_{1314+x} ***742*** ($\dagger_\gamma$0.78 *8*) *$I^{(1)}$=48.5, $I^{(2)}$=65.6, ℏω=0.386*
A 2859+x, J+8 γ_{2056+x} ***803*** ($\dagger_\gamma$0.80 *8*) *$I^{(1)}$=49.8, $I^{(2)}$=67.8, ℏω=0.416*
A 3721+x, J+10 γ_{2859+x} ***862*** ($\dagger_\gamma$1.00 *10*) *$I^{(1)}$=51.0, $I^{(2)}$=67.8, ℏω=0.446*
A 4642+x, J+12 γ_{3721+x} ***921*** ($\dagger_\gamma$0.90 *10*) *$I^{(1)}$=52.1, $I^{(2)}$=62.5, ℏω=0.476*
A 5627+x, J+14 γ_{4642+x} ***985*** ($\dagger_\gamma$0.75 *8*) *$I^{(1)}$=52.8, $I^{(2)}$=61.5, ℏω=0.509*
A 6677+x, J+16 γ_{5627+x} ***1050*** ($\dagger_\gamma$0.63 *8*) *$I^{(1)}$=53.3, $I^{(2)}$=59.7, ℏω=0.542*
A 7794+x, J+18 γ_{6677+x} ***1117*** ($\dagger_\gamma$0.45 *5*) *$I^{(1)}$=53.7, $I^{(2)}$=64.5, ℏω=0.574*
A 8973+x, J+20 γ_{7794+x} ***1179*** ($\dagger_\gamma$0.37 *5*) *$I^{(1)}$=54.3, $I^{(2)}$=66.7, ℏω=0.604*
A 10212+x, J+22 γ_{8973+x} ***1239*** ($\dagger_\gamma$0.25 *5*) *$I^{(1)}$=54.9, $I^{(2)}$=67.8, ℏω=0.634*
A 11510+x, J+24 $\gamma_{10212+x}$ ***1298*** ($\dagger_\gamma$0.20 *5*) *$I^{(1)}$=55.5, $I^{(2)}$=63.5, ℏω=0.665*
A 12871+x, J+26 $\gamma_{11510+x}$ ***1361*** ($\dagger_\gamma$0.15 *5*) *$I^{(1)}$=55.8, $I^{(2)}$=57.1, ℏω=0.698*
A 14302+x, J+28 $\gamma_{12871+x}$ ***1431*** ($\dagger_\gamma$0.10 *3*) *$I^{(1)}$=55.9*



SD band

$^{137}_{60}$Nd

$^{142}_{62}$Sm

Δ:−78987 15 S_n:11115 19 S_p:5790 30 Q_{EC}:2100 50 Q_α:(620)

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 0$^+$, 72.49 5 m, %EC+%β$^+$=100

768.0 2, 2$^+$ γ_0 *768.0 2* ($\dagger_\gamma$100) E2

1450.2 8, (0$^+$) γ_{768} *682.2 7* ($\dagger_\gamma$100)

1572 6

1657.7 3, (2)$^+$ γ_{768} *889.6 3* ($\dagger_\gamma$100 9) γ_0 *1658.1 5* ($\dagger_\gamma$98 23)

1784.1 3, 3$^-$ γ_{768} *1016.1 2* ($\dagger_\gamma$100) (E1)

1791.2 3, 4$^+$ γ_{768} *1023.3 2* ($\dagger_\gamma$100) E2

2055.4 4, 2$^+$ γ_{768} *1287.4 3* ($\dagger_\gamma$100 9) γ_0 *2055.5 10* ($\dagger_\gamma$37 5)

2173.2 5, 0$^+$ γ_{768} *1405.2 4* ($\dagger_\gamma$100)

2280 3, 0$^+$

2347.7 3, 5$^-$ γ_{1791} *556.6 2* ($\dagger_\gamma$100 3) E1 γ_{1784} *563.7 2* ($\dagger_\gamma$9.6 5) E2,(M1)

2371.8 4, 7$^-$, 170 2 ns, μ=+0.08, Q=+1.12 27 γ_{2348} *24.1 3* ($\dagger_{\gamma+e}$95.0) E2
γ_{1791} *580.7 4*(?) ($\dagger_{\gamma+e}$=0.5)

2415.9 1, (4) γ_{1784} *631.8*

2420.0 3, 6$^+$, <2 ns γ_{1791} *628.7 2* ($\dagger_\gamma$100)

2497 2

2582 2, 4$^+$

2656 2

2747 6, (2$^+$)

2867 1, 4$^+$

2911.8 4, 7$^-$ γ_{2420} 491.8 γ_{2372} 540.0 21 ($\dagger_\gamma$00) M1

2955 2, 4$^+$

3002.9 1, (6$^+$) γ_{1791} *1211.7* ($\dagger_\gamma$100)

3007 5

3052 3

3112.9 4, 8$^-$ γ_{2912} *200.9 5* ($\dagger_\gamma$65 12) E2,M1 γ_{2372} *741.2 2* ($\dagger_\gamma$100 12)

3118 4

3182 1

3219.8 5(?) γ_{2372} *848.0 3* ($\dagger_\gamma$100)

3245 4

3326.1 4, 8$^+$ γ_{2420} *906.4 3* ($\dagger_\gamma$86 21) γ_{2372} *954.3 2* ($\dagger_\gamma$100 14)

3386.8 5, 9$^-$ γ_{3113} *273.8 5* ($\dagger_\gamma$100 17) E2,M1 γ_{2912} *474.4 5* ($\dagger_\gamma$63 8)

3570.8 4 γ_{2420} *1151.0 3* ($\dagger_\gamma$90 18) γ_{2372} *1198.8 3* ($\dagger_\gamma$100 26)

3639.7 1, 11$^-$ γ_{3387} *253.1* ($\dagger_\gamma$100)

3661.9 7, 10$^+$, 480 60 ns γ_{3387} *275.1* γ_{3326} *336.0* γ_{2372} *1290.3*

3713.7 4 γ_{2372} *1341.9 2* ($\dagger_\gamma$100)

3798.6 4 γ_{2912} *886.7 2* ($\dagger_\gamma$88 9) γ_{2372} *1426.8 3* ($\dagger_\gamma$100 19)

3825.7 8, 10$^+$ γ_{3662} *163.9* γ_{3387} *438.9* ($\dagger_\gamma$100)

3974.4 8, 10$^-$ γ_{3387} *587.7* γ_{3113} *861.6*

4072.1 4, (7$^-$) γ_{2420} *1652.1 3* ($\dagger_\gamma$35 7) γ_{2372} *1700.1 3* ($\dagger_\gamma$100 8) γ_{2348} *1724.5 4*
($\dagger_\gamma$14 5)

4210.4 5 γ_{2372} *1838.6 3* ($\dagger_\gamma$100 11)

4293.8 9, 11$^-$ γ_{3974} *319.4* γ_{3387} *907.2*

4309.1 4, (7$^-$) γ_{3326} *982.0 5* ($\dagger_\gamma$47 10) γ_{2420} *1889.0 4* ($\dagger_\gamma$29 6) γ_{2372} *1937.6 3*
($\dagger_\gamma$100 12)

4371.6 1, 11$^-$ γ_{3974} *397.1* γ_{3387} *985*

4541.3 1, 11$^+$ γ_{3826} *715.6*

4546.7 1, 13$^-$, 2.6 6 ns γ_{4372} *175.1* γ_{4294} *252.9*

4630.3 4 γ_{2372} *2258.4 2* ($\dagger_\gamma$100 9)

4745.7 1, 12$^+$ γ_{3826} *920.0* ($\dagger_\gamma$100)

4970.1, (11$^+$) γ_{3662} *1308.4*

5048.1, 12 γ_{4970} *78.1* γ_{4746} *302.5* γ_{4541} *506.7*

5133.5, 13 γ_{5048} *85.5* γ_{4746} *387.7*

5223.9, 14 γ_{5134} *90.5* γ_{4547} *677.1*

5417.7, 15 γ_{5224} *193.8* ($\dagger_\gamma$100)

5763.6, 16 γ_{5418} *345.7* ($\dagger_\gamma$100)

5802.9, 16 γ_{5418} *385.2*

6089.8 γ_{5803} *286.9*

A x, J=(29)

A 799.7+x, J+2 γ_x *799.7 2* ($\dagger_\gamma$0.64 11) *$I^{(1)}$=76.3, $I^{(2)}$=66.2, ħω=0.415*

A 1659.8+x, J+4 γ_{800+x} *860.1 3* ($\dagger_\gamma$0.77 12) *$I^{(1)}$=75.6, $I^{(2)}$=66.3, ħω=0.445*

A 2580.2+x, J+6 γ_{1660+x} *920.4 2* *$I^{(1)}$=75.0, $I^{(2)}$=66.1, ħω=0.475*

A 3561.1+x, J+8 γ_{2580+x} *980.9 2* ($\dagger_\gamma$1.00) *$I^{(1)}$=74.4, $I^{(2)}$=65.7, ħω=0.506*

A 4602.9+x, J+10 γ_{3561+x} *1041.8 3* ($\dagger_\gamma$0.94 16) *$I^{(1)}$=73.9, $I^{(2)}$=66.2, ħω=0.536*

A 5705.1+x, J+12 γ_{4603+x} *1102.2 2* ($\dagger_\gamma$0.98 16) *$I^{(1)}$=73.5, $I^{(2)}$=65.6, ħω=0.566*

A 6868.3+x, J+14 γ_{5705+x} *1163.2 3* ($\dagger_\gamma$0.92 15) *$I^{(1)}$=73.1, $I^{(2)}$=64.7, ħω=0.597*

A 8093.3+x, J+16 γ_{6868+x} *1225.0 2* ($\dagger_\gamma$1.09 13) *$I^{(1)}$=72.7, $I^{(2)}$=65.9, ħω=0.628*

A 9379.0+x, J+18 γ_{8093+x} *1285.7 3* ($\dagger_\gamma$0.55 12) *$I^{(1)}$=72.3, $I^{(2)}$=63.8, ħω=0.659*

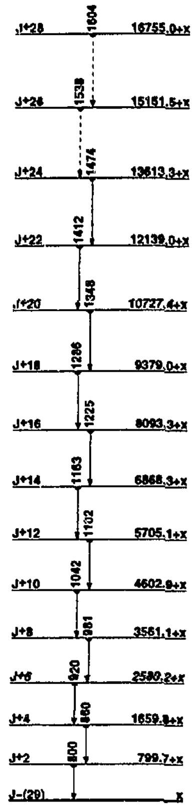
A 10727.4+x, J+20 γ_{9379+x} *1348.4 4* ($\dagger_\gamma$0.54 11) *$I^{(1)}$=71.9, $I^{(2)}$=63.3, ħω=0.690*

A 12139.0+x, J+22 $\gamma_{10727+x}$ *1411.6 3* ($\dagger_\gamma$0.49 11) *$I^{(1)}$=71.6, $I^{(2)}$=63.8, ħω=0.721*

A 13613.3+x, J+24 $\gamma_{12139+x}$ *1474.3 6* ($\dagger_\gamma$0.44 11) *$I^{(1)}$=71.2, $I^{(2)}$=62.6, ħω=0.753*

A 15151.5+x, J+26 $\gamma_{13613+x}$ *1538.2 7*(?) ($\dagger_\gamma$0.34 10) *$I^{(1)}$=70.9, $I^{(2)}$=61.3,*
ħω=0.785

A 16755.0+x, J+28 $\gamma_{15152+x}$ *1603.5 8*(?) ($\dagger_\gamma$0.27 10) *$I^{(1)}$=70.5*



SD band

$^{142}_{62}$Sm

$^{143}_{63}$Eu

Δ: −74360 40 S_n: 10800 100 S_p: 2660 40 Q_{EC}: 5170 40 Q_α: 740 60

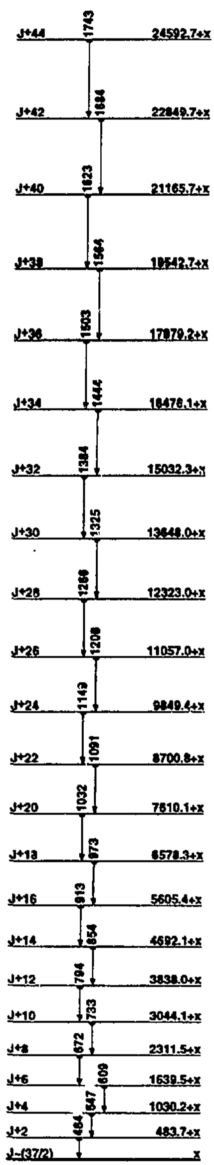
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, $5/2^+$, 2.63 5 m, %EC+%β^+=100
258.82 3, $(3/2)^+$ γ_0 **258.81 3** (I_γ100) (M1)
271.93 3, $7/2^+$ γ_0 **271.94 3** (I_γ100) M1
389.51 4, $11/2^-$, 50.0 5 μs γ_{272} **117.57 5** (I_γ100 8) M2 γ_0 **389.47 5** (I_γ53 4) E3
463.61 5, $(1/2)^+$ γ_{259} **204.77 5** (I_γ100 7) M1,E2 γ_0 **463.7 1** (I_γ51 4)
804.1 3 γ_{464} **340.5 3** (I_γ100)
812.90 10, $(1/2,3/2)^+$ γ_{259} **554.1 3** (I_γ14 7) γ_0 **812.9 1** (I_γ100 10)
906.94 6, $9/2^+$ γ_0 **906.96 6** (I_γ100) E2
977.48 4, $(9/2)^-$ γ_{390} **588.00 3** (I_γ100) M1+E2
1057.42 6, $11/2^+$ γ_{272} **785.56 6** (I_γ100) E2
1057.66 5, $13/2^-$ γ_{390} **668.10 3** (I_γ100) M1+E2: $\delta=-0.75^{+23}_{-73}$
1088.31 11 γ_{390} **698.8 1** (I_γ100)
1188.42 5, $11/2^-$ γ_{1057} **131.1 1** (I_γ3.5 6) γ_{977} **210.9 1** (I_γ10 1) M1 γ_{390} **798.89 6** (I_γ100 7) E2+M1
1213.94 10, $11/2^-$ γ_{390} **824.43 9** (I_γ100) E2(+M1)
1256.89 6, $11/2^+$ γ_{272} **984.93 5** (I_γ100) E2
1306.10 6, $15/2^-$ γ_{1058} **248.4 1** (I_γ67 9) D γ_{390} **916.53 5** (I_γ100 17) E2
1331.24 11, $11/2^+$ γ_{272} **1059.3 1** (I_γ100) Q
1405.58 21 γ_{977} **428.1 2** (I_γ100)
1497.74 20 γ_{907} **590.8 2** (I_γ100 50) γ_{272} **1225.8 5** (I_γ75 25)
1543.0 4(?), $(1/2,3/2)^+$ γ_{259} **1284.2 4** (I_γ100)
1565.24 21 γ_{272} **1293.3 2** (I_γ100)
1602.62 7 γ_{1057} **545.3 1** (I_γ50 7) γ_{977} **625.23 8** (I_γ100 7) γ_{390} **1213.1 3** (I_γ47 7)
1676.50 8 γ_{272} **1404.56 7** (I_γ100)
1723.6 4(?), $(1/2,3/2)^+$ γ_{259} **1464.8 4** (I_γ100)
1754.23 8 γ_{1257} **497.3 1** (I_γ70 10) γ_{977} **776.8 1** (I_γ100 10) M1
1761.74 21 γ_{272} **1489.8 2** (I_γ100)
1892.45 8, $(15/2^-)$ γ_{1058} **834.3 1** (I_γ47 4) γ_{390} **1503.4 1** (I_γ100 7)
1903.62 15 γ_{1058} **845.5 2** (I_γ46 15) γ_{977} **926.6 2** (I_γ100 14)
1908.08 10, $(15/2^-)$ γ_{1306} **601.7 2** (I_γ100 9) γ_{1058} **850.5 1** (I_γ24 4)
1970.6 3 γ_{977} **993.1 3** (I_γ100)
2018.72 5, $(9/2^-)$ γ_{1188} **830.1 1** (I_γ18 2) γ_{977} **1041.35 5** (I_γ100 8) γ_{390} **1629.3 1** (I_γ64 6) γ_{272} **1746.4 1** (I_γ25 3)
2065.07 6, $(9/2^-)$ γ_{977} **1087.3 1** (I_γ29 6) γ_{907} **1158.2 1** (I_γ21 3) γ_{390} **1675.9 3** (I_γ18 3) γ_{272} **1793.21 7** (I_γ100 6)
2092.15 7 γ_{390} **1702.5 1** (I_γ36 3) γ_{272} **1820.27 7** (I_γ100 6)
2116.83 10, $17/2^-$ γ_{1908} **208.5** γ_{1306} **810.4 2** γ_{1058} **1059.3 1** Q
2121.26 11, $(15/2^+)$ γ_{1058} **1063.6 1** (I_γ100) Q
2196.69 5, $(11/2^-)$ γ_{1892} **304.2 2** (I_γ13 1) M1+E2 γ_{1603} **594.3 1** (I_γ7.6 7) γ_{1306} **890.52 9** (I_γ43 4) γ_{1188} **1008.28 5** (I_γ18 2) M1 γ_{1058} **1138.9 1** (I_γ11 1) γ_{977} **1219.21 7** (I_γ54 4) γ_{390} **1807.14 7** (I_γ100 3) Q+D
2209.3 3 γ_{977} **1231.8 3** (I_γ100)
2254.33 12 γ_{1057} **1196.9 1** (I_γ100 8) γ_{977} **1276.9 5** (I_γ28 9)
2275.58 10 γ_{1188} **1087.3 1** (I_γ100 20) γ_{977} **1297.6 2** (I_γ42 7) γ_{390} **1886.0 2** (I_γ90 10)
2318.4 9, $(19/2^-)$ γ_{1306} **1012.4** (I_γ100)
2329.58 20, $(17/2^-)$ γ_{1058} **1271.9 2** (I_γ100) Q
2331.89 21 γ_{977} **1354.4 2** (I_γ100)
2351.12 10 γ_{1188} **1162.8 2** (I_γ100 8) γ_{977} **1373.6 1** (I_γ69 9)
2357.84 14 γ_{1214} **1143.9 1** (I_γ100)
2378.31 12, $19/2^-$ γ_{1306} **1072.2 1** (I_γ100) E2
2417.6 6 γ_{1088} **1329.3 5** (I_γ100)
2457.46 11, $17/2^-$ γ_{1908} **550.5** γ_{1306} **1151.3 1** M1+E2: $\delta=-4.16^{+43}_{-54}$
2474.1 10, $21/2^{(+)}$, 5.8 15 ns γ_{2318} **155.7** (I_γ100) (E1)
2559.46 22, $19/2^-$ γ_{2457} **101.6 3** (I_γ22 1) M1(+E2): δ=+0.09 14 γ_{2330} **229.6** γ_{2117} **443.0 3** (I_γ100 4) D(+Q): δ=+0.00 5
2600.63 12 γ_{1214} **1386.69 7** (I_γ100)
2610.8 5 γ_{977} **1633.3 6** (I_γ33 17) γ_{272} **2338.9 8** (I_γ100 33)
2612.1 6, $21/2^{(+)}$ γ_{2474} **138.1** γ_{2378} **233.4**
2630.4 6, $21/2^-$ γ_{2559} **70.4** M1 γ_{2378} **251.6** γ_{2117} **514.9**
2812.0 9, $23/2^-$ γ_{2630} **181.9** M1 γ_{2612} **199.5**
3112.2 4, 21/2 γ_{2559} **552.7 3** (I_γ100) D(+Q): $\delta=-0.13^{+10}_{-11}$
3294.3 5, (23/2) γ_{3112} **182.1 3** (I_γ100) (D)
3343.8 12, 25/2 γ_{2812} **531.8** (I_γ100)
3364.6 10, 25/2 γ_{2812} **552.7 3** (I_γ100) D(+Q): $\delta=-0.13^{+10}_{-11}$
3470.0 6(?), (25/2) γ_{3294} **175.7 3** (I_γ100)
3629.3 12(?), (27/2) γ_{3470} **159.3** (I_γ100) D
3749.4 12, 27/2 γ_{3365} **384.8** γ_{3344} **405.6**
4319.0 12, 29/2 γ_{3749} **569.5** γ_{3365} **954.4** γ_{3344} **975.1**
4494.6 16(?), 31/2 γ_{4319} **175.6** (I_γ100) D(+Q): δ=−0.02 10
4653.9 16, 33/2 γ_{4495} **159.3 3** (I_γ100) D(+Q): $\delta=+0.00^{+9}_{-7}$
4947.3 19, 35/2 γ_{4654} **293.4** (I_γ100)

A x, J=(37/2)
A 483.7+x, J+2 γ_x **483.7 4** (I_γ0.29 3) $I^{(1)}$=82.7, $I^{(2)}$=63.7, $\hbar\omega$=0.258
A 1030.2+x, J+4 γ_{484+x} **546.5 4** (I_γ0.71 4) $I^{(1)}$=80.5, $I^{(2)}$=63.7, $\hbar\omega$=0.289
A 1639.5+x, J+6 γ_{1030+x} **609.3 2** (I_γ1.01 7) $I^{(1)}$=78.8, $I^{(2)}$=64.1, $\hbar\omega$=0.320
A 2311.5+x, J+8 γ_{1640+x} **671.7 2** (I_γ0.88 6) $I^{(1)}$=77.4, $I^{(2)}$=65.4, $\hbar\omega$=0.351
A 3044.1+x, J+10 γ_{2312+x} **732.9 2** (I_γ1.00 7) $I^{(1)}$=76.4, $I^{(2)}$=65.6, $\hbar\omega$=0.382
A 3838.0+x, J+12 γ_{3044+x} **793.9 2** (I_γ0.95 6) $I^{(1)}$=75.6, $I^{(2)}$=66.4, $\hbar\omega$=0.412
A 4692.1+x, J+14 γ_{3838+x} **854.1 2** (I_γ1.02 6) $I^{(1)}$=74.9, $I^{(2)}$=67.6, $\hbar\omega$=0.442
A 5605.4+x, J+16 γ_{4692+x} **913.3 2** (I_γ0.98 8) $I^{(1)}$=74.5, $I^{(2)}$=67.1, $\hbar\omega$=0.472
A 6578.3+x, J+18 γ_{5605+x} **972.9 2** (I_γ1.04 8) $I^{(1)}$=74.0, $I^{(2)}$=67.9, $\hbar\omega$=0.501
A 7610.1+x, J+20 γ_{6578+x} **1031.8 2** (I_γ1.03 7) $I^{(1)}$=73.7, $I^{(2)}$=67.9, $\hbar\omega$=0.531
A 8700.8+x, J+22 γ_{7610+x} **1090.7 2** (I_γ0.95 6) $I^{(1)}$=73.3, $I^{(2)}$=69.1, $\hbar\omega$=0.560
A 9849.4+x, J+24 γ_{8701+x} **1148.6 4** (I_γ0.75 11) $I^{(1)}$=73.1, $I^{(2)}$=67.8, $\hbar\omega$=0.589
A 11057.0+x, J+26 γ_{9849+x} **1207.6 4** (I_γ0.65 10) $I^{(1)}$=72.9, $I^{(2)}$=68.5, $\hbar\omega$=0.618
A 12323.0+x, J+28 $\gamma_{11057+x}$ **1266.0 4** (I_γ0.58 11) $I^{(1)}$=72.7, $I^{(2)}$=67.8, $\hbar\omega$=0.648
A 13648.0+x, J+30 $\gamma_{12323+x}$ **1325.0 4** (I_γ0.50 10) $I^{(1)}$=72.5, $I^{(2)}$=67.5, $\hbar\omega$=0.677
A 15032.3+x, J+32 $\gamma_{13648+x}$ **1384.3 6** (I_γ0.29 9) $I^{(1)}$=72.2, $I^{(2)}$=67.2, $\hbar\omega$=0.707
A 16476.1+x, J+34 $\gamma_{15032+x}$ **1443.8 10** (I_γ0.20 10) $I^{(1)}$=72.0, $I^{(2)}$=67.5, $\hbar\omega$=0.737
A 17979.2+x, J+36 $\gamma_{16476+x}$ **1503.1 10** (I_γ0.12 7) $I^{(1)}$=71.9, $I^{(2)}$=66.2, $\hbar\omega$=0.767
A 19542.7+x, J+38 $\gamma_{17979+x}$ **1563.5 10** (I_γ0.09 6) $I^{(1)}$=71.6, $I^{(2)}$=67.2, $\hbar\omega$=0.797
A 21165.7+x, J+40 $\gamma_{19543+x}$ **1623 2** $I^{(1)}$=71.5, $I^{(2)}$=65.6, $\hbar\omega$=0.827
A 22849.7+x, J+42 $\gamma_{21166+x}$ **1684 2** $I^{(1)}$=71.3, $I^{(2)}$=67.8, $\hbar\omega$=0.857
A 24592.7+x, J+44 $\gamma_{22850+x}$ **1743 2** $I^{(1)}$=71.1



SD band

$^{143}_{63}$Eu

$^{144}_{63}$Eu

Δ: −75647 *21* S_n: 9360 *40* S_p: 3409 *21* Q_{EC}: 6329 *21* Q_α: 320 *50*

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0.0, 1⁺, 10.2 *1* s, %EC+%β⁺=100, μ=1.833 *13*, Q=0.10 *3*

333.1 *4*, (2)⁺ γ_0***333.3*** *2* ($\dagger_\gamma$100) ($\dagger_{\gamma+e}$30 *15*) M1

347.4 *4*, (3)⁺ γ_{333}***13.8*** γ_0***347.1*** *2* ($\dagger_\gamma$100) E2

580.6 *4*, (4)⁺ γ_{347}***233.3*** *2* ($\dagger_\gamma$100 *5*) M1 γ_{333}***247.6*** *5* ($\dagger_\gamma$7.5 *35*) M1,E2

604.4 *7*, (3)⁺ γ_{347}***257.3*** ($\dagger_\gamma$37.0) γ_{333}***271.1*** ($\dagger_\gamma$100) M1,(E2)

621.5 *5*, (2,3)⁺ γ_{347}***274.4*** ($\dagger_\gamma$51.2) γ_{333}***288.2*** ($\dagger_\gamma$13.0) γ_0***621.5*** ($\dagger_\gamma$100) E2,(M1)

629.5 *5*, (2)⁻ γ_{347}***282.4*** ($\dagger_\gamma$4.3) M1 γ_0***629.5*** ($\dagger_\gamma$100) E1

762.9 *4*, (5)⁺ γ_{581}***182.4*** *2* ($\dagger_\gamma$100 *18*) M1,E2 γ_{347}***415.3*** *3* ($\dagger_\gamma$68 *27*) E2

784.0 *7*, (2)⁺ γ_{581}***203.6*** ($\dagger_\gamma$4.2) M1 γ_{333}***450.7*** ($\dagger_\gamma$100) M1,E2

887.7 *4*, (5)⁻ γ_{763}***124.8*** *2* ($\dagger_\gamma$2.9 *6*) γ_{581}***307.0*** *2* ($\dagger_\gamma$100 *5*) E1

894.7 *9*, (4⁺) γ_{604}***290.2*** ($\dagger_\gamma$100) M1,E2 γ_{581}***314.1*** ($\dagger_\gamma$46.4)

908.0 *6* γ_{347}***560.6*** ($\dagger_\gamma$48.4) γ_0***907.9*** ($\dagger_\gamma$100)

926.3 *5*, (6⁻), 28 *2* ns γ_{888}***38.7*** *3* ($\dagger_\gamma$100 *63*) (M1+E2) γ_{763}***163.1*** *5* ($\dagger_\gamma$38 *25*)

974.8 *5* γ_{622}***353.3*** γ_{333}***641.5*** ($\dagger_\gamma$100) γ_0***974.8*** ($\dagger_\gamma$42.3)

1048.8 *11*, (4) γ_{926}***122.5*** ($\dagger_\gamma$100)

1074.1 *8* γ_{333}***740.9*** ($\dagger_\gamma$100)

1120.4 *6*, (7⁻) γ_{926}***194.1*** *4* ($\dagger_\gamma$100) M1

1127.9 *7*, (8⁻), 1.0 *1* μs γ_{1120}***7.5*** ($\dagger_{\gamma+e}$64 *21*) γ_{926}***201.6*** *5* ($\dagger_\gamma$100) E2

1145.6 *6* γ_{784}***361.6*** ($\dagger_\gamma$13.8) γ_{604}***541.2*** ($\dagger_\gamma$55.2) γ_{333}***812.3*** ($\dagger_\gamma$100) γ_0***1145.6*** ($\dagger_\gamma$89.7)

1194.4 *6*, (6,7⁻) γ_{926}***268.1*** *3* ($\dagger_\gamma$100) M1,E2

1201.4 *6* γ_{622}***579.9*** ($\dagger_\gamma$21.2) γ_{333}***868.1*** ($\dagger_\gamma$100) γ_0***1201.4*** ($\dagger_\gamma$20)

1293.5 *5* γ_{908}***385.6*** γ_{630}***664.0*** ($\dagger_\gamma$35.3) γ_{333}***960.2*** γ_0***1293.5*** ($\dagger_\gamma$45.3)

1304.2 *8* γ_{347}***956.9*** ($\dagger_\gamma$100)

1338.2 *7*, (9⁻), 5.0 *5* ns γ_{1128}***210.3*** *3* ($\dagger_\gamma$100) M1

1402.3 *7* γ_{347}***1055.1*** ($\dagger_\gamma$100)

1559.8 *7* γ_{333}***1226.6*** ($\dagger_\gamma$100) γ_0***1559.9*** ($\dagger_\gamma$53.7)

1669.5 *7*, (9⁺) γ_{1338}***331.3*** *2* ($\dagger_\gamma$70 *8*) γ_{1128}***541.7*** *4* ($\dagger_\gamma$100 *25*) E1

1804.7 *12* γ_{1201}***603.3*** ($\dagger_\gamma$100)

1930.4 *8* γ_{630}***1300.7*** ($\dagger_\gamma$71.4) γ_{347}***1583.1*** ($\dagger_\gamma$100)

2161.5 *9*, (10⁺) γ_{1670}***492.0*** *5* ($\dagger_\gamma$100) M1

2362.1 *7* γ_{347}***2015.0*** ($\dagger_\gamma$19.0) γ_{333}***2028.8*** ($\dagger_\gamma$9.2) γ_0***2362.1*** ($\dagger_\gamma$100)

2432.6 *4* γ_{1560}***872.7*** ($\dagger_\gamma$3.3) γ_{1402}***1030.4*** ($\dagger_\gamma$0.84) γ_{1304}***1128.6*** ($\dagger_\gamma$6.6) γ_{1294}***1139.1*** ($\dagger_\gamma$4.3) γ_{1201}***1231.2*** ($\dagger_\gamma$14.8) γ_{1146}***1287.0*** ($\dagger_\gamma$5.4) γ_{1074}***1358.4*** ($\dagger_\gamma$1.7) γ_{975}***1457.8*** ($\dagger_\gamma$10.6) γ_{908}***1524.7*** ($\dagger_\gamma$3.6) γ_{630}***1803.1*** ($\dagger_\gamma$12.5) γ_0***2432.6*** ($\dagger_\gamma$100)

2692.7 *7*, (1⁺) γ_{975}***1717.9*** ($\dagger_\gamma$19.6) γ_{622}***2071.2*** ($\dagger_\gamma$35.3) γ_0***2692.7*** ($\dagger_\gamma$100)

2709.5 *8* γ_{622}***2088.1*** ($\dagger_\gamma$47.2) γ_0***2709.6*** ($\dagger_\gamma$100)

2804.6 *5*, (1⁺) γ_{1402}***1402.4*** ($\dagger_\gamma$14.8) γ_{1294}***1511.1*** ($\dagger_\gamma$13.8) γ_{975}***1829.8*** ($\dagger_\gamma$27.6) γ_{622}***2183.1*** ($\dagger_\gamma$26.2) γ_{347}***2457.5*** ($\dagger_\gamma$11.4) γ_{333}***2471.3*** ($\dagger_\gamma$100) γ_0***2804.6*** ($\dagger_\gamma$7.6)

2827.9 *7* γ_{630}***2198.4*** ($\dagger_\gamma$100) γ_{333}***2494.6*** ($\dagger_\gamma$85.1) γ_0***2827.9*** ($\dagger_\gamma$61.7)

A x(?), J

${}^{144}_{64}$Gd

Δ:(−71910) S_n:(1·600) S_p:(4840) Q_{EC}:(3740) Q_α:(1000)

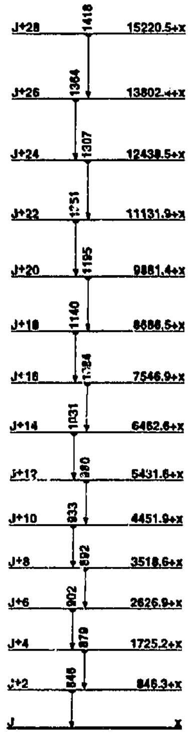
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 0⁺, 4.5 *1* m, %EC+%β⁺=100
743.0, 2⁺ γ_0 ***743.0*** ($\dagger_\gamma$100) E2
1702.3, (3⁻) γ_{743} ***959.36*** ($\dagger_\gamma$100) (E1+M2): δ=+0.12 *5*
1744.6, (4⁺) γ_{743} ***1001.6*** ($\dagger_\gamma$100)
1876.4, (2⁺) γ_{743} ***1133.4*** ($\dagger_\gamma$75) γ_0 ***1876.4*** ($\dagger_\gamma$100)
1886.8, (0⁺) γ_{743} ***1143.9*** ($\dagger_\gamma$100)
2223.5, (2⁺) γ_{743} ***1483.5*** ($\dagger_\gamma$100) γ_0 ***2226.5*** ($\dagger_\gamma$80)
2302.7, (5⁻) γ_{1745} ***558.0*** ($\dagger_\gamma$100) E1 γ_{1702} ***600.3*** ($\dagger_\gamma$59.7)
2330.5, (4⁻) γ_{1702} ***628.0*** ($\dagger_\gamma$100)
2354.3, (6⁺) γ_{1745} ***609.7***(?) ($\dagger_\gamma$100)
2442.5, (5⁻) γ_{2303} ***139.7*** ($\dagger_\gamma$42.9) γ_{1745} ***697.9*** ($\dagger_\gamma$100)
2462.1, (0⁺,1⁺,2⁺) γ_{743} ***1719.1*** ($\dagger_\gamma$100)
2471.9, (7⁻), 13 *2* ns γ_{2303} ***169.1*** ($\dagger_\gamma$100) E2
2787.0, (7⁻) γ_{2472} ***315.0*** ($\dagger_\gamma$100) M1
2788.0 γ_{2303} ***485.3*** ($\dagger_\gamma$100)
2862.0, (6⁺) γ_{1745} ***1117.4*** ($\dagger_\gamma$100)
2912.7 γ_{2443} ***470.2*** ($\dagger_\gamma$100)
3016.9, (5⁻,6⁻,7⁻) γ_{2443} ***573.5***(?) ($\dagger_\gamma$40) γ_{2303} ***7..8*** ($\dagger_\gamma$100)
3018, (8⁻) γ_{2787} ***231.5*** ($\dagger_\gamma$67) M1 γ_{2472} ***546.4*** ($\dagger_\gamma$100) M1+E2
3244, (8⁻) γ_{3018} ***226.1*** ($\dagger_\gamma$100)
3346, (9⁻) γ_{3244} ***101.7*** ($\dagger_\gamma$7.6) γ_{3018} ***327.8*** ($\dagger_\gamma$100) M1
3433, (10⁺), 145 *30* ns, μ=12.76 *14*, Q=1.46 *6* γ_{3346} ***87.3*** ($\dagger_\gamma$100) E1 γ_{3018} ***415.3*** ($\dagger_\gamma$18.9) M2
3697, (10⁺) γ_{3433} ***263.8*** γ_{3346} ***351.3***
3910, (10⁻) γ_{3346} ***564.3*** γ_{3018} ***892.0***
4144, (11⁺) γ_{3433} ***711.4*** ($\dagger_\gamma$100)
4267, (11⁻) γ_{3346} ***921.3*** ($\dagger_\gamma$100)
4451, (12⁺) γ_{3433} ***1017.8*** ($\dagger_\gamma$100)
4756, (12⁺) γ_{4144} ***611.5*** ($\dagger_\gamma$100)
5133, (13⁺) γ_{4756} ***377.8*** γ_{4144} ***989.3***
5179, (12) γ_{4451} ***711.4*** ($\dagger_\gamma$100)
5369, (14) γ_{5133} ***235.9*** ($\dagger_\gamma$100)
5497, (13) γ_{4451} ***1046*** ($\dagger_\gamma$100)
5626, (14) γ_{5497} ***129.1*** γ_{5133} ***492.2***
5722, (15) γ_{5369} ***352.9*** ($\dagger_\gamma$100)
5834, (15) γ_{5626} ***208.5*** ($\dagger_\gamma$100)

A x, J
A 846.3+x, J+2 γ_x ***846.3*** *7* ($\dagger_\gamma$0.36 *10*) $I^{(2)}$=*122.*, *ħω=0.431*
A 1725.2+x, J+4 γ_{846+x} ***878.94*** ($\dagger_\gamma$0.64 *12*) $I^{(2)}$=*175.*, *ħω=0.445*
A 2626.9+x, J+6 γ_{1725+x} ***901.72*** ($\dagger_\gamma$0.89 *13*) $I^{(2)}$=*400.*, *ħω=0.448*
A 3518.6+x, J+8 γ_{2627+x} ***891.73*** ($\dagger_\gamma$0.99 *14*) $I^{(2)}$=*96.*, *ħω=0.456*
A 4451.9+x, J+10 γ_{3519+x} ***933.32*** ($\dagger_\gamma$1.00) $I^{(2)}$=*86.*, *ħω=0.478*
A 5431.6+x, J+12 γ_{4452+x} ***979.72*** ($\dagger_\gamma$0.93 *12*) $I^{(2)}$=*78.*, *ħω=0.503*
A 6462.6+x, J+14 γ_{5432+x} ***1031.03*** ($\dagger_\gamma$0.95 *12*) $I^{(2)}$=*75.*, *ħω=0.529*
A 7546.9+x, J+16 γ_{6463+x} ***1084.32*** ($\dagger_\gamma$1.00 *12*) $I^{(2)}$=*72.*, *ħω=0.556*
A 8686.5+x, J+18 γ_{7547+x} ***1139.63*** ($\dagger_\gamma$0.97 *11*) $I^{(2)}$=*72.*, *ħω=0.584*
A 9881.4+x, J+20 γ_{8687+x} ***1194.93*** ($\dagger_\gamma$0.72 *10*) $I^{(2)}$=*71.*, *ħω=0.611*
A 11131.9+x, J+22 γ_{9881+x} ***1250.54*** ($\dagger_\gamma$0.79 *10*) $I^{(2)}$=*71.*, *ħω=0.639*
A 12438.5+x, J+24 $\gamma_{11132+x}$ ***1306.65*** ($\dagger_\gamma$0.69 *11*) $I^{(2)}$=*69.*, *ħω=0.668*
A 13802.4+x, J+26 $\gamma_{12439+x}$ ***1363.97*** ($\dagger_\gamma$0.52 *10*) $I^{(2)}$=*73.*, *ħω=0.695*
A 15220.5+x, J+28 $\gamma_{13802+x}$ ***1418.19*** ($\dagger_\gamma$0.34 *12*)



SD band

${}^{144}_{64}$Gd

$^{146}_{64}$Gd

Δ: −76097 *5* S_n: 11220 *40* S_p: 5385 *5* Q_{EC}: 1030 *0* Q_α: 465 *16*

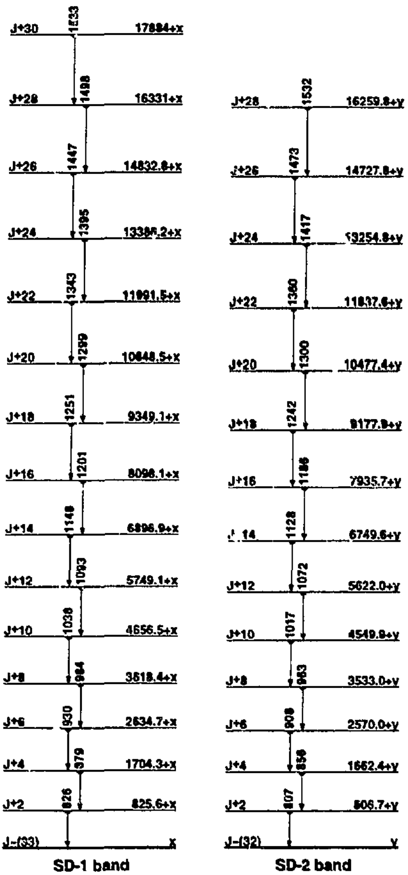
Nuclear Bands

A SD-1 band
B SD-2 band

Levels and γ-ray branchings:

0, 0⁺, 48.27 *10* d, %EC=100
1579.4 *1*, 3⁻, 1.06 *12* ns γ_0 ***1579.4** 1* ($\dagger_\gamma$100) E3
1971.9 *3*, 2⁺, <1 ps γ_0 ***1972.0** 3* ($\dagger_\gamma$100) E2
2165.0 *3*, 0⁺, 375 *40* ps γ_{1972} ***193.0** 5* ($\dagger_\gamma$=23) γ_0 ***2165.0** 3* ($\dagger_e$100 *17*) E0
2611.5 *2*, 4⁺ γ_{1972} ***638** 1* ($\dagger_\gamma$=1.7) γ_{1579} ***1032.1** 1* ($\dagger_\gamma$100 *10*) E1
2658.0 *2*, 5⁻ γ_{1579} ***1078.6** 1* ($\dagger_\gamma$100) E2
2967.6 *3*, 4⁺,(2⁺) γ_{1579} ***1388.2** 2* ($\dagger_\gamma$100) E1
2982.0 *3*, 7⁻, 7.2 *4* ns γ_{2658} ***324.0** 1* ($\dagger_\gamma$100) E2
2986 *1* γ_0 ***2986** 1* ($\dagger_\gamma$100)
2996.6 *4*, 4⁻ γ_{1579} ***1417.2** 3* ($\dagger_\gamma$100)
3020 *2*, 0⁺ γ_0 ***3020** 2* ($\dagger_\gamma$100) E0
3031.2 *3*, 3⁺ γ_{1972} ***1059.3** 2* ($\dagger_\gamma$100 *30*) M1 γ_{1579} ***1451.7** 3* ($\dagger_\gamma$50 *20*)
3098.2, 6⁻ γ_{2982} ***116.7*** γ_{2658} ***440.9** 1* M1
3182.5 *3*, 8⁻ γ_{2982} ***200.5** 1* ($\dagger_\gamma$100) M1+E2: δ=0.101
3231 *5*
3287.2, (3,5)⁺ γ_{2612} ***675.7** 2* ($\dagger_\gamma$100) M1
3290.2, 7⁻ γ_{2982} ***308.2** 2* ($\dagger_\gamma$100) M1+E2
3293.5 *3*, 8⁻, <300 ps γ_{3183} ***111.1** 1* ($\dagger_\gamma$32 *4*) M1 γ_{2982} ***311.4** 2* ($\dagger_\gamma$100 *9*) M1+E2: δ=0.160
3312.8 *5*, 5(⁻) γ_{2658} ***654.8** 4* ($\dagger_\gamma$100 *29*) (M1) γ_{2612} ***701.6** 5* ($\dagger_\gamma$=8.8)
3354 *5*
3378 *5*
3384.0 *5*, 6⁻ γ_{3098} ***285.2** 2* ($\dagger_\gamma$24 *6*) M1 γ_{2982} ***402.0** 2* ($\dagger_\gamma$29 *12*) γ_{2658} ***726.1** 2* ($\dagger_\gamma$100 *12*) M1
3389 *1*, (3) γ_{1972} ***1417** 1* ($\dagger_\gamma$100)
3411.9 *5*, 4(⁺) γ_{2967} ***415.2** 3* ($\dagger_\gamma$100 *33*) (E1) γ_{2612} ***800.6** 5* ($\dagger_\gamma$67)
3416 *1*, 4 γ_{1579} ***1837*** ($\dagger_\gamma$1100) D
3422.7 *5*, (4) γ_{1579} ***1843.3** 5* ($\dagger_\gamma$100) *D*
3428.1 *5*, 9⁻, <300 ps γ_{3294} ***134.6** 1* ($\dagger_\gamma$100 *6*) M1+E2: δ=0.071 γ_{3183} ***245.6** 2* ($\dagger_\gamma$7.5 *25*) M1+E2: δ=0.904 γ_{2982} ***446.1** 2* ($\dagger_\gamma$7.5 *25*) E2
3436.3 *5*, (3) γ_{1972} ***1464.3** 3* ($\dagger_\gamma$100) D
3442 *5*
3456 *1*, (5⁻) γ_{1579} ***1877** 1* ($\dagger_\gamma$100) Q
3456.9, 6⁺ γ_{2658} ***798.9** 3* ($\dagger_\gamma$100) E1
3460 *1*, (5⁻) γ_{1579} ***1881** 1* ($\dagger_\gamma$100) Q
3463 *1*, (4) γ_{1579} ***1884** 1* ($\dagger_\gamma$100) D
3484.9 *5*, 6⁺ γ_{2658} ***826.9** 2* ($\dagger_\gamma$100) E1
3485 *2*, 0⁺ γ_0 ***3485** 2* ($\dagger_\gamma$100) E0
3639 *2*, 0⁺ γ_0 ***3639** 2* ($\dagger_\gamma$100) E0
3660.2 *5*, 6⁺ γ_{2658} ***1002.2** 4* ($\dagger_\gamma$100) E1
3779.0 *5*, 8⁺ γ_{2982} ***797.0** 3* ($\dagger_\gamma$100) E1
3783.7 *5*, (5,6)⁺ γ_{2612} ***1172.2** 5* ($\dagger_\gamma$100) M1,E2
3854.2 *5*, 7⁻ γ_{3183} ***671.7** 3* ($\dagger_\gamma$03 *13*) M1 γ_{3098} ***755.0** 5* ($\dagger_\gamma$=63) D γ_{2982} ***872.2** 3* ($\dagger_\gamma$100 *38*) M1
3864.4 *4*, 10⁺, ·300 ps γ_{3428} ***436.3** 1* ($\dagger_\gamma$100) E1
3948
4107.1 *5*, 8⁺ γ_{3183} ***924.6** 3* ($\dagger_\gamma$100 *33*) E1 γ_{2982} ***1125.7** 3* ($\dagger_\gamma$100 *33*) D
4248.3 *6*, (9,10⁻)
4330
4501.3 *6*, 10⁻ γ_{3428} ***1073.6** 3* ($\dagger_\gamma$100) D+Q
4534, 0⁺
4540.7, 10(⁺) γ_{3428} ***1112.6** 3* ($\dagger_\gamma$100) D
4606.5 *5*, 11,12⁺ γ_{3864} ***802.1** 4* ($\dagger_\gamma$100)
4700
4719.1, 4⁻ γ_{3423} ***1296.7*** γ_{2658} ***2060.9*** γ_{1579} ***3139.8***
4740 *30*
4828.3, (5)⁻ γ_{2967} ***1831.9***
5000
5094.8, (11⁺) γ_{4501} ***592.8*** ($\dagger_\gamma$43) D γ_{3864} ***1229.9*** ($\dagger_\gamma$100) D
5276.9, (11⁺) γ_{4501} ***775*** γ_{3864} ***1412.5** 3*
5350.9, (12⁺) γ_{3864} ***1486.0*** Q
5447 5, (12⁺) γ_{4667} ***781.1*** γ_{3864} ***1582.9***
5791.9, (13⁺) γ_{5448} ***343.5*** γ_{5351} ***441.1*** ($\dagger_\gamma$73) D γ_{5277} ***514.0*** γ_{5095} ***697.0*** ($\dagger_\gamma$100) Q
5894.4, (14⁺) γ_{5792} ***102.5*** D+Q γ_{5448} ***446.5*** γ_{5351} ***543.7***
5996.2, (14⁺) γ_{5351} ***645.3***
6120.3, (15⁺) γ_{5996} ***124*** γ_{5894} ***225.9*** D+Q γ_{5792} ***328***
6399.1, (16⁺) γ_{6120} ***278.8*** D γ_{5996} ***402*** γ_{5894} ***504.5*** Q
6470 *30*
7034.3**, (16⁺)* γ_{6120} ***914.0 *D*
7164.9, (17⁻) γ_{7034} ***130.6*** γ_{6399} ***765.8*** D γ_{6120} ***1046*** γ_{5996} ***1166***
7513.6 γ_{7034} ***479.3***(?) γ_{6399} ***1114.5***
7740 γ_{7514} ***226***
8030.3, (18), 1.5 *6* ns γ_{7740} ***291*** γ_{7514} ***517***(?) γ_{7165} ***865.4*** D
8916.0, (20,19), 4.3 *3* ns γ_{8030} ***885.7***

A x, J=(33)
A **825.6**+x, J+2 γ_x ***825.6** 4* ($\dagger_\gamma$0.80 *15*) $I^{(1)}$=83.6, $I^{(2)}$=75., $\hbar\omega$=0.426
A **1704.3**+x, J+4 γ_{826+x} ***878.7** 4* ($\dagger_\gamma$1.03 *15*) $I^{(1)}$=83.1, $I^{(2)}$=77., $\hbar\omega$=0.452
A **2634.7**+x, J+6 γ_{1704+x} ***930.4** 4* ($\dagger_\gamma$1.04 *10*) $I^{(1)}$=82.8, $I^{(2)}$=75., $\hbar\omega$=0.479
A **3618.4**+x, J+8 γ_{2635+x} ***983.7** 4* ($\dagger_\gamma$0.95 *10*) $I^{(1)}$=82.3, $I^{(2)}$=73., $\hbar\omega$=0.505
A **4656.5**+x, J+10 γ_{3618+x} ***1038.1** 4* ($\dagger_\gamma$1.37 *30*) $I^{(1)}$=81.9, $I^{(2)}$=73., $\hbar\omega$=0.533
A **5749.1**+x, J+12 γ_{4657+x} ***1092.6** 4* ($\dagger_\gamma$1.00 *10*) $I^{(1)}$=81.5, $I^{(2)}$=72., $\hbar\omega$=0.560
A **6896.9**+x, J+14 γ_{5749+x} ***1147.8** 4* ($\dagger_\gamma$0.65 *20*) $I^{(1)}$=81.0, $I^{(2)}$=74., $\hbar\omega$=0.587
A **8098.1**+x, J+16 γ_{6897+x} ***1201.2** 5* ($\dagger_\gamma$0.89 *15*) $I^{(1)}$=80.8, $I^{(2)}$=80., $\hbar\omega$=0.613
A **9349.1**+x, J+18 γ_{8098+x} ***1251.0** 5* ($\dagger_\gamma$0.68 *15*) $I^{(1)}$=80.7, $I^{(2)}$=82., $\hbar\omega$=0.638
A **10648.5**+x, J+20 γ_{9349+x} ***1299.4** 7* ($\dagger_\gamma$0.38 *8*) $I^{(1)}$=80.8, $I^{(2)}$=91., $\hbar\omega$=0.661
A **11991.5**+x, J+22 $\gamma_{10649+x}$ ***1343.0** 5* ($\dagger_\gamma$0.47 *15*) $I^{(1)}$=81.2, $I^{(2)}$=77., $\hbar\omega$=0.684
A **13386.2**+x, J+24 $\gamma_{11992+x}$ ***1394.7** 5* ($\dagger_\gamma$0.22 *10*) $I^{(1)}$=81.0, $I^{(2)}$=77., $\hbar\omega$=0.710
A **14832.8**+x, J+26 $\gamma_{13386+x}$ ***1446.6** 6* ($\dagger_\gamma$=0.10) $I^{(1)}$=80.9, $I^{(2)}$=77., $\hbar\omega$=0.736
A **16331**+x, J+28 $\gamma_{14833+x}$ ***1498*** $I^{(1)}$=80.8, $I^{(2)}$=114., $\hbar\omega$=0.758
A **17864**+x, J+30 $\gamma_{16331+x}$ ***1533*** $I^{(1)}$=81.5
B y, J=(32)
B **906.7**+y, J+2 γ_y ***906.7** 4* ($\dagger_\gamma$0.79 *40*) $I^{(1)}$=83.1, $I^{(2)}$=81., $\hbar\omega$=0.416
B **1662.4**+y, J+4 γ_{807+y} ***855.7** 3* ($\dagger_\gamma$0.94 *15*) $I^{(1)}$=83.0, $I^{(2)}$=77., $\hbar\omega$=0.441
B **2570.0**+y, J+6 γ_{1662+y} ***907.6** 5* ($\dagger_\gamma$0.81 *15*) $I^{(1)}$=82.6, $I^{(2)}$=72., $\hbar\omega$=0.468
B **3533.0**+y, J+8 γ_{2570+y} ***963.0** 4* ($\dagger_\gamma$1.00 *15*) $I^{(1)}$=82.0, $I^{(2)}$=74., $\hbar\omega$=0.495
B **4549.9**+y, J+10 γ_{3533+y} ***1016.9** 5* ($\dagger_\gamma$1.10 *25*) $I^{(1)}$=81.6, $I^{(2)}$=72., $\hbar\omega$=0.522
B **5622.0**+y, J+12 γ_{4550+y} ***1072.1** 5* ($\dagger_\gamma$0.93 *15*) $I^{(1)}$=81.1, $I^{(2)}$=72., $\hbar\omega$=0.550
B **6749.6**+y, J+14 γ_{5622+y} ***1127.6** 6* ($\dagger_\gamma$0.89 *20*) $I^{(1)}$=80.7, $I^{(2)}$=68., $\hbar\omega$=0.578
B **7935.7**+y, J+16 γ_{6750+y} ***1186.1** 5* ($\dagger_\gamma$0.73 *15*) $I^{(1)}$=80.1, $I^{(2)}$=71., $\hbar\omega$=0.607
B **9177.9**+y, J+18 γ_{7936+y} ***1242.2** 5* ($\dagger_\gamma$0.67 *40*) $I^{(1)}$=79.7, $I^{(2)}$=69., $\hbar\omega$=0.635
B **10477.4**+y, J+20 γ_{9178+y} ***1299.5** 5* ($\dagger_\gamma$0.57 *15*) $I^{(1)}$=79.3, $I^{(2)}$=65., $\hbar\omega$=0.665
B **11837.6**+y, J+22 $\gamma_{10477+y}$ ***1360.2** 10* ($\dagger_\gamma$0.35 *30*) $I^{(1)}$=78.7, $I^{(2)}$=70., $\hbar\omega$=0.694
B **13254.8**+y, J+24 $\gamma_{11838+y}$ ***1417.2** 10* ($\dagger_\gamma$0.36 *20*) $I^{(1)}$=78.3, $I^{(2)}$=71., $\hbar\omega$=0.723
B **14727.8**+y, J+26 $\gamma_{13255+y}$ ***1473*** $I^{(1)}$=78.1, $I^{(2)}$=67., $\hbar\omega$=0.751
B **16259.8**+y, J+28 $\gamma_{14728+y}$ ***1532*** $I^{(1)}$=77.7



$^{146}_{64}$Gd

$^{147}_{64}$Gd

Δ: −75367 *4* S_n: 7341 *4* S_p: 5529 *7* Q_{EC}: 2188 *3* Q_α: 1735.2 *20*

Nuclear Bands

- *A* $\nu f_{7/2}(3^-)$
- *B* SD-1 band
- *C* SD-2 band

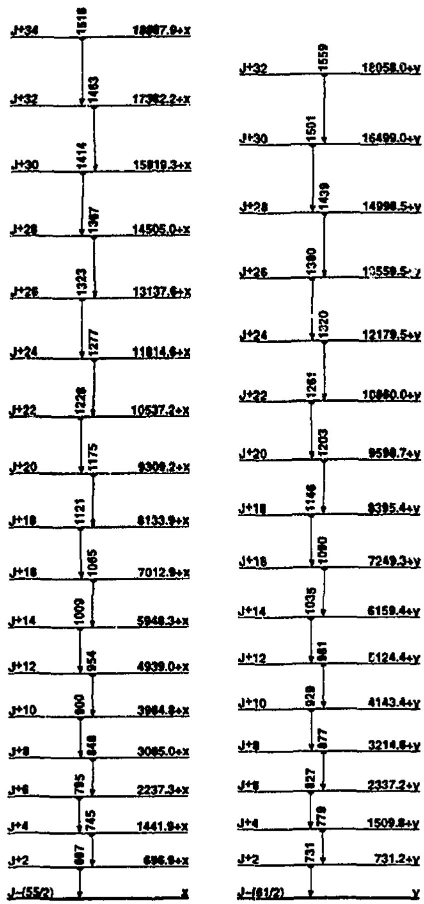
Levels and γ-ray branchings:

0, $7/2^-$, 38.06 *12* h, %EC+%β^+=100, μ=1.02 *9*
997.1 *1*, $13/2^+$, 21.4 *11* ns, μ=+0.487 *20*, Q=−0.73 *7* γ_0 ***997.1*** *1* ($\dagger_\gamma$100) E3
1152.4 *1*, $3/2^-$, <0.2 ns γ_0 ***1152.4*** *1* ($\dagger_\gamma$100) E2
1292.31 *14*, $(1/2)^+$, <0.2 ns γ_{1152} ***139.9*** *1* ($\dagger_\gamma$100 *8*) E1
1397.01 *10*, $9/2^-$, 0.35 *21* ps γ_0 ***1397.0*** *1* ($\dagger_\gamma$100 *8*) M1+E2
1412.01 *18*, $3/2^+$, <0.2 ns γ_{1292} ***119.7*** *1* ($\dagger_\gamma$100 *11*) M1
1509.2 *10* γ_{1292} ***273.5*** ($\dagger_\gamma$100 *23*)
A **1628.3** *4*, $7/2^+$, 0.42 *21* ps γ_0 ***1628.3*** *4* ($\dagger_\gamma$100 *37*) E1
A **1643.0** *3*, $9/2^+$ γ_0 ***1643.0*** *3* ($\dagger_\gamma$100 *10*) E1
A **1699.36** *24*, $3/2^-$ γ_{1292} ***407.0*** *3* ($\dagger_\gamma$50 *14*) M1+E2 γ_{1152} ***547.0*** *3* ($\dagger_\gamma$100 *18*) E1
A **1701.60** *23*, $11/2^+$ γ_{997} ***704.5*** *2* ($\dagger_\gamma$100 *9*) M1
A **1759.2** *11*, $(1/2)^+$ γ_{1412} ***347.2*** *10* ($\dagger_\gamma$100 *37*) M1
1797.1 *4*, $9/2^-$, 0.14 *7* ps γ_0 ***1797.1*** *4* ($\dagger_\gamma$100 *11*) M1+E2
1846.8 *10*, $(1/2)^-$ γ_{1412} ***434.8*** γ_{1292} ***554.7*** γ_{1152} ***694.4*** *10* ($\dagger_\gamma$100 *60*) M1
1944.1, $11/2^-$ γ_{997} ***947*** ($\dagger_\gamma$20) γ_0 ***1944.1*** ($\dagger_\gamma$100) E2
2028.9 *10*, $15/2^{(+)}$ γ_{1759} ***253.6***(?) ($\dagger_\gamma$402.5 *8*) γ_{997} ***1031.8*** ($\dagger_\gamma$100 *10*) (M1+E2)
2078.4 γ_0 ***2078.4*** ($\dagger_\gamma$100)
2385.9 *3*, $(13/2)^-$ γ_{1755} ***609.6*** ($\dagger_\gamma$100 *10*) γ_{997} ***1388.8*** ($\dagger_\gamma$59 *7*) E1
2438.91 *23*, $(15/2)^-$ γ_{997} ***1441.8*** *2* ($\dagger_\gamma$100 *10*) E1
2488.22 *14*, $17/2^+$ γ_{2029} ***459.2***(?) ($\dagger_\gamma$<2.4 *1*) γ_{1628} ***894.3*** ($\dagger_\gamma$10.7 *1?*) γ_{997} ***1491.0*** ($\dagger_\gamma$100 *7*) E2
2489.8 *4* γ_{1702} ***788.2*** *3* ($\dagger_\gamma$100 *14*)
2572.27 *16*, $19/2^-$, 0.37 *8* ns γ_{2488} ***84.0*** *1* ($\dagger_\gamma$85 *12*) γ_{997} ***1575.2*** *3* ($\dagger_\gamma$100 *19*) E3
2625.9 *10* γ_{997} ***1628.8*** *10* ($\dagger_\gamma$100 *38*)
2736.0 *5* γ_{2386} ***350.1*** *4* ($\dagger_\gamma$100 *40*)
2760.47 *17*, $21/2^+$, 4.5 *2* ns, μ=+7.6 *12* γ_{2572} ***188.0*** *2* ($\dagger_\gamma$25 *3*) γ_{2488} ***272.3*** *1* ($\dagger_\gamma$100 *8*) E2
2763.81 *17*, $(19/2)^+$ γ_{2488} ***275.6*** *1* ($\dagger_\gamma$100 *11*) M1
2941.8 *5* γ_{2488} ***453.4*** *4* ($\dagger_\gamma$100 *38*)
2942.7 *3* γ_{2764} ***178.9*** *4* ($\dagger_\gamma$48 *14*) γ_{2760} ***182.2*** *3* ($\dagger_\gamma$100 *14*)
2960.3 *10* γ_{2488} ***472.1*** *10* ($\dagger_\gamma$100 *67*)
2971.5, $9/2^-$,$11/2^-$ γ_{1944} ***1027.7*** ($\dagger_\gamma$50) γ_{1397} ***1574.2*** ($\dagger_\gamma$17) γ_0 ***2971.5*** ($\dagger_\gamma$100)
3005.6, $9/2^-$,$11/2^-$ γ_{1397} ***1608.0*** ($\dagger_\gamma$100) γ_0 ***3005.6*** ($\dagger_\gamma$100)
3038.32 *20*, $23/2^+$ γ_{2760} ***277.9*** *2* ($\dagger_\gamma$100 *15*) M1+E2
3082.5 *5* γ_{2764} ***318.7*** *4* ($\dagger_\gamma$100 *30*)
3170.0 *5* γ_{2760} ***409.5*** *4* ($\dagger_\gamma$100 *38*)
3186.0, $23/2^+$ γ_{2760} ***425.6*** *3* ($\dagger_\gamma$100 *26*) M1(+E2)
3204.8, $9/2^-$,$11/2^-$ γ_{1944} ***1260.0*** ($\dagger_\gamma$50) γ_{1797} ***1407.0*** ($\dagger_\gamma$25) γ_{1397} ***1809.0*** ($\dagger_\gamma$38) γ_0 ***3204.8*** ($\dagger_\gamma$100)
3227.9 *5* γ_{2764} ***464.1*** *4* ($\dagger_\gamma$100 *43*)
3322.7, $9/2^-$,$11/2^-$ γ_0 ***3322.7*** ($\dagger_\gamma$100)
3360.1 *5* γ_{3038} ***321.8*** *4* ($\dagger_\gamma$100 *38*)
3399.08 *19*, $25/2^+$ γ_{3038} ***360.8*** *1* ($\dagger_\gamma$100) M1+E2:δ=0.18 γ_{2760} ***638.6*** *1* ($\dagger_\gamma$10)
3581.97 *21*, $27/2^-$, 26.8 *7* ns, μ=+11.34 *23*, Q=−1.26 *8* γ_{3399} ***182.9*** *1* ($\dagger_\gamma$100 *20*) E1 γ_{3038} ***543.7*** *1* ($\dagger_\gamma$16) γ_{2760} ***821.3*** *2* ($\dagger_\gamma$5.5)
3691.94 *21*, $25/2^-$ γ_{3582} ***110.0*** *1* M1 γ_{3186} ***505.3*** *2* γ_{3038} ***653.6*** *1* ($\dagger_\gamma$≈100)
3872.9, $13/2^-$,$11/2^-$ γ_{997} ***2875.7*** ($\dagger_\gamma$100)
4006.94 *23*, $27/2^-$ γ_{3582} ***424.8*** *2* ($\dagger_\gamma$100)
4070.32 *22*, $27/2^-$ γ_{3692} ***378.4*** *2* ($\dagger_\gamma$100) M1 γ_{3399} ***671.3*** *2* ($\dagger_\gamma$20)
4230.00 *22*, $29/2^-$ γ_{4070} ***159.7*** *1* ($\dagger_\gamma$100) M1 γ_{4007} ***223.0*** *1* ($\dagger_\gamma$29)
4450.96 *22*, $29/2^-$ γ_{4007} ***444.1*** *2* ($\dagger_\gamma$68) E2 γ_{3582} ***869.0*** *1* ($\dagger_\gamma$100) M1
4617.92 *22*, $29/2^+$ γ_{3582} ***1035.9*** *1* ($\dagger_\gamma$100) E1
4844.08 *22*, $31/2^-$ γ_{4451} ***393.1*** *2* ($\dagger_\gamma$61) γ_{4230} ***614.0*** *2* ($\dagger_\gamma$100) E2 γ_{3582} ***1262.0*** *2* ($\dagger_\gamma$60)
4948.76 *23*, $31/2^+$ γ_{4618} ***330.8*** *1* ($\dagger_\gamma$100) M1 γ_{4451} ***498.1*** *2* ($\dagger_\gamma$14)
4971.93 *22*, $31/2^-$ γ_{3582} ***1390.0*** *1* ($\dagger_\gamma$100) E2
5265.10 *22*, $31/2^-$ γ_{4844} ***421.0*** *1* ($\dagger_\gamma$49) M1(+E2) γ_{4451} ***814.1*** *1* ($\dagger_\gamma$34) M1,(E2) γ_{3582} ***1683.2*** *2* ($\dagger_\gamma$100) E2
5382.32 *22*, $33/2^-$ γ_{5265} ***117.2*** *1* ($\dagger_\gamma$100) M1 γ_{4972} ***410.6*** *2* ($\dagger_\gamma$13) γ_{4949} ***433.8*** *3* ($\dagger_\gamma$≈9) γ_{4844} ***538.1*** *2* ($\dagger_\gamma$27) γ_{4230} ***1152.3*** *1* ($\dagger_\gamma$50) E2
5557.1 *4*, $35/2^+$ γ_{4949} ***608.4*** *3* ($\dagger_\gamma$100) E2
5583.05 *25*, $35/2^-$ γ_{5382} ***200.7*** *2* ($\dagger_\gamma$100) M1 γ_{4972} ***611.1*** *2* ($\dagger_\gamma$23) E2
59[illegible] *3*, $37/2^-$ γ_{5583} ***340.1*** *1* ($\dagger_\gamma$100) M1
6236.1 *3*, $(35/2^+)$ γ_{4949} ***1287.3*** *2* ($\dagger_\gamma$100)
6471.4 *3*, $39/2^-$ γ_{5923} ***548.2*** *1* ($\dagger_\gamma$100) M1+E2
6541.4 *5*(?), $(37/2^+)$ γ_{5557} ***984.3*** *3* ($\dagger_\gamma$100) (M1+E2)
6621.4 *3*, $39/2^+$ γ_{6541} ***80.3*** *3*(?) D γ_{5923} ***698.2*** *1* ($\dagger_\gamma$100) E1 γ_{5557} ***1064.4*** *3* ($\dagger_\gamma$67) E2
6826.5(?) γ_{6236} ***590.8*** *1*(?) ($\dagger_\gamma$100) (E2)
6906.7 *3*, $41/2^+$ γ_{6621} ***285.4*** *2* ($\dagger_\gamma$95) M1+E2 γ_{6471} ***435.3*** *2* ($\dagger_\gamma$100) (E1) γ_{5923} ***984*** *1* ($\dagger_\gamma$19)
7035.4 *3*, $41/2^+$ γ_{6827} ***208.3*** *4* ($\dagger_\gamma$≈20) γ_{6621} ***414.0*** *1* ($\dagger_\gamma$100) M1+E2
7389.3 *4*, $45/2^+$ γ_{7035} ***353.5*** *3* ($\dagger_\gamma$45) γ_{6907} ***482.5*** *3* ($\dagger_\gamma$≈100) E2
7665.4(?), (39/2,41/2) γ_{5923} ***1743*** *1*(?) ($\dagger_\gamma$100)
7825.4 *4*(?) γ_{5923} ***1902*** *1*(?) ($\dagger_\gamma$100)
7873.8 *4*, $41/2^-$ γ_{7665} ***208.6*** *4*(?) ($\dagger_\gamma$63) γ_{7035} ***838.7*** *5* ($\dagger_\gamma$59) E1 γ_{6621} ***1253*** *1*(?) ($\dagger_\gamma$14) γ_{5923} ***1951*** *1* ($\dagger_\gamma$100) Q
7963.9 *4*(?) γ_{6907} ***1057.3*** *2* ($\dagger_\gamma$100) E1
7993.9 *4*, $43/2^-$ γ_{7874} ***120.1*** *1* ($\dagger_\gamma$100) M1 γ_{7825} ***168.5*** *2* ($\dagger_\gamma$22) γ_{7389} ***604.5*** *1* ($\dagger_\gamma$13) γ_{7035} ***958*** (E1) γ_{6907} ***1087.5*** *3* ($\dagger_\gamma$11)
8153.6 *4*(?), $(47/2)^+$ γ_{7389} ***764.4*** *2* ($\dagger_\gamma$100) M1
8333.4 *4*, $45/2^+$ γ_{7994} ***339.0*** *3* ($\dagger_\gamma$100) E1 γ_{7964} ***369.5*** *2* ($\dagger_\gamma$12) E1

$^{147}_{64}$Gd (Continued)

8587.8 4, (49/2+), 510 20 ns, μ=+10.9 2, Q=−3.24 18 γ_{8333}254.4 1 (†γ 100) E2 γ_{8154}434.5 3 (†γ 6) γ_{7994}594.3(?) (†γ 4) (E3)
9241, (51/2) γ_{8588}653.0 (†γ 100) D(+Q): δ=+0.09 8
9507.0, (51/2+), <1 ps γ_{8588}919.1 (†γ 100) M1+E2: δ=+0.55$^{+15}_{-12}$
9691.2, (53/2+), 3.1 7 ps γ_{8588}1103.4 (†γ 100) E2
9879.8, (53/2−), ≈ 76 ps γ_{9691}188.5 (†γ 100) (E1) γ_{9507}372.7 (†γ 60) E1(+M2): δ=−0.05 4 γ_{9241}638.8 γ_{8588}1291.9 (†γ 7) E3+M2
10271.6, (55/2−) γ_{9691}580.4
10487.8, (55/2+) γ_{9691}796.3 (†γ 100) M1+E2: δ=+0.29 4 γ_{9241}1246.8
10688.7, (57/2−), 10 3 ps γ_{9880}808.9 (†γ 100) E2
10747.2, (57/2+) γ_{10488}259.6 (†γ 33) M1 γ_{9691}1056.1 (†γ 100) E2
10993.3, (59/2−), 0.80 5 ns γ_{10747}246.2 (†γ 27) E1 γ_{10689}304.5 (†γ 100) M1+E2: δ=+0.27 4 γ_{10272}721
11232.2, (61/2−), 17 3 ps γ_{10993}238.9 (†γ 100) M1 γ_{10689}543.6 (†γ 14) E2
11850.7, (65/2−) γ_{11232}618.6 (†γ 100) E2
11930.3, (61/2) γ_{10993}936.8 (†γ 100) D(+Q): δ=−0.07 6
12208.6, (65/2−), ≈ 1.4 ps γ_{11232}976.4 (†γ 100) E2
12548.7, (65/2) γ_{11930}618.3 (†γ 100) E2
13104.7, (67/2,69/2) γ_{12209}896.1 (†γ 100) E2
13265.1, (67/2) γ_{12549}716.3 (†γ 36) γ_{11851}1414.5 (†γ 100) D
13416, 67/2 γ_{12209}1208.0 (†γ 100) D
13446, (69/2,71/2) γ_{13105}341.3
13446.5, (69/2) γ_{13265}181.3 (†γ 100) γ_{12549}897.9 (†γ 100) E2
14433.2, (71/2) γ_{13446}986.7 (†γ 100) M1+E2: δ=+0.55 6
14793 (?)
15174.8, (73/2) γ_{14433}741.6 (†γ 100) D
15390, (73/2) γ_{15175}215.5 (†γ 50) D+Q: δ=+0.34$^{+14}_{-20}$ γ_{14793}597.4 (†γ 100)
15691, (75/2) γ_{15390}300.3 (†γ 100) D
16777 γ_{15691}1086 (†γ 100)
16937, (79/2) γ_{15691}1246 (†γ 100)

B x, J=(55/2)
B 696.9+x, J+2 γ_{x}696.9 5 (†γ 0.23 10) $I^{(1)}$=83.2, $I^{(2)}$=83.2, ħω=0.360
B 1441.9+x, J+4 γ_{697+x}745.0 5 (†γ 0.77 10) $I^{(1)}$=83.2, $I^{(2)}$=79.4, ħω=0.385
B 2237.3+x, J+6 γ_{1442+x}795.4 4 (†γ 0.90 10) $I^{(1)}$=83.0, $I^{(2)}$=76.5, ħω=0.411
B 3085.0+x, J+8 γ_{2237+x}847.7 4 (†γ 0.93 8) $I^{(1)}$=82.6, $I^{(2)}$=76.8, ħω=0.437
B 3984.8+x, J+10 γ_{3085+x}899.8 7 (†γ 1.06 8) $I^{(1)}$=82.2, $I^{(2)}$=73.5, ħω=0.464
B 4939.0+x, J+12 γ_{3985+x}954.2 5 (†γ 1.05 10) $I^{(1)}$=81.7, $I^{(2)}$=72.6, ħω=0.491
B 5948.3+x, J+14 γ_{4939+x}1009.3 5 (†γ 1.05 10) $I^{(1)}$=81.2, $I^{(2)}$=72.3, ħω=0.518
B 7012.9+x, J+16 γ_{5948+x}1064.6 5 (†γ 0.89 10) $I^{(1)}$=80.8, $I^{(2)}$=70.9, ħω=0.546
B 8133.9+x, J+18 γ_{7013+x}1121.0 5 (†γ 1.01 10) $I^{(1)}$=80.3, $I^{(2)}$=73.7, ħω=0.574
B 9309.2+x, J+20 γ_{8134+x}1175.3 5 (†γ 1.03 10) $I^{(1)}$=80.0, $I^{(2)}$=75.9, ħω=0.601
B 10537.2+x, J+22 γ_{9309+x}1228.0 7 (†γ 0.73 7) $I^{(1)}$=79.8, $I^{(2)}$=81.0, ħω=0.626
B 11814.6+x, J+24 $\gamma_{10537+x}$1277.4 5 (†γ 0.79 8) $I^{(1)}$=79.8, $I^{(2)}$=87.7, ħω=0.650
B 13137.6+x, J+26 $\gamma_{11815+x}$1323.0 7 (†γ 0.70 7) $I^{(1)}$=80.1, $I^{(2)}$=90.1, ħω=0.673
B 14505.0+x, J+28 $\gamma_{13138+x}$1367.4 5 (†γ 0.49 8) $I^{(1)}$=80.4, $I^{(2)}$=85.3, ħω=0.695
B 15919.3+x, J+30 $\gamma_{14505+x}$1414.3 7 (†γ 0.41 8) $I^{(1)}$=80.6, $I^{(2)}$=82.3, ħω=0.719
B 17382.2+x, J+32 $\gamma_{15919+x}$1462.9 7 (†γ 0.38 8) $I^{(1)}$=80.7, $I^{(2)}$=75.8, ħω=0.745
B 18897.9+x, J+34 $\gamma_{17382+x}$1515.7 15 (†γ 0.20 10) $I^{(1)}$=80.5
C y, J=(61/2)
C 731.2+y, J+2 γ_{y}731.2 5 (†γ 0.40 15) $I^{(1)}$=87.5, $I^{(2)}$=84.4, ħω=0.377
C 1509.8+y, J+4 γ_{731+y}778.6 4 (†γ 0.52 15) $I^{(1)}$=87.3, $I^{(2)}$=82.0, ħω=0.402
C 2337.2+y, J+6 γ_{1510+y}827.4 4 (†γ 0.92 15) $I^{(1)}$=87.0, $I^{(2)}$=80.0, ħω=0.426
C 3214.6+y, J+8 γ_{2337+y}877.4 4 (†γ 1.21 20) $I^{(1)}$=86.6, $I^{(2)}$=77.8, ħω=0.452
C 4143.4+y, J+10 γ_{3215+y}928.8 4 (†γ 0.87 15) $I^{(1)}$=86.1, $I^{(2)}$=76.6, ħω=0.477
C 5124.4+y, J+12 γ_{4143+y}981.0 4 (†γ 0.79 15) $I^{(1)}$=85.6, $I^{(2)}$=74.1, ħω=0.504
C 6159.4+y, J+14 γ_{5124+y}1035.0 4 (†γ 1.18 20) $I^{(1)}$=85.0, $I^{(2)}$=72.9, ħω=0.531
C 7249.3+y, J+16 γ_{6159+y}1089.9 5 (†γ 1.01 20) $I^{(1)}$=84.4, $I^{(2)}$=71.2, ħω=0.559
C 8395.4+y, J+18 γ_{7249+y}1146.1 5 (†γ 1.02 20) $I^{(1)}$=83.8, $I^{(2)}$=69.9, ħω=0.587
C 9598.7+y, J+20 γ_{8395+y}1203.3 5 (†γ 0.80 15) $I^{(1)}$=83.1, $I^{(2)}$=69.0, ħω=0.616
C 10860.0+y, J+22 γ_{9599+y}1261.3 5 (†γ 0.84 15) $I^{(1)}$=82.5, $I^{(2)}$=68.7, ħω=0.645
C 12179.5+y, J+24 $\gamma_{10860+y}$1319.5 5 (†γ 0.79 17) $I^{(1)}$=81.8, $I^{(2)}$=66.1, ħω=0.675
C 13559.5+y, J+26 $\gamma_{12180+y}$1380.0 5 (†γ 0.54 20) $I^{(1)}$=81.2, $I^{(2)}$=67.8, ħω=0.705
C 14998.5+y, J+28 $\gamma_{13560+y}$1439.0 6 (†γ 0.31 20) $I^{(1)}$=80.6, $I^{(2)}$=65.0, ħω=0.735
C 16499.0+y, J+30 $\gamma_{14999+y}$1500.5 10 (†γ 0.38 20) $I^{(1)}$=80.0, $I^{(2)}$=68.4, ħω=0.765
C 18058.0+y, J+32 $\gamma_{16499+y}$1559.0 15 (†γ 0.17 10) $I^{(1)}$=79.5



SD-1 band SD-2 band

$^{147}_{64}$Gd

$^{148}_{64}$Gd

Δ: −76279 3 S_n: 8983.8 14 S_p: 6014 3 Q_α: 3271.21 3

Nuclear Bands

- *A* SD-1 band
- *B* SD-2 band

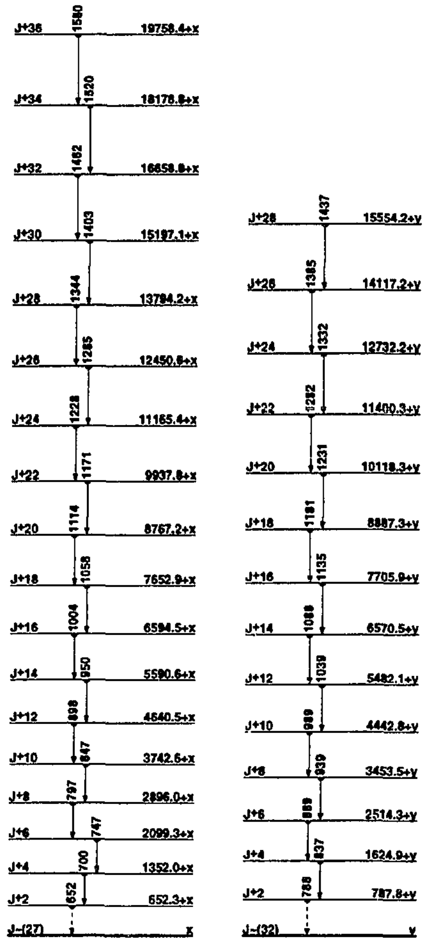
Levels and γ-ray branchings:

0, 0⁺, 74.6 30 y, %α=100
784.430 16, 2⁺ γ_{0} 784.430 16 (†$_\gamma$100) E2
1273.479 20, 3⁻ γ_{784} 489.049 12 (†$_\gamma$100) E1
1416.377 23, 4⁺ γ_{1273} 142.878 14 (†$_\gamma$2.90 13) E1 γ_{784} 631.947 17 (†$_\gamma$100.0 19) E2
1811.0, 6⁺ γ_{1416} 394.6 (†$_\gamma$100) E2
1834.58 5, ⁺ γ_{784} 1050.15 4 (†$_\gamma$100) E2,M1
1863.42 5, 2⁺ γ_{1273} 589.9 7 (†$_\gamma$5.2 3) γ_{784} 1079.025 25 (†$_\gamma$100.0 19) E2+M1: δ=4.6 −14 γ_{0} 1863.391 38 (†$_\gamma$49.3 10)
1912.95 10, 4⁻ γ_{1273} 639.47 7 (†$_\gamma$100) M1
2082.04 15, 5⁻ γ_{1913} 169.2 γ_{1811} 270.9 (†$_\gamma$38) E1 γ_{1416} 665.8 (†$_\gamma$<39) γ_{1273} 808.56 7 (†$_\gamma$100) E2
2188.65 20, 2⁺ γ_{1273} 915.30 12 (†$_\gamma$14) γ_{784} 1404.224 35 (†$_\gamma$100) E2,M1 γ_{0} 2188.65 7 (†$_\gamma$80)
2233.59 6, 3⁻ γ_{1273} 960.09 7 (†$_\gamma$<100) E2,M1 γ_{784} 1449.16 4 (†$_\gamma$85)
2310.88 7, 2⁺ γ_{784} 1526.45 7 (†$_\gamma$55) γ_{0} 2311.03 7 (†$_\gamma$100)
2424.09 15, ⁺ γ_{1416} 1007.72 9 (†$_\gamma$<100) γ_{784} 1639.66 22 (†$_\gamma$65) M1,E2
2503.86 15, ⁻ γ_{1273} 1230.18 5 (†$_\gamma$56) E2,M1 γ_{784} 1719.63 20 (†$_\gamma$100)
2506.4 6, 3⁻ γ_{1416} 1089.411 28 (†$_\gamma$100) E1 γ_{784} 1722.47 28 (†$_\gamma$15.3)
2522.0 3, 4⁺ γ_{1416} 1105.65 11 (†$_\gamma$100) M1,E2 γ_{1273} 1248.2 8 (†$_\gamma$33) γ_{784} 1737.9 6 (†$_\gamma$27)
2563.8 3, 7⁻ γ_{2082} 481.65 10 (†$_\gamma$100) E2 γ_{1811} 752.8 2 (†$_\gamma$23.3) E1
2615.0 8, 2⁺ γ_{1273} 1342.2 6 (†$_\gamma$9.2) γ_{784} 1830.14 4 (†$_\gamma$100) γ_{0} 2614.3 6 (†$_\gamma$
2632.8 2, 5⁻ γ_{784} 1848.36 8 (†$_\gamma$100)
2693.3 2, 8⁺ γ_{2564} 129.5 2 (†$_\gamma$2.7 4) γ_{1811} 882.3 E2
2694.6, 9⁻, 16.5 3 ns, μ=−0.162 18, Q=1.01 5 γ_{2564} 130.8 E2 γ_{1811} 883.6 E3
2700.3 2, (2⁺) γ_{1273} 1426.49 8 (†$_\gamma$44) γ_{784} 1915.54 19 (†$_\gamma$63) γ_{0} 2700.57 20 (†$_\gamma$100)
2763 3, 4⁺
2872.9 4 γ_{1913} 960.09 7 (†$_\gamma$<100) γ_{1273} 1599.39 6 (†$_\gamma$100) γ_{784} 2089 1 (†$_\gamma$41)
2886.3 2 γ_{2504} 382.0 8 (†$_\gamma$24) γ_{1416} 1470.1 8 (†$_\gamma$20) γ_{784} 2101.87 10 (†$_\gamma$100)
2915.3 3 γ_{1913} 1002.48 9 (†$_\gamma$28) γ_{1273} 1641.98 21 (†$_\gamma$37) γ_{784} 2131.14 11 (†$_\gamma$100)
2936.3, 7⁻ γ_{1811} 1125.3 (†$_\gamma$100)
3029.3, 8⁻ γ_{2695} 334.7 (†$_\gamma$100) M1 γ_{2564} 465.6 (†$_\gamma$58) M1
3065 γ_{1835} 1230
3076.1 4 γ_{1273} 1802.62 24 (†$_\gamma$100)
3089.5 4 γ_{2082} 1007.72 9 (†$_\gamma$<100) (E2,M1) γ_{1273} 1816.06 9 (†$_\gamma$68) γ_{0} 3090.5 15 (†$_\gamma$25)
3130.9 2 γ_{784} 2345.1 8 (†$_\gamma$63) γ_{0} 3130.89 16 (†$_\gamma$100)
3152.1, 8⁻ γ_{3029} 122.9 D+Q γ_{2695} 457.6 γ_{2564} 588.3
3295.0 2 γ_{784} 2510.56 15 (†$_\gamma$100) γ_{0} 3295.5 10 (†$_\gamma$33)
3310.0(?), 8⁻ γ_{2936} 373.7 (†$_\gamma$100)
3366.8, 9⁻ γ_{3310} 57 γ_{3152} 214.7 γ_{3029} 337.2 γ_{2936} 430.5 (†$_\gamma$100) γ_{2693} 673.8 (†$_\gamma$78) γ_{2564} 803.2
3574.9 4 γ_{1273} 2301.44 21 (†$_\gamma$100) γ_{0} 3574.6 10 (†$_\gamma$90)
3701.3, 11⁻ γ_{2695} 1006.7 (†$_\gamma$100) E2
3757.9, 10⁺ γ_{2695} 1063.3 (†$_\gamma$100)
3822, 10⁺ γ_{3758} 63 γ_{2695} 1128 γ_{2693} 1129
3917.4, 10⁻ γ_{3367} 550.3 γ_{3152} 765.3 γ_{3029} 888.3
3980.1, 12⁻ γ_{3758} 221.6 γ_{3701} 278.8 E1 γ_{2695} 1285.4
4050.8 15 γ_{1416} 2634.6 10 (†$_\gamma$39) γ_{1273} 2777.5 10 (†$_\gamma$19) γ_{784} 3266.4 10 (†$_\gamma$100)
4068.7 15 γ_{1913} 2155.33 25 (†$_\gamma$100) γ_{1273} 2794.6 10 (†$_\gamma$51) γ_{0} 4066.8 10 (†$_\gamma$43)
4121.2, 11⁻ γ_{3701} 420.1 γ_{3367} 754.2
4429.4, 12⁻ γ_{4121} 308.2 γ_{3980} 449.1 γ_{3917} 511 γ_{3701} 728.3
4499.8, 12⁺ γ_{3980} 519.7 (†$_\gamma$100) γ_{3822} 678 γ_{3758} 742.1 (†$_\gamma$100) γ_{3701} 799
4542.3 4 γ_{1416} 3125.44 29 (†$_\gamma$47) γ_{1273} 3269.22 30 (†$_\gamma$100)
4550.6, 13⁻ γ_{4429} 121.2 γ_{4121} 429.4 γ_{3980} 570
4905.5, 14⁻ γ_{4551} 354.9
5025.1, 14⁺ γ_{4551} 475 γ_{4500} 525.3 γ_{3980} 1045.1
5116.9, 15⁻ γ_{4905} 211.4 (†$_\gamma$100) γ_{4551} 566.3 (†$_\gamma$100)
5167.4, 14⁺ γ_{3980} 1187.3 (†$_\gamma$100)
5354.7, 16⁺ γ_{5117} 237.9 (†$_\gamma$14) γ_{5025} 329.6 (†$_\gamma$100)
5437.7, 16⁻ γ_{5117} 320.8 γ_{4905} 532
5578 γ_{5167} 411
5689, 17 γ_{5355} 334
5800 γ_{5578} 222
5831.8, 18⁺ γ_{5689} 142 γ_{5355} 476.8
5882, 17 γ_{5438} 444
5933, 17 γ_{5800} 133 γ_{5438} 495 γ_{5355} 578 γ_{5117} 816
6268, 18 γ_{5832} 436
6381, 18 γ_{5933} 448 γ_{5882} 499 γ_{5832} 549
6545, 18⁻ γ_{5933} 612 γ_{5689} 855
6574, 19⁺ γ_{6381} 193 γ_{6268} 306 γ_{5832} 742
6640, 19⁻ γ_{5832} 808
6834, 20⁻, ≈ 2 ns γ_{6640} 194 γ_{6574} 259 γ_{6545} 289 γ_{5832} 1002
7051, 19⁺ γ_{6381} 670 γ_{5832} 1219
7110, 20⁺ γ_{5832} 1278
7155, 21⁻ γ_{6834} 321 γ_{6640} 516
7273, 20⁺ γ_{7051} 223 γ_{6574} 699
7333 γ_{6574} 759
7530, 21⁺ γ_{7333} 197 γ_{7273} 257 γ_{7110} 420 γ_{7051} 479
7790, 22⁺ γ_{7530} 260 γ_{7110} 680
8003, 22⁻ γ_{7155} 849 γ_{6834} 1170
8241, 22⁻ γ_{6834} 1408
8304, 23⁻ γ_{7155} 1149
8308, 23⁺ γ_{7790} 518
8363, 23⁻ γ_{7790} 574 γ_{7155} 1208
8453, 23⁻ γ_{8304} 151 γ_{8241} 213 γ_{8003} 451 γ_{7790} 664
8608, 23 γ_{7790} 818
8637, 24⁻ γ_{8453} 184 γ_{8308} 330 γ_{8003} 634
8831, 24 γ_{8608} 223 γ_{8453} 377 γ_{8363} 468 γ_{8308} 523
8986, 25⁻ γ_{8831} 155 γ_{8637} 348 γ_{8363} 623
9241, 25⁻ γ_{8637} 604
9258 γ_{8637} 620 γ_{8363} 895
9652, 26⁻ γ_{8986} 666
9755, 26⁻ γ_{9241} 514 γ_{8986} 771
9933, 26 γ_{8831} 1102
9956 γ_{9241} 714
10045, 25⁻ γ_{9258} 788 γ_{8363} 1682 γ_{8304} 1742
10060, 27 γ_{9755} 305
10317, 27⁻ γ_{10045} 272 γ_{9956} 361 γ_{9755} 560 γ_{9652} 665 γ_{8986} 1331
10472, 27⁻ γ_{9755} 717
10694, 27⁻ γ_{9652} 1042
10757, 28 γ_{10060} 697
10867, 28 γ_{10060} 807
11157, 28 γ_{10694} 464 γ_{10472} 684 γ_{10317} 840
11183, 29 γ_{10060} 1123
11455, 29 γ_{11183} 271 γ_{11157} 298
11478 γ_{10317} 1160
11546, 29⁻ γ_{10694} 852 γ_{10317} 1228
11585, 30 γ_{11455} 130
11725, 30 γ_{11183} 542 γ_{10867} 858 γ_{10757} 967
12011 γ_{11455} 556
12061, 30⁻ γ_{11183} 878
12139, 31⁻ γ_{12061} 74 γ_{11725} 411 γ_{11585} 554 γ_{11546} 593 γ_{11478} 661
12283, 30⁻ γ_{11455} 880 γ_{11157} 1126
12380, 31 γ_{11455} 925
12527, 32 γ_{12283} 244 γ_{12139} 391 γ_{11585} 943
12681, 31 γ_{11585} 1096
13037, 33 γ_{12681} 361 γ_{12527} 510 γ_{12380} 657
13123, 33⁻ γ_{12139} 987
13146, 32 γ_{12681} 462 γ_{12380} 766 γ_{12139} 1009
13242, 32 γ_{12681} 561
13352, 34 γ_{12527} 825
13734, 34 γ181 γ_{13242} 492 γ_{13146} 588 γ_{13037} 697
13868, 35, ≈ 2 ns γ_{13734} 134 γ_{12527} 1340
13886 γ_{13037} 849
14009, 34 γ_{13037} 972
14144, 35 γ_{13037} 1107
14827, 37 γ_{13868} 959
14923, 36 γ_{14144} 779 γ_{13886} 1036 γ_{13868} 1056
15122, 38 γ_{14827} 295

$^{148}_{64}$Gd (Continued)

15164, 38 γ_{14827}*337*
15726 γ_{14923}*803*
16076 γ_{15726}*350*
16111, 38 γ_{14923}*1188*
16203, 40 γ_{15164}*1039*
16256, 40 γ_{15164}*1092*
16406, 40 γ_{16111}*295*
16472, 39 γ_{15164}*1308*
17240 γ_{16406}*834*
17318 γ_{16472}*840*
17370, 42 γ_{16406}*964*
18481, 44 γ_{17370}*1111*
19148 γ_{18481}*667*

A x, J=(27)
A 652.3+x, J+2 γ_x*652.33*(?) ($\dagger_\gamma$0.11 *5*) $I^{(1)}$=87.4, $I^{(2)}$=84.4, $\hbar\omega$=0.338
A 1352.0+x, J+4 γ_{652+x}*699.73* ($\dagger_\gamma$0.69 *10*) $I^{(1)}$=87.2, $I^{(2)}$=84.0, $\hbar\omega$=0.362
A 2090.3+x, J+6 γ_{1352+x}*747.33* ($\dagger_\gamma$0.99 *7*) $I^{(1)}$=87.0, $I^{(2)}$=81.0, $\hbar\omega$=0.386
A 2896.0+x, J+8 γ_{2090+x}*796.73* ($\dagger_\gamma$0.90 *10*) $I^{(1)}$=86.6, $I^{(2)}$=80.2, $\hbar\omega$=0.411
A 3742.6+x, J+10 γ_{2896+x}*846.63* ($\dagger_\gamma$0.87 *16*) $I^{(1)}$=86.2, $I^{(2)}$=78.0, $\hbar\omega$=0.436
A 4840.8+x, J+12 γ_{3743+x}*897.93* ($\dagger_\gamma$1.00 *7*) $I^{(1)}$=85.8, $I^{(2)}$=76.6, $\hbar\omega$=0.462
A 5590.8+x, J+14 γ_{4841+x}*950.13* ($\dagger_\gamma$1.01 *8*) $I^{(1)}$=85.3, $I^{(2)}$=74.3, $\hbar\omega$=0.488
A 6594.8+x, J+16 γ_{5591+x}*1003.94* ($\dagger_\gamma$0.91 *10*) $I^{(1)}$=84.7, $I^{(2)}$=73.4, $\hbar\omega$=0.516
A 7652.9+x, J+18 γ_{6595+x}*1058.44* $I^{(1)}$=84.1, $I^{(2)}$=71.6, $\hbar\omega$=0.543
A 8767.2+x, J+20 γ_{7653+x}*1114.34* ($\dagger_\gamma$0.90 *10*) $I^{(1)}$=83.5, $I^{(2)}$=71.0, $\hbar\omega$=0.571
A 9937.8+x, J+22 γ_{8767+x}*1170.64* ($\dagger_\gamma$0.85 *7*) $I^{(1)}$=82.9, $I^{(2)}$=70.2, $\hbar\omega$=0.600
A 11165.4+x, J+24 γ_{9938+x}*1227.64* ($\dagger_\gamma$0.66 *6*) $I^{(1)}$=82.3, $I^{(2)}$=69.4, $\hbar\omega$=0.628
A 12450.6+x, J+26 $\gamma_{11165+x}$*1285.24* ($\dagger_\gamma$0.55 *5*) $I^{(1)}$=81.7, $I^{(2)}$=68.5, $\hbar\omega$=0.657
A 13794.2+x, J+28 $\gamma_{12451+x}$*1343.64* ($\dagger_\gamma$0.54 *6*) $I^{(1)}$=81.1, $I^{(2)}$=67.5, $\hbar\omega$=0.687
A 15197.1+x, J+30 $\gamma_{13794+x}$*1402.95* ($\dagger_\gamma$0.33 *7*) $I^{(1)}$=80.5, $I^{(2)}$=68.0, $\hbar\omega$=0.716
A 16658.8+x, J+32 $\gamma_{15197+x}$*1461.75* ($\dagger_\gamma$0.24 *3*) $I^{(1)}$=80.0, $I^{(2)}$=68.6, $\hbar\omega$=0.745
A 18178.8+x, J+34 $\gamma_{16659+x}$*1520.06* ($\dagger_\gamma$0.20 *4*) $I^{(1)}$=79.6, $I^{(2)}$=67.1, $\hbar\omega$=0.775
A 19758.4+x, J+36 $\gamma_{18179+x}$*1579.69* ($\dagger_\gamma$0.14 *4*) $I^{(1)}$=79.1
B y, J=(32)
B 787.8+y, J+2 γ_y*787.8 10*(?) $I^{(1)}$=85.0, $I^{(2)}$=81.1, $\hbar\omega$=0.406
B 1624.9+y, J+4 γ_{788+y}*837.15* ($\dagger_\gamma$0.53 *15*) $I^{(1)}$=84.8, $I^{(2)}$=76.5, $\hbar\omega$=0.432
B 2514.3+y, J+6 γ_{1625+y}*889.44* ($\dagger_\gamma$0.83 *20*) $I^{(1)}$=84.3, $I^{(2)}$=80.3, $\hbar\omega$=0.457
B 3453.5+y, J+8 γ_{2514+y}*939.26* ($\dagger_\gamma$0.94 *13*) $I^{(1)}$=84.1, $I^{(2)}$=79.8, $\hbar\omega$=0.482
B 4442.8+y, J+10 γ_{3454+y}*989.35* ($\dagger_\gamma$1.03 *13*) $I^{(1)}$=83.9, $I^{(2)}$=80.0, $\hbar\omega$=0.507
B 5482.1+y, J+12 γ_{4443+y}*1039.34* ($\dagger_\gamma$1.01 *17*) $I^{(1)}$=83.7, $I^{(2)}$=81.5, $\hbar\omega$=0.532
B 6570.5+y, J+14 γ_{5482+y}*1088.48* ($\dagger_\gamma$0.96 *13*) $I^{(1)}$=83.6, $I^{(2)}$=85.1, $\hbar\omega$=0.556
B 7705.9+y, J+16 γ_{6571+y}*1135.47* ($\dagger_\gamma$0.95 *19*) $I^{(1)}$=83.7, $I^{(2)}$=87.0, $\hbar\omega$=0.579
B 8887.3+y, J+18 γ_{7706+y}*1181.45* ($\dagger_\gamma$0.69 *13*) $I^{(1)}$=83.8, $I^{(2)}$=80.6, $\hbar\omega$=0.603
B 10118.3+y, J+20 γ_{8887+y}*1231.05* ($\dagger_\gamma$0.54 *17*) $I^{(1)}$=83.7, $I^{(2)}$=78.4, $\hbar\omega$=0.628
B 11400.3+y, J+22 $\gamma_{10118+y}$*1282.05* ($\dagger_\gamma$0.35 *15*) $I^{(1)}$=83.5, $I^{(2)}$=80.2, $\hbar\omega$=0.653
B 12732.2+y, J+24 $\gamma_{11400+y}$*1331.96* ($\dagger_\gamma$0.26 *20*) $I^{(1)}$=83.3, $I^{(2)}$=75.3, $\hbar\omega$=0.679
B 14117.2+y, J+26 $\gamma_{12732+y}$*1385.0 10* ($\dagger_\gamma$0.48 *20*) $I^{(1)}$=83.0, $I^{(2)}$=76.9, $\hbar\omega$=0.706
B 15554.2+y, J+28 $\gamma_{14117+y}$*1437.0 10* ($\dagger_\gamma$0.18 *11*) $I^{(1)}$=82.8



SD-1 band SD-2 band

$^{148}_{64}$Gd

$^{149}_{64}$Gd

Δ: −75135 *5* S_n: 6927 *3* S_p: 6185 *18* Q_{EC}: 1319 *6* Q_α: 3101 *3*

Nuclear Bands

- *A* SD-1 band
- *B* SD-2 band
- *C* SD-3 band
- *D* SD-4 band
- *E* SD-5 band
- *F* SD-6 band
- *G* SD-7 band
- *H* SD-8 band
- *I* $(\nu f_{7/2})^3$
- *J* $(\nu h_{9/2})(\nu f_{7/2})^3$
- *K* $(\nu f_{7/2})^3(3^-)$
- *L* $(\nu f_{7/2})^2(\nu h_{9/2})(\pi d_{5/2})^{-2}(\pi h_{11/2})^2$
- *M* $(\nu f_{7/2})^2(\nu i_{13/2})(\pi d_{5/2})^{-2}(\pi h_{11/2})^2$
- *N* $(\nu f_{7/2})(\nu h_{9/2})(\nu i_{13/2})(\pi d_{5/2})^{-2}(\pi h_{11/2})^2$
- *O* $(\nu f_{7/2})(\nu h_{9/2})(\nu i_{13/2})(\pi d_{5/2})^{-3}(\pi g_{7/2})^3$
- *P* $(\nu f_{7/2})(\nu h_{9/2})(\nu i_{13/2})(\pi d_{5/2})^{-2}(\pi g_{7/2})^{-1}$

Levels and γ-ray branchings:

I **0**, 7/2⁻, 9.28 *10* d, %EC+%β⁺=100, %α=4.3×10⁻⁴ *10*, μ=0.88 *4*

I **164.988** *15*, 5/2⁻, 1.7 *1* ns, μ=−0.90 *23* γ_0 ***164.98*** *2* (I_γ100) M1+E2: δ=−0.93 *2*

I **352.235** *15*, 3/2⁻, 0.43 *5* ns γ_{165} ***187.22*** *2* (I_γ14.6 *2*) M1+E2: δ=+0.5$^{+2}_{-1}$ γ_0 ***352.24*** *2* (I_γ100 *3*) E2

I **775.20** *5*, 11/2⁻ γ_0 ***775.2*** *1* (I_γ100) E2

J **795.82** *5*, 9/2⁻ γ_{165} ***630.53***(?) (I_γ≈15) γ_0 ***795.9*** *1* (I_γ100 *5*) M1+E2: δ=+0.19 *1*

817.10 *2*, 3/2⁻ γ_{352} ***464.85*** *2* (I_γ34.8 *5*) M1(+E2): δ=−0.10 *14* γ_{165} ***652.12*** *2* (I_γ100 *1*) M1+E2: δ=−0.57 *5* γ_0 ***817.1*** *2* (I_γ71.4 *11*) E2

K **873.35** *9*, 11/2⁺, 1.6 *6* ns γ_{796} ***77.6*** *1* (I_γ100 *1*) E1 γ_{775} ***98.1*** *1* (I_γ45 *1*) E1 γ_0 ***873.1*** *2*(?) (I_γ4.2 *2*)

K **955.81** *11*, (13/2)⁺ γ_{873} ***82.3*** *2* (I_γ43 *1*) M1 γ_{775} ***180.5*** *1* (I_γ100 *1*) E1

1026.84 *2*, 3/2⁺ γ_{352} ***674.61*** *6* (I_γ9.1 *2*) E1 γ_{165} ***861.86*** *2* (I_γ100 *1*) E1(+M2): δ=−0.05 *6*

1085.2 *3*, (5/2⁻,7/2,9/2⁻) γ_{796} ***289.3*** *3* (I_γ100 *25*) γ_{165} ***920.5*** (I_γ38 *12*) γ_0 ***1085.5*** (I_γ75 *38*)

1124.89 *3*, 1/2⁺,3/2⁺,5/2⁺ γ_{1027} ***98.1*** *2* (I_γ9.3 *11*) M1 γ_{817} ***307.79*** *7* (I_γ16.5 *11*) γ_{352} ***772.65*** *3* (I_γ100 *2*) E1

1144.09 *5*, 3/2⁺,5/2⁺ γ_{1027} ***117.2*** (I_γ4 *2*) γ_{352} ***791.8*** (I_γ12 *5*) γ_{165} ***979.09*** *6* (I_γ100 *5*) E1 γ_0 ***1144.09*** *9* (I_γ59 *5*) D,E2

1167.11 *6*, (3/2⁺) γ_{165} ***1002.1*** (I_γ58 *4*) γ_0 ***1167.10*** *7* (I_γ100 *5*) (M2)

1205.67 *2*, (1/2)⁻ γ_{817} ***388.57*** *2* (I_γ100.0 *7*) M1+E2: δ=−0.21 *9* γ_{352} ***853.43*** *1* (I_γ84.1 *12*) E2+M1: δ=−8$^{+6}_{-23}$ γ_{165} ***1040.65*** *4* (I_γ7.9 *2*) (E2) γ_0 ***1205.6***(?) (I_γ<0.1)

1348.73 *9*, 1/2(⁻),3/2,5/2⁻ γ_{1027} ***321.9*** (I_γ14 *7*) γ_{352} ***996.5*** *1* (I_γ100 *7*) γ_{165} ***1183.7*** *2* (I_γ57 *14*)

1402.90 *7*, (5/2⁻) γ_{1085} ***317.4*** (I_γ14 *4*) γ_{796} ***606.7*** (I_γ4 *2*) γ_0 ***1402.91*** *9* (I_γ100 *6*)

I **1483.80** *11*, (15/2)⁻ γ_{956} ***527.8*** *1* (I_γ44 *2*) E1 γ_{775} ***708.7*** *1* (I_γ100 *1*) E2

1487.60 *7*, 1/2⁻,3/2⁻,5/2⁻ γ_{817} ***670.4*** (I_γ5.2 *15*) γ_{352} ***1135.3*** *1* (I_γ100 *3*) M1(+E2): δ<0.7 γ_{165} ***1322.7*** *1* (I_γ7.5 *7*)

1544.13 *5*, (3/2⁻,5/2⁻) γ_{352} ***1191.89*** *8* (I_γ100 *7*) γ_{165} ***1379.1*** *1* (I_γ100 *5*) γ_0 ***1544.1*** *2* (I_γ21 *5*)

1557.38 *6*, 1/2(⁻),3/2,5/2⁻ γ_{1167} ***390.3*** (I_γ29 *7*) γ_{1144} ***413.3*** *1* (I_γ31 *2*) γ_{1125} ***432.5*** *2* (I_γ18 *4*) γ_{817} ***740.2*** *1* (I_γ100 *4*) γ_{352} ***1205.20*** *8* (I_γ95 *9*) γ_{165} ***1392.3*** *3* (I_γ13 *4*)

1597.29 *11*, 1/2,3/2,5/2⁻ γ_{1125} ***472.4*** *1* (I_γ100 *15*) γ_{817} ***780.2*** (I_γ9 *2*) γ_{352} ***1245.1*** (I_γ11 *4*)

J **1609.05** *13*, (13/2⁻) γ_{796} ***813.2*** *2* (I_γ100 *1*) (E2) γ_{775} ***834.0*** *2* (I_γ99 *3*) D(+Q)

1614.05 *6*, 3/2⁺ γ_{1167} ***446.7*** *6* (I_γ2.8 *19*) γ_{1144} ***469.9*** (I_γ0.9 *6*) γ_{1027} ***587.2*** (I_γ5.7 *19*) γ_{817} ***796.9*** (I_γ1.9 *9*) γ_{352} ***1261.7*** *2* (I_γ12 *2*) γ_{165} ***1449.10*** *6* (I_γ100 *4*) E1

1655.19 *6*, (3/2)⁺ γ_{1403} ***252.3*** *1* (I_γ11 *2*) γ_{1206} ***449.6*** (I_γ7.7 *22*) γ_{1167} ***488.1*** *2* (I_γ11 *2*) γ_{1027} ***628.4*** *2* (I_γ9.9 *22*) γ_{817} ***838.1*** *2* (I_γ9 *1*) γ_{352} ***1302.92*** *8* (I_γ100 *3*) E1 γ_{165} ***1490.3*** *2* (I_γ22 *3*)

K **1739.7** *2*, (17/2)⁺ γ_{956} ***784.1*** *2* (I_γ100) E2

1750.61 *9*, 1/2(⁻),3/2,5/2⁻ γ_{1403} ***347.7*** (I_γ79 *10*) γ_{1125} ***625.7*** *3* (I_γ10 *5*) γ_{1027} ***723.8*** (I_γ63 *10*) γ_{352} ***1398.3*** *3* (I_γ32 *10*) γ_{165} ***1585.6*** *1* (I_γ100 *5*) γ_0 ***1751.0*** *4*(?) (I_γ21 *11*)

1751.1 *2*(?) γ_{873} ***877.8*** *2*(?) (I_γ100)

1772.83 *5*, 1/2(⁺),3/2(⁺) γ_{1125} ***648.0*** *1* (I_γ100 *9*) γ_{1027} ***746.0*** *1* (I_γ49 *3*) γ_{817} ***955.71*** *5* (I_γ77 *4*) (E1) γ_{352} ***1420.6*** *1* (I_γ14 *1*) γ_0 ***1772.8***(?) (I_γ3 *3*)

1844.31 *7*, 1/2(⁻),3/2,5/2⁻ γ_{1167} ***677.2*** *1* (I_γ100 *10*) γ_{1027} ***817.5*** (I_γ35 *10*) γ_{817} ***1027.2*** *2* (I_γ10 *5*) γ_{352} ***1492.2*** *3* (I_γ60 *10*) γ_{165} ***1679.3*** *1* (I_γ90 *10*)

1992.49 *4*, 3/2⁻ γ_{1773} ***219.7*** (I_γ0.3 *16*) γ_{1614} ***378.5*** *1* (I_γ3.8 *5*) γ_{1544} ***448.5*** (I_γ1.4 *3*) γ_{1206} ***786.8*** *1* (I_γ4.1 *3*) γ_{1167} ***825.4*** (I_γ1.9 *5*) γ_{1027} ***965.63*** *5* (I_γ16.2 *8*) γ_{817} ***1175.4*** (I_γ100 *4*) M1 γ_{352} ***1640.26*** *6* (I_γ97.3 *3*) E2(+M1): δ>1 γ_{165} ***1827.5*** (I_γ33.5 *2*) M1(+E2): δ<1 γ_0 ***1992.5***(?) (I_γ0.5 *5*)

1999.5 *3*(?), (15/2⁺) γ_{1609} ***390.5*** *2* (I_γ100) E1

2058.01 *13*, (17/2)⁻ γ_{1609} ***448.9*** *2* (I_γ19 *2*) (E2) γ_{1484} ***574.2*** *1* (I_γ100 *1*) M1

2088.47 *9*, 1/2(⁻),3/2,5/2⁻ γ_{1403} ***685.6*** (I_γ31 *11*) γ_{1144} ***944.4*** *2* (I_γ71 *28*) γ_{1125} ***963.6*** (I_γ57 *28*) γ_{1027} ***1061.6*** *1* (I_γ100 *14*) γ_{352} ***1736.3*** *2* (I_γ93 *13*) γ_{165} ***1923.4*** (I_γ16 *9*)

2126.8 *6*, 1/2,3/2,5/2⁻ γ_{1403} ***723.7*** (I_γ100 *25*) γ_{1125} ***1001.7***(?) (I_γ<37) γ_{352} ***1774.4*** (I_γ75 *25*)

2158.36 *4*, (3/2)⁺ γ_{1614} ***544.3*** (I_γ1.1 *4*) γ_{1544} ***614.2*** *1* (I_γ7.3 *8*) γ_{1488} ***670.8*** (I_γ3.5 *8*) γ_{1206} ***952.7*** *1* (I_γ6.9 *8*) γ_{1125} ***1033.4*** (I_γ10.8 *19*) (M1) γ_{1027} ***1131.65*** *7* (I_γ34.2 *11*) (M1) γ_{817} ***1341.19*** *6* (I_γ100 *4*) E1 γ_{352} ***1806.0*** *1* (I_γ19.2 *11*) γ_{165} ***1993.3*** (I_γ2.3 *8*)

2199.90 *11*, 1/2(⁻),3/2,5/2⁻ γ_{1403} ***797.0*** (I_γ11 *5*) γ_{1206} ***994.3*** (I_γ21 *5*) γ_{1167} ***1032.8*** (I_γ53 *16*) γ_{1144} ***1055.8*** (I_γ74 *21*) γ_{1125} ***1075.0*** *1* (I_γ42 *5*) γ_{352} ***1847.7*** (I_γ47 *5*) γ_{165} ***2034.8*** (I_γ100 *16*)

J **2231.8** *2*, (17/2⁻) γ_{1609} ***622.7*** *2* (I_γ93 *4*) (E2) γ_{1484} ***747.6*** *2* (I_γ100 *4*)

2261.54 *9*, 1/2(⁻),3/2 γ_{1488} ***774.0*** (I_γ7 *4*) γ_{1403} ***858.6*** (I_γ32 *8*) γ_{1167} ***1094.3*** *3* (I_γ12 *4*) γ_{1144} ***1117.5*** (I_γ48 *6*) γ_{1125} ***1136.6*** (I_γ12 *8*) γ_{1027} ***1234.7*** *2* (I_γ30 *5*) γ_{817} ***1444.4*** (I_γ36 *8*) γ_{352} ***1909.3*** *1* (I_γ100 *8*) γ_{165} ***2096.5*** (I_γ16 *4*) γ_0 ***2261.5***(?) (I_γ12 *12*)

2300.72 *6*, 1/2(⁻),3/2 γ_{1614} ***686.66*** *6* (I_γ48 *4*) γ_{1125} ***1175.8*** (I_γ46 *7*) γ_{1027} ***1273.9*** (I_γ3.5 *17*) γ_{817} ***1483.6*** *1* (I_γ59 *7*) γ_{352} ***1948.5*** *1* (I_γ100 *4*) γ_{165} ***2135.7*** *2* (I_γ26 *4*)

2314.1 *7*, 1/2(⁻),3/2,5/2⁻ γ_{817} ***1497.0*** (I_γ100 *25*) γ_{165} ***2149.1*** (I_γ75 *25*)

2383.4 *2*, (19/2)⁻ γ_{2058} ***325.2*** *2* (I_γ67 *1*) (M1+E2): δ=−0.09 *5* γ_{1740} ***643.7*** *2* (I_γ100 *2*) E1 γ_{1484} ***899.5*** *2* (I_γ77 *2*) Q

K **2401.1** *2*, (21/2)⁺ γ_{1740} ***661.4*** *1* (I_γ100) E2

2482.75 *19*, 1/2,3/2,5/2⁻ γ_{1206} ***1277.0*** (I_γ29 *14*) γ_{1144} ***1338.6*** (I_γ36 *14*) γ_{1125} ***1357.8*** (I_γ9 *6*) γ_{352} ***2130.5*** *2* (I_γ100 *14*)

2503.7 *2*, 1/2(⁻),3/2,5/2⁻ γ_{352} ***2151.5*** (I_γ22 *11*) γ_{165} ***2338.7*** *2* (I_γ100 *22*)

2514.8 *3*(?) $\gamma_{1751.1}$ ***763.4*** *2*(?) (I_γ100)

J **2523.9** *2*, (21/2)⁻ γ_{2232} ***292.3*** *2* (I_γ19 *2*) (E2) γ_{2058} ***465.9*** *2* (I_γ100 *1*) E2

2570.1 *3*, 1/2,3/2,5/2⁻ γ_{1206} ***1363.8*** (I_γ35 *9*) γ_{1167} ***1402.4*** (I_γ12 *6*) γ_{1027} ***1543.4*** *3* (I_γ100 *25*)

2590.06 *10*, 1/2,3/2 γ_{1544} ***1045.9*** (I_γ24 *12*) γ_{1488} ***1102.5*** (I_γ18 *6*) γ_{1403} ***1187.1*** (I_γ29 *18*) γ_{1206} ***1384.4*** (I_γ12 *6*) γ_{1125} ***1465.1*** (I_γ7 *4*) γ_{1027} ***1563.2*** (I_γ8 *5*) γ_{817} ***1772.9*** (I_γ35 *12*) γ_{352} ***2237.8*** *1* (I_γ100 *12*)

2599.31 *9*, 1/2(⁻),3/2 γ_{1544} ***1055.1*** (I_γ12 *4*) γ_{1488} ***1111.7*** (I_γ6 *3*) γ_{1125} ***1474.3*** (I_γ8 *4*) γ_{1027} ***1572.4*** (I_γ6 *3*) γ_{817} ***1782.2*** *1* (I_γ100 *8*) γ_{352} ***2247.0*** *2* (I_γ68 *8*) γ_{165} ***2434.5*** *4* (I_γ20 *4*)

2613.2 *5*, 1/2(⁻),3/2 γ_{1992} ***620.7*** (I_γ50 *12*) γ_{1125} ***1488.3*** (I_γ44 *12*) γ_{1027} ***1586.4*** (I_γ25 *6*) γ_{352} ***2261.0*** (I_γ100 *12*) γ_{165} ***2448.2*** (I_γ81 *12*)

2683.42 *9*, 1/2,3/2 γ_{1614} ***1069.6*** (I_γ14 *5*) γ_{1544} ***1139.5*** (I_γ19 *5*) γ_{1206} ***1477.7*** *2* (I_γ38 *10*) γ_{1144} ***1539.6*** *4* (I_γ29 *10*) γ_{1125} ***1558.5*** *1* (I_γ52 *10*) γ_{1027} ***1656.8*** (I_γ100 *10*)

2702.9 *4*, 1/2(⁻),3/2,5/2⁻ γ_{1206} ***1497.6*** (I_γ36 *14*) γ_{1144} ***1556.2*** (I_γ60 *20*) γ_{165} ***2538.3*** *4* (I_γ100 *40*)

2757.21 *9*, 1/2,3/2 γ_{1488} ***1269.7*** (I_γ5 *3*) γ_{1125} ***1632.3*** (I_γ9 *3*) γ_{1027} ***1730.4*** (I_γ7) γ_{817} ***1940.1*** *1* (I_γ100 *9*) γ_{352} ***2404.9*** *2* (I_γ31 *6*)

2768.0 *4*, 1/2,3/2,5/2⁻ γ_{1144} ***1623.8*** (I_γ67 *30*) γ_{352} ***2415.8*** *4* (I_γ100 *33*)

2808.6 *5*, 1/2,3/2 γ_{1488} ***1320.9*** (I_γ26 *12*) γ_{1167} ***1641.3*** (I_γ32 *16*) γ_{817} ***1991.8*** (I_γ80 *40*) γ_{352} ***2456.2*** (I_γ100 *20*)

2824.97 *8*, 1/2⁻,3/2⁻ γ_{1544} ***1280.8*** *1* (I_γ11 *1*) γ_{1488} ***1337.5*** (I_γ3 *1*) γ_{1403} ***1422.1*** (I_γ6 *2*) γ_{1027} ***1798.2*** (I_γ18 *2*) γ_{817} ***2007.9*** *1* (I_γ100 *3*) E2(+M1): δ>2 γ_{352} ***2472.7*** *2* (I_γ13 *2*)

2830.6 *10*, 1/2,3/2,5/2⁻ γ_{352} ***2478.3*** (I_γ100)

2856.4 *4* γ_{2401} ***455.3*** *3* (I_γ100)

2861.8 *5*, 1/2(⁻),3/2 γ_{1206} ***1656.2*** (I_γ40 *20*) γ_{1167} ***1694.7*** (I_γ60 *40*) γ_{1027} ***1835.0*** (I_γ50 *16*) γ_{817} ***2044.7*** (I_γ34 *16*) γ_{165} ***2696.8*** (I_γ100 *40*)

2913.08 *10*, 1/2,3/2 γ_{1544} ***1368.9*** (I_γ15 *3*) γ_{1488} ***1425.6*** *3* (I_γ21 *6*) γ_{1206} ***1707.5*** *3* (I_γ9 *3*) γ_{1125} ***1788.1*** (I_γ9 *3*) γ_{352} ***2560.8*** *1* (I_γ100 *6*)

2918.2 *7*, 1/2(⁻),3/2 γ_{1403} ***1515.3*** (I_γ100 *50*) γ_{165} ***2753.2*** (I_γ60 *20*)

2922.7 *3*, 1/2,3/2 γ_{1167} ***1755.6*** (I_γ23 *20*) γ_{1027} ***1895.9*** (I_γ7 *4*) γ_{817} ***2105.6*** *3* (I_γ100 *20*)

2961.5 *6*, 1/2(⁻),3/2 γ_{1206} ***1755.8*** (I_γ77 *30*) γ_{165} ***2796.5*** (I_γ100 *33*) γ_0 ***2961.4***(?) (I_γ<100)

2977.7 2, 1/2(⁻),3/2 γ_{1403}1574.8 (†$_\gamma$86 28) γ_{1167}1810.62 (†$_\gamma$100 14) γ_{1125}1852.8 (†$_\gamma$28 14) γ_{1027}1950.9 (†$_\gamma$23 11) γ_{817}2160.6 (†$_\gamma$33 13) γ_{165}2812.7 (†$_\gamma$57 14)

2999.64 7, 1/2(⁻),3/2 γ_{1655}1344.5 (†$_\gamma$4.2 2) γ_{1597}1402.4 (†$_\gamma$1.9 10) γ_{1488}1512.12 (†$_\gamma$19 4) γ_{1349}1651.0 (†$_\gamma$1.6 10) γ_{1206}1794.1 (†$_\gamma$3.5 16) γ_{1144}1855.6 (†$_\gamma$6 4) γ_{1125}1874.61 (†$_\gamma$63 4) γ_{1027}1972.92 (†$_\gamma$38 4) γ_{817}2182.61 (†$_\gamma$100 6) γ_{352}2647.6 (†$_\gamma$48 2) γ_{165}2834.7 (†$_\gamma$6 2)

3003.4 5, 1/2(⁻),3/2 γ_{1206}1797.8 (†$_\gamma$25 13) γ_{1125}1878.5 (†$_\gamma$100 25) γ_{1027}1976.6 (†$_\gamma$38 25) γ_{817}2186.3 (†$_\gamma$38 25) γ_{165}2838.4 (†$_\gamma$38 25)

3021.05 18, 1/2(⁻),3/2 γ_{1655}1366.0 (†$_\gamma$13 7) γ_{1144}1877.1 (†$_\gamma$20 13) γ_{1125}1896.3 (†$_\gamma$17 6) γ_{1027}1994.4 (†$_\gamma$20 7) γ_{817}2204.1 (†$_\gamma$20 7) γ_{352}2669.1 (†$_\gamma$100 13) γ_{165}2856.02 (†$_\gamma$60 13)

3057.0 4, 1/2(⁻),3/2 γ_{165}2892.04 (†$_\gamma$100)

3070.8 7, 1/2(⁻),3/2 γ_{817}2253.7 (†$_\gamma$100 27) γ_{165}2905.6 (†$_\gamma$66 24)

3079.8 3, 1/2,3/2 γ_{1167}1912.73 (†$_\gamma$100)

3084.4 3, (23/2⁺) γ_{2401}683.32 (†$_\gamma$100)

3099.76 10, 1/2(⁻),3/2 γ_{1027}2073.0 (†$_\gamma$7 2) γ_{817}2282.61 (†$_\gamma$100 7) γ_{165}2935.13 (†$_\gamma$26 5)

3124.07 10, 1/2,3/2 γ_{1206}1918.4 (†$_\gamma$8 4) γ_{1027}2097.1 (†$_\gamma$27 7) γ_{352}2771.81 (†$_\gamma$100 13) γ_{165}2959.0(?) (†$_\gamma$<20)

3134.4 2, (23/2⁻) γ_{2401}733.43 (†$_\gamma$51 1) D γ_{2383}750.82 (†$_\gamma$100 1) (E2)

3149.4 6, 1/2,3/2 γ_{1206}1943.7 (†$_\gamma$12 6) γ_{1125}2024.4 (†$_\gamma$32 18) γ_{352}2797.1 (†$_\gamma$100 20)

3175.59 15, 1/2(⁻),3/2 γ_{1403}1772.7 (†$_\gamma$20 10) γ_{1349}1826.9 (†$_\gamma$10 4) γ_{1206}1970.0 (†$_\gamma$40 10) γ_{1167}2008.5 (†$_\gamma$30 20) γ_{1125}2050.74 (†$_\gamma$50 20) γ_{1027}2148.8 (†$_\gamma$40 10) γ_{817}2358.5 (†$_\gamma$8 5) γ_{352}2823.32 (†$_\gamma$90 20) γ_{165}3010.63 (†$_\gamma$100 20)

3201.4 4, 1/2(⁻),3/2 γ_{1544}1657.3 (†$_\gamma$48 18) γ_{1403}1798.5 (†$_\gamma$60 40) γ_{1167}2034.3 (†$_\gamma$100 60) γ_{1125}2076.4 (†$_\gamma$80 20) γ_{817}2384.3 (†$_\gamma$32 12) γ_{352}2849.2 (†$_\gamma$36 14) γ_{165}3036.45 (†$_\gamma$60 20)

3206.43 23, 1/2(⁻),3/2 γ_{1614}1582.4 (†$_\gamma$100 40) γ_{1544}1662.3 (†$_\gamma$40 20) γ_{1488}1718.9 (†$_\gamma$20 12) γ_{1403}1803.5 (†$_\gamma$34 18) γ_{1206}2000.8 (†$_\gamma$40 20) γ_{1144}2062.3 (†$_\gamma$22 14) γ_{1027}2179.6 (†$_\gamma$100 20) γ_{817}2389.33 (†$_\gamma$100 20) γ_{352}2854.2 (†$_\gamma$60 20) γ_{165}3041.4 (†$_\gamma$40 20)

3227.5 2, (23/2⁺) γ_{2524}703.62 (†$_\gamma$100 2) E1 γ_{2401}826.43 (†$_\gamma$15 2)

3231.2 3, 1/2(⁻),3/2 γ_{817}2414.0 (†$_\gamma$11 7) γ_{352}2878.93 (†$_\gamma$100 26) γ_{165}3066.1 (†$_\gamma$13 7)

3258.4 6, 1/2,3/2 γ_{1027}2231.5 (†$_\gamma$100 25) γ_{817}2441.3 (†$_\gamma$63 29) γ_{352}2906.1 (†$_\gamma$58 29)

3272.9 6, 1/2,3/2 γ_{1027}2246.1 (†$_\gamma$47 23) γ_{817}2455.8 (†$_\gamma$100 33) γ_{352}2920.7 (†$_\gamma$33 20)

3294.2 3, 1/2,3/2 γ_{352}2942.6 (†$_\gamma$100)

3294.3 2, (25/2⁺) γ_{2401}893.21 (†$_\gamma$100 5) Q

3313.62 16, 1/2(⁻),3/2(⁻) γ_{1614}1699.5 (†$_\gamma$3 1) γ_{1544}1769.4 (†$_\gamma$2 1) γ_{1488}1826.0 (†$_\gamma$10 2) γ_{1206}2108.23 (†$_\gamma$10 2) γ_{1125}2188.6 (†$_\gamma$3 1) γ_{817}2496.42 (†$_\gamma$12 2) γ_{352}2961.3 (†$_\gamma$100 4) (M1,E2) γ_{165}3148.5 (†$_\gamma$1.7 6)

3319.0 4, 1/2(⁻),3/2 γ_{1403}1916.1 (†$_\gamma$100 50) γ_{352}2966.8 (†$_\gamma$55 18) γ_{165}3154.05 (†$_\gamma$68 18)

3340.6 6, 1/2,3/2 γ_{1206}2135.0 (†$_\gamma$67 33) γ_{1144}2196.5 (†$_\gamma$100 33) γ_{817}2523.5 (†$_\gamma$90 33)

3365.2 2, 1/2(⁻),3/2 γ_{1488}1877.7 (†$_\gamma$8 4) γ_{1144}2221.1 (†$_\gamma$4.0 24) γ_{817}2548.1 (†$_\gamma$12 4) γ_{165}3200.22 (†$_\gamma$100 8)

3384.7 10, 1/2,3/2 γ_{352}3032.4 (†$_\gamma$100)

3387.0 2, (27/2⁺), 6.0 5 ns γ_{3228}159.61 (†$_\gamma$100 5) E2 γ_{2524}863.04 (†$_\gamma$16 1) (E3)

3403.4 5, 1/2(⁻),3/2 γ_{1544}1859.3 (†$_\gamma$100 33) γ_{1488}1915.8 (†$_\gamma$100 33) γ_{817}2586.3 (†$_\gamma$100 33) γ_{352}3051.2 (†$_\gamma$60 25) γ_{165}3238.4 (†$_\gamma$50 17)

3418.8 5, 1/2(⁻),3/2 γ_{1488}1931.0 (†$_\gamma$55 27) γ_{1206}2212.9 (†$_\gamma$100 32) γ_{352}3066.3 (†$_\gamma$73 32) γ_{165}3254.5 (†$_\gamma$68 32)

3431.4 4, 1/2(⁻),3/2 γ_{352}3078.9 (†$_\gamma$100 33) γ_{165}3266.44 (†$_\gamma$53 13)

3442.8 6, 1/2,3/2 γ_{1125}2317.9 (†$_\gamma$100 37) γ_{817}2625.7 (†$_\gamma$53 26) γ_{352}3090.6 (†$_\gamma$42 21)

3466.8 6, 1/2(⁻),3/2 γ_{1027}2440.0 (†$_\gamma$58 33) γ_{817}2649.7 (†$_\gamma$83 42) γ_{165}3301.8 (†$_\gamma$100 50)

3473.2 3, 1/2(⁻),3/2 γ_{1027}2446.4 (†$_\gamma$14 8) γ_{817}2656.1 (†$_\gamma$20 3) γ_{165}3308.23 (†$_\gamma$100 22)

3486.2 5, 1/2,3/2 γ_{1167}2319.0 (†$_\gamma$59 1) γ_{352}3133.95 (†$_\gamma$100 1)

3499.6 7, 1/2(⁻),3/2 γ_{352}3147.0 (†$_\gamma$90 40) γ_{165}3335.0 (†$_\gamma$100 30)

3516.2 4, 1/2,3/2 γ_{352}3163.94 (†$_\gamma$100)

3535.1 4, 1/2(⁻),3/2 γ_{1027}2508.3 (†$_\gamma$18 10) γ_{817}2718.0 (†$_\gamma$18 10) γ_{352}3182.84 (†$_\gamma$100 25) γ_{165}3370.1 (†$_\gamma$20 10)

3543.9 4, 1/2(⁻),3/2 γ_{165}3378.94 (†$_\gamma$100)

3611.4 2, (25/2)⁻ γ_{3228}383.73 (†$_\gamma$12 1) D γ_{2524}1087.61 (†$_\gamma$100 1) E2

3631.9 3, (27/2⁻), 0.7 ns γ_{3387}245.02 (†$_\gamma$42 1) D $\gamma_{3294.3}$337.72 (†$_\gamma$55 1) D γ_{3134}497.33 (†$_\gamma$100 2) (E2)

3765.2 4, (29/2) γ_{3387}378.23 (†$_\gamma$100)

L 4054.3 4, (29/2⁻) γ_{3632}422.53 (†$_\gamma$100) D

4323.7 3, (29/2⁻) γ_{3611}712.32 (†$_\gamma$100) (E2)

4340.0 4, (31/2⁻) γ_{4054}285.63 (†$_\gamma$22 1) D γ_{3632}708.03 (†$_\gamma$100 3) (E2)

4342.7 4(?), (29/2⁺) γ_{3387}955.63 (†$_\gamma$100)

4571.8 5 γ_{4324}248.13(?) (†$_\gamma$100)

M 4719.3 4, (33/2⁺) γ_{4343}376.63(?) (†$_\gamma$5.7 4) (E2) γ_{4340}379.43 (†$_\gamma$100 1) D

L 4801.4 4 (33/2⁻) γ_{4340}461.03 (†$_\gamma$10 1) γ_{4054}747.43 (†$_\gamma$100 3) (E2)

5052.2 4, (35/2⁻) γ_{4801}250.83 (†$_\gamma$18 1) γ_{4340}712.33 (†$_\gamma$100 1) (E2)

L 5300.3 4, (37/2⁻) γ_{5052}248.03 (†$_\gamma$69 1) D γ_{4801}498.83 (†$_\gamma$100 3) (E2)

M 5462.5 4, (37/2⁺) γ_{5052}410.53 (†$_\gamma$22 1) D γ_{4719}743.23 (†$_\gamma$100 1) (E2)

L 5633.5 5, (41/2⁻) γ_{5300}333.23 (†$_\gamma$100) (E2)

5660.2 5, (39/2⁺) γ_{5300}359.63 (†$_\gamma$100) D

M 6098.8 5, (41/2⁺) γ_{5660}438.43 (†$_\gamma$29 1) (M1+E2): δ=+0.16 2 γ_{5463}636.63 (†$_\gamma$100 2) (E2)

6264.8 6 γ_{5634}631.33(?) (†$_\gamma$100)

M 6470.2 5, (45/2⁺) γ_{6265}205.43(?) (†$_\gamma$4.9 5) γ_{6099}371.43 (†$_\gamma$100 1) (E2)

N 6656.4 6, (49/2⁺), 2.8 ns γ_{6470}186.23 (†$_\gamma$100) (E2)

N 7821.5 6, (53/2⁺) γ_{6656}1165.33 (†$_\gamma$100) (Q)

7824.4 7, (51/2⁻) γ_{6656}1168.03 (†$_\gamma$100) D

7996.8 7, (53/2⁻) γ_{7824}172.23 (†$_\gamma$100) (M1)

8217.6 7, (53/2⁺) γ_{6656}1560.93 (†$_\gamma$100) (Q)

8433.3 7, (55/2) γ_{8218}215.43 (†$_\gamma$13 1) γ_{7822}611.83 (†$_\gamma$100 1)

N 8557.0 7, (57/2⁺) γ_{8433}123.33 (†$_\gamma$31 1) γ_{7822}735.83 (†$_\gamma$100 1) (E2)

O 8940.3 7, (57/2⁻) γ_{8433}507.13 (†$_\gamma$8.2 2) γ_{7997}943.83 (†$_\gamma$100 1) (Q)

9273.0 7(?), (57/2⁻) γ_{7997}1275.43 (†$_\gamma$100) (Q)

9325.8 7, (59/2) γ_{8557}768.73 (†$_\gamma$100)

P 9437.8 7(?), (59/2) γ_{9273}164.93 (†$_\gamma$25 1) γ_{8557}881.13 (†$_\gamma$100 2)

O 9501.6 7, (61/2⁻) γ_{9326}175.63 (†$_\gamma$12.5 2) γ_{8940}561.43 (†$_\gamma$100 1) (E2)

P 10361.9 7, (63/2) γ_{9502}860.13 (†$_\gamma$45 1) γ_{9438}924.03 (†$_\gamma$100 4) (Q)

10510.0 7, (63/2) γ_{9502}1008.33 (†$_\gamma$100)

O 10601.8 7, (65/2⁻) γ_{9502}1100.53 (†$_\gamma$100) (Q)

10850.5 7, (63/2) γ_{9502}1348.73 (†$_\gamma$100)

P 10930.3 7, (65/2⁻) γ_{10362}568.33 (†$_\gamma$100 4) γ_{9502}1428.73 (†$_\gamma$81 4) (Q)

11011.5 7, (65/2) γ_{10851}160.73 (†$_\gamma$48 2) γ_{10510}501.43 (†$_\gamma$100 4)

P 11199.7 7, (67/2) γ_{10930}269.33 (†$_\gamma$18 1) γ_{10602}598.13 (†$_\gamma$100 1) γ_{10362}838.03 (†$_\gamma$50 2) (E2)

11711.7 7, (67/2) γ_{10602}1109.93 (†$_\gamma$100)

12268.3 8(?), (67/2) γ_{11200}1068.63 (†$_\gamma$100)

12383.7 7, (69/2) γ_{11712}672.13 (†$_\gamma$100 5) γ_{11200}1183.93 (†$_\gamma$78 8) γ_{11012}1372.03 (†$_\gamma$55 8) (Q)

12469.0 8(?), (69/2⁻) γ_{10602}1867.13 (†$_\gamma$100) (Q)

12580.6 8, (71/2) γ_{11712}868.93 (†$_\gamma$100) (Q)

12751.9 8(?), (71/2) γ_{11200}1552.43 (†$_\gamma$100) (Q)

12967.1 7, (71/2) γ_{12752}215.43(?) (†$_\gamma$39 7) γ_{12384}583.13 (†$_\gamma$100 6) γ_{12268}698.93 (†$_\gamma$90 4) (E2) γ_{11200}1767.43 (†$_\gamma$59 4) (Q)

13189.1 8, (75/2) γ_{12581}608.63 (†$_\gamma$100) (E2)

13278.6 8, (73/2) γ_{12967}311.43 (†$_\gamma$100)

13567.2 8, (75/2) γ_{13279}288.63 (†$_\gamma$100)

14108.6 8, (77/2) γ_{13567}541.43 (†$_\gamma$100 4) γ_{13189}919.53 (†$_\gamma$74 4)

15163.3 9, (81/2) γ_{14109}1054.73 (†$_\gamma$100) (Q)

15997.4 9, (85/2) γ_{15163}834.13(?) (†$_\gamma$100)

A x, J=(51/2)

A 617.8+x, J+2 γ_x617.81 (†$_\gamma$0.16 3) $I^{(1)}$=87.4, $I^{(2)}$=86.2, ħω=0.321

A 1282.0+x, J+4 γ_{618+x}664.21 (†$_\gamma$0.68 7) $I^{(1)}$=87.3, $I^{(2)}$=84.0, ħω=0.344

A 1993.8+x, J+6 γ_{1282+x}711.81 $I^{(1)}$=87.1, $I^{(2)}$=83.5, ħω=0.368

A 2753.5+x, J+8 γ_{1994+x}759.71 (†$_\gamma$0.88 9) $I^{(1)}$=86.9, $I^{(2)}$=82.6, ħω=0.392

A 3561.6+x, J+10 γ_{2754+x}808.11 (†$_\gamma$0.96 10) $I^{(1)}$=86.6, $I^{(2)}$=81.6, ħω=0.416

A 4418.7+x, J+12 γ_{3562+x}857.11 (†$_\gamma$1.00) $I^{(1)}$=86.3, $I^{(2)}$=80.6, ħω=0.441

A 5325.4+x, J+14 γ_{4419+x}906.71 (†$_\gamma$1.05 10) $I^{(1)}$=86.0, $I^{(2)}$=79.4, ħω=0.466

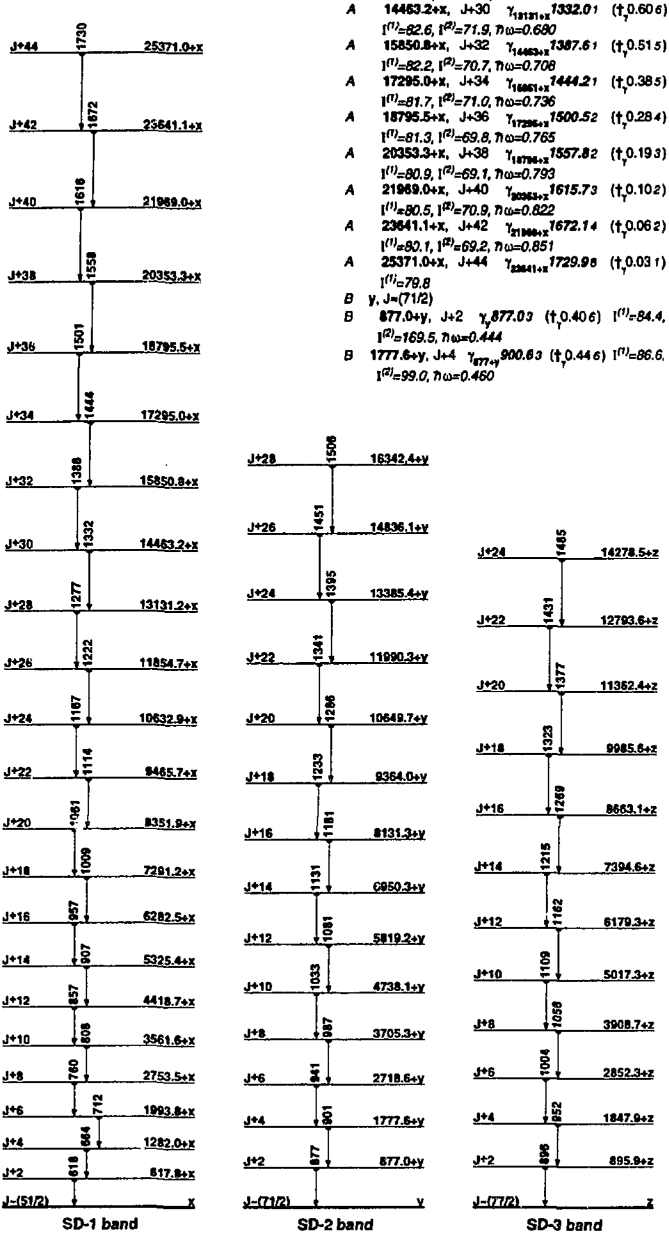
A 6282.5+x, J+16 γ_{5325+x}957.11 (†$_\gamma$0.98 10) $I^{(1)}$=85.7, $I^{(2)}$=77.5, ħω=0.491

A 7291.2+x, J+18 γ_{6283+x}1008.71 (†$_\gamma$0.95 10) $I^{(1)}$=85.3, $I^{(2)}$=76.9, ħω=0.517

A 8351.9+x, J+20 γ_{7291+x}1060.71 (†$_\gamma$0.90 9) $I^{(1)}$=84.8, $I^{(2)}$=75.3, ħω=0.544

A 9465.7+x, J+22 γ_{8352+x}1113.81 (†$_\gamma$0.83 8) $I^{(1)}$=84.4, $I^{(2)}$=74.9, ħω=0.570

A 10632.9+x, J+24 γ_{9466+x}1167.22 $I^{(1)}$=84.0, $I^{(2)}$=73.3, ħω=0.597



A 11854.7+x, J+26 $\gamma_{10633+x}$ 1221.8 1 ($\dagger_\gamma$0.80 8) $I^{(1)}=83.5$, $I^{(2)}=73.1$, $\hbar\omega=0.625$

A 13131.2+x, J+28 $\gamma_{11855+x}$ 1276.5 1 ($\dagger_\gamma$0.72 7) $I^{(1)}=83.0$, $I^{(2)}=72.1$, $\hbar\omega=0.652$

A 14463.2+x, J+30 $\gamma_{13131+x}$ 1332.0 1 ($\dagger_\gamma$0.60 6) $I^{(1)}=82.6$, $I^{(2)}=71.9$, $\hbar\omega=0.680$

A 15850.8+x, J+32 $\gamma_{14463+x}$ 1387.6 1 ($\dagger_\gamma$0.51 5) $I^{(1)}=82.2$, $I^{(2)}=70.7$, $\hbar\omega=0.708$

A 17295.0+x, J+34 $\gamma_{15851+x}$ 1444.2 1 ($\dagger_\gamma$0.38 5) $I^{(1)}=81.7$, $I^{(2)}=71.0$, $\hbar\omega=0.736$

A 18795.5+x, J+36 $\gamma_{17295+x}$ 1500.5 2 ($\dagger_\gamma$0.28 4) $I^{(1)}=81.3$, $I^{(2)}=69.8$, $\hbar\omega=0.765$

A 20353.3+x, J+38 $\gamma_{18796+x}$ 1557.8 2 ($\dagger_\gamma$0.19 3) $I^{(1)}=80.9$, $I^{(2)}=69.1$, $\hbar\omega=0.793$

A 21969.0+x, J+40 $\gamma_{20353+x}$ 1615.7 3 ($\dagger_\gamma$0.10 2) $I^{(1)}=80.5$, $I^{(2)}=70.9$, $\hbar\omega=0.822$

A 23641.1+x, J+42 $\gamma_{21969+x}$ 1672.1 4 ($\dagger_\gamma$0.06 2) $I^{(1)}=80.1$, $I^{(2)}=69.2$, $\hbar\omega=0.851$

A 25371.0+x, J+44 $\gamma_{23641+x}$ 1729.9 6 ($\dagger_\gamma$0.03 1) $I^{(1)}=79.8$

B y, J=(71/2)

B 877.0+y, J+2 γ_y 877.0 3 ($\dagger_\gamma$0.40 6) $I^{(1)}=84.4$, $I^{(2)}=169.5$, $\hbar\omega=0.444$

B 1777.6+y, J+4 γ_{877+y} 900.6 3 ($\dagger_\gamma$0.44 6) $I^{(1)}=86.6$, $I^{(2)}=99.0$, $\hbar\omega=0.460$

B 2718.6+y, J+6 γ_{1778+y} 941.0 5 $I^{(1)}=87.1$, $I^{(2)}=87.5$, $\hbar\omega=0.482$

B 3705.3+y, J+8 γ_{2719+y} 986.7 3 $I^{(1)}=87.2$, $I^{(2)}=86.8$, $\hbar\omega=0.505$

B 4738.1+y, J+10 γ_{3705+y} 1032.8 3 ($\dagger_\gamma$0.86 12) $I^{(1)}=87.1$, $I^{(2)}=82.8$, $\hbar\omega=0.528$

B 5819.2+y, J+12 γ_{4738+y} 1081.1 5 $I^{(1)}=86.9$, $I^{(2)}=80.0$, $\hbar\omega=0.553$

B 6950.3+y, J+14 γ_{5819+y} 1131.1 4 ($\dagger_\gamma$1.00 14) $I^{(1)}=86.6$, $I^{(2)}=80.2$, $\hbar\omega=0.578$

B 8131.3+y, J+16 γ_{6950+y} 1181.0 4 ($\dagger_\gamma$1.02 14) $I^{(1)}=86.4$, $I^{(2)}=77.4$, $\hbar\omega=0.603$

B 9364.0+y, J+18 γ_{8131+y} 1232.7 4 ($\dagger_\gamma$0.58 10) $I^{(1)}=86.0$, $I^{(2)}=75.5$, $\hbar\omega=0.630$

B 10649.7+y, J+20 γ_{9364+y} 1285.7 4 ($\dagger_\gamma$0.66 10) $I^{(1)}=85.6$, $I^{(2)}=72.9$, $\hbar\omega=0.657$

B 11990.3+y, J+22 $\gamma_{10650+y}$ 1340.6 4 ($\dagger_\gamma$0.56 10) $I^{(1)}=85.0$, $I^{(2)}=73.4$, $\hbar\omega=0.684$

B 13385.4+y, J+.14 $\gamma_{11990+y}$ 1395.1 4 ($\dagger_\gamma$0.52 10) $I^{(1)}=84.6$, $I^{(2)}=71.9$, $\hbar\omega=0.711$

B 14836.1+y, J+26 $\gamma_{13385+y}$ 1450.7 5 ($\dagger_\gamma$0.42 8) $I^{(1)}=84.1$, $I^{(2)}=71.9$, $\hbar\omega=0.739$

B 16342.4+y, J+28 $\gamma_{14836+y}$ 1506.3 5 ($\dagger_\gamma$0.26 6) $I^{(1)}=83.6$

C z, J=(77/2)

C 805.9+z, J+2 γ_z 895.9 4 ($\dagger_\gamma$0.64 16) $I^{(1)}=89.3$, $I^{(2)}=71.3$, $\hbar\omega=0.462$

C 1847.9+z, J+4 γ_{896+z} 952.0 6 $I^{(1)}=88.2$, $I^{(2)}=76.3$, $\hbar\omega=0.489$

C 2852.3+z, J+6 γ_{1848+z} 1004.4 4 ($\dagger_\gamma$0.64 16) $I^{(1)}=87.6$, $I^{(2)}=76.9$, $\hbar\omega=0.515$

C 3908.7+z, J+8 γ_{2852+z} 1056.4 4 ($\dagger_\gamma$0.64 16) $I^{(1)}=87.1$, $I^{(2)}=76.6$, $\hbar\omega=0.541$

C 5017.3+z, J+10 γ_{3909+z} 1108.6 4 ($\dagger_\gamma$0.80 16) $I^{(1)}=86.6$, $I^{(2)}=74.9$, $\hbar\omega=0.568$

C 6179.3+z, J+12 γ_{5017+z} 1162.0 4 ($\dagger_\gamma$0.96 16) $I^{(1)}=86.1$, $I^{(2)}=75.0$, $\hbar\omega=0.594$

C 7394.6+z, J+14 γ_{6179+z} 1215.3 4 ($\dagger_\gamma$0.96 16) $I^{(1)}=85.6$, $I^{(2)}=75.2$, $\hbar\omega=0.621$

C 8663.1+z, J+16 γ_{7395+z} 1268.5 4 ($\dagger_\gamma$0.96 16) $I^{(1)}=85.1$, $I^{(2)}=74.1$, $\hbar\omega=0.648$

C 9985.6+z, J+18 γ_{8663+z} 1322.5 4 ($\dagger_\gamma$1.20 24) $I^{(1)}=84.7$, $I^{(2)}=73.7$, $\hbar\omega=0.675$

C 11362.4+z, J+20 γ_{9986+z} 1376.8 5 ($\dagger_\gamma$1.12 24) $I^{(1)}=84.3$, $I^{(2)}=73.5$, $\hbar\omega=0.702$

C 12793.6+z, J+22 $\gamma_{11362+z}$ 1431.2 5 ($\dagger_\gamma$0.56 16) $I^{(1)}=83.8$, $I^{(2)}=74.5$, $\hbar\omega=0.729$

C 14278.5+z, J+24 $\gamma_{12794+z}$ 1484.9 5 ($\dagger_\gamma$0.56 16) $I^{(1)}=83.5$

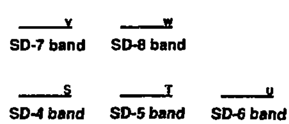
D s

E t

F u

G v

H w



$^{150}_{64}Gd$

Δ: −75771 7 S_n: 8708 7 S_p: 6606 8 Q_α: 2809 6

Nuclear Bands

- *A* Octupole band
- *B* GS band
- *C* SD-1 band
- *D* SD-2 band
- *E* SD-3 band
- *F* SD-4 band
- *G* SD-5 band
- *H* $\nu i_{7/2} i_{13/2} \times (10^+)$

Levels and γ-ray branchings:

B 0, 0^+, 1.79×10^6 8 y, %α=100

B 638.05 10, 2^+ γ_0 638.05 10 (I_γ100) E2

A 1134.35 15, 3^- γ_{638} 496.3 1 (I_γ100) E1

1207.2 2, 0^+ γ_{638} 569.1 1 (I_γ100 3) E2+M1 γ_0 1207.2 2 (I_γ0) (I_e1.14 3) E0

B 1288.4 2, 4^+ γ_{1134} 153.9 3 (I_γ1.8 4) γ_{638} 650.4 2 (I_γ100 4) E2

1430.5 2, $(2)^+$ γ_{638} 792.5 3 (I_γ100 4) E2 γ_0 1430.51 10 (I_γ49 3) (E2)

1518.5 2, 2^+ γ_{1134} 384.4 3 (I_γ14 2) γ_{638} 880.3 1 (I_γ100 2) M1(+E2+E0) γ_0 1518.5 2 (I_γ76 2) E2

1592.7 2, 1 γ_{1207} 385.5 6 (I_γ4 2) γ_{638} 954.5 3 (I_γ71 4) E1 γ_0 1592.7 1 (I_γ100 4) M1

1700.1 2, $(3^+,4^+)$ γ_{1288} 411.7 4 (I_γ74 6) M1 γ_{1134} 565.7 1 (I_γ100 6) (E1) γ_{638} 1061.9 5(?) (I_γ10 5)

A 1700.9 2, 5^- γ_{1288} 412.4 2 (I_γ≈50) E1 γ_{1134} 566.7 2 (I_γ100 3) E2

1814.3 3, 3^- γ_{1288} 526.0 3 (I_γ26 11) γ_{638} 1176.0 2 (I_γ100 8) E1

B 1936.8 4, 6^+ γ_{1701} 235.9 3 (I_γ≈3) γ_{1288} 648.4 3 (I_γ100 26) E2

1947.5 3, $2^-,3^-,4^-$ γ_{1134} 813.1 3 (I_γ100) E2+M1: δ=1.0 5

1955.6 2, 2^+ γ_{1519} 437.1 1 (I_γ68 3) M1+E2: δ=1.2 4 γ_{1431} 525.0 2 (I_γ42 5) (M1) γ_{1207} 748.3 2 (I_γ34 3) γ_{1134} 821.1 2 (I_γ100 3) E1 γ_{638} 1317.6 3 (I_γ26 5) γ_0 1955.7 3(?)

1988.0 3, 4^+ γ_{1431} 557.5 1 (I_γ33 3) E2 γ_{1288} 699.4 2 (I_γ30 3) γ_{638} 1350.1 5 (I_γ100 33) E2

2080.0 5, $(2^+,3^+,4^+)$ γ_{1431} 649.5 5 (I_γ100 51) (E2) γ_{1288} 791.1 5 (I_γ87 38) (E2) γ_{638} 1442.0 5 (I_γ25 7)

2084.4 2, $2^-,3^-$ γ_{1593} 491.7 2 (I_γ20 4) γ_{1134} 950.0 2 (I_γ100 8) (M1) γ_{638} 1446.2 3 (I_γ56 4)

2091.7 2, 2^+ γ_{1519} 573.4 2 (I_γ9 1) M1 γ_{1431} 661.0 3 (I_γ<6) γ_{1207} 884.6 2 (I_γ9 2) γ_{1134} 957.4 2 (I_γ22 2) E1 γ_{638} 1453.62 10 (I_γ100 3) (M1) γ_0 2091.7 3 (I_γ40 4)

2116.1 3, 6^+ γ_{1937} 179.4 3(?) (I_γ≈1.3) E2 γ_{1701} 415.3 2 (I_γ25 11) E1 γ_{1288} 827.48 10 (I_γ100 14) E2

2180.1 2, 2^+ γ_{1134} 1045.72 10 (I_γ100 6) E1 γ_{638} 1542.0 2 (I_γ31 3) γ_0 2180.1 3 (I_γ29 3)

2209.5 3, $2^-,3^-$ γ_{1431} 779.0 5 (I_γ47 6) γ_{1134} 1075.3 1 (I_γ100 6) M1 γ_{638} 1571.3 3(?) (I_γ6 2)

A 2211, 7^- γ_{2116} 95.5 2 (I_γ<3) γ_{1937} 274.9 3 (I_γ<3) E1 γ_{1701} 511 (I_γ≈100) E2

2262.4 3 γ_{1519} 743.8 2 (I_γ50 12) γ_{638} 1624.4 3 (I_γ100 25)

2306.9 6, (5^-) γ_{2211} ≈95 γ_{1700} 606.8 5 (I_γ100 10) γ_{1288} 1017.2 5 (I_γ14 2)

2326.3 5 γ_{1988} 338.2 2 (I_γ83 17) γ_{1948} 378.8 5 (I_γ67 33) γ_{1519} 808 1(?) (I_γ33 13) γ_{1431} 895.9 3 (I_γ100 17) γ_{638} 1688.8 4 (I_γ67 17)

2365.1 3, $1,2^+$ γ_{1593} 772.6 2 (I_γ25 4) γ_{1207} 1157.7 5 (I_γ25 8) γ_{638} 1726.9 4 (I_γ25 4) γ_0 2365.1 3 (I_γ100 8)

2392.5 5, 7^+ γ_{2211} 180.9 3 γ_{2116} 276 γ_{1937} 455.7 2 M1

2408.8 3, 2^+ γ_{1431} 978.1 3 (I_γ20 7) γ_{1288} 1120.1 3 (I_γ27 7) γ_{1134} 1274.6 2 (I_γ33 7) γ_{638} 1770.8 2 (I_γ100 7) γ_0 2408.8 3 (I_γ65 13)

2416.9 5(?) γ_{638} 1778.8 5 (I_γ100)

2426.1 3, $1^-,2^+$ γ_{1431} 995.5 3 (I_γ9 2) γ_{1134} 1291.6 10 (I_γ100 5) γ_{638} 1788.1 10 (I_γ100 5) γ_0 2426.3 3 (I_γ56 2)

2521.8 5 γ_{1519} 1003.8 3 (I_γ48 8) γ_{1431} 1091.2 3 (I_γ100 40) γ_{1288} 1233.0 4 (I_γ100 20) γ_{1134} 1387.0 4 (I_γ60 20) γ_{638} 1884.0 3 (I_γ100 40)

2554.4 4, 8^+ γ_{2393} 162.0 2 (I_γ14 4) M1 γ_{2211} 343.07 10 (I_γ59 19) E1 γ_{2116} 438.37 10 (I_γ100 45) E2

2559.0 3, $1,2^+$ γ_{1207} 1351.9 5 (I_γ100 43) γ_0 2558.9 3 (I_γ85 14)

2564.9 3 γ_{1956} 609.3 3(?) (I_γ25 13) γ_{1431} 1134.3 3 (I_γ38 13) γ_{1134} 1430.5 3 (I_γ100 51) (E2) γ_{638} 1926.8 3 (I_γ50 13)

2627.4 5(?) γ_{1134} 1493.1 5 (I_γ100)

2654.5 3 γ_{1988} 666.3 2(?) (I_γ100 38) γ_{1431} 1224.2 5 (I_γ92 31)

2678.6 3, $(1,2^+)$ γ_{638} 2040.6 3 (I_γ100 10) γ_0 2678.6 5 (I_γ30 10)

2687.2 3, $1^-,2,3^-$ γ_{2559} 128.0 3(?) (I_γ8 3) γ_{2084} 602.8 2 (I_γ50 8) γ_{1593} 1094.4 3 (I_γ50 8) γ_{1519} 1168.7 2 (I_γ100 6) γ_{1431} 1256.6 5 (I_γ≈12) γ_{1134} 1552.7 2 (I_γ25 8)

2755.1 3, $2^+,3,4^+$ γ_{1288} 1466.6 4 (I_γ20 4) γ_{1134} 1620.7 3 (I_γ40 10) γ_{638} 2117.0 3 (I_γ100 10)

2767.8(?), (6^+) γ_{1937} 831.0 5 (I_γ100)

2786.9 4, $(1^-,2^+)$ γ_{1956} 831.5 2 (I_γ11 4) γ_{1431} 1356.1 3 (I_γ14 4) γ_{1207} 1580.0 3(?) (I_γ7 4) γ_{1134} 1652.7 3 (I_γ14 7) γ_{638} 2148.7 3 (I_γ100 4)

A 2816.2, 9^- γ_{2211} 605.0 3 (I_γ100) E2

2828.4 5 γ_{1700} 1128.2 4 (I_γ100 20) γ_{638} 2190.3 5(?) (I_γ32 8)

2845.8 4, $1,2^+$ γ_{1593} 1253.1 3 (I_γ9 2) γ_{1431} 1415.0 2 (I_γ29 7) γ_{1207} 1638.6 10(?) (I_γ7 4) γ_{638} 2207.8 3 (I_γ100 7) γ_0 2845.6 3 (I_γ18 4)

2906.0(?), 8^+ γ_{2116} 789.9 4(?) (I_γ100) E2

2956.4 3 γ_{2828} 128.0 3(?) (I_γ9 4) γ_{2210} 746.6 2 (I_γ18 6) γ_{1988} 968.4 2 (I_γ38 9) γ_{1956} 1001.0 3 (I_γ27 6) γ_{1431} 1525.8 1 (I_γ100 9) γ_{638} 2318.2 3 (I_γ100 18)

2985.0 6, $1,2^+$ γ_{2655} 330.1 2 (I_γ30 6) γ_{2559} 425.9 5 (I_γ98 51) γ_{1988} 997.7 4 (I_γ24 6) γ_{1593} 1392.1 3(?) (I_γ10 4) γ_{1431} 1554.7 2 (I_γ50 10) γ_{1207} 1778.0 5 (I_γ30 16) γ_{638} 2347.2 3 (I_γ50 10) γ_0 2984.4 5 (I_γ100 20)

3035.6 10, $(1^-,2^+)$ γ_{2426} 609.3 3(?) (I_γ12 6) γ_{2084} 952.0 5 (I_γ12 6) γ_{1593} 1443.6 3 (I_γ68 6) γ_{1519} 1516.5 5 (I_γ56 12) γ_{1431} 1605.6 5 (I_γ19 6) γ_{1134} 1900.6 10 (I_γ89 34) γ_{638} 2396.5 4 (I_γ100 6) γ_0 3035.5 10 (I_γ31 6)

3083.7 3(?) γ_{2080} 1003.8 3 (I_γ48 8) γ_{1134} 1949.3 3 (I_γ100 21)

3119.3 3 γ_{1431} 1688.2 4 (I_γ100 23) γ_{1134} 1985.1 2 (I_γ33 11)

3178.3 6 γ_{1519} 1660.2 2 (I_γ31 8) γ_{1134} 2044.3 3 (I_γ15 3) γ_{638} 2539.5 3 (I_γ100 16)

3220, 10^- γ_{2816} 404.3 3 (I_γ100) M1+E2

3288, 10^+ γ_{2554} 734.0 3 (I_γ100) E2

3329.0 5 γ_{1134} 2194.9 5 (I_γ100 13) γ_{638} 2690.5 5(?) (I_γ25 8)

3344.8 5, (2^+) γ_{2210} 1135.3 5 (I_γ38 13) γ_{2092} 1253.1 3 (I_γ30 7) γ_{1593} 1752.2 5 (I_γ38 13) γ_{1431} 1914.4 3 (I_γ99 51) γ_{1288} 2056.4 5 (I_γ38 13) γ_{1207} 2137.2 4(?) (I_γ13 5) γ_{638} 2706.6 4 (I_γ100 13) γ_0 3344.7 5 (I_γ13 3)

A 3366, 11^- γ_{3288} ≈78(?) γ_{3220} 146.2 3 γ_{2816} 550.3 3

3375.7 3 γ_{1134} 2241.3 4(?) (I_γ49 25) γ_{638} 2737.5 4 (I_γ100 12)

3378.3 5 γ_{1814} 1564.2 2 (I_γ49 16) γ_{638} 2740 2 (I_γ100 33)

3461 1, 2^+ γ_{1288} 2173.4 5 (I_γ.00 25) γ_0 3460 1(?) (I_γ20 10)

3510 1, $(1^-,2^+)$ γ_{1134} 2376.5 4(?) (I_γ42 17) γ_{638} 2872.4 3 (I_γ100 17) γ_0 3509.8 5 (I_γ27 10)

3658.5 5(?), 2^+ γ_{1988} 1670.5 10(?) (I_γ100 34) γ_{1956} 1703.1 4(?) (I_γ34 16) γ_0 3658.2 5 (I_γ46 7)

3726.9 6 γ_{1431} 2296.7 5(?) (I_γ14 6) γ_{1134} 2592.1 3 (I_γ100 15)

3829.7 10(?), $(1,2^+)$ γ_{1207} 2622.1 5(?) (I_γ82 34) γ_{638} 3191.6 4 (I_γ100 34) γ_0 3829 2 (I_γ82 34)

3840.6 5 γ_{3510} 330.1 2 (I_γ33 7) γ_{1431} 2410.0 3 (I_γ100 22) γ_{1288} 2552.3 5(?) (I_γ13 4) γ_{638} 3202.5 4 (I_γ22 4)

4022 1(?), $(1,2^+)$ γ_{638} 3383.6 5(?) (I_γ100 50) γ_0 4022 2(?) (I_γ61 24)

H 4104, 12^+ γ_{3288} 817 (I_γ100) E2

4111 1(?), $1^-,2^+$ γ_{1814} 2296.7 5(?) (I_γ50 20) γ_{1134} 2976.2 5(?) (I_γ50 20) γ_{638} 3473 1 (I_γ50 10) γ_0 4112 2 (I_γ100 30)

A 4131, 13^- γ_{3366} 764.7 2 (I_γ100) E2

4145 1(?), $(1^-,2^+)$ γ_{2565} 1580.0 3(?) (I_γ100 50) γ_{1593} 2552.3 5(?) (I_γ60 20) γ_{1134} 3009.9 4 (I_γ60 30) γ_0 4146 2 (I_γ30 10)

4165 1, 2^+ γ_{2210} 1955.7 3(?) (I_γ≈34) γ_{1288} 2876.6 3 (I_γ100 34) γ_0 4164 2 (I_γ13 7)

4176.6 5 γ_{2985} 1191.1 4 (I_γ100 33) γ_{2365} 1811.8 5(?) (I_γ67 33) γ_{1134} 3042.6 4(?) (I_γ67 33)

4187, (12^-) γ_{3220} 966.6 3 (I_γ100) E2

4207 2, $(1,2^+)$ γ_{2655} 1552.7 2 (I_γ60 20) γ_{2409} 1796.6 2 (I_γ100 20) γ_{1593} 2614.4 4(?) (I_γ40 8) γ_{1431} 2774.7 3 (I_γ48 12) γ_{638} 3571 1(?) (I_γ16 8) γ_0 4206 1 (I_γ36 8)

4237 1(?), $(1^-,2^+)$ γ_{1134} 3102.6 4 (I_γ100 11) γ_0 4236 2(?) (I_γ≈11)

4246 2(?), $(1,2^+)$ γ_0 4246 1 (I_γ100 33)

4258 1, $(1^-,2^+)$ γ_{2426} 1831.9 4 (I_γ100 34) γ_{1134} 3123.9 4(?) (I_γ66 13) γ_0 4257 2 (I_γ13 7)

4265 1, 2^+ γ_{4111} 153.9 3 (I_γ100 19) γ_{1288} 2976.2 5(?) (I_γ50 19) γ_{1134} 3130.5 15 (I_γ40 19) γ_0 4265 2 (I_γ50 10)

4284 2(?), $(1,2^+)$ γ_0 4284 2 (I_γ100)

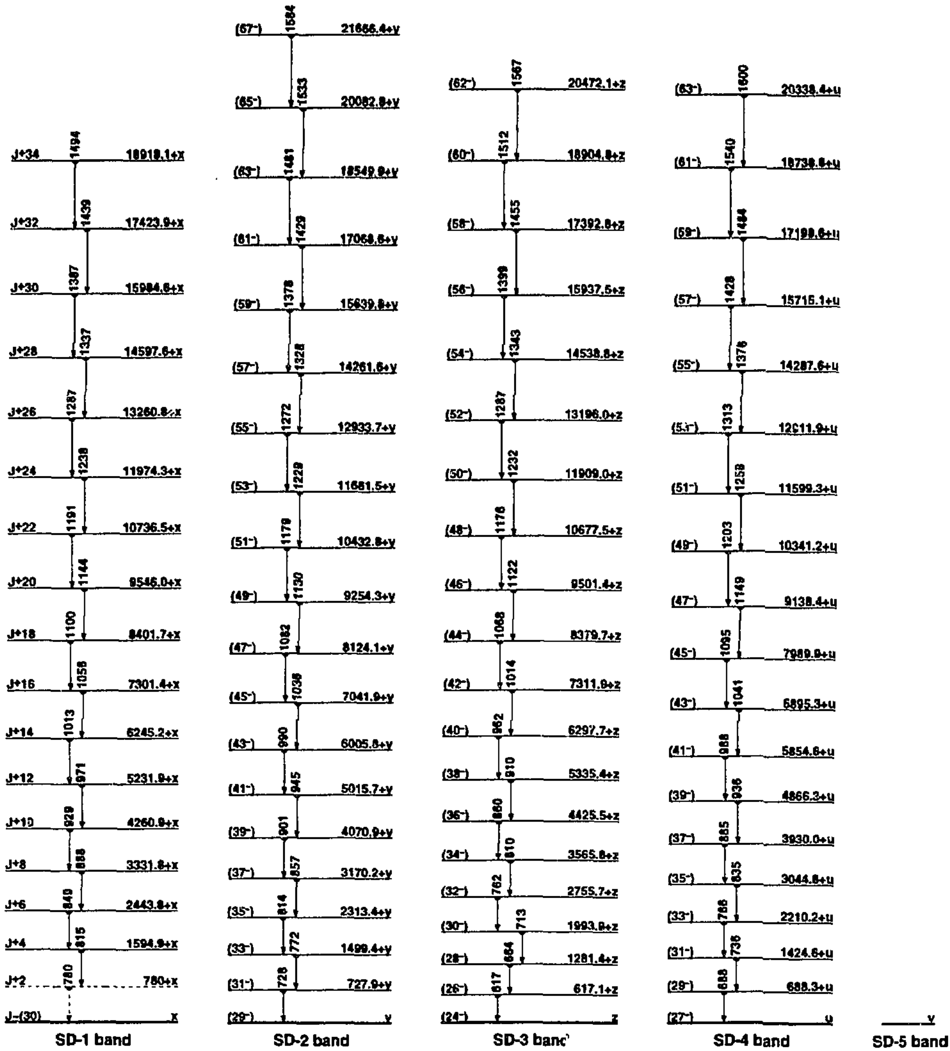
4290 2(?), $(1,2^+)$ γ_0 4290 1 (I_γ100)

4314 1, $1,2^+$ γ_{2084} 2230.0 5(?) (I_γ100 30) γ_{2080} 2233.7 5(?) (I_γ82 21) γ_{638} 3675 2 (I_γ82 21) γ_0 4314 1 (I_γ39 9)

4322 1, 2^+ γ_{4022} 300.4 5(?) (I_γ60 20) γ_{2092} 2230.0 5(?) (I_γ66 20) γ_{1700} 2622.1 5(?) (I_γ33 13) γ_{1288} 3034.0 10 (I_γ100 33) γ_{638} 3685 2(?) (I_γ33 13) γ_0 4322 1 (I_γ40 7)

$^{150}_{64}$Gd (Continued)

4344 1, (1,2$^+$) γ_{3118}1224.2 5 ($\dagger_\gamma$100 33) γ_{2080}2263.0 4(?) ($\dagger_\gamma$83 43) γ_{1431}2913.4 4 ($\dagger_\gamma$58 25) $\gamma_0$4344 2(?) ($\dagger_\gamma$≈8)
4379 1(?), (1$^+$,2$^+$) γ_{3376}1003.8 3 ($\dagger_\gamma$80 14) γ_{2210}2169.3 5(?) ($\dagger_\gamma$100 20) γ_{1700}2678.6 5 ($\dagger_\gamma$100 34) $\gamma_0$4379 2(?) ($\dagger_\gamma$≈6)
4406 1, (1,2$^+$) γ_{1956}2449.8 5(?) ($\dagger_\gamma$42 15) γ_{1207}3197.7 4 ($\dagger_\gamma$88 30) γ_{638}3769 2 ($\dagger_\gamma$73 30) $\gamma_0$4406 2 ($\dagger_\gamma$100 30)
4446 1, 1,2$^+$ γ_{1948}2498 1(?) ($\dagger_\gamma$92 46) γ_{1207}3238 1 ($\dagger_\gamma$64 18) $\gamma_0$4446 1 ($\dagger_\gamma$100 18)
4524 1(?) γ_{1134}3389.8 5(?) ($\dagger_\gamma$100 41) γ_{638}3885 2(?) ($\dagger_\gamma$41 20)
4530 2(?), (1,2$^+$) γ_{2080}2449.8 5(?) ($\dagger_\gamma$42 14) γ_{1593}2936.0 4(?) ($\dagger_\gamma$100 28) $\gamma_0$4531 2(?) ($\dagger_\gamma$≈14)
4545.5 10 γ_{2409}2137.2 4(?) ($\dagger_\gamma$11 4) γ_{2365}2180.0 3 ($\dagger_\gamma$100 11) γ_{2262}2283.5 5(?) ($\dagger_\gamma$11 7) γ_{2084}2460.7 4 ($\dagger_\gamma$22 7) γ_{1700}2845.6 3 ($\dagger_\gamma$50 11) γ_{1593}2952.7 4 ($\dagger_\gamma$15 4) γ_{1134}3411.3 5(?) ($\dagger_\gamma$9 4)
H 4738, 14$^+$ γ_{4104}634 ($\dagger_\gamma$100)
4745.5 10 γ_{2180}2565.5 5(?) ($\dagger_\gamma$36 14) γ_{2084}2661.0 3 ($\dagger_\gamma$100 25) γ_{1593}3152.4 4 ($\dagger_\gamma$44 11) γ_{1431}3315.0 5(?) ($\dagger_\gamma$19 11) γ_{638}4107 2 ($\dagger_\gamma$75 25)
A 4835, 15$^-$ γ_{4131}704 ($\dagger_\gamma$100)
H 5427, 16$^+$ γ_{4835}594 γ_{4738}689
A 5451, 17$^-$ γ_{4835}616 ($\dagger_\gamma$100)
5631, 17$^+$ γ_{5427}204 ($\dagger_\gamma$100)
5765, 18$^+$ γ_{5631}132 γ_{5451}314 D γ_{5427}336
6312, (19$^-$) γ_{5765}547 ($\dagger_\gamma$100)
6449, (20$^+$) γ_{5765}685 ($\dagger_\gamma$100)
6496, (21$^-$) γ_{6312}184 ($\dagger_\gamma$100)
7276, (23$^-$) γ_{6496}780 ($\dagger_\gamma$100)
7930, (25$^-$) γ_{7276}654 ($\dagger_\gamma$100)
8325, (27$^-$) γ_{7930}395 ($\dagger_\gamma$100)
9410(?), (28$^+$) γ_{8325}1085 ($\dagger_\gamma$100)
9497, (29$^-$) γ_{8325}1172 ($\dagger_\gamma$100)
9582, (29$^+$) γ_{9410}172 ($\dagger_\gamma$100)
9851, (30$^+$) γ_{9582}269 γ_{9497}354
10532, (31$^+$) γ_{9582}950 ($\dagger_\gamma$100)
11231, (33$^+$) γ_{10532}699 ($\dagger_\gamma$100)
12185, (34$^-$) γ_{11231}954 ($\dagger_\gamma$100)
12678, (36$^-$,34$^+$) γ_{12185}493 ($\dagger_\gamma$100)
C x, J=(30)
C 780+x(?), J+2 γ_x780 1(?) ($\dagger_\gamma$0.15) $I^{(1)}$=80.8, $I^{(2)}$=114.6, $\hbar\omega$=0.399
C 1594.9+x, J+4 γ_{780+x}814.9 3 ($\dagger_\gamma$0.82 9) $I^{(1)}$=82.2, $I^{(2)}$=117.6, $\hbar\omega$=0.416
C 2443.8+x, J+6 γ_{1595+x}848.9 1 ($\dagger_\gamma$1.03 8) $I^{(1)}$=83.6, $I^{(2)}$=102.3, $\hbar\omega$=0.434
C 3331.8+x, J+8 γ_{2444+x}888.0 1 ($\dagger_\gamma$0.19 9) $I^{(1)}$=84.5, $I^{(2)}$=97.3, $\hbar\omega$=0.454
C 4260.9+x, J+10 γ_{3332+x}929.1 1 ($\dagger_\gamma$1.03 10) $I^{(1)}$=85.0, $I^{(2)}$=95.5, $\hbar\omega$=0.475
C 5231.9+x, J+12 γ_{4261+x}971.0 3 ($\dagger_\gamma$0.93 9) $I^{(1)}$=85.5, $I^{(2)}$=94.6, $\hbar\omega$=0.496
C 6245.2+x, J+14 γ_{5232+x}1013.3 2 ($\dagger_\gamma$1.06 7) $I^{(1)}$=85.9, $I^{(2)}$=93.2, $\hbar\omega$=0.517
C 7301.4+x, J+16 γ_{6245+x}1056.2 2 ($\dagger_\gamma$1.10 6) $I^{(1)}$=86.2, $I^{(2)}$=90.7, $\hbar\omega$=0.539
C 8401.7+x, J+18 γ_{7301+x}1100.3 2 ($\dagger_\gamma$0.92 12) $I^{(1)}$=86.3, $I^{(2)}$=90.9, $\hbar\omega$=0.561
C 9546.0+x, J+20 γ_{8402+x}1144.3 3 ($\dagger_\gamma$1.00 9) $I^{(1)}$=86.5, $I^{(2)}$=86.6, $\hbar\omega$=0.584
C 10736.5+x, J+22 γ_{9546+x}1190.5 2 ($\dagger_\gamma$0.98 6) $I^{(1)}$=86.5, $I^{(2)}$=84.6, $\hbar\omega$=0.607
C 11974.3+x, J+24 $\gamma_{10737+x}$1237.8 2 ($\dagger_\gamma$0.82 8) $I^{(1)}$=86.4, $I^{(2)}$=82.1, $\hbar\omega$=0.631
C 13260.8+x, J+26 $\gamma_{11974+x}$1286.5 3 ($\dagger_\gamma$0.56 7) $I^{(1)}$=86.3, $I^{(2)}$=79.5, $\hbar\omega$=0.656
C 14597.6+x, J+28 $\gamma_{13261+x}$1336.8 3 ($\dagger_\gamma$0.52 6) $I^{(1)}$=86.0, $I^{(2)}$=79.7, $\hbar\omega$=0.681
C 15984.6+x, J+30 $\gamma_{14598+x}$1387.0 3 ($\dagger_\gamma$0.35 6) $I^{(1)}$=85.8, $I^{(2)}$=76.5, $\hbar\omega$=0.707
C 17423.9+x, J+32 $\gamma_{15985+x}$1439.3 4 ($\dagger_\gamma$0.21 4) $I^{(1)}$=85.5, $I^{(2)}$=72.9, $\hbar\omega$=0.733
C 18918.1+x, J+34 $\gamma_{17424+x}$1494.2 6 ($\dagger_\gamma$0.10 8) $I^{(1)}$=85.0
D y, (29$^-$)
D 727.9+y, (31$^-$) γ_y727.9 1 $I^{(1)}$=83.8, $I^{(2)}$=91.7, $\hbar\omega$=0.375
D 1499.4+y, (33$^-$) γ_{728+y}771.5 1 ($\dagger_\gamma$0.34 12) $I^{(1)}$=84.3, $I^{(2)}$=94.1, $\hbar\omega$=0.396
D 2313.4+y, (35$^-$) γ_{1499+y}814.0 1 ($\dagger_\gamma$0.69 15) $I^{(1)}$=84.8, $I^{(2)}$=93.5, $\hbar\omega$=0.418
D 3170.2+y, (37$^-$) γ_{2313+y}856.8 1 ($\dagger_\gamma$0.84 12) $I^{(1)}$=85.2, $I^{(2)}$=91.1, $\hbar\omega$=0.439
D 4070.9+y, (39$^-$) γ_{3170+y}900.7 1 ($\dagger_\gamma$0.99 18) $I^{(1)}$=85.5, $I^{(2)}$=90.7, $\hbar\omega$=0.461
D 5015.7+y, (41$^-$) γ_{4071+y}944.8 1 ($\dagger_\gamma$0.96 21) $I^{(1)}$=85.7, $I^{(2)}$=88.3, $\hbar\omega$=0.484
D 6005.8+y, (43$^-$) γ_{5016+y}990.1 1 ($\dagger_\gamma$0.82 9) $I^{(1)}$=85.8, $I^{(2)}$=87.0, $\hbar\omega$=0.507
D 7041.9+y, (45$^-$) γ_{6006+y}1036.1 1 ($\dagger_\gamma$0.75 15) $I^{(1)}$=85.9, $I^{(2)}$=86.8, $\hbar\omega$=0.530
D 8124.1+y, (47$^-$) γ_{7042+y}1082.2 1 ($\dagger_\gamma$0.88 18) $I^{(1)}$=85.9, $I^{(2)}$=83.3, $\hbar\omega$=0.553
D 9254.3+y, (49$^-$) γ_{8124+y}1130.2 1 ($\dagger_\gamma$0.82 12) $I^{(1)}$=85.8, $I^{(2)}$=82.8, $\hbar\omega$=0.577
D 10432.8+y, (51$^-$) γ_{9254+y}1178.5 1 ($\dagger_\gamma$0.97 18) $I^{(1)}$=85.7, $I^{(2)}$=79.7, $\hbar\omega$=0.602
D 11661.5+y, (53$^-$) $\gamma_{10433+y}$1228.7 1 ($\dagger_\gamma$0.97 18) $I^{(1)}$=85.5, $I^{(2)}$=92.0, $\hbar\omega$=0.625
D 12933.7+y, (55$^-$) $\gamma_{11662+y}$1272.2 2 ($\dagger_\gamma$0.54 12) $I^{(1)}$=85.7, $I^{(2)}$=71.8, $\hbar\omega$=0.650
D 14261.6+y, (57$^-$) $\gamma_{12934+y}$1327.9 3 ($\dagger_\gamma$0.11 9) $I^{(1)}$=85.1, $I^{(2)}$=79.5, $\hbar\omega$=0.677
D 15639.8+y, (59$^-$) $\gamma_{14262+y}$1378.2 3 $I^{(1)}$=84.9, $I^{(2)}$=79.1, $\hbar\omega$=0.702
D 17068.6+y, (61$^-$) $\gamma_{15640+y}$1428.8 4 $I^{(1)}$=84.7, $I^{(2)}$=76.2, $\hbar\omega$=0.728
D 18549.9+y, (63$^-$) $\gamma_{17069+y}$1481.3 5 $I^{(1)}$=84.4, $I^{(2)}$=77.5, $\hbar\omega$=0.754
D 20082.8+y, (65$^-$) $\gamma_{18550+y}$1532.9 5 $I^{(1)}$=84.2, $I^{(2)}$=78.9, $\hbar\omega$=0.779
D 21666.4+y, (67$^-$) $\gamma_{20083+y}$1583.6 5 $I^{(1)}$=84.0
E z, (24$^-$)
E 617.1+z, (26$^-$) γ_z617.1 1 $I^{(1)}$=82.6, $I^{(2)}$=84.7, $\hbar\omega$=0.320
E 1281.4+z, (28$^-$) γ_{617+z}664.3 1 $I^{(1)}$=82.8, $I^{(2)}$=83.0, $\hbar\omega$=0.344
E 1993.9+z, (30$^-$) γ_{1281+z}712.5 1 $I^{(1)}$=82.8, $I^{(2)}$=81.1, $\hbar\omega$=0.369
E 2755.7+z, (32$^-$) γ_{1994+z}761.8 1 $I^{(1)}$=82.7, $I^{(2)}$=82.8, $\hbar\omega$=0.393
E 3565.8+z, (34$^-$) γ_{2756+z}810.1 1 $I^{(1)}$=82.7, $I^{(2)}$=80.6, $\hbar\omega$=0.417
E 4425.5+z, (36$^-$) γ_{3566+z}859.7 1 $I^{(1)}$=82.6, $I^{(2)}$=79.7, $\hbar\omega$=0.442
E 5335.4+z, (38$^-$) γ_{4426+z}909.9 1 $I^{(1)}$=82.4, $I^{(2)}$=76.3, $\hbar\omega$=0.468
E 6297.7+z, (40$^-$) γ_{5335+z}962.3 1 $I^{(1)}$=82.1, $I^{(2)}$=77.1, $\hbar\omega$=0.494
E 7311.9+z, (42$^-$) γ_{6298+z}1014.2 1 $I^{(1)}$=81.8, $I^{(2)}$=74.6, $\hbar\omega$=0.521
E 8379.7+z, (44$^-$) γ_{7312+z}1067.8 1 $I^{(1)}$=81.5, $I^{(2)}$=74.2, $\hbar\omega$=0.547
E 9501.4+z, (46$^-$) γ_{8380+z}1121.7 1 $I^{(1)}$=81.1, $I^{(2)}$=73.5, $\hbar\omega$=0.574
E 10677.5+z, (48$^-$) γ_{9501+z}1176.1 1 $I^{(1)}$=80.8, $I^{(2)}$=72.2, $\hbar\omega$=0.602
E 11909.0+z, (50$^-$) $\gamma_{10678+z}$1231.5 3 $I^{(1)}$=80.4, $I^{(2)}$=72.1, $\hbar\omega$=0.630
E 13196.0+z, (52$^-$) $\gamma_{11909+z}$1287.0 3 $I^{(1)}$=80.0, $I^{(2)}$=71.7, $\hbar\omega$=0.657
E 14538.8+z, (54$^-$) $\gamma_{13196+z}$1342.8 3 $I^{(1)}$=79.7, $I^{(2)}$=71.6, $\hbar\omega$=0.685
E 15937.5+z, (56$^-$) $\gamma_{14539+z}$1398.7 5 $I^{(1)}$=79.4, $I^{(2)}$=70.7, $\hbar\omega$=0.713
E 17392.8+z, (58$^-$) $\gamma_{15938+z}$1455.3 5 $I^{(1)}$=79.0, $I^{(2)}$=70.5, $\hbar\omega$=0.742
E 18904.8+z, (60$^-$) $\gamma_{17393+z}$1512.0 5 $I^{(1)}$=78.7, $I^{(2)}$=72.3, $\hbar\omega$=0.770
E 20472.1+z, (62$^-$) $\gamma_{18905+z}$1567.3 5 $I^{(1)}$=78.5
F u, (27$^-$)
F 688.3+u, (29$^-$) $\gamma_0$688.3 3 $I^{(1)}$=82.8, $I^{(2)}$=83.3, $\hbar\omega$=0.356
F 1424.6+u, (31$^-$) γ_{688+u}736.3 3 $I^{(1)}$=82.8, $I^{(2)}$=81.1, $\hbar\omega$=0.380
F 2210.2+u, (33$^-$) γ_{1425+u}785.6 1 $I^{(1)}$=82.7, $I^{(2)}$=81.6, $\hbar\omega$=0.405
F 3044.8+u, (35$^-$) γ_{2210+u}834.6 1 $I^{(1)}$=82.7, $I^{(2)}$=79.1, $\hbar\omega$=0.430
F 3930.0+u, (37$^-$) γ_{3045+u}885.2 1 $I^{(1)}$=82.5, $I^{(2)}$=78.3, $\hbar\omega$=0.455
F 4866.3+u, (39$^-$) γ_{3930+u}936.3 1 $I^{(1)}$=82.2, $I^{(2)}$=76.9, $\hbar\omega$=0.481
F 5854.6+u, (41$^-$) γ_{4866+u}988.3 1 $I^{(1)}$=82.0, $I^{(2)}$=76.3, $\hbar\omega$=0.507
F 6895.3+u, (43$^-$) γ_{5855+u}1040.7 1 $I^{(1)}$=81.7, $I^{(2)}$=74.2, $\hbar\omega$=0.534
F 7989.9+u, (45$^-$) γ_{6895+u}1094.6 1 $I^{(1)}$=81.3, $I^{(2)}$=74.2, $\hbar\omega$=0.561
F 9138.4+u, (47$^-$) γ_{7990+u}1148.5 1 $I^{(1)}$=81.0, $I^{(2)}$=73.7, $\hbar\omega$=0.588
F 10341.2+u, (49$^-$) γ_{9138+u}1202.8 1 $I^{(1)}$=80.6, $I^{(2)}$=72.3, $\hbar\omega$=0.615
F 11599.3+u, (51$^-$) $\gamma_{10341+u}$1258.1 1 $I^{(1)}$=80.3, $I^{(2)}$=73.4, $\hbar\omega$=0.643
F 12911.9+u, (53$^-$) $\gamma_{11599+u}$1312.6 1 $I^{(1)}$=80.0, $I^{(2)}$=63.4, $\hbar\omega$=0.672
F 14287.6+u, (55$^-$) $\gamma_{12912+u}$1375.7 3 $I^{(1)}$=79.2, $I^{(2)}$=77.2, $\hbar\omega$=0.701
F 15715.1+u, (57$^-$) $\gamma_{14288+u}$1427.5 3 $I^{(1)}$=79.2, $I^{(2)}$=71.4, $\hbar\omega$=0.728
F 17198.6+u, (59$^-$) $\gamma_{15715+u}$1483.5 5 $I^{(1)}$=78.9, $I^{(2)}$=70.5, $\hbar\omega$=0.756
F 18738.8+u, (61$^-$) $\gamma_{17199+u}$1540.2 5 $I^{(1)}$=78.6, $I^{(2)}$=67.3, $\hbar\omega$=0.785
F 20338.4+u, (63$^-$) $\gamma_{18739+u}$1599.6 5 $I^{(1)}$=78.1
G v



$^{150}_{64}Gd$

$^{150}_{65}$Tb

Δ: −71115 *8* S_n: 7688 *9* S_p: 3269 *8* Q_{EC}: 4656 *9* Q_α: 3587 *5*

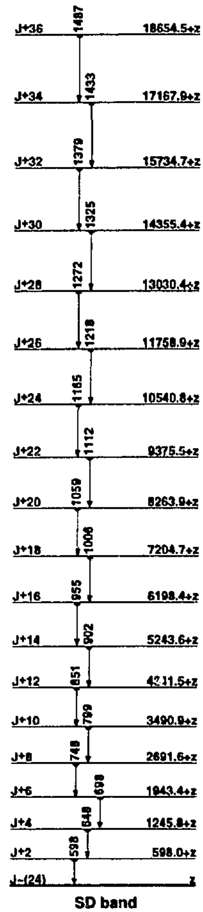
Nuclear Bands

A SD band

Levels and γ-ray branchings:

0+y (?), (2^-), 3.48 *16* h, %EC+%β^+=100, %α<0.05
0+x (?), (8^+,9^+), 5.8 *2* m, %EC+%β^+=100
397.2+y *3*, (1^+) γ_{0+y} *397.2 3*(?) ($\dagger_\gamma$100) E1
594.5+x, (10^+) γ_{0+x} *594.5* ($\dagger_\gamma$100)
758.7+x, (11^+) γ_{0+x} *758.7* ($\dagger_\gamma$100)
832.4+x, (10^-) γ_{0+x} *832.4* ($\dagger_\gamma$100)
874.2+x, (11^-) γ_{832+x} *41.8* γ_{759+x} *115.5* γ_{595+x} *279.9*
1111.9+x, (12^-) γ_{874+x} *237.7* γ_{759+x} *353*
1435.9+x, (13^+) γ_{759+x} *677.2* ($\dagger_\gamma$100)
1639+x, (13^-) γ_{874+x} *764.8* ($\dagger_\gamma$100)
1929.0+x, (14^-) γ_{1639+x} *290.0* γ_{1112+x} *817.3*
1937.6+x, (14^+) γ_{1436+x} *501.7* ($\dagger_\gamma$100)
2165.5+x, (16^+) γ_{1938+x} *227.9* ($\dagger_\gamma$100)
2265.5+x, (15^-) γ_{1639+x} *626.5* ($\dagger_\gamma$100)
2541.2+x, (16^-) γ_{2266+x} *275.7* γ_{2166+x} *376* γ_{1929+x} *612.2*
2896.3+x, (18^-) γ_{2541+x} *355.1* ($\dagger_\gamma$100)
3206.6+x, (19^-) γ_{2896+x} *310.3* ($\dagger_\gamma$100)
3419.6+x, (20^-) γ_{3207+x} *213.6* γ_{2896+x} *523.3*
3456.3+x (?) γ_{2896+x} *560*(?) ($\dagger_\gamma$100)
3950.1+x (?) γ_{3456+x} *493.8*(?) ($\dagger_\gamma$100)
4339.0+x γ_{3950+x} *390.1*(?) γ_{3420+x} *919.4*

A z, J=(24)
A 598.0+z, J+2 γ_z *598.0 3* ($\dagger_\gamma$0.20 *3*) *$I^{(1)}$=85.3, $I^{(2)}$=80.3, ħω=0.311*
A 1245.8+z, J+4 γ_{598+z} *647.8 3* ($\dagger_\gamma$0.38 *4*) *$I^{(1)}$=84.9, $I^{(2)}$=80.3, ħω=0.336*
A 1943.4+z, J+6 γ_{1246+z} *697.6 2* ($\dagger_\gamma$1.00 *10*) *$I^{(1)}$=84.6, $I^{(2)}$=79.1, ħω=0.361*
A 2691.6+z, J+8 γ_{1943+z} *748.2 2* ($\dagger_\gamma$0.98 *10*) *$I^{(1)}$=84.2, $I^{(2)}$=78.3, ħω=0.387*
A 3490.9+z, J+10 γ_{2692+z} *799.3 2* ($\dagger_\gamma$1.00) *$I^{(1)}$=83.8, $I^{(2)}$=78.0, ħω=0.412*
A 4341.5+z, J+12 γ_{3491+z} *850.6 2* ($\dagger_\gamma$1.00 *10*) *$I^{(1)}$=83.5, $I^{(2)}$=77.7, ħω=0.438*
A 5243.6+z, J+14 γ_{4342+z} *902.1 2* ($\dagger_\gamma$1.04 *10*) *$I^{(1)}$=83.1, $I^{(2)}$=75.9, ħω=0.464*
A 6198.4+z, J+16 γ_{5244+z} *954.8 2* ($\dagger_\gamma$0.99 *10*) *$I^{(1)}$=82.7, $I^{(2)}$=77.7, ħω=0.490*
A 7204.7+z, J+18 γ_{6198+z} *1006.3 3* ($\dagger_\gamma$0.98 *10*) *$I^{(1)}$=82.5, $I^{(2)}$=75.6, ħω=0.516*
A 8263.9+z, J+20 γ_{7205+z} *1059.2 3* ($\dagger_\gamma$0.89 *9*) *$I^{(1)}$=82.1, $I^{(2)}$=76.3, ħω=0.543*
A 9375.5+z, J+22 γ_{8264+z} *1111.6 3* ($\dagger_\gamma$0.88 *9*) *$I^{(1)}$=81.9, $I^{(2)}$=74.5, ħω=0.569*
A 10540.8+z, J+24 γ_{9376+z} *1165.3 3* ($\dagger_\gamma$0.87 *9*) *$I^{(1)}$=81.5, $I^{(2)}$=75.8, ħω=0.596*
A 11758.9+z, J+26 $\gamma_{10541+z}$ *1218.1 3* ($\dagger_\gamma$0.88 *9*) *$I^{(1)}$=81.3, $I^{(2)}$=74.9, ħω=0.622*
A 13030.4+z, J+28 $\gamma_{11759+z}$ *1271.5 3* ($\dagger_\gamma$0.68 *7*) *$I^{(1)}$=81.0, $I^{(2)}$=74.8, ħω=0.649*
A 14355.4+z, J+30 $\gamma_{13030+z}$ *1325.0 4* ($\dagger_\gamma$0.35 *5*) *$I^{(1)}$=80.8, $I^{(2)}$=73.7, ħω=0.676*
A 15734.7+z, J+32 $\gamma_{14355+z}$ *1379.3 4* ($\dagger_\gamma$0.32 *4*) *$I^{(1)}$=80.5, $I^{(2)}$=74.2, ħω=0.703*
A 17167.9+z, J+34 $\gamma_{15735+z}$ *1433.2 4* ($\dagger_\gamma$0.20 *4*) *$I^{(1)}$=80.2, $I^{(2)}$=74.9, ħω=0.730*
A 18654.5+z, J+36 $\gamma_{17168+z}$ *1486.6 5* *$I^{(1)}$=80.0*



SD band

$^{150}_{65}$Tb

$^{151}_{65}$Tb

Δ:-71633 5 S_n:8590 9 S_p:3151 7 Q_{EC}:2565 4 Q_α:3496 4

Nuclear Bands

- *A* $\pi h_{11/2}(0^+)$
- *B* $\pi h_{11/2}(3^-)$
- *C* SD-1 band
- *D* SD-2 band

Levels and γ-ray branchings:

0, 1/2(+), 17.609 1 h, %EC+%β+=100, %α=9.5×10^{-3} 15

22.922 20, 3/2(+), 4.05 7 ns $\gamma_0$22.922 (I_γ100) M1+E2:δ=0.031 4

72.39 3, (5/2+), 0.92 3 ns γ_{23}49.462 (I_γ100 1) M1+E2:δ=0.06 2 $\gamma_0$72.50 10 (I_γ0.5 1) (E2)

A 99.54 6, (11/2−), 25 3 s, %IT=93.8 4, %EC+%β+=6.2 4 γ_{72}27.1 1 E3

248.79 3, (5/2+,7/2+), <0.26 ns γ_{72}176.40 1 (I_γ100 2) M1+E2:δ=0.51 17 γ_{23}226.3 3 (I_γ2.3 5) M1,E2

276.42 4 γ_{72}204.03 2 (I_γ100)

485.64 5, (7/2−) γ_{100}386.10 2 (I_γ100 2) E2 γ_{72}413.27 13 (I_γ2.1 2)

548.65 5, (3/2+,5/2+,7/2+) γ_{276}272.43 23 (I_γ4.0 10) γ_{249}300.00 16 (I_γ2.9 4) γ_{72}476.56 10 (I_γ100 2) M1

583.98 6, (5/2) γ_{276}307.48 8 (I_γ36 3) γ_{23}561.00 10 (I_γ78 6) $\gamma_0$583.9 1 (I_γ100 5)

646.02 5, (9/2−) γ_{486}160.40 2 (I_γ2.7 2) γ_{100}546.31 10 (I_γ100 2) M1

686.70 7 γ_{72}614.30 10 (I_γ61 4) γ_{23}663.67 10 (I_γ100 5)

A 703.74 11, (15/2−) γ_{100}604.2 1 (I_γ100) E2

711.93 5 γ_{549}163.04 4 (I_γ7.2 17) γ_{249}463.20 10 (I_γ95 2) M1(+E2):δ<0.82 γ_{72}639.50 10 (I_γ54 4) γ_{23}689.17 10 (I_γ100 2) $\gamma_0$712.00 20 (I_γ<47)

841.11 9 γ_{549}292.16 10 (I_γ42 4) γ_{72}768.90 20 (I_γ100 5) γ_{23}818.6 3 (I_γ40 8)

856.81 7 γ_{486}371.07 5 (I_γ35.0 20) γ_{276}580.43 (I_γ9.4 24) γ_{72}784.56 (I_γ4.7 16) γ_{23}833.9 2 (I_γ100 5)

886.43 7 γ_{549}337.80 10 (I_γ48 4) γ_{72}814.10 10 (I_γ100 9)

887.35 11, (13/2−) γ_{100}787.8 1 (I_γ100) (M1+E2)

917.78 7, (5/2−,7/2−) γ_{687}230.90 13 (I_γ12.9 15) γ_{584}333.17 26 (I_γ4.7 11) γ_{486}432.16 10 (I_γ100 3) M1 γ_{276}642.2 6 (I_γ4.7 15) γ_{72}845.46 10 (I_γ49.8 24)

949.07 6 γ_{646}303.00 5 (I_γ75.4 24) γ_{549}400.57 16 (I_γ16.4 24) γ_{249}700.32 10 (I_γ100 4) γ_{23}926.0 5 (I_γ26 3)

1082.61 6, (7/2−) γ_{646}436.86 10 (I_γ25.0 14) M1 γ_{549}533.6 18 (I_γ9.4 14) γ_{486}596.77 10 (I_γ51.4 20) γ_{72}1010.4 3 (I_γ100 3)

B 1096.56 19, (15/2+) γ_{887}209.2 2 (I_γ33) γ_{704}392.8 1 (I_γ100) E1

1119.38 8 γ_{549}570.70 10 (I_γ79.6 25) γ_{249}870.36 10 (I_γ100 6) γ_{100}1020.4 3 (I_γ60 3)

1202.10 11 γ_{857}345.13 16 (I_γ10.3 19) γ_{646}556.40 23 (I_γ13.3 23) γ_{549}653.20 20 (I_γ27.0 23) γ_{72}1129.8 3 (I_γ100 4)

1241.21 10, (7/2−,9/2−) γ_{486}755.57 10 (I_γ100 4) γ_{249}992.37 22 (I_γ10.7 17) γ_{100}1141.8 3 (I_γ99 7)

1319.4 3 γ_{249}1070.6 3 (I_γ100)

A 1319.53 15, (19/2−) γ_{704}615.8 1 (I_γ100) E2

1433.86 8 γ_{918}515.95 (I_γ13 8) γ_{646}788.07 10 (I_γ95 6) γ_{584}849.60 10 (I_γ100 7) γ_{249}1185.6 3 (I_γ51 7) γ_{100}1334.3 3 (I_γ49 4)

1526.9 4 γ_{704}823.2 3 (I_γ100)

1582.29 12 γ_{646}936.27 10 (I_γ100)

1611.09 12 γ_{1083}528.40 16 (I_γ12.3 26) γ_{549}1062.5 3 (I_γ51 5) γ_{249}1361.9 3 (I_γ12.3 15) γ_{72}1538.1 3 (I_γ100 3) $\gamma_0$1611.0 3 (I_γ7.9 26)

1629.66 8 γ_{949}680.41 10 (I_γ46.8 21) γ_{918}712.00 20 (I_γ58 3) γ_{646}983.73 10 (I_γ100) γ_{486}1144.1 3 (I_γ20 5) γ_{249}1381.2 3 (I_γ18.1 21) γ_{100}1530.2 3 (I_γ40.1 17)

1663.18 11 γ_{918}745.40 10 (I_γ45.6 23) γ_{549}1114.3 3 (I_γ100 4)

B 1693.17 20, (19/2+) γ_{1097}596.6 1 (I_γ100) E2

1724.46 15, (5/2−) γ_{886}837.9 5 (I_γ4.4 15) γ_{549}1175.5 3 (I_γ21.9 15) γ_{249}1475.7 3 (I_γ46.8 19) γ_{72}1652.1 3 (I_γ31.4 9) γ_{23}1701.6 3 (I_γ100 3)

1741.78 8 γ_{949}793.08 10 (I_γ29.1 25) γ_{857}884.62 10 (I_γ37 3) γ_{712}1029.4 3 (I_γ21.2 25) γ_{646}1096.1 3 (I_γ100 3) γ_{486}1256.1 3 (I_γ62 3) γ_{249}1493.3 3 (I_γ15.8 25) γ_{23}1718.4 5 (I_γ7 3)

1773.74 10 γ_{918}855.84 10 (I_γ87 5) γ_{584}1197.00 10 (I_γ58 6) γ_{841}932.5 10 (I_γ19 4) γ_{584}1190.6 3 (I_γ28 4) γ_{486}1288.2 3 (I_γ53 3) γ_{249}1525.1 3 (I_γ100 4)

1841.63 11 γ_{949}891.92 20 (I_γ27.0 23) γ_{841}1000.4 3 (I_γ5.7 17) γ_{712}1129.8 3 (I_γ88 3) γ_{646}1196.8 3 (I_γ36.3 23) γ_{486}1355.5 3 (I_γ12.6 13) γ_{249}1593.1 3 (I_γ100 3) γ_{72}1769.7 3 (I_γ12.0 6)

A 2001.93 7, (23/2−) γ_{1320}682.4 1 (I_γ100) E2

2045.6 3, (21/2+) γ_{1693}352.4 3 (I_γ49 5) γ_{1319}726.1 3 (I_γ100 10)

2120.34 25, (23/2−) γ_{1320}800.8 2 (I_γ100) E2

2180.53 19, (25/2−) γ_{2002}178.6 1 (I_γ100) not NOTE1

B 2219.57 22, (23/2+) γ_{1693}526.4 1 (I_γ100) (E2)

2375.31 21, (27/2−) γ_{2181}194.8 1 (I_γ100) M1,E2

2468.4 3, (25/2+) γ_{2220}248.8 3 (I_γ100 10) not NOTE1 γ_{2181}287 (I_γ19 4) γ_{2002}466 (I_γ26 5)

B 2782.17 23, (27/2+) γ_{2468}313.9 3 (I_γ5.5 11) γ_{2220}562.6 1 (I_γ100 5) E2

2847.2 3, (29/2+) γ_{2782}65.1 3 (I_γ16 3) (M1) γ_{2468}378.6 3 (I_γ100 10) γ_{2375}472.0 3 (I_γ62 6)

3108.1 (?) γ_{2782}325.7 3(?) (I_γ100)

3115.6 3, (31/2+) γ_{2847}268.4 1 (I_γ100) M1,E2

3128.8 4, (31/2−) γ_{2375}753.4 3 (I_γ100) E2

3159.0 4, (29/2−) γ_{2181}978.5 14 (I_γ100) (E2)

3197.1 4 γ_{2847}349.9 3 (I_γ100)

3274.0 4, (33/2) γ_{3116}158.4 3 (I_γ100) D(+Q)

3287.6 4 γ_{2847}440.4 3 (I_γ100)

3808.4 5, (35/2) γ_{3129}679.7 3 (I_γ100) (E2)

3900.3 4, (35/2) γ_{3116}784.7 3 (I_γ100) (E2)

4147.9 5, (37/2) γ_{3274}873.9 3 (I_γ100) (E2)

4564.3 5, (39/2) γ_{3900}664.0 3 (I_γ100) (E2)

4774.0 6, (41/2) γ_{4148}626.1 3 (I_γ100) (E2)

5162.6 7, (45/2) γ_{4774}388.6 3 (I_γ100) (E2)

C x, J=(57/2)

C 728.0+x, J+2 γ_x728.0 5 (I_γ0.22 1) $I^{(1)}$=82.4, $I^{(2)}$=97.1, ħω=0.374

C 1497.2+x, J+4 γ_{728+x}769.2 5 (I_γ0.37 5) $I^{(1)}$=83.2, $I^{(2)}$=95.0, ħω=0.395

C 2308.5+x, J+6 γ_{1497+x}811.3 3 (I_γ0.83 7) $I^{(1)}$=83.8, $I^{(2)}$=93.7, ħω=0.416

C 3162.5+x, J+8 γ_{2309+x}854.0 1 (I_γ0.98 6) $I^{(1)}$=84.3, $I^{(2)}$=90.9, ħω=0.438

C 4060.5+x, J+10 γ_{3163+x}898.0 1 (I_γ1.01 5) $I^{(1)}$=84.6, $I^{(2)}$=89.3, ħω=0.460

C 5003.3+x, J+12 γ_{4061+x}942.8 1 (I_γ1.03 6) $I^{(1)}$=84.9, $I^{(2)}$=87.1, ħω=0.483

C 5992.0+x, J+14 γ_{5003+x}988.7 2 (I_γ0.90 15) $I^{(1)}$=85.0, $I^{(2)}$=86.6, ħω=0.506

C 7026.9+x, J+16 γ_{5992+x}1034.9 2 (I_γ0.99 7) $I^{(1)}$=85.0, $I^{(2)}$=84.0, ħω=0.529

C 8109.4+x, J+18 γ_{7027+x}1082.5 1 (I_γ1.05 10) $I^{(1)}$=85.0, $I^{(2)}$=83.9, ħω=0.553

C 9239.6+x, J+20 γ_{8109+x}1130.2 2 (I_γ1.08 9) $I^{(1)}$=84.9, $I^{(2)}$=82.1, ħω=0.577

C 10418.5+x, J+22 γ_{9240+x}1178.9 2 (I_γ0.95 8) $I^{(1)}$=84.8, $I^{(2)}$=80.6, ħω=0.602

C 11647.0+x, J+24 $\gamma_{10419+x}$1228.5 2 (I_γ0.90 8) $I^{(1)}$=84.7, $I^{(2)}$=80.0, ħω=0.627

C 12925.5+x, J+26 $\gamma_{11647+x}$1278.5 2 (I_γ0.85 9) $I^{(1)}$=84.5, $I^{(2)}$=77.7, ħω=0.652

C 14255.5+x, J+28 $\gamma_{12926+x}$1330.0 9 (I_γ0.50 5) $I^{(1)}$=84.2, $I^{(2)}$=78.9, ħω=0.678

C 15636.2+x, J+30 $\gamma_{14256+x}$1380.7 2 (I_γ0.27 4) $I^{(1)}$=84.0, $I^{(2)}$=77.2, ħω=0.703

C 17068.7+x, J+32 $\gamma_{15636+x}$1432.5 5 (I_γ0.16 8) $I^{(1)}$=83.8, $I^{(2)}$=79.2, ħω=0.729

C 18551.7+x, J+34 $\gamma_{17069+x}$1483 (I_γ0.15 3) $I^{(1)}$=83.6, $I^{(2)}$=76.9, ħω=0.755

C 20086.7+x(?), J+36 $\gamma_{18552+x}$1535(?) (I_γ0.05 3) $I^{(1)}$=83.4

D y, J=(49/2)

D 602+y, J+2 γ_y602 (I_γ0.12 3) $I^{(1)}$=86.4, $I^{(2)}$=88.9, ħω=0.312

D 1249+y, J+4 γ_{602+y}647 (I_γ0.56 10) $I^{(1)}$=86.6, $I^{(2)}$=88.9, ħω=0.335

D 1941+y, J+6 γ_{1249+y}692 (I_γ0.86 10) $I^{(1)}$=86.7, $I^{(2)}$=87.0, ħω=0.357

D 2679+y, J+8 γ_{1941+y}738 (I_γ0.94 15) $I^{(1)}$=86.7, $I^{(2)}$=88.9, ħω=0.380

D 3462+y, J+10 γ_{2679+y}783 (I_γ0.79 20) $I^{(1)}$=86.8, $I^{(2)}$=88.9, ħω=0.403

D 4290+y, J+12 γ_{3462+y}828 (I_γ0.83 15) $I^{(1)}$=87.0, $I^{(2)}$=83.3, ħω=0.426

D 5166+y, J+14 γ_{4290+y}876 (I_γ0.86 15) $I^{(1)}$=86.8, $I^{(2)}$=87.0, ħω=0.449

D 6088+y, J+16 γ_{5166+y}922 (I_γ0.98 20) $I^{(1)}$=86.8, $I^{(2)}$=83.3, ħω=0.473

D 7058+y, J+18 γ_{6088+y}970 (I_γ0.86 20) $I^{(1)}$=86.6, $I^{(2)}$=87.0, ħω=0.496

D 8074+y, J+20 γ_{7058+y}1016 (I_γ1.01 15) $I^{(1)}$=86.6, $I^{(2)}$=85.1, ħω=0.520

D 9137+y, J+22 γ_{8074+y}1063 (I_γ1.05 15) $I^{(1)}$=86.5, $I^{(2)}$=81.6, ħω=0.544

D 10249+y, J+24 γ_{9137+y}1112 (I_γ0.86 20) $I^{(1)}$=86.3, $I^{(2)}$=87.0, ħω=0.568

D 11407+y, J+26 $\gamma_{10249+y}$1158 (I_γ0.83 20) $I^{(1)}$=86.4, $I^{(2)}$=81.6, ħω=0.591

D 12614+y, J+28 $\gamma_{11407+y}$1207 (I_γ0.86 20) $I^{(1)}$=86.2, $I^{(2)}$=81.6, ħω=0.616

D 13870+y, J+30 $\gamma_{12614+y}$1256 (I_γ0.83 15) $I^{(1)}$=86.0, $I^{(2)}$=81.6, ħω=0.640

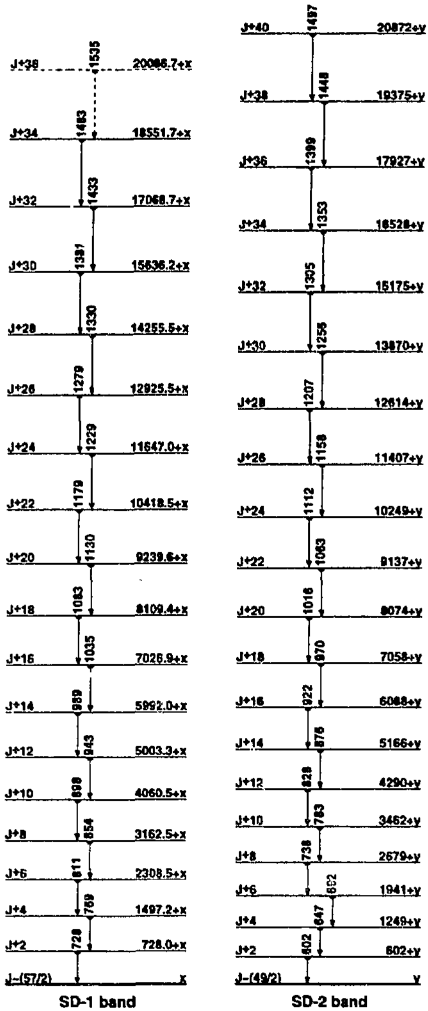
D 15175+y, J+32 $\gamma_{13870+y}$1305 (I_γ0.60 10) $I^{(1)}$=85.8, $I^{(2)}$=83.3, ħω=0.664

D 16528+y, J+34 $\gamma_{15175+y}$1353 (I_γ0.23 10) $I^{(1)}$=85.7, $I^{(2)}$=87.0, ħω=0.688

D 17927+y, J+36 $\gamma_{16528+y}$1399 $I^{(1)}$=85.8, $I^{(2)}$=81.6, ħω=0.712

D 19375+y, J+38 $\gamma_{17927+y}$1448 $I^{(1)}$=85.6, $I^{(2)}$=81.6, ħω=0.736

D 20872+y, J+40 $\gamma_{19375+y}$1497 $I^{(1)}$=85.5



$^{151}_{65}$Tb

$^{151}_{66}$Dy

Δ: −68762 *4* S_n: 7513 *5* S_p: 4936 *8* Q_{EC}: 2871 *5* Q_α: 4180 *3*

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 7/2(⁻), 17.9 *3* m, %α=5.6 *4*, %EC+%β⁺=94.4 *4*

527.38 *9*, (9/2⁻) γ_0 *527.4 1* (I_γ100) D

775.57 *11*, (11/2⁻) γ_0 *775.53 15* (I_γ100) E2

968.61 *13*, (13/2⁺) γ_{776} *193.0 1* (I_γ100) D

984.75 *22* γ_{776} *209.52* (I_γ100)

1334.5 *3* γ_{985} *350.86* (I_γ22 *13*) γ_{969} *366.03* (I_γ100 *13*) γ_{776} *559.45* (I_γ50 *13*)

1348.7 *1*, (13/2⁻) γ_{776} *573.25* (I_γ7.5 *15*) (D) γ_{527} *821.325* (I_γ100 *2*) E2

1511.16 *12*, (15/2⁻) γ_{969} *542.51* (I_γ10 *3*) (D) γ_{776} *735.595* (I_γ100 *3*) E2

1549.52 *19* γ_{969} *580.5 10* (I_γ=14) γ_{527} *1021.55* (I_γ36 *8*) γ_0 *1549.72* (I_γ100 *7*)

1733.7 (?), (17/2⁺) γ_{969} *765.3 ?* (?) (I_γ100) E2

1856.6 *3* (?) γ_{985} *871.0 10* (I_γ=71) γ_{776} *1081.4 3* (I_γ100 *11*)

1918.58 *11*, (17/2⁻) γ_{1511} *407.4 1* (I_γ43.2 *13*) (D) γ_{1349} *569.885* (I_γ100 *2*) E2

1961.3 *6* γ_{776} *1185.7 10* (I_γ=77) γ_{527} *1434.3 6* (I_γ100 *31*)

2263.02 *11*, (21/2⁻) γ_{1919} *344.444* (I_γ100) E2

2402.0 (?), (21/2⁺) γ_{1734} *668.3 3* (?) (I_γ100) E2

2554.3 *3* (?) γ_{776} *1779.1 3* (I_γ100 *9*) γ_{527} *2026.9 5* (I_γ41 *3*)

2582.9 *5* (?) γ_{776} *1807.7 6* (I_γ55 *18*) γ_{527} *2055.7 8* (I_γ100 *36*)

2866.1 *4* (?) γ_{985} *1881.4 3* (I_γ100 *11*) γ_{776} *2090.4 11* (I_γ21 *11*)

2911.66 *12*, (25/2⁻) γ_{2263} *648.645* (I_γ100) E2

2958.6 *10*, (27/2⁻), 1.3 *6* ns γ_{2912} *46.9* (I_γ100) M1

3078.2 (?), (25/2⁺) γ_{2402} *675.7 3* (?) (I_γ100) E2

3428.5 *11*, (29/2) γ_{2959} *469.91 12* (I_γ100) D

3733.9 *11*, (31/2⁻) γ_{3429} *305.3* γ_{2959} *775.38 15* E2

4306.3 *11*, (33/2) γ_{3734} *572.55* (I_γ100 *14*) (D) γ_{3429} *877.79 10* (I_γ43 *13*) (E2)

4387.3 *11*, (35/2⁻) γ_{3734} *653.376* (I_γ100) E2

4741.5 *11*, (37/2) γ_{4387} *354.287* (I_γ100 *2*) D γ_{4306} *435.16 13* (I_γ22.9 *21*) E2

4903.9 *11*, (41/2), 5.9 *7* ns γ_{4742} *162.325* (I_γ100) E2

5742.9 *11*, (43/2) γ_{4903} *839.02 10* (I_γ100) E1

6007.2 *11*, (47/2) γ_{5743} *264.298* (I_γ100) E2

6032.2 *15*, (49/2⁺), 11.9 *8* ns γ_{6007} *25.0* (I_γ100) D,E2

7037.5 *15*, (51/2⁻), 1.2 *6* ps γ_{6032} *1005.33* (I_γ100) E1

7219.5 *15*, (53/2), 13.7 *6* ps γ_{7038} *182.079* (I_γ100) D

8177.8 *15*, (55/2), 4.5 *15* ps γ_{7220} *958.23* (I_γ100) M1

8302.7 *15*, (57/2), 20.8 *12* ps γ_{8178} *124.83* (I_γ14 *2*) D γ_{7220} *1083.23* (I_γ100 *10*) E2

8680.3 *15*, (59/2), 2.0 *3* ps γ_{8303} *377.73* (I_γ100) M1

8891.7 *15*, (61/2), 19.8 *20* ps γ_{8680} *211.53* (I_γ99 *10*) D γ_{8303} *589.0* (I_γ100 *10*) E2

9813.4 *18* (?) γ_{8680} *1133 1* (?)

10029.9 *16*, (63/2), <2 ps γ_{8892} *1138.1 3* (I_γ100) (D)

10131.3 *18* (?) γ_{8680} *1451 1* (I_γ100)

10279.1 *21* (?) γ_{10131} *148 1* (I_γ100)

10320.7 *18* (?), <2 ps γ_{10030} *291 1* (I_γ100) (D)

10562.6 *19* (?), <2 ps γ_{10321} *242 1* γ_{10030} *533 1* (?) γ_{9813} *749 1* (D)

10749.9 *22* (?) γ_{10279} *471 1*

11143.5 *21* (?) γ_{10279} *864 1* (?) γ_{10131} *1012 1*

11840.7 *22* (?) γ_{11144} *697 1* γ_{10750} *1091 1*

A **x**, J=(47/2)

A **522.4+x** (?), J+2 γ_x *522.4* (?) (I_γ0.21 *15*) $I^{(1)}$=95.7, $I^{(2)}$=73.1, $\hbar\omega$=0.275

A **1099.5+x**, J+4 γ_{522+x} *577.1* (I_γ0.62 *5*) $I^{(1)}$=93.6, $I^{(2)}$=78.4, $\hbar\omega$=0.301

A **1727.6+x**, J+6 γ_{1100+x} *628.1* (I_γ0.78 *10*) $I^{(1)}$=92.3, $I^{(2)}$=74.5, $\hbar\omega$=0.327

A **2409.4+x**, J+8 γ_{1728+x} *681.8* (I_γ0.81 *7*) $I^{(1)}$=90.9, $I^{(2)}$=76.0, $\hbar\omega$=0.354

A **3143.8+x**, J+10 γ_{2409+x} *734.4* (I_γ0.90 *10*) $I^{(1)}$=89.9, $I^{(2)}$=77.8, $\hbar\omega$=0.380

A **3929.6+x**, J+12 γ_{3144+x} *785.8* (I_γ0.91 *10*) $I^{(1)}$=89.1, $I^{(2)}$=76.9, $\hbar\omega$=0.406

A **4767.4+x**, J+14 γ_{3930+x} *837.8* (I_γ1.00 *10*) $I^{(1)}$=88.3, $I^{(2)}$=78.0, $\hbar\omega$=0.432

A **5656.5+x**, J+16 γ_{4767+x} *889.1* (I_γ0.93 *10*) $I^{(1)}$=87.7, $I^{(2)}$=78.0, $\hbar\omega$=0.457

A **6596.9+x**, J+18 γ_{5657+x} *940.4* (I_γ1.03 *10*) $I^{(1)}$=87.2, $I^{(2)}$=78.4, $\hbar\omega$=0.483

A **7588.3+x**, J+20 γ_{6597+x} *991.4* (I_γ1.07 *15*) $I^{(1)}$=86.7, $I^{(2)}$=78.1, $\hbar\omega$=0.508

A **8630.9+x**, J+22 γ_{7588+x} *1042.6* (I_γ1.02 *10*) $I^{(1)}$=86.3, $I^{(2)}$=77.7, $\hbar\omega$=0.534

A **9725.0+x**, J+24 γ_{8631+x} *1094.1* (I_γ1.00 *10*) $I^{(1)}$=85.9, $I^{(2)}$=79.7, $\hbar\omega$=0.560

A **10869.3+x**, J+26 γ_{9725+x} *1144.3* (I_γ0.69 *7*) $I^{(1)}$=85.6, $I^{(2)}$=79.4, $\hbar\omega$=0.585

A **12064.0+x**, J+28 $\gamma_{10869+x}$ *1194.7* (I_γ0.59 *10*) $I^{(1)}$=85.4, $I^{(2)}$=80.2, $\hbar\omega$=0.610

A **13308.6+x**, J+30 $\gamma_{12064+x}$ *1244.6* (I_γ0.57 *10*) $I^{(1)}$=85.2, $I^{(2)}$=82.1, $\hbar\omega$=0.634

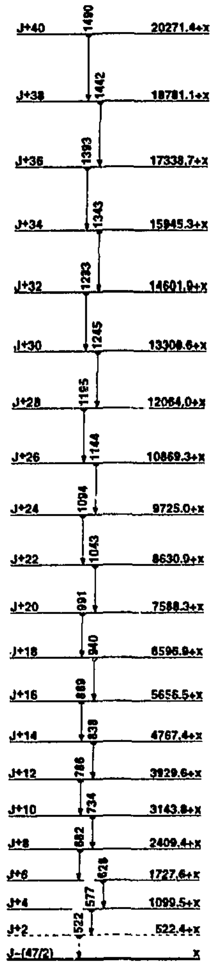
A **14601.9+x**, J+32 $\gamma_{13309+x}$ *1293.3* (I_γ0.48 *7*) $I^{(1)}$=85.1, $I^{(2)}$=79.8, $\hbar\omega$=0.659

A **15945.3+x**, J+34 $\gamma_{14602+x}$ *1343.4* (I_γ0.34 *7*) $I^{(1)}$=84.9, $I^{(2)}$=80.0, $\hbar\omega$=0.684

A **17338.7+x**, J+36 $\gamma_{15946+x}$ *1393.4* (I_γ0.38 *7*) $I^{(1)}$=84.7, $I^{(2)}$=81.6, $\hbar\omega$=0.709

A **18781.1+x**, J+38 $\gamma_{17339+x}$ *1442.4* (I_γ0.22 *5*) $I^{(1)}$=84.6, $I^{(2)}$=83.5, $\hbar\omega$=0.733

A **20271.4+x**, J+40 $\gamma_{18781+x}$ *1490.3* (I_γ0.09 *5*) $I^{(1)}$=84.5



SD band

$^{151}_{66}$Dy

$^{152}_{66}$Dy

Δ:−70128 *6* S_n:9437 *5* S_p:5783 *6* Q_{EC}:600 *40* Q_α:3727 *4*

Nuclear Bands

- *A* Band Structure
- *B* SD-1 band
- *C* SD-2 band
- *D* SD-3 band
- *E* SD-4 band

Levels and γ-ray branchings:

0, 0⁺, 2.38 *2* h, %α=0.100 *7*, %EC=99.900 *7*

613.8 *2*, 2⁺, 10 *6* ps γ_0*613.82* (†$_\gamma$100) E2

775.4 *3*, 0⁺ γ_{614}*161.6 3* (†$_\gamma$100) E2 γ_0*775.4 3* (†$_e$0.01) E0

1198.7 *3*, 2⁺ γ_{775}*423.2 3* (†$_\gamma$29 *14*) γ_{614}*584.8 2* (†$_\gamma$100 *29*) E0+M1+E2 γ_0*1198.0 5* (†$_\gamma$29 *14*)

1227.6 *4*, 3⁻ γ_{614}*613.8 3* (†$_\gamma$100)

1260.9, 4⁺ γ_{614}*647.2* (†$_\gamma$100) E2

1313.7 *3*, (2)⁺ γ_{775}*538.2 3* (†$_\gamma$50 *20*) γ_{614}*700.1 2* (†$_\gamma$100 *20*) M1 γ_0*1313.7 3* (†$_\gamma$90 *20*)

1448.8, 2⁺ γ_{1228}*221.0 4* (†$_\gamma$=13) γ_{775}*673.5 3* (†$_\gamma$63 *25*) γ_{614}*835.5 3* (†$_\gamma$100 *25*) M1 γ_0*1448.7 5* (†$_\gamma$63 *25*)

1781.6 *5*, 5⁻ γ_{1261}*520.7 1* (†$_\gamma$100 *19*) E1 γ_{1228}*554.2 2* (†$_\gamma$92 *12*) E2

1944.0 *4*, 6⁺ γ_{1782}*162.7 2* (†$_\gamma$1.3 *2*) γ_{1261}*683.3 1* (†$_\gamma$100 *7*) E2

1959.6 *6*, (4⁻) γ_{1261}*698.5 3* (†$_\gamma$100 *20*) γ_{1228}*732.0 3* (†$_\gamma$40 *12*)

2152.0 *4*, (2⁻) γ_{1449}*703.0 4* (†$_\gamma$27 *18*) γ_{1314}*838.0 2* (†$_\gamma$100 *27*) γ_{1228}*924.5 4* (†$_\gamma$36 *18*)

2342.4, 7⁻ γ_{1944}*398.1 2* (†$_\gamma$100 *8*) E1 γ_{1782}*560.7 2* (†$_\gamma$78 *8*) E2

2411.7, (2)⁻ γ_{1449}*963.1 4* (†$_\gamma$29 *15*) γ_{1314}*1098.0 3* (†$_\gamma$100 *21*) γ_{1199}*1213.0 4* (†$_\gamma$29 *15*) γ_{614}*1798.0 6* (†$_\gamma$43 *21*)

2435.8, (6⁻) γ_{1960}*475.8 3* (†$_\gamma$75 *37*) γ_{1782}*654.0 3* (†$_\gamma$100 *36*)

2437.1, 8⁺ γ_{1944}*492.9 1* (†$_\gamma$100) E2

2702.8, 8⁺ γ_{2437}*265.5 3* (†$_\gamma$4.6 *18*) γ_{2342}*360.4 3* (†$_\gamma$3.7 *18*) γ_{1944}*758.6 1* (†$_\gamma$100 *7*) E2

2788.2, (8)⁻ γ_{2437}*351.0 3* (†$_\gamma$44 *10*) E1 γ_{2436}*352.5 2* (†$_\gamma$100 *8*) E2 γ_{2342}*446.3 2* (†$_\gamma$16 *5*)

2905.7, 9⁻ γ_{2788}*117.2 2* (†$_\gamma$24 *6*) (M1) γ_{2703}*203.1* (†$_\gamma$15 *6*) D γ_{2437}*468.5 3* (†$_\gamma$26 *9*) γ_{2342}*563.5 2* (†$_\gamma$100 *12*) E2

3084.9, 10⁺ γ_{2703}*381.6 3* (†$_\gamma$4) γ_{2437}*647.2 1* (†$_\gamma$100) E2

3108.6, (10)⁻ γ_{2906}*203.1* (†$_\gamma$13 *5*) γ_{2788}*320.5 2* (†$_\gamma$100 *13*) E2

3160.0, 11⁻, 3.9 ns γ_{2906}*254.1* (†$_\gamma$100) E2

3172.5, 10⁻ γ_{2906}*266.8 3* (†$_\gamma$100) M1

3183.7, 10⁺ γ_{2906}*278.0 3* (†$_\gamma$67 *20*) γ_{2437}*746.5 2* (†$_\gamma$100 *20*) E2

3395.6, 10⁺ γ_{2703}*692.8* (†$_\gamma$100) E2

3512.5, (8,9)⁺ γ_{2906}*607.0 3* γ_{2703}*809.8 2* (†$_\gamma$100) M1

3820.0, 12⁺ γ_{3184}*636.7 2* (†$_\gamma$56 *4*) E2 γ_{3085}*735.9 2* (†$_\gamma$100 *9*) γ_{3160}*660.0* E2

3878.6, (9,10)⁺ γ_{3513}*366.2 2* (†$_\gamma$100 *7*) M1 γ_{3184}*694.7 3* (†$_\gamma$27 *10*) γ_{3109}*770.0 3* (†$_\gamma$30 *10*) γ_{2703}*1175.9 3* (†$_\gamma$63 *17*)

3970, 13⁻ γ_{3160}*808.8* (†$_\gamma$100) E2

3993, 13⁻ γ_{3160}*831.3* (†$_\gamma$100)

4030, 12⁺ γ_{3396}*633.9* (†$_\gamma$100) Q

4045.6, 10⁺ γ_{3879}*167.3 3* (†$_\gamma$21 *7*) γ_{3820}*225.5 2* (†$_\gamma$100 *7*) E2 γ_{3109}*937.0 3* (†$_\gamma$28 *14*) γ_{2906}*1139.9 2* (†$_\gamma$90 *17*)

4135 γ_{3173}*962.2* (†$_\gamma$100)

4431, 14⁺ γ_{3970}*461.0* γ_{3820}*610.1*

4652, 14⁺ γ_{4030}*622.3* (†$_\gamma$100) Q

4676, (15⁻) γ_{3993}*683* (†$_\gamma$100)

4735, 15⁻ γ_{3993}*742.4* γ_{3970}*765.3*

4805 γ_{4431}*374.4* γ_{3820}*984.4*

5035, 15⁺ γ_{4805}*229.9* γ_{4735}*300.3* γ_{4431}*604.5* M1

5089, 17⁺, 60 *4* ns γ_{5035}*53.4* (†$_\gamma$100) E2

5199, 16⁺ γ_{4652}*546.5* Q

5203, (17⁻) γ_{4676}*527* (†$_\gamma$100) Q

5342, 18⁺ γ_{5089}*253.5* (†$_\gamma$100) D

A **5765**, 18⁺ γ_{5199}*565.8* (†$_\gamma$100) Q

5867, 19⁻ γ_{5342}*525.3* (†$_\gamma$100) E1

6130, 21⁻, 9.5 *7* ns, μ=+11.55 *126* γ_{5867}*262.4* (†$_\gamma$100) E2

A **6374**, 20⁺ γ_{5765}*609* (†$_\gamma$100) E2

A **7055**, 22⁺ γ_{6374}*681* (†$_\gamma$100) E2

7120, 23⁻ γ_{6130}*990.7* (†$_\gamma$100) E2

7662, 25⁻ γ_{7120}*541.3* (†$_\gamma$100) E2

A **7809**, 24⁺ γ_{7055}*754* (†$_\gamma$100) E2

7882, 27⁻, 1.6 *2* ns γ_{7662}*220.6* (†$_\gamma$100) E2

A **8634**, 26⁺ γ_{7809}*825* (†$_\gamma$100) E2

8849, 28⁺, 24 *8* ps γ_{7882}*967.0* (†$_\gamma$100) E1

8997, 29⁺, 35 *10* ps γ_{8849}*147.6* (†$_\gamma$100) M1

9400, 30⁺, 7 *1* ps γ_{8997}*402.5* (†$_\gamma$100) M1

9528, 28⁺ γ_{8634}*894* (†$_\gamma$100) E2

10013 γ_{9400}*613* (†$_\gamma$100) γ_{8997}*1016* (†$_\gamma$50)

10110, 31⁺ γ_{10013}*97* (†$_\gamma$100) γ_{9400}*711.5* (†$_\gamma$42) M1 γ_{8997}*1114.0* (†$_\gamma$70) E2

10258 γ_{9400}*858* (†$_\gamma$100)

A **10490**, 30⁺ γ_{9528}*962* (†$_\gamma$100) E2

10541, 32⁺, 6.2 *6* ps γ_{10110}*431.2* (†$_\gamma$100) M1 γ_{9400}*1142* (†$_\gamma$32)

10574 γ_{10541}*133* (†$_\gamma$100)

10795, 33⁺, 15 *5* ps γ_{10541}*254.2* D γ_{10110}*684.9* E2

$^{152}_{66}$Dy (Continued)

11209 γ_{10641}*668* ($\dagger_\gamma$100) γ_{10258}*952* ($\dagger_\gamma$44)

A 11518, 32$^+$ γ_{10490}*1028* ($\dagger_\gamma$100) E2

11575, 34$^-$ γ_{10796}*779.6* ($\dagger_\gamma$100) E1 γ_{10674}*901* ($\dagger_\gamma$15)

11602 γ_{10641}*1061* ($\dagger_\gamma$100)

11859 γ_{11602}*257* ($\dagger_\gamma$80) γ_{10796}*1064* ($\dagger_\gamma$100)

11964, 35$^-$, 1.2 *4* ps γ_{11575}*388.6* ($\dagger_\gamma$100) M1

12179 γ_{11859}*320* ($\dagger_\gamma$100) γ_{11209}*970* ($\dagger_\gamma$100)

12326, 36$^-$ γ_{11964}*362* ($\dagger_\gamma$100) D

12427 γ_{12179}*248* ($\dagger_\gamma$75) γ_{11209}*1219* ($\dagger_\gamma$100)

A 12511, 34$^+$ γ_{11518}*1093* ($\dagger_\gamma$100) E2

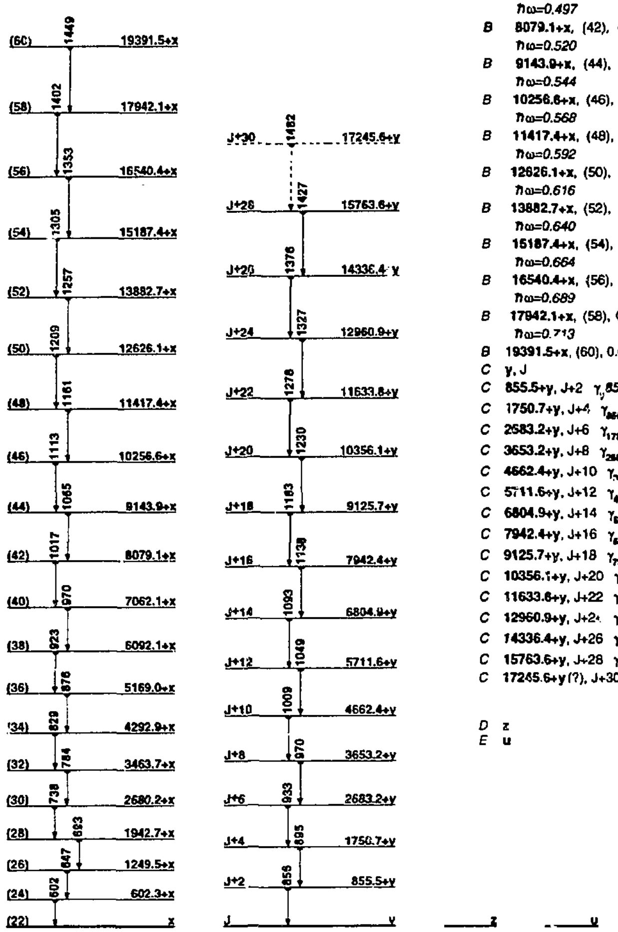
12715 γ_{12427}*288* ($\dagger_\gamma$21) γ_{12179}*536* ($\dagger_\gamma$100) γ_{11964}*755* ($\dagger_\gamma$79)

13494 γ_{12326}*1168* ($\dagger_\gamma$100)

13515 γ_{12326}*1189* ($\dagger_\gamma$100)

13688 γ_{12326}*1362* ($\dagger_\gamma$100)

13720 γ_{12715}*1005* ($\dagger_\gamma$100)



SD-1 band SD-2 band SD-3 band SD-4 band

$^{152}_{66}$Dy

A 13771, 36$^+$ γ_{12511}*1160* ($\dagger_\gamma$100) E2

14740 γ_{13720}*1020* ($\dagger_\gamma$100)

A 14993, 38$^+$ γ_{13771}*1222* ($\dagger_\gamma$100) E2

15632 γ_{13720}*1912* ($\dagger_\gamma$100)

16275, 40$^+$ γ_{14993}*1282* ($\dagger_\gamma$100) E2

B x, (22)

B 602.3+x, (24) γ_x*602.3 3* ($\dagger_\gamma$0.17 *3*) E2 $I^{(1)}$=*78.0*, $I^{(2)}$=*89.1*, $\hbar\omega$=*0.312*

B 1249.5+x, (26) γ_{602+x}*647.2 2* ($\dagger_\gamma$0.51 *7*) E2 $I^{(1)}$=*78.8*, $I^{(2)}$=*87.0*, $\hbar\omega$=*0.335*

B 1942.7+x, (28), 30 fs γ_{1250+x}*693.2 2* ($\dagger_\gamma$1.01 *10*) E2 $I^{(1)}$=*79.3*, $I^{(2)}$=*90.3*, $\hbar\omega$=*0.358*

B 2680.2+x, (30), 22 fs γ_{1943+x}*737.5 2* ($\dagger_\gamma$0.93 *11*) E2 $I^{(1)}$=*80.0*, $I^{(2)}$=*87.0*, $\hbar\omega$=*0.380*

B 3463.7+x, (32), 16 fs γ_{2680+x}*783.5 3* ($\dagger_\gamma$0.96 *11*) E2 $I^{(1)}$=*80.4*, $I^{(2)}$=*87.5*, $\hbar\omega$=*0.403*

B 4292.9+x, (34), 12 fs γ_{3464+x}*829.2 2* ($\dagger_\gamma$1.01 *8*) E2 $I^{(1)}$=*80.8*, $I^{(2)}$=*85.3*, $\hbar\omega$=*0.426*

B 5169.0+x, (36), 9.3 fs γ_{4293+x}*876.1 2* ($\dagger_\gamma$1.08 *11*) E2 $I^{(1)}$=*81.0*, $I^{(2)}$=*85.1*, $\hbar\omega$=*0.450*

B 6092.1+x, (38), 7.1 fs γ_{5169+x}*923.1 2* ($\dagger_\gamma$1.04 *10*) E2 $I^{(1)}$=*81.2*, $I^{(2)}$=*85.3*, $\hbar\omega$=*0.473*

B 7062.1+x, (40), 5.5 fs γ_{6092+x}*970.0 2* ($\dagger_\gamma$1.00 *11*) E2 $I^{(1)}$=*81.4*, $I^{(2)}$=*85.1*, $\hbar\omega$=*0.497*

B 8079.1+x, (42), 4.4 fs γ_{7062+x}*1017.0 2* ($\dagger_\gamma$0.98 *12*) E2 $I^{(1)}$=*81.6*, $I^{(2)}$=*83.7*, $\hbar\omega$=*0.520*

B 9143.9+x, (44), 3.5 fs γ_{8079+x}*1064.8 2* ($\dagger_\gamma$0.98 *8*) E2 $I^{(1)}$=*81.7*, $I^{(2)}$=*83.5*, $\hbar\omega$=*0.544*

B 10256.6+x, (46), 2.8 fs γ_{9144+x}*1112.7 3* ($\dagger_\gamma$0.90 *10*) E2 $I^{(1)}$=*81.8*, $I^{(2)}$=*83.2*, $\hbar\omega$=*0.568*

B 11417.4+x, (48), 2.3 fs $\gamma_{10257+x}$*1160.8 3* ($\dagger_\gamma$0.87 *6*) E2 $I^{(1)}$=*81.8*, $I^{(2)}$=*83.5*, $\hbar\omega$=*0.592*

B 12626.1+x, (50), 1.8 fs $\gamma_{11417+x}$*1208.7 3* ($\dagger_\gamma$0.89 *12*) E2 $I^{(1)}$=*81.9*, $I^{(2)}$=*83.5*, $\hbar\omega$=*0.616*

B 13882.7+x, (52), 1.5 fs $\gamma_{12626+x}$*1256.6 3* ($\dagger_\gamma$0.75 *10*) E2 $I^{(1)}$=*82.0*, $I^{(2)}$=*83.2*, $\hbar\omega$=*0.640*

B 15187.4+x, (54), 1.2 fs $\gamma_{13883+x}$*1304.7 3* ($\dagger_\gamma$0.62 *7*) E2 $I^{(1)}$=*82.0*, $I^{(2)}$=*82.8*, $\hbar\omega$=*0.664*

B 16540.4+x, (56), 1.0 fs $\gamma_{15187+x}$*1353.0 3* ($\dagger_\gamma$0.49 *8*) E2 $I^{(1)}$=*82.0*, $I^{(2)}$=*82.1*, $\hbar\omega$=*0.689*

B 17942.1+x, (58), 0.90 fs $\gamma_{16540+x}$*1401.7 4* ($\dagger_\gamma$0.30 *7*) E2 $I^{(1)}$=*82.0*, $I^{(2)}$=*83.9*, $\hbar\omega$=*0.713*

B 19391.5+x, (60), 0.69 fs $\gamma_{17942+x}$*1449.4 6* ($\dagger_\gamma$0.16 *6*) E2 $I^{(1)}$=*82.1*

C y, J

C 855.5+y, J+2 γ_y*855.5* $I^{(2)}$=*100.8*, $\hbar\omega$=*0.438*

C 1750.7+y, J+4 γ_{856+y}*895.2* $I^{(2)}$=*107.2*, $\hbar\omega$=*0.457*

C 2583.2+y, J+6 γ_{1751+y}*932.5* $I^{(2)}$=*106.7*, $\hbar\omega$=*0.476*

C 3653.2+y, J+8 γ_{2583+y}*970* $I^{(2)}$=*102.0*, $\hbar\omega$=*0.495*

C 4662.4+y, J+10 γ_{3653+y}*1009.2* $I^{(2)}$=*100.0*, $\hbar\omega$=*0.515*

C 5711.6+y, J+12 γ_{4662+y}*1049.2* $I^{(2)}$=*90.7*, $\hbar\omega$=*0.536*

C 6804.9+y, J+14 γ_{5712+y}*1093.3* $I^{(2)}$=*90.5*, $\hbar\omega$=*0.558*

C 7942.4+y, J+16 γ_{6805+y}*1137.5* $I^{(2)}$=*87.3*, $\hbar\omega$=*0.580*

C 9125.7+y, J+18 γ_{7942+y}*1183.3* $I^{(2)}$=*84.9*, $\hbar\omega$=*0.603*

C 10356.1+y, J+20 γ_{9126+y}*1230.4* $I^{(2)}$=*84.6*, $\hbar\omega$=*0.627*

C 11633.8+y, J+22 $\gamma_{10356+y}$*1277.7* $I^{(2)}$=*81.0*, $\hbar\omega$=*0.651*

C 12960.9+y, J+24 $\gamma_{11634+y}$*1327.1* $I^{(2)}$=*82.6*, $\hbar\omega$=*0.676*

C 14336.4+y, J+26 $\gamma_{12961+y}$*1375.5* $I^{(2)}$=*77.4*, $\hbar\omega$=*0.701*

C 15763.6+y, J+28 $\gamma_{14336+y}$*1427.2* $I^{(2)}$=*73.0*, $\hbar\omega$=*0.727*

C 17245.6+y(?), J+30 $\gamma_{15764+y}$*1482*(?)

D z

E u

$^{153}_{66}$Dy

Δ:−69151 *5* S_n:7095 *6* S_p:5710 *40* Q_{EC}:2170.6 *19* Q_α:3559 *4*

Nuclear Bands

- *A* $h_{11/2}$
- *B* $h_{9/2}$
- *C* Band Structure
- *D* $i_{13/2}$
- *E* SD-1 band
- *F* SD-2 band
- *G* SD-3 band

Levels and γ-ray branchings:

0, 7/2(−), 6.4 *1* h, μ=−0.782 *6*, Q=−0.02 *5*, %α=0.0094 *14*, %EC+%β⁺=99.9906 *14*

108.7 *1*, (3/2−), 1.35 *10* ns γ_0*108.72* ($\dagger_\gamma$100) E2

270.6 *1*, (3/2−,5/2−,7/2−), <0.25 ns γ_{108}*161.52* ($\dagger_\gamma$100 *5*) M1+E2 γ_0*270.62* ($\dagger_\gamma$100 *5*) E2

B 295.8 *1*, (9/2−) γ_0*295.81* ($\dagger_\gamma$100) M1

365.9 *2* γ_{271}*95.23* ($\dagger_\gamma$=3.3) γ_0*365.92* ($\dagger_\gamma$100 *17*)

500.9, (−), <0.2 ns γ_{271}*230.21* ($\dagger_\gamma$100 *7*) M1 γ_{109}*391.72* ($\dagger_\gamma$22 *5*)

565.8 γ_{109}*456.82* ($\dagger_\gamma$100 *50*) γ_0*565.52* ($\dagger_\gamma$80 *20*)

577.0 *3* γ_{109}*468.22* ($\dagger_\gamma$86 *13*) γ_0*577.03* ($\dagger_\gamma$100 *19*)

637.0 *2*, 11/2(−) γ_{296}*341.0* γ_0*637.02* E2

688.5 *2* γ_{296}*392.54* ($\dagger_\gamma$9 *4*) γ_{109}*579.73* ($\dagger_\gamma$22 *9*) γ_0*688.52* ($\dagger_\gamma$100 *7*)

D 712.4, (13/2+) γ_{637}*75.6* ($\dagger_\gamma$100) E1

830.0 *4* γ_{712}*117.33* ($\dagger_\gamma$40 *20*) γ_{689}*141.83* ($\dagger_\gamma$100 *30*) γ_{637}*192.82* ($\dagger_\gamma$60 *20*) γ_{577}*253.82* ($\dagger_\gamma$50 *10*) γ_{109}*721.05* ($\dagger_\gamma$20 *10*)

B 837.1, (13/2−) γ_{296}*541.24* ($\dagger_\gamma$100) (E2)

1040.5, (11/2+) γ_{712}*328.1* γ_{637}*403.7*

A 1067.8, (11/2−) γ_{296}*771.9 10* ($\dagger_\gamma$100)

1092.0 *5* γ_{689}*404.13* ($\dagger_\gamma$50 *25*) γ_0*1091.85* ($\dagger_\gamma$100 *25*)

D 1160.2, (17/2+), 11.6 *12* ps γ_{712}*447.8* ($\dagger_\gamma$100) E2

1189.7 *6* γ_{637}*552.05* ($\dagger_\gamma$100 *50*) γ_{296}*893.95* ($\dagger_\gamma$75 *25*) γ_0*1189.96* ($\dagger_\gamma$100 *50*)

1272.8, (13/2,15/2−) γ_{712}*560.43* ($\dagger_\gamma$48 *9*) γ_{637}*636.0* ($\dagger_\gamma$100 *24*)

1276.9 *6*, (9/2−) γ_{366}*910.44* ($\dagger_\gamma$28 *4*) γ_{109}*1167.65* ($\dagger_\gamma$32 *4*) γ_0*1276.54* ($\dagger_\gamma$100 *8*)

1304.1 γ_{837}*467.12* ($\dagger_\gamma$36) γ_{712}*591.62* ($\dagger_\gamma$100 *27*)

A 1321.2, (13/2−) γ_{1068}*253.1* ($\dagger_\gamma$100)

1381.2 *6* γ_{689}*693.05* ($\dagger_\gamma$8 *3*) γ_{566}*815.55* ($\dagger_\gamma$16 *5*) γ_{296}*1085.84* ($\dagger_\gamma$100 *8*) γ_0*1381.06* ($\dagger_\gamma$50 *8*)

B 1454.6, (17/2−) γ_{837}*617.55* ($\dagger_\gamma$100) (E2)

1501.4 *5* γ_{689}*812.15* ($\dagger_\gamma$17 *6*) γ_{637}*864.05* ($\dagger_\gamma$33 *11*) γ_{577}*924.04* ($\dagger_\gamma$100 *17*)

1521.6

1581.0 *7* γ_{712}*868.65* ($\dagger_\gamma$29 *7*) γ_{689}*893.95* ($\dagger_\gamma$21 *7*) γ_{577}*1004.14* ($\dagger_\gamma$29 *14*) γ_{566}*1015.44* ($\dagger_\gamma$100 *14*) γ_{296}*1284.88* ($\dagger_\gamma$7 *7*)

A 1584.2, (15/2−) γ_{1321}*262.4* γ_{1068}*515*

C 1601, (17/2−) γ_{1273}*328.1* γ_{1160}*440.7* γ_{1041}*560.4*

D 1648.4, (21/2+), 7.1 *6* ps γ_{1160}*488.2* ($\dagger_\gamma$100) E2

1753.6

1822.6 γ_{1455}*366.7* ($\dagger_\gamma$64 *14*) (E1) γ_{1304}*518.5* ($\dagger_\gamma$100 *21*) γ_{1160}*662.45* ($\dagger_\gamma$36 *7*)

A 1861.4, (17/2−) γ_{1584}*277.55* γ_{1321}*540.1*

1892(?) γ_{1160}*731.8 10* ($\dagger_\gamma$100)

1953.0

C 2042, (21/2−) γ_{1648}*393.7* γ_{1601}*441.3*

A 2151.6, (19/2−) γ_{1861}*290.14* γ_{1584}*568.0*

D 2180.7, (25/2+), 2.1 *4* ps γ_{1648}*532.31* ($\dagger_\gamma$100) E2

2194.8

2231(?) γ_{1455}*776* ($\dagger_\gamma$100)

2285.2 γ_{1892}*393.25* ($\dagger_\gamma$33 *11*) γ_{1823}*462.44* ($\dagger_\gamma$100 *11*) E2

A 2453.3, (21/2−) γ_{2152}*301.75* γ_{1861}*592*

C 2523.2, (25/2−) γ_{2181}*342.1* γ_{2042}*480.8*

2686.4 γ_{2285}*401.2 3* ($\dagger_\gamma$100) (E2)

2746.4

D 2762.2, (29/2+) γ_{2181}*581.6* ($\dagger_\gamma$100) E2

A 2763.0, (23/2−) γ_{2453}*309.7* γ_{2152}*612*

C 3075.0, (29/2−) γ_{2523}*551.8* ($\dagger_\gamma$100)

A 3079.5, (25/2−) γ_{2763}*316.5* γ_{2453}*626*

3170 γ_{2523}*646.6* ($\dagger_\gamma$100)

D 3389.1, (33/2+) γ_{2762}*627.2* ($\dagger_\gamma$100) E2

3415.6

C 3744, (33/2−) γ_{3075}*668.9* ($\dagger_\gamma$100)

3829 γ_{3389}*439.5* γ_{3170}*659.6*

D 4063.1, (37/2+) γ_{3389}*674.04* ($\dagger_\gamma$100) (E2)

4134(?)

C 4461, (37/2−) γ_{3744}*717.6* ($\dagger_\gamma$100)

4487 γ_{4063}*423.4* γ_{3829}*657.9*

D 4783, (41/2+) γ_{4063}*719.0* ($\dagger_\gamma$100)

5141 γ_{4783}*358.4* γ_{4487}*654.0* γ_{4461}*679.8*

5207 γ_{4487}*720.3* ($\dagger_\gamma$100)

C 5245, (41/2−) γ_{4487}*757.6* γ_{4461}*783.4*

5378 γ_{5245}*133.3* M1 γ_{5207}*170.3* γ_{5141}*236.6*

5591, 2.3 ns γ_{5378}*213.9* ($\dagger_\gamma$100)

5781 γ_{5591}*189.3* ($\dagger_\gamma$100)

6228 γ_{5591}*636.3* ($\dagger_\gamma$100)

6718 γ_{5781}*957.7* ($\dagger_\gamma$100)

7000 γ_{6718}*281.5* ($\dagger_\gamma$100)

7065 γ_{6228}*837.4* ($\dagger_\gamma$100)

7934 γ_{7065}*869.3* ($\dagger_\gamma$100)

8030 γ_{7000}*1029.9* ($\dagger_\gamma$100)

8452 γ_{7934}*518.0* ($\dagger_\gamma$100)

8638 γ_{8030}*608.1* ($\dagger_\gamma$100)

E x, J=(71/2)

E 809.6+x, J+2 γ_x*809.6* ($\dagger_\gamma$1.06 *9*) $I^{(1)}$=*91.4*, $I^{(2)}$=*87.0*, ħω=*0.416*

E 1665.2+x, J+4 γ_{810+x}*855.6* ($\dagger_\gamma$1.09 *12*) $I^{(1)}$=*91.2*, $I^{(2)}$=*89.3*, ħω=*0.439*

E 2565.6+x, J+6 γ_{1665+x}*900.4* ($\dagger_\gamma$0.79 *8*) $I^{(1)}$=*91.1*, $I^{(2)}$=*89.7*, ħω=*0.461*

E 3510.6+x, J+8 γ_{2566+x}*945.0* ($\dagger_\gamma$1.00 *6*) $I^{(1)}$=*91.0*, $I^{(2)}$=*87.5*, ħω=*0.484*

E 4501.3+x, J+10 γ_{3511+x}*990.7* ($\dagger_\gamma$0.88 *12*) $I^{(1)}$=*90.8*, $I^{(2)}$=*88.1*, ħω=*0.507*

E 5537.4+x, J+12 γ_{4501+x}*1036.1* ($\dagger_\gamma$1.09 *6*) $I^{(1)}$=*90.7*, $I^{(2)}$=*85.8*, ħω=*0.530*

E 6620.1+x, J+14 γ_{5537+x}*1082.7* ($\dagger_\gamma$1.18 *12*) $I^{(1)}$=*90.5*, $I^{(2)}$=*87.9*, ħω=*0.553*

E 7748.3+x, J+16 γ_{6620+x}*1128.2* ($\dagger_\gamma$1.03 *12*) $I^{(1)}$=*90.4*, $I^{(2)}$=*87.1*, ħω=*0.576*

E 8922.4+x, J+18 γ_{7748+x}*1174.1* ($\dagger_\gamma$0.94 *8*) $I^{(1)}$=*90.3*, $I^{(2)}$=*84.2*, ħω=*0.599*

E 10144.0+x, J+20 γ_{8922+x}*1221.6* ($\dagger_\gamma$0.88 *6*) $I^{(1)}$=*90.0*, $I^{(2)}$=*87.0*, ħω=*0.622*

E 11411.6+x, J+22 $\gamma_{10144+x}$*1267.6* ($\dagger_\gamma$0.79 *21*) $I^{(1)}$=*89.9*, $I^{(2)}$=*87.0*, ħω=*0.645*

E 12725.2+x, J+24 $\gamma_{11412+x}$*1313.6* ($\dagger_\gamma$0.79 *9*) $I^{(1)}$=*89.8*, $I^{(2)}$=*84.9*, ħω=*0.669*

E 14085.9+x, J+26 $\gamma_{12725+x}$*1360.7* ($\dagger_\gamma$0.39 *11*) $I^{(1)}$=*89.7*, $I^{(2)}$=*87.9*, ħω=*0.692*

E 15492.1+x, J+28 $\gamma_{14086+x}$*1406.2* ($\dagger_\gamma$0.58 *15*) $I^{(1)}$=*89.6*

F y, J=(71/2)

F 816.5+y, J+2 γ_y*816.5* $I^{(1)}$=*90.6*, $I^{(2)}$=*87.7*, ħω=*0.420*

F 1678.6+y, J+4 γ_{817+y}*862.1* ($\dagger_\gamma$0.76 *18*) $I^{(1)}$=*90.5*, $I^{(2)}$=*83.7*, ħω=*0.443*

F 2588.5+y, J+6 γ_{1679+y}*909.9* ($\dagger_\gamma$0.79 *21*) $I^{(1)}$=*90.1*, $I^{(2)}$=*81.8*, ħω=*0.467*

F 3547.3+y, J+8 γ_{2589+y}*958.8* $I^{(1)}$=*89.7*, $I^{(2)}$=*84.6*, ħω=*0.491*

F 4553.4+y, J+10 γ_{3547+y}*1006.1* $I^{(1)}$=*89.5*, $I^{(2)}$=*86.8*, ħω=*0.515*

F 5605.6+y, J+12 γ_{4553+y}*1052.2* ($\dagger_\gamma$0.61 *14*) $I^{(1)}$=*89.3*, $I^{(2)}$=*83.7*, ħω=*0.538*

F 6705.6+y, J+14 γ_{5606+y}*1100.0* ($\dagger_\gamma$0.61 *14*) $I^{(1)}$=*89.1*, $I^{(2)}$=*82.3*, ħω=*0.562*

F 7854.2+y, J+16 γ_{6706+y}*1148.6* ($\dagger_\gamma$0.85 *18*) $I^{(1)}$=*88.8*, $I^{(2)}$=*84.0*, ħω=*0.586*

F 9050.4+y, J+18 γ_{7854+y}*1196.2* ($\dagger_\gamma$0.82 *6*) $I^{(1)}$=*88.6*, $I^{(2)}$=*83.5*, ħω=*0.610*

F 10294.5+y, J+20 γ_{9050+y}*1244.1* ($\dagger_\gamma$0.94 *12*) $I^{(1)}$=*88.4*, $I^{(2)}$=*85.3*, ħω=*0.634*

F 11585.5+y, J+22 $\gamma_{10295+y}$*1291.0* ($\dagger_\gamma$0.94 *12*) $I^{(1)}$=*88.3*, $I^{(2)}$=*80.5*, ħω=*0.658*

F 12926.2+y, J+24 $\gamma_{11586+y}$*1340.7* ($\dagger_\gamma$0.39 *12*) $I^{(1)}$=*88.0*, $I^{(2)}$=*84.7*, ħω=*0.682*

F 14314.1+y, J+26 $\gamma_{12926+y}$*1387.9* ($\dagger_\gamma$0.55 *9*) $I^{(1)}$=*87.9*

G z, J=(77/2)

G 894.6+z, J+2 γ_z*894.6*(?) ($\dagger_\gamma$0.36 *9*) $I^{(1)}$=*89.4*, $I^{(2)}$=*97.3*, ħω=*0.458*

G 1830.3+z, J+4 γ_{895+z}*935.7* ($\dagger_\gamma$0.45 *14*) $I^{(1)}$=*89.8*, $I^{(2)}$=*90.1*, ħω=*0.479*

G 2810.4+z, J+6 γ_{1830+z}*980.1* ($\dagger_\gamma$0.45 *6*) $I^{(1)}$=*89.8*, $I^{(2)}$=*82.3*, ħω=*0.502*

G 3839.1+z, J+8 γ_{2810+z}*1028.7* ($\dagger_\gamma$0.45 *9*) $I^{(1)}$=*89.4*, $I^{(2)}$=*86.2*, ħω=*0.526*

G 4914.2+z, J+10 γ_{3839+z}*1075.1* ($\dagger_\gamma$0.55 *9*) $I^{(1)}$=*89.3*, $I^{(2)}$=*82.3*, ħω=*0.550*

G 6037.9+z, J+12 γ_{4914+z}*1123.7* ($\dagger_\gamma$0.55 *9*) $I^{(1)}$=*89.0*, $I^{(2)}$=*85.5*, ħω=*0.574*

G 7208.4+z, J+14 γ_{6038+z}*1170.5* ($\dagger_\gamma$0.39 *9*) $I^{(1)}$=*88.9*, $I^{(2)}$=*81.0*, ħω=*0.598*

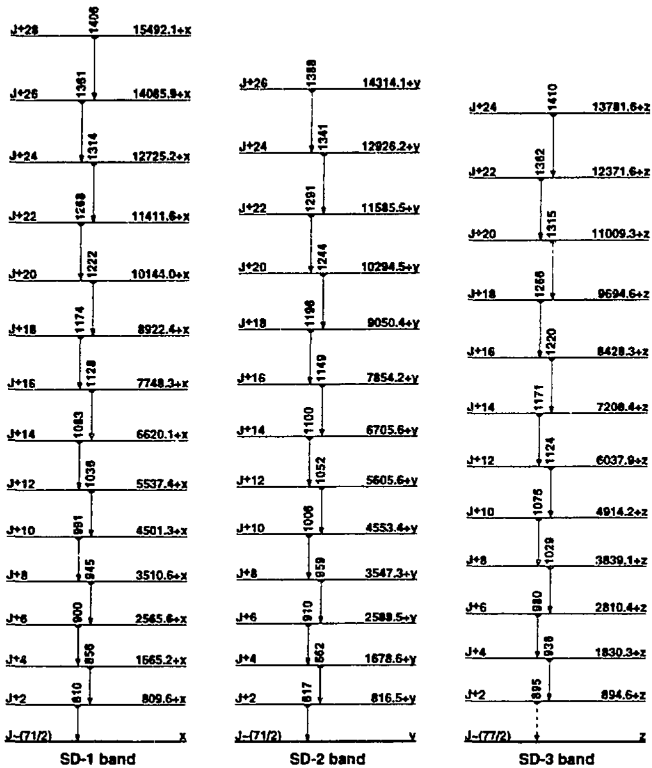
G 8428.3+z, J+16 γ_{7208+z}*1219.9* ($\dagger_\gamma$0.24 *17*) $I^{(1)}$=*88.5*, $I^{(2)}$=*86.2*, ħω=*0.622*

G 9694.6+z, J+18 γ_{8428+z}*1266.3* ($\dagger_\gamma$0.21 *9*) $I^{(1)}$=*88.4*, $I^{(2)}$=*82.6*, ħω=*0.645*

G 11009.3+z, J+20 γ_{9695+z}*1314.7* ($\dagger_\gamma$0.64 *17*) $I^{(1)}$=*88.2*, $I^{(2)}$=*84.0*, ħω=*0.669*

G 12371.6+z, J+22 $\gamma_{11009+z}$*1362.3* ($\dagger_\gamma$0.27 *6*) $I^{(1)}$=*88.1*, $I^{(2)}$=*83.9*, ħω=*0.693*

G 13781.6+z, J+24 $\gamma_{12372+z}$*1410.0* ($\dagger_\gamma$0.36 *9*) $I^{(1)}$=*87.9*


J+28 15492.1+x
J+26 14085.9+x
J+24 12725.2+x
J+22 11411.6+x
J+20 10144.0+x
J+18 8922.4+x
J+16 7748.3+x
J+14 6620.1+x
J+12 5537.4+x
J+10 4501.3+x
J+8 3510.6+x
J+6 2565.6+x
J+4 1665.2+x
J+2 809.6+x
J~(71/2) x
J+26 14314.1+y
J+24 12926.2+y
J+22 11585.5+y
J+20 10294.5+y
J+18 9050.4+y
J+16 7854.2+y
J+14 6705.6+y
J+12 5605.6+y
J+10 4553.4+y
J+8 3547.3+y
J+6 2588.5+y
J+4 1678.6+y
J+2 816.5+y
J~(71/2) y
J+24 13781.6+z
J+22 12371.6+z
J+20 11009.3+z
J+18 9694.6+z
J+16 8428.3+z
J+14 7208.4+z
J+12 6037.9+z
J+10 4914.2+z
J+8 3839.1+z
J+6 2810.4+z
J+4 1830.3+z
J+2 894.6+z
J~(77/2) z
SD-1 band
SD-2 band
SD-3 band

$^{153}_{66}$Dy

$^{191}_{79}$Au

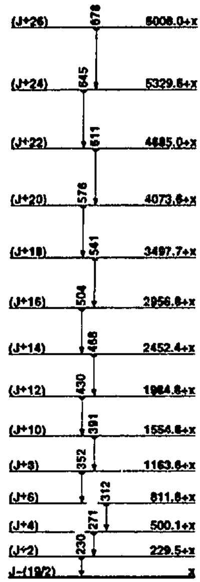
Δ: −33860 50 S_n: 9050 50 S_p: 3820 50 Q_{EC}: 1830 50 Q_α: 3430 50

Nuclear Bands

- *A* Favored $h_{11/2}$ decoupled band
- *B* Unfavored $h_{11/2}$ decoupled band
- *C* Favored $h_{9/2}$ decoupled band
- D Unfavored $h_{9/2}$ decoupled band
- *E* SD band

Levels and γ-ray branchings:

0, 3/2⁺, 3.18 *6* h, %EC+%β⁺=100, μ=0.138 *7*
11.6 *3*, (1/2⁺), 15.5 *5* ns γ_0 ***11.2*** ($\dagger_\gamma$100)
207.9 *3*, (3/2⁺) γ_{12} ***196.3*** *2* ($\dagger_\gamma$100) M1
252.5 *2*, (5/2)⁺ γ_{12} ***240.9*** *2* ($\dagger_\gamma$23.3 *19*) E2 γ_0 ***252.5*** *2* ($\dagger_\gamma$100 *9*) M1+E2: δ=0.9 *3*
A 266.2 *5*, (11/2⁻), 0.92 *11* s, %IT=100, μ=6.6 *6* γ_{253} ***13.7*** *5* ($\dagger_\gamma$100) (E3)
331.4 *5*(?), (5/2⁺) γ_0 ***331.4*** *5* ($\dagger_\gamma$100)
490.9 *6*, (7/2⁻) γ_{266} ***224.7*** *2* ($\dagger_\gamma$100) E2
521.3 *5*, (5/2⁺) γ_{253} ***268.8*** *5* γ_0 ***521.3*** *5* ($\dagger_\gamma$100 *13*) E2
C 540.3 *8*, (9/2⁻), 10 *2* ns γ_{266} ***274.2*** *5* ($\dagger_\gamma$100) M1+E2: δ=−0.096 *15*
662.5 *5*, (7/2)⁺ γ_{253} ***410.0*** *5* ($\dagger_\gamma$100 *20*) M1 γ_{208} ***454.6*** *5* γ_0 ***662.5*** *5* ($\dagger_\gamma$41 *10*)
A 686.3 *7*, (15/2⁻) γ_{266} ***420.1*** *4* ($\dagger_\gamma$100) E2
788.6 *5*, (9/2⁺) γ_{521} ***267.3*** *5* γ_{253} ***536.1*** *5* ($\dagger_\gamma$100 *11*) (E2)
844.8 *6*, (13/2⁻) γ_{686} ***158.5*** *5* γ_{266} ***578.6*** *3* ($\dagger_\gamma$100 *10*) M1+E2: δ=0.34 *5*
876.7 *7*, (9/2⁻) γ_{491} ***385.8*** *5* γ_{266} ***610.8*** *5* ($\dagger_\gamma$100) M1+E2
D 897.3 *8*, (11/2⁻) γ_{540} ***356.9*** *4* ($\dagger_\gamma$100) M1+E2: δ=−0.25 *4*
C 911.4 *7*, (13/2⁻) γ_{540} ***371.1*** *3* ($\dagger_\gamma$100 *11*) E2 γ_{266} ***645.2*** *5* ($\dagger_\gamma$14 *4*)
1066 *1*(?), (3/2⁻) γ_{491} ***575*** *1* ($\dagger_\gamma$100)
1132 *1*, (11/2⁺) γ_{789} ***343.3*** *6* ($\dagger_\gamma$100) M1
1268.5 *7*, (11/2⁻) γ_{911} ***357.1*** *4* ($\dagger_\gamma$<286) M1+E2 γ_{877} ***391.8*** *6* γ_{491} ***777.6*** *5* ($\dagger_\gamma$100 *26*) γ_{266} ***1002.4*** *5* ($\dagger_\gamma$91 *23*)
1341.3 *6* γ_{789} ***552.8*** *6* ($\dagger_\gamma$74 *15*) γ_{663} ***678.8*** *6* ($\dagger_\gamma$100 *18*) γ_{521} ***820.0*** *6* ($\dagger_\gamma$55 *13*)
D 1352 *1*, (15/2⁻) γ_{911} ***440.5*** *7* ($\dagger_\gamma$100) M1+E2
1356 *1* γ_{845} ***511*** *1* ($\dagger_\gamma$100)
B 1376.2 *8*, (17/2⁻) γ_{686} ***689.9*** *5* ($\dagger_\gamma$100 *26*) M1+E2 γ_{266} ***1110.0*** *6* ($\dagger_\gamma$82 *21*)
1394 *1* γ_{845} ***549*** *1* ($\dagger_\gamma$100)
A 1412 *1*, (19/2⁻) γ_{686} ***725*** *1* ($\dagger_\gamma$100) E2
C 1431 *1*, (17/2⁻) γ_{911} ***519*** *1* ($\dagger_\gamma$100) E2
1460 *1*, (13/2⁺) γ_{789} ***671*** *1* ($\dagger_\gamma$100)
1482 *1* γ_{845} ***637*** *1* ($\dagger_\gamma$100)
1550 *1* γ_{686} ***864*** *1* ($\dagger_\gamma$100)
1630 *1* γ_{911} ***718.2*** *6* ($\dagger_\gamma$100 *15*) γ_{897} ***732.4*** *7* ($\dagger_\gamma$17 *4*)
1991 *1*, <0.3 ns γ_{1412} ***579.4*** *7* ($\dagger_\gamma$100)
2024 *1* γ_{686} ***1338*** *1* ($\dagger_\gamma$100)
C 2032 *2*, 21/2⁻ γ_{1431} ***601*** *1* ($\dagger_\gamma$100)
2041 *1* γ_{686} ***1355*** *1* ($\dagger_\gamma$100)
2130 *1* γ_{845} ***1285*** *1* ($\dagger_\gamma$100 *26*) γ_{266} ***1863.5*** *7* ($\dagger_\gamma$32 *9*)
2159 *2*, 0.96 *10* ns γ_{1991} ***168*** *1* ($\dagger_\gamma$100)
2175 *1* γ_{845} ***1329.7*** *6* ($\dagger_\gamma$100 *25*) γ_{686} ***1488.2*** *6* ($\dagger_\gamma$25 *6*) γ_{266} ***1908.3*** *6* ($\dagger_\gamma$55 *14*)
A 2187 *1*, (23/2⁻) γ_{1412} ***775.3*** *7* ($\dagger_\gamma$100) E2
2199 *2* γ_{1991} ***208*** *1* ($\dagger_\gamma$100)
2219 *1* γ_{686} ***1533*** *1* ($\dagger_\gamma$100)
2235 *1* γ_{686} ***1549*** *1* ($\dagger_\gamma$100)
2348 *1* γ_{845} ***1504*** *1* ($\dagger_\gamma$100)
2423 *2*, <0.2 ns γ_{2159} ***264*** *1* ($\dagger_\gamma$100)
A 2447 *2*, (27/2⁻), 0.89 *9* ns γ_{2187} ***260*** *1* ($\dagger_\gamma$100) E2
2490 *1*, >400 ns γ_{2423} ***67*** *1* ($\dagger_\gamma$100) (E2)
A 2503 *1*, (31/2⁻), 6.1 *5* ns γ_{2447} ***56*** *1* ($\dagger_\gamma$100) (E2)
2748 γ_{2447} ***301*** *1* ($\dagger_\gamma$100)
B 2804 *1*, (33/2⁻), <0.4 ns γ_{2503} ***301*** *1* ($\dagger_\gamma$100)
3147 *1* γ_{2748} ***399*** *1* ($\dagger_\gamma$100)
A 3203 *1*, (35/2⁻), <0.3 ns γ_{2804} ***399*** *1* ($\dagger_\gamma$100)
3822 *1* γ_{3147} ***674*** *1* ($\dagger_\gamma$100)
E x, J≈(19/2)
E 229.5+x, (J+2) γ_x ***229.5*** *5* ($\dagger_\gamma$0.45 *15*) $I^{(1)}$=*95.9*, $I^{(2)}$=*97.3*, *ħω=0.125*
E 500.1+x, (J+4) γ_{229+x} ***270.6*** *4* ($\dagger_\gamma$0.62 *20*) $I^{(1)}$=*96.1*, $I^{(2)}$=*97.3*, *ħω=0.146*
E 811.8+x, (J+6) γ_{500+x} ***311.7*** *3* ($\dagger_\gamma$0.87 *15*) $I^{(1)}$=*96.2*, $I^{(2)}$=*99.8*, *ħω=0.166*
E 1163.6+x, (J+8) γ_{812+x} ***351.8*** *2* ($\dagger_\gamma$1.04 *15*) $I^{(1)}$=*96.6*, $I^{(2)}$=*101.5*, *ħω=0.186*
E 1554.8+x, (J+10) γ_{1164+x} ***391.2*** *2* ($\dagger_\gamma$1.00 *15*) $I^{(1)}$=*97.1*, $I^{(2)}$=*103.1*, *ħω=0.205*
E 1984.8+x, (J+12) γ_{1555+x} ***430.0*** *2* $I^{(1)}$=*97.7*, $I^{(2)}$=*106.4*, *ħω=0.224*
E 2452.4+x, (J+14) γ_{1985+x} ***467.6*** *2* ($\dagger_\gamma$0.86 *15*) $I^{(1)}$=*98.4*, $I^{(2)}$=*108.7*, *ħω=0.243*
E 2956.8+x, (J+16) γ_{2452+x} ***504.4*** *4* ($\dagger_\gamma$0.83 *20*) $I^{(1)}$=*99.1*, $I^{(2)}$=*109.6*, *ħω=0.261*
E 3497.7+x, (J+18) γ_{2957+x} ***540.9*** *3* ($\dagger_\gamma$0.69 *15*) $I^{(1)}$=*99.8*, $I^{(2)}$=*114.3*, *ħω=0.279*
E 4073.6+x, (J+20) γ_{3498+x} ***575.9*** *6* ($\dagger_\gamma$0.52 *15*) $I^{(1)}$=*100.7*, $I^{(2)}$=*112.7*, *ħω=0.297*
E 4685.0+x, (J+22) γ_{4074+x} ***611.4*** *6* ($\dagger_\gamma$0.66 *20*) $I^{(1)}$=*101.4*, $I^{(2)}$=*120.5*, *ħω=0.314*
E 5329.6+x, (J+24) γ_{4685+x} ***644.6*** *6* ($\dagger_\gamma$0.53 *15*) $I^{(1)}$=*102.4*, $I^{(2)}$=*118.3*, *ħω=0.331*
E 6008.0+x, (J+26) γ_{5330+x} ***678.4*** *6* ($\dagger_\gamma$0.54 *15*) $I^{(1)}$=*103.2*



SD band

$^{191}_{79}$Au

$^{189}_{80}$Hg

Δ: (−29700) S_n: (7500) S_p: (4500) Q_{EC}: (3950) Q_α: (4500)

Nuclear Bands

A SD band

Levels and γ-ray branchings:

0, 3/2⁻, 7.6 *1* m, %EC+%β⁺=100, %α<0.00003, μ=−0.6086 *8*, Q=−0.76 *35*

64.3 *5*, (5/2)⁻, 0.40 *4* ns γ_0*64.35* ($\dagger_\gamma$100) M1+E2: δ=0.01

0+x, 13/2⁺, 8.6 *1* m, %EC+%β⁺=100, %α<0.00003, μ=−1.058 *6*, Q=−0.66 *26*

403.00+x *19*, 17/2⁺ γ_{0+x}*403.02* ($\dagger_\gamma$100) E2

473.8+x *4*, (15/2)⁺ γ_{0+x}*473.85* ($\dagger_\gamma$100) M1+E2: δ=0.11 *7*

1029.8+x *3*, 21/2⁺ γ_{403+x}*626.82* ($\dagger_\gamma$100) E2

1110.1+x *4*, (19/2)⁺ γ_{474+x}*636.34* ($\dagger_\gamma$100 *10*) E2 γ_{403+x}*707.15* ($\dagger_\gamma$70 *20*) M1+E2: δ=0.52 *15*

1690.8+x *4*, (21/2)⁻ γ_{1110+x}*580.74* ($\dagger_\gamma$100 *11*) E1 γ_{1030+x}*661.04* ($\dagger_\gamma$48 *7*) E1

1762.8+x *3*, 25/2⁺ γ_{1030+x}*733.02* ($\dagger_\gamma$100) E2

1916.7+x *5*, (25/2)⁻ γ_{1691+x}*225.93* ($\dagger_\gamma$100) E2

1976.1+x *5*, (23/2⁻) γ_{1030+x}*946.45* ($\dagger_\gamma$100) (E1)

2220.4+x *5*, (27/2⁻) γ_{1976+x}*244.35* ($\dagger_\gamma$75 *25*) γ_{1763+x}*457.55* ($\dagger_\gamma$100 *12*) (E1)

2252.6+x *6*, (29/2)⁻ γ_{1917+x}*335.93* ($\dagger_\gamma$100) E2

2434.9+x *7*, (29/2⁻) γ_{1917+x}*518.25* ($\dagger_\gamma$100) (E2)

2476.9+x *4*, 29/2⁺ γ_{1763+x}*714.13* ($\dagger_\gamma$100) E2

2615.5+x *6*, 29/2⁺ γ_{1763+x}*852.75* ($\dagger_\gamma$100) E2

2674.3+x *5*, 33/2⁺ γ_{2616+x}*58.85* ($\dagger_\gamma$<1) E2 γ_{2477+x}*197.44* ($\dagger_\gamma$100 *14*) E2

2686.0+x *6*, (31/2⁻) γ_{2220+x}*465.63* ($\dagger_\gamma$100) (E2)

2820.7+x *7*, (33/2⁻) γ_{2253+x}*568.14* ($\dagger_\gamma$100) (E2)

3123.7+x *7*(?) γ_{2477+x}*646.85* ($\dagger_\gamma$100)

3139.7+x *9*, (33/2⁻) γ_{2435+x}*704.85* ($\dagger_\gamma$100)

3153.5+x *7*, 37/2⁺ γ_{2674+x}*479.24* ($\dagger_\gamma$100) E2

3343.6+x *8*, (35/2⁻) γ_{2686+x}*657.85* ($\dagger_\gamma$100) E2

3540.2+x *9*, (37/2⁻) γ_{2821+x}*719.55* ($\dagger_\gamma$100)

3793.1+x *9*(?) γ_{3124+x}*669.46* ($\dagger_\gamma$100)

3875.2+x *8*, (41/2⁺) γ_{3154+x}*721.75* ($\dagger_\gamma$100)

4378.3+x *10*(?), (41/2⁻) γ_{3540+x}*838.15*(?) ($\dagger_\gamma$100)

4741.4+x *10*(?), (45/2⁺) γ_{3875+x}*866.36*(?) ($\dagger_\gamma$100)

A y, J=(29/2)

A 366.4+y, J+2 γ_y*366.4* ($\dagger_\gamma$1.00 *10*) *$I^{(1)}$=87.3, $I^{(2)}$=95.9, ħω=0.194*

A 774.5+y, J+4 γ_{366+y}*408.1* ($\dagger_\gamma$1.00 *15*) *$I^{(1)}$=88.2, $I^{(2)}$=98.5, ħω=0.214*

A 1223.2+y, J+6 γ_{775+y}*448.7* ($\dagger_\gamma$0.86 *19*) *$I^{(1)}$=89.1, $I^{(2)}$=100.5, ħω=0.234*

A 1711.7+y, J+8 γ_{1223+y}*488.5* ($\dagger_\gamma$0.89 *16*) *$I^{(1)}$=90.1, $I^{(2)}$=101.3, ħω=0.254*

A 2239.7+y, J+10 γ_{1712+y}*528.0* ($\dagger_\gamma$0.62 *11*) *$I^{(1)}$=90.9, $I^{(2)}$=102.8, ħω=0.274*

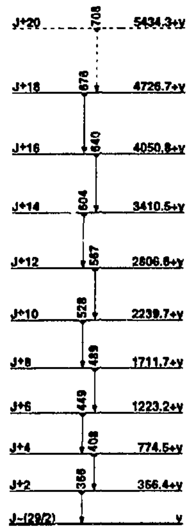
A 2806.6+y, J+12 γ_{2240+y}*566.9* ($\dagger_\gamma$0.58 *11*) *$I^{(1)}$=91.7, $I^{(2)}$=108.1, ħω=0.293*

A 3410.5+y, J+14 γ_{2807+y}*603.9* ($\dagger_\gamma$0.53 *14*) *$I^{(1)}$=92.7, $I^{(2)}$=109.9, ħω=0.311*

A 4050.8+y, J+16 γ_{3411+y}*640.3* ($\dagger_\gamma$0.58 *11*) *$I^{(1)}$=93.7, $I^{(2)}$=112.4, ħω=0.329*

A 4726.7+y, J+18 γ_{4051+y}*675.9* *$I^{(1)}$=94.7, $I^{(2)}$=126.2, ħω=0.346*

A 5434.3+y (?), J+20 γ_{4727+y}*707.6*(?) *$I^{(1)}$=96.1*



SD band

$^{189}_{80}$Hg

$^{190}_{80}$Hg

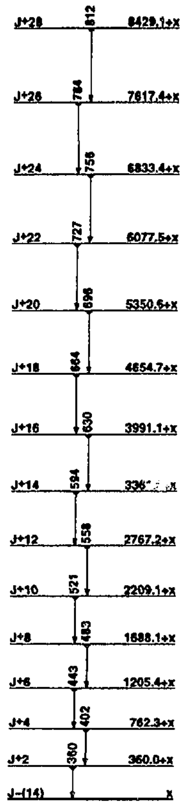
Δ: (−31410) S_n: (9800) S_p: (5060) Q_{EC}: (1470) Q_α: (3960)

Nuclear Bands

A GS band (π=+, s=0)
B (π=+, s=0)
C (π=+, s=0)
D (π=−, s=1)
E (π=−, s=1)
F (π=−, s=0)
G (π=−, s=0)
H Intruder band
I SD band

Levels and γ-ray branchings:

A **0**, 0^+, 20.0 *5* m, %EC+%β^+=100, %α<5×10^{-5}
A **416.4** *2*, 2^+ γ_0***416.4*** *2* ($\dagger_\gamma$100) E2
A **1041.8** *2*, 4^+ γ_{416}***625.4*** *2* ($\dagger_\gamma$100) E2
1099.9 *2*, 2^+ γ_{416}***683.5*** *2* ($\dagger_\gamma$100 *10*) E2+M1: δ=2.0$^{+10}_{-5}$ γ_0***1099.9*** *2* ($\dagger_\gamma$62 *6*) E2
H **1279.4** *3*, 0^+ γ_{416}***863.0*** *2* ($\dagger_\gamma$100) γ_0***1279*** ($\dagger_e$3.2) E0
1558.8 *2*, $(2)^+$ γ_{1100}***458.7*** *3* ($\dagger_\gamma$26 *3*) γ_{1042}***515.4*** *12*(?) ($\dagger_\gamma$39 *16*) γ_{416}***1142.5*** *3* ($\dagger_\gamma$100 *4*) E2(+M1): δ>2 γ_0***1558.9*** *3* ($\dagger_\gamma$26 *3*)
H **1571.1** *3*, 2^+ γ_{1279}***292.0*** *2*(?) ($\dagger_\gamma$4 *3*) γ_{1042}***529.0*** *2* ($\dagger_\gamma$26 *10*) γ_{416}***1155.0*** *2* ($\dagger_\gamma$100 *9*) E0+M1+E2 γ_0***1571.0*** *2*(?) ($\dagger_\gamma$30 *17*)
1657.0 *2*, $(3)^+$ γ_{1100}***557.0*** *2* ($\dagger_\gamma$100 *10*) E2(+M1): δ>3 γ_{1042}***615.4*** *3* ($\dagger_\gamma$67 *7*) E2+M1: δ=1.4 *3* γ_{416}***1240.7*** *3* ($\dagger_\gamma$21 *2*) (E2)
A **1772.9** *2*, 6^+ γ_{1042}***731.1*** *2* ($\dagger_\gamma$100) E2
D **1881.4** *2*, 5^- γ_{1042}***839.7*** *2* ($\dagger_\gamma$100) E1
H **1975.2** *3*, 4^+ γ_{1571}***404.0*** *2* ($\dagger_\gamma$23 *7*) γ_{1042}***933.0*** *2* ($\dagger_\gamma$39 *12*) E0+M1+E2 γ_{416}***1559.0*** *2* ($\dagger_\gamma$100 *7*)
2072.8 *2*, $(4,5,6)^+$ γ_{1042}***1031.0*** *2* ($\dagger_\gamma$100) M1+E2: δ=0.9 *3*
D **2078.2** *2*, 7^- γ_{1881}***196.8*** *2* ($\dagger_\gamma$29 *3*) E2 γ_{1773}***305.3*** *2* ($\dagger_\gamma$100 *10*) E1
2200.9 *2*(?), $(5)^+$ γ_{1657}***543.9*** *2*(?) E2
2251.7 *2*, $(6,7)^-$ γ_{1881}***370.3*** *2* ($\dagger_\gamma$100 *10*) E2(+M1): δ>7 γ_{1773}***478.3*** *3* ($\dagger_\gamma$27 *3*)
F **2318.4** *3*, $(8)^-$ γ_{2078}***240.2*** *2* ($\dagger_\gamma$100 *10*) M1+E2: δ=1.5$^{+5}_{-3}$
2318.7 *2*, $(4^-,5,6^-)$ γ_{2078}***240.2***(?) γ_{1881}***437.6*** *3* ($\dagger_\gamma$70 *7*) γ_{1042}***1276.7*** *3* ($\dagger_\gamma$100 *10*)
D **2335.3** *2*, (9^-) γ_{2078}***257.1*** *2* ($\dagger_\gamma$100) (E2)
2391.9 *4*(?), (5 to 9) γ_{2078}***313.7*** *3*
2424.7 *4*(?), (5 to 9) γ_{2078}***346.5*** *3*
B **2464.9** *3*, $(8)^+$ γ_{1773}***692.0*** *2* ($\dagger_\gamma$100) E2
H **2510.0** *3*, 6^+ γ_{1975}***535.0*** *2* ($\dagger_\gamma$100 *8*) γ_{1773}***737.0*** *2* ($\dagger_\gamma$45 *15*) E0+M1+E2 γ_{1042}***1468.0*** *2* ($\dagger_\gamma$51 *4*)
2572.9 *3*, $(4\ \text{to}\ 8)^+$ γ_{1773}***800.0*** *2* ($\dagger_\gamma$100) E2
B **2596.9** *3*, (10^+) γ_{2465}***132.0*** *3* ($\dagger_\gamma$100 *10*) E2 γ_{2336}***261.5*** *3* ($\dagger_\gamma$6 *2*) D
B **2620.8** *6*, (12^+), 23 *1* ns, g=−0.21 *2*, Q=1.17 *14* γ_{2597}***23.9***
F **2724.0** *3*, (10^-) γ_{2336}***388.6*** *3* ($\dagger_\gamma$53 *16*) γ_{2318}***405.3*** *3* ($\dagger_\gamma$100 *10*) Q
D **2865.3** *4*, (11^-) γ_{2335}***530.0*** *3* ($\dagger_\gamma$100) Q
2930.9 *4*(?), (10^+) γ_{2465}***466.0*** *3* (Q)
B **3040.7** *6*, (14^+) γ_{2621}***419.9*** *2* ($\dagger_\gamma$100) Q
F **3357.9** *4*, (12^-) γ_{2724}***633.9*** *3* ($\dagger_\gamma$100) Q
D **3548.5** *5*, (13^-) γ_{2865}***683.2*** *3* ($\dagger_\gamma$100) Q
3611.3 *5*(?), (12^+) γ_{2931}***680.4*** *3*
B **3703.4** *6*, (16^+) γ_{3041}***662.7*** *2* ($\dagger_\gamma$100) Q
G **3979.5** *5*, (14^-) γ_{3358}***621.6*** *3* ($\dagger_\gamma$100) (Q)
E **4087.1** *6*, (15^-) γ_{3549}***538.6*** *3* ($\dagger_\gamma$100) Q
G **4242.8** *6*, (16^-) γ_{3980}***263.4*** *3* ($\dagger_\gamma$100 *10*) Q γ_{3703}***539.4*** *3* ($\dagger_\gamma$24 *7*)
E **4326.1** *7*, (17^-) γ_{4087}***239.0*** *3* ($\dagger_\gamma$100)
B **4492.4** *7*, (18^+) γ_{3703}***789.0*** *3* ($\dagger_\gamma$100) Q
G **4551.5** *7*, (18^-) γ_{4243}***308.7*** *3* ($\dagger_\gamma$100) Q
E **4709.3** *7*, (19^-) γ_{4326}***383.2*** *3* ($\dagger_\gamma$100) Q
G **5105.6** *7*, (20^-) γ_{4552}***554.1*** *3* ($\dagger_\gamma$100) Q
C **5228.7** *8*, (20^+) γ_{4492}***736.3*** *3* ($\dagger_\gamma$100) Q
E **5334.3** *13*, (21^-) γ_{4709}***625*** *1* ($\dagger_\gamma$100)
B **5351.6** *8*, (20^+) γ_{4492}***859.2*** *3* ($\dagger_\gamma$100)
C **5794.7** *8*, (22^+) γ_{5229}***566.0*** *3* ($\dagger_\gamma$100)
E **6142.2** *13*, (23^-) γ_{5334}***607.8*** *3* ($\dagger_\gamma$100) Q
6335.1 *9*, (24^+) γ_{5795}***540.4*** *3* ($\dagger_\gamma$100)
C **6576.1** *9*, (24^+) γ_{5795}***781.4*** *3* ($\dagger_\gamma$100)
I **x**, J=(14)
I **360.0+x**, J+2 γ_x***360.0*** *2* ($\dagger_\gamma$0.63 *8*) (E2) $\mathcal{I}^{(1)}$=86.1, $\mathcal{I}^{(2)}$=94.6, ħω=0.191
I **762.3+x**, J+4 γ_{360+x}***402.3*** *4* ($\dagger_\gamma$1.08 *9*) (E2) $\mathcal{I}^{(1)}$=87.0, $\mathcal{I}^{(2)}$=98.0, ħω=0.211
I **1205.4+x**, J+6 γ_{762+x}***443.1*** *2* ($\dagger_\gamma$0.91 *9*) (E2) $\mathcal{I}^{(1)}$=88.0, $\mathcal{I}^{(2)}$=101.0, ħω=0.231
I **1688.1+x**, J+8 γ_{1205+x}***482.7*** *2* ($\dagger_\gamma$0.95 *8*) (E2) $\mathcal{I}^{(1)}$=89.1, $\mathcal{I}^{(2)}$=104.4, ħω=0.251
I **2209.1+x**, J+10 γ_{1688+x}***521.0*** *2* ($\dagger_\gamma$0.92 *12*) (E2) $\mathcal{I}^{(1)}$=90.2, $\mathcal{I}^{(2)}$=107.8, ħω=0.270
I **2767.2+x**, J+12 γ_{2209+x}***558.1*** *2* ($\dagger_\gamma$0.76 *7*) (E2) $\mathcal{I}^{(1)}$=91.4, $\mathcal{I}^{(2)}$=110.2, ħω=0.288
I **3361.6+x**, J+14 γ_{2767+x}***594.4*** *3* ($\dagger_\gamma$0.55 *6*) (E2) $\mathcal{I}^{(1)}$=92.5, $\mathcal{I}^{(2)}$=114.0, ħω=0.306
I **3991.1+x**, J+16 γ_{3362+x}***629.5*** *4* ($\dagger_\gamma$0.46 *6*) (E2) $\mathcal{I}^{(1)}$=93.7, $\mathcal{I}^{(2)}$=117.3, ħω=0.323
I **4654.7+x**, J+18 γ_{3991+x}***663.6*** *3* ($\dagger_\gamma$0.34 *5*) (E2) $\mathcal{I}^{(1)}$=94.9, $\mathcal{I}^{(2)}$=123.8, ħω=0.340
I **5350.6+x**, J+20 γ_{4655+x}***695.9*** *5* ($\dagger_\gamma$0.24 *4*) (E2) $\mathcal{I}^{(1)}$=96.3, $\mathcal{I}^{(2)}$=129.0, ħω=0.356
I **6077.5+x**, J+22 γ_{5351+x}***726.9*** *7* ($\dagger_\gamma$0.21 *6*) $\mathcal{I}^{(1)}$=97.7, $\mathcal{I}^{(2)}$=137.9, ħω=0.371
I **6833.4+x**, J+24 γ_{6078+x}***755.9*** *15* ($\dagger_\gamma$0.13 *5*) (E2) $\mathcal{I}^{(1)}$=99.2, $\mathcal{I}^{(2)}$=142.3, ħω=0.385
I **7617.4+x**, J+26 γ_{6833+x}***784.0*** *10* ($\dagger_\gamma$0.12) $\mathcal{I}^{(1)}$=100.8, $\mathcal{I}^{(2)}$=144.4, ħω=0.399
I **8429.1+x**, J+28 γ_{7617+x}***811.7*** *10* ($\dagger_\gamma$0.05) $\mathcal{I}^{(1)}$=102.3



SD band
$^{190}_{80}$Hg

$^{191}_{80}$Hg

Δ: −30680 *90* S_n: (7340) S_p: 5090 *90* Q_{EC}: 3180 *70* Q_α: (3500)

Nuclear Bands

- *A* Favored $i_{13/2}$ decoupled band
- *B* Unfavored $i_{13/2}$ decoupled band
- *C* $i_{13/2}$ semi-decoupled band
- *D* Band Structure
- *E* Band Structure
- *F* SD-1 band
- *G* SD-2 band
- *H* SD-3 band

Levels and γ-ray branchings:

0, (3/2⁻), 49 *10* m, %EC+%β⁺=100, Q=−0.41 *41*

51.6 *2*, (5/2⁻), 0.42 *4* ns γ_0**51.6** *2* ($\dagger_\gamma$100) M1+E2

103.7 *3*, (1/2⁻) γ_0**103.7** *3* ($\dagger_\gamma$100) M1+E2

A 0+x, 13/2⁺, 50.8 *15* m, %EC+%β⁺=100, μ=−1.068 *5*, Q=+0.76 *24*

216.0+x *2*, (9/2⁺) γ_{0+x}**216.0** *2* ($\dagger_\gamma$100) E2

265.0+x *2*, (11/2)⁺ γ_{216+x}**49.1** *2* E2 γ_{0+x}**265.0** *2* ($\dagger_\gamma$100 *5*) M1+E2: $\delta=1.9^{+10}_{-5}$

336.3 *2*, (5/2⁻) γ_{52}**284.7** *2* ($\dagger_\gamma$10.0 *10*) M1 γ_0**336.3** *2* ($\dagger_\gamma$100 *6*) M1+E2: $\delta=1.6^{+6}_{-4}$

375.5 *3*, (3/2)⁻ γ_{104}**271.8** *4* ($\dagger_\gamma$4.1 *24*) γ_{52}**323.9** *4* ($\dagger_\gamma$12 *6*) γ_0**375.5** *3* ($\dagger_\gamma$100 *18*) M1

377.9 *3*, (7/2⁻) γ_{336}**41.6** *3* γ_{52}**326.3** *2* ($\dagger_\gamma$100 *5*) M1+E2: δ=1.0 *2* γ_0**377.9** *2* ($\dagger_\gamma$13 *7*)

A 390.4+x *3*, (17/2⁺) γ_{0+x}**390.4** *3* ($\dagger_\gamma$100) (E2)

430.4 *3*, (1/2⁻,3/2⁻,5/2⁻) γ_{52}**378.8** *3* ($\dagger_\gamma$≈345) γ_0**430.4** *3* ($\dagger_\gamma$100 *14*) M1+E2: $\delta=0.8^{+10}_{-8}$

534.7+x *4* γ_{216+x}**318.7** *4* ($\dagger_\gamma$100)

B 535.2+x *2*, (15/2⁺) γ_{0+x}**535.2** *2* ($\dagger_\gamma$100) (M1+E2): δ=0.14 *4*

563.5 *3*, (7/2⁻) γ_{336}**227.2** *3* ($\dagger_\gamma$5.1 *24*) γ_{52}**511.8** *3* γ_0**563.5** *3* ($\dagger_\gamma$100 *5*) E2

589.6+x *4*, (7/2⁺) γ_{265+x}**323.6** *4* ($\dagger_\gamma$13 *7*) γ_{216+x}**372.7** *3* ($\dagger_\gamma$100 *10*) M1+E2: $\delta=1.8^{+8}_{-4}$

632.3 *3*, (9/2⁻) γ_{378}**254.4** *3* ($\dagger_\gamma$7 *3*) γ_{52}**580.7** *3* ($\dagger_\gamma$100 *6*) E2

659.1 *4*, (9/2⁻) γ_{378}**281.2** *3* ($\dagger_\gamma$77 *8*) M1+E2: δ=0.8 *5* γ_{336}**322.7** *4* ($\dagger_\gamma$27 *14*) γ_{52}**607.5** *3* ($\dagger_\gamma$100 *10*) E2

691.8 *3* γ_{430}**261.4** *3* ($\dagger_\gamma$10.1 *25*) γ_{336}**355.5** *3* ($\dagger_\gamma$8 *3*) γ_{52}**640.2** *3* ($\dagger_\gamma$100 *10*) γ_0**691.8** *3* ($\dagger_\gamma$31 *8*)

742.7+x *3*, (13/2)⁺ $\gamma_{535.2+x}$**207.5** *3* ($\dagger_\gamma$10 *4*) γ_{265+x}**477.6** *3* ($\dagger_\gamma$90 *10*) γ_{216+x}**526.7** *3* ($\dagger_\gamma$11 *3*) γ_{0+x}**742.7** *3* ($\dagger_\gamma$100 *10*) M1+E2: δ>1.6

761.1+x *3*, (11/2)⁺ γ_{589+x}**172.4** *4* ($\dagger_\gamma$12 *7*) γ_{265+x}**496.0** *3* ($\dagger_\gamma$100 *11*) M1(+E2) γ_{216+x}**545.1** *3* ($\dagger_\gamma$40 *20*) M1+E2: δ>1.6 γ_{0+x}**761.1** *3* ($\dagger_\gamma$52 *11*)

880.3 *9* γ_{52}**828.7** *9* ($\dagger_\gamma$100)

900.0+x *4* γ_{265+x}**635.0** *4* ($\dagger_\gamma$37 *7*) γ_{216+x}**684.1** *4* ($\dagger_\gamma$100 *10*) E2 γ_{0+x}**900.0** *4* ($\dagger_\gamma$71 *10*) M1+E2

911.3 *4* γ_{430}**480.8** *4* ($\dagger_\gamma$100 *77*) γ_{378}**533.4** *4* ($\dagger_\gamma$96 *23*) γ_{378}**535.7** *5* ($\dagger_\gamma$≈200) γ_{336}**574.9** *4* ($\dagger_\gamma$<80)

952.1 *4*, (9/2⁻) γ_{430}**521.7** *4* ($\dagger_\gamma$29 *14*) γ_{336}**615.8** *4* ($\dagger_\gamma$100 *12*) (E2)

997.1 *3*, (5/2⁻,7/2⁻,9/2⁻) γ_{430}**566.7** *4* ($\dagger_\gamma$82 *15*) γ_{378}**619.2** *3* ($\dagger_\gamma$100 *12*) M1+E2: $\delta=0.9^{+9}_{-3}$ γ_{336}**660.8** *3* ($\dagger_\gamma$92 *10*)

1016.3 *4*, (11/2⁻) γ_{632}**383.9** *4* ($\dagger_\gamma$14 *4*) γ_{378}**638.4** *4* ($\dagger_\gamma$100 *21*)

A 1019.2+x *4*, (21/2⁺) γ_{390+x}**628.8** *3* ($\dagger_\gamma$100) (E2)

1024 *1* γ_{336}**687** *1* ($\dagger_\gamma$100)

1081.0 *5* γ_{336}**744.7** *5* ($\dagger_\gamma$100 *17*) γ_0**1081.0** *5* ($\dagger_\gamma$70 *13*)

1088+x *1* γ_{216+x}**871.8** *9* ($\dagger_\gamma$100)

1105.7+x *7* γ_{589+x}**517.1** *6* ($\dagger_\gamma$100)

1107.2 *4*, (7/2⁻,9/2⁻,11/2⁻) γ_{632}**474.9** *4* ($\dagger_\gamma$19 *10*) M1+E2: δ>0.4 γ_{378}**729.3** *4* ($\dagger_\gamma$100 *11*) γ_{52}**1055.6** *4* ($\dagger_\gamma$61 *7*)

1130.5+x *8* γ_{265+x}**865.6** *9* ($\dagger_\gamma$37 *17*) γ_{216+x}**914.9** *7* ($\dagger_\gamma$100 *17*) M1+E2

1133.3+x *6* γ_{265+x}**868.2** *5* ($\dagger_\gamma$32 *16*) γ_{216+x}**917.3** *5* ($\dagger_\gamma$100 *16*) γ_{0+x}**1133.3** *5* ($\dagger_\gamma$35 *18*)

1146.5 *5* γ_{632}**514.2** *5* ($\dagger_\gamma$100 *18*) γ_{564}**583.0** *5* ($\dagger_\gamma$77 *38*)

B 1171.7+x *4*, (19/2⁺) $\gamma_{535.2+x}$**636.5** *3* ($\dagger_\gamma$99 *20*) (E2) γ_{390+x}**781.3** *3* ($\dagger_\gamma$100 *15*) (M1+E2): δ=0.14 *4*

1178.3 *8* γ_{52}**1126.7** *8* ($\dagger_\gamma$100)

1193.2 *5* γ_{692}**501.4** *5* ($\dagger_\gamma$56 *10*) M1(+E2) γ_{378}**815.3** *5* ($\dagger_\gamma$100 *21*)

1199 *1* γ_{52}**1148** *1* ($\dagger_\gamma$100)

1208+x *1* γ_{216+x}**992** *1* ($\dagger_\gamma$100)

1212.4 *7* γ_{378}**834.5** *7* ($\dagger_\gamma$100) (E2)

1257+x *1* γ_{265+x}**992** *1* ($\dagger_\gamma$100)

1317.8 *9*, (5/2⁻,7/2⁻,9/2⁻) γ_{564}**754.1** *8* ($\dagger_\gamma$100) M1+E2: δ>1.2

1319+x *1* γ_{216+x}**1102.6** *9* ($\dagger_\gamma$100 *21*) γ_{0+x}**1318.6** *9* ($\dagger_\gamma$75 *25*)

1320 *1*, (13/2⁻) γ_{632}**687** *1* ($\dagger_\gamma$100)

1434+x *1* γ_{216+x}**1218.2** *9* ($\dagger_\gamma$100)

1470.8 *9* γ_{378}**1092.9** *9* ($\dagger_\gamma$100)

1539 *1* γ_{378}**1161** *1* ($\dagger_\gamma$100)

C 1637.8+x *4*, (21/2⁻) γ_{1172+x}**466.1** *3* ($\dagger_\gamma$100 *15*) (E1) γ_{1019+x}**618.6** *3* ($\dagger_\gamma$21 *4*)

1688+x *1* γ_{216+x}**1472** *1* ($\dagger_\gamma$100)

A 1769.3+x *5*, (25/2⁺) γ_{1019+x}**750.1** *7* ($\dagger_\gamma$100) (E2)

C 1804.5+x *6*, (25/2⁻), 0.72 *7* ns γ_{1638+x}**166.7** *7* ($\dagger_\gamma$100) (E2)

1844 *1* γ_{336}**1508** *1* ($\dagger_\gamma$100)

D 1861.7+x *7*, (23/2⁻) γ_{1638+x}**223.9** *6* ($\dagger_\gamma$25 *5*) γ_{1019+x}**842.5** *6* ($\dagger_\gamma$100 *20*)

D 2064.5+x *8*, (27/2⁻) γ_{1862+x}**202.8** *7* ($\dagger_\gamma$100 *20*) (E2) γ_{1805+x}**260.0** *7* ($\dagger_\gamma$37 *7*) γ_{1769+x}**295.2** *7* ($\dagger_\gamma$26 *6*)

C 2123.4+x *8*, (29/2⁻) γ_{1805+x}**318.9** *3* ($\dagger_\gamma$100) (E2)

2286+x *2* γ_{216+x}**2070** *2* ($\dagger_\gamma$100)

2299+x *2* γ_{265+x}**2034.5** *15* ($\dagger_\gamma$100)

2303+x *1* γ_{216+x}**2087** *1* ($\dagger_\gamma$100)

2307+x *1* γ_{216+x}**2091.5** *11* ($\dagger_\gamma$100)

2310+x *1* γ_{265+x}**2045** *1* ($\dagger_\gamma$100)

2315+x *1* γ_{216+x}**2099** *1* ($\dagger_\gamma$100)

2328.9+x *6* γ_{743+x}**1586.3** *7* ($\dagger_\gamma$43 *9*) γ_{216+x}**2113.0** *7* ($\dagger_\gamma$45 *9*) γ_{0+x}**2328.9** *7* ($\dagger_\gamma$100 *10*)

2335+x *2* γ_{265+x}**2070** *2* ($\dagger_\gamma$100)

2340+x *1* γ_{265+x}**2075** *1* ($\dagger_\gamma$100)

2352+x *1* γ_{265+x}**2087** *1* ($\dagger_\gamma$100)

2357+x *1* γ_{743+x}**1613.9** *9* γ_{216+x}**2140.6** *9*

2358.8+x *6* γ_{743+x}**1616.1** *7* ($\dagger_\gamma$100 *10*) γ_{0+x}**2358.7** *7* ($\dagger_\gamma$81 *14*)

2361.6+x *6* γ_{743+x}**1618.9** *7* ($\dagger_\gamma$46 *9*) γ_{0+x}**2361.6** *7* ($\dagger_\gamma$100 *10*)

2406+x *2* γ_{265+x}**2141** *2* ($\dagger_\gamma$100)

2409+x *2* γ_{216+x}**2193** *2* ($\dagger_\gamma$100)

2412.4 *15* γ_{378}**2034.5** *15* ($\dagger_\gamma$100)

2423 *1* γ_{378}**2045** *1* ($\dagger_\gamma$100)

A 2431.4+x *6*, (29/2⁺) γ_{1769+x}**662.1** *3* ($\dagger_\gamma$100) (E2)

2440.2 *9* γ_{952}**1488.1** *8* ($\dagger_\gamma$100)

2442 *2* γ_{336}**2105** *2* ($\dagger_\gamma$100)

2443 *1* γ_{378}**2065** *1* ($\dagger_\gamma$100)

2460 *1* γ_{1016}**1443.5** *9* ($\dagger_\gamma$100)

2475+x *1* γ_{1016+x}**1459** *1* ($\dagger_\gamma$100)

2476 *1* γ_{632}**1844** *1* ($\dagger_\gamma$100)

2477 *1* γ_{378}**2099** *1* ($\dagger_\gamma$100)

2543 *1* γ_{564}**1980** *1* ($\dagger_\gamma$100)

D 2544+x *1*, (31/2⁻) γ_{2065+x}**479.7** *9* ($\dagger_\gamma$100) (E2)

2589+x *1*, (29/2⁺) γ_{1769+x}**819.4** *8* ($\dagger_\gamma$100) (E2)

A 2598+x *1*, (33/2⁺), 0.92 *6* ns γ_{2431+x}**167.0** *7* ($\dagger_\gamma$100) (E2)

C 2690+x *1*, (33/2⁻) γ_{2123+x}**566.7** *3* ($\dagger_\gamma$100) (E2)

A 3078+x *1*, (37/2⁺) γ_{2598+x}**479.5** *3* ($\dagger_\gamma$100) (E2)

E 3167+x *1*, (33/2⁺) γ_{2598+x}**568.4** *7* γ_{2589+x}**578.1** *8*

D 3221+x *2*, (35/2⁻) γ_{2544+x}**677** *1* ($\dagger_\gamma$100) (E2)

C 3429+x *1*, (37/2⁻) γ_{2690+x}**738.6** *3* ($\dagger_\gamma$100) (E2)

E 3487+x *2*, (37/2⁺) γ_{3167+x}**320.6** *8* ($\dagger_\gamma$71 *14*) (E2) γ_{3078+x}**409.3** *8* ($\dagger_\gamma$100 *20*)

A 3792.3+x *15*, (41/2⁺) γ_{3078+x}**714** *1* ($\dagger_\gamma$100) (E2)

3956+x *2*, (39/2⁻) γ_{3221+x}**735** *1* ($\dagger_\gamma$100) (E2)

E 3988+x *2*, (41/2⁺) γ_{3487+x}**501** *1* ($\dagger_\gamma$100) (E2)

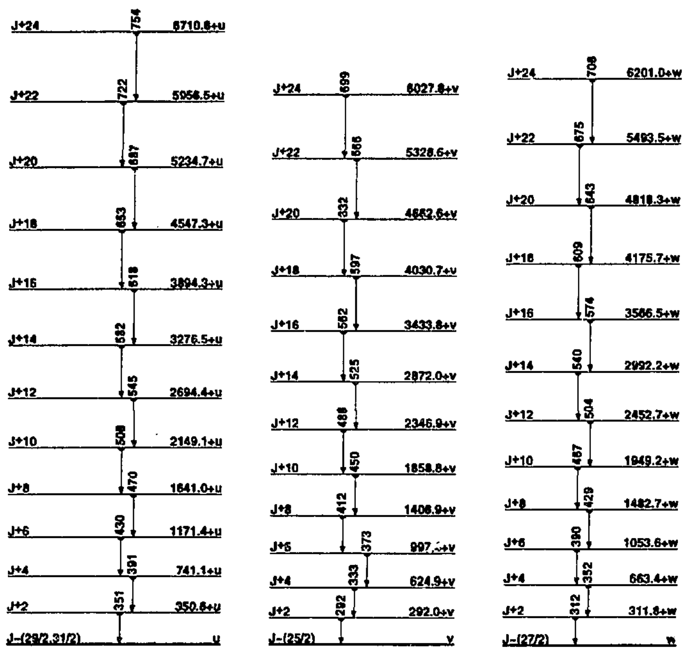
C 4216+x *1*, (41/2⁻) γ_{3429+x}**787** *1* ($\dagger_\gamma$100)

4357+x *2*, (43/2⁻) γ_{3956+x}**400** *1* ($\dagger_\gamma$100) (E2)

A 4632+x *2*, (45/2⁺) γ_{3792+x}**840** *1* ($\dagger_\gamma$100) (E2)

$^{191}_{80}$Hg (Continued)

F u, J=(29/2,31/2)
F 350.6+u, J+2 $\gamma_0$350.6 ($\dagger_\gamma$0.86 3) (E2) $I^{(1)}$=91.3, $I^{(2)}$=100.3, $\hbar\omega$=0.185
F 741.1+u, J+4 γ_{351+u}390.5 ($\dagger_\gamma$1.25 5) (E2) $I^{(1)}$=92.2, $I^{(2)}$=100.5, $\hbar\omega$=0.205
F 1171.4+u, J+6 γ_{741+u}430.3 ($\dagger_\gamma$1.00 4) (E2) $I^{(1)}$=93.0, $I^{(2)}$=101.8, $\hbar\omega$=0.225
F 1641.0+u, J+6 γ_{1171+u}469.6 ($\dagger_\gamma$1.00 3) (E2) $I^{(1)}$=93.7, $I^{(2)}$=103.9, $\hbar\omega$=0.244
F 2149.1+u, J+10 γ_{1641+u}508.1 ($\dagger_\gamma$0.81 5) (E2) $I^{(1)}$=94.5, $I^{(2)}$=107.5, $\hbar\omega$=0.263
F 2694.4+u, J+12 γ_{2149+u}545.3 ($\dagger_\gamma$0.85 3) (E2) $I^{(1)}$=95.4, $I^{(2)}$=108.7, $\hbar\omega$=0.282
F 3276.5+u, J+14 γ_{2694+u}582.1 ($\dagger_\gamma$0.71 4) (E2) $I^{(1)}$=96.2, $I^{(2)}$=112.0, $\hbar\omega$=0.300
F 3894.3+u, J+16 γ_{3277+u}617.8 ($\dagger_\gamma$0.65 4) (E2) $I^{(1)}$=97.1, $I^{(2)}$=113.6, $\hbar\omega$=0.318
F 4547.3+u, J+18 γ_{3894+u}653.0 ($\dagger_\gamma$0.62 3) (E2) $I^{(1)}$=98.0, $I^{(2)}$=116.3, $\hbar\omega$=0.335
F 5234.7+u, J+20 γ_{4547+u}687.4 ($\dagger_\gamma$0.46 4) (E2) $I^{(1)}$=98.9, $I^{(2)}$=116.3, $\hbar\omega$=0.352
F 5956.5+u, J+22 γ_{5235+u}721.8 ($\dagger_\gamma$0.30 3) (E2) $I^{(1)}$=99.8, $I^{(2)}$=123.1, $\hbar\omega$=0.369
F 6710.8+u, J+24 γ_{5957+u}754.3 ($\dagger_\gamma$0.18 1) (E2) $I^{(1)}$=100.8
G v, J=(25/2)
G 292.0+v, J+2 $\gamma_0$292.0 ($\dagger_\gamma$0.43 7) $I^{(1)}$=95.9, $I^{(2)}$=97.8, $\hbar\omega$=0.156
G 624.9+v, J+4 γ_{292+v}332.9 ($\dagger_\gamma$0.78 10) $I^{(1)}$=96.1, $I^{(2)}$=101.0, $\hbar\omega$=0.176
G 997.4+v, J+6 γ_{625+v}372.5 ($\dagger_\gamma$1.07 14) $I^{(1)}$=96.6, $I^{(2)}$=102.6, $\hbar\omega$=0.196
G 1408.9+v, J+8 γ_{997+v}411.5 ($\dagger_\gamma$0.67 19) $I^{(1)}$=97.2, $I^{(2)}$=104.2, $\hbar\omega$=0.215
G 1858.8+v, J+10 γ_{1409+v}449.9 ($\dagger_\gamma$0.97 13) $I^{(1)}$=97.8, $I^{(2)}$=104.7, $\hbar\omega$=0.235
G 2346.9+v, J+12 γ_{1859+v}488.1 ($\dagger_\gamma$0.83 13) $I^{(1)}$=98.3, $I^{(2)}$=108.1, $\hbar\omega$=0.253
G 2872.0+v, J+14 γ_{2347+v}525.1 ($\dagger_\gamma$0.57 16) $I^{(1)}$=99.0, $I^{(2)}$=109.0, $\hbar\omega$=0.272
G 3433.8+v, J+16 γ_{2872+v}561.8 ($\dagger_\gamma$0.65 10) $I^{(1)}$=99.7, $I^{(2)}$=114.0, $\hbar\omega$=0.290
G 4030.7+v, J+18 γ_{3434+v}596.9 ($\dagger_\gamma$0.97 14) $I^{(1)}$=100.5, $I^{(2)}$=114.3, $\hbar\omega$=0.307
G 4662.6+v, J+20 γ_{4031+v}631.9 ($\dagger_\gamma$0.55 10) $I^{(1)}$=101.3, $I^{(2)}$=117.3, $\hbar\omega$=0.324
G 5328.6+v, J+22 γ_{4663+v}666.0 ($\dagger_\gamma$0.53 6) $I^{(1)}$=102.1, $I^{(2)}$=120.5, $\hbar\omega$=0.341
G 6027.8+v, J+24 γ_{5329+v}699.2 ($\dagger_\gamma$0.40 6) $I^{(1)}$=103.0
H w, J=(27/2)
H 311.8+w, J+2 $\gamma_0$311.8 ($\dagger_\gamma$0.95 16) $I^{(1)}$=96.2, $I^{(2)}$=100.5, $\hbar\omega$=0.166
H 663.4+w, J+4 γ_{312+w}351.6 ($\dagger_\gamma$0.96 16) $I^{(1)}$=96.7, $I^{(2)}$=103.6, $\hbar\omega$=0.185
H 1053.6+w, J+6 γ_{663+w}390.2 ($\dagger_\gamma$1.44 19) $I^{(1)}$=97.4, $I^{(2)}$=102.8, $\hbar\omega$=0.205
H 1482.7+w, J+8 γ_{1054+w}429.1 $I^{(1)}$=97.9, $I^{(2)}$=107.0, $\hbar\omega$=0.224
H 1949.2+w, J+10 γ_{1483+w}466.5 ($\dagger_\gamma$1.07 19) $I^{(1)}$=98.6, $I^{(2)}$=108.1, $\hbar\omega$=0.243
H 2452.7+w, J+12 γ_{1949+w}503.5 ($\dagger_\gamma$0.76 14) $I^{(1)}$=99.3, $I^{(2)}$=111.1, $\hbar\omega$=0.261
H 2992.2+w, J+14 γ_{2453+w}539.5 ($\dagger_\gamma$0.70 10) $I^{(1)}$=100.1, $I^{(2)}$=114.9, $\hbar\omega$=0.278
H 3566.5+w, J+16 γ_{2992+w}574.3 ($\dagger_\gamma$0.71 12) $I^{(1)}$=101.0, $I^{(2)}$=114.6, $\hbar\omega$=0.296
H 4175.7+w, J+18 γ_{3567+w}609.2 ($\dagger_\gamma$0.64 8) $I^{(1)}$=101.8, $I^{(2)}$=119.8, $\hbar\omega$=0.313
H 4818.3+w, J+20 γ_{4176+w}642.6 ($\dagger_\gamma$0.50 5) $I^{(1)}$=102.7, $I^{(2)}$=122.7, $\hbar\omega$=0.329
H 5493.5+w, J+22 γ_{4818+w}675.2 ($\dagger_\gamma$0.40 5) $I^{(1)}$=103.7, $I^{(2)}$=123.8, $\hbar\omega$=0.346
H 6201.0+w, J+24 γ_{5494+w}707.5 ($\dagger_\gamma$0.33 6) $I^{(1)}$=104.6



SD-1 band SD-2 band SD-3 band

$^{191}_{80}$Hg

$^{192}_{80}$Hg

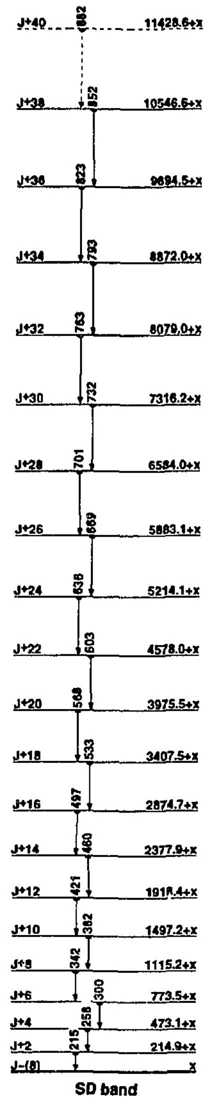
Δ: (−32100) S_n: (9500) S_p: (5500)
Q_{EC}: (700) Q_α: (3300)

Nuclear Bands

- *A* GS band, (π,α)=(+,0)
- *B* (π,α)=(−,1)
- *C* (π,α)=(−,0)
- *D* (π,α)=(+,0)
- *E* Band Structure
- *F* (π,α)=(−,0)
- *G* (π,α)=(−,1)
- *H* (π,α)=(+,0)
- *I* SD band

Levels and γ-ray branchings:

A **0**, 0^+, 4.85 *20* h, %EC=100
A **422.8** *1*, 2^+ γ_0**422.8** *1* ($\dagger_\gamma$100) E2
A **1057.6** *2*, 4^+ γ_{423}**634.8** *1* ($\dagger_\gamma$100) E2
1113.6 *2*, 2^+ γ_{423}**690.8** *1* ($\dagger_\gamma$100 *6*) M1+E2: δ=1.7 $^{+3}_{-3}$ γ_0**1113.0** ($\dagger_\gamma$24.3 *12*) E2
1535.6 *2*, 3^+ γ_{1058}**477.6** *3* ($\dagger_\gamma$12.3 *14*) M1(+E2): δ=0.5 *5* γ_{423}**1113.0** *2* ($\dagger_\gamma$100 *5*) M1
1733.0 *2*, $(4)^+$ γ_{1114}**619.4** *2* ($\dagger_\gamma$84 *4*) E2 γ_{1058}**675.4** *1* ($\dagger_\gamma$100 *6*) M1+E2: δ=0.7 $^{+3}_{-2}$
A **1803.1** *2*, 6^+ γ_{1058}**745.5** *1* ($\dagger_\gamma$100) E2
1831.6 *2*, (3,4) γ_{1114}**717.9** *3* ($\dagger_\gamma$100.0 *14*) γ_{1058}**774.1** *2* ($\dagger_\gamma$74 *5*)
B **1843.9** *2*, $(5)^-$ γ_{1058}**786.3** *1* ($\dagger_\gamma$100) E1
1844.6 *3*, (3,4) γ_{423}**1421.8** *2* ($\dagger_\gamma$100)
1908.6 *3*, $1,2^+$ γ_{423}**1486.1** *4* ($\dagger_\gamma$76 *8*) γ_0**1908.4** *3* ($\dagger_\gamma$100 *7*)
B **1977.1** *2*, $(7)^-$, 1.04 *6* ns γ_{1844}**133.1** *1* ($\dagger_\gamma$42.5 *16*) E2 γ_{1803}**174.0** *1* ($\dagger_\gamma$100 *4*) E1
2056.3 *3*, $(1,2^+)$ γ_{423}**1633.5** *2* ($\dagger_\gamma$100 *7*) γ_0**2056.0** *6*(?) ($\dagger_\gamma$<56)
2081.7 *3*, $(1,2^+)$ γ_{423}**1658.9** *2* ($\dagger_\gamma$100 *8*) γ_0**2081.9** *6*(?) ($\dagger_\gamma$3.5 *13*)
2187.0 *3*, $(6)^-$ γ_{1844}**343.1** *2* ($\dagger_\gamma$35 *13*) M1 γ_{1803}**383.9** *2* ($\dagger_\gamma$100 *13*) E1
C **2216.3** *3*, $(8)^-$, 0.92 *5* ns γ_{1977}**239.2** *2* ($\dagger_\gamma$100) M1+E2: δ=1.2 *6*
B **2223.9** *3*, $(9)^-$ γ_{1977}**246.8** *2* ($\dagger_\gamma$100) E2
2276.9 *3*, $1,2^+$ γ_{423}**1854.0** *4* ($\dagger_\gamma$100 *9*) γ_0**2277.0** *6* ($\dagger_\gamma$57 *9*)
2284.7 *4* γ_{1114}**1171.1** *4* ($\dagger_\gamma$100)
2300.8 *3*, $(6,7,8)^-$ γ_{1977}**323.7** *2* ($\dagger_\gamma$100) M1+E2: δ=0.74 *17*
D **2447.2** *3*, $(8)^+$ γ_{1803}**644.1** *2* ($\dagger_\gamma$100) E2
D **2507.3** *3*, $(10)^+$, 3.6 *5* ns γ_{2447}**60.1** *3* ($\dagger_\gamma$≈2.2) E2 γ_{2224}**283.4** *2* ($\dagger_\gamma$100 *20*) (E1)
2534.6 *4*(?) γ_{1536}**999.0** *3*(?) ($\dagger_\gamma$100)
D **2535.6** *3*, $(12)^+$, 11.1 *5* ns γ_{2507}**28.4** *3* ($\dagger_\gamma$100) E2
C **2632.7** *3*, $(10)^-$ γ_{2224}**408.8** *2* ($\dagger_\gamma$38) γ_{2216}**416.5** *2* ($\dagger_\gamma$100) E2
2657 (?) γ_{1803}**854** (?) ($\dagger_\gamma$100)
B **2756.8** *3*, $(11)^-$ γ_{2224}**532.9** *2* ($\dagger_\gamma$100) E2
D **2951.8** *3*, $(14)^+$ γ_{2536}**416.3** *2* ($\dagger_\gamma$100) E2
E **3047.0** *3*, (12^+) γ_{2536}**511.3** *3* γ_{2507}**539.7** *3* E2
C **3261.9** *3*, $(12)^-$ γ_{2757}**505.2** *3* ($\dagger_\gamma$3.8) γ_{2633}**629.2** *2* ($\dagger_\gamma$100) E2
B **3449.7** *3*, $(13)^-$ γ_{2757}**692.9** *2* ($\dagger_\gamma$100) E2
D **3608.7** *4*, $(16)^+$ γ_{2952}**656.8** *2* ($\dagger_\gamma$100) E2
E **3669.9** *4*, (14^+) γ_{3047}**622.7** *3* ($\dagger_\gamma$100) E2 γ_{2952}**718.4** *3* ($\dagger_\gamma$63)
3725.7 *4*, (14^+) γ_{3047}**678.7** *3* ($\dagger_\gamma$100) E2
F **3894.9** *3*, $(14)^-$ γ_{3450}**445.2** *3* ($\dagger_\gamma$3.8) γ_{3262}**633.0** *2* ($\dagger_\gamma$100) E2
G **4010.5** *3*, $(15)^-$ γ_{3450}**560.9** *2* ($\dagger_\gamma$100) E2 γ_{2952}**1058.7** *3* ($\dagger_\gamma$24)
F **4090.0** *3*, $(16)^-$, 0.39 *4* ns γ_{3895}**195.0** *2* ($\dagger_\gamma$100) E2
E **4130.7** *4*, (16^+) γ_{3726}**405.0** *3* ($\dagger_\gamma$26) E2 γ_{3670}**460.9** *3* ($\dagger_\gamma$100) E2 γ_{3609}**521.9** *3* ($\dagger_\gamma$30)
G **4216.9** *4*, $(17)^-$ γ_{4090}**126.9** *3* ($\dagger_\gamma$33) γ_{4011}**206.5** *3* ($\dagger_\gamma$100) E2
F **4387.7** *4*, $(18)^-$ γ_{4090}**297.7** *3* ($\dagger_\gamma$100) E2
D **4389.5** *4*, $(18)^+$ γ_{3609}**780.8** *2* ($\dagger_\gamma$100) E2
G **4588.4** *4*, $(19)^-$ γ_{4388}**200.7** *3* ($\dagger_\gamma$8.2) γ_{4217}**371.5** *2* ($\dagger_\gamma$100) E2
E **4741.7** *4*, (18^+) γ_{4131}**611.0** *2* ($\dagger_\gamma$100) (E2)
F **4950.5** *5*, $(20)^-$ γ_{4388}**562.8** *3* ($\dagger_\gamma$100) E2
H **5130.8** *5*, $(20)^+$ γ_{4390}**741.3** *2* ($\dagger_\gamma$100) E2
G **5216.0** *4*, (21^-) γ_{4588}**627.6** *2* ($\dagger_\gamma$100) (E2)
D **5271.7** *5*, (20^+) γ_{4390}**882.2** *3* ($\dagger_\gamma$100)
E **5316.5** *5*, (20^+) γ_{4742}**574.8** *3* ($\dagger_\gamma$100) E2
F **5655.2** *6*, $(22)^-$ γ_{4951}**704.7** *3* ($\dagger_\gamma$100) E2
H **5700.7** *5*, $(22)^+$ γ_{5131}**569.9** *2* ($\dagger_\gamma$100) E2
E **5787.9** *6*, (22^+) γ_{5317}**471.4** *3* ($\dagger_\gamma$100) (E2)
G **6012.2** *5*, (23^-) γ_{5216}**796.2** *3* ($\dagger_\gamma$100) E2
H **6428.2** *6*, $(24)^+$ γ_{5701}**727.5** *3* ($\dagger_\gamma$100) E2
F **6437.5** *7*, (24^-) γ_{5655}**782.3** *3* ($\dagger_\gamma$100)
G **6855.0** *6*(?), (25^-) γ_{6012}**842.8** *3*(?) ($\dagger_\gamma$100)
I **x**, J=(8)
I **214.9+x**, J+2 γ_x**214.9** *2* ($\dagger_\gamma$0.06 *1*) (E2) $I^{(1)}$=88.4, $I^{(2)}$=92.4, ħω=0.118
I **473.1+x**, J+4 γ_{215+x}**258.2** *1* ($\dagger_\gamma$0.85 *10*) (E2) $I^{(1)}$=89.1, $I^{(2)}$=94.8, ħω=0.140
I **773.5+x**, J+6 γ_{473+x}**300.4** *1* ($\dagger_\gamma$0.90 *5*) (E2) $I^{(1)}$=89.9, $I^{(2)}$=96.9, ħω=0.161
I **1115.2+x**, J+8 γ_{774+x}**341.7** *1* (E2) $I^{(1)}$=90.7, $I^{(2)}$=99.3, ħω=0.181
I **1497.2+x**, J+10 γ_{1115+x}**382.0** *1* ($\dagger_\gamma$0.95 *5*) (E2) $I^{(1)}$=91.6, $I^{(2)}$=102.0, ħω=0.201
I **1918.4+x**, J+12 γ_{1497+x}**421.2** *1* ($\dagger_\gamma$1.00 *20*) (E2) $I^{(1)}$=92.6, $I^{(2)}$=104.4, ħω=0.220
I **2377.9+x**, J+14, 0.16 *5* ps γ_{1918+x}**459.5** *1* ($\dagger_\gamma$1.00 *5*) (E2) $I^{(1)}$=93.6, $I^{(2)}$=107.2, ħω=0.239
I **2874.7+x**, J+16, 0.13 *3* ps γ_{2378+x}**496.8** *1* ($\dagger_\gamma$0.80 *5*) (E2) $I^{(1)}$=94.6, $I^{(2)}$=111.1, ħω=0.257
I **3407.5+x**, J+18, 0.089 *31* ps γ_{2875+x}**532.8** *1* ($\dagger_\gamma$0.70 *10*) (E2) $I^{(1)}$=95.7, $I^{(2)}$=113.6, ħω=0.275
I **3975.5+x**, J+20, 0.058 *17* ps γ_{3408+x}**568.0** *1* ($\dagger_\gamma$0.60 *5*) (E2) $I^{(1)}$=96.8, $I^{(2)}$=115.9, ħω=0.293
I **4578.0+x**, J+22, 0.055 *14* ps γ_{3976+x}**602.5** *1* ($\dagger_\gamma$0.50 *10*) (E2) $I^{(1)}$=97.9, $I^{(2)}$=119.0, ħω=0.310
I **5214.1+x**, J+24, 0.042 *17* ps γ_{4578+x}**636.1** *1* ($\dagger_\gamma$0.45 *15*) (E2) $I^{(1)}$=99.0, $I^{(2)}$=121.6, ħω=0.326
I **5883.1+x**, J+26, 0.034 *9* ps γ_{5214+x}**669.0** *2* ($\dagger_\gamma$0.40 *5*) (E2) $I^{(1)}$=100.1, $I^{(2)}$=125.4, ħω=0.342
I **6584.0+x**, J+28, 0.032 *14* ps γ_{5883+x}**700.9** *2* ($\dagger_\gamma$0.30 *5*) (E2) $I^{(1)}$=101.3, $I^{(2)}$=127.8, ħω=0.358
I **7316.2+x**, J+30 γ_{6584+x}**732.2** *1* ($\dagger_\gamma$0.25 *5*) (E2) $I^{(1)}$=102.4, $I^{(2)}$=130.7, ħω=0.374
I **8079.0+x**, J+32, <0.03 ps γ_{7316+x}**762.8** *4* ($\dagger_\gamma$0.15 *5*) (E2) $I^{(1)}$=103.6, $I^{(2)}$=132.5, ħω=0.389
I **8872.0+x**, J+34 γ_{8079+x}**793.0** *3* ($\dagger_\gamma$0.15 *5*) (E2) $I^{(1)}$=104.7, $I^{(2)}$=135.6, ħω=0.404
I **9694.5+x**, J+36 γ_{8872+x}**822.5** *4* ($\dagger_\gamma$0.10 *2*) (E2) $I^{(1)}$=105.8, $I^{(2)}$=135.1, ħω=0.419
I **10546.6+x**, J+38 γ_{9695+x}**852.1** *6* ($\dagger_\gamma$0.05 *1*) $I^{(1)}$=106.8, $I^{(2)}$=133.8, ħω=0.434
I **11428.6+x** (?), J+40 $\gamma_{10547+x}$**882** (?) ($\dagger_\gamma$0.05 *1*) $I^{(1)}$=107.7



SD band

$^{192}_{80}$Hg

$^{193}_{80}$Hg

Δ: −31071 19 S_n: (7100) S_p: 5581 25 Q_{EC}: 2340 17 Q_α: 2989 22

Nuclear Bands

- *A* Favored $i_{13/2}$ decoupled band
- *B* Unfavored $i_{13/2}$ decoupled band
- *C* Band Structure
- *D* Band Structure
- *E* SD-1 band
- *F* SD-2 band
- *G* SD-3 band
- *H* SD-4 band
- *I* SD-5 band
- *J* SD-6 band

Levels and γ-ray branchings:

0, 3/2⁻, 3.80 15 h, %EC+%β⁺=100, μ=−0.62757 18, Q=−0.72 38

39.51 3, 5/2⁻, 0.63 3 ns γ_0 *39.51 3* ($\dagger_\gamma$100) M1

49.96 10, (1/2⁻) γ_0 *49.96 15* ($\dagger_\gamma$100)

A 140.76 5, 13/2⁺, 11.8 2 h, %EC+%β⁺=92.9 9, %IT=7.1 9, μ=−1.0584297 26, Q=+0.916 97 γ_{40} *101.254* ($\dagger_\gamma$100) M4

207.74 20, (7/2⁻) γ_0 *207.74 20* ($\dagger_\gamma$100) (E2)

324.36 7, (3/2⁻) γ_{50} *274.39 14* ($\dagger_\gamma$13.5 13) (M1+E2): δ=1.8 γ_{40} *284.89 13* ($\dagger_\gamma$21.6 10) (M1+E2): $\delta=0.5^{+4}_{-3}$ γ_0 *324.37 10* ($\dagger_\gamma$100) (M1+E2): $\delta=0.4^{+3}_{-4}$

344.00 9, (3/2⁻) γ_{50} *294.08 25* ($\dagger_\gamma$10.3 12) (M1+E2): $\delta=0.2^{+3}_{-2}$ γ_0 *343.99 10* ($\dagger_\gamma$100 4) (M1+E2): $\delta=1.7^{+17}_{-6}$

374.62 9, (3/2⁻,5/2⁻) γ_{324} *49.5 11* ($\dagger_\gamma$<40) (M1+E2): $\delta=0.37^{+8}_{-9}$ γ_{40} *335.11 10* ($\dagger_\gamma$100 4) (M1+E2): $\delta=0.32^{+37}_{-32}$ γ_0 *374.58 22* ($\dagger_\gamma$29 3) (E2)

A 522.9 2, (17/2⁺) γ_{141} *382.1 2* ($\dagger_\gamma$100) (E2)

B 747.1 3, (15/2⁺) γ_{141} *606.4 3* ($\dagger_\gamma$100) (M1+E2)

752.6 3, (3/2⁻,5/2⁻) γ_{40} *713.0 4* ($\dagger_\gamma$52 6) (M1+E2): δ=3.2 γ_0 *752.5 4* ($\dagger_\gamma$100 15) (M1)

1026.6 3, (13/2⁺,15/2⁺) γ_{141} *885.8 3* ($\dagger_\gamma$100)

A 1145.4 3, (21/2⁺) γ_{523} *622.6 2* ($\dagger_\gamma$100) (E2)

B 1380.6 2, (19/2⁺) γ_{747} *633.4 3* ($\dagger_\gamma$70) (E2) γ_{523} *857.6 2* ($\dagger_\gamma$100) (M1+E2)

1523.3 3, (⁻) γ_{753} *770.4 4* ($\dagger_\gamma$100 6) (M1+E2): $\delta=0.9^{+10}_{-5}$ γ_{40} *1484.1 7* ($\dagger_\gamma$26 8) γ_0 *1523.4 4* ($\dagger_\gamma$62 15)

1523.4 3, (17/2⁺,19/2⁺) γ_{1027} *496.9 3* ($\dagger_\gamma$33) (E2) γ_{523} *1000.5 3* ($\dagger_\gamma$100) (M1+E2)

1580.1 3 γ_{375} *1205.4 3* ($\dagger_\gamma$23 3) γ_{324} *1256.0 3* ($\dagger_\gamma$23 4) γ_{40} *1539.4 10* ($\dagger_\gamma$20 4) γ_0 *1579.3 10* ($\dagger_\gamma$100 22)

C 1756.0 3, (21/2⁻) $\gamma_{1523.3}$ *232.3 3* ($\dagger_\gamma$<53) γ_{1381} *375.3 2* ($\dagger_\gamma$100) (E1) γ_{1145} *610.4 4*

A 1884.2 3, (25/2⁺) γ_{1145} *738.7 2* ($\dagger_\gamma$100) (E2)

C 1886.5 3, (25/2⁻), 1.58 6 ns γ_{1756} *130.5 2* ($\dagger_\gamma$100) (E2)

D 1890.8 3, (23/2⁻) γ_{1756} *134.5 3* ($\dagger_\gamma$18) γ_{1145} *745.5 2* ($\dagger_\gamma$100) (E1)

D 2095.9 3, (27/2⁻) γ_{1891} *205.0 2* ($\dagger_\gamma$100) (E2) γ_{1887} *209.6 4* ($\dagger_\gamma$7.5)

C 2189.2 3, (29/2⁻) γ_{2096} *93.0 5* γ_{1887} *302.7 2* (E2)

A 2502.1 4, (29/2⁺) γ_{1884} *617.8 2* ($\dagger_\gamma$100) (E2)

D 2583.6 4, (31/2⁻) γ_{2096} *487.6 2* ($\dagger_\gamma$100) (E2)

2641.6 4, (29/2⁺) γ_{1884} *757.4 3* ($\dagger_\gamma$100) (E2)

A 2695.5 4, (33/2⁺), 573 30 ps γ_{2502} *193.4 2* ($\dagger_\gamma$100) (E2)

C 2762.2 4, (33/2⁻) γ_{2189} *573.0 2* ($\dagger_\gamma$100) (E2)

A 3176.1 4, (37/2⁺) γ_{2696} *480.6 2* ($\dagger_\gamma$100) (E2)

3195.9 6, (33/2⁺) γ_{2642} *554.3 4* ($\dagger_\gamma$100) (E2)

D 3223.2 4, (35/2⁻) γ_{2584} *639.6 2* ($\dagger_\gamma$100) (E2)

3260.0 4, (33/2⁺) γ_{2696} *564.5 4* γ_{2502} *757.8 3* (E2)

C 3497.3 4, (37/2⁻) γ_{2762} *735.1 3* ($\dagger_\gamma$100) (E2)

3570.0 5, (37/2⁺) γ_{3260} *309.9 3* ($\dagger_\gamma$70) (E2) γ_{3176} *393.9 3* ($\dagger_\gamma$100) (M1+E2)

A 3880.4 5, (41/2⁺) γ_{3176} *704.3 3* ($\dagger_\gamma$100) (E2)

D 3883.4 5, (39/2⁻) γ_{3223} *660.1 3* ($\dagger_\gamma$100) (E2)

4120.4 6, (41/2⁺) γ_{3570} *550.4 3* ($\dagger_\gamma$100) (E2)

C 4150.6 5, (41/2⁻) γ_{3497} *653.3 2* ($\dagger_\gamma$100) (E2)

4197.7 6 γ_{3223} *974.5 4* ($\dagger_\gamma$100)

D 4396.2 6, (43/2⁻) γ_{3883} *512.8 4* ($\dagger_\gamma$100)

4412.1 6 γ_{3497} *914.8 4* ($\dagger_\gamma$100)

C 4673.8 6, (45/2⁻) γ_{4151} *523.2 3* ($\dagger_\gamma$100) (E2)

A 4688.1 6, (45/2⁺) γ_{3880} *807.7 3* ($\dagger_\gamma$100) (E2)

D 5047.3 7, (47/2⁻) γ_{4396} *651.1 3* ($\dagger_\gamma$100) (E2)

C 5546.9 7, (49/2⁻) γ_{4674} *873.1 4* ($\dagger_\gamma$100)

A 5556.9 7, (49/2⁺) γ_{4688} *868.8 4* ($\dagger_\gamma$100) (E2)

D 5898.3 8, (51/2⁻) γ_{5047} *851.0 4* ($\dagger_\gamma$100)

E x, J=(19/2)

F 112.1+x, J+1

E 233.2+x, J+2 γ_{112+x} *121.1* γ_x *233.2* ($\dagger_\gamma$0.37 3) $I^{(1)}$=94.3, $I^{(2)}$=97.6, ħω=0.127

F 366.1+x, J+3 γ_{233+x} *132.2* γ_{112+x} *254.0* ($\dagger_\gamma$0.12 5) $I^{(1)}$=19.7, $I^{(2)}$=98.5, ħω=0.137

E 507.4+x, J+4 γ_{366+x} *141.6* γ_{233+x} *274.2* ($\dagger_\gamma$0.48 3) $I^{(1)}$=94.8, $I^{(2)}$=99.8, ħω=0.147

F 660.7+x, J+5 γ_{507+x} *152.9* γ_{366+x} *294.6* ($\dagger_\gamma$0.38 8) $I^{(1)}$=30.5, $I^{(2)}$=99.3, ħω=0.157

E 821.7+x, J+6 γ_{661+x} *160.7* γ_{507+x} *314.3* ($\dagger_\gamma$0.75 5) $I^{(1)}$=95.5, $I^{(2)}$=102.3, ħω=0.167

F 995.6+x, J+7 γ_{822+x} *173.7* γ_{661+x} *334.9* ($\dagger_\gamma$0.61 9) $I^{(1)}$=38.8, $I^{(2)}$=101.0, ħω=0.177

E 1175.1+x, J+8 γ_{996+x} *179.3* γ_{822+x} *353.4* ($\dagger_\gamma$0.90 5) $I^{(1)}$=96.2, $I^{(2)}$=103.9, ħω=0.186

F 1370.1+x, J+9 γ_{996+x} *374.5* ($\dagger_\gamma$0.73 16) $I^{(1)}$=45.4, $I^{(2)}$=103.6, ħω=0.197

E 1567.0+x, J+10 γ_{1370+x} *196.9* γ_{1175+x} *391.9* ($\dagger_\gamma$0.96 5) $I^{(1)}$=97.0, $I^{(2)}$=107.8, ħω=0.205

F 1783.2+x, J+11 γ_{1370+x} *413.1* ($\dagger_\gamma$1.00 12) $I^{(1)}$=50.8, $I^{(2)}$=105.3, ħω=0.216

E 1996.0+x, J+12 γ_{1783+x} *212.3* γ_{1567+x} *429.0* ($\dagger_\gamma$1.00 5) $I^{(1)}$=97.0, $I^{(2)}$=113.0, ħω=0.223

F 2234.3+x, J+13 γ_{1783+x} *451.1* $I^{(1)}$=55.4, $I^{(2)}$=107.5, ħω=0.235

E 2460.4+x, J+14 γ_{2234+x} *226.4* γ_{1996+x} *464.4* ($\dagger_\gamma$0.98 3) $I^{(1)}$=99.1, $I^{(2)}$=121.2, ħω=0.240

F 2722.6+x, J+15 γ_{2234+x} *488.3* ($\dagger_\gamma$0.96 16) $I^{(1)}$=59.4, $I^{(2)}$=109.3, ħω=0.253

E 2957.8+x, J+16 γ_{2460+x} *497.4* ($\dagger_\gamma$1.00 3) $I^{(1)}$=100.5, $I^{(2)}$=129.9, ħω=0.256

F 3247.5+x, J+17 γ_{2723+x} *524.9* ($\dagger_\gamma$0.98 20) $I^{(1)}$=62.9, $I^{(2)}$=114.3, ħω=0.271

E 3486.0+x, J+18 γ_{2958+x} *528.2* ($\dagger_\gamma$1.11 10) $I^{(1)}$=102.2, $I^{(2)}$=132.0, ħω=0.272

F 3807.4+x, J+19 γ_{3248+x} *559.9* ($\dagger_\gamma$1.08 10) $I^{(1)}$=66.1, $I^{(2)}$=114.3, ħω=0.289

E 4044.5+x, J+20 γ_{3486+x} *558.5* ($\dagger_\gamma$0.94 14) $I^{(1)}$=103.8, $I^{(2)}$=127.0, ħω=0.287

F 4402.3+x, J+21 γ_{3807+x} *594.9* $I^{(1)}$=68.9, $I^{(2)}$=118.0, ħω=0.306

E 4634.5+x, J+22 γ_{4045+x} *590.0* ($\dagger_\gamma$0.73 20) $I^{(1)}$=105.1, $I^{(2)}$=122.7, ħω=0.303

F 5031.1+x, J+23 γ_{4402+x} *628.8* ($\dagger_\gamma$0.85 8) $I^{(1)}$=71.6, $I^{(2)}$=121.6, ħω=0.323

E 5257.1+x, J+24 γ_{4635+x} *622.6* $I^{(1)}$=106.0, $I^{(2)}$=120.8, ħω=0.320

F 5692.8+x, J+25 γ_{5031+x} *661.7* ($\dagger_\gamma$0.52 12) $I^{(1)}$=74.1, $I^{(2)}$=123.5, ħω=0.339

E 5912.8+x, J+26 γ_{5257+x} *655.7* ($\dagger_\gamma$0.40 16) $I^{(1)}$=106.8, $I^{(2)}$=122.0, ħω=0.336

F 6386.9+x, J+27 γ_{5693+x} *694.1* ($\dagger_\gamma$0.56 15) $I^{(1)}$=76.4, $I^{(2)}$=127.0, ħω=0.355

E 6601.3+x, J+28 γ_{5913+x} *688.5* ($\dagger_\gamma$0.18 10) $I^{(1)}$=107.5, $I^{(2)}$=122.0, ħω=0.352

F 7112.5+x, J+29 γ_{6387+x} *725.6* ($\dagger_\gamma$0.45 19) $I^{(1)}$=78.6, $I^{(2)}$=129.0, ħω=0.371

E 7322.6+x, J+30 γ_{6601+x} *721.3* ($\dagger_\gamma$0.39 10) $I^{(1)}$=108.1, $I^{(2)}$=125.4, ħω=0.369

F 7869.1+x, J+31 γ_{7113+x} *756.6* ($\dagger_\gamma$0.38 10) $I^{(1)}$=80.6, $I^{(2)}$=130.3, ħω=0.386

E 8075.8+x, J+32 γ_{7323+x} *753.2* ($\dagger_\gamma$0.55 16) $I^{(1)}$=108.9, $I^{(2)}$=126.2, ħω=0.385

F 8656.4+x, J+33 γ_{7869+x} *787.3* $I^{(1)}$=82.6, $I^{(2)}$=131.6, ħω=0.401

E 8860.7+x, J+34 γ_{8076+x} *784.9* $I^{(1)}$=109.6, $I^{(2)}$=126.2, ħω=0.400

F 9474.1+x, J+35 γ_{8656+x} *817.7* $I^{(1)}$=84.4, $I^{(2)}$=134.2, ħω=0.416

E 9677.3+x, J+36 γ_{8861+x} *816.6* $I^{(1)}$=110.2, $I^{(2)}$=128.2, ħω=0.416

F 10321.6+x, J+37 γ_{9474+x} *847.5* $I^{(1)}$=86.1, $I^{(2)}$=139.9, ħω=0.431

E 10525.1+x, J+38 γ_{9677+x} *847.8* $I^{(1)}$=110.9, $I^{(2)}$=120.8, ħω=0.432

F 11197.7+x, J+39 $\gamma_{10322+x}$ *876.1* $I^{(1)}$=87.9

E 11406.0+x, J+40 $\gamma_{10525+x}$ *880.9* $I^{(1)}$=111.2

G y, J=(19/2)

H 111.1+y, J+1

G 233.5+y, J+2 γ_{111+y} *122.6* γ_y *233.5* ($\dagger_\gamma$0.21 3) $I^{(1)}$=94.2, $I^{(2)}$=95.9, ħω=0.127

H 365.1+y, J+3 γ_{234+y} *132.2* γ_{111+y} *254.0* ($\dagger_\gamma$0.12 5) $I^{(1)}$=19.7, $I^{(2)}$=98.5, ħω=0.137

G 508.7+y, J+4 γ_{365+y} *142.7* γ_{234+y} *275.2* ($\dagger_\gamma$0.30 5) $I^{(1)}$=94.5, $I^{(2)}$=100.0, ħω=0.148

H 659.7+y, J+5 γ_{509+y} *152.9* γ_{365+y} *294.6* ($\dagger_\gamma$0.38 8) $I^{(1)}$=30.5, $I^{(2)}$=99.3, ħω=0.157

G 823.8+y, J+6 γ_{660+y} *162.5* γ_{509+y} *315.2* ($\dagger_\gamma$0.53 5) $I^{(1)}$=95.2, $I^{(2)}$=100.8, ħω=0.168

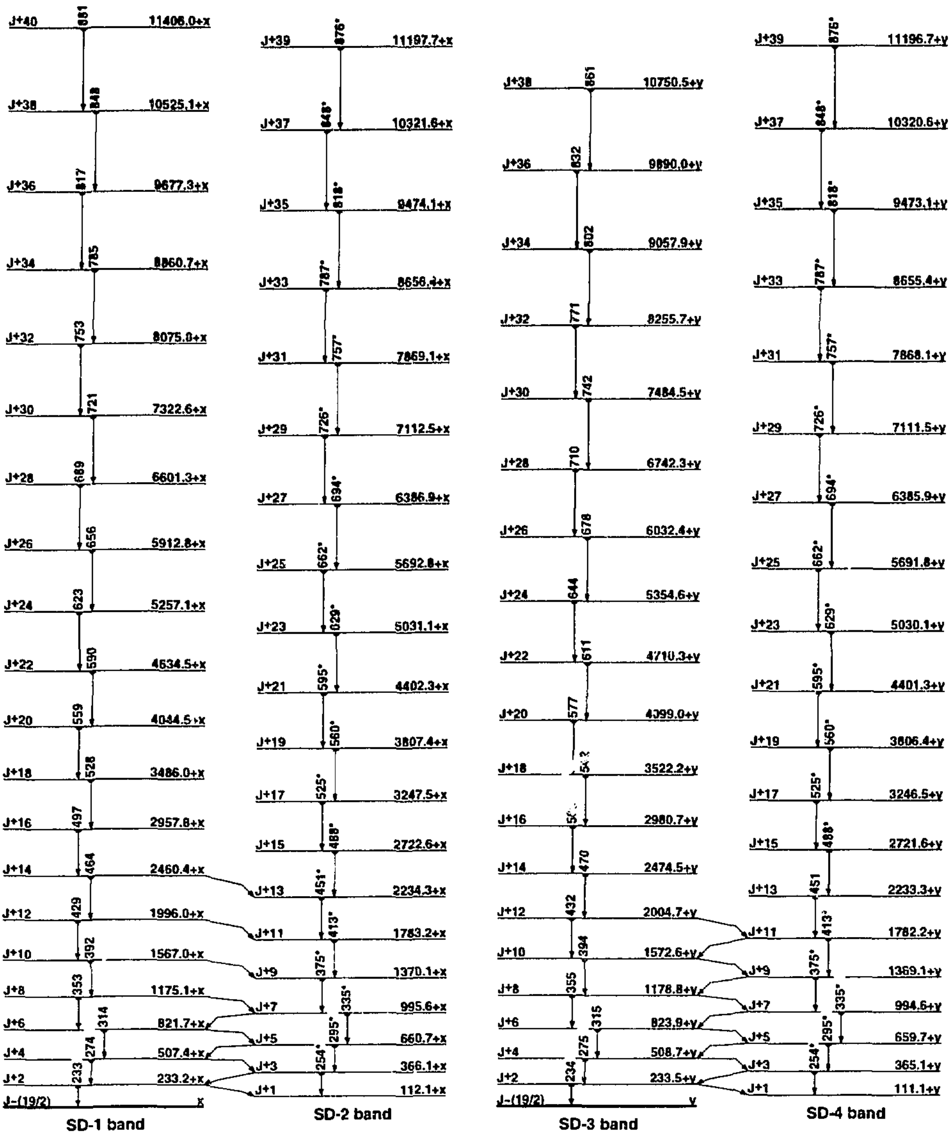
H 994.6+y, J+7 γ_{824+y} *173.7* γ_{660+y} *334.9* ($\dagger_\gamma$0.61 9) $I^{(1)}$=38.8, $I^{(2)}$=101.0, ħω=0.177

G 1178.8+y, J+8 γ_{995+y} *182.6* γ_{824+y} *354.9* ($\dagger_\gamma$0.78 5) $I^{(1)}$=95.8, $I^{(2)}$=102.8, ħω=0.187

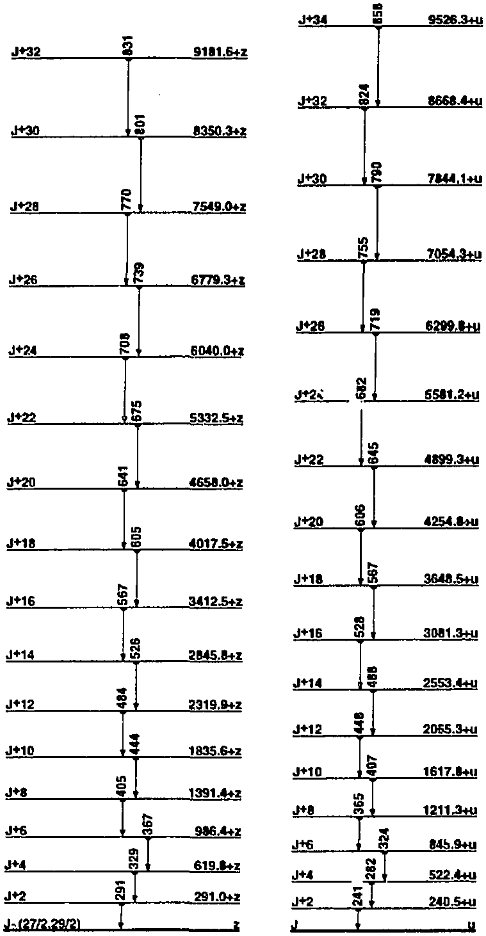
H 1369.1+y, J+9 γ_{1179+y} *192.3* γ_{995+y} *374.5* ($\dagger_\gamma$0.73 16) $I^{(1)}$=45.4, $I^{(2)}$=103.6, ħω=0.197

G 1572.6+y, J+10 γ_{1369+y} *201.9* γ_{1179+y} *393.8* ($\dagger_\gamma$0.95 5) $I^{(1)}$=96.5, $I^{(2)}$=104.4, ħω=0.206

H 1782.2+y, J+11 γ_{1573+y} *212.9* γ_{1369+y} *413.1* ($\dagger_\gamma$1.00 12) $I^{(1)}$=50.8, $I^{(2)}$=105.3, ħω=0.216



$^{193}_{80}Hg$



SD-5 band　　SD-6 band

$^{193}_{80}$Hg

$^{193}_{80}$Hg (Continued)

G **2004.7+y**, J+12 γ_{1782+y} ***220.5*** γ_{1573+y} ***432.1*** ($\dagger_\gamma$1.02 *8*) $I^{(1)}$=97.2, $I^{(2)}$=106.1, $\hbar\omega$=0.225
H **2233.3+y**, J+13 γ_{1782+y} ***451.1*** $I^{(1)}$=55.4, $I^{(2)}$=107.5, $\hbar\omega$=0.235
G **2474.5+y**, J+14 γ_{2005+y} ***469.8*** ($\dagger_\gamma$1.00 *8*) $I^{(1)}$=97.9, $I^{(2)}$=109.9, $\hbar\omega$=0.244
H **2721.6+y**, J+15 γ_{2233+y} ***488.3*** ($\dagger_\gamma$0.96 *18*) $I^{(1)}$=59.4, $I^{(2)}$=109.3, $\hbar\omega$=0.253
G **2980.7+y**, J+16 γ_{2475+y} ***506.2*** ($\dagger_\gamma$1.00 *14*) $I^{(1)}$=98.8, $I^{(2)}$=113.3, $\hbar\omega$=0.262
H **3246.5+y**, J+17 γ_{2722+y} ***524.9*** ($\dagger_\gamma$0.90 *20*) $I^{(1)}$=62.9, $I^{(2)}$=114.3, $\hbar\omega$=0.271
G **3522.2+y**, J+18 γ_{2981+y} ***541.5*** ($\dagger_\gamma$0.82 *32*) $I^{(1)}$=99.7, $I^{(2)}$=113.3, $\hbar\omega$=0.280
H **3806.4+y**, J+19 γ_{3247+y} ***559.9*** ($\dagger_\gamma$1.08 *10*) $I^{(1)}$=66.1, $I^{(2)}$=114.3, $\hbar\omega$=0.289
G **4099.0+y**, J+20 γ_{3522+y} ***576.8*** ($\dagger_\gamma$0.63 *24*) $I^{(1)}$=100.6, $I^{(2)}$=115.9, $\hbar\omega$=0.297
H **4401.3+y**, J+21 γ_{3806+y} ***594.9*** $I^{(1)}$=68.9, $I^{(2)}$=118.0, $\hbar\omega$=0.306
G **4710.3+y**, J+22 γ_{4099+y} ***611.3*** ($\dagger_\gamma$0.43 *28*) $I^{(1)}$=101.4, $I^{(2)}$=121.2, $\hbar\omega$=0.314
H **5030.1+y**, J+23 γ_{4401+y} ***628.8*** ($\dagger_\gamma$0.85 *8*) $I^{(1)}$=71.6, $I^{(2)}$=121.6, $\hbar\omega$=0.323
G **5354.6+y**, J+24 γ_{4710+y} ***644.3*** $I^{(1)}$=102.4, $I^{(2)}$=119.4, $\hbar\omega$=0.331
H **5691.8+y**, J+25 γ_{5030+y} ***661.7*** ($\dagger_\gamma$0.52 *12*) $I^{(1)}$=74.1, $I^{(2)}$=123.5, $\hbar\omega$=0.339
G **6032.4+y**, J+26 γ_{5355+y} ***677.8*** $I^{(1)}$=103.3, $I^{(2)}$=124.6, $\hbar\omega$=0.347
H **6385.9+y**, J+27 γ_{5692+y} ***694.1*** ($\dagger_\gamma$0.56 *15*) $I^{(1)}$=76.4, $I^{(2)}$=127.0, $\hbar\omega$=0.355
G **6742.3+y**, J+28 γ_{6032+y} ***709.9*** $I^{(1)}$=104.2, $I^{(2)}$=123.8, $\hbar\omega$=0.363
H **7111.5+y**, J+29 γ_{6386+y} ***725.6*** ($\dagger_\gamma$0.45 *19*) $I^{(1)}$=78.6, $I^{(2)}$=129.0, $\hbar\omega$=0.371
G **7484.5+y**, J+30 γ_{6742+y} ***742.2*** $I^{(1)}$=105.1, $I^{(2)}$=137.9, $\hbar\omega$=0.378
H **7868.1+y**, J+31 γ_{7112+y} ***756.6*** ($\dagger_\gamma$0.38 *10*) $I^{(1)}$=80.6, $I^{(2)}$=130.3, $\hbar\omega$=0.386
G **8255.7+y**, J+32 γ_{7485+y} ***771.2*** $I^{(1)}$=106.3, $I^{(2)}$=129.0, $\hbar\omega$=0.393
H **8655.4+y**, J+33 γ_{7868+y} ***787.3*** $I^{(1)}$=82.6, $I^{(2)}$=131.6, $\hbar\omega$=0.401
G **9057.9+y**, J+34 γ_{8256+y} ***802.2*** $I^{(1)}$=107.2, $I^{(2)}$=133.8, $\hbar\omega$=0.409
H **9473.1+y**, J+35 γ_{8655+y} ***817.7*** $I^{(1)}$=84.4, $I^{(2)}$=134.2, $\hbar\omega$=0.416
G **9890.0+y**, J+36 γ_{9058+y} ***832.1*** $I^{(1)}$=108.2, $I^{(2)}$=140.8, $\hbar\omega$=0.423
H **10320.6+y**, J+37 γ_{9473+y} ***847.5*** $I^{(1)}$=86.1, $I^{(2)}$=139.9, $\hbar\omega$=0.431
G **10750.5+y**, J+38 γ_{9890+y} ***860.5*** $I^{(1)}$=109.2
H **11196.7+y**, J+39 $\gamma_{10321+y}$ ***876.1*** $I^{(1)}$=87.9
I **z**, J=(27/2,29/2)
I **291.0+z**, J+2 γ_z ***291.0*** $I^{(1)}$=103.1, $I^{(2)}$=105.8, $\hbar\omega$=0.155
I **619.8+z**, J+4 γ_{291+z} ***328.8*** $I^{(1)}$=103.4, $I^{(2)}$=105.8, $\hbar\omega$=0.174
I **986.4+z**, J+6 γ_{620+z} ***366.6*** ($\dagger_\gamma$1.09 *16*) $I^{(1)}$=103.7, $I^{(2)}$=104.2, $\hbar\omega$=0.193
I **1391.4+z**, J+8 γ_{986+z} ***405.0*** $I^{(1)}$=103.7, $I^{(2)}$=102.0, $\hbar\omega$=0.212
I **1835.6+z**, J+10 γ_{1391+z} ***444.2*** $I^{(1)}$=103.6, $I^{(2)}$=99.8, $\hbar\omega$=0.232
I **2319.9+z**, J+12 γ_{1836+z} ***484.3*** ($\dagger_\gamma$1.09 *24*) $I^{(1)}$=103.2, $I^{(2)}$=96.2, $\hbar\omega$=0.253
I **2845.8+z**, J+14 γ_{2320+z} ***525.9*** ($\dagger_\gamma$0.94 *12*) $I^{(1)}$=102.7, $I^{(2)}$=98.0, $\hbar\omega$=0.273
I **3412.5+z**, J+16 γ_{2846+z} ***566.7*** ($\dagger_\gamma$0.93 *14*) $I^{(1)}$=102.3, $I^{(2)}$=104.4, $\hbar\omega$=0.293
I **4017.5+z**, J+18 γ_{3413+z} ***605.0*** ($\dagger_\gamma$1.10 *21*) $I^{(1)}$=102.5, $I^{(2)}$=112.7, $\hbar\omega$=0.311
I **4658.0+z**, J+20 γ_{4018+z} ***640.5*** $I^{(1)}$=103.0, $I^{(2)}$=117.6, $\hbar\omega$=0.329
I **5332.5+z**, J+22 γ_{4658+z} ***674.5*** ($\dagger_\gamma$0.37 *10*) $I^{(1)}$=103.8, $I^{(2)}$=121.2, $\hbar\omega$=0.346
I **6040.0+z**, J+24 γ_{5333+z} ***707.5*** $I^{(1)}$=104.6, $I^{(2)}$=125.8, $\hbar\omega$=0.362
I **6779.3+z**, J+26 γ_{6040+z} ***739.3*** $I^{(1)}$=105.5, $I^{(2)}$=131.6, $\hbar\omega$=0.377
I **7549.0+z**, J+28 γ_{6779+z} ***769.7*** $I^{(1)}$=106.5, $I^{(2)}$=126.6, $\hbar\omega$=0.393
I **8350.3+z**, J+30 γ_{7549+z} ***801.3*** $I^{(1)}$=107.3, $I^{(2)}$=133.3, $\hbar\omega$=0.408
I **9181.6+z**, J+32 γ_{8350+z} ***831.3*** $I^{(1)}$=108.3
J **u**, J
J **240.5+u**, J+2 γ_u ***240.5*** ($\dagger_\gamma$0.58 *5*) $I^{(2)}$=96.6, $\hbar\omega$=0.131
J **522.4+u**, J+4 γ_{241+u} ***281.9*** ($\dagger_\gamma$0.80 *5*) $I^{(2)}$=96.2, $\hbar\omega$=0.151
J **845.9+u**, J+6 γ_{522+u} ***323.5*** ($\dagger_\gamma$0.90 *5*) $I^{(2)}$=95.5, $\hbar\omega$=0.172
J **1211.3+u**, J+8 γ_{846+u} ***365.4*** ($\dagger_\gamma$1.00 *5*) $I^{(2)}$=97.3, $\hbar\omega$=0.193
J **1617.8+u**, J+10 γ_{1211+u} ***406.5*** ($\dagger_\gamma$1.00 *5*) $I^{(2)}$=97.6, $\hbar\omega$=0.213
J **2065.3+u**, J+12 γ_{1618+u} ***447.5*** ($\dagger_\gamma$0.98 *5*) $I^{(2)}$=98.5, $\hbar\omega$=0.234
J **2553.4+u**, J+14 γ_{2065+u} ***488.1*** ($\dagger_\gamma$0.95 *5*) $I^{(2)}$=100.5, $\hbar\omega$=0.254
J **3081.3+u**, J+16 γ_{2553+u} ***527.9*** ($\dagger_\gamma$1.05 *6*) $I^{(2)}$=101.8, $\hbar\omega$=0.274
J **3648.5+u**, J+18 γ_{3081+u} ***567.2*** ($\dagger_\gamma$1.00 *6*) $I^{(2)}$=102.3, $\hbar\omega$=0.293
J **4254.8+u**, J+20 γ_{3649+u} ***606.3*** $I^{(2)}$=104.7, $\hbar\omega$=0.313
J **4899.3+u**, J+22 γ_{4255+u} ***644.5*** ($\dagger_\gamma$0.90 *10*) $I^{(2)}$=107.0, $\hbar\omega$=0.332
J **5581.2+u**, J+24 γ_{4899+u} ***681.9*** ($\dagger_\gamma$0.70 *6*) $I^{(2)}$=109.0, $\hbar\omega$=0.350
J **6299.8+u**, J+26 γ_{5581+u} ***718.6*** ($\dagger_\gamma$0.60 *6*) $I^{(2)}$=111.4, $\hbar\omega$=0.368
J **7054.3+u**, J+28 γ_{6300+u} ***754.5*** $I^{(2)}$=113.3, $\hbar\omega$=0.386
J **7844.1+u**, J+30 γ_{7054+u} ***789.8*** ($\dagger_\gamma$0.42 *5*) $I^{(2)}$=115.9, $\hbar\omega$=0.404
J **8668.4+u**, J+32 γ_{7844+u} ***824.3*** ($\dagger_\gamma$0.26 *5*) $I^{(2)}$=119.0, $\hbar\omega$=0.421
J **9526.3+u**, J+34 γ_{8668+u} ***857.9*** ($\dagger_\gamma$0.24 *5*)

$^{194}_{80}$Hg

Δ:−32247 23 S_n:9250 30 S_p:6125 25 Q_{EC}:40 20 Q_α:2653 24

Nuclear Bands

- *A* SD-1 band
- *B* SD-2 band
- *C* SD-3 band
- *D* GS band (π,α)=(+,0)
- *E* $(\nu i_{13/2})^2(\pi h_{11/2})^2$?

Levels and γ-ray branchings:

D **0**, 0⁺, 520 32 y, %EC=100
D **428.0** 2, 2⁺ γ_0**428.0** 2 (I_γ100) E2
D **1064.5** 3, 4⁺ γ_{428}**636.5** 2 (I_γ100) E2
1073.2 3, (2)⁺ γ_{428}**645.20** 25 (I_γ100 25) E2(+M1): δ>1 γ_0**1073.3** 5 (I_γ33 12)
1468.5 4, (3)⁺ γ_{1073}**395.5** 5 (I_γ40 8) M1(+E2): δ<1 γ_{1065}**403.9** 7 (I_γ48 10) M1(+E2): δ<1 γ_{428}**1040.3** 5 (I_γ100 30)
D **1799.4** 3, 6⁺ γ_{1065}**734.9** 2 (I_γ100) E2
1813.4 3, 5⁻, <0.15 ns γ_{1065}**748.9** 2 (I_γ100) E1
1910.4 3, 7⁻, 3.75 11 ns γ_{1813}**96.95** 8 (I_γ100 10) E2 γ_{1799}**110.98** 8 (I_γ78 8)
2138.3 4, 8⁻, 0.91 3 ns γ_{1910}**227.9** 2 (I_γ100) E2+M1: δ=1.2 +8−4
2143.5 4, 9⁻, 0.29 5 ns γ_{1910}**233.0** 2 (I_γ100) E2
2165.8 4, (6)⁻ γ_{1910}**255.4** 1 (I_γ100 17) M1(+E2): δ<1 γ_{1813}**352.20** 25 (I_γ18 3) M1+E2: δ=1.0 5
2179.9 4, (5,6)⁻ γ_{1813}**366.5** 2 (I_γ100 17) M1(+E2): δ<1 γ_{1799}**380.5** 3 (I_γ78 13)
2259.9 8(?), (4,5,6)⁻ γ_{1813}**446.5** 7 (I_γ100) M1(+E2): δ<1
2264.6 4, (6)⁻ γ_{2166}**98.9** 1 (I_γ12 5) γ_{1813}**451.0** 7 (I_γ100 23) M1+E2: δ=1.0 5
2364.3 4, (8⁺) γ_{1799}**565.0** 2 (I_γ100)
2374.7 4, (6,7,8)⁻ γ_{2166}**208.90** 18 (I_γ100 25) E2 γ_{1910}**464.5** 7 (I_γ38 13) M1(+E2): δ<1
2423.8 4, (10⁺), 2.9 5 ns γ_{2364}**59.5** 2 (I_γ1.5 2) E2 γ_{2144}**280.2** 2 (I_γ100 5) (E1)
2463.8 4, 6⁻ γ_{2180}**284.0** 2 (I_γ27 5) M1(+E2): δ<1 γ_{2166}**298.1** 2 (I_γ30 3) E2(+M1): δ>1.5 γ_{1910}**553.2** 3 (I_γ67 17) M1 γ_{1813}**650.3** 3 (I_γ100 22) M1+E2: δ=1.0 5 γ_{1799}**664.2** 7 (I_γ17 5)
2475.8 5, (12⁺), 8.1 5 ns, g=0.24 4 γ_{2424}**52.0** 4 (I_γ100) E2
2562.0 4, (10⁻) γ_{2144}**418.5** 3 (I_γ28 6) γ_{2138}**423.8** 2 (I_γ100 6)
2688.1 4, (11⁻) γ_{2144}**544.6** 2 (I_γ100)
2888.8 5, (14⁺) γ_{2476}**412.9** 2 (I_γ100)
3173.2 5, (12⁻) γ_{2688}**485.0** 4 (I_γ30 3) γ_{2562}**611.2** 4 (I_γ100 6)
3394.2 5, (13⁻) γ_{2688}**706.2** 2 (I_γ100)
3531.8 5, (16⁺) γ_{2889}**643.0** 2 (I_γ100)
3747.9 5, (14⁻) γ_{3394}**353.6** 4 (I_γ2.6 13) γ_{3173}**574.7** 2 (I_γ100 9)
3820.1 6, (15⁻) γ_{2889}**931.4** 4 (I_γ100)
3879.4 5, (15⁻) γ_{3394}**485.2** 4 (I_γ100)
3984.2 5, (16⁻), <0.50 ns γ_{3748}**236.3** 4 (I_γ100)
E **4004.6** 8(?), (14,15) γ_{2889}**1116.0** 4(?) (I_γ100)
4015.3 5, (14⁺) γ_{3748}**267.3** 4 (I_γ100 50) γ_{3394}**621.3** 4 γ_{2889}**1126.5** 4 (I_γ67 34)
4114.9 5, (17⁻) γ_{3984}**130.8** 4 γ_{3879}**235.5** 4 (I_γ<540) γ_{3532}**583.1** 4 (I_γ100 20)
4275.4 6, (18⁺) γ_{3532}**743.6** 2 (I_γ100)
4290.1 6, (18⁻) γ_{3984}**305.9** 2 (I_γ100)
4317.8 6, (16⁺) γ_{4015}**302.5** 4 γ_{3984}**333.6** 4(?) (I_γ100)
4491.4 7, (17⁻) γ_{3820}**671.3** 4 (I_γ100)
4498.1 6, (19⁻) γ_{4290}**208.0** 4 (I_γ100 20) γ_{4115}**383.2** 4 (I_γ<320)
E **4521.1** 6, (16,17) γ_{4005}**516.2** 4(?) γ_{3820}**701.0** 4 (I_γ40 15) γ_{3532}**989.2** 4 (I_γ100 40)
4797.7 6, (18⁺) γ_{4318}**480.0** 4 (I_γ100) γ_{4290}**507.5** 4
4896.9 7, (20⁻) γ_{4290}**606.8** 4 (I_γ100)
4985.8 6, (20⁺) γ_{4275}**710.4** 2 (I_γ100)
E **5103.5** 7, (18,19) γ_{4521}**582.4** 4 (I_γ12 3) γ_{4491}**612.1** 4 (I_γ100 6) γ_{4275}**828.3** 2(?) (I_γ1.8 9)
5163.9 7, (21⁻) γ_{4498}**665.8** 3 (I_γ100)
5266.1 7, (20⁺) γ_{4275}**990.7** 4 (I_γ100)
5522.9 7, (20⁺) γ_{4798}**725.2** 4 (I_γ100)
5578.6 7, (22⁺) γ_{4986}**592.8** 3 (I_γ100)
E **5610.2** 7, (20,21) γ_{5104}**506.7** 3 (I_γ100) γ_{4986}**624.4** 4(?)
5700.5 8, (22⁻) γ_{4897}**803.6** 3 (I_γ100)
6049.7 8, (23⁻) γ_{5164}**885.8** 4 (I_γ100)
E **6120.5** 9, (22,23) γ_{5610}**510.3** 4 γ_{5579}**541.6** 4(?) (I_γ100)
6256.8 8 γ_{5579}**678.2** 4 (I_γ100)
6349.5 8(?), (22⁺) γ_{5523}**826.6** 4 (I_γ100)
6411.2 7, (24⁺) γ_{5579}**832.6** 3 (I_γ100)
6645.7 9, (24⁻) γ_{5701}**945.2** 4 (I_γ100)
6676.5 10(?), (22⁺) γ_{5523}**1152.0** 4(?) (I_γ100)
E **6815.5** 9, (24,25) γ_{6121}**695.0** 3 (I_γ100)
6834.5 9, (24⁺) γ_{6677}**158.0** 4 (I_γ57 29) γ_{6121}**713.9** 4 (I_γ100 40)
6941.4 9, (25⁻) γ_{6050}**891.7** 4 (I_γ100)
6989.6 8, (26⁺) γ_{6835}**155.1** 4 (I_γ71 30) γ_{6411}**578.4** 4 (I_γ100 41)
7304.3 9, (28⁺) γ_{6990}**314.7** 4 (I_γ100)
7767.9 10(?), (27⁻) γ_{6941}**826.6** 4(?) (I_γ100)
7784.6 10, (30⁺) γ_{7304}**480.3** 4 (I_γ100)
A **x**, J=(10)
A **254.5+x**, J+2 γ_x**254.5** 1 (I_γ0.56 3) $I^{(1)}$=90.4, $I^{(2)}$=95.9, ħω=0.138
A **550.7+x**, J+4 γ_{255+x}**296.2** 1 (I_γ1.04 5) $I^{(1)}$=91.2, $I^{(2)}$=97.1, ħω=0.158
A **888.1+x**, J+6 γ_{551+x}**337.4** 1 (I_γ1.00 4) $I^{(1)}$=91.9, $I^{(2)}$=99.0, ħω=0.179
A **1265.9+x**, J+8 γ_{888+x}**377.8** 1 (I_γ1.04 4) $I^{(1)}$=92.6, $I^{(2)}$=102.0, ħω=0.199
A **1682.9+x**, J+10 γ_{1266+x}**417.0** 1 (I_γ1.00 5) $I^{(1)}$=93.5, $I^{(2)}$=105.5, ħω=0.218
A **2137.8+x**, J+12, 0.27 6 ps γ_{1683+x}**454.9** 1 (I_γ1.09 5) $I^{(1)}$=94.5, $I^{(2)}$=107.8, ħω=0.237
A **2629.8+x**, J+14, 0.166 22 ps γ_{2138+x}**492.0** 1 (I_γ1.00 5) $I^{(1)}$=95.5, $I^{(2)}$=110.5, ħω=0.255
A **3158.0+x**, J+16, 0.120 25 ps γ_{2630+x}**528.2** 1 (I_γ1.01 5) $I^{(1)}$=96.6, $I^{(2)}$=114.3, ħω=0.273
A **3721.2+x**, J+18, 0.114 39 ps γ_{3158+x}**563.2** 1 (I_γ0.97 4) $I^{(1)}$=97.7, $I^{(2)}$=118.0, ħω=0.290
A **4318.3+x**, J+20, 0.078 17 ps γ_{3721+x}**597.1** 1 (I_γ0.84 4) $I^{(1)}$=98.8, $I^{(2)}$=122.0, ħω=0.307
A **4948.2+x**, J+22, 0.060 21 ps γ_{4318+x}**629.9** 1 (I_γ0.85 5) $I^{(1)}$=100.0, $I^{(2)}$=124.6, ħω=0.323
A **5610.2+x**, J+24, 0.042 13 ps γ_{4948+x}**662.0** 5 (I_γ0.76 4) $I^{(1)}$=101.2, $I^{(2)}$=126.2, ħω=0.339
A **6303.9+x**, J+26, 0.026 11 ps γ_{5610+x}**693.7** 5 (I_γ0.65 4) $I^{(1)}$=102.3, $I^{(2)}$=131.6, ħω=0.354
A **7028.0+x**, J+28 γ_{6304+x}**724.1** 5 (I_γ0.51 3) $I^{(1)}$=103.6, $I^{(2)}$=132.0, ħω=0.370
A **7782.4+x**, J+30 γ_{7028+x}**754.4** 5 (I_γ0.38 3) $I^{(1)}$=104.7, $I^{(2)}$=137.0, ħω=0.385
A **8566.0+x**, J+32 γ_{7782+x}**783.6** 5 (I_γ0.41 3) $I^{(1)}$=105.9, $I^{(2)}$=134.2, ħω=0.399
A **9379.4+x**, J+34 γ_{8566+x}**813.4** 5 (I_γ0.34 3) $I^{(1)}$=107.0, $I^{(2)}$=134.7, ħω=0.414
A **10222.5+x**, J+36 γ_{9379+x}**843.1** 5 (I_γ0.15 5) $I^{(1)}$=107.9
B **y**, J=(11)
B **262.3+y**, J+2 γ_y**262.3** 1 (I_γ1.00 14) $I^{(1)}$=95.3, $I^{(2)}$=99.5, ħω=0.141
B **564.8+y**, J+4 γ_{262+y}**302.5** 1 (I_γ1.00 16) $I^{(1)}$=95.9, $I^{(2)}$=99.3, ħω=0.161
B **907.8+y**, J+6 γ_{565+y}**342.8** 1 (I_γ1.07 16) $I^{(1)}$=96.3, $I^{(2)}$=101.8, ħω=0.181
B **1289.7+y**, J+8 γ_{908+y}**382.1** 1 (I_γ1.05 37) $I^{(1)}$=96.8, $I^{(2)}$=104.4, ħω=0.201
B **1710.1+y**, J+10 γ_{1290+y}**420.4** 1 (I_γ1.11 16) $I^{(1)}$=97.5, $I^{(2)}$=105.5, ħω=0.220
B **2168.4+y**, J+12 γ_{1710+y}**458.3** 1 (I_γ0.87 16) $I^{(1)}$=98.2, $I^{(2)}$=110.2, ħω=0.238
B **2663.0+y**, J+14 γ_{2168+y}**494.6** 5 (I_γ1.02 12) $I^{(1)}$=99.1, $I^{(2)}$=108.1, ħω=0.257
B **3194.6+y**, J+16 γ_{2663+y}**531.9** 5 (I_γ0.93 14) $I^{(1)}$=99.7, $I^{(2)}$=114.9, ħω=0.275
B **3761.0+y**, J+18 γ_{3195+y}**566.4** 5 (I_γ1.16 14) $I^{(1)}$=100.6, $I^{(2)}$=115.9, ħω=0.292
B **4361.9+y**, J+20 γ_{3761+y}**600.9** 5 (I_γ0.81 10) $I^{(1)}$=101.5, $I^{(2)}$=117.0, ħω=0.309
B **4997.0+y**, J+22 γ_{4362+y}**635.1** 5 (I_γ0.93 23) $I^{(1)}$=102.3, $I^{(2)}$=121.6, ħω=0.326
B **5665.0+y**, J+24 γ_{4997+y}**668.0** 5 (I_γ0.77 16) $I^{(1)}$=103.3, $I^{(2)}$=123.5, ħω=0.342
B **6365.4+y**, J+26 γ_{5665+y}**700.4** 5 (I_γ0.66 16) $I^{(1)}$=104.2, $I^{(2)}$=125.8, ħω=0.358
B **7097.6+y**, J+28 γ_{6365+y}**732.2** 5 (I_γ0.50 13) $I^{(1)}$=105.2, $I^{(2)}$=131.1, ħω=0.374
B **7860.3+y**, J+30 γ_{7098+y}**762.7** 5 $I^{(1)}$=106.2, $I^{(2)}$=132.0, ħω=0.389
B **8653.3+y** (?), J+32 γ_{7860+y}**793** 1 (?) $I^{(1)}$=107.2
C **z**, J=(8)
C **201.3+z**, J+2 γ_z**201.3** 1 (I_γ0.49 4) $I^{(1)}$=94.4, $I^{(2)}$=96.6, ħω=0.111
C **444.0+z**, J+4 γ_{201+z}**242.7** 1 (I_γ1.01 5) $I^{(1)}$=94.8, $I^{(2)}$=98.5, ħω=0.131
C **727.3+z**, J+6 γ_{444+z}**283.3** 1 (I_γ1.11 10) $I^{(1)}$=95.3, $I^{(2)}$=98.8, ħω=0.152
C **1051.1+z**, J+8 γ_{727+z}**323.8** 1 (I_γ1.25 10) $I^{(1)}$=95.7, $I^{(2)}$=100.3, ħω=0.172
C **1414.8+z**, J+10 γ_{1051+z}**363.7** 1 (I_γ1.08 14) $I^{(1)}$=96.2, $I^{(2)}$=104.2, ħω=0.191
C **1816.9+z**, J+12 γ_{1415+z}**402.1** 1 (I_γ1.10 17) $I^{(1)}$=97.0, $I^{(2)}$=103.6, ħω=0.211
C **2257.6+z**, J+14, 0.27 9 ps γ_{1817+z}**440.7** 1 (I_γ0.97 10) $I^{(1)}$=97.6, $I^{(2)}$=108.1, ħω=0.230
C **2735.3+z**, J+16, 0.20 5 ps γ_{2258+z}**477.7** 1 (I_γ0.96 14) $I^{(1)}$=98.4, $I^{(2)}$=109.3, ħω=0.248
C **3249.6+z**, J+18, 0.13 5 ps γ_{2735+z}**514.3** 1 (I_γ1.02 13) $I^{(1)}$=99.2, $I^{(2)}$=111.1, ħω=0.266
C **3799.9+z**, J+20, 0.100 33 ps γ_{3250+z}**550.3** 1 (I_γ0.98 11) $I^{(1)}$=99.9, $I^{(2)}$=114.6, ħω=0.284

C **4385.1+z**, J+22, 0.089 *19* ps γ_{3800+z}*585.2 1* ($\dagger_\gamma$0.96 *14*) $I^{(1)}$=*100.8*, $I^{(2)}$=*117.3*, *ħω=0.301*

C **5004.4+z**, J+24, 0.065 *28* ps γ_{4385+z}*619.3 5* ($\dagger_\gamma$0.82 *14*) $I^{(1)}$=*101.7*, $I^{(2)}$=*121.6*, *ħω=0.318*

C **5656.6+z**, J+26 γ_{5004+z}*652.2 5* ($\dagger_\gamma$0.74 *23*) $I^{(1)}$=*102.7*, $I^{(2)}$=*123.8*, *ħω=0.334*

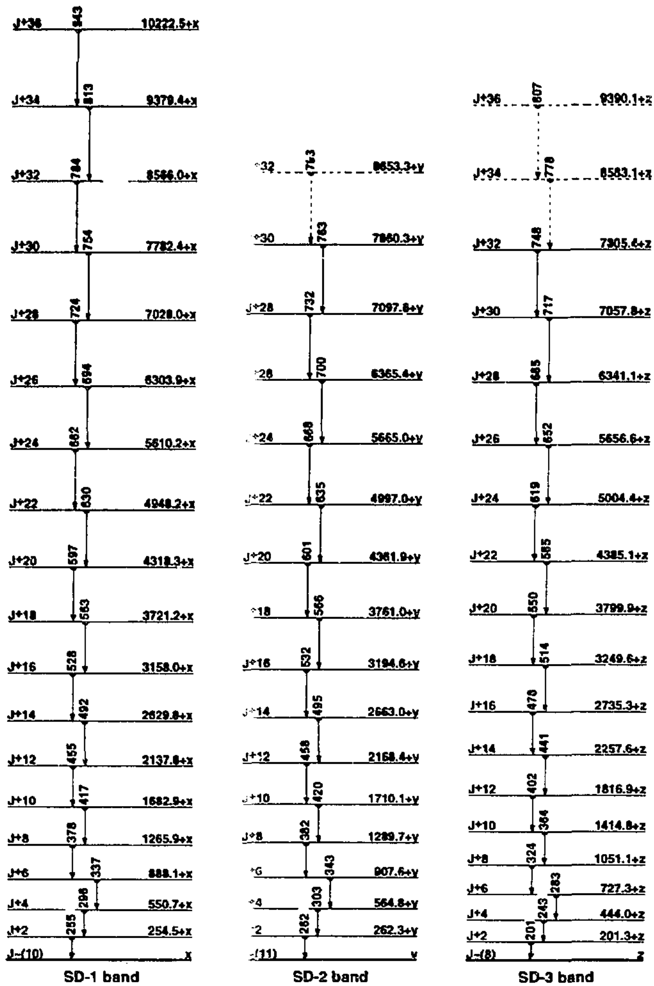
C **6341.1+z**, J+28 γ_{5657+z}*684.5 5* ($\dagger_\gamma$0.65 *7*) $I^{(1)}$=*103.7*, $I^{(2)}$=*124.2*, *ħω=0.350*

C **7057.8+z**, J+30 γ_{6341+z}*716.7 5* ($\dagger_\gamma$0.46 *10*) $I^{(1)}$=*104.6*, $I^{(2)}$=*129.4*, *ħω=0.366*

C **7805.4+z**, J+32 γ_{7058+z}*747.6 5* ($\dagger_\gamma$0.63 *12*) $I^{(1)}$=*105.7*, $I^{(2)}$=*132.9*, *ħω=0.381*

C **8583.1+z (?)**, J+34 γ_{7806+z}*777.7 5*(?) ($\dagger_\gamma$=0.20) $I^{(1)}$=*105.7*, $I^{(2)}$=*136.5*, *ħω=0.396*

C **9390.1+z (?)**, J+36 γ_{8583+z}*807 1* (?) ($\dagger_\gamma$0.35 *12*) $I^{(1)}$=*107.8*



$^{194}_{80}Hg$

$^{191}_{81}$Tl

Δ: (−26190) S_n: (9900) S_p: (2100) Q_{EC}: (4490) Q_{α}: (4400)

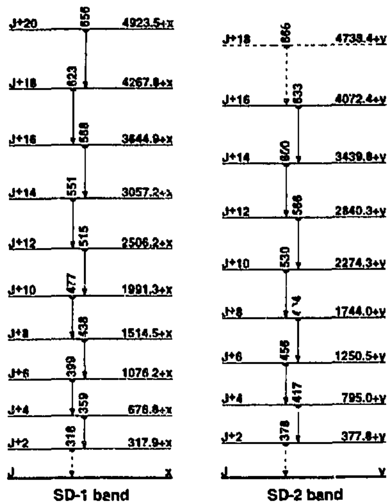
Nuclear Bands

- *A* Band Structure
- *B* 9/2[505]
- *C* Band Structure
- *D* 13/2[606]
- *E* SD-1 band
- *F* SD-2 band

Levels and γ-ray branchings:

0, (1/2$^+$)
B **299** *7*, 9/2(−), 5.22 *16* m, %EC+%β^+=100
A **341.2** *2*, (3/2$^+$) γ_0 ***341.2*** *2* ($\dagger_\gamma$100)
B **686.1** *2*, (11/2$^-$) γ_{299} ***387.1*** *2* ($\dagger_\gamma$100)
A **745.3** *7*(?), (5/2$^+$) γ_{341} ***404.0***(?) ($\dagger_\gamma$100)
C **859.6** *2*, (7/2$^-$) γ_{299} ***560.6*** *2* ($\dagger_\gamma$100)
B **1011.2** *2*, (13/2$^-$) γ_{686} ***325.0*** *2* ($\dagger_\gamma$59 *2*) γ_{299} ***712.2*** *2* ($\dagger_\gamma$100 *7*)
C **1172.8** *2*, (9/2$^-$) γ_{860} ***313.0*** *2* ($\dagger_\gamma$35 *4*) γ_{299} ***873.9*** *2* ($\dagger_\gamma$100 *4*)
A **1216.6** *7*(?), (7/2$^+$) γ_{745} ***471.3*** *2* ($\dagger_\gamma$67 *34*) γ_{341} ***875.5*** ($\dagger_\gamma$100 *7*)
D **1299.8** *2*, (13/2$^+$) γ_{686} ***613.5*** *2* ($\dagger_\gamma$100)
1392.1 *2*, (13/2$^-$) γ_{686} ***705.7*** *2* ($\dagger_\gamma$100 *13*) γ_{299} ***1093.3*** *2* ($\dagger_\gamma$94 *13*)
B **1440** (?), (15/2$^-$) γ_{1011} ***428***(?) γ_{686} ***753***(?)
D **1706** (?), (15/2$^+$) γ_{1300} ***405***(?) ($\dagger_\gamma$100)
B **1761** (?), (17/2$^-$) γ_{1440} ***321***(?) γ_{1011} ***749***(?)
B **2232** (?), (19/2$^-$) γ_{1761} ***471***(?) γ_{1440} ***792***(?)
B **2600** (?), (21/2$^-$) γ_{2232} ***368***(?) γ_{1761} ***839***(?)
B **3018** (?), (23/2$^-$) γ_{2600} ***418***(?) γ_{2232} ***786***(?)
E **x**, J
E **317.9+x**, J+2 γ_x ***317.9*** *3*(?) $I^{(2)}$=97.6, ℏω=0.169
E **676.8+x**, J+4 γ_{318+x} ***358.9*** *3* ($\dagger_\gamma$0.71 *25*) $I^{(2)}$=98.8, ℏω=0.190
E **1076.2+x**, J+6 γ_{677+x} ***399.4*** *3* ($\dagger_\gamma$0.79 *25*) (E2) $I^{(2)}$=102.8, ℏω=0.209
E **1514.5+x**, J+8 γ_{1076+x} ***438.3*** *3* ($\dagger_\gamma$0.64 *17*) (E2) $I^{(2)}$=103.9, ℏω=0.229
E **1991.3+x**, J+10 γ_{1515+x} ***476.8*** *3* ($\dagger_\gamma$0.57 *20*) (E2) $I^{(2)}$=105.0, ℏω=0.248
E **2506.2+x**, J+12 γ_{1991+x} ***514.9*** *3* ($\dagger_\gamma$0.50 *17*) $I^{(2)}$=110.8, ℏω=0.266
E **3057.2+x**, J+14 γ_{2506+x} ***551.0*** *3* ($\dagger_\gamma$0.39 *10*) (E2) $I^{(2)}$=109.0, ℏω=0.285
E **3644.9+x**, J+16 γ_{3057+x} ***587.7*** *3* ($\dagger_\gamma$0.25 *10*) (E2) $I^{(2)}$=113.6, ℏω=0.303
E **4267.8+x**, J+18 γ_{3645+x} ***622.9*** *6* ($\dagger_\gamma$0.18 *10*) $I^{(2)}$=122.0, ℏω=0.320
E **4923.5+x**, J+20 γ_{4268+x} ***655.7*** *6* ($\dagger_\gamma$0.13 *5*)

F **y**, J
F **377.8+y**, J+2 γ_y ***377.8*** *6*(?) ($\dagger_\gamma$0.40 *12*) $I^{(2)}$=101.5, ℏω=0.199
F **795.0+y**, J+4 γ_{378+y} ***417.2*** *3* ($\dagger_\gamma$0.86 *25*) (E2) $I^{(2)}$=104.4, ℏω=0.218
F **1250.5+y**, J+6 γ_{795+y} ***455.5*** *3* ($\dagger_\gamma$0.80 *23*) (E2) $I^{(2)}$=105.3, ℏω=0.237
F **1744.0+y**, J+8 γ_{1251+y} ***493.5*** *3* ($\dagger_\gamma$0.71 *20*) (E2) $I^{(2)}$=108.7, ℏω=0.256
F **2274.3+y**, J+10 γ_{1744+y} ***530.3*** *3* ($\dagger_\gamma$0.67 *18*) (E2) $I^{(2)}$=112.0, ℏω=0.274
F **2840.3+y**, J+12 γ_{2274+y} ***566.0*** *3* ($\dagger_\gamma$0.54 *15*) (E2) $I^{(2)}$=119.4, ℏω=0.291
F **3439.8+y**, J+14 γ_{2840+y} ***599.5*** *3* ($\dagger_\gamma$0.54 *15*) $I^{(2)}$=120.8, ℏω=0.308
F **4072.4+y**, J+16 γ_{3440+y} ***632.6*** *6* ($\dagger_\gamma$0.27 *10*) $I^{(2)}$=119.8, ℏω=0.325
F **4738.4+y** (?), J+18 γ_{4072+y} ***666***(?) ($\dagger_\gamma$0.17 *8*)



$^{191}_{81}$Tl

$^{192}_{81}$Tl

Δ:(-25900) S_n:(7800) S_p:(2600) Q_{EC}:(6120) Q_α:(4200)

Nuclear Bands

- *A* SD-1 band
- *B* SD-2 band
- *C* SD-3 band
- *D* SD-4 band
- *E* SD-5 band
- *F* SD-6 band

Levels and γ-ray branchings:

0+x, (2⁻), 9.6 *4* m, %EC+%β⁺=100, μ=+0.200 *3*, Q=−0.337 *11*
0+y, (7⁺), 10.8 *2* m, %EC+%β⁺=100, μ=+0.5180 *36*, Q=+0.477 *20*
167.5+x *1*, (1⁻) γ_{0+x}**167.5** *1* (†$_\gamma$100) M1(+E2): δ=0.7 $^{+3}_{-7}$
250.6+y *2*, (8⁻), 236 *5* ns, μ=+1.656 *40*, Q=0.44 *7* γ_{0+y}**250.62** (†$_\gamma$100) E1
250.6+z *2* (?)
333.6+z *3* γ_{251+z}**83** *1* (†$_\gamma$100) (M1+E2)
371.0+x *2*, (1⁻) γ_{0+x}**371.02** (†$_\gamma$100) M1(+E2): δ=0.6 $^{+5}_{-6}$
414.0+x *3*, (1⁻,2⁻) γ_{0+x}**414.13** (†$_\gamma$100) M1
609.6+z *3* γ_{334+z}**275.82** (†$_\gamma$100 *15*) (M1+E2) γ_{251+z}**359.02**(?) (†$_\gamma$20 *3*)
775.7+x *2*, (0⁻,1⁻) γ_{371+x}**404.53** (†$_\gamma$17.1 *24*) γ_{168+x}**608.21** (†$_\gamma$100 *8*)
M1+E2: δ=1.6 $^{+8}_{-4}$
871.9+z *3* γ_{610+z}**261.82** (†$_\gamma$100 *15*) (M1+E2) γ_{334+z}**538.22** (†$_\gamma$46 *7*) (E2)
1195.5+x *2*, (1⁺) γ_{414+x}**781.63** (†$_\gamma$18 *2*) γ_{0+x}**1195.42** (†$_\gamma$100 *6*) E1
1267.9+z *3* γ_{872+z}**396.42** (†$_\gamma$100 *15*) (M1+E2) γ_{610+z}**658.32** (†$_\gamma$71 *11*) (E2)
1576.6+z *3* γ_{1268+z}**308.72** (†$_\gamma$37 *6*) (M1+E2) γ_{872+z}**705.02** (†$_\gamma$100 *15*) (E2)
2034.8+z *4* γ_{1577+z}**458.22** (M1+E2) γ_{1268+z}**767.6**(?)
2255.7+z *4*(?) γ_{2035+z}**220.92**(?) (†$_\gamma$100) (M1+E2)

A r, J
A 357.8+r, J+2 γ_0**357.8** *10* $I^{(2)}$=99.5, ħω=0.189
A 755.8+r, J+4 γ_{358+r}**398.0** *10* $I^{(2)}$=101.0, ħω=0.209
A 1193.4+r, J+6 γ_{756+r}**437.6** *5* $I^{(2)}$=103.4, ħω=0.228
A 1669.7+r, J+8 γ_{1193+r}**476.3** *5* $I^{(2)}$=101.8, ħω=0.248
A 2185.3+r, J+10 γ_{1670+r}**515.6** *5* $I^{(2)}$=103.1, ħω=0.268
A 2739.7+r, J+12 γ_{2185+r}**554.4** *5* $I^{(2)}$=101.8, ħω=0.287
A 3333.4+r, J+14 γ_{2740+r}**593.7** *10* $I^{(2)}$=112.7, ħω=0.306
A 3962.6+r, J+16 γ_{3333+r}**629.2** *10*

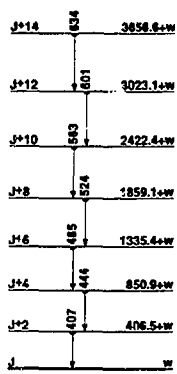
B s, J
B 378+s, J+2 γ_0**378** *1* (?) $I^{(2)}$=103.9, ħω=0.199
B 794.5+s, J+4 γ_{378+s}**416.5** *10* $I^{(2)}$=102.3, ħω=0.218
B 1250.1+s, J+6 γ_{795+s}**455.6** *10* $I^{(2)}$=103.1, ħω=0.237
B 1744.5+s, J+8 γ_{1250+s}**494.4** *10* $I^{(2)}$=113.0, ħω=0.256
B 2274.3+s, J+10 γ_{1745+s}**529.8** *10* $I^{(2)}$=110.5, ħω=0.274
B 2840.3+s, J+12 γ_{2274+s}**566.0** *10* $I^{(2)}$=114.3, ħω=0.292
B 3441.3+s, J+14 γ_{2840+s}**601.0** *10* $I^{(2)}$=112.0, ħω=0.309
B 4078.0+s, J+16 γ_{3441+s}**636.7** *10*

C t, J
C 375.7+t, J+2 γ_0**375.7** *10* $I^{(2)}$=106.1, ħω=0.197
C 789.1+t, J+4 γ_{376+t}**413.4** *5* $I^{(2)}$=106.1, ħω=0.216
C 1240.2+t, J+6 γ_{789+t}**451.1** *5* $I^{(2)}$=107.2, ħω=0.235
C 1728.6+t, J+8 γ_{1240+t}**488.4** *5* $I^{(2)}$=105.8, ħω=0.254
C 2254.8+t, J+10 γ_{1729+t}**526.2** *5* $I^{(2)}$=101.5, ħω=0.273
C 2820.4+t, J+12 γ_{2255+t}**565.6** *5* $I^{(2)}$=107.5, ħω=0.292
C 3423.2+t, J+14 γ_{2820+t}**602.3** *5* $I^{(2)}$=105.8, ħω=0.311
C 4063.8+t, J+16 γ_{3423+t}**640.6** *10*

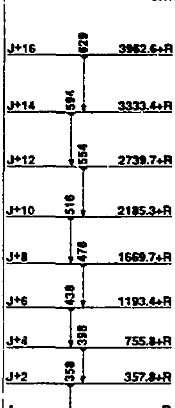
D u, J
D 357+u, J+2 γ_0**357** *1* (?) $I^{(2)}$=103.4, ħω=0.188
D 752.7+u, J+4 γ_{357+u}**395.7** *10* $I^{(2)}$=105.5, ħω=0.207
D 1186.3+u, J+6 γ_{753+u}**433.6** *10* $I^{(2)}$=105.8, ħω=0.226
D 1657.7+u, J+8 γ_{1186+u}**471.4** *10* $I^{(2)}$=107.2, ħω=0.245
D 2166.4+u, J+10 γ_{1658+u}**508.7** *10* $I^{(2)}$=104.2, ħω=0.264
D 2713.5+u, J+12 γ_{2166+u}**547.1** *10* $I^{(2)}$=115.6, ħω=0.282
D 3295.2+u, J+14 γ_{2714+u}**581.7** *10* $I^{(2)}$=107.2, ħω=0.300
D 3914.2+u, J+16 γ_{3295+u}**619** *1* (?)

E v, J
E 381.2+v, J+2 γ_0**381.2** *10* $I^{(2)}$=97.8, ħω=0.201
E 803.3+v, J+4 γ_{381+v}**422.1** *10* $I^{(2)}$=101.6, ħω=0.221
E 1264.7+v, J+6 γ_{803+v}**461.4** *5* $I^{(2)}$=100.3, ħω=0.241
E 1766.0+v, J+8 γ_{1265+v}**501.3** *5* $I^{(2)}$=112.0, ħω=0.260
E 2303.0+v, J+10 γ_{1766+v}**537.0** *5* $I^{(2)}$=110.5, ħω=0.278
E 2876.2+v, J+12 γ_{2303+v}**573.2** *5* $I^{(2)}$=112.7, ħω=0.295
E 3484.9+v, J+14 γ_{2876+v}**608.7** *10* $I^{(2)}$=120.5, ħω=0.313
E 4126.8+v, J+16 γ_{3485+v}**641.9** *10*

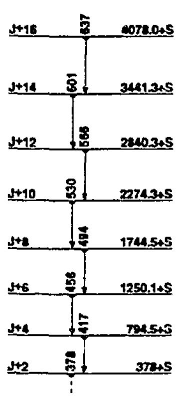
F w, J
F 406.5+w, J+2 γ_0**406.5** *10* $I^{(2)}$=105.5, ħω=0.213
F 850.9+w, J+4 γ_{407+w}**444.4** *10* $I^{(2)}$=99.8, ħω=0.232
F 1335.4+w, J+6 γ_{851+w}**484.5** *10* $I^{(2)}$=102.0, ħω=0.252
F 1859.1+w, J+8 γ_{1335+w}**523.7** *10* $I^{(2)}$=101.0, ħω=0.272
F 2422.4+w, J+10 γ_{1859+w}**563.3** *10* $I^{(2)}$=107.0, ħω=0.291
F 3023.1+w, J+12 γ_{2422+w}**600.7** *10* $I^{(2)}$=122.0, ħω=0.309
F 3656.6+w, J+14 γ_{3023+w}**633.5** *10*



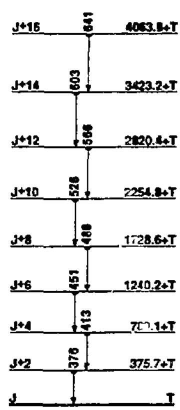
SD-6 band



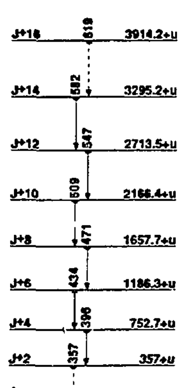
SD-1 band



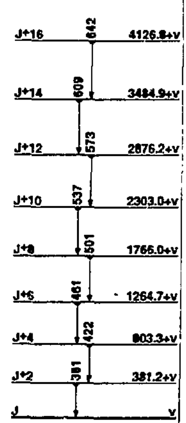
SD-2 band



SD-3 band



SD-4 band



SD-5 band

$^{193}_{81}$Tl

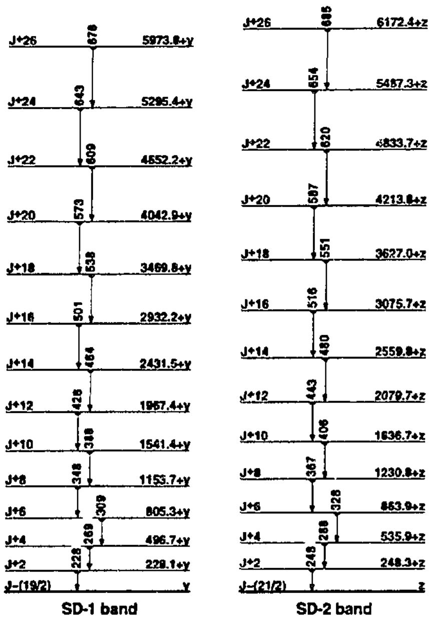
Δ: (−27430) S_n: (9600) S_p: (2700) Q_{EC}: (3640) Q_α: (3800)

Nuclear Bands

- *A* 9/2[505]
- *B* 13/2[606]?
- *C* SD-1 band
- *D* SD-2 band

Levels and γ-ray branchings:

0, 1/2(+), 21.6 *8* m, %EC+%β+=100, μ=+1.5912 *22*
365.2, 3/2(+) γ_0 *365.2* ($\dagger_\gamma$100) M1+E2: δ=1.6$^{+5}_{-3}$
A 365.2+x, (9/2−), 2.11 *15* m, %IT=75, %EC+%β+=25, μ=+3.9482 *39*, Q=−2.20 *2* *γ<13*
A 757.4+x, (11/2−) γ_{365+x} *392.2* ($\dagger_\gamma$100) (M1+E2): δ=0.8$^{+4}_{-3}$
1037.7+x γ_{365+x} *672.5* ($\dagger_\gamma$100)
A 1081.5+x, (13/2−) γ_{757+x} *324.0* ($\dagger_\gamma$63 *6*) γ_{365+x} *716.4* ($\dagger_\gamma$100 *7*) (E2)
1163.9+x γ_{757+x} *406.4* ($\dagger_\gamma$100)
1350.4+x γ_{1082+x} *268.9* ($\dagger_\gamma$100)
1423.6+x γ_{757+x} *666.2* ($\dagger_\gamma$100)
B 1493.3+x, (13/2+) γ_{757+x} *735.8* ($\dagger_\gamma$100) E1+M2: δ=0.18 *7*
A 1512.6+x, (15/2−) γ_{1082+x} *431.3* ($\dagger_\gamma$53 *4*) (M1+E2): δ=0.3 *3* γ_{757+x} *755.1* ($\dagger_\gamma$100 *11*) (E2)
1552.7+x (?) γ_{1350+x} *202.3 3* (?) ($\dagger_\gamma$100)
1558.3+x γ_{1350+x} *207.9* ($\dagger_\gamma$100)
A 1833.4+x, (17/2−) γ_{1513+x} *320.9 3* ($\dagger_\gamma$39 *5*) (M1) γ_{1082+x} *751.7* ($\dagger_\gamma$100 *13*) (E2)
1870.9+x γ_{757+x} *1113.5* ($\dagger_\gamma$100)
B 1899.6+x (?), (15/2+) γ_{1493+x} *406.4* (?) ($\dagger_\gamma$100)
1960.0+x γ_{1493+x} *466.8* ($\dagger_\gamma$100)
B 2025.5+x (?), (17/2+) γ_{1900+x} *125.9* (?) ($\dagger_\gamma$100)
B 2492.3+x (?), (19/2+) γ_{2026+x} *466.8* (?) ($\dagger_\gamma$100)
B 2653.9+x (?), (21/2+) γ_{2492+x} *161.6* (?) ($\dagger_\gamma$100)
C y, J=(19/2)
C 228.1+y, J+2 γ_y *228.1 3* ($\dagger_\gamma$1.00 *10*) *I(1)=96.4, I(2)=98.8, ħω=0.124*
C 496.7+y, J+4 γ_{228+y} *268.6 4* ($\dagger_\gamma$1.13 *23*) *I(1)=96.8, I(2)=100.0, ħω=0.144*
C 805.3+y, J+6 γ_{497+y} *308.6 3* ($\dagger_\gamma$0.86 *9*) *I(1)=97.2, I(2)=100.5, ħω=0.164*
C 1153.7+y, J+8 γ_{805+y} *348.4 3* ($\dagger_\gamma$1.01 *11*) *I(1)=97.6, I(2)=101.8, ħω=0.184*
C 1541.4+y, J+10 γ_{1154+y} *387.7 3* ($\dagger_\gamma$1.4 *4*) *I(1)=98.0, I(2)=104.4, ħω=0.203*
C 1967.4+y, J+12 γ_{1541+y} *426.0 3* ($\dagger_\gamma$1.22 *12*) *I(1)=98.6, I(2)=105.0, ħω=0.223*
C 2431.5+y, J+14 γ_{1967+y} *464.1 4* ($\dagger_\gamma$1.60 *16*) *I(1)=99.1, I(2)=109.3, ħω=0.241*
C 2932.2+y, J+16 γ_{2432+y} *500.7 4* *I(1)=99.9, I(2)=108.4, ħω=0.260*
C 3469.8+y, J+18 γ_{2932+y} *537.6 6* ($\dagger_\gamma$1.30 *14*) *I(1)=100.4, I(2)=112.7, ħω=0.278*
C 4042.9+y, J+20 γ_{3470+y} *573.1 7* ($\dagger_\gamma$1.00 *10*) *I(1)=101.2, I(2)=110.5, ħω=0.296*
C 4652.2+y, J+22 γ_{4043+y} *609.3 3* ($\dagger_\gamma$0.96 *10*) *I(1)=101.8, I(2)=118.0, ħω=0.313*
C 5295.4+y, J+24 γ_{4652+y} *643.2 6* ($\dagger_\gamma$1.09 *22*) *I(1)=102.6, I(2)=113.6, ħω=0.330*
C 5973.8+y, J+26 γ_{5295+y} *678.4 5* ($\dagger_\gamma$0.75 *14*) *I(1)=103.2*
D z, J=(21/2)
D 248.3+z, J+2 γ_z *248.3 3* ($\dagger_\gamma$0.39 *6*) *I(1)=96.7, I(2)=101.8, ħω=0.134*
D 535.9+z, J+4 γ_{248+z} *287.6 4* ($\dagger_\gamma$0.45 *5*) *I(1)=97.4, I(2)=99.0, ħω=0.154*
D 863.9+z, J+6 γ_{536+z} *328.0 3* ($\dagger_\gamma$0.53 *5*) *I(1)=97.6, I(2)=102.8, ħω=0.174*
D 1230.8+z, J+8 γ_{864+z} *366.9 4* ($\dagger_\gamma$1.15 *23*) *I(1)=98.1, I(2)=102.6, ħω=0.193*
D 1636.7+z, J+10 γ_{1231+z} *405.9 5* ($\dagger_\gamma$0.93 *19*) *I(1)=98.5, I(2)=107.8, ħω=0.212*
D 2079.7+z, J+12 γ_{1637+z} *443.0 5* *I(1)=99.3, I(2)=107.8, ħω=0.231*
D 2559.8+z, J+14 γ_{2080+z} *480.1 3* ($\dagger_\gamma$0.72 *7*) *I(1)=100.0, I(2)=111.7, ħω=0.249*
D 3075.7+z, J+16 γ_{2560+z} *515.9 3* ($\dagger_\gamma$1.11 *17*) *I(1)=100.8, I(2)=113.0, ħω=0.267*
D 3627.0+z, J+18 γ_{3076+z} *551.3 3* ($\dagger_\gamma$1.00 *14*) *I(1)=101.6, I(2)=112.7, ħω=0.285*
D 4213.8+z, J+20 γ_{3627+z} *586.8 3* ($\dagger_\gamma$0.84 *17*) *I(1)=102.2, I(2)=120.8, ħω=0.302*
D 4833.7+z, J+22 γ_{4214+z} *619.9 3* ($\dagger_\gamma$0.81 *13*) *I(1)=103.2, I(2)=118.7, ħω=0.318*
D 5487.3+z, J+24 γ_{4834+z} *653.6 6* ($\dagger_\gamma$0.42 *11*) *I(1)=104.0 I(2)=127.0, ħω=0.335*
D 6172.4+z, J+26 γ_{5487+z} *685.1 6* ($\dagger_\gamma$0.46 *11*) *I(1)=105.1*



$^{193}_{81}$Tl

$^{194}_{81}$Tl

Δ:(−26970) S_n:(7610) S_p:(3180) Q_{EC}:(5280) Q_α:(3490)

Nuclear Bands

- *A* $(\pi h_{9/2})(\nu i_{13/2})$
- *B* SD-1 band
- *C* SD-2 band
- *D* SD-3 band
- *E* SD-4 band
- *F* SD-5 band
- *G* SD-6 band

Levels and γ-ray branchings:

0, 2⁻, 33.0 *5* m, %EC+%β⁺=100, %α<1×10⁻⁷, μ=0.14 *1*

192.14 *4*, (0)⁻ γ_0***192.02*** *5* ($\dagger_\gamma$100) E2

203.83 *3*, 1⁻ γ_0***203.82*** *6* ($\dagger_\gamma$100) M1(+E2): δ<0.3

225.01 *4*, (2)⁻ γ_0***225.00*** *8* ($\dagger_\gamma$100) M1(+E2): δ<0.3

270.50 *3*, (3)⁻ γ_{225}***45.5*** *10* ($\dagger_\gamma$≈0.23) γ_{204}***66.7*** *10* ($\dagger_\gamma$≈0.14) γ_0***270.52*** *4* ($\dagger_\gamma$100 *5*) M1(+E2): δ<0.25

0+s, (7⁺), 32.8 *2* m, %EC+%β⁺=100, μ=0.540 *5*, Q=0.62

367.78 *4*, 1⁻ γ_{225}***142.84*** *10* ($\dagger_\gamma$3.4 *4*) γ_{204}***163.90*** *10* ($\dagger_\gamma$5.14 *12*) M1+E2: δ=1 γ_{192}***175.68*** *12* ($\dagger_\gamma$4.2 *2*) M1 γ_0***367.80*** *10* ($\dagger_\gamma$100 *8*) M1(+E2): δ<0.1

459.92 *4*, (2)⁻ γ_{368}***92.2*** *2* ($\dagger_\gamma$2.3 *3*) γ_{271}***189.44*** *5* ($\dagger_\gamma$50 *7*) M1(+E2): δ<0.1 γ_{192}***267.82*** *10*(?) ($\dagger_\gamma$9.1 *2*) γ_0***460.05*** *10* ($\dagger_\gamma$100 *2*) M1+E2: δ=0.9 *2*

521.52 *3*, 1⁻ γ_{368}***153.82*** ($\dagger_\gamma$6.0 *6*) (M1) γ_{225}***296.40*** *6* ($\dagger_\gamma$11.9 *3*) (M1) γ_{204}***317.70*** *5* ($\dagger_\gamma$14.2 *3*) M1(+E2): δ<0.5 γ_{192}***329.48*** *5* ($\dagger_\gamma$3.9 *4*) M1(+E2): δ<0.5 γ_0***521.55*** *5* ($\dagger_\gamma$100 *2*) M1(+E2): δ<0.3

589.16 *4*, (2)⁻ γ_{271}***318.69*** *5* ($\dagger_\gamma$100 *2*) M1(+E2): δ<0.4 γ_{204}***385.33*** *3* ($\dagger_\gamma$43 *4*) γ_0***589.1*** *2* ($\dagger_\gamma$59 *2*) M1(+E2): δ<0.3

A **292.8+s**, (8⁻) γ_{0+s}***292.8*** *2* ($\dagger_\gamma$100)

A **292.8+t**, (8⁻,9⁻,10⁻)

A **389.1+t**, (9⁻,10⁻,11⁻) γ_{293+t}***96.3*** *2* ($\dagger_\gamma$100)

752.94 *6*, (1⁻) γ_{460}***292.98*** *6*(?) ($\dagger_\gamma$<56) γ_{225}***527.7*** *2* ($\dagger_\gamma$5.1 *8*) γ_{204}***549.0*** *1* ($\dagger_\gamma$53 *1*) (M1,E2) γ_0***752.8*** *2* ($\dagger_\gamma$100 *4*)

785.78 *5*, (1)⁻ γ_{368}***417.92*** *6* ($\dagger_\gamma$12.1 *2*) M1(+E2): δ<0.3 γ_{225}***560.69*** *10* ($\dagger_\gamma$7.2 *15*) γ_{204}***581.82*** *10* ($\dagger_\gamma$100 *3*) M1(+E2): δ<0.4 γ_0***785.54*** *10* ($\dagger_\gamma$2.1 *12*)

833.28 *4*, (1)⁻ γ_{522}***311.84*** *5* ($\dagger_\gamma$37 *3*) M1+E2: δ=1.0 *3* γ_{460}***373.39*** *4* ($\dagger_\gamma$43 *3*) M1(+E2): δ<0.5 γ_{368}***465.8*** *2* ($\dagger_\gamma$21 *2*) (M1) γ_{204}***629.9*** *3* ($\dagger_\gamma$100 *11*) (M1) γ_{192}***640.55*** *6* ($\dagger_\gamma$90 *13*) γ_0***833.4*** *3* ($\dagger_\gamma$24 *8*)

979.01 *11*, (1⁻,2⁻) γ_{522}***457.5*** *2* ($\dagger_\gamma$59 *15*) γ_{368}***611.0*** *3* ($\dagger_\gamma$39 *4*) γ_{225}***754.4*** *2* ($\dagger_\gamma$100 *11*) γ_{204}***774.9*** *3* ($\dagger_\gamma$26 *1*) (M1) γ_{192}***786.7*** *1*(?) ($\dagger_\gamma$22 *11*)

998.43 *6*, 1⁻ γ_{271}***244.93*** *10* ($\dagger_\gamma$9.8 *6*) γ_{368}***630.8*** *3* ($\dagger_\gamma$≈10) γ_{225}***773.46*** *20* ($\dagger_\gamma$20.2 *6*) M1(+E2): δ<0.7 γ_{204}***794.85*** *7* ($\dagger_\gamma$54 *5*) (M1,E2) γ_0***998.47*** *10* ($\dagger_\gamma$100 *6*) M1(+E2): δ<0.7

1010.52 *5*, (1)⁻ γ_{753}***257.95*** *10* ($\dagger_\gamma$23 *2*) γ_{522}***489.0*** *2* ($\dagger_\gamma$25 *1*) γ_{460}***550.6*** *3* ($\dagger_\gamma$18 *1*) γ_{368}***642.79*** *8* ($\dagger_\gamma$80 *9*) (M1) γ_{225}***785.54*** *10* ($\dagger_\gamma$29 *18*) γ_{204}***806.52*** *7* ($\dagger_\gamma$91 *3*) γ_{192}***818.0*** *2* ($\dagger_\gamma$77 *3*) M1 γ_0***1010.54*** *10* ($\dagger_\gamma$100 *5*)

A **667.0+t**, (10⁻,11⁻,12⁻) γ_{389+t}***277.9*** *2* ($\dagger_\gamma$100 *6*) γ_{293+t}***373.5***(?) ($\dagger_\gamma$8 *4*)

1152.01 *7*, (1)⁻ γ_{368}***784.2*** *4* ($\dagger_\gamma$25 *12*) γ_{225}***926.97*** *9* ($\dagger_\gamma$100 *21*) M1(+E2): δ<0.7 γ_0***1152.04*** *9* ($\dagger_\gamma$38 *1*)

1178.81 *8*, (1⁻) γ_{786}***392.63*** *10* ($\dagger_\gamma$27 *4*) E2(+M1): δ>3 γ_{271}***811.49*** *10* ($\dagger_\gamma$72 *3*) (M1,E2) γ_0***1178.6*** *2* ($\dagger_\gamma$100 *4*)

1187.56 *7*, (0,1)⁻ γ_{998}***189.0*** *4* ($\dagger_\gamma$≈5) γ_{522}***666.05*** *6* ($\dagger_\gamma$74 *1*) M1(+E2): δ<0.4 γ_{368}***819.50*** *20* ($\dagger_\gamma$100 *2*) γ_{225}***962.64*** *12* ($\dagger_\gamma$49 *1*) (E2)

A **911.7+t**, (11⁻,12⁻,13⁻) γ_{667+t}***244.7*** *2* ($\dagger_\gamma$100 *11*) γ_{389+t}***522.7*** *2* ($\dagger_\gamma$54 *9*)

1272.20 *8*, (0⁻,1⁻,2⁻) γ_{979}***292.98*** *6*(?) ($\dagger_\gamma$<210) γ_{833}***438.83*** *10* ($\dagger_\gamma$54 *3*) γ_{204}***1068.47*** *10* ($\dagger_\gamma$100 *9*) (M1)

1519.34 *6*, 1⁺ γ_{979}***540.5*** *2* ($\dagger_\gamma$2.61 *8*) γ_{833}***685.93*** *10* ($\dagger_\gamma$3.80 *7*) γ_{460}***1059.38*** *10* ($\dagger_\gamma$23.6 *4*) E1 γ_{225}***1294.4*** *2* ($\dagger_\gamma$11.6 *4*) E1 γ_{204}***1315.6*** *2* ($\dagger_\gamma$3.4 *4*) γ_0***1519.45*** *13* ($\dagger_\gamma$100 *8*)

1553.10 *13*, (0,1) γ_{368}***1185.35*** *15* ($\dagger_\gamma$92 *5*) γ_{204}***1349.25*** *20* ($\dagger_\gamma$100 *4*)

1602.8 *2*, (0⁻,1,2⁻) γ_0***1602.8*** *2* ($\dagger_\gamma$100)

1639.07 *7*, (1)⁻ γ_{1011}***628.1*** *3*(?) ($\dagger_\gamma$21 *4*) γ_{786}***852.94*** *10* ($\dagger_\gamma$59 *2*) E2(+M1): δ>2 γ_{368}***1271.98*** *25* ($\dagger_\gamma$100 *2*) γ_{225}***1414.3*** *5* ($\dagger_\gamma$30 *6*) γ_0***1639.29*** *10* ($\dagger_\gamma$68 *2*)

A **1314.9+t**, (12⁻,13⁻,14⁻) γ_{912+t}***403.2*** *2* ($\dagger_\gamma$100 *10*) γ_{667+t}***648.5*** *2* ($\dagger_\gamma$43 *7*)

1707.61 *9*, (1)⁻ γ_{589}***1118.44*** *10* ($\dagger_\gamma$100 *13*) M1,E2 γ_{368}***1339.6*** *2* ($\dagger_\gamma$54 *16*) γ_{225}***1482.9*** *2* ($\dagger_\gamma$62 *5*) γ_{192}***1515*** *1* ($\dagger_\gamma$≈13)

1722.97 *17*, (0⁻,1) γ_{522}***1200.9*** *3* ($\dagger_\gamma$31 *4*) γ_0***1723.2*** *2* ($\dagger_\gamma$100 *20*)

1753.13 *15*, (0,1) γ_{522}***1231.5*** *2* ($\dagger_\gamma$53 *3*) γ_{204}***1549.4*** *2* ($\dagger_\gamma$100 *4*)

1810.46 *12*, (1) γ_{225}***1585.3*** *2* ($\dagger_\gamma$26 *1*) γ_{192}***1618.5*** *2* ($\dagger_\gamma$35 *1*) γ_0***1810.4*** *2* ($\dagger_\gamma$100 *2*)

1858.8 *10*, (0,1,2⁻) γ_{1639}***220.05*** *12*(?) ($\dagger_\gamma$160 *16*) γ_{204}***1655*** *1* ($\dagger_\gamma$100 *20*)

A **1598.2+t**, (13⁻,14⁻,15⁻) γ_{1315+t}***283.3*** *2* ($\dagger_\gamma$60 *7*) γ_{912+t}***686.7*** *2* ($\dagger_\gamma$100 *10*)

2192.7 *3*, (1,2⁻) γ_{1639}***553.3*** *2*(?) ($\dagger_\gamma$172 *10*) γ_{522}***1671*** *1* ($\dagger_\gamma$42 *22*) γ_{192}***2000.6*** *3* ($\dagger_\gamma$100 *7*)

2343.4 *5*, (0⁻,1) γ_0***2343.4*** *5* ($\dagger_\gamma$100)

A **2056.8+t**, (14⁻,15⁻,16⁻) γ_{1598+t}***458.6*** *2* ($\dagger_\gamma$100 *11*) γ_{1315+t}***741.9*** *2* ($\dagger_\gamma$46 *7*)

A **2346.2+t**, (15⁻,16⁻,17⁻) γ_{2057+t}***289.4*** *2* ($\dagger_\gamma$100 *11*) γ_{1598+t}***748.6***(?)

B **u**, J=(12)

B **268.0+u**, J+2 γ_u***268.0*** *3* $I^{(1)}$=100.7, $I^{(2)}$=102.6, ℏω=0.144

B **575.0+u**, J+4 γ_{268+u}***307.0*** *3* $I^{(1)}$=101.0, $I^{(2)}$=105.0, ℏω=0.163

B **920.1+u**, J+6 γ_{575+u}***345.1*** *3* $I^{(1)}$=101.4, $I^{(2)}$=102.3, ℏω=0.182

B **1304.3+u**, J+8 γ_{920+u}***384.2*** *3* $I^{(1)}$=101.5, $I^{(2)}$=108.7, ℏω=0.201

B **1725.3+u**, J+10 γ_{1304+u}***421.0*** *3* $I^{(1)}$=102.1, $I^{(2)}$=111.1, ℏω=0.220

B **2182.3+u**, J+12 γ_{1725+u}***457.0*** *5* $I^{(1)}$=102.8, $I^{(2)}$=105.5, ℏω=0.238

B **2677.2+u**, J+14 γ_{2182+u}***494.9*** *5* $I^{(1)}$=103.1, $I^{(2)}$=111.1, ℏω=0.256

B **3208.1+u**, J+16 γ_{2677+u}***530.9*** *5* $I^{(1)}$=103.6, $I^{(2)}$=110.8, ℏω=0.274

B **3775.1+u**, J+18 γ_{3208+u}***567.0*** *5* $I^{(1)}$=104.1, $I^{(2)}$=117.0, ℏω=0.292

B **4376.3+u**, J+20 γ_{3775+u}***601.2*** *10* $I^{(1)}$=104.8, $I^{(2)}$=118.7, ℏω=0.309

B **5011.2+u**, J+22 γ_{4376+u}***634.9*** *10* $I^{(1)}$=105.5, $I^{(2)}$=114.6, ℏω=0.326

B **5681.0+u**, J+24 γ_{5011+u}***669.8*** *10* $I^{(1)}$=106.0, $I^{(2)}$=118.3, ℏω=0.343

B **6384.6+u**, J+26 γ_{5681+u}***703.6*** *10* $I^{(1)}$=106.6

C **v**, J=(9)

C **209.3+v**, J+2 γ_v***209.3*** *3* $I^{(1)}$=100.3, $I^{(2)}$=102.3, ℏω=0.114

C **457.7+v**, J+4 γ_{209+v}***248.4*** *3* $I^{(1)}$=100.6, $I^{(2)}$=102.3, ℏω=0.134

C **745.2+v**, J+6 γ_{458+v}***287.5*** *3* $I^{(1)}$=100.9, $I^{(2)}$=103.9, ℏω=0.153

C **1071.2+v**, J+8 γ_{745+v}***326.0*** *3* $I^{(1)}$=101.2, $I^{(2)}$=104.2, ℏω=0.173

C **1435.6+v**, J+10 γ_{1071+v}***364.4*** *3* $I^{(1)}$=101.5, $I^{(2)}$=107.2, ℏω=0.192

C **1837.3+v**, J+12 γ_{1436+v}***401.7*** *5* $I^{(1)}$=102.1, $I^{(2)}$=106.4, ℏω=0.210

C **2276.6+v**, J+14 γ_{1837+v}***439.3*** *5* $I^{(1)}$=102.4, $I^{(2)}$=109.3, ℏω=0.229

C **2752.5+v**, J+16 γ_{2277+v}***475.9*** *5* $I^{(1)}$=103.0, $I^{(2)}$=110.8, ℏω=0.247

C **3264.5+v**, J+18 γ_{2753+v}***512.0*** *5* $I^{(1)}$=103.5, $I^{(2)}$=111.1, ℏω=0.265

C **3812.5+v**, J+20 γ_{3265+v}***548.0*** *5* $I^{(1)}$=104.0, $I^{(2)}$=112.7, ℏω=0.283

C **4396.0+v**, J+22 γ_{3813+v}***583.5*** *10* $I^{(1)}$=104.5, $I^{(2)}$=117.6, ℏω=0.300

C **5013.5+v**, J+24 γ_{4396+v}***617.5*** *10* $I^{(1)}$=105.3, $I^{(2)}$=115.9, ℏω=0.317

C **5665.5+v**, J+26 γ_{5014+v}***652.0*** *10* $I^{(1)}$=105.8, $I^{(2)}$=118.0, ℏω=0.334

C **6351.4+v**, J+28 γ_{5666+v}***685.9*** *10* $I^{(1)}$=106.4

D **w**, J=(10,11)

D **240.5+w**, J+2 γ_w***240.5*** *3* $I^{(1)}$=95.6, $I^{(2)}$=101.3, ℏω=0.130

D **520.5+w**, J+4 γ_{241+w}***280.0*** *3* $I^{(1)}$=96.4, $I^{(2)}$=103.1, ℏω=0.150

D **839.3+w**, J+6 γ_{521+w}***318.8*** *3* $I^{(1)}$=97.2, $I^{(2)}$=101.8, ℏω=0.169

D **1197.4+w**, J+8 γ_{839+w}***358.1*** *3* $I^{(1)}$=97.7, $I^{(2)}$=102.3, ℏω=0.189

D **1594.6+w**, J+10 γ_{1197+w}***397.2*** *3* $I^{(1)}$=98.2, $I^{(2)}$=105.0, ℏω=0.208

D **2029.9+w**, J+12 γ_{1595+w}***435.3*** *3* $I^{(1)}$=98.8, $I^{(2)}$=106.1, ℏω=0.227

D **2502.9+w**, J+14 γ_{2030+w}***473.0*** *3* $I^{(1)}$=99.4, $I^{(2)}$=105.5, ℏω=0.246

D **3013.8+w**, J+16 γ_{2503+w}***510.9*** *5* $I^{(1)}$=99.8, $I^{(2)}$=112.0, ℏω=0.264

D **3560.4+w**, J+18 γ_{3014+w}***546.6*** *5* $I^{(1)}$=100.6, $I^{(2)}$=112.4, ℏω=0.282

D **4142.6+w**, J+20 γ_{3560+w}***582.2*** *5* $I^{(1)}$=101.3, $I^{(2)}$=113.6, ℏω=0.300

D **4760.0+w**, J+22 γ_{4143+w}***617.4*** *5* $I^{(1)}$=102.0, $I^{(2)}$=115.6, ℏω=0.317

D **5412.0+w**, J+24 γ_{4760+w}***652.0*** *10* $I^{(1)}$=105.8, $I^{(2)}$=118.0, ℏω=0.334

D **6097.5+w**, J+26 γ_{5412+w}***685.5*** *10* $I^{(1)}$=103.6, $I^{(2)}$=125.0, ℏω=0.351

D **6815.0+w**(?), J+28 γ_{6098+w}***717.5*** *10*(?) $I^{(1)}$=104.5

E **x**, J=(9,10)

E **220.3+x**, J+2 γ_x***220.3*** *3* $I^{(1)}$=95.3, $I^{(2)}$=102.3, ℏω=0.120

E **479.7+x**, J+4 γ_{220+x}***259.4*** *3* $I^{(1)}$=96.4, $I^{(2)}$=99.3, ℏω=0.140

E **779.4+x**, J+6 γ_{480+x}***299.7*** *3* $I^{(1)}$=96.8, $I^{(2)}$=102.6, ℏω=0.160

E **1118.1+x**, J+8 γ_{779+x}***338.7*** *3* $I^{(1)}$=97.4, $I^{(2)}$=101.0, ℏω=0.179

E **1496.8+x**, J+10 γ_{1118+x}***378.3*** *3* $I^{(1)}$=97.8, $I^{(2)}$=107.5, ℏω=0.198

E **1912.3+x**, J+12 γ_{1497+x}***415.5*** *3* $I^{(1)}$=98.7, $I^{(2)}$=103.4, ℏω=0.217

E **2366.5+x**, J+14 γ_{1912+x}***454.2*** *5* $I^{(1)}$=99.1, $I^{(2)}$=107.2, ℏω=0.236

E **2858.0+x**, J+16 γ_{2367+x}***491.5*** *5* $I^{(1)}$=99.7, $I^{(2)}$=110.2, ℏω=0.255

E **3385.8+x**, J+18 γ_{2858+x}***527.8*** *5* $I^{(1)}$=100.4, $I^{(2)}$=110.5, ℏω=0.273

E **3949.8+x**, J+20 γ_{3386+x}***564.0*** *5* $I^{(1)}$=101.1, $I^{(2)}$=112.0, ℏω=0.291

E **4549.5+x**(?), J+22 γ_{3950+x}***599.7*** *10*(?) $I^{(1)}$=101.7, $I^{(2)}$=117.6, ℏω=0.308

E **5183.2+x**(?), J+24 γ_{4550+x}***633.7*** *10*(?) $I^{(1)}$=102.6, $I^{(2)}$=112.7, ℏω=0.326

E **5852.4+x**(?), J+26 γ_{5183+x}***669.2*** *10*(?) $I^{(1)}$=103.1, $I^{(2)}$=117.0, ℏω=0.343

E **6555.8+x**(?), J+28 γ_{5852+x}***703.4*** *10*(?) $I^{(1)}$=103.8

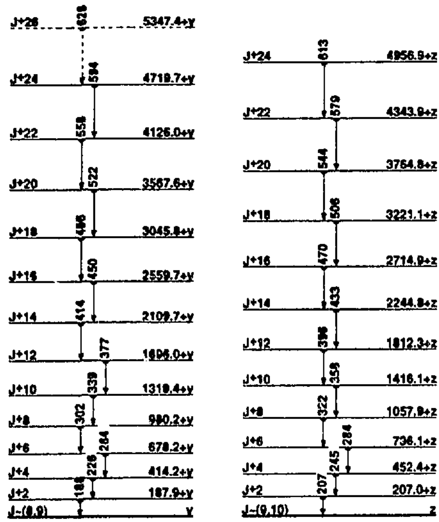
F **y**, J=(6,9)

F **187.9+y**, J+2 γ_y***187.9*** *3* $I^{(1)}$=101.1, $I^{(2)}$=104.2, ℏω=0.104

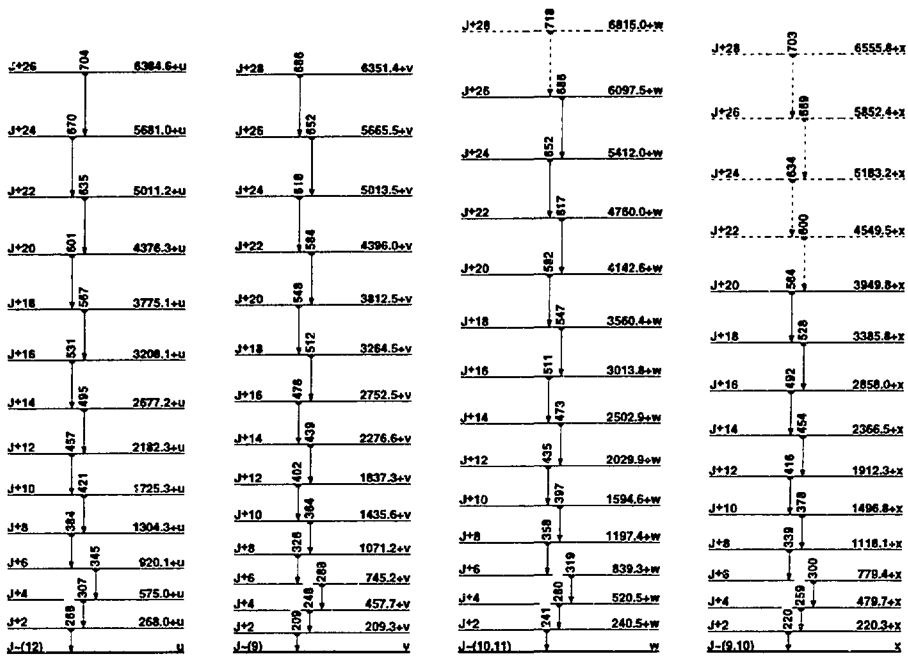
F **414.2+y**, J+4 γ_{188+y}***226.3*** *3* $I^{(1)}$=101.6, $I^{(2)}$=106.1, ℏω=0.123

$^{194}_{81}$Tl (Continued)

F 678.2+y, J+6 γ_{414+y}264.0 3 $I^{(1)}$=102.3, $I^{(2)}$=105.3, $\hbar\omega$=0.142
F 980.2+y, J+8 γ_{678+y}302.0 3 $I^{(1)}$=102.6, $I^{(2)}$=107.5, $\hbar\omega$=0.160
F 1319.4+y, J+10 γ_{980+y}339.2 3 $I^{(1)}$=103.2, $I^{(2)}$=107.0, $\hbar\omega$=0.179
F 1696.0+y, J+12 γ_{1319+y}376.6 3 $I^{(1)}$=103.6, $I^{(2)}$=107.8, $\hbar\omega$=0.198
F 2109.7+y, J+14 γ_{1696+y}413.7 5 $I^{(1)}$=103.9, $I^{(2)}$=110.2, $\hbar\omega$=0.216
F 2559.7+y, J+16 γ_{2110+y}450.0 5 $I^{(1)}$=104.4, $I^{(2)}$=110.8, $\hbar\omega$=0.234
F 3045.8+y, J+18 γ_{2560+y}486.1 5 $I^{(1)}$=104.9, $I^{(2)}$=112.0, $\hbar\omega$=0.252
F 3567.6+y, J+20 γ_{3046+y}521.8 5 $I^{(1)}$=105.4, $I^{(2)}$=109.3, $\hbar\omega$=0.270
F 4126.0+y, J+22 γ_{3568+y}558.4 10 $I^{(1)}$=105.7, $I^{(2)}$=113.3, $\hbar\omega$=0.288
F 4719.7+y, J+24 γ_{4126+y}593.7 10 $I^{(1)}$=106.1, $I^{(2)}$=117.6, $\hbar\omega$=0.305
F 5347.4+y (?), J+26 γ_{4720+y}627.7 10(?) $I^{(1)}$=106.7
G z, J=(9,10)
G 207.0+z, J+2 γ_{z}207.0 3 $I^{(1)}$=101.4, $I^{(2)}$=104.2, $\hbar\omega$=0.113
G 452.4+z, J+4 γ_{207+z}245.4 3 $I^{(1)}$=101.9, $I^{(2)}$=104.4, $\hbar\omega$=0.132
G 736.1+z, J+6 γ_{452+z}283.7 3 $I^{(1)}$=102.2, $I^{(2)}$=105.0, $\hbar\omega$=0.151
G 1057.9+z, J+8 γ_{736+z}321.8 3 $I^{(1)}$=102.5, $I^{(2)}$=109.9, $\hbar\omega$=0.170
G 1416.1+z, J+10 γ_{1058+z}358.2 3 $I^{(1)}$=103.3, $I^{(2)}$=105.3, $\hbar\omega$=0.189
G 1812.3+z, J+12 γ_{1416+z}396.2 3 $I^{(1)}$=103.5, $I^{(2)}$=110.2, $\hbar\omega$=0.207
G 2244.8+z, J+14 γ_{1812+z}432.5 5 $I^{(1)}$=104.0, $I^{(2)}$=106.4, $\hbar\omega$=0.226
G 2714.9+z, J+16 γ_{2245+z}470.1 5 $I^{(1)}$=104.2, $I^{(2)}$=110.8, $\hbar\omega$=0.244
G 3221.1+z, J+18 γ_{2715+z}506.2 5 $I^{(1)}$=104.7, $I^{(2)}$=106.7, $\hbar\omega$=0.262
G 3764.8+z, J+20 γ_{3221+z}543.7 5 $I^{(1)}$=104.8, $I^{(2)}$=113.0, $\hbar\omega$=0.281
G 4343.9+z, J+22 γ_{3765+z}579.1 10 $I^{(1)}$=105.3, $I^{(2)}$=118.0, $\hbar\omega$=0.298
G 4956.9+z, J+24 γ_{4344+z}613.0 10 $I^{(1)}$=106.0

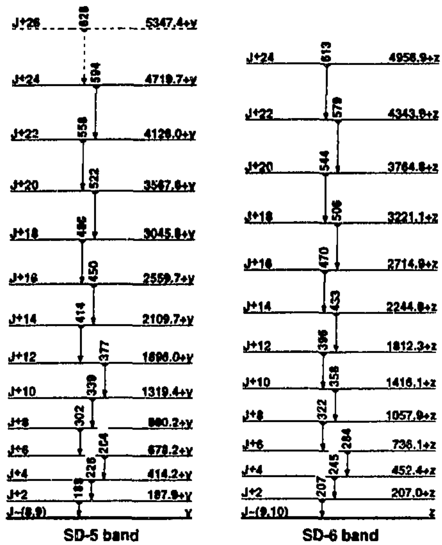


SD-5 band SD-6 band



SD-1 band SD-2 band SD-3 band SD-4 band

$^{194}_{81}$Tl


J+24
594
4719.7+y
J+22
558
4128.0+y
J+20
522
J+16
450
2559.7+y
J+14
414
2109.7+y
J+12
377
J+10
339
1319.4+y
302
264
J+4
226
414.2+y
J+2
y
SD-5 band
J+24
613
J+22
579
J+20
544
J+18
506
3221.1+z
J+16
470
2714.9+z
J+14
433
J+12
1812.3+z
J+10
358
1416.1+z
J+8
322
1057.9+z
J+6
284
736.1+z
J+4
245
452.4+z
J+2
207
207.0+z
J-(9,10)
z
SD-6 band

$^{194}_{81}Tl$

$^{195}_{81}$Tl

Δ: (−28270) S_n: (9380) S_p: (3320) Q_{EC}: (2800) Q_α: (3160)

Nuclear Bands

- *A* Band Structure
- *B* Band Structure
- *C* SD-1 band
- *D* SD-2 band

Levels and γ-ray branchings:

0, 1/2⁺, 1.16 *5* h, %EC+%β⁺=100, μ=+1.58 *4*

383.66 *12*, 3/2⁺ γ_0 ***383.64*** *12* (I_γ100) M1+E2: δ=1.8$^{+4}_{-3}$

A **482.63** *17*, 9/2⁻, 3.6 *4* s, %IT=100 γ_{384} ***98.97*** *12* (I_γ100) E3

777.55 *17*, (5/2⁺) γ_{384} ***393.73*** (I_γ100.0 *89*) γ_0 ***777.62*** (I_γ71.1 *69*)

811.1 *6* γ_{384} ***427.45*** (I_γ100)

A **876.69** *19*, 11/2⁻ γ_{483} ***394.21*** *12* (I_γ100) M1(+E2): δ=0.42 *13*

1079.7 *6* γ_{384} ***696.08*** (I_γ100)

1173.79 *20*, 9/2⁻,11/2⁻ γ_{483} ***691.17*** *15* (I_γ100) M1

A **1190.12** *19*, 13/2⁻ γ_{877} ***313.22*** *12* (I_γ50 *3*) M1+E2: δ=0.38 *10* γ_{483} ***707.67*** *15* (I_γ100 *6*) E2

1267.0 *3*, (1/2⁺,3/2⁺,5/2⁺) γ_{384} ***883.1*** *3* (I_γ100) (E2)

1285.3 *4* γ_{778} ***507.8*** *3* (I_γ100)

1360.95 *22*, 11/2⁻ γ_{483} ***878.40*** *16* (I_γ100) M1(+E2)

1378 (?) γ_{384} ***994.38***(?) (I_γ100)

1410.68 *20*, 11/2⁻,13/2⁻ γ_{1174} ***236.60*** *23* (I_γ1.12 *11*) M1 γ_{877} ***534.11*** *14* (I_γ≈44.9) M1 γ_{483} ***928.02*** *16* (I_γ100 *15*) (E2)

1434.7 *7* γ_{384} ***1051.08*** (I_γ100)

1484.04 *21*, 13/2⁻ γ_{1190} ***294.25*** (I_γ65 *48*) γ_{877} ***607.64*** *15* (I_γ100 *11*) M1+E2: δ=0.66 *19* γ_{483} ***1000.92*** *18* (I_γ16.6 *14*)

1612.7 *9*, (3/2⁺,5/2⁺,7/2⁺) γ_{1267} ***346.05***(?) (I_γ18 *12*) γ_{778} ***835.2*** *8* (I_γ100 *15*) M1

1616.42 *21*, 9/2⁻,11/2⁻,13/2⁻ γ_{1174} ***442.74*** *14* (I_γ100 *10*) M1 γ_{877} ***739.47*** *23* (I_γ47 *8*) γ_{483} ***1133.73*** *21* (I_γ98.9 *11*)

A **1618.74** *20*, 15/2⁻ γ_{1190} ***428.44*** *13* (I_γ100 *6*) M1+E2: δ=0.34 *6* γ_{877} ***742.19*** *15* (I_γ93 *6*) E2

1648.6 *5* γ_{778} ***871.05*** (I_γ100)

1687.9 *7* γ_{1435} ***253.25*** (I_γ29 *12*) γ_{384} ***1304.28*** (I_γ100 *15*)

1725.26 *23*, (13/2)⁺ γ_{877} ***848.66*** *16* (I_γ100 *25*) E1(+M2) γ_{483} ***1242.24*** *32* (I_γ11.3 *25*)

1843.7 *10* γ_{384} ***1461.1*** *8* (I_γ100)

1844.6 *4* γ_{1649} ***196.1*** *5* (I_γ73 *14*) γ_{1267} ***578.0*** *5* (I_γ36 *18*) γ_{778} ***1067.08*** (I_γ100 *18*)

1924.46 *22*, 17/2⁻ γ_{1619} ***305.67*** *15* (I_γ58 *6*) M1+E2: δ=0.11$^{+5}_{-4}$ γ_{1190} ***734.43*** *15* (I_γ100 *25*) E2

1944.61 *21*, 13/2⁻ γ_{1619} ***325.85*** *14* (I_γ10.6 *13*) M1+E2 γ_{1411} ***534.1*** (I_γ≈8.39) γ_{1190} ***754.73*** *32* (I_γ13 *3*) M1 γ_{877} ***1067.88*** *17* (I_γ100 *6*) M1(+E2)

1991.47 *22*, 11/2⁻,13/2⁻ γ_{1361} ***630.58*** *14* (I_γ100 *8*) M1(+E2) γ_{1190} ***801.26*** *17* (I_γ62 *6*) M1

A **2011.5** *3*, 17/2⁻ γ_{1619} ***392.8*** *5* (I_γ100 *47*) (M1+E2): δ=0.42 *13* γ_{1190} ***821.3*** *3* (I_γ82 *47*) E2

2023.5 *3*, 11/2⁻,13/2⁻,15/2⁻ γ_{1484} ***539.50*** *15* (I_γ100) M1 γ_{1435} ***549.05***(?) (I_γ65 *59*)

2033.7 *5*(?) γ_{1190} ***843.2*** *5* (I_γ100)

B **2037.1** *3*, 15/2⁺ γ_{1619} ***418.5*** *3* (I_γ20 *3*) (E1) γ_{1484} ***552.9*** *3* (I_γ24 *4*) (E1) γ_{1190} ***847.1*** *5* (I_γ100 *35*) (E1) γ_{877} ***1161.6*** *5*(?)

2115.1 *5*(?) γ_{1484} ***630.58*** *14* (I_γ100 *8*)

2145.1 *3*, (11/2,13/2,15/2)⁺ γ_{1725} ***419.81*** *16* (I_γ100) M1

B **2212.9** *4*, 17/2⁺ γ_{2037} ***175.7*** *3* (I_γ100) M1+E2: δ=0.13 *5*

2361.9 *4*, (11/2,13/2,15/2) γ_{1484} ***877.9*** *3* (I_γ2.1 *7*)

2367.9 *5*(?) γ_{1619} ***748.8*** *5* (I_γ100)

A **2470.1** *3*, 19/2⁻ γ_{2012} ***458.7*** *3* (I_γ100 *13*) M1+E2: δ=0.75 *15* γ_{1924} ***545.7*** *3* (I_γ21 *5*) M1+E2: δ=0.57 *16* γ_{1619} ***851.3*** *3* (I_γ17 *8*) E2

B **2529.5** *4*, 19/2⁺ γ_{2213} ***316.8*** *3* (I_γ100 *12*) M1+E2: δ=0.21 *4* γ_{2037} ***492.6*** *3* (I_γ16 *5*) E2

2581.5 *5*(?) γ_{2115} ***466.4*** *5* (I_γ32 *14*) γ_{1190} ***1391.0*** *5* (I_γ100 *32*)

A **2587.4** *3*, 21/2⁻ γ_{2470} ***117.3*** *5* (I_γ26 *9*) (M1+E2) γ_{2012} ***575.8*** *3* (I_γ42 *6*) E2 γ_{1924} ***663.1*** *3* (I_γ100 *11*) E2

B **2840.7** *5*, 21/2⁺ γ_{2530} ***311.4*** *5* (I_γ100 *31*) M1+E2: δ=0.23 *5* γ_{2213} ***627.7*** *3* (I_γ50 *8*) E2

A **2861.1** *4*, 23/2⁻ γ_{2587} ***273.7*** *3* (I_γ100) M1(+E2): δ<0.14

A **3059.8** *4*, 25/2⁻ γ_{2861} ***198.8*** *3* (I_γ100 *25*) (M1+E2) γ_{2587} ***472.3*** *3* (I_γ64 *21*) E2

A **3157.1** *5*, 27/2(⁻) γ_{3060} ***97.3*** *3* (I_γ100) (M1+E2)

B **3201.9** *5*, 23/2⁺ γ_{2841} ***361.1*** *3* (I_γ69 *8*) M1+E2: δ=0.23 *4* γ_{2530} ***672.3*** *5* (I_γ<100) E2

B **3513.9** *5*, 25/2⁺ γ_{3202} ***312.3*** *5* (I_γ70 *22*) M1+E2: δ=0.27 *6* γ_{2841} ***673.2*** *5* (I_γ<100) (E2)

B **3729.6** *5*, 27/2⁺ γ_{3514} ***215.8*** *3* (I_γ100 *10*) M1(+E2): δ<0.14 γ_{3202} ***527.6*** *3* (I_γ60 *12*) E2

B **3885.3** *6*, 29/2(⁺) γ_{3730} ***155.7*** *3* (I_γ100) (M1+E2)

B **4002.8** *8*, 31/2(⁺) γ_{3886} ***117.5*** *5* (I_γ100) (M1+E2)

B **4174.8** *9*, 33/2(⁺) γ_{4003} ***172.0*** *3* (I_γ100) (M1+E2)

B **4393.3** *9*, 35/2(⁺) γ_{4175} ***218.5*** *3* (I_γ100) (M1+E2)

C **x**, J=(29/2)

C **330.1+x**, J+2 γ_x ***330.1*** $I^{(1)}$=96.9, $I^{(2)}$=99.8, ħω=0.175

C **700.3+x**, J+4 γ_{330+x} ***370.2*** $I^{(1)}$=97.2, $I^{(2)}$=106.4, ħω=0.194

C **1107.9+x**, J+6 γ_{700+x} ***407.6*** $I^{(1)}$=98.1, $I^{(2)}$=106.1, ħω=0.213

C **1552.4+x**, J+8 γ_{1108+x} ***445.5*** $I^{(1)}$=98.8, $I^{(2)}$=108.1, ħω=0.232

C **2034.9+x**, J+10 γ_{1552+x} ***482.5*** $I^{(1)}$=99.5, $I^{(2)}$=110.2, ħω=0.250

C **2553.7+x**, J+12 γ_{2035+x} ***518.8*** $I^{(1)}$=100.2, $I^{(2)}$=111.7, ħω=0.268

C **3108.3+x**, J+14 γ_{2554+x} ***554.6*** $I^{(1)}$=101.0, $I^{(2)}$=123.1, ħω=0.285

C **3695.4+x**, J+16 γ_{3108+x} ***587.1*** $I^{(1)}$=102.2, $I^{(2)}$=116.6, ħω=0.302

C **4316.8+x**, J+18 γ_{3695+x} ***621.4*** $I^{(1)}$=103.0, $I^{(2)}$=126.2, ħω=0.319

C **4969.9+x**, J+20 γ_{4317+x} ***653.1*** $I^{(1)}$=104.1, $I^{(2)}$=121.6, ħω=0.335

C **5655.9+x**, J+22 γ_{4970+x} ***686.0*** $I^{(1)}$=105.0, $I^{(2)}$=133.3, ħω=0.350

C **6371.9+x**, J+24 γ_{5656+x} ***713.0*** $I^{(1)}$=106.1

D **y**, J=(31/2)

D **350.7+y**, J+2 γ_y ***350.7*** $I^{(1)}$=96.9, $I^{(2)}$=102.0, ħω=0.185

D **740.6+y**, J+4 γ_{351+y} ***389.9*** $I^{(1)}$=97.5, $I^{(2)}$=105.0, ħω=0.204

D **1168.6+y**, J+6 γ_{741+y} ***428.0*** $I^{(1)}$=98.1, $I^{(2)}$=106.1, ħω=0.223

D **1634.3+y**, J+8 γ_{1169+y} ***465.7*** $I^{(1)}$=98.8, $I^{(2)}$=105.8, ħω=0.242

D **2137.8+y**, J+10 γ_{1634+y} ***503.5*** $I^{(1)}$=99.3, $I^{(2)}$=108.1, ħω=0.261

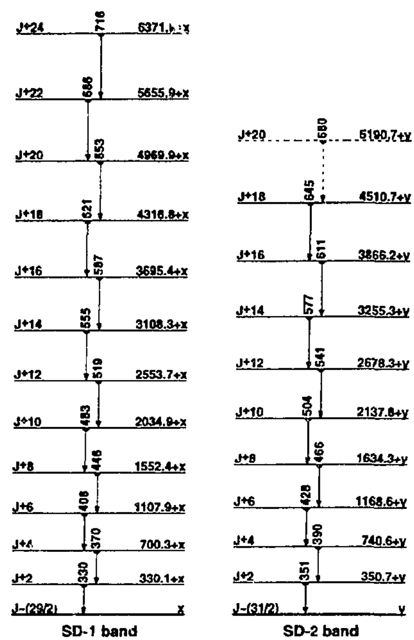
D **2678.3+y**, J+12 γ_{2138+y} ***540.5*** $I^{(1)}$=99.9, $I^{(2)}$=109.6, ħω=0.279

D **3255.3+y**, J+14 γ_{2678+y} ***577.0*** $I^{(1)}$=100.5, $I^{(2)}$=118.0, ħω=0.297

D **3866.2+y**, J+16 γ_{3255+y} ***610.9*** $I^{(1)}$=101.5, $I^{(2)}$=119.0, ħω=0.314

D **4510.7+y**, J+18 γ_{3866+y} ***644.5*** $I^{(1)}$=102.4, $I^{(2)}$=112.7, ħω=0.331

D **5190.7+y** (?), J+20 γ_{4511+y} ***680.0***(?) $I^{(1)}$=102.9



$^{195}_{81}$Tl

$^{192}_{82}$Pb

Δ: (−22580) S_n: (10300) S_p: (3700) Q_{EC}: (3400) Q_α: 5221 *5*

Nuclear Bands

- *A* GS band
- *B* Band Structure
- *C* SD band

Levels and γ-ray branchings:

A **0**, 0^+, 3.5 *1* m, %EC+%β^+=99.9943 *10*, %α=0.0057 *10*

B **768.8** *4*, 0^+, 0.75 *10* ns γ_0***768.5*** *4* E0

A **853.6** *3*, 2^+ γ_0***853.8*** *2* ($\dagger_\gamma$100) E2

B **1237.9** *3*, (2^+) γ_{854}***383.9*** *4* ($\dagger_\gamma$<10) γ_{769}***469.4*** *3* ($\dagger_\gamma$4 *3*) γ_0***1237.7*** *3* ($\dagger_\gamma$100 *8*)

A **1355.5** *4*, 4^+ γ_{854}***501.8*** *2* ($\dagger_\gamma$100) E2

1430.2 *4* γ_{854}***576.6*** *2* ($\dagger_\gamma$100)

1544.1 *3*, 1,2^+ γ_{854}***690.7*** *2* ($\dagger_\gamma$100 *25*) γ_{769}***775.0*** *2* ($\dagger_\gamma$30 *8*)

1859.9 *5*, $(5)^-$ γ_{1356}***504.3*** *2* ($\dagger_\gamma$100) E1

A **1920.7** *5*, 6^+ γ_{1356}***565.4*** *2* ($\dagger_\gamma$100) E2

1983.3 *6* γ_{1238}***745.4*** *3* ($\dagger_\gamma$100)

2303.3 *5*, $(7)^-$ γ_{1921}***382.6*** *2* ($\dagger_\gamma$100) E1(+M2)

2323.2 *5*, $(7)^-$ γ_{1921}***402.4*** *2* ($\dagger_\gamma$13 *5*) γ_{1860}***463.4*** *2* ($\dagger_\gamma$100 *10*) E2

2507.2 *6*, $(8)^-$ γ_{2323}***184.0*** *2* ($\dagger_\gamma$100) M1+E2

2514.1 *5*, (9^-) γ_{2323}***191.1*** *2* ($\dagger_\gamma$100 *14*) E2 γ_{2303}***210.7*** *2* ($\dagger_\gamma$17 *8*)

A **2520.2** *6*, (8^+) γ_{1921}***599.5*** *2* ($\dagger_\gamma$100)

2562.3 *6* γ_{1921}***641.6*** *2* ($\dagger_\gamma$100)

A **2581.2** *6*, (10^+), 100 *15* ns γ_{2520}***61.0*** *5* ($\dagger_\gamma$≈1.4) (E2) γ_{2514}***67.0*** *5* ($\dagger_\gamma$≈100) E1

2622.4 *5* γ_{1356}***1266.9*** *3* ($\dagger_\gamma$97 *9*) γ_{854}***1768.9*** *4* ($\dagger_\gamma$100 *43*)

A **≈2626**, (12^+), 1.10 *5* μs, μ=−2.076 *24* γ_{2581}*45* *25* ($\dagger_\gamma$100) (E2)

2789.1 *5* γ_{2303}***486.1*** *2* ($\dagger_\gamma$100 *60*) γ_{1860}***928.7*** *3* ($\dagger_\gamma$93 *33*)

2894.0 *7* γ_{2323}***570.8*** *3* ($\dagger_\gamma$100)

C **x**, *J=(10,11)*

C **262.6+x**, J+2 γ_x***262.6*** *4* ($\dagger_\gamma$0.60 *10*) $I^{(1)}$*=87.6*, $I^{(2)}$*=96.4*, *ħω=0.142*

C **566.7+x**, J+4 γ_{263+x}***304.1*** *4* ($\dagger_\gamma$0.85 *10*) $I^{(1)}$*=88.8*, $I^{(2)}$*=96.4*, *ħω=0.162*

C **912.3+x**, J+6 γ_{567+x}***345.6*** *4* ($\dagger_\gamma$0.80 *15*) $I^{(1)}$*=89.7*, $I^{(2)}$*=100.0*, *ħω=0.183*

C **1297.9+x**, J+8 γ_{912+x}***385.6*** *3* ($\dagger_\gamma$1.20 *15*) $I^{(1)}$*=90.8*, $I^{(2)}$*=103.1*, *ħω=0.202*

C **1722.3+x**, J+10 γ_{1298+x}***424.4*** *4* ($\dagger_\gamma$1.00 *20*) $I^{(1)}$*=91.9*, $I^{(2)}$*=104.2*, *ħω=0.222*

C **2185.1+x**, J+12 γ_{1722+x}***462.8*** *5* ($\dagger_\gamma$0.60 *15*) $I^{(1)}$*=92.9*, $I^{(2)}$*=107.5*, *ħω=0.241*

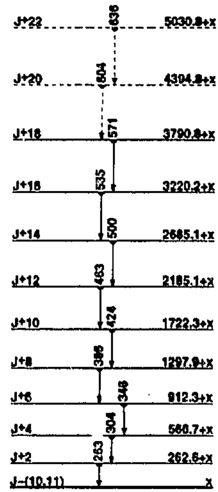
C **2685.1+x**, J+14 γ_{2185+x}***500.0*** *6* ($\dagger_\gamma$0.70 *30*) $I^{(1)}$*=94.0*, $I^{(2)}$*=114.0*, *ħω=0.259*

C **3220.2+x**, J+16 γ_{2685+x}***535.1*** *8* ($\dagger_\gamma$0.65 *20*) $I^{(1)}$*=95.3*, $I^{(2)}$*=112.7*, *ħω=0.276*

C **3790.8+x**, J+18 γ_{3220+x}***570.6*** *11* ($\dagger_\gamma$0.50 *25*) $I^{(1)}$*=96.4*, $I^{(2)}$*=119.8*, *ħω=0.294*

C **4394.8+x** (?), J+20 γ_{3791+x}***604***(?) $I^{(1)}$*=97.7*, $I^{(2)}$*=125.0*, *ħω=0.310*

C **5030.8+x** (?), J+22 γ_{4395+x}*636*(?) $I^{(1)}$*=99.1*



SD band

$^{192}_{82}$Pb

$^{194}_{82}$Pb

Δ: (−24250) S_n: (10040) S_p: (4100) Q_{EC}: (2720) Q_α: 4738 20

Nuclear Bands

- *A* SD band
- *B* GS band
- *C* Band Structure
- *D* Band Structure
- *E* Band Structure
- *F* Band Structure

Levels and γ-ray branchings:

B **0**, 0⁺, 12.0 5 m, %EC+%β⁺=100, %α=7.3×10⁻⁶ 29

930.7 2, 0⁺ γ_0 ***930.6*** 4 E0

B **965.4** 1, 2⁺ γ_0 ***965.4*** 1 (†$_\gamma$100) E2

1308.24 13, (2⁺) γ_{965} ***343.2*** 2 (†$_\gamma$16 5) (E0+M1+E2) γ_{931} ***377.5*** 3 (†$_\gamma$8 3) γ_0 ***1308.3*** 2 (†$_\gamma$100 5) (E2)

B **1540.50** 13, (4)⁺ γ_{1308} ***231.9*** 2 (†$_\gamma$0.4 2) γ_{965} ***575.1*** 1 (†$_\gamma$100 2) E2

1636.8 2, (≤4) γ_{965} ***671.8*** 2 (†$_\gamma$100)

1738.7 2, (1,2⁺) γ_{965} ***773.5*** 3 (†$_\gamma$100 50) γ_{931} ***808.1*** 3 (†$_\gamma$20 15) γ_0 ***1738.9*** 3 (†$_\gamma$30 10)

1820.6 2, (5)⁻, 1.1 2 ns γ_{1541} ***280.1*** 1 (†$_\gamma$100) E1

2019.2 3, (≤4) γ_{1308} ***710.9*** 2 (†$_\gamma$100)

2135.9 4, (6)⁺ γ_{1541} ***595.4*** 3 (†$_\gamma$100) E2

2241.7 3, (7)⁻ γ_{1821} ***421.1*** 2 (†$_\gamma$100) E2

2407.7 3, (9)⁻, 18 3 ns, μ=−0.63 36 γ_{2242} ***166.0*** 1 (†$_\gamma$100) E2

2419.8 3, (8⁻) γ_{2242} ***178.5*** 2 (†$_\gamma$100) (M1+E2): δ<0.7

2438.3 5, (8)⁺, 17 4 ns γ_{2242} ***196.1*** 2 (†$_\gamma$24 2) (E1) γ_{2136} ***302.4*** 3 (†$_\gamma$100 4) E2

2502.4 5, (8⁻) γ_{2242} ***261.1*** 2 (†$_\gamma$100) (M1)

2581.4 3, (10)⁺, 17.2 5 ns γ_{2408} ***173.7*** 1 (†$_\gamma$100) E1

2628.5 4, (12⁺), 350 10 ns, μ=−2.004 24, Q=0.49 3 γ_{2581} ***47.0*** 3 (†$_\gamma$100)

2701.1 4, (9) γ_{2242} ***459.4*** 3 (†$_\gamma$100) (Q)

2761.5 4, (9⁻) γ_{2242} ***519.8*** 3 (†$_\gamma$100) (Q)

2799.8 4, (4 to 8) γ_{2136} ***664.2*** 2 (†$_\gamma$100)

2914.5 4, (9⁻) γ_{2242} ***672.8*** 3 (†$_\gamma$100) (Q)

2931.9 3, (6 to 10) γ_{2438} ***493.2*** 2 (†$_\gamma$100)

F **2933.6** 4, (11)⁻, 124 10 ns γ_{2628} ***305.0*** 1 (†$_\gamma$61 11) E1 γ_{2581} ***352.2*** 1 (†$_\gamma$100 12) E1

3045.8 5, (10⁻) γ_{2762} ***284.3*** 3 (†$_\gamma$100) (D)

3189.3 6, (11) γ_{3046} ***143.5*** 3 (†$_\gamma$100)

F **3298.3** 4, (12⁻) γ_{2934} ***364.6*** 1 (†$_\gamma$100) M1

3306.8 6, (11⁻) γ_{3046} ***261.0*** 3 (†$_\gamma$100) D

3550.1 5, (11⁻) γ_{3189} ***361.5*** 3 (†$_\gamma$37 4) (D) γ_{2762} ***788.6*** 3 (†$_\gamma$100 8) (Q)

C **3561.9** 4, (14⁺) γ_{2628} ***933.3*** 1 (†$_\gamma$100) E2

3728.8 6, (12) γ_{3550} ***178.7*** 3 (†$_\gamma$100) (D)

F **3840.6** 4, (13⁻) γ_{3298} ***542.2*** 1 (†$_\gamma$100 4) M1 γ_{2934} ***907.1*** 1 (†$_\gamma$88 2) E2

4003.7 4, (15⁻) γ_{3562} ***441.6*** 2 (†$_\gamma$100) E1

C **4136.8** 4, (16⁺) γ_{3562} ***575.0*** 1 (†$_\gamma$100) (Q)

F **4367.2** 5, (14) γ_{3841} ***526.5*** 3 (†$_\gamma$100) D

D **4369.7** 5, (17⁺) γ_{4137} ***232.9*** 3 (†$_\gamma$100) D

4376.7 5, (16⁻) γ_{4004} ***372.7*** 3 (†$_\gamma$100) M1

F **4450.3** 4, (15⁻) γ_{3841} ***609.7*** 1 (†$_\gamma$100) E2

4454.4 5, (15) γ_{3562} ***892.5*** 3 (†$_\gamma$100) D

4601.3 5, (17⁻) γ_{4004} ***597.6*** 3 (†$_\gamma$100) (Q)

D **4657.9** 6, (18⁺) γ_{4370} ***288.2*** 3 (†$_\gamma$100) (D)

4703.1 5, (18⁻) γ_{4377} ***326.1*** 3 (†$_\gamma$100) (Q)

4750.7 5, (17) γ_{4137} ***613.9*** 3 (†$_\gamma$100) D

C **4796.2** 5, (18⁺) γ_{4137} ***659.7*** 3 (†$_\gamma$100) E2

4837.1 6, (18⁻) γ_{4377} ***460.4*** 3 (†$_\gamma$100) (Q)

F **4965.7** 4, (16⁻) γ_{4450} ***515.4*** 1 (†$_\gamma$100) D

D **5005.9** 7, (19⁺) γ_{4658} ***348.0*** 3 (†$_\gamma$100) D

5061.8 5, (17⁻) γ_{4004} ***1058.1*** 3 (†$_\gamma$100)

F **5110.8** 5, (17⁻) γ_{4966} ***145.1*** 3 (†$_\gamma$100) (D)

5168.5 7, (20⁺) γ_{5006} ***162.4*** 3 (†$_\gamma$100) D

5236.4 5, (17⁺) γ_{4966} ***270.7*** 3 (†$_\gamma$100) (D)

5258.4 6, (20⁻) γ_{4796} ***462.2*** 3 (†$_\gamma$100)

F **5307.9** 6, (18⁻) γ_{5111} ***197.1*** 3 (†$_\gamma$100) D

5329.9 6, (18) γ_{4601} ***728.6*** 3 (†$_\gamma$100) (D)

D ***5402.7*** 7, (20⁺) γ_{5006} ***396.8*** 3 (†$_\gamma$100) D

5552.1 7, (19⁻) γ_{4837} ***715.0*** 3 (†$_\gamma$100) (D)

C **5552.4** 5, (20⁺) γ_{4796} ***756.5*** 3 (†$_\gamma$100 19) (Q) γ_{4703} ***849.1*** 3 (†$_\gamma$28 2)

5585.6 6, (19⁺) γ_{5236} ***329.2*** 3 (†$_\gamma$100) (Q)

F **5568.2** 7, (19⁻) γ_{5308} ***260.3*** 3 (†$_\gamma$100) (D)

F **5687.9** 7, (20⁻) γ_{5568} ***119.7*** 3 (†$_\gamma$100) (D)

5732.9 6, (20⁻) γ_{4703} ***1029.8*** 3 (†$_\gamma$100) (E2)

5760.1 7, (21⁺) γ_{5169} ***591.3*** 3 (†$_\gamma$69 7) γ_{5006} ***754.4*** 3 (†$_\gamma$100 25)

F **6063.9** 6, (21⁻) γ_{5688} ***376.0*** 3 (†$_\gamma$100) D

6065.1 7, (20⁻) γ_{5566} ***499.5*** 3 (†$_\gamma$100) D

6206.9 7 $\gamma_{5552.1}$ ***654.8*** 3 (†$_\gamma$100)

6273.8 7, (21⁺) γ_{6065} ***208.7*** 3 (†$_\gamma$100) D

C **6378.7** 6, (22⁺) $\gamma_{5552.4}$ ***826.3*** 3 (†$_\gamma$100) (Q)

F **6400.5** 9, (22⁻) γ_{6064} ***336.6*** 3 (†$_\gamma$100) D

6468.4 8, (23⁺) γ_{6274} ***194.6*** 3 (†$_\gamma$100) (Q)

F **6798.3** 9, (23⁻) γ_{6401} ***397.8*** 3 (†$_\gamma$100) (M1)

6817.2 9, (23) γ_{6401} ***416.7*** 3 (†$_\gamma$100) D

E **x**, J

E **163.1+x**, J+1 γ_x ***163.1*** 3 (†$_\gamma$100) D

E **466.2+x**, J+2 γ_{163+x} ***303.1*** 3 (†$_\gamma$100) D

E **596.6+x**, J+3 γ_{466+x} ***130.4*** 3 (†$_\gamma$100) (D)

E **994.0+x**, J+4 γ_{597+x} ***397.4*** 3 (†$_\gamma$100) D

E **1131.0+x**, J+5 γ_{994+x} ***137.0*** 3 (†$_\gamma$100) D

E **1507.7+x**, J+6 γ_{1131+x} ***376.7*** 3 (†$_\gamma$100) D

E **1719.9+x**, J+7 γ_{1508+x} ***212.2*** 3 (†$_\gamma$100) D

E **1917.0+x**, J+8 γ_{1508+x} ***409.3*** 3 (†$_\gamma$100) (Q)

E **2083.6+x**, J+9 γ_{1720+x} ***363.7*** 3 (†$_\gamma$100) (D)

E **2344.4+x**, J+10 γ_{2084+x} ***260.8*** 3 (†$_\gamma$100) (D)

E **2409.2+x**, J+11 γ_{2344+x} ***64.8*** 3 (†$_\gamma$100) D

E **2677.1+x**, J+12 γ_{2409+x} ***267.9*** 3 (†$_\gamma$100) (D)

E **2984.9+x**, J+13 γ_{2677+x} ***307.8*** 3 (†$_\gamma$100) D

E **3212.9+x**, J+14 γ_{2985+x} ***228.0*** 3 (†$_\gamma$100) (Q)

A **y**, J=(6)

A **169.6+y**, J+2 γ_y ***169.6*** 5 (†$_\gamma$0.50 12) *I⁽¹⁾=88.4, I⁽²⁾=92.0, ħω=0.096*

A **382.7+y**, J+4 γ_{170+y} ***213.1*** 5 (†$_\gamma$0.74 15) *I⁽¹⁾=89.2, I⁽²⁾=92.4, ħω=0.117*

A **639.1+y**, J+6 γ_{383+y} ***256.4*** 2 (†$_\gamma$1.03 15) *I⁽¹⁾=89.7, I⁽²⁾=94.3, ħω=0.139*

A **937.9+y**, J+8 γ_{639+y} ***298.8*** 2 (†$_\gamma$1.15 20) *I⁽¹⁾=90.4, I⁽²⁾=97.8, ħω=0.160*

A **1277.6+y**, J+10 γ_{938+y} ***339.7*** 2 (†$_\gamma$1.00 15) *I⁽¹⁾=91.3, I⁽²⁾=99.3, ħω=0.180*

A **1657.6+y**, J+12, >0.5 ps γ_{1278+y} ***380.0*** 2 (†$_\gamma$1.00 15) *I⁽¹⁾=92.1, I⁽²⁾=102.3, ħω=0.200*

A **2076.7+y**, J+14, 0.24$^{+43}_{-14}$ ps γ_{1658+y} ***419.1*** 5 (†$_\gamma$0.90 15) *I⁽¹⁾=93.1, I⁽²⁾=101.8, ħω=0.219*

A **2535.1+y**, J+16, 0.14$^{+10}_{-7}$ ps γ_{2077+y} ***458.4*** 5 (†$_\gamma$0.63 15) *I⁽¹⁾=93.8, I⁽²⁾=107.5, ħω=0.239*

A **3030.7+y**, J+18, 0.13 5 ps γ_{2536+y} ***495.6*** 5 (†$_\gamma$0.62 15) *I⁽¹⁾=94.8, I⁽²⁾=110.2, ħω=0.257*

A **3562.6+y**, J+20, 0.08 5 ps γ_{3031+y} ***531.9*** 5 (†$_\gamma$0.68 15) *I⁽¹⁾=95.9, I⁽²⁾=111.1, ħω=0.275*

A **4130.5+y**, J+22, 0.07 2 ps γ_{3563+y} ***567.9*** 5 (†$_\gamma$0.60 15) *I⁽¹⁾=96.8, I⁽²⁾=113.0, ħω=0.293*

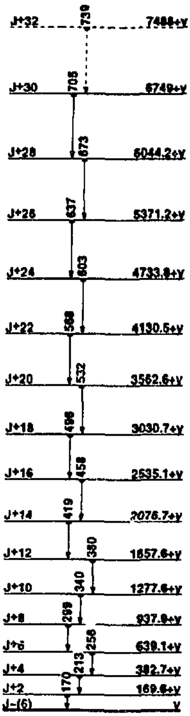
A **4733.6+y**, J+24 γ_{4131+y} ***603.3*** 5 (†$_\gamma$0.50 15) *I⁽¹⁾=97.8, I⁽²⁾=117.3, ħω=0.310*

A **5371.2+y**, J+26 γ_{4734+y} ***637.4*** 5 (†$_\gamma$0.40 15) *I⁽¹⁾=98.8, I⁽²⁾=112.4, ħω=0.328*

A **6044.2+y**, J+28 γ_{5371+y} ***673*** 1 *I⁽¹⁾=99.6, I⁽²⁾=125.0, ħω=0.345*

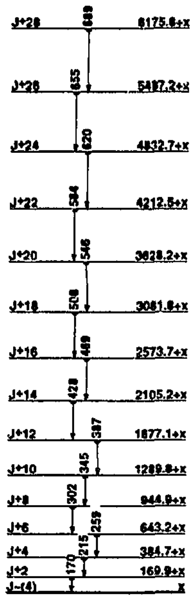
A **6749+y**, J+30 γ_{6044+y} ***705*** *I⁽¹⁾=100.7, I⁽²⁾=117.6, ħω=0.361*

A **7488+y** (?), J+32 γ_{6749+y} ***739*** (?) *I⁽¹⁾=101.5*



SD band

$^{194}_{82}Pb$



SD band

$^{196}_{82}Pb$

$^{196}_{82}Pb$

Δ: (−25420) S_n: (9700) S_p: (4440) Q_{EC}: (2050) Q_α: (4200)

Nuclear Bands

A Band Structure
B SD band

Levels and γ-ray branchings:

0, 0⁺, 37 *3* m, %EC+%β⁺=100, %α≤3×10⁻⁵
1049.20 *9*, 2⁺, <100 ns γ_0 *1049.21 9* ($\dagger_\gamma$100) E2
A 1142.86 *17*, 0⁺ γ_0 *1142.73* ($\dagger_e$2.0 *3*) E0
A 1449.67 *13*, 2⁺ γ_{1143} *306.9 3* ($\dagger_\gamma$16 *5*) γ_{1049} *400.9 2* ($\dagger_\gamma$91 *5*) E0+M1+E2 γ_0 *1449.7 3* ($\dagger_\gamma$100 *9*) E2
1697.8 *5*, 0⁺ γ_0 *1697.8 5* ($\dagger_e$0.2 *1*) E0
1738.27 *12*, 4⁺, <1 μs γ_{1450} *288.7 2* ($\dagger_\gamma$1.3 *4*) γ_{1049} *689.00 9* ($\dagger_\gamma$100 *4*) E2
1797.51 *14*, 5⁻, 133 *8* ns, μ=0.490 *15* γ_{1738} *59.23 9* ($\dagger_\gamma$100 *23*) E1 γ_{1049} *748.4 3* ($\dagger_\gamma$10 *1*) E3
1825.60 *16*, (3,4)⁺ γ_{1450} *375.5 2* ($\dagger_\gamma$9 *2*) γ_{1049} *776.6 2* ($\dagger_\gamma$100 *7*) E2(+M1): δ=2.0
A 1861.7 *6*, (4⁺) γ_{1450} *411.8 5* ($\dagger_\gamma$100)
1896.10 *17*, (2)⁺ γ_{1143} *753.4 2* ($\dagger_\gamma$58 *25*) (E2) γ_{1049} *846.7 2* ($\dagger_\gamma$100 *8*) E2(+M1): δ=1.83 γ_0 *1896.3 5* ($\dagger_\gamma$38 *17*)
1991.61 *22*, 3⁻ γ_{1049} *942.4 2* ($\dagger_\gamma$100) E1
2060.06 *23*, (1,2)⁺ γ_{1143} *916.8 3* ($\dagger_\gamma$33 *25*) γ_{1049} *1011.1 3* ($\dagger_\gamma$100 *17*) γ_0 *2060.9 7* ($\dagger_\gamma$17 *8*)
2124.41 *22*, (1,2,3) γ_{1450} *674.6 2* ($\dagger_\gamma$100 *20*) γ_{1049} *1075.0 4* ($\dagger_\gamma$70 *50*)
2169.44 *16*, 7⁻, <5 ns γ_{1798} *371.93 8* ($\dagger_\gamma$100) E2
2203.27 *24*, (4⁺) γ_{1450} *753.4 2* ($\dagger_\gamma$100) (E2)
2307.83 *18*, 9⁻, 53 *3* ns γ_{2169} *138.41 7* ($\dagger_\gamma$100) E2
2333.9 *3*, (8⁻) γ_{2169} *164.5 2* ($\dagger_\gamma$100)
2376.05 *20*, 6⁺ γ_{1826} *550.4 3* ($\dagger_\gamma$12 *6*) γ_{1738} *637.8 2* ($\dagger_\gamma$100 *16*) E2
A 2423.9 *6*, (6⁺) γ_{1862} *562.2 5* ($\dagger_\gamma$100)
2470.77 *23* γ_{1738} *732.5 2* ($\dagger_\gamma$100)
2590.96 *19*, 8⁺ γ_{2308} *283.2 2* ($\dagger_\gamma$63 *6*) γ_{2169} *421.5 1* ($\dagger_\gamma$100 *13*) E1
A 2821.9 *9*, (8⁺), 50 *15* ns γ_{2424} *198.0 5* ($\dagger_\gamma$100)
2645.12 *19*, 10⁺, <2 ns γ_{2308} *337.29 7* ($\dagger_\gamma$100) E1
2692.8 *6*, 12⁺, 271 *3* ns, μ=−1.920 *18*, Q=0.65 *5* γ_{2645} *47.7 5* ($\dagger_\gamma$100) (E2)
3041.4 *3*, 4⁺ γ_{2376} *665.4 2* ($\dagger_\gamma$100) E2
3087.25 *25*, (9,10)⁺ γ_{2591} *496.3 2* ($\dagger_\gamma$100) M1(+E2): δ=0.89
3190.5 *6*, 11⁻, 72 *3* ns, μ=10.6 *9* γ_{2693} *497.7 2* ($\dagger_\gamma$100) (E1) γ_{2643} *548.4*(?)
3394.12 *25*, (9,10)⁺ γ_{3087} *306.9 3* ($\dagger_\gamma$75 *25*) (E2) γ_{2645} *749.0 2* ($\dagger_\gamma$<100) γ_{2591} *803.1 5* ($\dagger_\gamma$50 *25*)
3652.5 *6*, 14⁺ γ_{2693} *959.69 9* ($\dagger_\gamma$100) E2
3737.9 *7*, (12,13)⁻ γ_{3191} *547.4 4* ($\dagger_\gamma$100) (E2+M1)
4120.1 *6*, 15⁻ γ_{3653} *467.61 9* ($\dagger_\gamma$100) E1
4217.2 *6*, 16⁺ γ_{3653} *564.7 1* ($\dagger_\gamma$7.2 *6*) E2
4332.¹ *6*, 16⁺ γ_{3653} *679.7 3* ($\dagger_\gamma$100) E2
4478.0 *6*, 15⁻, 5.0 *5* ns γ_{4120} *357.9 1* ($\dagger_\gamma$100) M1+E2: $\delta=1.5^{+20}_{-5}$
4646.0 *7*, 16⁻ γ_{4120} *525.9 3* ($\dagger_\gamma$100) M1+E2: $\delta=-0.4^{+3}_{-40}$
4675.0 *7*, (⁻) γ_{4478} *197.0 4* ($\dagger_\gamma$100) (E2)
4722.3 *6*, 16⁻ γ_{4478} *244.31 10* ($\dagger_\gamma$100) M1+E2: $\delta=0.3^{+1}_{-5}$
4962.4 *6*, (18⁺) γ_{4332} *630.4 3* ($\dagger_\gamma$91 *9*) E2 γ_{4217} *745.2 2* ($\dagger_\gamma$100 *18*) E2
5491.5 *7*, (20⁺) γ_{4962} *529.1 3* ($\dagger_\gamma$100) E2
5707.7, (19⁻) γ_{4962} *745.2 2*(?) ($\dagger_\gamma$100) E1
B x, J=(4)
B 169.9+x, J+2 γ_x *169.9 3* ($\dagger_\gamma$0.19 *3*) *$I^{(1)}$=64.7, $I^{(2)}$=89.1, ħω=0.096*
B 384.7+x, J+4 γ_{170+x} *214.8 2* ($\dagger_\gamma$0.49 *6*) (E2) *$I^{(1)}$=69.8, $I^{(2)}$=91.5, ħω=0.118*
B 643.2+x, J+6 γ_{385+x} *258.5 2* ($\dagger_\gamma$0.89 *11*) (E2) *$I^{(1)}$=73.5, $I^{(2)}$=92.6, ħω=0.140*
B 944.9+x, J+8 γ_{643+x} *301.7 2* ($\dagger_\gamma$0.98 *13*) (E2) *$I^{(1)}$=76.2, $I^{(2)}$=92.6, ħω=0.162*
B 1289.8+x, J+10 γ_{945+x} *344.9 2* ($\dagger_\gamma$1.00 *8*) (E2) *$I^{(1)}$=78.3, $I^{(2)}$=94.3, ħω=0.183*
B 1677.1+x, J+12 γ_{1290+x} *387.3 2* ($\dagger_\gamma$0.94 *8*) (E2) *$I^{(1)}$=80.0, $I^{(2)}$=98.0, ħω=0.204*
B 2105.2+x, J+14 γ_{1677+x} *428.1 2* ($\dagger_\gamma$0.91 *12*) (E2) *$I^{(1)}$=81.8, $I^{(2)}$=99.0, ħω=0.224*
B 2573.7+x, J+16, 0.23 *10* ps γ_{2106+x} *468.5 2* ($\dagger_\gamma$0.90 *10*) (E2) *$I^{(1)}$=83.2, $I^{(2)}$=101.0, ħω=0.244*
B 3081.8+x, J+16, 0.12^{+3}_{-5} *ps* γ_{2574+x} *508.1 2* ($\dagger_\gamma$0.76 *8*) (E2) *$I^{(1)}$=84.6, $I^{(2)}$=104.4, ħω=0.264*
B 3628.2+x, J+20, 0.08^{+5}_{-2} *ps* γ_{3082+x} *546.4 2* ($\dagger_\gamma$0.53 *9*) (E2) *$I^{(1)}$=86.0, $I^{(2)}$=105.5, ħω=0.283*
B 4212.5+x, J+22 γ_{3628+x} *584.3 2* ($\dagger_\gamma$0.41 *6*) (E2) *$I^{(1)}$=87.3, $I^{(2)}$=111.4, ħω=0.301*
B 4832.7+x, J+24 γ_{4213+x} *620.2 2* ($\dagger_\gamma$0.38 *6*) (E2) *$I^{(1)}$=88.7, $I^{(2)}$=116.6, ħω=0.319*
B 5487.2+x, J+26 γ_{4833+x} *654.5 3* ($\dagger_\gamma$0.15 *3*) *$I^{(1)}$=90.1, $I^{(2)}$=117.3, ħω=0.336*
B 6175.8+x, J+28 γ_{5487+x} *688.6 3* ($\dagger_\gamma$0.14 *4*) *$I^{(1)}$=91.5*

$^{198}_{82}$Pb

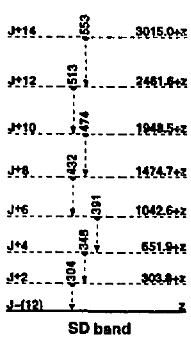
Δ: (−26100) S_n: (9380) S_p: (5020) Q_{EC}: (1410) Q_α: (3720)

Nuclear Bands

- *A* Band Structure
- *B* Band Structure
- *C* Band Structure
- *D* Band Structure
- *E* SD band

Levels and γ-ray branchings:

A 0, 0⁺, 2.40 *10* h, %EC+%β⁺=100
A 1063.50 *20*, 2⁺ γ_0 *1063.5 2* ($\dagger_\gamma$100) E2
1392.1 *10*, (0⁺) γ_0 *1392.1* (E0)
A 1625.9 *3*, 4⁺ γ_{1064} *562.4 2* ($\dagger_\gamma$100) E2
1734.7 *10*, (0⁺) γ_0 *1734.1* (E0)
1823.5 *4*, 5⁻, 49 *5* ns, μ=0.38 *3* γ_{1626} *197.6 2* ($\dagger_\gamma$100) E1
2141.4 *4*, (7⁻), 14^{+10}_{-5} ns γ_{1824} *317.9 2* ($\dagger_\gamma$100) E2
2141.4+y *4*, (8⁻), 4.19 *10* μs
2231.4+y *5*, (9⁻) γ_{2141+y} *90.0 2* ($\dagger_\gamma$100) (E2+M1): $\delta=2.6^{+20}_{-7}$
A 2772.3+y *5*, (10⁺) γ_{2231+y} *540.9 2* ($\dagger_\gamma$100) E1
A 2772.3+x *5*, (12⁺), 212 *4* ns
A 3701.4+x *6*, (14⁺) γ_{2773+x} *929.1 2* ($\dagger_\gamma$100) E2
C 4142.0+x *6*, (16⁺) γ_{3701+x} *440.6 2* ($\dagger_\gamma$100) E2
B 4331.4+x *6*, (15⁻) γ_{3701+x} *630.0 2* ($\dagger_\gamma$100) E1
D 4653.3+x *6*, (16⁺) γ_{4331+x} *321.9 2* ($\dagger_\gamma$100) (E1) γ_{4142+x} *511.3 2* ($\dagger_\gamma$=47)
4724.8+x *6*, (16), 6.4 *10* ns γ_{4653+x} *71.5*(?) γ_{4331+x} *393.4 2* ($\dagger_\gamma$100) D
4793.6+x *6*, (16⁺) γ_{4331+x} *462.2 2* ($\dagger_\gamma$100) (E1)
C 5022.3+x *7*, (18⁺) γ_{4142+x} *880.3 3* ($\dagger_\gamma$100) E2
B 5092.1+x *6*, (17⁻) γ_{4331+x} *760.7 2* ($\dagger_\gamma$100) E2
D 5601.0+x *6*, (18⁺) γ_{4653+x} *947.7 2* ($\dagger_\gamma$100) E2
B 5789.6+x *7*, (19⁻) γ_{5092+x} *697.5 2* ($\dagger_\gamma$100) E2
C 5952.3+x *6*, (20⁺) γ_{2141} *630.0 2* ($\dagger_\gamma$100) (E2)
D 6410.0+x *7*, (20) γ_{5601+x} *817.0 2* ($\dagger_\gamma$100) Q
C 6450.8+x *6*, (22⁺) γ_{2141} *798.5 2* ($\dagger_\gamma$100) E2
B 6450.9+x *7*, (21⁻) γ_{5790+x} *661.3 2* ($\dagger_\gamma$100) E2
B 6929.9+x *7*, (23⁻) $\gamma_{6450.9+x}$ *479.0 2* ($\dagger_\gamma$100) (E2)
E z (?), J=(12)
E 303.8+z (?), J+2 γ_z *303.8 4*(?) ($\dagger_\gamma$0.45 *20*) *$I^{(1)}$=88.9, $I^{(2)}$=90.3, ħω=0.163*
E 651.9+z (?), J+4 γ_{304+z} *348.1 5*(?) *$I^{(1)}$=89.1, $I^{(2)}$=93.9, ħω=0.185*
E 1042.6+z (?), J+6 γ_{652+z} *390.7 4*(?) ($\dagger_\gamma$0.85 *20*) *$I^{(1)}$=89.6, $I^{(2)}$=96.6, ħω=0.206*
E 1474.7+z (?), J+8 γ_{1043+z} *432.1 5*(?) ($\dagger_\gamma$1.00 *25*) *$I^{(1)}$=90.3, $I^{(2)}$=95.9, ħω=0.226*
E 1948.5+z (?), J+10 γ_{1475+z} *473.8 5*(?) ($\dagger_\gamma$0.60 *30*) *$I^{(1)}$=90.8, $I^{(2)}$=101.8, ħω=0.247*
E 2461.6+z (?), J+12 γ_{1949+z} *513.1 7*(?) ($\dagger_\gamma$0.95 *30*) *$I^{(1)}$=91.6, $I^{(2)}$=99.3, ħω=0.267*
E 3015.0+z (?), J+14 γ_{2462+z} *553.4 7*(?) ($\dagger_\gamma$0.45 *20*) *$I^{(1)}$=92.2*



SD band

$^{198}_{82}$Pb

$^{236}_{92}$U

Δ:42439.8 20 S_n:6544.8 5 S_p:7170 50 Q_α:4572.0 9

σ_f: 0 b, σ_γ^0:5.11 21 b

Nuclear Bands

- *A* GS band
- *B* Band Structure
- *C* ν7/2[743]-ν1/2[631]
- *D* ν7/2[743]+ν5/2[622]
- *E* Band Structure
- *F* Band Structure
- *G* ν7/2[743]-ν5/2[622]
- *H* ν7/2[743]+ν1/2[631]
- *I* Band Structure
- *J* Fission Isomer band

Levels and γ-ray branchings:

A **0**, 0^+, 2.342×10^7 3 y, %α=100, %SF=9.6×10^{-8} 6

A **45.242** 3, 2^+, 234 6 ps γ_0 ***45.242*** 3 ($\dagger_\gamma$100) E2

A **149.476** 15, 4^+, 124 7 ps γ_{45} ***104.234*** 6 ($\dagger_\gamma$100) E2

A **309.784** 6, 6^+, 58 3 ps γ_{149} ***160.308*** 3 ($\dagger_\gamma$100) E2

A **522.24** 5, 8^+, 24 2 ps γ_{310} ***212.46*** 5 ($\dagger_\gamma$100) E2

B **687.60** 5, 1^-, 3.78 9 ns γ_{149} ***538.11*** 10 ($\dagger_\gamma$1.20 10) E3 γ_{45} ***642.35*** 9 ($\dagger_\gamma$100) E1(+M2+E3) γ_0 ***687.59*** 9 ($\dagger_\gamma$27.3 5) E1

B **744.15** 8, 3^- γ_{688} ***56.6*** 5 ($\dagger_\gamma$≈5) (E2) γ_{149} ***594.5*** 3 ($\dagger_\gamma$100)

A **782.3** 5, 10^+, 11.6 11 ps γ_{522} ***260.1*** 5 ($\dagger_\gamma$100) E2

B **848.3** 8, 5^- γ_{744} ***104.1*** 10 ($\dagger_\gamma$100) (E2)

E **919.21** 17, 0^+ γ_{45} ***874.1*** 2 ($\dagger_\gamma$100) γ_0 ***918.9*** 3 (E0)

F **957.99** 17, (2^+) γ_{45} ≈***912.7*** ($\dagger_\gamma$≈71) (M1) γ_0 ***958.0*** 2 ($\dagger_\gamma$100)

E **960.3** 3, (2^+) γ_{149} ≈***810.9*** ($\dagger_\gamma$≈68) γ_{45} ***915.1*** 3 ($\dagger_\gamma$100) (M1+E0) γ_0 ≈***959.9*** ($\dagger_\gamma$≈80)

G **966.63** 9, 1^- γ_{688} ***279.0*** 1 ($\dagger_\gamma$60 4) (M1,E2) γ_{45} ***921.2*** 2 ($\dagger_\gamma$44 11) E1 γ_0 ***966.9*** 2 ($\dagger_\gamma$100) E1

G **987.57** 8, 2^- γ_{744} ***243.6*** 2 ($\dagger_\gamma$28 3) E2+M1: δ=1.6^{+15}_{-6} γ_{688} ***300.0*** 1 ($\dagger_\gamma$20 3) (E2) γ_{45} ***942.4*** 2 ($\dagger_\gamma$100) E1

B **999.6** 9, 7^- γ_{848} ***151.5*** 5 ($\dagger_\gamma$100) E2

F **1001.5** 3, (3^+) γ_{744} ≈***258.4*** γ_{149} ≈***852.2*** ($\dagger_\gamma$≈13) γ_{45} ***956.2*** 3 ($\dagger_\gamma$100)

G **1035.6** 7, (3^-) γ_{149} ***886.2*** 10 ($\dagger_\gamma$100) γ_{45} ***990.2*** 10 ($\dagger_\gamma$≈88)

E **1050.85** 15, (4^+) γ_{149} ***901.25*** 17 γ_{45} ***1006.0*** 3 ($\dagger_\gamma$100)

H **1052.89** 19, $(4)^-$, 100 4 ns γ_{988} ***65*** 1 ($\dagger_\gamma$1.5 2) ($\dagger_{\gamma+e}$163 12) (E2) γ_{848} ***204.6*** 10 ($\dagger_\gamma$41 6) (E2) γ_{744} ***308.0*** 6 ($\dagger_\gamma$37 6) E2+M1: δ=1.4 7 γ_{149} ***903.5*** 2 ($\dagger_\gamma$17 3) E1

F **1058.61** 20, (4^+) γ_{149} ***909.1*** 2 ($\dagger_\gamma$100) (M1) γ_{45} ***1014.1*** ($\dagger_\gamma$100)

1066.1 10, $(3^+,4^+)$

G **1070.0** 10, (4^-) γ_{149} ***920.5*** ($\dagger_\gamma$100)

A **1085.3** 7, 12^+, 5.3 8 ps γ_{782} ***303.0*** 5 ($\dagger_\gamma$100) E2

1093.8 10, $(2^+,5^+)$

H **1104.4** 14, (5^-)

I **1110.67** 8, (2^-) γ_{744} ***366.6*** 1 ($\dagger_\gamma$82 10) γ_{688} ***423.1*** 1 ($\dagger_\gamma$100 6) γ_{45} ***1065.0*** 2 ($\dagger_\gamma$34 4)

F **1126.9** 6, (5^+) γ_{149} ***977.4*** 6 ($\dagger_\gamma$100)

1147.0 10, $(3^+,4^+)$

I **1149.4** 10, (3^-) γ_{744} ***405.2*** ($\dagger_\gamma$100)

G **1164** 3, (5^-)

H **1164** 3, (6^-)

1171.8 2

B **1198.6** 10, 9^- γ_{1000} ***198.8*** 3 ($\dagger_\gamma$100) E2

1221.4 10, $(2^+,5^+)$

H ≈**1232**, (7^-)

C **1232.2** 10, (4^-)

1249.3 10, $2^+,5^+$

1265.2 10, $3^+,4^+$

1271.09 8, $(1^-,2,3)$ γ_{744} ***526.7*** 2 ($\dagger_\gamma$39 4) γ_{45} ***1225.9*** 1 ($\dagger_\gamma$100 8)

C **1282.2** 10, (5^-)

H **1320** 4, (8^-)

1320.4 10, $2^+,5^+$

1329.0 10, $3^+,4^+$

1332.8 10, $3^+,4^+$

C **1342.8** 10, (6^-)

1347.5 10, $(3^+,4^+)$

1351.3 10, $3^+,4^+$

1381.3 10, $3^+,4^+$

1399.8 10, $2^+,5^+$

C **1413.3** 19, (7^-)

A **1426.3** 9, 14^+, 2.8 3 ps γ_{1085} ***341.0*** 5 ($\dagger_\gamma$100) E2

B **1443.6** 11, 11^- γ_{1199} ***245.0*** 5 ($\dagger_\gamma$100) E2

D **1471.7** 10, (6^-)

D **1541.8** 13, (7^-)

1572.2 6

1580 11(?), (1,2) γ_0 ***1580*** 11(?)

1604.80 7, $1^-,2^+$ γ_{1271} ***333.7*** 1 ($\dagger_\gamma$37 2) γ_{988} ***617.1*** 2 ($\dagger_\gamma$9.5 20) γ_{744} ***860.6*** 1 ($\dagger_\gamma$35 1) γ_{688} ***917.0*** 3 ($\dagger_\gamma$62 4) γ_{45} ***1559.6*** 1 ($\dagger_\gamma$100 9) γ_0 ***1604.9*** 2 ($\dagger_\gamma$18 5)

D **1621.8** 12, (8^-)

1642.5 20

1662.37 8, $1,2^+$ γ_{988} ***674.5*** 2 ($\dagger_\gamma$23 8) γ_{688} ***975.0*** 2 ($\dagger_\gamma$21 5) γ_{45} ***1617.1*** 1 ($\dagger_\gamma$100 9) γ_0 ***1662.4*** 2 ($\dagger_\gamma$66 7)

B **1732.6** 15, 13^- γ_{1444} ***289*** 1 ($\dagger_\gamma$100) E2

1791.3 8, $1(^+)$ γ_{45} ***1746.1*** 10 ($\dagger_\gamma$38 8) (M1) γ_0 ***1791.3*** 10 ($\dagger_\gamma$100) (M1)

A **1800.9** 10, 16^+, 2.1 2 ps γ_{1426} ***374.6*** 5 ($\dagger_\gamma$100) E2

1807.88 7, $1,2^+$ γ_{45} ***1762.7*** 1 ($\dagger_\gamma$100 5) γ_0 ***1807.8*** 1 ($\dagger_\gamma$37 2)

1865.41 15, $1,2^+$ γ_{688} ***1177.7*** 2 ($\dagger_\gamma$100 14) γ_0 ***1865.5*** 2 ($\dagger_\gamma$67 8)

1896.9 7

1972.82 9, $1,2^+$ γ_{45} ***1927.0*** 2 ($\dagger_\gamma$100 7) γ_0 ***1972.7*** 1 ($\dagger_\gamma$100 9)

1979.1, $1^-,2$ γ_{744} ***1234.9*** 1 ($\dagger_\gamma$100 8) γ_{688} ***1291.6*** 1 ($\dagger_\gamma$100 8) γ_{45} ***1934.1*** 2 ($\dagger_\gamma$98 8)

1981.06 16, $1,2^+$ γ_{1111} ***870.4*** 2 ($\dagger_\gamma$100 9) γ_{958} ***1023.1*** 3 ($\dagger_\gamma$84 8) γ_0 ***1981.0*** 3 ($\dagger_\gamma$74 7)

2054.2 8, $1(^+)$ γ_{45} ***2009.0*** 10 ($\dagger_\gamma$75 14) (M1) γ_0 ***2054.2*** 10 ($\dagger_\gamma$100) (M1)

B **2060.6** 18, 15^- γ_{1733} ***328*** 1 ($\dagger_\gamma$100) E2

2086.54 9, $1(^-)$ γ_{45} ***2041.3*** 1 ($\dagger_\gamma$100 5) (E1) γ_0 ***2086.5*** 2 ($\dagger_\gamma$56 5) (E1)

2095.7 8, $1(^+)$ γ_{45} ***2050.5*** 10 ($\dagger_\gamma$47 15) (M1) γ_0 ***2095.7*** 10 ($\dagger_\gamma$100) (M1)

2155.40 12, $0,1,2$ γ_{1605} ***550.6*** 1 ($\dagger_\gamma$100)

2188.8 8, $1(^+)$ γ_{45} ***2143.6*** 10 ($\dagger_\gamma$49 3) (M1) γ_0 ***2188.8*** 10 ($\dagger_\gamma$100) (M1)

2190 10, $(1,2^+)$ γ_0 ***2190*** 30 ($\dagger_\gamma$100)

A **2203.9** 12, 18^+, 1.17 12 ps γ_{1801} ***403.0*** 5 ($\dagger_\gamma$100) E2

2226.9 3(?), (2) γ_{45} ***2181.6*** 3 ($\dagger_\gamma$100)

2243.9 10, 1 γ_0 ***2243.9*** 10 ($\dagger_\gamma$100)

2251.1 8, $1(^+)$ γ_{45} ***2205.9*** 10 ($\dagger_\gamma$100) γ_0 ***2251.1*** 10 ($\dagger_\gamma$96 13)

2284.7 8, $1(^+)$ γ_{45} ***2239.5*** 10 ($\dagger_\gamma$51 7) (M1) γ_0 ***2284.7*** 10 ($\dagger_\gamma$100) (M1)

B **2426.6** 21, 17^- γ_{2061} ***366*** 1 ($\dagger_\gamma$100) E2

2435.6 8, $1(^+)$ γ_{45} ***2390.4*** 10 ($\dagger_\gamma$34 7) (M1) γ_0 ***2435.6*** 10 ($\dagger_\gamma$100) (M1)

2440.2 8, $1(^+)$ γ_{45} ***2395.0*** 10 ($\dagger_\gamma$26 7) (M1) γ_0 ***2440.2*** 10 ($\dagger_\gamma$100) (M1)

2457.3 8, $1(^+)$ γ_{45} ***2412.1*** 10 ($\dagger_\gamma$50 9) (M1) γ_0 ***2457.3*** 10 ($\dagger_\gamma$100) (M1)

2494.5 8, $1(^+)$ γ_{45} ***2449.3*** 10 ($\dagger_\gamma$29 8) (M1) γ_0 ***2494.5*** 10 ($\dagger_\gamma$100) (M1)

2498.5 8, $1(^+)$ γ_{45} ***2453.3*** 10 ($\dagger_\gamma$66 12) (M1) γ_0 ***2498.5*** 10 ($\dagger_\gamma$100) (M1)

A **2631.7** 13, 20^+, 0.84 12 ps γ_{2204} ***427.8*** 5 ($\dagger_\gamma$100) E2

2699.0 8, $1(^+)$ γ_{45} ***2653.8*** 10 ($\dagger_\gamma$62 10) (M1) γ_0 ***2699.0*** 10 ($\dagger_\gamma$100) (M1)

2712.1 8, $1(^-)$ γ_{45} ***2666.9*** 10 ($\dagger_\gamma$100 12) (E1) γ_0 ***2712.1*** 10 ($\dagger_\gamma$44 8) (E1)

J **2750** 10, (0^+), 120 2 ns, %SF=13 6, %IT=87 6, %α<10 γ_{2190} ***560*** 10 ($\dagger_\gamma$12) γ_{1580} ***1170*** 10 ($\dagger_\gamma$20) γ_{967} ***1783*** 10 ($\dagger_\gamma$100) γ_{688} ***2062*** 10 ($\dagger_\gamma$26) γ_{45} ≈***2705*** ($\dagger_\gamma$<12)

2756.2 8, $1(^+)$ γ_{45} ***2711.0*** 10 ($\dagger_\gamma$55 16) (M1) γ_0 ***2756.2*** 10 ($\dagger_\gamma$100) (M1)

J **2770** 10, (2^+) γ_{2750} ***20.1*** 6 ($\dagger_\gamma$100)

J **2817** 10, (4^+) γ_{2770} ***47.0*** ($\dagger_\gamma$100) (E2)

2823.3 8, $1(^+)$ γ_{45} ***2778.1*** 10 ($\dagger_\gamma$97 26) (M1) γ_0 ***2823.3*** 10 ($\dagger_\gamma$100) (M1)

B ≈**2825**, (19^-) γ_{2427} ≈***396*** ($\dagger_\gamma$100) (E2)

2838.3 8, $1(^+)$ γ_{45} ***2793.1*** 10 ($\dagger_\gamma$100) (M1) γ_0 ***2838.3*** 10 ($\dagger_\gamma$92 27) (M1)

2877.8 8, $1(^-)$ γ_{45} ***2832.6*** 10 ($\dagger_\gamma$100) (E1) γ_0 ***2877.8*** 10 ($\dagger_\gamma$45 12) (E1)

J **2891** 10, (6^+) γ_{2817} ***73.9*** ($\dagger_\gamma$100) (E2)

2924.0 8, (2) γ_{45} ***2878.8*** 10 ($\dagger_\gamma$100) γ_0 ***2924.0*** 10 ($\dagger_\gamma$60 17)

2969.0 8, $1(^+)$ γ_{45} ***2923.8*** 10 ($\dagger_\gamma$50 12) (M1) γ_0 ***2969.0*** 10 ($\dagger_\gamma$100) (M1)

J **2992** 10, (8^+) γ_{2891} ***100.0***

A **3081.2** 14, 22^+, 0.65 15 ps γ_{2632} ***449.2*** 5 ($\dagger_\gamma$100) E2

3143.8 8, $1(^+)$ γ_{45} ***3098.6*** 10 ($\dagger_\gamma$56 14) (M1) γ_0 ***3143.8*** 10 ($\dagger_\gamma$100) (M1)

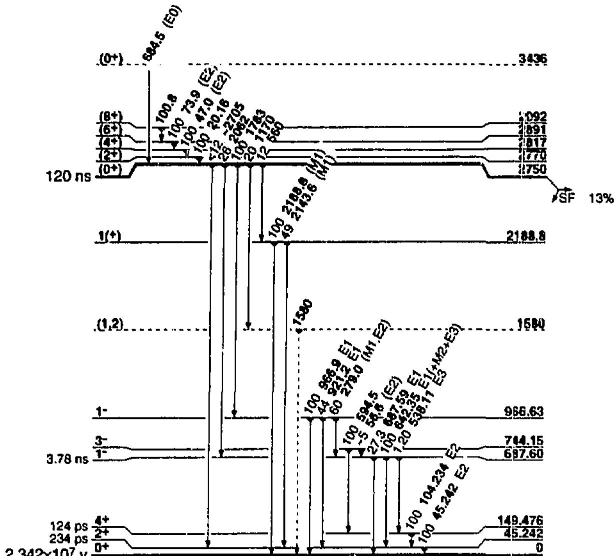
3436 10(?), (0^+) γ_{2750} ***684.5*** 7 (E0)

A **3550** 2, (24^+), 0.41 8 ps γ_{3081} ***469*** 1 ($\dagger_\gamma$100) (E2)

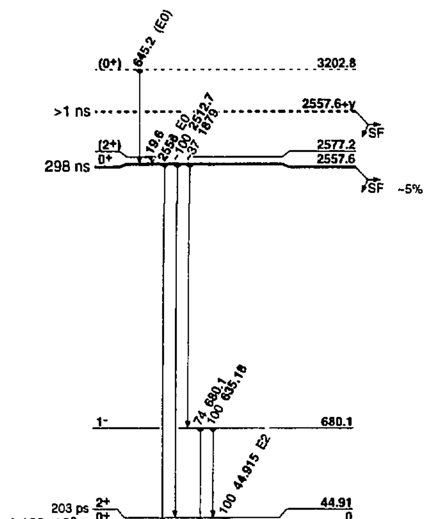
A **4039** 2, (26^+), 0.33 9 ps γ_{3550} ***489*** 1 ($\dagger_\gamma$100) (E2)

A **4549** 2, (28^+), 0.17 7 ps γ_{4039} ***510*** 1 ($\dagger_\gamma$100) (E2)

A ≈**5077**, (30^+) γ_{4549} ≈***528*** ($\dagger_\gamma$100) (E2)



$^{236}_{92}$U



$^{238}_{92}$U

$^{238}_{92}$U

%: 99.2745 60
Δ: 47304.5 20 S_n: 6152.0 14 S_p: 7620 100 Q_α: 4270 3
σ_γ: 2.680 19 b, σ_f: 0 mb, σ_α: 0.0013 6 mb

Nuclear Bands

- *A* GS band
- *B* Octupole band
- *C* Band Structure
- *D* β band
- *E* γ band
- *F* Band Structure
- *G* Band Structure
- *H* ν1/2[631]+ν5/2[622]
- *I* Band Structure
- *J* Fission isomer band

Levels and γ-ray branchings:

0, 0⁺, 4.468×10⁹ 3 y, %SF=5.38×10⁻⁵ 11, %α=100, Q=13.9 20
A **44.91** 3, 2⁺, 203 7 ps γ_0**44.915** 13 ($\dagger_\gamma$100) E2
A **148.41** 5, 4⁺ γ_{45}**103.50** 4 ($\dagger_\gamma$100)
A **307.21** 10, 6⁺ γ_{148}**158.80** 8 ($\dagger_\gamma$100)
A **518.3** 3, 8⁺, 23 3 ps γ_{307}**211.2** 3 ($\dagger_\gamma$100)
B **680.1** 2, 1⁻ γ_{45}**635.18** 3 ($\dagger_\gamma$100 2) γ_0**680.1** 3 ($\dagger_\gamma$74 4)
B **731.9** 2, 3⁻ γ_{148}**583.55** 3 ($\dagger_\gamma$83 2) γ_{45}**686.99** 3 ($\dagger_\gamma$100 2)
A **775.7** 4, 10⁺, 9.0 9 ps γ_{518}**257.8** 4 ($\dagger_\gamma$100)
B **826.7** 5, 5⁻ γ_{307}**519.44** 8 ($\dagger_\gamma$57 4) γ_{148}**678.4** 6 ($\dagger_\gamma$100 6)
C **925.7** 3, (0⁺) γ_{45}**880.8** 2 ($\dagger_\gamma$100)
F **930.8** 3, (1⁻) γ_{680}**251.3** 10 ($\dagger_\gamma$11 3) γ_{45}**886.2** 4 ($\dagger_\gamma$100 4) γ_0**931.5** 6 ($\dagger_\gamma$27 2)
F **950.2** 4, (2⁻) γ_{732}**218.0** 3 ($\dagger_\gamma$43 5) γ_{680}**270.1** 4 ($\dagger_\gamma$37 6) γ_{45}**905.6** 6 ($\dagger_\gamma$100 6)
B **966.3** 5, 7⁻ γ_{518}**448.4** 9 γ_{307}**659.1** 2
C **967.3** 3, 2⁺, 0.6 4 ps γ_{732}**234.5** 10 ($\dagger_\gamma$16 2) γ_{680}**286.4** 10 ($\dagger_\gamma$14 1) γ_{148}**818.4** 4 ($\dagger_\gamma$100 5) γ_{45}**922.3** 2 ($\dagger_\gamma$59 3) ($\dagger_{\gamma+e}$=420) E2+M1+E0 γ_0**967.3** 2 ($\dagger_\gamma$18 1)
D 993 (?), (0⁺)
F **997.5** 3, 3⁻ γ_{827}**171** ($\dagger_\gamma$<1.5) γ_{680}**318.0** 10 ($\dagger_\gamma$7.6 3) γ_{148}**849.1** 4 ($\dagger_\gamma$100 3) γ_{45}**952.70** 7 ($\dagger_\gamma$61 3)
D **1037.3** 2, 2⁺, 0.67 15 ps γ_{732}**305.5** 6 ($\dagger_\gamma$10.5 4) γ_{680}**357.7** 4 ($\dagger_\gamma$9.0 4) γ_{148}**888.9** 3 ($\dagger_\gamma$76.5 15) γ_{45}**993.0** 10 ($\dagger_\gamma$73.8 15) ($\dagger_{\gamma+e}$375 35) E2+M1+E0 γ_0**1037.4** 2 ($\dagger_\gamma$100 3)
C **1056.6** 3, (4⁺) γ_{307}**749.3** 3 ($\dagger_\gamma$100)
H **1059.5**, (3⁺) γ_{148}**911.1** ($\dagger_\gamma$43) γ_{45}**1014.6** ($\dagger_\gamma$100)
E **1060.3** 2, 2⁺, 0.66 5 ps γ_{148}**911.9** 4 ($\dagger_\gamma$3.3 2) γ_{45}**1015.3** 2 ($\dagger_\gamma$100 2) γ_0**1060.3** 2 ($\dagger_\gamma$68.4 13)
A **1076.5** 5, 12⁺, 4.2 6 ps γ_{776}**300.6** 9 ($\dagger_\gamma$100)
E **1105.7**, (3⁺) γ_{148}**957.33** 6 ($\dagger_\gamma$100) γ_{45}**1060.98** 3(?)
G **1112.6** 2, (1⁻) γ_{680}**432.5** 3 γ_0**1112.7** 3
D **1127.0** 3, (4⁺) γ_{827}**300.6** 10 ($\dagger_\gamma$57 48) γ_{148}**978.5** 3 ($\dagger_\gamma$<100)
G **1128.7** 3, (2⁻) γ_{931}**198.6** 3 ($\dagger_\gamma$≈12) γ_{732}**396.4** 3 ($\dagger_\gamma$25.5 14) γ_{680}**448.3** 4 ($\dagger_\gamma$100 4) γ_{45}**1084.0** 4 ($\dagger_\gamma$<60)
1135.8 2 γ_{307}**828.3** 6 ($\dagger_\gamma$25 8) γ_{45}**1090.9** 2 ($\dagger_\gamma$100 8)
B **1150.3** 6, 9⁻ γ_{776}**374.8** 4 γ_{518}**632.6** 4
E **1168.0** 2, (4⁺) γ_{148}**1019.61** 8 ($\dagger_\gamma$100 7) γ_{45}**1123.1** 2 ($\dagger_\gamma$40 4)
G **1170.4** 3, 3⁻ γ_{967}**203.4** 10 γ_{680}**490.3** 2 γ_{148}**1021** 1 γ_{45}**1123** 1
1224.2 3, (2⁺), 2.3 14 ps $\gamma_{1060.3}$**163.9** 5(?) ($\dagger_\gamma$17.4 15) γ_{950}**274.0** 10 ($\dagger_\gamma$<11) γ_{45}**1179.4** 2 ($\dagger_\gamma$93 4) γ_0**1223.7** 4 ($\dagger_\gamma$100 4)
1231
G **1232.6** 5, (4⁻) γ_{950}**282.2** 6 ($\dagger_\gamma$100 43) γ_{827}**405.8** 10 ($\dagger_\gamma$57 28) γ_{732}**501** 1 ($\dagger_\gamma$100 30) γ_{148}**1084.2**
1260.9 2 γ_{1037}**223.4** 4 ($\dagger_\gamma$100 24) γ_{148}**1112.7** 3 ($\dagger_\gamma$<41) γ_{45}**1215.9** 2 ($\dagger_\gamma$65 6) γ_0**1262** 1 ($\dagger_\gamma$12 6)
D **1269.2** 10, (6⁺) γ_{307}**962.0** 10 ($\dagger_\gamma$100)
1278.5 3, (1⁻,2⁺) γ_{732}**547.0** 3 ($\dagger_\gamma$80 20) γ_{45}**1233.8** 3 ($\dagger_\gamma$80 20) γ_0**1278.8** 2 ($\dagger_\gamma$100 10)
G **1285.8** 3, (5⁻) γ_{998}**287.9** 4 ($\dagger_\gamma$<100) γ_{307}**978.5** 3 ($\dagger_\gamma$<63) γ_{148}**1138.0** 10 ($\dagger_\gamma$27 9)
1355.2 3, (1,2⁺) γ_{45}**1310.5** 4 ($\dagger_\gamma$100 20) γ_0**1354.5** 10 ($\dagger_\gamma$60 20)
1375
B **1378.4** 6, 11⁻ γ_{1150}**228.1** 4 γ_{1077}**302.3** γ_{776}**602.**
G **1381.7** 3, (6⁻) γ_{827}**555.3** 5 ($\dagger_\gamma$71 28) γ_{307}**1074.4** 2 ($\dagger_\gamma$100 14)
1413.3 2, (2⁺,3⁻) γ_{1113}**300.6** 10 $\gamma_{1060.5}$**352.3** 1 ($\dagger_\gamma$100 8) γ_{931}**482.9** 3 ($\dagger_\gamma$28 8) γ_{148}**1265.6** 10 ($\dagger_\gamma$12 4) γ_{45}**1368.3** 2
A **1415.3** 6, 14⁺, 2.6 2 ps γ_{1077}**338.8** 4 ($\dagger_\gamma$100)
I **1482.0** 2, (0⁺) γ_{1113}**369.5** 2 ($\dagger_\gamma$100 15) γ_{1037}**443.8** 10 ($\dagger_\gamma$38 16) γ_{931}**552.5** 10 ($\dagger_\gamma$38 16) γ_{45}**1437.1** 2 ($\dagger_\gamma$100 15)
1515.5 2, (4⁺) γ_{950}**566.1** 3 γ_{307}**1209.3** 3 γ_{148}**1368.3** 2 γ_{45}**1470** 1
I **1530.7** 2, 2⁺ γ_{1129}**401.6** 3 ($\dagger_\gamma$91 18) γ_{732}**798.9** 2 ($\dagger_\gamma$100 10) γ_{148}**1381.8** 5 ($\dagger_\gamma$36 9) γ_{45}**1485** 1 ($\dagger_\gamma$18 9) γ_0**1531.6** 10 ($\dagger_\gamma$18 9)
1594.9 2, (2⁺,3,4⁺) γ_{827}**768.3** γ_{732}**863.5** 6 ($\dagger_\gamma$<37) γ_{148}**1446.2** 3 ($\dagger_\gamma$100 13) γ_{45}**1550.0** 4 ($\dagger_\gamma$75 13)
1630
I **1643.2** 3, 4⁺ γ_{1355}**287.9** 4 ($\dagger_\gamma$<100) γ_{827}**816.6** γ_{307}**1336.2** 3 ($\dagger_\gamma$54 9) γ_{148}**1495** 1 ($\dagger_\gamma$36 12) γ_{45}**1598.2** 4 ($\dagger_\gamma$46 13)
B **1648.9** 8, 13⁻ γ_{1378}**270.5** 4 γ_{1077}**572.4** 4
1665
1672.0 2 γ_{1106}**566.1** 3 ($\dagger_\gamma$<100) γ_{148}**1523.7** 3 ($\dagger_\gamma$56 11) γ_{45}**1627.3** 6 ($\dagger_\gamma$33 11)
1712
1761.2 4, (4⁺) γ_{1224}**536.8** 4 ($\dagger_\gamma$46 18) γ_{1136}**625.2** 2 ($\dagger_\gamma$100 20) γ_{1106}**655** 1 ($\dagger_\gamma$46 18) γ_{307}**1454** 1 ($\dagger_\gamma$27 9) γ_{45}**1716.7** 6 ($\dagger_\gamma$36 9)
1774.7, (3⁻,4,5⁻) γ_{1168}**606.6** 2 ($\dagger_\gamma$100 12) γ_{1127}**647.7** 4 ($\dagger_\gamma$24 8) γ_{963}**808.4** 1 ($\dagger_\gamma$56 8) γ_{732}**1043** 1 ($\dagger_\gamma$4 4) γ_{148}**1627.3** 6 ($\dagger_\gamma$12 3)
A **1788.2** 8, 16⁺, 1.66 7 ps γ_{1415}**372.9** 4 ($\dagger_\gamma$100)
I **1814.3** 3, (6⁺) γ_{1382}**432.5** 3 ($\dagger_\gamma$<100) γ_{518}**1296** 1 ($\dagger_\gamma$37 12) γ_{307}**1507.1** 3 ($\dagger_\gamma$100 12)
1892.2 2, (4⁺,5⁻) γ_{1643}**248.6** 7 ($\dagger_\gamma$90 40) γ_{732}**1160.4** 2 ($\dagger_\gamma$100 10) γ_{307}**1584.9** 3 ($\dagger_\gamma$70 10)
B **1958.6** 8, 15⁻ γ_{1649}**309.9** 4 γ_{1415}**543.7** 4
1992.6 3, (3⁻) γ_{1286}**706.6** 2 ($\dagger_\gamma$100 13) γ_{1224}**768.3** 2 ($\dagger_\gamma$<69) γ_{1129}**863.5** 6 ($\dagger_\gamma$<19) $\gamma_{1060.5}$**932.7** 3 ($\dagger_\gamma$50 6) γ_{148}**1844.6** 5 ($\dagger_\gamma$25 6)
2163.6 3 γ_{732}**1431.3** 10 ($\dagger_\gamma$67 15) γ_{307}**1856.6** 4 ($\dagger_\gamma$100 15) γ_{148}**2014.8** 4 ($\dagger_\gamma$84 15)
A **2190.7** 13, 18⁺, 1.18 7 ps γ_{1788}**402.6** 4 ($\dagger_\gamma$100)
B **2305.9** 10, 17⁻ γ_{1959}**347.5** 4 γ_{1788}**518.3** 4
J **2557.6** 5, 0⁺, 298 18 ns, %IT≈95, %SF≈5 γ_{680}**1879** ($\dagger_\gamma$≈37) γ_{45}**2512.7** 5 ($\dagger_\gamma$≈100) γ_0**2558** 2 ($\dagger_e$≈0.8) E0
J **2577.2**, (2⁺) γ_{2558}**19.6**
2557.6+y (?), >1 ns
A **2618.7** 16, 20⁺, 0.90 7 ps γ_{2191}**427.9** 4 ($\dagger_\gamma$100)
B **2687.2** 14, 19⁻ γ_{2306}**382.7** 4 γ_{2191}**498.3**
2754, (1), Γ=8.4×10⁻⁵ eV γ_{45}**2709** ($\dagger_\gamma$20 10) γ_0**2754** ($\dagger_\gamma$100)
A **3067.2** 20, 22⁺, 0.69 14 ps γ_{2619}**448.9** 4 ($\dagger_\gamma$100)
B **3104.2** 14, 21⁻ γ_{2687}**415.1** 10
3202.8 10(?), (0⁺) γ_{2558}**645.2** 9 (E0)
3253.4, 1⁻, Γ=5.2×10⁻⁴ 19 eV γ_{1129}**2125** ($\dagger_\gamma$44) γ_{1037}**2217** ($\dagger_\gamma$9) γ_{998}**2256** ($\dagger_\gamma$8) γ_{966}**2288** ($\dagger_\gamma$91) γ_{950}**2303** ($\dagger_\gamma$16) γ_{931}**2323** ($\dagger_\gamma$32) γ_{926}**2327** ($\dagger_\gamma$33) γ_{732}**2522** ($\dagger_\gamma$14) γ_{680}**2574** ($\dagger_\gamma$28) γ_{45}**3209** ($\dagger_\gamma$22) γ_0**3253** ($\dagger_\gamma$100)
A **3534.5** 15, 24⁺, 0.51 4 ps γ_{3067}**467** 1 ($\dagger_\gamma$100)
B **3547.8** 18, 23⁻ γ_{3104}**443.6** 10
3809, (1,2), Γ>1.6×10⁻³ eV γ_{926}**2882** ($\dagger_\gamma$55 22) γ_{680}**3128** ($\dagger_\gamma$28 22) γ_{45}**3764** ($\dagger_\gamma$86 14) γ_0**3809** ($\dagger_\gamma$100)
A **4017.3** 18, 26⁺, 0.40 6 ps γ_{3535}**482.8** 10 ($\dagger_\gamma$100)
4494, (1,2), Γ>4.7×10⁻⁵ eV γ_{45}**4450**(?) ($\dagger_\gamma$32 28) γ_0**4495** ($\dagger_\gamma$100)
A **4516.5** 21, 28⁺, 0.37 9 ps γ_{4017}**499.3** 10 ($\dagger_\gamma$100)
4592, (1,2), Γ>2.8×10⁻⁴ eV γ_{45}**4546** ($\dagger_\gamma$190) γ_0**4592** ($\dagger_\gamma$100)
4806.6, (1), Γ=2.5×10⁻⁴ 5 eV γ_{966}**3840** ($\dagger_\gamma$47 17) γ_0**4807** ($\dagger_\gamma$100)
A **5034.3** 23, 30⁺ γ_{4517}**517.7** 10
5206, (1,2), Γ>4.1×10⁻⁴ eV γ_{1057}**4148**(?) ($\dagger_\gamma$33 26) γ_{45}**5160** ($\dagger_\gamma$90 28) γ_0**5206** ($\dagger_\gamma$100)

$^{237}_{93}$Np

Δ: 44866.7 20 S_n: 6580 50 S_p: 4862.1 3 Q_α: 4959.1 12

σ_γ^0: 176 3 b

Nuclear Bands

- A 5/2[642]
- B 5/2[523]
- C 1/2[530]
- D 1/2[400]
- E 3/2[521]
- F Band Structure

Levels and γ-ray branchings:

A **0**, 5/2⁺, 2.14×10⁶ 1 y, %α=100, %SF≤2×10⁻¹⁰, μ=+2.5 3, Q=+4.1 7

A **33.192** 2, 7/2⁺, 54 24 ps γ_0 ***33.195*** 11 (I_γ100) M1+E2: δ=0.13 3

B **59.537** 1, 5/2⁻, 67 2 ns, μ=+1.34 12, Q=+4.1 7 γ_{33} ***26.345*** 1 (I_γ6.71 14) E1 γ_0 ***59.537*** 1 (I_γ100) E1

A **75.89** 5, 9/2⁺, ≈ 56 ps γ_{33} ***42.73*** 5 (I_γ100 15) γ_0 ***75.6*** 2 (I_γ≈11)

B **102.96** 2, 7/2⁻, 80 40 ps γ_{76} ***27.03***(?) γ_{60} ***43.423*** 10 (I_γ100 11) M1+E2: δ=0.41 2 γ_{33} ***69.76*** 3 (I_γ4.0 6) (E1) γ_0 ***102.98*** 2 (I_γ26.7 2) E1

A **130.00** 6, 11/2⁺ γ_{33} ***96.7*** (I_γ100)

B **158.51** 2, 9/2⁻ γ_{103} ***55.56*** 2 (I_γ89 9) M1+E2: δ=0.46 4 γ_{60} ***98.97*** 2 (I_γ100 2) E2 γ_{33} ***125.30*** 2 (I_γ20.1 2)

A **191.5** 2, 13/2⁺ γ_{76} ***115.5*** 1 (I_γ100)

B **225.96** 3, 11/2⁻ γ_{159} ***67.45*** 5 (I_γ42 10) (M1+E2): δ=0.46 12 γ_{103} ***123.01*** 2 (I_γ100 1) E2 γ_{76} ***150.04*** 3 (I_γ7.40 15)

C **267.54** 2, 3/2⁻, 5.2 2 ns γ_{103} ***164.61*** 2 (I_γ8.6 2) E2 γ_{60} ***208.00*** 1 (I_γ100 1) M1+E2: δ=+0.156 5 γ_{33} ***234.40*** 4 (I_γ0.097 10) M2 γ_0 ***267.54*** 4 (I_γ3.36 10) E1+M2: δ=0.490 15

A **269.9**, 15/2⁺ γ_{130} ***139.9*** (I_γ100)

C **281.35** 2, 1/2⁻ γ_{268} ***13.81*** 2 (I_γ21.4 8) M1+E2: δ=0.0321 10 γ_{60} ***221.80*** 4 (I_γ100 4) E2

B **305.06** 4, 13/2⁻ γ_{159} ***146.55*** 3 (I_γ100 2) E2 γ_{130} ***175.07*** 4 (I_γ3.9 3)

316.9 2(?) γ_0 ***316.8*** 2

C **324.42** 5, (7/2⁻) γ_{159} ***165.61*** 6 (I_γ54.7 24) γ_{103} ***221.46*** 3 (I_γ100 2) γ_{76} ***249.00*** 15 (I_γ1.3) γ_{60} ***264.89*** 6 (I_γ21.2 10) γ_{33} ***291.30*** 20 (I_γ7.3 8)

D **332.36** 3, 1/2⁺, <1.0 ns γ_{281} ***51.01*** 3 (I_γ93.4 16) E1 γ_{268} ***64.83*** 2 (I_γ100 2) E1 γ_0 ***332.36*** 4 (I_γ26.6 8) E2

A **348.5**, 17/2⁺ γ_{192} ***157.0*** (I_γ100)

C **359.7** 1, (5/2⁻) γ_{60} ***300.13*** 6(?)

D **368.59** 3, 5/2⁺ γ_{76} ***292.77*** 6 (I_γ2.86 11) γ_{60} ***309.1*** 3 (I_γ0.28) γ_{33} ***335.38*** 3 (I_γ100 1) M1+E2: δ=0.46 17 γ_0 ***368.59*** 4 (I_γ43.7 2)

D **370.93** 3, 3/2⁺ γ_{332} ***38.54*** 3 (M1+E2) γ_{33} ***337.7*** 2 (I_γ8.3 5) (E2) γ_0 ***370.94*** 3 (I_γ100 1) M1+E2: δ=0.43 $^{+7}_{-21}$

B **395.52** 5, 15/2⁻ γ_{226} ***169.56*** 3 (I_γ100 2) E2 γ_{192} ***204.06*** 6 (I_γ1.68 11)

C **434.12** 10, (11/2⁻) γ_{324} ***109.70*** 7 (I_γ74) γ_{305} ***129.2*** γ_{159} ***275.77*** 8 (I_γ100 7) γ_{130} ***304.21*** 20 (I_γ15 4) γ_{76} ***358.25*** 20 (I_γ18 4)

D **452.53** 4, 9/2⁺ γ_{192} ***260.80*** 15 (I_γ0.87 14) γ_{130} ***322.52*** 3 (I_γ110 1) (M1+E2): δ=0.6 γ_{76} ***376.65*** 3 (I_γ100 1) (M1) γ_{33} ***419.33*** 4 (I_γ20.8 5) γ_0 ***452.6*** 2 (I_γ1.74 18)

A **454.4**, 19/2⁺ γ_{270} ***184.5***

D **459.68** 5, 7/2⁺ γ_{324} ***135.3*** γ_{76} ***383.81*** 3 (I_γ100 2) γ_{33} ***426.47*** 4 (I_γ87.2 18) γ_0 ***459.68*** (I_γ12.8 11)

C **486.0** 2, (9/2⁻) γ_{324} ***161.54*** 10 (I_γ100) γ_{226} ***260.8***

B **497.0** 1, 17/2⁻ γ_{305} ***191.96*** 4 (I_γ100)

E **514.20** 10, (3/2⁻) γ_{360} ***154.27*** 20(?) (I_γ11.7) γ_{281} ***232.81*** 5 (I_γ100 7) γ_{268} ***246.73*** 10 (I_γ52 7) γ_{60} ***454.66*** 8 (I_γ211 7) γ_0 ***514.05*** (I_γ57 7)

E **545.6** 2, (5/2⁻) γ_{281} ***264.89*** γ_{268} ***278.04*** 15 (I_γ38) γ_{33} ***512.5*** 3 (I_γ100 20) γ_0 ***545.4*** 3 (I_γ64)

A **546.9**, 21/2⁺ γ_{349} ***198.5***

E **590.3** 2, (7/2⁻) γ_{268} ***322.52*** γ_{103} ***487.3*** 3 (I_γ15.4) γ_0 ***590.28*** 15 (I_γ100 7)

D **592.5** 10, 13/2⁺ γ_{453} ***139.44*** 8 (I_γ100 21) γ_{434} ***159.26*** 20 (I_γ26 10) γ_{396} ***197.0*** 2 (I_γ9.2) γ_{192} ***401.3*** 30 (I_γ9.2) γ_{130} ***463.22*** 20 (I_γ19)

D **598.0** 2, 11/2⁺ γ_{460} ***138.5*** γ_{192} ***406.35*** 15 (I_γ50 8) γ_{130} ***468.12*** 15 (I_γ100 8) γ_{76} ***522.06*** 15 (I_γ31 11)

618 2

E **646.1** 2, (9/2⁻) γ_{159} ***487.3*** γ_{60} ***586.59*** 20 (I_γ100)

666.2 2, (5/2⁺,7/2⁻) γ_{268} ***398.64*** 15(?) (I_γ160) γ_{76} ***590.28*** γ_{33} ***632.93*** 15 (I_γ100) γ_0 ***666.5*** 3 (I_γ39)

A **684.4**, 23/2⁺ γ_{547} ***137.6***(?) γ_{454} ***230.0***

E **709** 3, (11/2⁻)

F **721.94** 4, 5/2⁻ γ_{268} ***454.66***(?) γ_{159} ***563.05*** 30 (I_γ0.20) γ_{103} ***619.01*** 2 (I_γ16.3 2) γ_{60} ***662.40*** 2 (I_γ100 1) (E0+M1+E2) γ_{33} ***688.72*** 4 (I_γ8.9 2) γ_0 ***722.0*** 3 (I_γ53.8 3)

F **755.98** 10, 7/2⁻ γ_{159} ***597.48*** 8 (I_γ19.7 8) γ_{103} ***653.02*** 4 (I_γ100 3) γ_{76} ***680.10*** 10 (I_γ8.3 5) γ_{60} ***696.60*** 5 (I_γ14.2 5) γ_{33} ***722.01*** γ_0 ***755.90*** 5 (I_γ20.2 7)

758 6

770.57 10 γ_{324} ***446.43*** 15 (I_γ6.1 2) γ_{33} ***737.34*** 5 (I_γ100 3) γ_0 ***770.57*** 10 (I_γ59 3)

A **787.0**, 25/2⁺ γ_{547} ***240.1***

F **800.0** 1, 9/2⁻ γ_{226} ***573.94*** 20 (I_γ18 3) γ_{159} ***641.47*** 5 (I_γ100 5) γ_{130} ***669.83*** 20 (I_γ5.4 17) γ_{103} ***696.6*** γ_{33} ***767.00*** 10 (I_γ70.4 22)

805.8 2, (7/2⁺,9/2⁺) γ_{130} ***676.03*** 30 (I_γ24 5) γ_{76} ***729.72*** 15 (I_γ50 6) γ_{33} ***772.4*** 3 (I_γ100 6) γ_0 ***806.26*** 30 (I_γ11.7)

823 3

F **853.36** 21, 11/2⁻ γ_{324} ***529.17*** 20 (I_γ82) γ_{226} ***627.18*** 20 (I_γ100 31)

861.7 5 γ_{76} ***786.00*** 15(?) (I_γ46) γ_{60} ***801.94*** 20 (I_γ100) γ_{33} ***828.5*** (I_γ18 5) γ_0 ***862.7*** 5 (I_γ39 5)

906 2

914 4

920.9 5 γ_{60} ***860.7*** 5 (I_γ37 12) γ_{33} ***887.3*** 3 (I_γ100 23) γ_0 ***921.5*** 3 (I_γ86 19)

946 2

A **959.5**, 27/2⁺ γ_{787} ***172.6*** γ_{684} ***275.1***

961 3

963 2

984 2

1013 3

1020 3

1030 3

1040 4

1066 3

A **1068.2**, 29/2⁺ γ_{787} ***281.2***

1072 6

1112 4

A **1278.6**, 31/2⁺ γ_{1068} ***210.5*** γ_{960} ***319***

A **1389**, 33/2⁺ γ_{1068} ***321***

A **1639**, 35/2⁺ γ_{1389} ***249.4*** γ_{1279} ***361***

A **1749**, 37/2⁺ γ_{1389} ***360***

A **2041**, 39/2⁺ γ_{1749} ***292.7*** γ_{1639} ***401.1***

A **2146**, 41/2⁺ γ_{1749} ***396.9***

A **2480**, 43/2⁺ γ_{2146} ***334.8*** γ_{2041} ***439.0***

A **2578**, 45/2⁺ γ_{2146} ***431.9***

2800 400, 45 5 ns, %SF>0, %IT>0 γ_0 ***2800***

A **2955**, 47/2⁺ γ_{2578} ***378.2*** γ_{2480} ***475.3***

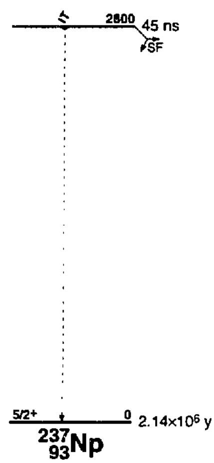
A **3043**, 49/2⁺ γ_{2578} ***465.5***

A **3464**, 51/2⁺ γ_{2955} ***508.6***

A **3541**, 53/2⁺

A **4004**, 55/2⁺ γ_{3464} ***540.1***

A **4069**, 57/2⁺ γ_{3541} ***527.5***



$^{235}_{94}$Pu

Δ: (42200) S_n: (6210) S_p: (5040)
Q_{EC}: (1170) Q_α: (6000)

Nuclear Bands

A 5/2[633]

Levels:

A **0**, (5/2$^+$), 25.3 *10* m, %EC=99.9973 *5*, %α=0.0027 *5*
3000 *200*, 25 *5* ns γ_0 *IT* (?)

$^{236}_{94}$Pu

Δ: 42893 *3* S_n: (7380) S_p: 5432.7 *21* Q_α: 5867.07 *8*
σ_f: 170 *35* b

Levels and γ-ray branchings:

0, 0$^+$, 2.858 *8* y, %α=100, %SF=1.36×10^{-7} *4*
44.63 *10*, 2 γ_0 ***44.63*** *10* (I_γ100) E2
147.45 *10*, 4$^+$ γ_{45} ***102.82*** *2* (I_γ100)
305.80 *11*, 6$^+$ γ_{147} ***158.35*** *2* (I_γ100) E2
515.7 *2*, 8$^+$ γ_{306} ***209.9*** *2* (I_γ100) E2
773.5 *3*, 10$^+$ γ_{516} ***257.8*** *2* (I_γ100)
1074.3 *4*, 12$^+$ γ_{774} ***300.8*** *2* (I_γ100)
1413.6 *4*, 14$^+$ γ_{1074} ***339.3*** *2* (I_γ100)
1786.0 *5*, 16$^+$ γ_{1414} ***372.4*** *3* (I_γ100)
≈3000, (0$^+$), 37 *4* ps, %SF≤100 γ_0 *IT* (?)
4000 *200*, 34 *8* ns, %SF≤100 γ_0 *IT* (?)

$^{237}_{94}$Pu

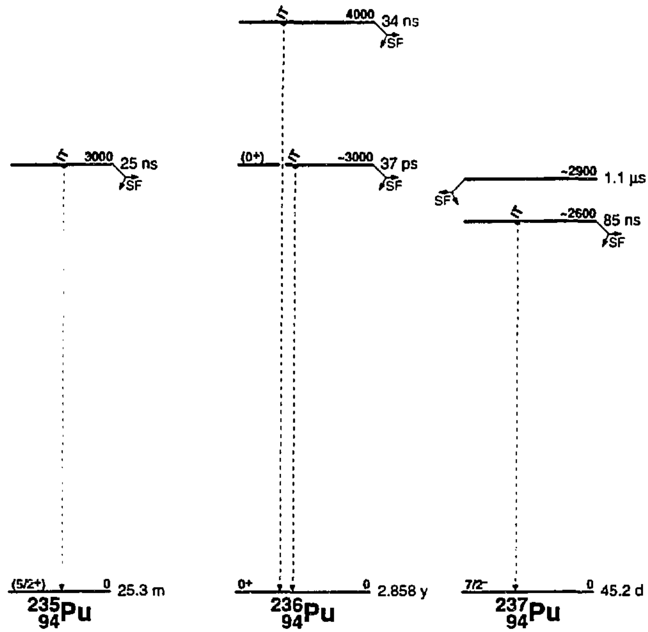
Δ: 45087.0 *24* S_n: 5877.5 *25* S_p: 5580 *50*
Q_{EC}: 220.3 *13* Q_α: 5750 *3*
σ_f: 2455 *295* b

Nuclear Bands

A 7/2[743]
B 1/2[631]
C 5/2[622]
D 3/2[631]
E 5/2[633]
F 7/2[624]
G 1/2[501]
H Band Structure
I 1/2[631]⊗0$^+$

Levels and γ-ray branchings:

A **0**, 7/2$^-$, 45.2 *1* d, %α=0.0042 *4*, %EC=99.9958 *4*
A **47.71** *4*, 9/2$^-$ γ_0 ***47.71*** *4* (I_γ100) M1+E2: δ=0.24 *8*
A **106** *5*, 11/2$^-$
B **145.544** *10*, 1/2$^+$, 0.18 *2* s γ_0 ***145.544*** *10* (I_γ100) E3
B **155.45** *2*, 3/2$^+$ γ_{146} ***9.903*** *16* (I_γ100) M1+E2: δ=0.07 *2*
A **175** *7*, 13/2$^-$
B **201.18** *2*, 5/2$^+$ γ_{155} ***45.724*** *8* (I_γ46 *12*) M1+E2: δ=0.47 *13* γ_{146} ***55.638*** *11* (I_γ100 *16*) (E2)
B **224.25** *5*, 7/2$^+$ γ_{155} ***68.8*** *1* (I_γ100) (E2)
A **257**, 15/2$^-$
C **280.22** *2*, 5/2$^+$ γ_{201} ***79.05*** *2* (I_γ0.42 *7*) (M1) γ_{155} ***124.72*** *3* (I_γ0.59 *11*) (M1) γ_0 ***280.23*** *2* (I_γ100 *5*) E1
B **304** *4*, 9/2$^+$
C **320.97** *2*, 7/2$^+$ γ_{280} ***40.748*** *6* (I_γ2.0 *4*) M1+E2: δ=0.194 *30* γ_{48} ***273.3*** *1* (I_γ54 *4*) γ_0 ***321.0*** *1* (I_γ100 *8*) E1
D **370.40** *4*, 3/2$^+$ γ_{155} ***214.9*** *2* (I_γ100 *21*) (M1) γ_{146} ***224.86*** *4* (I_γ100 *21*) (M1)
C **371** *5*, 9/2$^+$
D **404.19** *5*, 5/2$^+$ γ_{280} ***123.8*** *3* (I_γ≈7) γ_{224} ***179.94*** *2* (I_γ41 *9*) (M1+E2): δ=0.7 *7* γ_{201} ***203.03*** *5* (I_γ71 *9*) M1+E2: δ=0.4 *4* γ_{155} ***248.7*** *2* (I_γ100 *10*) (M1+E2): δ=0.6 *6*
E **407.83** *6*, 5/2$^+$ γ_{280} ***127.5*** *2* (I_γ17 *4*) γ_{224} ***183.7*** *2* (I_γ30 *8*) M1+E2: δ=0.7 *7* γ_{201} ***206.7*** *1* (I_γ52 *7*) M1+E2: δ=0.3 *3* γ_{155} ***252.2*** *2* (I_γ43 *12*) M1+E2: δ=0.7 γ_0 ***407.8*** *1* (I_γ100 *8*) (E1)
E **438.41** *10*, 7/2$^+$ γ_{280} ***158.3*** *3* (I_γ0.8 *3*) γ_{48} ***390.7*** *1* (I_γ6.6 *5*) E1 γ_0 ***438.4*** *1* (I_γ100 *5*) E1
D **453.2** *2*, 7/2$^+$ γ_{224} ***229.1*** *3* (I_γ100 *34*) γ_{201} ***252.2*** (I_γ100 *34*) γ_0 ***453.2*** *3* (I_γ67 *14*)
F **473.50** *10*, 7/2$^+$ γ_{280} ***193.4*** *3* (I_γ2.1 *7*) γ_{48} ***425.8*** *1* (I_γ45 *3*) E1 γ_0 ***473.5*** *1* (I_γ100 *7*) E1
E **486**, (9/2$^+$)
D **513**, 9/2$^+$
G **545**, (1/2$^-$)
G **582**, (5/2$^-$)
G **591**, (3/2$^-$)
655
H **655.3** *2*, (5/2)$^-$ γ_0 ***655.3*** *2* (I_γ100) M1
G **691**, (7/2$^-$)
H **696.2** *2*, 7/2$^-$ $\gamma_{655.3}$ ***40.74*** *8* γ_{48} ***648.5*** *3* (I_γ100 *16*) M1 γ_0 ***696.2*** *3* (I_γ77 *16*) M1
716
741
757
775
I **800** *2*, 1/2$^+$
809
840
851 *5*, (3/2$^+$,5/2$^+$)
852
884
908.9 *2*, 7/2$^+$ γ_{474} ***435.2*** *3* (I_γ9.6 *16*) M1 γ_{453} ***455.8*** *3* (I_γ3.5 *8*) M1 γ_{408} ***501.2*** *3* (I_γ10.8 *16*) M1 γ_{404} ***504.8*** *3* (I_γ7.3 *16*) M1 γ_{48} ***861.2*** *3* (I_γ14.2 *16*) γ_0 ***908.8*** *2* (I_γ100 *6*)
933
964
998 *5*
1000.6 *3*, (7/2) γ_{280} ***720.4*** *5* (I_γ100 *21*) γ_0 ***1000.6*** *3* (I_γ79 *21*)
1014
1025 *3*
1052
1104
1189
1216
1250
1264
1346
1393
1397
1463
1481
1534
≈2600, 85 *15* ns, %SF>0 γ_0 *IT* (?)
≈2900, 1.1 *1* μs, %SF>0 γ_0 *IT* (?)



$^{238}_{94}$Pu

Δ: 46157.8 *20* S_n: 7000.5 *15* S_p: 5997.8 *7* Q_α: 5593.20 *19*
σ_γ^0: 540 *7* b

Nuclear Bands

- *A* GS band
- *B* Octupole band
- *C* β band
- *D* ν7/2[743]-ν5/2[622]
- *E* Band Structure
- *F* Band Structure
- *G* Band Structure
- *H* ν7/2[743]+ν1/2[631]
- *I* ν7/2[743]-ν1/2[631]

Levels:

0, 0⁺, 87.7 *3* y, %α=100, %SF=1.9×10⁻⁷ *1*

A **44.08** *3*, 2⁺, 177 *5* ps γ_0**44.08** *3* (I_γ100) E2

A **145.96** *4*, 4⁺ γ_{44}**101.90** *3* (I_γ100) E2

A **303.40** *7*, 6⁺ γ_{146}**157.42** *5* (I_γ100) E2

A **513.4** *2*, 8⁺ γ_{303}**210.02** (I_γ100)

B **605.18** *6*, 1⁻, 4.7 *5* ps γ_{44}**561.11** *7* (I_γ100 *2*) E1 γ_0**605.13** *9* (I_γ71 *4*) E1

B **661.43** *10*, 3⁻, 3.7 *11* ps γ_{146}**515.52** (I_γ66 *3*) γ_{44}**617.36** *11* (I_γ100 *7*)

B **763.2** *3*, (5⁻) γ_{303}**459.80** *22* γ_{146}**617.36** *11*

A **772.8** *2*, 10⁺ γ_{513}**259.42** (I_γ100)

C **941.5** *2*, 0⁺ γ_{605}**336.38** *15* (I_γ3.1 *12*) γ_{44}**897.33** *10* (I_γ100 *7*) γ_0**941.5** *3* (I_e59) E0

D **962.77** *3*, 1⁻, 6.2 *12* ps γ_{661}**301.4** *3* (I_γ1.7 *2*) E2 γ_{605}**357.62** *7* (I_γ7.6 *4*) M1+E2 γ_{44}**918.69** *4* (I_γ84 *3*) E1 γ_0**962.77** *3* (I_γ100 *3*) E1

968.1 *8*(?), (2⁻) γ_{44}**924**(?) (I_γ100)

C **983.1** *1*, 2⁺, 0.5 *3* ps γ_{661}**321.75** *20* (I_γ1.7 *8*) γ_{605}**378.05** *13* (I_γ4.4 *8*) γ_{146}**837.11** *15* (I_γ37 *3*) γ_{44}**938.95** *10* (I_γ35 *4*) ($I_{\gamma+e}$190 *8*) E0+E2 γ_0**983.0** *3* (I_γ100 *25*)

D **985.46** *5*, 2⁻ γ_{661}**323.98** *9* (I_γ2.9 *2*) M1+E2 γ_{605}**380.29** *13* (I_γ2.18 *10*) γ_{44}**941.38** *5* (I_γ100 *4*)

E **1028.55** *2*, 2⁺ γ_{146}**882.63** *3* (I_γ3.1 *1*) E2 γ_{44}**984.45** *2* (I_γ100) E2 γ_0**1028.54** *2* (I_γ73 *3*) E2

E **1069.95** *2*, 3⁺ γ_{146}**923.98** *2* (I_γ29.5 *10*) E2 γ_{44}**1025.87** *2* (I_γ100 *6*) E2

A **1078.5** *2*, 12⁺ γ_{773}**305.7** *2* (I_γ100)

H **1082.57** *7*, (4⁻), 8.5 *5* ns γ_{968}**114.4** *4* (I_γ1.5 *2*) γ_{763}**319.29** *11* (I_γ2.2 *2*) M1+E2 γ_{661}**421.14** *11* (I_γ5.7 *3*) γ_{146}**936.61** *6* (I_γ100 *3*)

E **1125.8** *3*, (4⁺) γ_{146}**979.8** *2* (I_γ100 *17*) γ_{44}**1081.7** *3* (I_γ19 *6*)

1134 *4*, (0⁺)

1174.4 *4*, (2⁺,1) γ_{44}**1130.2** *5* (I_γ100 *16*) γ_0**1174.5** *5* (I_γ83 *16*)

I **1202.66** *10*, (3⁻) γ_{1083}**119.9** *1* (I_γ100 *7*) (M1) γ_{1070}**132.49** *11* (I_γ2.7 *2*) γ_{1029}**174.02** (I_γ25 *1*)

F **1228.7** *3*, 0⁺ γ_{44}**1184.5** *3* (I_γ100) E2 γ_0**1228.7** *3* (I_e9.2) E0

1252 *2*

F **1264.2** *3*, 2⁺ γ_{146}**1118.2** *3* γ_{44}**1220.0** *3* E0+E2+M1

1310.3 *3*(?), (2)⁺ γ_{44}**1266.2** *3* (I_γ100) M1

G **1426.6** *3*, 0⁺ γ_{605}**821.5** *4* (I_γ100) E1 γ_0**1426.6** *3* (I_e8.5) E0

A **1427.2** *3*, 14⁺ γ_{1079}**348.7** *3* (I_γ100)

1447.3 *2*, 1⁻ γ_{605}**841.9** *4* (I_e4.4) E0 γ_{44}**1403.2** *3* (I_γ100 *8*) E1 γ_0**1447.3** *3* (I_γ63 *4*) E1

G **1458.3** *3*, 2⁺ γ_{44}**1414.0** *3* (I_γ≈23) γ_0**1458.5** *3* (I_γ100 *11*)

1559.9 *2*, (1⁻) γ_{985}**574.0** *3* (I_γ65 *9*) (E2+M1) γ_{963}**597.0** *3* (I_γ79 *10*) γ_{605}**954.7** *3* (I_γ≈58) γ_{44}**1515.9** *3* (I_γ100 *12*) γ_0**1560.0** *3* (I_γ77 *19*)

1596.4 *3*, (2⁺) γ_{146}**1450.4** *5*(?) (I_γ≈77) γ_{44}**1552.2** *3* (I_γ100 *16*) γ_0**1596.5** *5* (I_γ≈31)

1621.3 *2*, 1⁻ γ_{963}**658.4** *2* (I_γ6.2 *7*) E0+E2+M1 γ_{942}**679.5** *4* (I_γ8.9 *8*) E1 γ_{605}**1016.2** *2* (I_γ9.7 *9*) E0+E2+M1 γ_{44}**1577.3** *3* (I_γ100 *8*) E1 γ_0**1621.4** *4* (I_γ≈0.6)

1636.4 *2*, 1⁻ γ_{983}**653.3** *5* (I_γ≈4) γ_{963}**673.4** *2* (I_e3.3) E0 γ_{605}**1031.3** *3* (I_e4.2) E0 γ_{44}**1592.5** *3* (I_γ38 *4*) γ_0**1636.6** *3* (I_γ100 *9*) E1

1651.2 *4*, (1,2⁺) γ_{44}**1607.0** *4* (I_γ100 *15*) γ_0**1651.4** *5* (I_γ18 *6*)

1726.4 *3*, (1,2⁺) γ_{44}**1682.2** *3* (I_γ100 *10*) γ_0**1726.4** *3* (I_γ59 *6*)

1783.6 *3*, (1,2⁺) γ_{44}**1739.4** *4* (I_γ48 *5*) γ_0**1783.6** *4* (I_γ100 *20*)

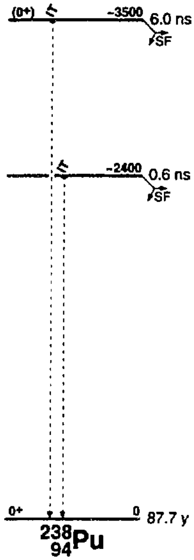
A **1816.2** *3*, 16⁺ $\gamma_{1427.2}$**389.0** *3* (I_γ100)

1898.3 *3*, 2⁻ γ_{661}**1237.0** *3* (I_γ81 *8*) M1 γ_{605}**1293.2** *3* (I_γ100 *10*) M1

A **2240.5** *4*, 18⁺ γ_{1816}**424.3** *4* (I_γ100)

≈2400, 0.6 *2* ns, %SF≤100 γ_0*IT*(?)

≈3500, (0⁻), 6.0 *15* ns, %SF≤100 γ_0*IT*(?)



$^{239}_{94}$Pu

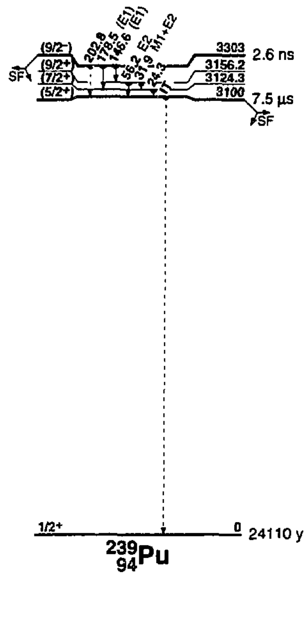
Δ: 48582.6 20 S_n: 5646.5 3 S_p: 6156.2 6 Q_α: 5244.50 23
σ_{abs}: 748.1 20 b, σ_γ^0: 269 3 b

Nuclear Bands

- *A* 1/2[631]
- *B* 1/2[631]+Octupole
- *C* 5/2[622]
- *D* 7/2[743]
- *E* 7/2[624]
- *F* 1/2[761]
- *G* 1/2[620]
- *H* 7/2[613]?
- *I* 3/2[622]?
- *J* 5/2[633]

Levels and γ-ray branchings:

A **0**, 1/2⁺, 24110 30 y, μ=+0.203 4, %α=100, %SF=3.1×10⁻¹⁰ 6
A **7.861** 2, 3/2⁺, 36 3 ps, Q=−2.319 7 γ_0 ***7.861*** 2 (†$_\gamma$100) M1+E2: δ=0.055 2
A **57.276** 2, 5/2⁺, 101 5 ps, Q=−3.345 13 γ_8 ***49.415*** 2 (†$_\gamma$85 9) M1+E2: δ=0.50 3 γ_0 ***57.276*** 2 (†$_\gamma$100 6) E2
A **75.706** 3, 7/2⁺, 83 8 ps, Q=−3.828 26 γ_{57} ***18.430*** 2 (†$_\gamma$<20) γ_8 ***67.846*** 2 (†$_\gamma$100 25) E2
A **163.76** 2, 9/2⁺, 73 4 ps γ_{76} ***88.05*** 2 (†$_\gamma$12 4) M1+E2: δ=0.50 10 γ_{57} ***106.48*** 2 (†$_\gamma$100 16) E2
A **192.81** 10, 11/2⁺ γ_{76} ***117.1*** 1 (†$_\gamma$100) E2
C **285.460** 2, 5/2⁺, 1.12 5 ns, μ=−1.25 29 γ_{76} ***209.753*** 2 (†$_\gamma$23.7 3) M1(+E2): δ=−0.004 +1 −24 γ_{57} ***228.183*** 1 (†$_\gamma$78.0 13) M1(+E2): δ=+0.001 +9 −1 γ_8 ***277.599*** 1 (†$_\gamma$100.0 15) M1+E2: δ=+0.165 2 γ_0 ***285.460*** 2 (†$_\gamma$5.4 1) E2
A **318.1** 1, 13/2⁺ γ_{164} ***154.35*** 10 (†$_\gamma$100) E2
C **330.125** 4, 7/2⁺ γ_{285} ***44.665*** 2 (†$_\gamma$100 8) M1+E2: δ=0.20 3 γ_{164} ***166.369*** 2 (†$_\gamma$13 6) M1 γ_{76} ***254.418*** 3 (†$_\gamma$85 5) M1+E2: δ=−0.159 12 γ_{57} ***272.848*** 3 (†$_\gamma$60 4) M1+E2: δ=+0.165 9 γ_8 ***322.264*** 3 (†$_\gamma$4.0 12)
A **358.1** 1, 15/2⁺ γ_{193} ***165.41*** 6 E2
C **387.41** 2, 9/2⁺ γ_{330} ***57.29*** 2 (†$_\gamma$100 40) M1(+E2) γ_{285} ***101.95*** 2 (†$_\gamma$≈16) E2 γ_{76} ***311.70*** 2 (†$_\gamma$34 4) (M1+E2)
D **391.586** 3, 7/2⁻, 193 4 ns γ_{330} ***61.461*** 2 (†$_\gamma$4.7 1) E1 γ_{285} ***106.125*** 2 (†$_\gamma$100 2) E1(+M2): δ=−0.007 7 γ_{76} ***315.879*** 2 (†$_\gamma$5.9 2) E1(+M2): δ=+0.008 7 γ_{57} ***334.309*** 2 (†$_\gamma$7.7 2) E1(+M2): δ=+0.006 4
D **434** 3, (9/2⁻)
C **462** 3, (11/2⁺)
B **469.8** 4, (1/2⁻) γ_8 ***461.9*** 4 (†$_\gamma$100 15) γ_0 ***469.8*** 4 (†$_\gamma$60 15)
D **487** 3, (11/2⁻)
B **492.1** 3, 3/2⁻ γ_{57} ***434.9*** 3 (†$_\gamma$100 15) E1(+M2): δ=−0.002 2 γ_8 ***484.3*** 3 (†$_\gamma$10 3) γ_0 ***492.1*** 3 (†$_\gamma$60 15)
B **505.5** 2, (5/2⁻) γ_{76} ***429.8*** 2 (†$_\gamma$100 15) γ_{57} ***448.2*** 2 (†$_\gamma$7 2) γ_8 ***497.8*** 2 (†$_\gamma$88 18)
E **511.838** 13, 7/2⁺ γ_{387} ***124.434*** 8 (†$_\gamma$3.0 3) M1(+E2): δ<0.26 γ_{330} ***181.711*** 7 (†$_\gamma$31 2) M1+E2: δ=−0.150 7 γ_{285} ***226.378*** 8 (†$_\gamma$100 7) M1+E2: δ=+0.133 6 γ_{76} ***436.136*** 14 (†$_\gamma$0.24 3) γ_{57} ***454.565*** 12 (†$_\gamma$0.36 4) γ_8 ***503.977*** 12 (†$_\gamma$0.42 4)
A **519.2** 1, 17/2⁺ γ_{318} ***201.07*** 8 (†$_\gamma$100) E2
538 3
B **556.1** 5, (7/2⁻) γ_{164} ***392.4*** 5 (†$_\gamma$100 20) γ_{57} ***498.8*** 5 (†$_\gamma$≈70)
E **565**, (9/2⁺)
A **570.1** 1, 19/2⁺ γ_{358} ***212.01*** 8 (†$_\gamma$100) E2
B **583** 3, (9/2⁻)
D **620**, (15/2⁻)
E **634**, 11/2⁺
B **659** 3, (11/2⁻)
716
752.5 5, 1/2⁺,3/2
756 5
763 3
A **764.7** 2, (21/2⁺) γ_{519} ***245.5*** 1 (E2)
779 3
798.2 5, 1/2,3/2
805.1 5, 1/2,3/2
813 3
825.5 10, 1/2,3/2
A **826.9** 2, (23/2⁺) γ_{570} ***256.8*** 1 (E2)
854 2
888.0 5, 1/2,3/2
900 2
915 3
933.3 10, 1/2,3/2
948 3
F **990**, (3/2⁻)
F **1017**, (1/2⁻)
1027 2
F **1038**, (7/2⁻)
A **1052.9** 3, (25/2⁺) γ_{765} ***288.2*** 1 (†$_\gamma$100) (E2)
1062 2
1099.9 5, 1/2,3/2
F **1100**, (5/2⁻)
A **1126.6** 3, (27/2⁺) γ_{827} ***299.7*** 2 (†$_\gamma$100) (E2)
F **1137**, (11/2⁻)
1174
G **1214**, (1/2⁺)
G **1233**, (3/2⁺)
H **1233**, (9/2⁻)
G **1261**, (5/2⁺)
I **1261**, (3/2⁺)
I **1289**, (5/2⁺)
G **1311**, (7/2⁺)
I **1342**, (7/2⁺)
G **1359**, (9/2⁺)
A **1381.7** 4, (29/2⁺) γ_{1053} ***328.8*** 3 (†$_\gamma$100)
1390
I **1409**, (9/2⁺)
1437
1465
A **1466.6** 4, (31/2⁺) γ_{1127} ***340.0*** 2 (†$_\gamma$100) (E2)
1488
A **1749.0** 5, (33/2⁺) γ_{1382} ***367.3*** 4 (†$_\gamma$100) (E2)
A **1845.6** 6, (35/2⁺) γ_{1467} ***379.0*** 4 (†$_\gamma$100) (E2)
A **2152.5** 7, (37/2⁺) γ_{1749} ***403.5*** 4 (†$_\gamma$100) (E2)
A **2261.1** 7, (39/2⁺) γ_{1846} ***415.5*** 4 (†$_\gamma$100) (E2)
A **2590.3** 8, (41/2⁺) γ_{2153} ***437.8*** 4 (†$_\gamma$100) (E2)
A **2712.0** 8, (43/2⁺) γ_{2261} ***450.9*** 4 (†$_\gamma$100) (E2)
A **3060.5** 9, (45/2⁺) γ_{2590} ***470.2*** 4 (†$_\gamma$100) E2
J **3100** 200, (5/2⁺), 7.5 10 μs, %SF≤100 γ_0 ***IT***(?)
J **3124.3**, (7/2⁺) γ_{3100+e} ***24.3*** (†$_{\gamma+e}$73 15)
J **3156.2**, (9/2⁺) γ_{3124} ***31.9*** (†$_{\gamma+e}$55 10) M1+E2: δ>0.85 γ_{3100+e} ***56.2*** (†$_{\gamma+e}$25 5) E2
A **3199.0** 9, (47/2⁺) γ_{2712} ***487.0*** 4 (†$_\gamma$100) (E2)
3303, (9/2⁻), 2.6 +40 −12 ns, %SF≤100 γ_{3156} ***146.6*** (†$_{\gamma+e}$91 20) (E1) γ_{3124} ***178.5*** (†$_{\gamma+e}$41 10) (E1) γ_{3100+e} ***202.8***(?) (†$_{\gamma+e}$4 2)
A **3558.4** 10, (49/2⁺) γ_{3061} ***497.9*** 4 (†$_\gamma$100) (E2)



$^{240}_{94}$Pu

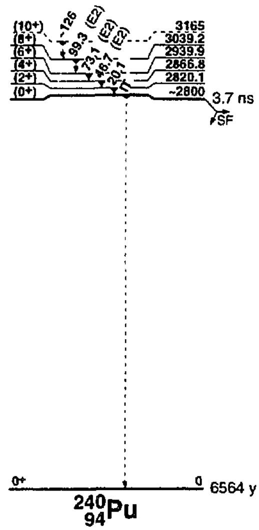
Δ:50120.5 20 S_n:6533.5 5 S_p:6472.9 9 Q_α:5255.78 15
σ^0_γ:289.5 14 b , σ_f:0.06 3 b

Nuclear Bands

- *A* Isomer band
- *B* GS band
- *C* Band Structure
- *D* Band Structure
- *E* Band Structure
- *F* ν1/2[631]+ν5/2[o22]
- *G* Band Structure
- *H* Band Structure
- *I* Band Structure
- *J* π5/2[642]+π5/2[523]
- *K* π5/2[642]-π5/2[523]
- *L* Band Structure

Levels and γ-ray branchings:

B **0**, 0⁺, 6564 11 y, %α=100, %SF=5.7×10^{-6} 2
B **42.824** 8, 2⁺, 164 5 ps γ_0**42.824** 8 (†$_\gamma$100) E2
B **141.690** 15, 4⁺ γ_{43}**98.860** 13 (†$_\gamma$100) E2
B **294.319** 24, 6⁺ γ_{142}**152.630** 20 (†$_\gamma$100) E2
B **497.52** 21, 8⁺ γ_{294}**203.2** 2 (†$_\gamma$100)
C **597.34** 4, 1⁻ γ_{43}**554.60** 7 (†$_\gamma$100 6) E1 γ_0**597.40** 7 (†$_\gamma$62 6) E1
C **648.85** 4, 3⁻ γ_{142}**507.20** 10 (†$_\gamma$100) γ_{43}**606.10** 7 (†$_\gamma$97 5)
C **742.33** 4, 5⁻, <2 ns γ_{294}**448.01** 6 (†$_\gamma$67 3) γ_{142}**600.57** 6 (†$_\gamma$10 5)
B **747.8** 3, (10⁺) γ_{498}**250.3** 2 (†$_\gamma$100)
D **860.71** 7, 0⁺ γ_{597}**263.37** 7 (†$_\gamma$89 2) γ_{43}**817.89** 10 (†$_\gamma$100) E2 γ_0**860.7** E0
D **900.32** 4, 2⁺ γ_{649}**251.47** 7 (†$_\gamma$73 3) γ_{597}**302.98** 7 (†$_\gamma$85 3) γ_{142}**758.61** 8 (†$_\gamma$100 3) E2 γ_{43}**857.48** 10 (†$_\gamma$42 2) γ_0**900.37** 10 (†$_\gamma$14 2)
E **938.06** 6 (1⁻) γ_{649}**289.21** 10 (†$_\gamma$1.4 3) γ_{597}**340.70** 10 (†$_\gamma$5.0 5) γ_{43}**895.30** 10 (†$_\gamma$5 1) γ_0**938.02** 10 (†$_\gamma$100 4)
E **958.85** 6, (2⁻) γ_{649}**309.99** 9 (†$_\gamma$4.3 4) γ_{597}**361.55** 10 (†$_\gamma$3.5 6) γ_{43}**915.98** 9 (†$_\gamma$100 3)
D **992.2** 6, (4⁺) γ_{742}**249.7** 10 (†$_\gamma$41 15) γ_{649}**343.7** 10 (†$_\gamma$100 10) γ_{294}≈**697.8** (†$_\gamma$71 16)
E **1001.93** 10, (3⁻) γ_{43}**959.1** 1 (†$_\gamma$100)
F **1030.53** 5, (3)⁺, 1.32 15 ns γ_{142}**888.80** 5 (†$_\gamma$34.3 5) E2 γ_{43}**987.76** 6 (†$_\gamma$100 2) E2
E **1037.52** 6, (4⁻) γ_{742}**295.20** 10 (†$_\gamma$3.2 4) γ_{649}**388.70** 10 (†$_\gamma$6.6 5) γ_{142}**895.80** 10 (†$_\gamma$100 5)
B **1041.8** 4, (12⁺) γ_{748}**294.00** 20 (†$_\gamma$100)
F **1076.22** 9, (4⁺) γ_{142}**934.50** 10 (†$_\gamma$100 12) γ_{43}**1033.50** 20 (†$_\gamma$40 4)
G **1089.45** 10, 0⁺ γ_{43}**1046.62** 10 (†$_\gamma$100)
E **1115.53** 6, (5⁻) γ_{649}**466.70** 10 (†$_\gamma$4.5 4) γ_{294}**821.20** 10 (†$_\gamma$4.5 4) γ_{142}**973.90** 10 (†$_\gamma$100 5)
G **1131.95** 10, (2⁺) γ_{142}**989.20** 10 (†$_\gamma$100 7) γ_{43}**1088.30** 20 (†$_\gamma$39 4) γ_0**1131.00** 20 (†$_\gamma$75 6)
H **1136.97** 13, (2⁺) γ_{43}**1094.20** 20 (†$_\gamma$100 15) γ_0**1137.0** 4 (†$_\gamma$67 10)
E **1161.53** 7, (6⁻) γ_{742}**419.20** 10 (†$_\gamma$9.8 8) γ_{294}**867.20** 10 (†$_\gamma$100 6)
H **1177.50** 10, (3⁺) γ_{1038}**139.90** 10 γ_{1002}**175.40** 10(?) γ_{142}**1036.1** 3 γ_{43}**1135.1** 3
1180.4, (2⁺)
1199 2
1223.00 20, (2⁺) γ_{43}**1180.20** 20 (†$_\gamma$100 8) γ_0**1223.00** 20 (†$_\gamma$80 12)
H **1232.46** 10, (4⁺) γ_{294}**938.20** 10 (†$_\gamma$100 17) γ_{142}**1090.50** 20 (†$_\gamma$44 9) γ_{43}**1190.0** 10 (†$_\gamma$7 4)
I **1240.8** 3, (2⁻) γ_{43}**1198.0** 3 (†$_\gamma$100)
1262.0 3, (3⁺) γ_{142}**1120.3** 4 (†$_\gamma$31 3) γ_{43}**1219.2** 3 (†$_\gamma$100 6)
I **1282** 2, (3⁻)
J **1308.74** 5, (5⁻), 165 10 ns γ_{1162}**147.20** 10 (†$_\gamma$4.0 3) (M1+E2) γ_{1116}**193.30** 10 (†$_\gamma$22.1 11) (M1+E2) γ_{1038}**271.30** 10 (†$_\gamma$22.5 11) (M1+E2) γ_{1002}**306.80** 10 (†$_\gamma$1.6 2) (M1+E2) γ_{742}**566.34** 6 (†$_\gamma$100 5) (M1+E2) γ_{294}**1014.40** 10 (†$_\gamma$0.83 22) γ_{142}**1167.10** 10 (†$_\gamma$17.8 11)
1321.10 10(?) γ_0**1321.10** 10(?) (†$_\gamma$100)
1337.0 3, (3,4) γ_{142}**1195.5** 4 (†$_\gamma$100 20) γ_{43}**1294.0** 3 (†$_\gamma$35 4)
B **1375.6** 6, (14⁺) γ_{1042}**333.8** 4 (†$_\gamma$100)
1379 4
1407 3
K **1410.75** 15, 0(⁻) γ_{597}**813.41** 10 (†$_\gamma$100)
1413.0, (⁺)
K **1438.45** 8, 2(⁻) γ_{649}**789.59** 10 (†$_\gamma$100 17) γ_{597}**841.11** 10 (†$_\gamma$83 9) γ_0**1438.5** (†$_\gamma$<0.6)
1488.17 7, (1⁻) γ_{43}**1445.30** 10 (†$_\gamma$100 3) γ_0**1488.20** 10 (†$_\gamma$53 3)
L **1525.86** 8, (0⁺) γ_{597}**928.55** 10 (†$_\gamma$100 13) γ_{43}**1483.00** 10 (†$_\gamma$18 3)
1539.67 6, (1⁻) γ_{959}**580.70** 20 (†$_\gamma$0.53 15) γ_{649}**890.60** 20 (†$_\gamma$1.3 2) γ_{597}**942.39** 10 (†$_\gamma$7.2 7) γ_{43}**1496.90** 10 (†$_\gamma$100 2) γ_0**1539.62** 9 (†$_\gamma$63.2 15)
L **1558.87** 5, (2⁺) γ_{649}**910.10** 10 (†$_\gamma$100 14) γ_{597}**961.62** 10 (†$_\gamma$93 5) γ_{142}**1417.20** 10 (†$_\gamma$16 3) γ_{43}**1515.90** 10 (†$_\gamma$11 4) γ_0**1558.80** 10 (†$_\gamma$4.3 14)
1574
1580
1607.72 15, (1⁻) γ_{1089}**518.2** 3 (†$_\gamma$11 4) γ_{649}**959.0** 2 (†$_\gamma$13 4) γ_0**1607.60** 20 (†$_\gamma$100 9)
1626.77 15, (1⁻) γ_{43}**1584.10** 20 (†$_\gamma$100 12) γ_0**1626.60** 20 (†$_\gamma$29 6)
1633.37 8, (1⁻) γ_{1137}**496.7** 3 (†$_\gamma$6.5 13) γ_{597}**1036.5** 3 (†$_\gamma$1.9 13) γ_{43}**1590.50** 10 (†$_\gamma$63 3) γ_0**1633.33** 10 (†$_\gamma$100 3)
1641 5
1675 2
1710.43 8, (2⁺) γ_{1137}**573.40** 20 (†$_\gamma$28 7) γ_{649}**1061.60** 20 (†$_\gamma$100 24) γ_{597}**1113.20** 20 (†$_\gamma$62 10) γ_{142}**1568.60** 20 (†$_\gamma$21 3) γ_{43}**1667.60** 10 (†$_\gamma$66 10) γ_0**1711.0** 10 (†$_\gamma$7 4)
1752 3
1775.30 20, (1⁻) γ_{43}**1732.40** 20 (†$_\gamma$67 34) γ_0**1775.30** 20 (†$_\gamma$100 33)
1784 3
1796.34 15, (1⁻) γ_{1321}**475.0** 3 (†$_\gamma$100 27) γ_{1223}**573.40** 20 (†$_\gamma$73 18) γ_{959}**837.60** 20 (†$_\gamma$73 27) γ_0**1796.2** 3 (†$_\gamma$27 9)
1808.00 20, (1⁻,2⁺) γ_{649}**1159.20** 20 (†$_\gamma$40 13) γ_{597}**1210.5** 5 (†$_\gamma$100 30) γ_{43}**1765.20** 20 (†$_\gamma$47 7) γ_0**1807.9** 4 (†$_\gamma$13 7)
1861 3
1902 3
1917.8 3, (1⁻) γ_{43}**1874.9** 3 (†$_\gamma$100 8) γ_0**1918.0** 10 (†$_\gamma$7 3)
1954.50 10, (2⁺) γ_{649}**1305.80** 20 (†$_\gamma$100 26) γ_{597}**1357.20** 20 (†$_\gamma$57 13) γ_{142}**1812.80** 10 (†$_\gamma$22 9) γ_{43}**1911.4** 3 (†$_\gamma$61 4)
1996.40 20, (1⁻,2⁺) γ_{597}**1398.5** 5 (†$_\gamma$100 40) γ_{43}**1953.50** 20 (†$_\gamma$46 10) γ_0**1996.7** 4 (†$_\gamma$20 8)
2117.60 20 γ_{43}**2074.80** 20(?) (†$_\gamma$100 16) γ_0**2117.5** 10 (†$_\gamma$23 13)
2127.4, (⁻)
A **≈2800**, (0⁺), 3.7 3 ns, %SF>0 γ_0**IT**(?)
A **2820.1**, (2⁺) γ_{2800}**20.1**
A **2866.8**, (4⁺) γ_{2820}**46.7** (E2)
A **2939.9**, (6⁺) γ_{2867}**73.1** (E2)
A **3039.2**, (8⁺) γ_{2940}**99.3** (E2)
A **3165**(?), (10⁺) γ_{3039}≈**126**(?)



$^{240}_{94}$Pu

$^{241}_{94}$Pu

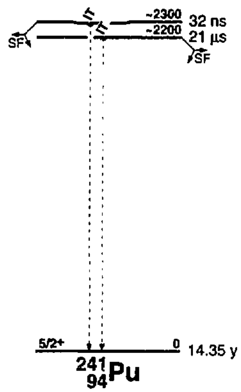
Δ:52950.2 *20* S_n:5241.60 *19* S_{2p}:6659 *15* Q_{β^-}:20.81 *20* Q_α:5140.1 *5*
σ_f:1011 *6* b , σ_{abs}:1017 *3* b , σ_γ:358 *5* b

Nuclear Bands

- *A* 5/2[622]
- *B* 1/2[631]
- *C* 7/2[624]
- *D* 7/2[743]
- *E* 1/2[620]
- *F* 1/2[501]?
- *G* Band Structure

Levels and γ-ray branchings:

A **0**, 5/2⁺, 14.35 *10* y, μ=−0.683 *15*, Q=+5.6 *20*, %β⁻=99.998, %α=2.45×10⁻³ *2*, %SF<*2.4×10⁻¹⁴*
A **41.95** *3*, 7/2⁺ γ_0 ***41.95*** *3* (M1+E2)
A **95.69** *7*, 9/2⁺ γ_{42} ***53.74*** *6* (M1+E2)
A **161.05** *10*, (11/2⁺) γ_{96} ***65.36*** *6*
B **161.6** *1*, 1/2⁺, 0.88 *5* μs γ_0 ***161.6*** *1*
B **170.9** *8*, (3/2⁺)
C **174.94** *4*, 7/2⁺ γ_{96} ***79.25*** *6* ($\dagger_\gamma$1.58 *9*) γ_{42} ***132.99*** *3* ($\dagger_\gamma$29.2 *15*) γ_0 ***174.94*** *4* ($\dagger_\gamma$100)
B **223.1** *20*, (5/2⁺)
C **231.76** *8*, 9/2⁺ γ_{175} ***56.81*** *6* ($\dagger_\gamma$18.7 *10*) (M1+E2): δ=0.59 *8* γ_{96} ***136.06*** *6* ($\dagger_\gamma$58 *4*) γ_{42} ***189.82*** *6* ($\dagger_\gamma$100 *7*)
A **235** *4*, (13/2⁺)
B **242.7**, (7/2⁺)
C **300.93** *8*, (11/2⁺) γ_{232} ***69.17*** *6* ($\dagger_\gamma$100 *43*) (M1+E2) γ_{161} ***139.81*** *6* ($\dagger_\gamma$86 *29*)
B **335** *2*, 9/2⁺
337, (1/2,3/2)
C **368** *4*, (13/2⁺)
≈376, (1/2,3/2)
≈384
404.4 *2*, (5/2⁺,7/2) γ_{96} ***308.8*** *2* ($\dagger_\gamma$37 *11*) γ_{42} ***362.4*** *1* ($\dagger_\gamma$100 *11*) γ_0***≈405***(?)
D **444** *3*, (11/2⁻)
473
495 *10*
B **499** *3*, (13/2⁺)
G **518.7** *2*, (5/2⁻) γ_{42} ***476.6*** *2* ($\dagger_\gamma$100 *10*) γ_0 ***518.8*** *1* ($\dagger_\gamma$≈400)
G **561.0** *3*, (7/2⁻) γ_{42} ***518.8*** *1* ($\dagger_\gamma$≈50) γ_0 ***561.1*** *2* ($\dagger_\gamma$100 *40*)
D **569** *3*, (15/2⁻)
620 *10*
645 *9*
681, (1/2,3/2)
E **755.2** *10*, (1/2⁺) γ_{171} ***584.3*** ($\dagger_\gamma$5.6) γ_{162} ***593.6*** ($\dagger_\gamma$100)
E **769.7** *7*, (3/2⁺) γ_{171} ***598.7*** ($\dagger_\gamma$39) γ_{162} ***608.1*** ($\dagger_\gamma$100)
770 *3*
771 *4*
784.4 *7*, (1/2⁺,3/2) γ_{171} ***613.0*** ($\dagger_\gamma$40) γ_{162} ***622.5*** ($\dagger_\gamma$60) γ_0 ***784.4*** ($\dagger_\gamma$100)
797 *4*, (1/2,3/2)
800 *2*
E **800.5**, (5/2⁺)
808 *3*
834.6 *2*, 3/2,5/2⁺ γ_0 ***834.6*** *2*
841.8 *9*, 1/2⁺,3/2 γ_{171} ***671.3*** ($\dagger_\gamma$62.5) γ_{161} ***680.6*** ($\dagger_\gamma$62.5) γ_0 ***841.0*** ($\dagger_\gamma$100)
844 *3*
850.3 *10*, 1/2,3/2 γ_{171} ***678.9*** ($\dagger_\gamma$40) γ_{162} ***688.7*** ($\dagger_\gamma$100)
864 *3*
875(?)
E **897** *4*, (9/2⁺)
918 *3*
929.7 *2*, (7/2⁺) γ_{96} ***834.6*** *2*(?) γ_0 ***929.7*** *2*
936 *3*
942.4 *10*, 1/2,3/2 γ_{171} ***772.0*** ($\dagger_\gamma$30) γ_{161} ***781.3*** ($\dagger_\gamma$100)
948 *5*
F **965.2** *8*, (1/2⁻) γ_{171} ***794.2*** ($\dagger_\gamma$100) γ_{162} ***803.3*** ($\dagger_\gamma$86)
967 *3*
994.4 *10*, 1/2,3/2,5/2⁺
995 *3*
F **1009** *2*, (3/2⁻ and 5/2⁻)
1016 *3*
1049, 1/2,3/2
1063 *3*
1075 *3*
1090.5 *8*, (1/2,3/2)
1091 *3*
1121 *3*
1173
1180 *3*
1196
1209 *4*
1219 *4*
1224.1, 1/2,3/2,5/2⁺
1242 *4*
1253.9, 1/2,3/2,5/2⁺
1258 *4*
1269.1, 1/2,3/2,5/2⁺
1277 *4*
1288 *4*
1297.0, 1/2,3/2,5/2⁺
1299 *4*
1309 *4*
1344 *4*
1356 *4*
1357.8, 1/2,3/2,5/2⁺
1381 *4*
1399 *3*
1441 *5*
1452 *5*
1474 *3*
1489 *5*
1546 *5*
1594 *5*
1759 *3*
1801 *4*
1820 *4*
1888 *5*, (15/2)⁻
1944 *5*
1991 *4*
≈2045(?)
2199, 1/2,3/2
≈2200, 21 *3* μs, %SF=100 γ_0***IT***(?)
≈2300, 32 *5* ns, %SF=100 γ_0***IT***(?)



$^{242}_{94}Pu$

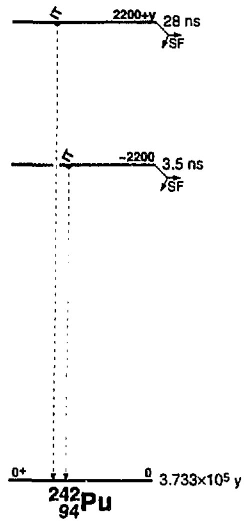
Δ: 54712.1 20 S_n: 6309.4 7 S_p: 6830 70 Q_α: 4982.7 12
σ^0_γ: 18.5 5 b, σ_f: <0.2 b

Nuclear Bands

- *A* GS band
- *B* Octupole band
- *C* γ band?
- *D* Band Structure
- *E* Band Structure

Levels and γ-ray branchings:

A **0**, 0^+, 3.733×10^5 *12* y, %α=100, %SF=5.50×10^{-4} *6*
A **44.54** *2*, 2^+, 158 *6* ps γ_0 ***44.54*** *2* ($\dagger_\gamma$100) E2
A **147.3** *2*, 4^+ γ_{45} ***102.8*** *2* ($\dagger_\gamma$100) E2
A **306.4** *2*, 6^+ γ_{147} ***159.0*** *1* ($\dagger_\gamma$100) E2
A **518.1** *3*, 8^+ γ_{306} ***211.7*** *4* ($\dagger_\gamma$100) E2
A **778.7** *6*, 10^+ γ_{518} ***260.5*** *6* ($\dagger_\gamma$100) E2
B **780.46** *4*, (1^-) γ_{45} ***735.93*** *7* ($\dagger_\gamma$100) γ_0 ***780.44*** *5* ($\dagger_\gamma$53)
B **832.3** *2*, 3^- γ_{147} ***685.0*** *1* γ_{45} ***787.8*** *10*
B **927**, (5^-)
E **956**, (0^+)
E **992.5** *2*, (2^+) γ_{45} ***948.0*** *2* ($\dagger_\gamma$100)
D **1019.4**, 3^- γ_{45} ***974.9*** ($\dagger_\gamma$100)
1039.2 *3*, (1^+,2^+) γ_0 ***1039.2*** *3*(?)
D **1064.0**, (4^-) γ_{147} ***915.7*** ($\dagger_\gamma$100)
A **1084.0** *12*, 12^+ γ_{779} ***305.8*** *8* ($\dagger_\gamma$100)
1092.1 *2*, (6^+) γ_{306} ***785.7*** *1* ($\dagger_\gamma$100) γ_{147} ***944.6*** *1* ($\dagger_\gamma$63)
C **1102** *4*, (2^+)
D **1122**, (5^-)
1150.1, (2^-) γ_{45} ***1105.6*** ($\dagger_\gamma$100)
1154.6 *2*, (3^-) γ_{147} ***1007.3*** *2* ($\dagger_\gamma$45) γ_{45} ***1110.0*** *2* ($\dagger_\gamma$100)
1181.6 *2*, (2^+) γ_{147} ***1034.2*** *2* ($\dagger_\gamma$22) γ_{45} ***1137.1*** *1* ($\dagger_\gamma$100) γ_0 ***1181.6*** *2* ($\dagger_\gamma$12)
1357.2 *2*(?) γ_{1092} ***265.1*** *1* ($\dagger_\gamma$100)
1401.0 *1*(?), (0,1^+) γ_{780} ***620.6*** *1* ($\dagger_\gamma$100)
1427.96 *25*, (2^-) γ_{780} ***647.4*** *3* ($\dagger_\gamma$100) γ_{45} ***1383.6*** *4* ($\dagger_\gamma$22)
A **1431.3**, 14^+ γ_{1084} ***347.3*** *10* ($\dagger_\gamma$100)
1517.65 *7*, (1^-) γ_{45} ***1473.1*** *1* ($\dagger_\gamma$100) γ_0 ***1517.6*** *1* ($\dagger_\gamma$53)
1744.9
A **1816.3** *20*, 16^+ γ_{1431} ***385.0*** *11* ($\dagger_\gamma$100)
1825.0 *11*, (4^+,5^+) γ_{306} ***1518.6*** ($\dagger_\gamma$100)
1871.4 *3* γ_{832} ***1039.2*** *3* ($\dagger_\gamma$96) γ_{45} ***1826.9*** *3* ($\dagger_\gamma$100)
1874.1 *1* γ_{780} ***1093.5*** *1* ($\dagger_\gamma$100) γ_0 ***1874.5*** *3* ($\dagger_\gamma$22)
1903.6 *2* γ_{780} ***1123.1*** *2* ($\dagger_\gamma$45) γ_{45} ***1859.2*** *3* ($\dagger_\gamma$100)
1949.8 *2*, (1,2^+) γ_{45} ***1905.1*** *2* ($\dagger_\gamma$37) γ_0 ***1949.9*** *2* ($\dagger_\gamma$100)
1969.9 *2*, (1,2^+) γ_{45} ***1925.4*** *2* ($\dagger_\gamma$43) γ_0 ***1969.9*** *2* ($\dagger_\gamma$100)
2091.2 γ_{1150} ***941.1***(?)
≈2200, 3.5 *6* ns, %SF>0 γ_0 *IT*(?)
2200+y, 28 ns, %SF>0 γ_0 *IT*(?)
A **2235.6** *23*, 18^+ γ_{1816} ***419.3*** *12* ($\dagger_\gamma$100)
2246.0 *4*, (1,2^+) γ_{45} ***2201.6*** *5* ($\dagger_\gamma$100) γ_0 ***2246.0*** *5* ($\dagger_\gamma$75)
2331.3 *1*, (2^+) γ_{1518} ***813.6*** *1* ($\dagger_\gamma$100) γ_{780} ***1550.9*** *1* ($\dagger_\gamma$28)
2437.5
A **2686** *3*, 20^+ γ_{2236} ***450.2*** *13* ($\dagger_\gamma$100) E2
A **3163** *3*, 22^+ γ_{2686} ***477.2*** *14* ($\dagger_\gamma$100) E2
A **3662** *4*, 24^+ γ_{3163} ***499.2*** *15* ($\dagger_\gamma$100) E2
A **4172** *4*, 26^+ γ_{3662} ***510.0*** *15* ($\dagger_\gamma$100) E2



$^{243}_{94}$Pu

Δ:57749 3 S_n:5034 3 S_p:6950 200 Q_{β^-}:582 3 Q_α:4754 3

σ_γ:87 10 b

Nuclear Bands

- *A* 7/2[624]
- *B* 5/2[622]
- *C* 1/2[631]
- *D* 9/2[734]
- *E* 1/2[620]
- *F* 7/2[613]
- *G* Band Structure
- *H* 1/2[761]
- *I* 3/2[622]
- *J* 1/2[501]
- *K* 3/2[631]

Levels and γ-ray branchings:

A **0**, 7/2⁺, 4.956 3 h, %β⁻=100

A **58.1** 4, 9/2⁺

A **124.6** 10, 11/2⁺

A **204.4** 15, (13/2⁺)

B **287.4** 3, 5/2⁺ γ_{58}**229.3** 2 ($\dagger_\gamma$1.8 4) γ_0**287.4** 3 ($\dagger_\gamma$100 14) M1

B **333.2** 4, 7/2⁺ γ_{58}**275.1** 2 ($\dagger_\gamma$100 19) γ_0**333.0** 10 ($\dagger_\gamma$64 28)

C **383.6** 4, (1/2⁺), 0.33 3 μs γ_{287}**96.2** 2

B **≈388** (?), (9/2⁺)

C **392.0** 5, (3/2⁺)

D **402.6** 3, 9/2⁻ γ_{125}**278.0** 8 ($\dagger_\gamma$4.7 10) γ_{58}**344.5** 5 ($\dagger_\gamma$≈1.8) γ_0**402.6** 3 ($\dagger_\gamma$100 9) E1

C **446.8** 4, (5/2⁺)

C **450.1** 15, (7/2⁺)

D **454** 6, 11/2⁻

B **466.7** 15, (11/2⁺)

B **536.6** 15, (13/2⁺)

C **564.5** 15, (9/2⁺)

D **595.3** 15, (15/2⁻)

E **625.6** 4, (1/2⁺) γ_{392}**233.9** 6 ($\dagger_\gamma$5.0 16) γ_{384}**242.0** 2 ($\dagger_\gamma$100 19)

F **626** 2, (9/2⁺)

E **653.8** 4, (3/2⁺) γ_{392}**261.7** 3

E **677.2** 5, (5/2⁺) γ_{392}**284.4** 3(?) ($\dagger_\gamma$100 40) γ_{333}**343.9**(?)

G **703.9** 4, (3/2⁻) γ_{287}**416.5** 2

734.1 20

E **741.8** 15, (7/2⁺)

H **790.7** 4, (3/2⁻) γ_{447}**343.9** 2 ($\dagger_\gamma$<158) γ_{384}**407.1** 3 ($\dagger_\gamma$100 12)

809.5 3, (1/2⁺,3/2) γ_{384}**426.0** 6 ($\dagger_\gamma$<29) γ_{287}**522.1** 3 ($\dagger_\gamma$<100)

I **813.8** 2, 3/2⁺ γ_{654}**159.2** 13 ($\dagger_\gamma$27 11) γ_{333}**480.6** 3 ($\dagger_\gamma$31 4) γ_{287}**526.2** 3 ($\dagger_\gamma$100 11) γ_0**813.8** 2 ($\dagger_\gamma$96 10)

H **834.4** 15, (7/2⁻)

I **845.4** 4, (5/2⁺) γ_{287}**558.0** 3 ($\dagger_\gamma$100 11) γ_{58}**787.5** 0 ($\dagger_\gamma$34 17) γ_0**844.3** 8(?) ($\dagger_\gamma$<26)

H **873.7** 10, (1/2⁻) γ_{654}**219.9** 3(?)

884 3

I **895.6** 15, (7/2⁺)

J **905.7** 5, (1/2⁻) γ_{392}**513.6** 3 ($\dagger_\gamma$100 12) γ_{384}**522.1** 3 ($\dagger_\gamma$<34)

H **920.6** 15, (11/2⁻)

J **948.0** 4, (3/2⁻) γ_{447}**501.2** 3 ($\dagger_\gamma$59 7) γ_{392}**555.7** 5 ($\dagger_\gamma$51 17) γ_{384}**564.7** 4 ($\dagger_\gamma$100 11)

I **954** 2, (9/2⁺)

K **981.0** 4, (5/2⁺) γ_{447}**533.9** 4 ($\dagger_\gamma$80 16) γ_{392}**589.1** 3 ($\dagger_\gamma$100 12) γ_{333}**648.8** 8(?) ($\dagger_\gamma$<48) γ_{287}**693.5** 7 ($\dagger_\gamma$32 12)

1044 2

K **1080** 2, (9/2⁺)

1114 3

1130.1 4, (1/2⁺,3/2) γ_{704}**426.0** 6 ($\dagger_\gamma$<38) γ_{447}**683.4** 4 ($\dagger_\gamma$<53) γ_{392}**738.2** 3 ($\dagger_\gamma$79 9) γ_{384}**746.4** 3 ($\dagger_\gamma$100 11)

1145 3

1176.5 3, 3/2⁺,5/2⁺ γ_{791}**385.7** 3 ($\dagger_\gamma$13.5 23) $\gamma_{626.0}$**551.7** 5(?) ($\dagger_\gamma$6.7 18) γ_{447}**730.1** 7 ($\dagger_\gamma$5.4 18) γ_{333}**844.3** 8(?) ($\dagger_\gamma$<9.9) γ_{287}**889.1** 6 ($\dagger_\gamma$100 14) γ_0**1176.5** 5 ($\dagger_\gamma$52 11)

1197 3

1213 2 γ_{333}**879.8** 10(?) ($\dagger_\gamma$75 35) γ_{287}**925.3** 10(?) ($\dagger_\gamma$100 50)

1233 3

1243 3

1265 3

1286 3

1299 2

1301.6 5, 1/2,3/2 γ_{654}**648.8** 8(?) ($\dagger_\gamma$<37) $\gamma_{625.6}$**676.0** 3 ($\dagger_\gamma$100 10) γ_{384}**918.0** 10 ($\dagger_\gamma$43 16)

1324 2

1354 2

1359 3

1367.8 6, 1/2,3/2 γ_{704}**663.9** 6 ($\dagger_\gamma$100 16) γ_{654}**714.7** 11(?) ($\dagger_\gamma$31 16) γ_{392}**976.0** 12 ($\dagger_\gamma$84 42)

1387.4 4, 3/2⁺ γ_{948}**439.4** 3 ($\dagger_\gamma$93 14) γ_{704}**683.4** 4 ($\dagger_\gamma$<107) γ_{333}**1053.8** 10 ($\dagger_\gamma$100 38)

1403 3

1420.5 6, (3/2⁺) γ_{704}**716.9** 5(?) ($\dagger_\gamma$61 13) γ_{392}**1028.4** 10(?) ($\dagger_\gamma$≈39) γ_{333}**1087.1** 8(?) ($\dagger_\gamma$100 52)

1434.7 4, 1/2(⁺),3/2 γ_{810}**625.2** 2 ($\dagger_\gamma$100 11) γ_{791}**644.2** 4 ($\dagger_\gamma$38 9) γ_{677}**757.5** 4 ($\dagger_\gamma$44 8) γ_{654}**781.1** 12(?) ($\dagger_\gamma$25 17) γ_{392}**1042.1** 5 ($\dagger_\gamma$73 11)

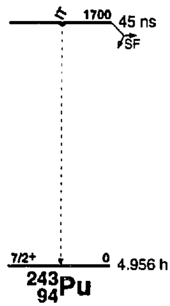
1444 3

1465 3

1491.0 10, 1/2,3/2

1515.6 10, 3/2 γ_{677}**838.7** 5(?)

1700 300, 45 15 ns, %SF=100 γ_0*IT*(?)



$^{244}_{94}Pu$

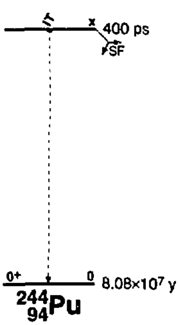
Δ: 59799 *5* S_n: 6021 *4* S_p: 7409 *10* Q_α: 4665.5 *10*
σ_γ: 1.7 *1* b

Nuclear Bands

A GS band

Levels and γ-ray branchings:

A 0, 0^+, 8.08×10^7 *10* y, %SF=0.123 *6*, %α=99.877 *6*
A **46** *2*, 2^+, 155 *2* ps γ_0 ***46.1***
A **153** *2*, 4^+ γ_{46} ***106.2***
A **315.4** *10*, 6^+ γ_{153} ***162.4*** *4*
A **531.8** *10*, 8^+ γ_{315} ***216.4*** *4*
708 *4*, (2^+,3^-)
A **798.3** *10*, 10^+ γ_{532} ***266.5*** *6*
957 *2*, (3^-)
1015 *2*, (2^+)
1068 *4*
1108 *2*, (3^-)
A **1110.7** *10*, 12^+ γ_{798} ***312.4*** *8*
1194 *3*, (5^-)
1210 *3*
1353 *4*
1378 *3*
1434 *3*
A **1464.4** *10*, 14^+ γ_{1111} ***353.7*** *10*
1613 *3*, (3^-)
1783 *3*
1805 *3*
1847 *3*
A **1855.4** *20*, 16^+ γ_{1464} ***391.0*** *11*
1896 *3*
x (?), 400 *100* ps, %SF≤100 γ_0/*IT*(?)
A **2279.2** *20*, 18^+ γ_{1855} ***423.8*** *12*
A **2730.7** *20*, 20^+ γ_{2279} ***451.5*** *14*
A **3202.7** *30*(?), 22^+ γ_{2731} ***472.0*** *25*
A **3674.7** *30*(?), 24^+ γ_{3203} ***472.0*** *25*
A **4132.4** *30*(?), (26^+) γ_{3675} ***457.7*** *14*



$^{245}_{94}Pu$

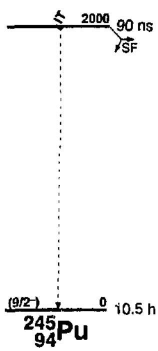
Δ: 63097 *14* S_n: 4773 *13* Q_{β^-}: 1205 *15*
σ_γ: 150 *30* b

Nuclear Bands

A 9/2[734]
B 1/2[620]
C 7/2[613]
D 3/2[622]
E 1/2[761]

Levels:

A 0, ($9/2^-$), 10.5 *1* h, %β^-=100
A **217**, ($15/2^-$)
246 *4*
B **306** *3*, ($1/2^+$)
C **325** *2*, ($9/2^+$)
B **355** *3*, ($5/2^+$)
B **423** *5*, ($7/2^+$)
B **459** *5*, ($9/2^+$)
D **575** *4*, ($3/2^+$)
D **613** *4*, ($5/2^+$)
E **637** *4*, ($3/2^-$)
D **660** *3*, ($7/2^+$)
E **675** *3*, ($7/2^-$)
D **723** *3*, ($9/2^+$)
738 *3*
758 *4*
802 *2*
1071 *3*
1128 *3*
1279 *3*
1389 *4*
2000 *400*, 90 *30* ns, %SF≤100 γ_0/*IT*(?)

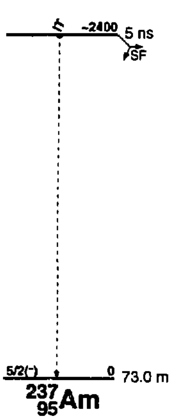


$^{237}_{95}$Am

Δ: (46820) S_n: (7430) S_p: (3370)
Q_{EC}: (1730) Q_α: (6250)

Levels:

0, 5/2(⁻), 73.0 *10* m, %α=0.025 *3*, %EC=99.975 *3*
≈**2400**, 5 *2* ns, %SF=100 γ_0/*IT*(?)

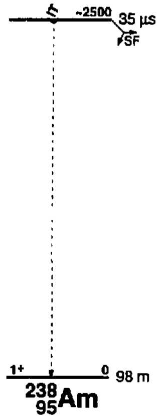


$^{238}_{95}$Am

Δ: 48420 *50* S_n: (6470) S_p: 3960 *50*
Q_{EC}: 2260 *50* Q_α: 6040 *50*

Levels:

0, 1⁺, 98 *2* m, %α=1.0×10⁻⁴ *4*, %EC+%β⁺>99.99
≈**2500**, 35 *10* μs, %SF≤100 γ_0/*IT*(?)



$^{239}_{95}$Am

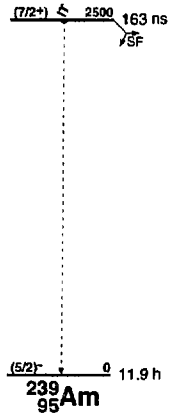
Δ: 49386 *3* S_n: 7100 *50* S_p: 4061.3 *20*
Q_{EC}: 802.9 *20* Q_α: 5923.7 *18*

Nuclear Bands

A 5/2[523]
B 5/2[642]
C 3/2[521]

Levels and γ-ray branchings:

A **0**, (5/2)⁻, 11.9 *1* h, %EC=99.990 *1*, %α=0.010 *1*
A **40.7** *7*, (7/2⁻)
A **94** *6*, (9/2⁻)
A **156** *7*, (11/2⁻)
B **187.1** *5*, (5/2⁺) γ_{41} ***146.4*** *5* (†$_\gamma$20 *6*) (E1) γ_0 ***187.1*** *5* (†$_\gamma$100 *25*) (E1)
B **220** *6*, (7/2⁺)
B **260** *6*, (9/2⁺)
B **317** *7*, (11/2⁺)
B ≈**370**, (13/2⁺)
C **557** *6*, (3/2⁻)
C **586** *6*, (5/2⁻)
2500 *200*, (7/2⁺), 163 *12* ns, %SF≤100, μ=(+)2.59 *18* γ_0/*IT*(?)



$^{240}_{95}$Am

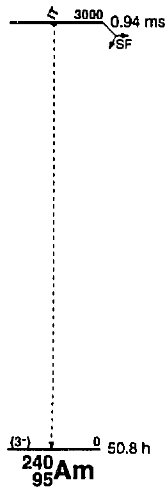
Δ: 51499 *14* S_n: 5957 *14* S_p: 4372 *14*
Q_{EC}: 1379 *14* Q_α: 5690 *50*

Nuclear Bands

- *A* π5/2[523]+ν1/2[631]
- *B* π5/2[523]-ν1/2[631]
- *C* π5/2[523]-ν5/2[622]
- *D* π5/2[523]+ν5/2[622]
- *E* π5/2[523]+ν1/2[501]
- *F* π5/2[523]-ν1/2[501]

Levels:

A **0**, (3⁻), 50.8 *3* h, %EC=100, %α=1.9×10⁻⁴ *7*
A **41**, (4⁻)
B **53**, (2⁻)
B **87**, (3⁻)
A **96**, (5⁻)
B **130**, (4⁻)
A **158**, (6⁻)
B **186**, (5⁻)
213
A **233**, (7⁻)
B **252**, (6⁻)
281
A **316**, (8⁻)
B **329**, (7⁻)
C **346**, (1⁻)
C **398**, (3⁻)
D **398**, (5⁻)
C **423**, (2⁻)
D **458**, (6⁻)
474
C **498**, (4⁻)
C **498**, (5⁻)
D **534**, (7⁻)
551
C **616**, (6⁻)
C **640**, (7⁻)
660
757
777
809
819
845
856
877
898
917
932
956
E **973**, (5⁻)
997
F **1016**, (2⁺)
E **1016**, (4⁺)
F **1052**, (3⁺)
1066
1079
1194
1218
1235
1248
1305
1318
1335
1349
1372
1386
1407
1437
1495
1515
1545
3000 *200*, 0.94 *4* ms, %SF≤100 γ_0/*IT*(?)



$^{241}_{95}$Am

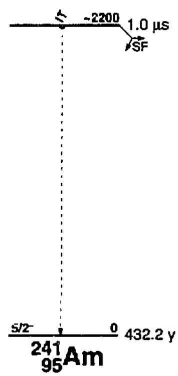
Δ: 52929.4 *20* S_n: 6641 *14* S_p: 4480.1 *3* Q_α: 5637.81 *12*
σ_γ^0(to 0): 533 *13* b, σ_γ^0(to 48.6): 54 *5* b

Nuclear Bands

- *A* 5/2[523]
- *B* 5/2[642]
- *C* 3/2[521]
- *D* 1/2[400]
- *E* 1/2[530]
- *F* 3/2[651]

Levels and γ-ray branchings:

A **0**, 5/2⁻, 432.2 *5* y, %SF=3.77×10⁻¹⁰ *8*, %α=100, μ=+1.59 *13*, Q=+4.9
A **41.176** *3*, 7/2⁻ γ_0 ***41.176*** *3* ($\dagger_\gamma$100) M1+E2: δ=0.48 *5*
A **93.65** *10*, 9/2⁻
A **158.0** *15*, 11/2⁻
B **205.883** *10*, 5/2⁺ γ_{41} ***164.8*** *2* ($\dagger_\gamma$16 *3*) γ_0 ***205.879*** *13* ($\dagger_\gamma$100 *6*) E1
A **234.0** *13*, (13/2⁻)
B **235** *1*, (7/2⁺) γ_{41} ***195*** *1* ($\dagger_\gamma$100)
239 *2* (?)
B **272** *2*, (9/2⁺)
273 *2* (?)
B **320** *2*, (11/2⁺)
B **380** *1*, (13/2⁺)
459 (?)
C **471.810** *9*, 3/2⁻ γ_{206} ***265.922*** *12* ($\dagger_\gamma$0.56 *6*) (E1) γ_{41} ***430.634*** *20* ($\dagger_\gamma$5.7 *3*) E2 γ_0 ***471.805*** *20* ($\dagger_\gamma$100 *5*) M1+E2
495 *2*
C **504.448** *9*, 5/2⁻ γ_{472} ***32.639*** *3* ($\dagger_\gamma$17 *3*) M1+E2: δ=0.125 *10* γ_{206} ***298.57*** *5* ($\dagger_\gamma$6.4 *17*) γ_{94} ***410.8*** *1* ($\dagger_\gamma$7.0 *7*) γ_{41} ***463.273*** *20* ($\dagger_\gamma$100 *7*) M1+E2 γ_0 ***504.45*** *3* ($\dagger_\gamma$48 *4*) (M1+E2)
543 (?)
C **549** *1*, 7/2⁻
D **623.10** *4*, (1/2⁺) γ_{472} ***151.4*** *4* ($\dagger_\gamma$≈3) γ_{206} ***417.24*** *4* ($\dagger_\gamma$100 *7*) (E2) γ_0 ***623.1*** *3* ($\dagger_\gamma$1.8 *5*)
E **636.861** *10*, 3/2⁻ γ_{504} ***132.413*** *7* ($\dagger_\gamma$100 *6*) M1+E2: δ=0.060 *20* γ_{472} ***165.049*** *8* ($\dagger_\gamma$77 *6*) M1+E2: δ=0.22 *3* γ_{206} ***430*** *1* ($\dagger_\gamma$≈1.0) γ_{41} ***595.8*** *3* ($\dagger_\gamma$0.38 *8*) γ_0 ***636.88*** *3* ($\dagger_\gamma$40 *3*) M1+E2: δ=0.57 *20*
E **652.089** *10*, (1/2)⁻ γ_{637} ***15.228*** *2* ($\dagger_\gamma$11.5 *7*) M1+E2: δ=0.032 *7* γ_{623} ***29.02*** *5* ($\dagger_\gamma$6.3 *13*) γ_{504} ***147.67*** *3* ($\dagger_\gamma$4.2 *17*) γ_{472} ***180.277*** *8* ($\dagger_\gamma$100 *9*) M1(+E2) γ_0 ***652.1*** *4* ($\dagger_\gamma$8.3 *21*)
D **653.23** *4*, (3/2⁺) γ_{206} ***447.35*** *4* ($\dagger_\gamma$80 *10*) (M1+E2): δ=0.36^{+50}_{-36} γ_0 ***653.2*** *2* ($\dagger_\gamma$100 *7*)
F **670.24** *8*, (3/2⁺) γ_{206} ***464.36*** *8* ($\dagger_\gamma$15 *3*) (M1+E2): δ=1.5^{+20}_{-7} γ_0 ***670.2*** *2* ($\dagger_\gamma$100 *7*)
C **682** *3*, (11/2⁻)
732 *4*
822 *4*
884 *4*
952 *1*, 5/2⁻
982 *2*
1020 *4*
1064 *4*
1106 *4*
1132 *5*
1136 *3*
1163 *3*
1227 *3*
1550 *4*, (5/2⁻)
≈**2200**, 1.0 *3* μs, %SF=100 γ_0/*IT*(?)



$^{242}_{95}$Am

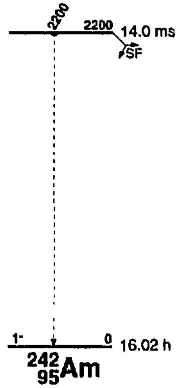
Δ: 55463.1 *20* S_n: 5537.57 *10* S_p: 4776.03 *22*
Q_{β^-}: 664.8 *7* Q_{EC}: 751.0 *7* Q_α: 5588.33 *25*
σ_f(to 0): 2100 *200* b , σ_γ(to 48.6): 2000 *600* b

Nuclear Bands

A π5/2[523]-ν5/2[622]
B π5/2[523]+ν5/2[622]
C π5/2[523]+ν1/2[631]
D π5/2[523]-ν1/2[631]
E π5/2[523]+ν1/2[501]
F π5/2[523]-ν1/2[501]

Levels and γ-ray branchings:

A **0**, 1⁻, 16.02 *2* h, μ=+0.382 *2*, Q=−2.76, %β⁻=82.7 *3*, %EC=17.3 *3*
A **44.1** (?), (0⁻) γ_0 ***44.1*** (?)
B **48.63** *5*, 5⁻, 141 *2* y, %α=0.459 *12*, %IT=99.541 *12*, %SF=1.5×10⁻⁸ *6* γ_0 ***48.63*** *5* E4
A **52.9**, (3⁻) γ_0 ***52.9*** (?)
A **75.8**, (2⁻) γ_0 ***75.8*** (?)
99
B **114**, (6⁻)
A **148**, (5⁻)
A **149.9**, (4⁻) γ_{53} ***96.9*** (?)
171
B **190**, (7⁻)
197.6, (3⁻)
230.5, (1⁺) γ_{76} ***154.7*** (?) γ_{44} ***186.4*** (?)
C **244.1** *3*, (3⁻)
A **263**, (6⁻)
A **263**, (7⁻)
270.1 *3*, (2⁺)
283.3 *3*, (3⁺)
C **288.4**, (4⁻)
D **291.8**, (2⁻)
306.9 *4*, (3⁻)
D **326.0** *6*, (3⁻)
C **341.4** *29*, (5⁻)
363.5 *3*, (2⁺)
D **370.2** *3*, (4⁻)
377.0, (2⁺)
400.2 *4*, (3⁺)
C **410.0** *12*, (6⁻)
417.9 *3*, (2⁺)
D **428.7** *4*, (5⁻)
463.7, (3⁺)
C **488**, (7⁻)
D **500**, (6⁻)
D **581**, (7⁻)
608
626
658
D **679**, (8⁻)
697
D **792** (?), (9⁻)
821
833
846
873, (2⁻)
899, (3⁻)
915
936
951
E **975**, (3⁺)
995
F **1011**, (2⁺)
E **1031**, (4⁺)
F **1051**, (3⁺)
E **1065**, (5⁺)
1077
1088
F **1098**, (4⁺)
1118
1140
1151
1162
1167
1171
1187
1192
1199
1210
1230
1243
1263
1290
1300
1310
1325
1343
1362
1380
1406
1417
1443
1455
1467
1482
1507
1519
1562
2200 *80*, 14.0 *10* ms, %SF≤100 γ_0 ***2200*** *80* (?)



$^{243}_{95}$Am

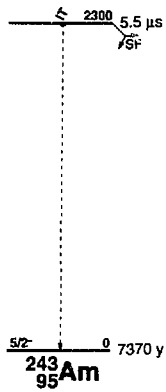
Δ: 57167.4 *22* S_n: 6367.0 *11* S_p: 4833.6 *12*
Q_α: 5438.1 *9*
σ_γ^0: 75.1 *18* b , σ_f: 0.198 *4* b , σ_γ^0(to 0): 3.8 *4* b

Nuclear Bands

A 5/2[523]
B 5/2[642]
C 3/2[521]
D 7/2[633]

Levels and γ-ray branchings:

A **0**, 5/2⁻, 7370 *40* y, μ=1.53 *3*, Q=+4.30 *3*, %α=100, %SF=3.7×10⁻⁹ *2*
A **42.2** *3*, 7/2⁻, ≈ 40 ps γ_0 ***42.2*** *5* M1+E2: δ=0.29
B **84.0** *2*, 5/2⁺, 2.34 *7* ns, μ=+2.74 *14*, Q=4.20 *3* γ_{42} ***41.8*** *2* (I_γ3.3 *3*) γ_0 ***84.0*** *2* (I_γ100) E1
A **96.4** *4*, 9/2⁻ γ_{42} ***54*** *1* (I_γ<100) γ_0 ***96.4*** *4* (I_γ60 *10*) (E2)
B **109.2** *2*, 7/2⁺ γ_{42} ***67*** *1* (I_γ100 *50*) γ_0 ***109.2*** *2* (I_γ70 *7*)
B **143.5** *5*, (9/2⁺) γ_{109} ≈***34*** γ_{42} ***101.3***
A **162.3** *10*, 11/2⁻
B **189.3** *7*, (11/2⁺)
A **238** *1*, 13/2⁻
B **244** *2*, (13/2⁺)
C **266** *2*, (3/2⁻) γ_0 ***265*** *10* (M1+E2)
C **300** *2*, (5/2⁻)
C **345** *1*, (7/2⁻)
383 *2*
407.1 *5* (?) γ_0 ***407.1*** *5* (?)
423 *5*
445 *3*
D **465.7** *3*, 7/2⁺ γ_{144} ***322.2*** *3* (I_γ5.0 *5*) γ_{109} ***356.4*** *3* (I_γ24 *2*) (M1+E2): δ=0.4 *4* γ_{84} ***381.7*** *3* (I_γ100 *9*) M1 γ_{42} ***423.2*** (?) γ_0 ***465.7*** *5* (I_γ<0.04)
C **466** *5*, (11/2⁻)
D **532.5** *4*, (9/2⁺) γ_{189} ***343.2*** *5* (I_γ≈11) γ_{144} ***388.9*** *3* (I_γ38 *6*) γ_{109} ***423.2*** *3* (I_γ100 *12*) γ_{84} ***448.7*** *5* (I_γ≈1.9)
586 *5*
D **704** *2*, (13/2⁺)
724 *4*
933 *4*
977 *3*
1053 *3*
1123 *3*
1174 *3*
1222 *3*
2300 *200*, 5.5 *5* μs, %SF≤100 γ_0 *IT* (?)



$^{244}_{95}$Am

Δ: 59875.0 22 S_n: 5363.7 9 S_p: 5163 3 Q_{β^-}: 1428.1 9 Q_{EC}: 76 5 Q_α: 5130 15
σ_f(to 0): 2300 300 b , σ_f(to 70): 1600 300 b

Nuclear Bands

- *A* π5/2[523]+ν7/2[624]
- *B* π5/2[642]-ν7/2[624]
- *C* π5/2[523]-ν7/2[624]
- *D* π3/2[521]-ν7/2[624]
- *E* π5/2[523]-ν5/2[622]
- *F* π1/2[400]-ν7/2[624]
- *G* π7/2[633]-ν7/2[624]
- *H* π5/2[642]-ν1/2[631]?
- *I* π5/2[523]-ν9/2[734]
- *J* π5/2[523]+ν1/2[631]
- *K* π5/2[523]-ν1/2[631]
- *L* π5/2[642]-ν9/2[734]
- *M* π3/2[651]-ν7/2[624]
- *N* π3/2[521]-ν5/2[622]

Levels and γ-ray branchings:

A **0**, (6$^-$), 10.1 1 h, %β^-=100
B **88.0** 30, 1$^+$, ≈ 26 m, %β^-=99.9639 13, %EC=0.0361 13
B **100.3092** 11, (2)$^+$
B **123.2811** 11, (3)$^+$ γ_{100}**22.975** 10 (†$_\gamma$100 20) M1 γ_{88}**35.31** 3 (†$_\gamma$0.10 2) E2
B **148.2831** 16, (4)$^+$ γ_{123}**25.034** 20 (†$_\gamma$100) M1
C **175.6573** 10, (1)$^-$ γ_{100}**75.3475** 13 (†$_\gamma$67 10) E1+M2: δ=0.025 6 γ_{88}**87.6553** 15 (†$_\gamma$100 17) E1+M2: δ=0.020 6
B **183.511** 5, (5)$^+$ γ_{148}**35.23** 3 (†$_\gamma$100) M1
C **197.2947** 11, (2)$^-$ γ_{176}**21.636** 10 (†$_\gamma$49 10) M1 γ_{123}**74.0144** 7 (†$_\gamma$100 14) E1(+M2): δ=0.052 20 γ_{100}**96.9851** 10 (†$_\gamma$63 10) E1
C **228.2990** 12, (3)$^-$ γ_{197}**31.00** 1 (†$_\gamma$30 6) M1 γ_{176}**52.64** 1 (†$_\gamma$2.9 6) E2 γ_{148}**80.0156** 11 (†$_\gamma$41 7) E1(+M2): δ=0.123 25 γ_{123}**105.011** 6 (†$_\gamma$3.3 14) γ_{100}**127.9891** 24 (†$_\gamma$100 8) E1(+M2): δ=0.12 5
D **261.6962** 11, (2)$^-$ γ_{228}**33.396** 10 (†$_\gamma$8.5 16) M1 γ_{197}**64.4013** 20 (†$_\gamma$60 9) M1+E2: δ=0.015 10 γ_{176}**86.0376** 10 (†$_\gamma$100 14) M1+E2: δ=0.3 2 γ_{123}**138.4157** 17 (†$_\gamma$22 4) γ_{100}**161.391** 4 (†$_\gamma$6.4 16) γ_{88}**173.698** 4 (†$_\gamma$68 11)
C **272.2018** 17, (4)$^-$ γ_{228}**43.904** 10 (†$_\gamma$77 15) M1 γ_{197}**74.918** 10 (†$_\gamma$29 5) E2 γ_{123}**148.9208** 19 (†$_\gamma$100 20) E1
E **289.2119** 12, (1)$^-$ γ_{197}**91.9252** 13 (†$_\gamma$55 10) M1 γ_{176}**113.5625** 12 (†$_\gamma$100 17) M1+E2: δ=0.3 2 γ_{100}**188.910** 5 (†$_\gamma$35 5) E1 γ_{88}**201.219** 4 (†$_\gamma$20 4) E1
D **296.6583** 26, (3)$^-$ γ_{262}**34.975** 15 (†$_\gamma$100) E2
C **322.7506** 24, (5)$^-$ γ_{272}**50.550** 10 (†$_\gamma$54 12) M1 γ_{228}**94.454** 4 (†$_\gamma$31 7) γ_{148}**174.466** 5 (†$_\gamma$100 17)
E **335.575** 4, (0)$^-$ γ_{289}**46.375** 20 (†$_\gamma$100) M1
E **342.6498** 13, (3)$^-$ γ_{289}**53.43** 1 (†$_\gamma$14 3) E2 γ_{272}**70.4522** 24 (†$_\gamma$8.9 36) M1 γ_{262}**81.3663** 10 (†$_\gamma$29 5) M1 γ_{228}**114.3510** 17 (†$_\gamma$100 15) M1 γ_{197}**145.356** 4 (†$_\gamma$26 4) M1 γ_{148}**194.363** 8 (†$_\gamma$28 7) γ_{123}**219.365** 13 (†$_\gamma$25 10)
D **343.658** 3, (4)$^-$ γ_{228}**115.362** 4 (†$_\gamma$70 14) M1 γ_{123}**220.380** 5 (†$_\gamma$100 20) E1
F **348.4047** 16, (3)$^+$ γ_{148}**200.117** 3 (†$_\gamma$17 4) M1+E2: δ=1.1 3 γ_{123}**225.120** 5 (†$_\gamma$60 11) M1+E2: δ=0.76 20 γ_{100}**248.097** 5 (†$_\gamma$100 17) M1+E2: δ=0.66 22 γ_{88}**260.39** 4 (†$_\gamma$2.0 7)
E **361.8376** 20, (2)$^-$ γ_{289}**72.6184** 12 (†$_\gamma$100) M1
367.6 10(?)
G **377.0566** 22, (0)$^+$ γ_{176}**201.393** 9 (†$_\gamma$11 4) γ_{88}**289.0570** 22 (†$_\gamma$100 25) M1
F **390.028** 7, (4)$^+$ γ_{348}**41.63** 2 (†$_\gamma$24 12) M1 γ_{184}**206.559** 20 (†$_\gamma$100 25) γ_{148}**241.721** 13 (†$_\gamma$30 10) (M1) γ_{123}**266.732** 4 (†$_\gamma$91 14) (M1)
D **398.743** 4, (5$^-$) γ_{272}**126.541** 5 (†$_\gamma$43 13) γ_{148}**250.43** 5 (†$_\gamma$100 25)
G **414.6889** 14, (2)$^+$ γ_{148}**266.37** 3 (†$_\gamma$1.5 5) γ_{123}**291.4059** 19 (†$_\gamma$73 18) M1 γ_{100}**314.382** 3 (†$_\gamma$100 17) M1 γ_{88}**326.6902** 22 (†$_\gamma$37 7) M1
H **418.957** 2, (2)$^+$ γ_{297}**122.299** 3 (†$_\gamma$22 4) E1 γ_{100}**318.6478** 24 (†$_\gamma$100 20) M1 γ_{88}**330.9556** 23 (†$_\gamma$84 14) M1
I **420.1309** 14, (2)$^+$ γ_{262}**158.4352** 10 (†$_\gamma$7.1 10) E1 γ_{228}**191.829** 4 (†$_\gamma$1.0 2) γ_{197}**222.834** 3 (†$_\gamma$28 5) E1 γ_{176}**244.471** 3 (†$_\gamma$100 20) E1(+M2): δ=0.10 3 γ_{123}**296.848** 3 (†$_\gamma$29 5) M1 γ_{100}**319.821** 3 (†$_\gamma$5.8 19) M1+E2: δ=1.5 5 γ_{88}**332.134** 3 (†$_\gamma$5.1 9) M1
J **421.2035** 16, (3)$^-$ γ_{348}**72.7992** 7 (†$_\gamma$100 17) E1(+M2): δ=0.04 2 γ_{262}**159.506** 10 (†$_\gamma$6.5 13) γ_{228}**192.907** 4 (†$_\gamma$5.4 11) γ_{123}**297.920** 6 (†$_\gamma$5.3 16) γ_{100}**320.887** 4 (†$_\gamma$6.5 22)
431.0 3
E **435.036** 3, (4)$^-$ γ_{323}**112.285** 3 (†$_\gamma$80 19) M1 γ_{272}**162.819** 6 (†$_\gamma$<130) γ_{228}**206.718** 18 (†$_\gamma$100 19) γ_{184}**251.509** 13 (†$_\gamma$54 12) γ_{148}**286.74** 3 (†$_\gamma$<54)
E **437.310** 3, (5$^-$) γ_{343}**94.666** 5 (†$_\gamma$54 13) γ_{323}**114.557** 3 (†$_\gamma$100 17) γ_{272}**165.110** 6 (†$_\gamma$61 15)
I **444.381** 3, (3)$^+$ γ_{228}**216.087** 5 (†$_\gamma$80 16) γ_{148}**296.103** 5 (†$_\gamma$100 18) M1 γ_{123}**321.098** 9 (†$_\gamma$23 6) γ_{100}**344.054** 9 (†$_\gamma$86 40) M1
G **454.002** 3, (1)$^+$ γ_{420}**33.888** 10 (†$_\gamma$6.8 12) M1 γ_{100}**353.693** 4 (†$_\gamma$54 10) M1 γ_{88}**365.9998** 24 (†$_\gamma$100 17) M1
H **456.8632** 23, (4)$^+$ γ_{148}**308.5818** 21 (†$_\gamma$100 15) M1 γ_{123}**333.585** 3 (†$_\gamma$33 6) M1
J **466.263** 5, (4)$^-$ γ_{421}**45.074** 10 (†$_\gamma$100 30) M1 γ_{297}**169.597** 7 (†$_\gamma$<80) M1 γ_{272}**194.079** 13 (†$_\gamma$24 6)
478.0960 18, (2)$^+$ γ_{419}**59.139** 10 (†$_\gamma$8 2) M1 γ_{123}**354.8132** 24 (†$_\gamma$80 20) M1 γ_{100}**377.790** 3 (†$_\gamma$100 20) M1 γ_{88}**390.100** 3 (†$_\gamma$24 5)
I **478.3491** 26, (4)$^+$ γ_{272}**206.147** 10 (†$_\gamma$37 8) γ_{228}**250.044** 4 (†$_\gamma$100 20) γ_{148}**330.067** 7 (†$_\gamma$17 4) γ_{123}**355.068** 4 (†$_\gamma$90 20) M1 γ_{100}**378.051** 7 (†$_\gamma$<33)
K **484.7911** 20, (2)$^-$ γ_{348}**136.3836** 15 (†$_\gamma$100 16) E1 γ_{197}**287.5004** 19 (†$_\gamma$85 15) M1 γ_{176}**309.138** 7 (†$_\gamma$4.0 8)
G **495.394** 3, (4)$^+$ γ_{184}**311.899** 11 (†$_\gamma$11 3) γ_{148}**347.110** 3 (†$_\gamma$92 23) M1 γ_{123}**372.113** 3 (†$_\gamma$100 20) M1
G **514.1423** 22, (3)$^+$ γ_{148}**365.859** 3 (†$_\gamma$100 24) M1 γ_{123}**390.858** 4 (†$_\gamma$64 13) M1 γ_{100}**413.836** 4 (†$_\gamma$24 9) (M1)
I **516.267** 8, (5$^+$) γ_{323}**193.622** 6 (†$_\gamma$100 20) γ_{272}**244.11** 5 (†$_\gamma$<51) γ_{184}**332.738** 13 (†$_\gamma$49 12) γ_{148}**367.93** 4 (†$_\gamma$40 20)
L **516.8230** 13, (2)$^-$ γ_{420}**96.6925** 19 (†$_\gamma$2.4 5) γ_{262}**255.127** 6 (†$_\gamma$57 11) M1 γ_{228}**288.5229** 19 (†$_\gamma$26 7) M1 γ_{197}**319.5279** 21 (†$_\gamma$70 13) M1 γ_{176}**341.1649** 22 (†$_\gamma$100 20) M1 γ_{123}**393.549** 14 (†$_\gamma$0.8 4) γ_{100}**416.520** 4 (†$_\gamma$5.0 12) γ_{88}**428.825** 5 (†$_\gamma$14 3)
K **524.2516** 24, (3)$^-$ γ_{348}**175.840** 8 (†$_\gamma$4.2 14) γ_{272}**252.052** 3 (†$_\gamma$100 16) M1(+E2): δ=0.4 3 γ_{228}**295.953** 3 (†$_\gamma$19 4)
L **535.7558** 17, (3)$^-$ γ_{444}**91.369** 5 (†$_\gamma$1.5 4) (E1) γ_{420}**115.6262** 20 (†$_\gamma$3.2 6) γ_{419}**116.801** 7 (†$_\gamma$0.7 2) γ_{297}**239.09** 2 (†$_\gamma$3.6 8) γ_{272}**263.554** 4 (†$_\gamma$50 10) M1 γ_{262}**274.054** 3 (†$_\gamma$3.5 9) γ_{228}**307.455** 2 (†$_\gamma$100 15) M1 γ_{197}**338.460** 3 (†$_\gamma$59 10) M1 γ_{100}**435.450** 7 (†$_\gamma$13 4)
L **561.5594** 26, (4)$^-$ γ_{444}**117.185** 3 (†$_\gamma$8.0 16) γ_{390}**162.819** 6 (†$_\gamma$<11) γ_{323}**238.784** 12 (†$_\gamma$80 16) M1 γ_{272}**289.3540** 22 (†$_\gamma$58 15) M1 γ_{228}**333.256** 6 (†$_\gamma$25 6) M1 γ_{184}**378.051** 7 (†$_\gamma$<17) γ_{148}**413.282** 4(?) (†$_\gamma$100 20) (M1) γ_{123}**438.282** 13 (†$_\gamma$15 4)
K **578.842** 6, (4$^-$) γ_{348}**230.497** (†$_\gamma$<20) γ_{343}**236.203** 6 (†$_\gamma$100 20) γ_{323}**256.**[illegible] 4 (†$_\gamma$<36) γ_{272}**306.645** 11 (†$_\gamma$30 14) γ_{123}**455.524** 22 (†$_\gamma$86 22)
584.041 3, (2)$^-$ γ_{485}**99.246** 5 (†$_\gamma$3.2 11) γ_{362}**222.205** 9 (†$_\gamma$9.3 21) M1 γ_{289}**294.8242** 22 (†$_\gamma$100 25) γ_{197}**386.746** 3 (†$_\gamma$39 9) γ_{176}**408.386** 6 (†$_\gamma$30 6) γ_{123}**460.733** 22 (†$_\gamma$3.3 21) γ_{100}**483.708** 12 (†$_\gamma$60 20) γ_{88}**496.029** 6 (†$_\gamma$93 24)
608.4 3
G **610.887** 4, (5)$^+$ γ_{344}**267.230** 6 (†$_\gamma$28 10) γ_{184}**427.371** 9 (†$_\gamma$50 15) (M1) γ_{148}**462.604** 6 (†$_\gamma$100 25) M1
M **615.243** 4, (2)$^+$ γ_{524}**90.992** 3(?) (†$_\gamma$3.2 8) M1 γ_{100}**514.925** 4 (†$_\gamma$39 13) M1 γ_{88}**527.252** 4 (†$_\gamma$100 25) M1
643.114 5, (3)$^+$ γ_{419}**224.21** 3 (†$_\gamma$4.0 15) γ_{184}**459.603** 15 (†$_\gamma$12 3) γ_{148}**494.870** 15 (†$_\gamma$21 8) γ_{123}**519.831** 7 (†$_\gamma$100 25) M1 γ_{100}**[illegible].8097** (†$_\gamma$40 16) (M1)
M **650.187** 4, (3)$^+$ γ_{485}**165.422** 16 (†$_\gamma$1.6 9) γ_{262}**388.481** 6 (†$_\gamma$1[illegible] 3) γ_{148}**501.893** 10 (†$_\gamma$14 6) γ_{123}**526.910** 5 (†$_\gamma$100 25) M1 γ_{100}**549.880** 5 (†$_\gamma$61 20) M1
670.758 5, (2)$^+$ γ_{457}**213.952** 24 (†$_\gamma$6.7 18) γ_{420}**250.615** 5 (†$_\gamma$51 8) M1 γ_{415}**256.06** 4 (†$_\gamma$<12) γ_{176}**495.121** 10 (†$_\gamma$29 9) γ_{100}**570.468** 9 (†$_\gamma$100 30) (M1) γ_{88}**582.743** 14 (†$_\gamma$41 14)
N **680.5726** 23, (1)$^-$ γ_{517}**163.743** 5 (†$_\gamma$26 6) M1 γ_{420}**260.39** 4 (†$_\gamma$<9.6) γ_{336}**345.000** 6 (†$_\gamma$<13) γ_{289}**391.360** 4 (†$_\gamma$33 8) M1 γ_{197}**483.276** 5 (†$_\gamma$100 24) M1 γ_{176}**504.915** 4 (†$_\gamma$100 25) M1
M **696.825** 6, (4$^+$) γ_{184}**513.34** 8 (†$_\gamma$<42) γ_{148}**548.560** (†$_\gamma$100 30) (M1) γ_{123}**573.522** 17 (†$_\gamma$80 28) (M1)
N **699.7788** 21, (2)$^-$ γ_{536}**164.020** 3 (†$_\gamma$14 3) M1(+E2, δ=1.15 50 γ_{517}**182.960** 4 (†$_\gamma$7.2 12) γ_{289}**410.561** 8 (†$_\gamma$28 7) γ_{228}**471.482** 6 (†$_\gamma$46 15) M1 γ_{176}**524.120** 4 (†$_\gamma$100 30) M1
N **731.141** 4, (3)$^-$ γ_{562}**169.597** 7 (†$_\gamma$<17) γ_{444}**28[illegible].74** 3 (†$_\gamma$<5.3) γ_{435}**296.103** 5 (†$_\gamma$61 12) M1 γ_{343}**388.481** 6 (†$_\gamma$26 5) γ_{272}**4[illegible]0.933** 5 (†$_\gamma$51 11) M1 γ_{197}**533.855** 6 (†$_\gamma$100 25) M1
M **756.705** 6, (5$^+$) γ_{611}**145.816** 6 (†$_\gamma$20 5) γ_{184}**573.187** 18 (†$_\gamma$79 26) (M1) γ_{148}**608.437** 15 (†$_\gamma$100 30)
774.914 6, (1)$^+$ γ_{336}**439.347** 7 (†$_\gamma$5.4 16) γ_{262}**513.34** 8 (†$_\gamma$<17) γ_{100}**674.596** 7 (†$_\gamma$78 23) (M1) γ_{88}**686.922** 7 (†$_\gamma$100 25) M1
N **779.914** 5, (4$^-$) γ_{562}**218.332** 16 (†$_\gamma$32 8) γ_{536}**244.11** 5 (†$_\gamma$<22) γ_{421}**358.70** 3 (†$_\gamma$11 6) γ_{390}**389.873** 5 (†$_\gamma$74 13) γ_{344}**436.269** 7 (†$_\gamma$70 18) γ_{272}**507.731** 7 (†$_\gamma$100 32) (M1)

$^{244}_{95}$Am (Continued)

780.152 4, (2)⁻ γ_{514} 266.025 16 (†γ<22) (M1) $\gamma_{478.1}$ 302.069 6 (†γ12 4) γ_{454} 326.165 16 (†γ7.5 20) γ_{420} 360.053 12 (†γ6.5 20) γ_{419} 361.187 3 (†γ26 6) (M1) γ_{297} 483.492 5 (†γ100 30) M1 γ_{100} 679.866 (†γ41 14) γ_{88} 692.187 (†γ38 17)

782.875 5, (2)⁻ γ_{578} 204.052 8 (†γ8.5 12) γ_{536} 247.107 5 (†γ100 25) (M1+E2): δ=1.75 35 γ_{524} 258.70 3 (†γ36 12) M1 γ_{517} 266.025 16 (†γ<13) (M1) γ_{435} 347.836 6 (†γ9 3) (M1) γ_{343} 440.233 10 (†γ7.9 21) γ_{336} 447.285 8 (†γ6.7 21) γ_{229} 554.52 3 (†γ12 4) γ_{123} 659.620 13(?) (†γ40 12) (M1)

795.006 7, (4⁻) γ_{536} 259.16 4 (†γ18 13) γ_{517} 278.205 16 (†γ30 10) γ_{399} 396.262 4 (†γ100 25) M1 γ_{344} 451.360 11 (†γ19 7) γ_{323} 472.272 13 (†γ75 50) γ_{197} 597.66 3 (†γ30 10) γ_{184} 611.489 10 (†γ<92)

799.006 5, (2)⁻ γ_{454} 345.000 6 (†γ<12.5) γ_{297} 502.358 7 (†γ79 24) M1 γ_{289} 509.775 12 (†γ25 13) (M1) γ_{197} 601.73 3 (†γ18 8) γ_{123} 675.716 19 (†γ100 33)

808.800 4, (3)⁻ γ_{650} 158.616 7 (†γ16 8) γ_{457} 351.942 5 (†γ57 9) γ_{435} 373.760 6 (†γ100 20) M1 γ_{362} 446.944 17 (†γ23 7) γ_{349} 460.379 9 (†γ23 7) γ_{289} 519.593 13 (†γ67 22) γ_{262} 547.16 3 (†γ17 8) γ_{197} 611.489 10 (†γ<39)

825.526 4, (2)⁻ γ_{466} 359.265 3 (†γ43 13) (M1) γ_{421} 404.318 5 (†γ34 8) (M1) γ_{336} 489.952 5 (†γ77 18) γ_{297} 528.90 3 (†γ46 18) γ_{262} 563.88 4 (†γ100 33) M1 γ_{123} 702.18 5 (†γ46 18)

832.2 3

840.648 6, (2)⁺ γ_{457} 383.786 4 (†γ37 9) γ_{444} 396.262 4 (†γ100 25) M1 γ_{197} 643.43 5 (†γ67 28) γ_{176} 665.10 5 (†γ28 12) γ_{100} 740.41 3 (†γ100 33) γ_{88} 752.66 6 (†γ51 20)

842.754 4, (3)⁺ γ_{584} 258.70 3(?) (†γ70 23) M1 γ_{457} 385.896 4 (†γ48 11) M1 γ_{454} 388.735 12 (†γ11 6) γ_{444} 398.371 11 (†γ13 6) γ_{420} 422.618 3 (†γ100 17) M1 γ_{419} 423.811 6 (†γ65 14) M1 γ_{289} 553.61 3(?) (†γ15 5)

859.195 4, (3⁺) γ_{697} 162.374 5 (†γ6.8 15) γ_{643} 216.087 5 (†γ30 6) γ_{495} 363.801 3 (†γ100 33) (M1) $\gamma_{478.3}$ 380.836 15 (†γ11 4) γ_{390} 469.145 8 (†γ22 5) (M1) γ_{362} 497.35 3 (†γ7.5 25) γ_{123} 735.93 3 (†γ27 9) γ_{100} 758.89 5 (†γ36 12)

875.059 5, (2⁺) γ_{783} 92.181 3 (†γ7.3 20) γ_{615} 259.88 3 (†γ16 6) γ_{536} 339.319 8 (†γ5.3 20) γ_{420} 454.879 24 (†γ14 3) γ_{415} 460.379 9 (†γ19 5) γ_{176} 699.44 4 (†γ33 12) γ_{148} 726.793 23 (†γ87 27) γ_{123} 751.804 20 (†γ100 33) (M1) γ_{100} 774.75 (†γ87 29)

880.786 4, (2⁻) $\gamma_{779.9}$ 100.872 3 (†γ10 4) M1 γ_{650} 230.49 7 (†γ<9.0) γ_{524} 356.536 6 (†γ75 13) γ_{421} 459.603 15 (†γ31 7) γ_{419} 461.819 15 (†γ44 14) γ_{262} 619.09 4 (†γ100 30) γ_{197} 683.495 17 (†γ82 28) γ_{88} 792.75 13 (†γ27 11)

893.7 3

901.4 3

914.2 3

933.2 4

951.3 3

999.6 3

1015.8 9

1030.5 3

1046.1 5

1052.4 3

1063.2 5

1071.3 14(?)

1151.3 3

2800 400, 0.90 15 ms, %SF≤100 γ_0/IT(?)

2800+x, ≈ 6.5 μs, %SF≤100 γ_0/IT(?)

$^{245}_{95}$Am

Δ: 61893 3 S_n: 6054 3 S_p: 5195 5 Q_{β^-}: 894.0 18 Q_α: 5210 70

Nuclear Bands

- *A* 5/2[642]
- *B* 5/2[523]
- *C* 7/2[633]
- *D* Band Structure

Levels and γ-ray branchings:

A 0, (5/2)⁺, 2.05 1 h, %β⁻=100

A 19.20 2, (7/2)⁺

B 27.93 20, (5/2⁻) γ_0 28 1 (E1)

A 47.07 2, (9/2⁺)

B 70.43 20, (7/2⁻)

A 87.65 10, (11/2⁻)

B 124.59 20, (9/2⁻)

A 134.51 20, (13/2⁺)

B 190.82 20, (11/2⁻)

C 327.428 8, 7/2⁺ γ_{47} 280.385 13 (†γ5.1 8) (M1+E2): δ=0.75 25 γ_{28} 299.87 (†γ0.07 4) γ_{19} 308.222 8 (†γ19 3) M1+E2: δ=0.6 $^{+3}_{-6}$ γ_0 327.428 8 (†γ100 15) M1+E2: δ=0.5 5

C 395.87 2, 9/2⁺ γ_{88} 308.222(?) γ_{47} 348.782 9 (†γ30 5) γ_{19} 376.676 3 (†γ100) (M1) γ_0 395.872 0 (†γ3 1)

C 475.52 3, 11/2⁺ γ_{135} 341.002 0 (†γ19 4) γ_{88} 387.88 4 (†γ55 14) γ_{47} 428.438 22 (†γ100)

C 563.1 3, (13/2⁺) γ_{135} 428.438(?) γ_{88} 475.1 6

D 887.47 10, (7/2⁺) γ_{476} 411.93 5 (†γ9.1 13) γ_{396} 491.591 9 (†γ50 8) (E2) γ_{327} 560.13 5 (†γ100) (E2) γ_{125} 762.73 20 (†γ13.1 18) γ_{88} 799.87 20 (†γ29 5) γ_{70} 817.04 20 (†γ16 3) γ_{47} 840.56 20 (†γ24 4) γ_{28} 859.53 20 (†γ5.4 14) γ_{19} 868.8 4 (†γ2.2 7) γ_0 887.14(?)

921.01 20, (9/2⁺,11/2⁺) γ_{563} 357.90 20 (†γ17 6) γ_{476} 445.34 20 (†γ82 18) γ_{396} 525.08 20 (†γ73 14) γ_{327} 593.7 6 (†γ9 5) γ_{191} 730.40 20 (†γ50 12) γ_{135} 786.54 20 (†γ100) γ_{125} 796.37 20 (†γ68 21) γ_{88} 833.14 20 (†γ<141) γ_{47} 874.16 20 (†γ36 11) γ_{19} 901.9 8 (†γ14 8)

D 957.53 2, (9/2)⁺ γ_{476} 481.9 10 (†γ0.50 26) γ_{396} 560.13(?) γ_{327} 630.102 14 (†γ100) M1(+E2) γ_{191} 766.59 15 (†γ13 3) γ_{135} 824(?) (†γ<1.3) γ_{125} 833.14 20 (†γ<19) γ_{88} 870.5 5 (†γ2.5 13) γ_{70} 887.14 20 (†γ26 5) γ_{47} 910.46 20 (†γ51 8) γ_{19} 938.4 2 (†γ37 8) γ_0 957.59 20 (†γ36 6)

987.51 5, (7/2⁺,9/2⁺) γ_{476} 511.5 10 (†γ2.6 13) γ_{396} 591.6 3 (†γ13 3) γ_{327} 660.08 5 (†γ64 12) γ_{70} 917.0 5 (†γ6 3) γ_{47} 941.0 10 (†γ19 13) γ_{19} 968.5 7 (†γ2.6 13) γ_0 987.60 20 (†γ100)

1024.22 20, (7/2⁺,9/2⁻) γ_{476} 549.2 6 (†γ12 8) γ_{395} 630.102(?) γ_{327} 696.8 4 (†γ31 17) γ_{125} 899.3 10 (†γ12 8) γ_{70} 953 2 (†γ6 4) γ_{47} 977.2 2 (†γ<144) γ_{28} 996.0 3 (†γ75 31) γ_{19} 1005.1 3 (†γ100)

1065.30 20 γ_{396} 669.28 20 (†γ33 7) γ_{327} 737.96 20 (†γ21 6) γ_{135} 930.3 6 (†γ5 3) γ_{88} 977.2(?) γ_{47} 1018.33 20 (†γ100)

1111.2 3 γ_{88} 1023.32 20 (†γ100) γ_{70} 1040.2 12 (†γ1.3 7) γ_{28} 1083.9 5 (†γ6.3 18) γ_0 1111.9 5 (†γ10 3)

1185.6 5 γ_{135} 1051.3 8 (†γ10 4) γ_{88} 1097.9 7 (†γ33 11) γ_{47} 1138.5 5 (†γ83 18) γ_{19} 1166.3 5 (†γ100)

2400 400, 0.64 6 μs, %SF≤100 γ_0/IT(?)

$^{246}_{95}$Am

Δ: 64988 18 S_n: 4976 18 S_p: 5398 23 Q_{β^-}: 2376 18 Q_α: 5150 200

Levels and γ-ray branchings:

0, (7⁻), 39 3 m, %β⁻=100

x, 2(⁻), 25.0 2 m, %β⁻=100, %IT<0.01

16.23 3, (0⁻,1⁻,2⁻) γ_0 16.23 3 (†γ100)

43.81 2, (1⁺), 4.3 3 ns γ_{16} 27.58 2 (†γ14.1 15) (E1) γ_x 43.81 2 (†γ100 5) (E1)

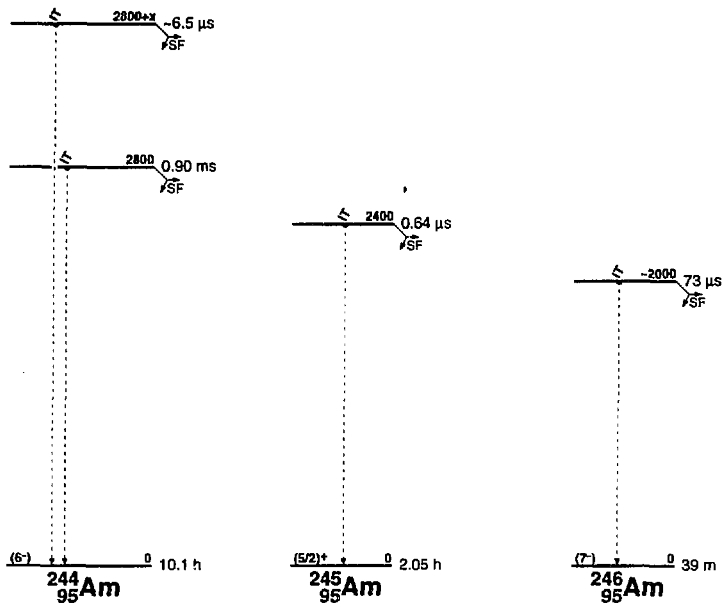
74.33 5

223.75 2, (1⁺) γ_{74} 149.42 3 (†γ0.24 20) γ_{44} 179.94 2 (†γ41.3 20) (M1) γ_x 223.75 2 (†γ100 7) (E1)

232.76 3 γ_{74} 158.42 3 (†γ31 7) γ_{44} 189.00 4 (†γ42 7) γ_{16} 216.55 4 (†γ100 16) γ_x 223.75 2 (†γ71 11)

299.35 4, 0⁻,1 γ_{233} 66.60 2 (†γ100 7) γ_{224} 75.64 2 (†γ71 10) γ_{44} 255.54 3 (†γ90 7) γ_0 299.34 6 (†γ12 3)

≈2000, 73 10 μs, %SF≤100 γ_0/IT(?)



IT
2800+x
~6.5 µs
SF
IT
2800
0.90 ms
SF
IT
2400
0.64 µs
SF
IT
~2000
73 µs
SF
(6⁻)
0
10.1 h
244 95 Am
(5/2)+
0
2.05 h
245 95 Am
(7⁻)
0
39 m
246 95 Am

$^{240}_{96}$Cm

Δ: 51715 *3* S_n: (7440) S_p: 4959 *3* Q_{EC}: 216 *14* Q_α: 6397.2 *6*

Levels:

0, 0+, 27 *1* d, %α>99.5, %EC<0.5, %SF=3.9×10^{-6} *8*
38 *5*, 2+
≈2000, 10 *3* ps, %SF≤100 γ_0/*IT*(?)
≈3000, 55 *12* ns, %SF≈100 γ_0/*IT*(?)

$^{241}_{96}$Cm

Δ: 53696.9 *23* S_n: 6089.8 *25* S_p: 5092 *14* Q_{EC}: 767.5 *12* Q_α: 6185.0 *6*

Levels:

0, 1/2+, 32.8 *2* d, %α=1.0 *1*, %EC=99.0 *1*
53
103
157
255
≈2300, 15.3 *10* ns, %SF=100 γ_0/*IT*(?)

$^{242}_{96}$Cm

Δ: 54798.3 *20* S_n: 6969.9 *14* S_p: 5420.0 *7* Q_α: 6215.56 *8*
σ_f: <5 b, σ_γ: 16 *5* b, σ_f: <5 b

Nuclear Bands

A GS band

Levels and γ-ray branchings:

A 0, 0+, 162.8 *2* d, %α=100, %SF=6.2×10^{-6} *3*
A 42.13 *5*, 2+ γ_0 *42.13 1* E2
A 138 *4*, 4+ γ_{42} *96 3*
A 284 *7*, 6+ γ_{138} *146 5*
1900 *200*, 40 *15* ps, %SF≤100 γ_0/*IT*(?)
≈2800, 180 *70* ns γ_0/*IT*(?)

$^{243}_{96}$Cm

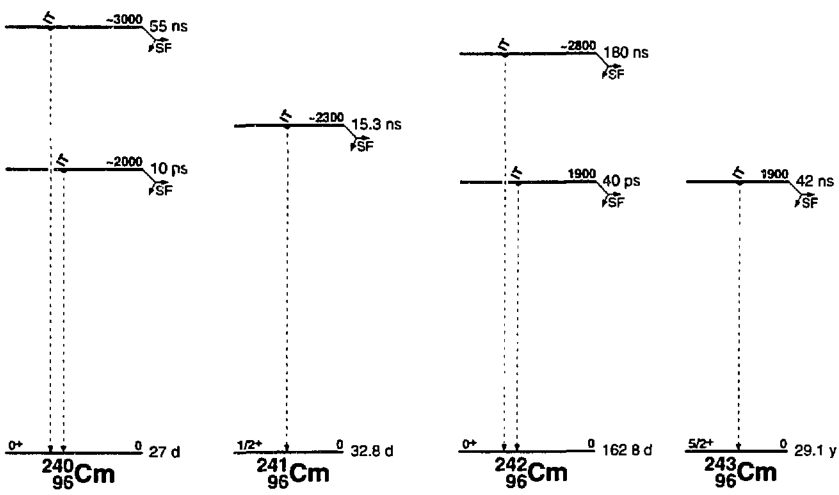
Δ: 57176.3 *22* S_n: 5693.3 *10* S_p: 5575.8 *12* Q_{EC}: 8.9 *14* Q_α: 6168.8 *10*
σ_{abs}: 747 *23* b, σ_γ: 130 *10* b

Nuclear Bands

A 5/2[622]
B 1/2[631]
C 7/2[624]
D 1/2[501]

Levels and γ-ray branchings:

A 0, 5/2+, 29.1 *1* y, %α=99.71 *3*, %EC=0.29 *3*, %SF=5.3×10^{-9} *9*, μ=0.41
A 42 *2*, 7/2+
B 87.4 *1*, 1/2+, 1.08 *3* μs γ_0 *87.4 1* ($\dagger_\gamma$100) E2
A 94 *2*, 9/2+
B 94 *2*, (3/2+)
C 128 *4*, (7/2+)
153 *2*
164 *2*
C 187 *9*, (9/2+)
219 *3*
228 *3*
B 260 *2*, (9/2+)
530 *3*
D 729 *2*, (1/2−)
769 *2*
798 *2*
842 *2*
860 *4*(?)
892 *2*
904 *3*
930 *1*
973 *2*
1015 *3*
1023 *2*
1046 *4*
1136 *2*
1217 *3*
1222 *4*
1359 *3*
1367 *4*
1900 *300*, 42 *6* ns, %SF≤100 γ_0/*IT*(?)



$^{244}_{96}$Cm

Δ:58447.0 20 S_n:6800.7 11 S_p:6009.4 10 Q_α:5901.61 5

σ_f:1.04 20 b , σ_γ:15.2 12 b

Nuclear Bands

A GS band

Levels and γ-ray branchings:

A **0**, 0⁺, 18.10 2 y, %SF=1.347×10^{-4} 8, %α=100

A **42.965** 10, 2⁺, 97 5 ps γ_0***42.965*** 10 ($\dagger_\gamma$100) E2

A **142.348** 4, 4⁺ γ_{43}***99.383*** 4 ($\dagger_\gamma$100) E2

A **296.211** 11, 6⁺ γ_{142}***153.863*** 2 ($\dagger_\gamma$100) E2

A **501.787** 12, 8⁺ γ_{296}***205.575*** 4 ($\dagger_\gamma$100)

970 4, (2⁺,3⁻)

984.915 15, 0⁺ γ_{43}***941.95*** 2 γ_0***984.919*** 20 E0

1020.759 22(?), (2⁺) γ_{43}***977.80*** 2 ($\dagger_\gamma$100) E0(+M1)

1038 6, (2⁺,3⁻)

1040.181 11, 6⁺, 34 2 ms γ_{502}***538.400*** 16 ($\dagger_\gamma$1.0 2) γ_{296}***743.971*** 5 ($\dagger_\gamma$100 30) M1+E2: δ=−0.92 8 γ_{142}***897.848*** 7 ($\dagger_\gamma$42 12) E2

1084.199 12(?), (1,2⁺) γ_{43}***1041.278*** 22 ($\dagger_\gamma$53 18) γ_0***1084.181*** 14 ($\dagger_\gamma$100 30)

1105.908 20(?), (1,2⁻) γ_{43}***1062.953*** 18 ($\dagger_\gamma$100 30) (M1),(E1) γ_0***1105.43*** 19 ($\dagger_\gamma$15 8)

1187 4, (2⁺,3⁻)

≈**2200**(?), <5 ps, %SF≤100 γ_0*IT*(?)

≈**3500**, >100 ns, %SF≤100 γ_0*IT*(?)

$^{245}_{96}$Cm

Δ:60999 3 S_n:5519.8 19 S_p:6165.5 21 Q_α:5623.5 19

σ^0_γ:369 17 b , σ_{abs}:2514 60 b

Nuclear Bands

A 7/2[624]

B 5/2[622]

C 1/2[631]

D 9/2[734]

E Band Structure

F 7/2[743]

G 7/2[613]

H 1/2[620]

I 1/2[501]

Levels and γ-ray branchings:

A **0**, 7/2⁺, 8500 100 y, μ=0.5 1, %α=100, %SF=6.1×10^{-7} 9

A **54.01** 5, 9/2⁺, <0.10 ns γ_0***54.81*** 5 M1+E2: δ=1.3 2

A **121.60** 4, 11/2⁺ γ_{55}***66.80*** 2 ($\dagger_\gamma$64 4) M1+E2: δ=0.86 30 γ_0***121.60*** 4 ($\dagger_\gamma$100 10)

A **197.4** 20, 13/2⁺ γ_{122}***75.8*** 20(?)

B **252.80** 2, 5/2⁺ γ_{55}***198.0*** 1 ($\dagger_\gamma$0.54 7) E2 γ_0***252.80*** 2 ($\dagger_\gamma$100 7) M1+E2: δ=0.16 3

B **295.72** 2, 7/2⁺ γ_{253}***42.88*** 2 ($\dagger_\gamma$17.5 10) γ_{55}***240.86*** 2 ($\dagger_\gamma$100 4) M1(+E2): δ<0.7 γ_0***295.72*** 2 ($\dagger_\gamma$65 3) M1+E2: δ=0.22 22

B **350.64** 4, 9/2⁺ γ_{296}***54.8*** ($\dagger_\gamma$20 15) γ_{122}***229.50*** 10 ($\dagger_\gamma$100 5)

C **355.90** 10, 1/2⁺, 0.29 2 μs γ_{253}***103.1*** 1 E2

C **361.4** 4, (3/2⁺)

D **388.18** 5, 9/2⁻, 0.450 20 ns γ_{351}***37.54*** 3 ($\dagger_\gamma$0.0224 11) γ_{296}***92.51*** 2 ($\dagger_\gamma$0.494 16) γ_{122}***266.62*** 2 ($\dagger_\gamma$1.05 4) (E1) γ_{55}***333.37*** 2 ($\dagger_\gamma$21.1 6) E1 γ_0***388.16*** 2 ($\dagger_\gamma$100 3) E1

B **416.60** 5, 11/2⁺ γ_{351}***65.96*** 2

C **418.7** 5, (5/2⁺)

C **431** 2, (7/2⁺)

D **442.84** 5, 11/2⁻ γ_{388}***54.8*** ($\dagger_\gamma$56 13) M1+E2: δ=0.68 17 γ_{122}***321.24*** 3 ($\dagger_\gamma$100 6)

B **498** 2, 13/2⁺

D **509.0** 2, 13/2⁻ γ_{443}***65.96*** γ_{388}***120.80*** 10

C **532** 2, (9/2⁺)

545 3

C **555** 5, (11/2⁺)

558 3

D **588** 3, (15/2⁻)

B **598** 3, (15/2⁺)

E **633.60** 11, (3/2)⁻ γ_{361}***272.2*** 3 ($\dagger_\gamma$0.50 13) γ_{253}***380.8*** 1 ($\dagger_\gamma$100) E1

≈**638** (?)

F **643.65** 6, (7/2⁻) γ_{388}***255.45*** 3 ($\dagger_\gamma$100 13) γ_{253}***390.85*** 5 ($\dagger_\gamma$67 8) γ_{55}***589.00*** 10 ($\dagger_\gamma$9.2 15) γ_0***643.2*** 3 ($\dagger_\gamma$49 18)

650 5(?)

E **661.52** 10, 5/2⁻ γ_{296}***365.8*** 1 ($\dagger_\gamma$100) E1 γ_{253}***408.7*** 1 ($\dagger_\gamma$51 9)

D **672** 3, (17/2⁻)

F **701.72** 11, (9/2⁻) γ_{296}***406.00*** 10 ($\dagger_\gamma$100 8) γ_0≈***700***(?) ($\dagger_\gamma$≈[illegible])

G **722** 3, (7/2⁺)

735 3(?)

H **740.9** 2, (1/2)⁺ γ_{356}***385.0*** 1 ($\dagger_\gamma$100) M1 γ_{253}***488.2*** 2 ($\dagger_\gamma$2.5 6)

H **769.2** 5, (3/2⁺) γ_{419}***350.5*** 1 ($\dagger_\gamma$100) M1 γ_{361}***407.8*** 2 ($\dagger_\gamma$≈37) (M1)

772 3

F **773** 4, (11/2⁻)

G **782** 4, (9/2⁺)

H **791** 4, (5/2⁺)

≈**838**

≈**848**

G ≈**853**, (11/2⁺)

H **856** 3, (7/2⁺)

F ≈**866**, (13/2⁻)

H **891** 4, (9/2⁺)

≈**901**

908 5

I **913** 3, (1/2⁻)

≈**936**

942 3

I **956** 2, (3/2⁻,5/2⁻)

≈**972**

980 5

995 5

≈**1009**

1017 4

1042 5

1050 5

1056 3

1083 3

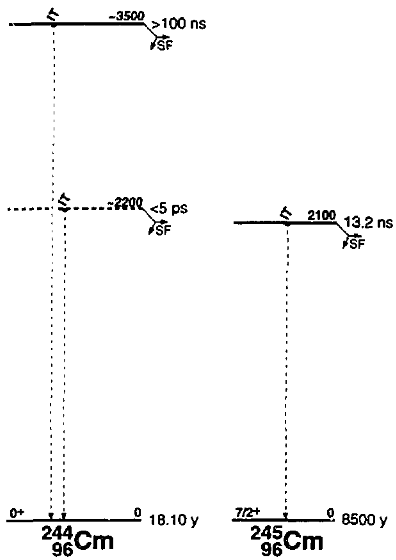
1103 3

1259 5

1271 2

1473 3

2100 300, 13.2 16 ns, %SF≤100 γ_0*IT*(?)



$^{242}_{97}$Bk

Δ: (57800) S_n: (6400) S_p: (3190) Q_{EC}: (3000) Q_α: (6960)

Levels:

0, 7.0 *13* m, %EC+%β^+=100
≈330
x, 9.5 *20* ns, %SF>0 γ_0/*IT*(?)
y, 0.60 *10* µs, %SF>0 γ_0/*IT*(?)

$^{243}_{97}$Bk

Δ: 58685 *5* S_n: (7190) S_p: 3403 *5* Q_{EC}: 1508 *5* Q_α: 6874 *4*

Nuclear Bands

A 7/2[633]

Levels:

0, (3/2⁻), 4.5 *2* h, %α=0.15, %EC=99.85
A **0+x**, (7/2⁺)
A **49+x** *4*, (9/2⁺)
A **112+x** *6*, (11/2⁺)
≈**2200** (?), 5 ns, %SF≤100 γ_0/*IT*(?)

$^{244}_{97}$Bk

Δ: 60700 *50* S_n: 6050 *50* S_p: 3760 *50* Q_{EC}: 2260 *50* Q_α: 6780 *50*

Levels:

0, (1⁻), 4.35 *15* h, %α=0.006 *2*, %EC=99.994 *2*
≈170
x, 0.82 *6* µs, %SF≤100 γ_0/*IT*(?)

$^{245}_{97}$Bk

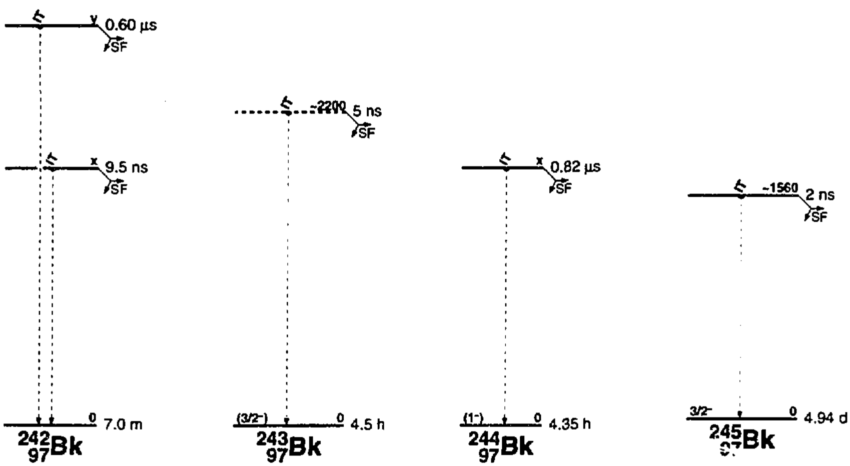
Δ: 61808.8 *25* S_n: 6970 *50* S_p: 3927.2 *15* Q_{EC}: 810.2 *24* Q_α: 6454.5 *15*

Nuclear Bands

A 3/2[521]
B 7/2[633]

Levels:

A 0, 3/2⁻, 4.94 *3* d, %α=0.12 *1*, %EC=99.88 *1*
B **0+x**, 7/2(⁺)
B **61+x** *13*, (9/2⁺)
≈**1560**, 2 *1* ns, %SF=100 γ_0/*IT*(?)



References for Superdeformed Bands (Experimental)

82Sc07 *Search for Collective Effects in Very High Spin States of ^{152}Dy*

Y. Schutz, J. P. Vivien, F. A. Beck, T. Byrski, C. Gehringer, J. C. Merdinger, J. Dudek, W. Nazarewicz, Z. Szymanski , Phys. Rev. Lett. 48, 1534 (1982).

Nuclear Reactions: +123)Sn(^{32}S,xn), E=160 MeV; measured γγ(θ) ratio, γγ(E). ^{152}Dy deduced high spin collective effects, superdeformed configuration parameters, moments of inertia. Rotating Woods-Saxon potential.

83Ku16 *Suppression of Neutron Emission after Heavy-Ion Fusion: Is shape relaxation affected by a superdeformed minimum (question)*

W. Kuhn, P. Chowdhury, R. V. F. Janssens, T. L. Khoo, F. Haas, J. Kasagi, R. M. Ronningen , Phys. Rev. Lett. 51, 1858 (1983).

Nuclear Reactions: +92)Zr(^{64}Ni,xn), E=233 MeV; measured neutron yield, nγ-, γγ-coin, neutron multiplicity, Eγ, Iγ, deduced temperature vs entry state spin, two-neutron emission dominance. ^{156}Er deduced level density, possible superdeformation at high-spin.

84Ny01 *Observation of Superdeformation in ^{152}Dy*

B. M. Nyako, J. R. Cresswell, P. D. Forsyth, D. Howe, P. J. Nolan, M. A. Riley, J. F. Sharpey-Schafer, J. Simpson, N. J. Ward, P. J. Twin , Phys. Rev. Lett. 52, 507 (1984).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=205 MeV; measured γγ-energy correlation. ^{152}Dy deduced dynamical moment of inertia, rotational behavior, deformation, superdeformation characteristics. Bismuth germanate, escape suppressed Ge detectors.

85Be40 *Comparison of Cross Sections for C + O Reactions in the Second Regime of Complete Fusion*

C. Beck, F. Haas, R. M. Freeman, B. Heusch, J. P. Coffin, G. Guillaume, F. Rami, P. Wagner , Nucl. Phys. A442, 320 (1985).

Nuclear Reactions: CPND ^{12}C(^{16}O,X), E=32-140 MeV; ^{13}C(^{17}O, X), E=54-140 MeV; ^{12}C(^{18}O,X), E=62-150 MeV; ^{16}O(^{12}C,X), E=46. 5-112. 5 MeV; measured σ(fragment θ,E) for fragment Z=3-14, fusion σ(E); deduced critical, grazing angular momenta. ^{28}Si deduced possible superdeformation. Statistical, complete fusion model predictions.

85Tw01 *Collectivity of the Superdeformed Bands in ^{152}Dy*

P. J. Twin, A. H. Nelson, B. M. Nyako, D. Howe, H. W. Cranmer-Gordon, D. Elenkov, P. D. Forsyth, J. K. Jabber, J. F. Sharpey-Schafer, J. Simpson, G. Sletten , Phys. Rev. Lett. 55, 1380 (1985).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=210 MeV; measured γγ-energy correlation. ^{152}Dy deduced rotational band transition $T_{1/2}$, collectivity, superdeformed prolate shape.

86Tw01 *Observation of Discrete-Line Superdeformed Band up to 60(h-bar) in ^{152}Dy*

P. J. Twin, B. M. Nyako, A. H. Nelson, J. Simpson, M. A. Bentley, H. W. Cranmer-Gordon, P. D. Forsyth, D. Howe, A. R. Mokhtar, J. D. Morrison, J. F. Sharpey-Schafer, G. Sletten , Phys. Rev. Lett. 57, 811 (1986).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=205 MeV; measured Eγ, Iγ, γγ-energy correlation, γγ-coin. ^{152}Dy deduced levels, J, π, γ-branching, yrast sequence, band structure, deformation, superdeformation characteristics.

86Vi05 *Search for Superdeformation Effects in ^{144}Gd*

J. P. Vivien, A. Nourreddine, F. A. Beck, T. Byrski, C. Gehringer, B. Haas, J. C. Merdinger, D. C. Radford, Y. Schutz, J. Dudek, W. Nazarewicz , Phys. Rev. C33, 2007 (1986).

Nuclear Structure: +144)Gd; calculated Routhians, superdeformed configuration temperature, pairing effects. Cranking model, Woods-Saxon fields.

Nuclear Reactions: *+120)Sn(^{28}Si,4n), E=125, 135, 145, 155 MeV; measured γ-spectra, γ(θ), multiplicity distribution, anisotropy. ^{144}Gd level deduced isomer $T_{1/2}$, superdeformation effects.*

87Be32 *Superdeformed Bands in Nd Nuclei*

E. M. Beck, R. J. McDonald, A. O. Macchiavelli, J. C. Bacelar, M. A. Deleplanque, R. M. Diamond, J. E. Draper, F. S. Stephens , Phys. Lett. 195B, 531 (1987).

Nuclear Reactions: +98)Mo(^{40}Ar,4n), E=173 MeV; ^{100}Mo(^{40}Ar, 4n), E=176 MeV; measured Eγ, Iγ, γγ-energy correlations. ^{134}, ^{136}Nd deduced levels, J, π, superdeformed bands, dynamic moments of inertia.

87Be41 *Intrinsic Quadrupole Moment of the Superdeformed Band in ^{152}Dy*

M. A. Bentley, G. C. Ball, H. W. Cranmer-Gordon, P. D. Forsyth, D. Howe, A. R. Mokhtar, J. D. Morrison, J. F. Sharpey-Schafer, P. J. Twin, B. Fant, C. A. Kalfas, A. H. Nelson, J. Simpson, G. Sletten , Phys. Rev. Lett. 59, 2141 (1987).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=205 MeV; measured Eγ, Iγ, DSA. ^{152}Dy deduced levels, J, effective $T_{1/2}$, band characteristics, superdeformed quadrupole moment, moment of inertia.

87Be57 *Superdeformed Band in ^{135}Nd*

E. M. Beck, F. S. Stephens, J. C. Bacelar, M. A. Deleplanque, R. M. Diamond, J. E. Draper, C. Duyar, R. J. McDonald , Phys. Rev. Lett. 58, 2182 (1987).

Nuclear Reactions: +100)Mo(^{40}Ar,5n), E=173, 177 MeV; measured γγ-coin. ^{135}Nd deduced levels, J, π, superdeformed band, moment of inertia.

87BeYB *Superdeformed Bands in Nd Nuclei*

E. M. Beck, R. J. McDonald, A. O. Macchiavelli, J. C. Bacelar, M. A. Deleplanque, R. M. Diamond, J. E. Draper, F. S. Stephens , Proc. Intern. Conf. Nuclear Structure Through Static and Dynamic Moments, Melbourne, Australia, Vol. 1, p. 48 (1987).

Nuclear Reactions: +98)Mo(^{40}Ar,4n), E=173 MeV; ^{100}Mo(^{40}Ar, xn), E=176 MeV; measured γ-spectra. ^{134}, ^{135}, ^{136}Nd deduced levels, J, π, superdeformed bands.

87De17 *Superdeformed Bands at High Spin in Z = 66 and 68 Isotopes*

M. J. A. de Voigt, J. C. Bacelar, E. M. Beck, M. A. Deleplanque, R. M. Diamond, J. E. Draper, H. J. Riezebos, F. S. Stephens , Phys. Rev. Lett. *59, 270 (1987).*

Nuclear Reactions: +114), ^{116}Cd, ^{118}, ^{120}Sn(^{40}Ar, xn), E=180 MeV; measured γγ-coin, γγ- energy correlation spectra. ^{150}, ^{152}Dy, ^{154}, ^{156}Er deduced superdeformed bands. Compton suppressed Ge detectors.

Radioactivity: ^{150}, ^{152}Dy, ^{154}, ^{156}Er(EC), (β^+); measured γγ- energy correlations, γγ-coin spectra. ^{150}, ^{152}Dy, ^{154}, ^{156}Er deduced superdeformed bands. Compton suppressed Ge detectors.

87DeZT *The β^+ and EC Decay of ^{72}Se Possible Shape-Coexistence and Superdeformation Effects in ^{72}As*

Ph. Dessagne, Ch. Miehe, P. Baumann, A. Huck, J. M. Maison, G. Klotz, M. Ramdane, G. Walter, J. Dudek , Contrib. Proc. 5th Intl. Conf. Nuclei Far from Stability, Rosseau Lake, Canada, K10 (1987).

Radioactivity: ^{72}Se(β^+), (EC) [from ^{40}Ca(^{32}S, n2p), E=100 MeV]; measured γγ-coin; deduced log ft. ^{72}As deduced levels, shape characteristics, γ-branching ratios, superdeformed band.

Nuclear Reactions: *+40)Ca(^{32}S,n2p), E=100 MeV; measured p(X-ray)-, γγ-coin, σ(Ep).*

87He16 *Observation of Superdeformation in the Doubly Closed-Shell Nucleus ^{146}Gd*

G. Hebbinghaus, T. Rzaca-Urban, C. Senff, R. M. Lieder, W. Gast, A. Kramer-Flecken, H. Schnare, W. Urban, G. de Angelis, P. Kleinheinz, W. Starzecki, J. Styczen, P. von Brentano, A. Dewald, J. Eberth, W. Lieberz, T. Mylaeus, A. v. d. Werth, H. Wolters, K. O. Zell, S. Heppner, H. Hubel, M. Murzel, H. Grawe, H. Kluge , Phys. Rev. Lett. 59, 2024 (1987).

Nuclear Reactions: *+110)Pd(^{40}Ar,X), E=180 MeV;* measured γγ-energy correlation, DSA. ^{148}Gd deduced levels, moment of inertia, deformation, superdeformation characteristics, quadrupole moment, stretched E2 transitions.

87He23 *Population and Decay of the Superdeformed Rotational Band of ^{152}Dy*

B. Herskind, B. Lauritzen, K. Schiffer, R. A. Broglia, F. Barranco, M. Gallardo, J. Dudek, E. Vigezzi, Phys. Rev. Lett. 59, 2416 (1987).

Nuclear Structure: +152)Dy; calculated E1 transition probabilities, superdeformed yrast band.

87HeZJ *Observation of Superdeformation in ^{148}Gd*

G. Hebbinghaus, T. Rzaca-Urban, C. Senff, R. M. Lieder, W. Gast, A. Kramer-Flecken, H. Schnare, W. Urban, G. de Angelis, P. Kleinheinz, W. Starzecki, J. Styczen, P. von Brentano, J. Eberth, W. Lieberz, T. Mylaeus, A. von der Werth, H. Wolters, K. O. Zell, S. Heppner, H. Hubel, M. Murzel, H. Grawe, H. Kluge, Proc. Intern. Conf. Nuclear Structure Through Static and Dynamic Moments, Melbourne, Australia, Vol. 1, p. 3 (1987).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=180 MeV; measured γ energy correlations, DSA. ^{148}Gd deduced levels, $T_{1/2}$, superdeformed bands.

87Ki02 *Mean-Lifetime Measurements within the Superdeformed Second Minimum in ^{132}Ce*

A. J. Kirwan, G. C. Ball, P. J. Bishop, M. J. Godfrey, P. J. Nolan, D. J. Thornley, D. J. G. Love, A. H. Nelson, Phys. Rev. Lett. 58, 467 (1987).

Nuclear Reactions: +100)Mo(^{36}S,4n), E=150 MeV; measured Eγ, Iγ, DSA. ^{132}Ce deduced levels, J, π, rotational band structure, $T_{1/2}$, deformation, superdeformation. Bismuth germanate detectors.

Radioactivity: ^{132}Ce(EC) [from ^{100}Mo(^{36}S,4n), E=150 MeV]; measured Eγ, Iγ, DSA. ^{132}Ce deduced levels, J, π, rotational band structure, $T_{1/2}$, deformation, superdeformation. Bismuth germanate detectors.

87Ma54 *Search for Entrance-Channel Effects in the Production of Superdeformed Nuclei*

A. O. Macchiavelli, M. A. Deleplanque, R. M. Diamond, R. J. McDonald, F. S. Stephens, J. E. Draper, Phys. Rev. C36, 2177 (1987).

Nuclear Reactions: +82)Se(^{74}Ge,4n), E=4. 6 MeV/nucleon; measured γγ-coin. ^{152}Dy deduced levels, superdeformed band excitation mechanism.

87Rz01 *Search for Superdeformation in ^{180}Os*

T. Rzaca-Urban, R. M. Lieder, W. Gast, W. Urban, J. Bacelar, J. D. Garrett, G. Sletten, R. Chapman, J. C. Lisle, J. N. Mo, Z. Phys. A328, 379 (1987).

Nuclear Reactions: +150)Nd(^{34}S,4n), E=158 MeV; measured γγ-energy correlation spectra. ^{180}Os deduced levels, J, π, band structure, moments of inertia, superdeformation axis ratio.

87Sc01 Search for Superdeformed Shapes in ^{144}Gd

Y. Schutz, C. Baktash, I. Y. Lee, M. L. Halbert, D. C. Hensley, N. R. Johnson, M. Oshima, R. Ribas, J. C. Lisle, L. Adler, K. Honkanen, D. G. Sarantites, A. J. Larabee, J. X. Saladin, Phys. Rev. C35, 348 (1987).

Radioactivity: ^{144}Gd(EC), (IT) [from ^{120}Sn(^{28}Si, 4n), E=145 MeV]; measured γγ-transition energy correlation; deduced moment of inertia, shape characteristics, no evidence for superdeformation. Germanium detectors.

87St15 *γ-Rays Draining the Superdeformed Band in ^{152}Dy*

J. Styczen, R. Menegazzo, W. Starzecki, P. Kleinheinz, Z. Phys. A327, 481 (1987).

Nuclear Reactions: +152)Gd(α,4n), E=60 MeV; measured Eγ, Iγ, γ(θ), γγ-coin. ^{152}Dy deduced levels, J, π, γ-branching, γ multipolarity, superdeformed band.

87Wa18 *The New Spectroscopy of Superdeformed States: Systematics in the light rare earths and unexpected feeding patterns*

R. Wadsworth, A. Kirwan, D. J. G. Love, Y. -X. Luo, J. -Q. Zhong, P. J. Nolan, P. J. Bishop, M. J. Godfrey, R. Hughes, A. N. James, I. Jenkins, S. M. Mullins, J. Simpson, D. J. Thornley, K. L. Ying, J. Phys. (London) G13, L207 (1987).

Nuclear Reactions: +104)Pd(^{32}S,2n2p), (^{32}S,n2p), E=152 MeV; ^{104}Ru(^{32}S,4n), (^{32}S,3n), E=155 MeV; ^{104}Ru(^{32}S,4n), (^{32}S,3n), E=150 MeV; ^{104}Ru(^{32}S,4np), E=162 MeV; ^{105}Pd(^{32}S, 4np), (^{32}S,4n), E=152 MeV; ^{100}Mo(^{36}S, 4n), E=150 MeV; measured Eγ, Iγ, γγ-coin. ^{132}Ce, ^{133}, ^{134}, ^{135}, ^{137}Nd deduced transitions, feeding level J, π, dynamical moments of inertia, superdeformed bands.

88BaZP *Search for Superdeformed Bands in ^{80}Sr*

C. Baktash, G. Garcia-Bermudez, M. L. Halbert, D. C. Hensley, N. R. Johnson, I. Y. Lee, F. K. McGowan, M. A. Riley, A. Virtanen, V. Abenante, D. G. Sarantites, T. M. Semkow, H. C. Griffin, X. T. Liu, Bull. Am. Phys. Soc. 33, No. 8, 1574, BD7 (1988)

Nuclear Reactions: +52)Cr(^{32}S,2n2p), E=130 MeV; measured not given. ^{80}Sr deduced levels, J, π, band structure, no strong evidence for superdeformation.

88BeZG *Lifetimes of the Superdeformed Band in ^{105}Pd*

C. W. Beausang, J. Burde, R. M. Diamond, M. A. Deleplanque, A. O. Macchiavelli, R. J. McDonald, F. S. Stephens, J. E. Draper, Bull. Am. Phys. Soc. 33, No. 8, 1584, CD3 (1988)

Nuclear Reactions: +64)Ni(^{48}Ca,X), E=190 MeV; measured γ-spectra. ^{105}Pd deduced superdeformed band, level $T_{1/2}$.

88Bu19 *Unusual Rotational Behavior in ^{178}Os*

J. Burde, A. O. Macchiavelli, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, C. W. Beausang, R. J. McDonald, J. E. Draper, Phys. Rev. C38, 2470 (1988).

Nuclear Reactions: +154)Sm(^{28}Si,5n), E=150, 155 MeV; measured γγ-coin. ^{178}Os deduced levels, J, π, Iγ, band features.

88De10 *Superdeformed Band in ^{148}Gd: A test of shell effects in the mass-150 region*

M. A. Deleplanque, C. Beausang, J. Burde, R. M. Diamond, J. E. Draper, C. Duyar, A. O. Macchiavelli, R. J. McDonald, F. S. Stephens, Phys. Rev. Lett. 60, 1626 (1988).

Nuclear Reactions: +104)Ru(^{48}Ca,4n), E=202, 215 MeV; ^{124}Sn(^{28}Si, 5n), E=157, 150 MeV; measured γ-spectra, γγ-coin. ^{148}Gd deduced levels, J, π, band structure, deformation, superdeformation.

88DeZX *Superdeformation in ^{150}Tb*

M. A. Deleplanque, C. Beausang, J. Burde, R. M. Diamond, R. J. McDonald, F. S. Stephens, J. E. Draper, Bull. Am. Phys. Soc. 33, No. 8, 1585, CD9 (1988)

Radioactivity: ^{150}Tb; measured γ-spectra; deduced superdeformation.

88DiZV *Quadrupole Moment of Superdeformed Band in ^{135}Nd*

R. M. Diamond, M. A. Deleplanque, R. J. McDonald, F. S. Stephens, A. O. Macchiavelli, J. Bacelar, J. Burde, J. L. Draper, C. Duyar, Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 58 (1988).

Nuclear Reactions: +100)Mo(^{40}Ar,5n), E=175 MeV; measured Doppler shifted E(γ), I(γ), DSA. ^{135}Nd deduced levels, J, π, band structure, dynamic moment of inertia, superdeformed band quadrupole moment.

88Dr01 *Evidence for Superdeformation in ^{149}Gd*

M. W. Drigert, R. V. F. Janssens, R. Holzmann, R. R. Chasman, I. Ahmad, J. Borggreen, P. J. Daly, B. K. Dichter, H. Emling, U. Garg, Z. W. Grabowski, T. L. Khoo, W. C. Ma, M. Piiparinen, M. Quader, D. C. Radford, W. Trzaska, Phys. Lett. 201B, 223 (1988).

Radioactivity: ^{149}Gd(α) [from ^{114}Cd(^{36}S,4n), E=170 MeV]; measured Eγ, Iγ, γγ-coin, energy correlations. ^{146}Gd deduced moment of inertia superdeformation. Compton suppressed Ge detectors. Cranked Strutinsky calculations.

Nuclear Structure: +146}, ^{147}, ^{148}, ^{150}, ^{151}, ^{152}, ^{153}, ^{154}, ^{155}, ^{156}Er, ^{145}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}, ^{152}, ^{153}, ^{154}, ^{155}Ho, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}, ^{152}, ^{153}Dy, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}, ^{152}, ^{153}Tb, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}, ^{152}Gd, ^{141}, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}Eu, ^{140}, ^{141}, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}Sm, ^{139}, ^{140}, ^{141}, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}Pm, ^{138}, ^{139}, ^{140}, ^{141}, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}Pr, ^{138}, ^{139}, ^{140}, ^{141}, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}Nd; calculated moments of inertia. ^{146}Gd deduced superdeformation evidence. Cranked Strutinsky model.

88FIZX *Spins and Average Quadrupole Moment of the Superdeformed Band in ^{149}Gd and Evidence for a Superdeformed Band in ^{148}Gd*

S. Flibotte, S. Pilotte, F. Banville, S. Cournoyer, J. Gascon, B. Haas, S. Monaro, N. Nadon, D. Prevost, P. Taras, D. Thibault, J. K. Johansson, D. Tucker, J. C. Waddington, H. R. Andrews, G. C. Ball, D. Horn, D. C. Radford, D. Ward , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 21 (1988).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=150 MeV; ^{124}Sn(^{30}Si, 6n), E=160 MeV; ^{124}Sn(^{30}Si,5n), E=147 MeV; measured γγ-coin, γγ(θ). ^{149}Gd deduced levels, J, π, superdeformed band. ^{148}Gd deduced levels, J, π, superdeformed band, quadrupole moment.

88Ha02 *Superdeformed Band up to Spin (127/2) in ^{149}Gd*

B. Haas, P. Taras, S. Flibotte, F. Banville, J. Gascon, S. Cournoyer, S. Monaro, N. Nadon, D. Prevost, D. Thibault, J. K. Johansson, D. M. Tucker, J. C. Waddington, H. R. Andrews, G. C. Ball, D. Horn, D. C. Radford, D. Ward, C. St. Pierre, J. Dudek , Phys. Rev. Lett. 60, 503 (1988).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=150 MeV; measured Eγ, Iγ, Doppler shift fraction. ^{149}Gd deduced levels, J, π, moment of inertia superdeformed band quadrupole moment.

88HeZO *Superdeformation in ^{146}Gd und Gestaltskoexistenz in ^{188}Pt*

G. Hebbinghaus , JUL-2203 (1988).

Nuclear Reactions: +102)Ru(^{48}Ca,4n), E=205 MeV; measured γγ-coin, energy correlations, DSA. ^{146}Gd deduced levels, deformation, superdeformation features, static quadrupole moment. ^{188}Os(α,6n), E=70-90 MeV; measured γγ-coin, energy correlation, γγ(θ), oriented nuclei. ^{188}Pt deduced levels, I(γ), J, π, deformation.

88HeZV *Study of Superdeformed Shapes in ^{146}Gd*

G. Hebbinghaus, T. Rzaca-Urban, C. Senff, G. de Angelis, E. M. Beck, P. von Brentano, J. Eberth, W. Gast, H. Grawe, S. Heppner, D. Howe, H. Hubel, P. Kleinheinz, H. Kluge, A. Kramer-Flecken, W. Lieberz, R. M. Lieder, M. Murzel, T. Mylaeus, B. Nyako, H. Schnare, W. Starzecki, J. Styczen, W. Urban, A. v. d. Werth, R. Wirowski, H. Wolters, K. O. Zell , JUL-Spez-422, p. 32 (1988).

Nuclear Reactions: +102)Ru(^{48}Ca,xn), E=205 MeV; measured γ-spectra, energy correlation. ^{146}Gd deduced superdeformed structures.

88JaZT *A Superdeformed Band in ^{151}Dy*

R. V. F. Janssens, G. -E. Rathke, M. W. Drigert, I. Ahmad, K. Beard, R. R. Chasman, U. Garg, M. Hass, T. L. Khoo, H. -J. Korner, W. C. Ma, S. Pilotte, P. Taras, F. L. H. Wolfs , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 31 (1988).

Nuclear Reactions: +122)Sn(^{34}S,5n), E=174. 5 MeV; measured γ-multiplicity, summed γγ-coin, I(γ). ^{151}Dy deduced levels, J, π, rotational superdeformed band, dynamic moment of inertia.

88Ko17 *Neutron-Emission Spectra and Superdeformation in Light Nuclei*

J. J. Kolata, R. A. Kryger, P. A. DeYoung, F. W. Prosser , Phys. Rev. Lett. 61, 1178 (1988).

Nuclear Reactions: +12)C(^{16}O,xnγp), E=56 MeV; measured np-coin. ^{28}Si deduced shape transitions, superdeformation.

88Lu01 *A Superdeformed Band in ^{131}Ce*

Y. -X. Luo, J. -Q. Zhong, D. J. G. Love, A. Kirwan, P. J. Bishop, M. J. Godfrey, I. Jenkins, P. J. Nolan, S. M. Mullins, R. Wadsworth , Z. Phys. A329, 125 (1988).

Nuclear Reactions: +100)Mo(^{36}S,5n), ^{98}Mo(^{36}S,3n), E=155 MeV; measured Eγ, Iγ, γγ-coin. ^{131}Ce deduced levels, rotational band, superdeformed band, moment of inertia.

88Ma38 *Superdeformation in ^{104}, ^{105}Pd*

A. O. Macchiavelli, J. Burde, R. M. Diamond, C. W. Beausang, M. A. Deleplanque, R. J. McDonald, F. S. Stephens, J. E. Draper , Phys. Rev. C38, 1088 (1988).

Nuclear Reactions: +64)Ni(^{48}Ca,4nα), (^{48}Ca,3nα), E=200 MeV; measured γγ-coin, γγ(θ), Eγ, Iγ. ^{104}, ^{105}Pd deduced levels, J, π, moments of inertia, superdeformation evidence.

88NoAA

Ann. Rev. Nucl. Part. Sci. 38, 533(1988) (review article) abstract unavailable.

88NoZY *Superdeformation in the A = 130-140 Region*

P. J. Nolan, P. J. Bishop, Y. He, M. J. Godfrey, I. Jenkins, A. Kirwan, R. Wadsworth, R. Hughes, S. M. Mullins, D. J. G. Love, Y. -X. Luo, J. -Q. Zhong, J. Simpson , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 63 (1988).

Nuclear Reactions: +100)Mo(^{36}S,4n), E=150 MeV; measured E(γ), I(γ), γγ-coin. ^{108}Pd(^{32}S, 2n2p), E=152 MeV; measured γγ-coin, DSA. ^{64}Zn(^{76}Se, n2p), E=300 MeV; measured γ-spectra. ^{132}Ce, ^{135}Nd, ^{137}Sm deduced levels, J, π, band structure, superdeformed bands.

88PiZW *Search for Superdeformed States in the Continuum of ^{148}Gd*

S. Pilotte, P. Taras, F. Banville, S. Flibotte, J. Gascon, B. Haas, H. R. Andrews, D. C. Radford, D. Ward , AECL-9758, p. 3-9 (1988).

Nuclear Reactions: +124)Sn(^{30}Si,6n), (^{30}Si,4n), (^{30}Si, 5n), E=150 MeV; measured γ-energy correlation; deduced residuals relative yields. ^{148}Gd deduced superdeformed states.

88Ra19 *A Superdeformed Band in ^{151}Dy*

G. -E. Rathke, R. V. F. Janssens, M. W. Drigert, I. Ahmad, K. Beard, R. R. Chasman, U. Garg, M. Hass, T. L. Khoo, H. -J. Korner, W. C. Ma, S. Pilotte, P. Taras, F. L. H. Wolfs , Phys. Lett. 209B, 177 (1988).

Nuclear Reactions: +122)Sn(^{34}S,5n), E=174. 5 MeV; measured γγ-coin, γ multiplicity, Eγ, Iγ. ^{151}Dy deduced levels, J, π, γ-branching, deformation, superdeformation features.

88RzZY *Search for Superdeformation in ^{146}Gd and ^{180}Os*

T. Rzaca-Urban, W. Gast, G. Hebbinghaus, A. Kramer-Flecken, R. M. Lieder, H. Schnare, C. Senff, M. Thoms, W. Urban, G. de Angelis, P. Kleinheinz, W. Starzecki, J. Styczen, P. von Brentano, A. Dewald, J. Eberth, W. Lieberz, T. Mylaeus, A. v. d. Werth, H. Wolters, K. O. Zell, S. Heppner, H. Hubel, M. Murzel, H. Grawe, H. Kluge, K. H. Maier, R. Chapman, J. C. Lisle, J. N. Mo, J. D. Garrett, G. Sletten, J. Bacelar , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 46 (1988).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=180 MeV; ^{150}Nd(^{34}S, 4n), E=157 MeV; ^{102}Ru(^{48}Ca,4n), E=205 MeV; measured γγ(θ), γ-energy correlation, γγ-coin. ^{146}Gd, ^{180}Os deduced levels, band structure, superdeformation evidence.

88RzZZ *Search of Superdeformation in ^{180}Os*

T. Rzaca-Urban, R. M. Lieder, W. Gast, W. Urban, J. Bacelar, J. D. Garrett, G. Sletten, R. Chapman, J. C. Lisle, J. N. Mo , JUL-Spez-442, p. 30 (1988).

Nuclear Reactions: +150)Nd(^{34}S,4n), E=158 MeV; measured γγ-coin, energy correlation. ^{180}Os deduced superdeformation possibility.

88ShAA

Prog. Part. Nucl. Phys. 21, 293(1988) (review article) abstract unavailable.

88StZW *Some Results on γ-Rays Draining the Superdeformed Band in ^{152}Dy*

J. Styczen, H. Guven, W. Urban, G. Hebbinghaus, W. Gast, R. Menegazzo, P. Kleinheinz , JUL-Spez-442, p. 52 (1988).

Nuclear Reactions: +152)Gd(α,4n), E=60 MeV; measured γγ-coin, γ(θ), oriented nuclei. ^{152}Dy deduced levels, J, π, γ-branching, superdeformed band.

88Ta20 *Feeding of Discrete-Line Superdeformed Bands at Very High Spin*

P. Taras, S. Flibotte, J. Gascon, B. Haas, S. Pilotte, D. C. Radford, D. Ward, H. R. Andrews, G. C. Ball, F. Banville, S. Cournoyer, D. Horn, J. K. Johansson, S. Monaro, N. Nadon, D. Prevost, C. Pruneau, D. Thibault, D. M. Tucker, J. C. Waddington , Phys. Rev. Lett. 61, 1348 (1988).

Nuclear Reactions: +124)Sn(^{30}Si,4n), (^{30}Si,5n), (^{30}Si, 6n), (^{30}Si,xn), E=140-160 MeV; measured γ yields, γ sum spectra, multiplicities. ^{149}Gd deduced superdeformed band features.

88TwZZ *Superdeformation - Perspectives*

P. J. Twin , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 83 (1988).

Nuclear Reactions: +130)Te(^{26}Mg,6n), E=145 MeV; ^{108}Pd(^{48}Ca, 4n), E=205 MeV; measured not given. ^{150}Gd, ^{152}Dy deduced band structure, superdeformation.

88WaZR *A Search for Discrete Line Superdeformed Bands in ^{124}Ba and ^{184}Pt*

J. C. Waddington, J. K. Johansson, D. Rajnauth, D. Tucker, H. R. Andrews, G. C. Ball, D. Horn, D. C. Radford, D. Ward, M. P. Carpenter, V. P. Janzen, L. L. Riedinger, F. Banville, J. Gascon, S. Monaro, N. Nadon, S. Pilotte, D. Prevost, P. Taras, D. Thibault , Proc. of the Conf. on High-Spin Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988, Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 41 (1988).

Nuclear Reactions: +96)Zr(^{32}S,4n), E=155 MeV; ^{160}Gd(^{29}Si, 5n), E=151 MeV; measured γγ-coin, γ-energy correlations. ^{124}Ba, ^{184}Pt deduced levels, J, π, band structure, possible superdeformation.

89AkZY *Search for Low-Spin Superdeformed States in ^{188}Hg*

Y. A. Akovali, E. A. Henry, J. A. Becker, J. Kormicki, C. R. Bingham, R. Meyer, H. K. Carter, W. Schmidt-Ott, I. C. Girit, Y. -S. Xu, H. Carmichael , ORNL-6508, p. 90 (1989).

Radioactivity: ^{188}Tl; measured Eγ, Iγ, Eα, Iα, αγ-, γγ-coin, γγ(θ). ^{188}Au, ^{188}Pt, ^{188}Ir, ^{188}Hg deduced transitions, possible superdeformation.

89AkZZ *Search for Low-Spin Superdeformed States in ^{190}Hg and ^{192}Hg*

Y. A. Akovali, H. K. Carter, W. D. Hamilton, I. C. Girit, J. Breitenbach, C. R. Bingham, W. Schmidt-Ott, R. L. Knight, J. M. Bauer, J. A. Becker, E. A. Henry, R. A. Meyer, N. Roy, J. Kormicki , Bull. Am. Phys. Soc. 34, No. 8, 1816, CC4 (1989)

Radioactivity: ^{190}, ^{192}Tl(β⁺); measured not given. ^{190}, ^{192}Hg deduced levels, J, shape characteristics, possible superdeformation.

89AlZS *The De-Excitation of the Superdeformed Band in ^{152}Dy*

A. Alderson, P. J. Twin, M. A. Bentley, A. M. Bruce, P. Fallon, P. D. Forsyth, D. Howe, J. W. Roberts, J. F. Sharpey-Schafer , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 50 (1989).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=197 MeV; measured γγ-coin, energy correlations. ^{152}Dy deduced levels, J, π, superdeformed band.

89BaZC Search for Superdeformed Bands in ^{80}Sr

C. Baktash, M. A. Riley, G. Garcia-Bermudez, A. Virtanen, M. L. Halbert, V. Abenante, D. C. Hensley, D. G. Sarantites, N. R. Johnson, T. M. Semkow, I. Y. Lee, H. C. Griffin, F. K. McGowan, X. T. Liu , ORNL-6508, p. 75 (1989).

Nuclear Reactions: +52)Cr(^{32}S,2n2p), E=130 MeV; measured γγ-coin. ^{80}Sr deduced levels, J, π, moments of inertia, band structure, possible superdeformation.

89BeYO *Lifetimes and Line-Shapes in the Superdeformed Band of ^{152}Dy*

M. A. Bentley, N. Rowley, K. Schiffer, P. D. Forsyth, H. W. Cranmer-Gordon, D. Howe, A. R. Mokhtar, J. D. Morrison, J. F. Sharpey-Schafer, P. J. Twin , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 55 (1989).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=205 MeV; analyzed data. ^{152}Dy deduced superdeformed band features.

89BeYP *The Population Mechanism of the Superdeformed Band in ^{152}Dy*

M. A. Bentley, A. Alderson, P. Fallon, P. D. Forsyth, J. D. Morrison, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, B. M. Nyako, C. A. Kalfas , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 62 (1989).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=195-212 MeV; measured γγ-coin. ^{152}Dy deduced levels, J, π, superdeformed band, level population intensity. Comparison with other data.

89BeZD *Evidence for Superdeformation at N = 80, Z 64*

Ph. Benet, P. J. Daly, I. Ahmad, P. Fernandez, T. Happ, R. V. F. Janssens, T. L. Khoo, E. F. Moore, F. L. H. Wolfs, M. W. Drigert, K. B. Beard, D. Ye , Bull. Am. Phys. Soc. 34, No. 8, 1824, DC2 (1989)

Nuclear Reactions: +98)Mo(^{50}Ti,xn), E=219 MeV; measured γγ(θ); deduced N=80, Z64 superdeformation.

89De10 *Superdeformation in the Odd-Odd Nucleus ^{150}Tb: Experimental search for superdeformed configurations*

M. A. Deleplanque, C. W. Beausang, J. Burde, R. M. Diamond, F. S. Stephens, R. J. McDonald, J. E. Draper , Phys. Rev. C39, 1651 (1989).

Nuclear Reactions: +124)Sn(^{31}P,X), E=160 MeV; measured E(γ), I(γ), γγ(θ), γγγ-coin. ^{150}Tb deduced levels, J, π, deformation, band structure, superdeformed band.

89Fa02 *Superdeformed Bands in ^{150}Gd and ^{151}Tb: Evidence for the influence of high-N intruder states at large deformations*

P. Fallon, P. Alderson, M. A. Bentley, A. M. Bruce, P. D. Forsyth, D. Howe, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, F. A. Beck, T. Byrski, D. Curien, C. Schuck , Phys. Lett. 218B, 137 (1989).

Nuclear Reactions: +130)Te(^{26}Mg,6n), E=145 MeV; ^{130}Te(^{27}Al, 6n), E=150 MeV; measured γγ-coin, γγ(θ). ^{150}Gd, ^{151}Tb deduced levels, J, π, superdeformed band structure, shapes, moments of inertia.

89Go13 *The Proton Structure of the Superdeformed Bands in the N = 73 Isotones ^{130}La, ^{131}Ce and ^{133}Nd*

M. J. Godfrey, Y. He, I. Jenkins, A. Kirwan, P. J. Nolan, R. Wadsworth, S. M. Mullins , J. Phys. (London) G15, L163 (1989).

Nuclear Reactions: +51)V(^{82}Se,3n), E=290 MeV; measured γγ-coin. ^{130}La deduced levels, superdeformed band structure, shape features, moments of inertia.

89GoZR *A Superdeformed Band in ^{130}La*

M. J. Godfrey, Y. He, I. Jenkins, A. Kirwan, P. J. Nolan, R. Wadsworth, S. M. Mullins , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 30 (1989).

Nuclear Reactions: +51)V(^{82}Se,3n), E=290 MeV; measured γγ-coin. ^{130}La deduced levels, J, π, superdeformed band structure.

89HeYZ *Search for Low-Spin Superdeformed States in ^{194}Hg*

E. A. Henry, C. R. Bingham, Y. A. Akovali, W. D. Schmidt-Ott, J. A. Becker, R. A. Meyer, H. K. Carter, Y. S. Xu, J. Kormicki, H. V. Carmichael , ORNL-6508, p. 150 (1989).

Radioactivity: ^{194}Tl; measured Eγ, Iγ, γγ-, αγ-coin, Eα, Iα. ^{194}Hg deduced levels, possible superdeformation.

V

89HeZI *Mean Lifetime Measurements in the Superdeformed Band in ^{131}Ce*

Y. He, M. J. Godfrey, I. Jenkins, P. J. Nolan, R. Wadsworth, S. M. Mullins, J. R. Hughes , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 32 (1989).

Nuclear Reactions: +100)Mo(^{36}S,5n), E=155 MeV; measured centroid shifts. ^{131}Ce deduced levels, superdeformed quadrupole moment.

89HoZR *Discovery of a Discrete Superdeformed Band in ^{146}Gd*

G. Hebbinghaus, K. Strahle, T. Rzaca-Urban, D. Alber, D. Balabanski, E. M. Beck, P. von Brentano, W. Gast, J. Eberth, H. Hubel, H. Kluge, A. Kramer-Flecken, R. M. Lieder, H. Maier, W. Schmitz, M. Thoms, W. Urban, H. Wolters, K. O. Zell , JUL-Spez-499, p. 28 (1989).

Nuclear Structure: +146)Gd; analyzed data; deduced discrete superdeformed band in ^{146}Gd.

89Jo04 *Multiple Superdeformed Bands in ^{153}Dy*

J. K. Johansson, H. R. Andrews, T. Bengtsson, A. Djaafri, T. E. Drake, S. Flibotte, A. Galindo-Uribarri, D. Horn, V. P. Janzen, J. A. Kuehner, S. Monaro, N. Nadon, S. Pilotte, D. Prevost, D. C. Radford, I. Ragnarsson, P. Taras, A. Tehami, J. C. Waddington, D. Ward, S. Aberg , Phys. Rev. Lett. 63, 2200 (1989).

Nuclear Reactions: +124)Sn(^{34}S,5n), E not given; measured γγ-coin, sum spectra. ^{153}Dy deduced levels, J, π, moment of inertia, band structure, deformation, superdeformation features.

89KoZL *Superdeformation a Spin Nul dans ^{189}Pt*

A. Korichi, Ch. Bourgeois, N. Perrin, H. Sergolle, M. G. Porquet, F. Hannachi, G. Bastin, N. Redon, M. Meyer, R. Beraud, Ph. Quentin, H. Hubel , Univ. Paris, Inst. Phys. Nucl. , 1989 Ann. Rept. , p. E33 (1989).

Nuclear Reactions: +176)Yb(^{18}O,5n), E=145 MeV; measured γ-spectra. ^{189}Pt deduced levels, J, π.

89LIZV *A Search for Superdeformation in ^{84}Zr*

C. J. Lister, P. Chowdhury, P. Ennis, B. Crowell, H. R. Andrews, D. Horn, D. C. Radford, D. Ward, S. Pilotte, J. C. Waddington, J. K. Johansson , AECL-9859, p. 3-5 (1989).

Nuclear Reactions: +60)Ni(^{28}Si,2n2p), E=135 MeV; measured γ-multiplicities. 8π spectrometer; deduced possible superdeformation effects.

89Mo08 *Observation of Superdeformation in ^{191}Hg*

E. F. Moore, R. V. F. Janssens, R. R. Chasman, I. Ahmad, T. L. Khoo, F. L. H. Wolfs, D. Ye, K. B. Beard, U. Garg, M. W. Drigert, Ph. Benet, Z. W. Grabowski, J. A. Cizewski , Phys. Rev. Lett. 63, 360 (1989).

Nuclear Reactions: +160)Gd(^{36}S,5n), E=172 MeV; measured γγ-coin. ^{191}Hg deduced superdeformed band structure, shape characteristics.

89MoZS *Feeding of the Superdeformed Band in ^{191}Hg*

E. F. Moore, R. V. F. Janssens, D. Ye, M. P. Carpenter, P. Fernandez, I. Ahmad, K. B. Beard, Ph. Benet, R. R. Chasman, M. D. Drigert, T. L. Khoo, F. L. H. Wolfs , Bull. Am. Phys. Soc. 34, No. 8, 1816, CC5 (1989)

.

Nuclear Structure: +191)Hg; measured not given; deduced superdeformed band feeding features.

89MoZX *Feeding of the Superdeformed Band in ^{152}Dy*

E. F. Moore, I. Ahmad, M. Hass, R. V. F. Janssens, T. L. Khoo, H. -J. Korner, W. C. Ma, G. -E. Rathke, F. L. H. Wolfs, U. Garg, D. Ye, K. Beard, Z. Grabowski, M. W. Drigert , Bull. Am. Phys. Soc. 34, No. 4, 1234, J8 6 (1989)

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Nuclear Reactions: +120)Sn(^{36}S,4n), E=172 MeV; measured not given. ^{152}Dy deduced levels, band structure, deformation, superdeformation features.

89MuZR *Normal and Highly Deformed Rotational Bands in ^{135}Sm and ^{133}Nd*

S. M. Mullins , Thesis, Univ. York (1989).

Nuclear Reactions: +64)Zn(^{74}Se,n2p), E=290 MeV; ^{92}Mo(^{46}Ti, n2p), E=210 MeV; ^{104}Pd(^{32}S,n2p), E=152 MeV; measured γγ-coin, DSA. ^{135}Sm deduced levels, band structure, configuration. ^{133}Nd deduced levels, J, π, superdeformed band, quadrupole moment. Cranked shell model, total Routhian surface calculations.

89NyZX *Search for Superdeformation in ^{131}La*

B. M. Nyako, S. Andre, D. Barneoud, F. A. Beck, H. El-Samman, C. Foin, J. Genevey, A. Gizon, J. Gizon, M. Jozsa, J. C. Merdinger, L. Zolnai , ATOMKI 1988 Ann. Rept. , p. 16 (1989).

Nuclear Reactions: +100)Mo(^{36}S,4np), E=165 MeV; measured γγ-coin. ^{131}La deduced levels, band structure, possible superdeformation.

89RaZX *Search for a Second Superdeformed Band in ^{135}Nd*

D. C. Radford, H. R. Andrews, B. Herskind, J. F. Sharpey-Schafer, S. Pilotte, S. Flibotte, D. Prevost, J. K. Johansson, J. C. Waddington , AECL-9859, p. 3-8 (1989).

Nuclear Reactions: +110)Pd(^{30}Si,5n), E=151, 155 MeV; measured γγ-coin, γ-multiplicity, sum spectra. ^{135}Nd deduced levels, J, π, band structure, shape, no evidence for second superdeformed band.

89RoZS *Search for a Superdeformed Band in ^{192}Hg*

N. Roy, J. A. Becker, E. A. Henry, J. A. Cizewski, M. J. Brinkman, C. Beausang, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, J. E. Draper , Bull. Am. Phys. Soc. 34, No. 8, 1816, CC7 (1989)

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Nuclear Reactions: +176)Yb(^{22}Ne,6n), E=122 MeV; measured γ-spectra. ^{192}Hg deduced levels, superdeformed band structure, moment of inertia.

89Sc02 *Lifetimes and Lineshapes in Superdeformed Bands*

K. Schiffer, B. Herskind, J. Gascon , Z. Phys. A332, 17 (1989).

Nuclear Structure: +152)Dy; calculated levels, $T_{1/2}$, B(λ), I(γ); deduced normal, superdeformed state mixing. Statistical model, Monte Carlo simulation.

89Sc30 *γ Decay of the Superdeformed Shape Isomer in ^{236}U*

J. Schirmer, J. Gerl, D. Habs, D. Schwalm , Phys. Rev. Lett. 63, 2196 (1989).

Nuclear Reactions: +235)U(d,p), E=11 MeV; measured γ time spectra, missing energy vs delayed sum energy. ^{236}U deduced isomer, decay, superdeformation features, γ-decay to fission branching ratio.

89ScZS *Search for Superdeformation in ^{180}Os*

H. Schnare, T. Rzaca-Urban, D. Balabanski, W. Gast, G. Hebbinghaus, A. Kramer-Flecken, R. M. Lieder, W. Urban, K. H. Maier, G. Sletten , JUL-Spez-499, p. 41 (1989).

Nuclear Reactions: +150)Nd(^{34}S,4n), E=158 MeV; measured Eγ, γγ-coin, γ-multiplicities, γγ-energy correlation. ^{180}Os deduced levels, band deformation, superdeformation features.

89Ta12 *Additional Superdeformed States in the Continuum of ^{149}Gd*

P. Taras, S. Flibotte, J. Gascon, B. Haas, S. Pilotte, D. C. Radford, D. Ward, H. R. Andrews, F. Banville, J. K. Johansson, J. C. Waddington , Phys. Lett. 222B, 357 (1989).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=150 MeV; analyzed data. ^{149}Gd deduced levels, J, π, superdeformation.

89WI19 *High Spin States in ^{79}Kr: Approaching superdeformation in the A = 80 Region*

D. F. Winchell, M. S. Kaplan, J. X. Saladin, H. Takai, J. J. Kolata, J. Dudek , Phys. Rev. C40, 2672 (1989).

Nuclear Reactions: +46)Ti(^{36}S,n2p), E=97 MeV; measured γγ-coin. ^{79}Kr deduced levels, J, π, moment of inertia, possible superdeformation. Cranked HFB calculations.

Nuclear Structure: +75)Kr; calculated Routhians, moments of inertia; deduced possible superdeformation. Cranked HFB.

89Zu01 *Non-Yrast States in ^{152}Dy Around 22(h-bar), the Region into which the Discrete Superdeformed Band Drains*

K. Zuber, E. Bozek, F. A. Beck, P. Benet, T. Byrski, D. Curien, G. Duchene, C. Gehringer, B. Haas, A. Kreiner, J. C. Merdinger, P. Romain, J. P. Vivien, Z. Phys. A332, 231 (1989).

Nuclear Reactions: +124)Sn(^{32}S,4n), E=132 MeV; measured γγ-coin. ^{152}Dy deduced levels, J, π, superdeformed band drainage.

90AaZZ *Superdeformed Band in ^{146}Gd: First observation of band crossing*

S. Aaberg, D. Alber, D. Balabanski, E. M. Beck, T. Bengtsson, P. von Brentano, J. Eberth, W. Gast, G. Hebbinghaus, H. Hubel, R. M. Lieder, K. H. Maier, E. Ott, I. Ragnarsson, T. Rzaca-Urban, W. Schmitz, H. Schnare, K. Strahle, J. Theuerkauf, W. Urban, H. Wolters, K. O. Zell, JUL-Spez-582, p. 65 (1990).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=175 MeV; measured Eγ, Iγ, γ(t), γγ- correlation matrix. ^{146}Gd deduced levels, J, π, superdeformed band structure.

90AlZY *Population of the Superdeformed Continuum in ^{152}Dy*

A. Alderson, P. Fallon, P. D. Forsyth, D. Howe, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, M. A. Bentley, A. M. Bruce, Daresbury Labs., 1989-1990 Ann. Rept., Appendix, p. 49 (1990).

Nuclear Reactions: +108)Pd(^{48}Ca,xn), E=197 MeV; measured γγ-coin. ^{152}Dy deduced superdeformed continuum features.

90AlZZ *The Collectivity of the Superdeformed Band in ^{152}Dy at the Point of De-Excitation*

A. Alderson, I. Ali, D. M. Cullen, P. Fallon, P. D. Forsyth, M. A. Riley, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, M. A. Bentley, A. M. Bruce, Daresbury Labs., 1989-1990 Ann. Rept., Appendix, p. 47 (1990).

Nuclear Reactions: +108)Pd(^{48}Ca,xn), E=197 MeV; measured DSA, γ-multiplicity, transition fractional Doppler shifts. ^{152}Dy deduced superdeformed band quadrupole moment.

90Az03 *Superdeformed Bands in ^{194}Tl*

F. Azaiez, W. H. Kelly, W. Korten, M. A. Deleplanque, F. S. Stephens, R. M. Diamond, C. W. Beausang, J. A. Becker, E. A. Henry, J. E. Draper, M. J. Brinkman, S. W. Yates, A. Kuhnert, E. Rubel, Z. Phys. A336, 243 (1990).

Nuclear Reactions: +176)Yb(^{23}Na,5n), (^{23}Na,4n), (^{23}Na, 6n), E=116, 122 MeV; ^{181}Ta(^{18}O,6n), (^{18}O, 5n), (^{18}O,4n), E=95-104 MeV; measured γγγ-coin. ^{194}Tl deduced levels, J, π, superdeformed band structure.

90Az06 *Superdeformed Bands in ^{194}Tl*

F. Azaiez, W. H. Kelly W. Korten, M. A. Deleplanque, F. S. Stephens, R. M. Diamond, C. W. Beausang, J. A. Becker, E. A. Henry, J. E. Draper, M. J. Brinkman, S. W. Yates, A. Kuhnert, E. Rubel, Nucl. Phys. A520, 121c (1990).

Nuclear Reactions: +176)Yb(^{23}Na,4n), (^{23}Na,5n), (^{23}Na, 6n), E=116, 122 MeV; ^{181}Ta(^{18}O,X), E=95-104 MeV; measured γγγ-coin. ^{194}Tl deduced levels, superdeformed band structure.

90Be01 *Observation of Superdeformation in ^{192}Hg*

J. A. Becker, N. Roy, E. A. Henry, M. A. Deleplanque, C. W. Beausang, R. M. Diamond, J. E. Draper, F. S. Stephens, J. A. Cizewski, M. J. Brinkman, Phys. Rev. C41, R9 (1990).

Nuclear Reactions: +176)Yb(^{22}Ne,6n), E=122 MeV; measured γγ-coin. ^{192}Hg deduced levels, J, π, superdeformed band structure. HERA detector array.

90Be11 *Observation of Superdeformed Bands in ^{194}Hg*

C. W. Beausang, E. A. Henry, J. A. Becker, N. Roy, S. W. Yates, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, J. E. Draper, W. H. Kelly, J. Burde, R. J. McDonald, E. Rubel, M. J. Brinkman, J. A. Cizewski, Y. A. Akovali, Z. Phys. A335, 325 (1990).

Nuclear Reactions: +150)Nd(^{48}Ca,4n), (^{48}Ca,5n), E=195-210 MeV; measured γγγ-, γγ-coin. ^{194}Hg deduced levels, J, π, superdeformed band structure.

90Br10 *Superdeformation in Lead Nuclei*

M. J. Brinkman, A. Kuhnert, E. A. Henry, J. A. Becker, S. W. Yates, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, W. Korten, F. Azaiez, W. H. Kelly, J. E. Draper, C. W. Beausang, E. Rubel, J. A. Cizewski, Z. Phys. A336, 115 (1990).

Nuclear Reactions: +176)Yb(^{24}Mg,xn), E=122-132 MeV; measured γγ-coin. ^{194}, ^{196}Pb deduced levels, J, π, superdeformed band structure.

90BrZN *Superdeformed Bands in ^{192}Hg*

M. J. Brinkman, E. A. Henry, C. W. Beausang, J. A. Becker, N. Roy, S. W. Yates, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, J. E. Draper, W. H. Kelly, R. J. McDonald, J. Burde, A. Kuhnert, W. Korten, E. Rubel, J. A. Cizewski, Y. A. Akovali, Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 5 (1990).

Nuclear Reactions: +176)Yb(^{22}Ne,5n), ^{150}Nd(^{48}Ca,5n), E not given; measured γ-spectra. ^{193}Hg deduced levels, J, π, superdeformed band structure.

90BrZQ *Search for Superdeformed Bands in Lead*

M. J. Brinkman, J. A. Cizewski, A. Kuhnert, E. A. Henry, J. A. Becker, S. W. Yates, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, R. J. McDonald, W. Korten, F. Azaiez, W. H. Kelly, C. W. Beausang, J. E. Draper, E. Rubel, Bull. Am. Phys. Soc. 35, No. 6, 1398, H6 14 (1990)

Nuclear Reactions: +176)Yb(^{24}Mg,xn), E=122, 127, 132 MeV; measured Eγ. ^{194}, ^{196}Pb deduced superdeformed band structure.

90BrZX *Search for Superdeformed Bands in ^{193}Hg*

M. J. Brinkman, J. A. Cizewski, E. A. Henry, J. A. Becker, N. Roy, S. W. Yates, A. Kuhnert, C. W. Beausang, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, R. J. McDonald, J. Burde, W. Korten, J. E. Draper, E. Rubel, W. H. Kelly, Y. A. Akovali, Bull. Am. Phys. Soc. 35, No. 4, 1017, H6 11 (1990)

Nuclear Reactions: +176)Yb(^{22}Ne,5n), ^{150}Nd(^{48}Ca,5n), E not given; measured Eγ. ^{193}Hg deduced levels, J, π, superdeformed band structure.

90By01 *Observation of Identical Superdeformed Bands in N = 86 Nuclei*

T. Byrski, F. A. Beck, D. Curien, C. Schuck, P. Fallon, A. Alderson, I. Ali, M. A. Bentley, A. M. Bruce, P. D. Forsyth, D. Howe, J. W. Roberts, J. F. Sharpey-Schafer, G. Smith, P. J. Twin, Phys. Rev. Lett. 64, 1650 (1990).

Nuclear Reactions: +130)Te(^{26}Mg,6n), E=145 MeV; ^{126}Te(^{27}Al, 6n), E=150 MeV; measured γγ-coin, sum spectra. ^{150}Gd, ^{151}Tb deduced levels, J, π, superdeformed band structure.

90Ca18 *Excited Superdeformed Bands in ^{191}Hg*

M. P. Carpenter, R. V. F. Janssens, E. F. Moore, I. Ahmad, P. B. Fernandez, T. L. Khoo, F. L. H. Wolfs, D. Ye, K. B. Beard, U. Garg, M. W. Drigert, Ph. Benet, R. Wyss, W. Satula, W. Nazarewicz, M. A. Riley, Phys. Lett. 240B, 44 (1990).

Nuclear Reactions: +160)Gd(^{36}S,5n), E=167, 172 MeV; measured γγ-coin. ^{191}Hg deduced levels, J, π, superdeformed band structure.

90Ca37 *Evidence of Time Delay in the Decay of the Superdeformed Bands of ^{191}, ^{192}Hg*

M. P. Carpenter, D. Ye, R. V. F. Janssens, T. L. Khoo, I. Ahmad, K. B. Beard, Ph. Benet, J. A. Cizewski, M. W. Drigert, P. Fernandez, U. Garg, E. F. Moore, F. L. H. Wolfs, Nucl. Phys. A520, 133c (1990).

Nuclear Reactions: +160)Gd(^{36}S,4n), (^{36}S,5n), E=167 MeV; measured γγ-coin. ^{191}, ^{192}Hg deduced levels, J, π, superdeformed band decay time delay.

90Cu05 *Landau-Zener Crossing in Superdeformed ^{193}Hg: Evidence for octupole* *correlations in superdeformed nuclei*

D. M. Cullen, M. A. Riley, A. Alderson, I. Ali, C. W. Beausang, T. Bengtsson, M. A. Bentley, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, W. Nazarewicz, R. J. Poynter, P. H. Regan, J. W. Roberts, W. Satula, J. F. Sharpey-Schafer, J. Simpson, G. Sletten, P. J. Twin, R. Wadsworth, R. Wyss , Phys. Rev. Lett. 65, 1547 (1990).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=205, 213 MeV; measured Eγ, Iγ, γγ-coin. ^{193}Hg deduced levels, J, π, superdeformed band structure, shape features.

90Cu06 *Evidence for Octupole Softness of the Superdeformed Shape from Band Interactions in ^{193}, ^{194}Hg*

D. M. Cullen, M. A. Riley, A. Alderson, I. Ali, T. Bengtsson, M. A. Bentley, A. M. Bruce, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, W. Nazarewicz, R. Poynter, P. Regan, J. W. Roberts, W. Satula, J. F. Sharpey-Schafer, J. Simpson, G. Sletten, P. J. Twin, R. Wadsworth, R. Wyss , Nucl. Phys. A520, 105c (1990).

Nuclear Reactions: +150)Nd(^{48}Ca,4n), E=205 MeV; ^{150}Nd(^{48}Ca, 5n), E=213 MeV; measured γγ-coin. ^{193}, ^{194}Hg deduced levels, J, π, superdeformed band structure.

90Di01 *Line Shape and Lifetimes in the ^{136}Nd Superdeformed Band*

R. M. Diamond, C. W. Beausang, A. O. Macchiavelli, J. C. Bacelar, J. Burde, M. A. Deleplanque, J. E. Draper, C. Duyar, R. J. McDonald, F. S. Stephens , Phys. Rev. C41, R1327 (1990).

Nuclear Reactions: +100)Mo(^{40}Ar,5n), E=175 MeV; measured γγ-coin, DSA. ^{136}Nd deduced levels, J, π, superdeformed band features, transition quadrupole moment.

90DrZZ *Search for Superdeformation in ^{190}Hg*

M. W. Drigert, I. Ahmad, M. P. Carpenter, P. Fernandez, R. V. F. Janssens, T. L. Khoo, E. F. Moore, F. L. H. Wolfs, D. Ye, K. Beard, U. Garg, Ph. Benet , Bull. Am. Phys. Soc. 35, No. 4, 1016, H6 8 (1990)

Nuclear Reactions: +160)Gd(^{34}S,4n), E=159 MeV; measured γ-spectra. ^{190}Hg deduced levels, superdeformed band features.

90Fe07 *Proton Excitations in the Superdeformed Well of ^{193}Tl*

P. B. Fernandez, M. P. Carpenter, R. V. F. Janssens, I. Ahmad, E. F. Moore, T. L. Khoo, F. Scarlassara, I. G. Bearden, Ph. Benet, P. J. Daly, M. W. Drigert, U. Garg, W. Reviol, D. Ye, S. Pilotte , Nucl. Phys. A517, 386 (1990).

Nuclear Reactions: +160)Gd(^{37}Cl,4n), E=167 MeV; measured Eγ, Iγ, γγ-coin. ^{193}Tl deduced levels, J, π, rotational, superdeformed bands characteristics. Enriched targets, Ge detectors, array of Compton suppressed spectrometers, 4π bismuth germanate array. Cranked Woods-Saxon calculations.

90GaZO *The Role of Charged Particles in the Population of the ^{132}Nd Superdeformed Band*

A. Galindo-Uribarri, T. K. Alexander, H. R. Andrews, G. C. Ball, T. E. Drake, S. Flibotte, J. S. Forster, V. P. Janzen, J. K. Johansson, S. Pilotte, D. Prevost, D. C. Radford, P. Taras, J. Waddington, D. Ward, G. Zwartz , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 14 (1990).

Nuclear Reactions: +105)Pd(^{32}S,X), E=155 MeV; measured (charged particle)γ-coin, pγγ-coin. ^{132}Nd deduced superdeformed band.

90Ha25 *Feeding of the Superdeformed Yrast Band in ^{149}Gd*

B. Haas, J. P. Vivien, S. K. Basu, F. A. Beck, Ph. Benet, T. Byrski, D. Curien, G. Duchene, C. Gehringer, H. Kluge, J. C. Merdinger, P. Romain, D. Santos, S. Flibotte, J. Gascon, P. Taras, E. Bozak, K. Zuber , Phys. Lett. 245B, 13 (1990).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=150-160 MeV; measured γ-spectra. ^{149}Gd deduced superdeformed yrast band relative Iγ.

90Ha31 *Observation of Excited Proton and Neutron Configurations in the Superdeformed ^{149}Gd Nucleus*

B. Haas, D. Ward, H. R. Andrews, G. C. Ball, T. E. Drake, S. Flibotte, A. Galindo-Uribarri, V. P. Janzen, J. K. Johansson, H. Kluge, J. Kuehner, A. Omar, S. Pilotte, D. Prevost, J. Rodriguez, D. C. Radford, P. Taras, J. P. Vivien, J. C. Waddington, S. Aberg , Phys. Rev. C42, R1817 (1990).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=155 MeV; ^{124}Sn(^{31}P, 5n), E=156 MeV; measured γ-spectra, γγ-coin. ^{149}Gd deduced levels, J, π, superdeformed band structure.

90He09 *Superdeformed Bands in ^{193}Hg and ^{194}Hg*

E. A. Henry, M. J. Brinkman, C. W. Beausang, J. A. Becker, N. Roy, S. W. Yates, J. A. Cizewski, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, J. E. Draper, W. H. Kelly, R. J. McDonald, J. Burde, A. Kuhnert, W. Korten, E. Rubel, Y. A. Akovali , Z. Phys. A335, 361 (1990).

Nuclear Reactions: +176)Yb(^{22}Ne,5n), (^{22}Ne,6n), E=116, 122 MeV; ^{150}Nd(^{48}Ca,5n), (^{48}Ca,4n), E=195-210 MeV; measured γγ-coin. ^{193}, ^{194}Hg deduced levels, J, π, superdeformed band structure.

90He12 *Quadrupole Moment of the Superdeformed Band in ^{131}Ce*

Y. He, M. J. Godfrey, I. Jenkins, A. J. Kirwan, P. J. Nolan, S. M. Mullins, R. Wadsworth, D. J. G. Love , J. Phys. (London) G16, 657 (1990).

Nuclear Reactions: +100)Mo(^{36}S,5n), E=155 MeV; measured γγ-coin, DSA. ^{131}Ce deduced levels, J, π, mean $T_{1/2}$, β_2, superdeformed intrinsic quadrupole moment, band structure.

90He23 *Properties of Superdeformed Bands in the A = 194 Region*

E. A. Henry, J. A. Becker, M. J. Brinkman, A. Kuhnert, S. W. Yates, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, C. W. Beausang, W. H. Kelly, W. Korten, F. Azaiez, J. E. Draper, E. Rubel, J. A. Cizewski, Y. A. Akovali , Nucl. Phys. A520, 115c (1990).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=200, 205, 210 MeV; ^{176}Yb(^{22}Ne, 5n), E=110, 116, 122 MeV; measured γγγ-coin, relative Iγ. ^{193}Hg deduced levels, superdeformed band structure.

90Hu10 *Superdeformation in ^{192}Pb*

H. Hubel, K. Theine, D. Mehta, W. Schmitz, P. Willsau, C. X. Yang, F. Hannachi, D. B. Fossan, H. Grawe, H. Kluge, K. H. Maier , Nucl. Phys. A520, 125c (1990).

Nuclear Reactions: +158)Gd(^{40}Ar,4n), E=178-188 MeV; measured γγ-coin, Iγ. ^{194}Pb deduced superdeformed band structure, moments of inertia vs rotational frequency.

90Kh06 *Population of Superdeformed Bands, the Competition with Fission, and the Barrier between Normal and Superdeformed States*

T. L. Khoo, R. V. F. Janssens, E. F. Moore, K. B. Beard, Ph. Benet, I. Ahmad, M. P. Carpenter, R. R. Chasman, P. J. Daly, M. W. Drigert, U. Garg, Z. W. Grabowski, F. L. H. Wolfs, D. Ye , Nucl. Phys. A520, 169c (1990).

Nuclear Reactions: +160)Gd(^{34}S,4n), E=154-172 MeV; ^{124}Sn(^{36}S, 4n), E=170 MeV; measured γγ-coin, γ-multiplicity. ^{152}Dy, ^{190}Hg deduced superdeformed band level entry, feeding spin features.

90Li32 *Band Crossing in the Superdeformed Band of ^{146}Gd*

R. M. Lieder , Nucl. Phys. A520, 59c (1990).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=175 MeV; measured γ-multiplicity, DSA, Iγ. ^{146}Gd deduced levels, superdeformed band structure, Nilsson assignments.

90Mo16 *Lifetime Measurements in the Superdeformed Band of ^{190}Hg*

E. F. Moore, R. V. F. Janssens, I. Ahmad, M. P. Carpenter, P. B. Fernandez, T. L. Khoo, S. L. Ridley, F. L. H. Wolfs, D. Ye, K. B. Beard, U. Garg, M. W. Drigert, Ph. Benet, P. J. Daly, R. Wyss, W. Nazarewicz , Phys. Rev. Lett. 64, 3127 (1990).

Nuclear Reactions: +160)Gd(^{34}S,4n), E=159 MeV; measured γγ-coin, DSA. ^{190}Hg deduced levels, $T_{1/2}$, B(E2), transition quadrupole moment, J, π, superdeformed band structure.

90MoZS *Population of Superdeformed States and Competition with Fission*

E. F. Moore, R. V. F. Janssens, T. L. Khoo, I. Ahmad, M. P. Carpenter, R. R. Chasman, F. L. H. Wolfs, K. B. Beard, D. Ye, U. Garg, Ph. Benet, P. J. Daly, Z. W. Grabowski, M. W. Drigert, Bull. Am. Phys. Soc. 35, No. 8, 1657, BC 9 (1990)

Nuclear Reactions: +160)Gd(^{36}S,4n), E=154-172 MeV; measured not given. ^{192}Hg deduced normal level, superdeformed states entry point comparison.

90MuZY *A Superdeformed Band in ^{146}Eu*

S. M. Mullins, P. Fallon, S. A. Forbes, Y. -J. He, M. S. Metcalfe, P. J. Nolan, E. S. Paul, P. H. Regan, R. Wadsworth, Daresbury Lab., 1989-1990 Ann. Rept., Appendix, p. 37 (1990).

Nuclear Reactions: +110)Pd(^{37}Cl,5n), E=160 MeV; measured γγ-coin. ^{142}Eu deduced superdeformed band structure.

90Ri05 Multiple Superdeformed Bands in ^{194}Hg and Their Dynamical Moments of Inertia

M. A. Riley, D. M. Cullen, A. Alderson, I. Ali, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, R. Poynter, R. Wadsworth, M. A. Bentley, A. M. Bruce, J. Simpson, G. Sletten, W. Nazarewicz, T. Bengtsson, R. Wyss, Nucl. Phys. A512, 178 (1990).

Nuclear Reactions: +150)Nd(^{48}Ca,4n), E=205 MeV; measured Eγ, Iγ, γγ-coin. ^{194}Hg deduced levels, J, π, rotational, superdeformed band characteristics. Enriched targets, Ge detectors, array of anti-Compton spectrometers, 4π bismuth germanate ball. Cranked Woods-Saxon and Nilsson model calculations.

90Sc31 *The Population of Superdeformed Bands in the A = 150 Region by Compound Reactions*

K. Schiffer, B. Herskind, Nucl. Phys. A520, 521c (1990).

Nuclear Reactions: +124)Sn(^{30}Si,4n), ^{130}Sn(^{34}S,4n), E not given; ^{108}Pd(^{48}Ca,4n), E=185-205 MeV; analyzed data; deduced superdeformed band population mechanism.

90St12 *Spin Alignment in Superdeformed Hg Nuclei*

F. S. Stephens, M. A. Deleplanque, J. E. Draper, R. M. Diamond, C. W. Beausang, W. Korten, W. H. Kelly, F. Azaiez, J. A. Becker, E. A. Henry, N. Roy, M. J. Brinkman, J. A. Cizewski, S. W. Yates, A. Kuhnert, Phys. Rev. Lett. 64, 2623 (1990).

Radioactivity: ^{192}, ^{194}Hg; analyzed spectra; deduced superdeformed band spin alignment.

90Th01 *Superdeformation in ^{194}Pb*

K. Theine, F. Hannachi, P. Willsau, H. Hubel, D. Mehta, W. Schmitz, C. X. Yang, D. B. Fossan, H. Grawe, H. Kluge, K. H. Maier, Z. Phys. A336, 113 (1990).

Nuclear Reactions: +158)Gd(^{40}Ar,4n), E=180, 188 MeV; measured γγ-coin. ^{194}Pb deduced levels, J, π, superdeformed band structure, dynamic moment of inertia.

90Tw02 *Superdeformation - An Experimental Overview*

P. J. Twin, Nucl. Phys. A520, 17c (1990).

Compilation: A=152; compiled, reviewed data on superdeformation.

90Wa24 *Studies in Superdeformation at Chalk River*

D. Ward, Nucl. Phys. A520, 139c (1990).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=155 MeV; ^{124}Sn(^{31}P, 5n), E=156 MeV; ^{108}Pd(^{36}S,2p), (^{36}S, 2n), E=155 MeV; compiled γγ-coin data. ^{149}Gd, ^{150}Tb deduced band structure, deformation, superdeformation features. 8π spectrometer.

90Ye01 *Superdeformed Band in ^{192}Hg*

D. Ye, R. V. F. Janssens, M. P. Carpenter, E. F. Moore, R. R. Chasman, I. Ahmad, K. B. Beard, Ph. Benet, M. W. Drigert, P. B. Fernandez, U. Garg, T. L. Khoo, S. L. Ridley, F. L. H. Wolfs, Phys. Rev. C41, R13 (1990).

Nuclear Reactions: +160)Gd(^{36}S,4n), E=162 MeV; measured γγ-coin. ^{192}Hg deduced levels, J, π, superdeformed band structure.

90Zu02 *Superdeformed Bands in $^{147}_{64}$Gd$_{83}$, a Possible Test of the Existence of Octupole Correlations in Superdeformed Bands*

K. Zuber, D. Balouka, F. A. Beck, Th. Byrski, D. Curien, G. Duchene, C. Gehringer, B. Haas, J. C. Merdinger, P. Romain, D. Santos, J. Styczen, J. P. Vivien, J. Dudek, Z. Szymanski, T. Werner, Nucl. Phys. A520, 195c (1990).

Nuclear Reactions: +122)Sn(^{30}Si,5n), E=155 MeV; measured Eγ, Iγ. ^{147}Gd deduced levels, superdeformed band structure.

91Az03 *Six 'Identical' Superdeformed Bands in ^{194}Tl*

F. Azaiez, W. H. Kelly, W. Korten, F. S. Stephens, M. A. Deleplanque, R. M. Diamond, A. O. Macchiavelli, J. E. Draper, E. C. Rubel, C. W. Beausang, J. Burde, J. A. Becker, E. A. Henry, S. W. Yates, M. J. Brinkman, A. Kuhnert, T. F. Wang, Phys. Rev. Lett. 66, 1030 (1991).

Nuclear Reactions: +181)Ta(^{18}O,4n), (^{18}O,5n), (^{18}O, 6n), E=95, 100, 104 MeV; measured γγγ-coin. ^{194}Tl deduced levels, superdeformed bands.

91Az04 *Superdeformed Bands in ^{193}Tl*

F. Azaiez, W. H. Kelly, W. Korten, M. A. Deleplanque, F. S. Stephens, R. M. Diamond, J. E. Draper, A. O. Macchiavelli, E. Rubel, J. de Boer, M. Rohn, J. A. Becker, E. A. Henry, M. J. Brinkman, S. W. Yates, A. Kuhnert, T. F. Wang, Z. Phys. A338, 471 (1991).

Nuclear Reactions: +181)Ta(^{18}O,xn), E=95-104 MeV; ^{186}W(^{15}N; 5n), (^{15}N,6n), E=90, 95 MeV; measured γγ-coin. ^{193}Tl deduced superdeformed bands.

91Be12 *Gamma-Ray Spectroscopy of Superdeformed States in the Nucleus ^{152}Dy*

M. A. Bentley, A. Alderson, G. C. Ball, H. W. Cranmer-Gordon, P. Fallon, B. Fant, P. D. Forsyth, B. Herskind, D. Howe, C. A. Kalfas, A. R. Mokhtar, J. D. Morrison, A. H. Nelson, B. M. Nyako, K. Schiffer, J. F. Sharpey-Schafer, J. Simpson, G. Sletten, P. J. Twin, J. Phys. (London) G17, 481 (1991).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=205 MeV; measured Eγ, Iγ, γγ-coin, γγ(θ), DSA. ^{152}Dy deduced levels, J, π, superdeformed band, intrinsic $T_{1/2}$, quadrupole moment. Microscopic structure, Nilsson, Woods-Saxon models comparison, Monte Carlo simulations.

91Be48 *Very Elongated Nuclei Near A = 194*

J. A. Becker, E. A. Henry, S. W. Yates, T. F. Wang, A. Kuhnert, M. J. Brinkman, J. A. Cizewski, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, F. Azaiez, W. Korten, J. E. Draper, Nucl. Instrum. Methods Phys. Res. B56/57, 500 (1991)

Nuclear Structure: =194; ^{192}, ^{194}Hg; compiled, reviewed data; deduced new superdeformation region.

91BeZM *Entry Spin Distributions for Superdeformed and Normal States in ^{192}Hg*

Ph. Benet, T. L. Khoo, K. Beard, E. F. Moore, I. Ahmad, M. P. Carpenter, P. J. Daly, M. W. Drigert, P. B. Fernandez, U. Garg, Z. W. Grabowski, R. V. F. Janssens, S. L. Ridley, J. Winn, F. L. H. Wolfs, D. Ye, Bull. Am. Phys. Soc. 36, No. 4, 1387, M10 3 (1991)

Nuclear Reactions: +160)Gd(^{36}S,4n), E=154-172 MeV; measured not given. ^{192}Hg deduced normal, superdeformed states spin distribution.

91BrZX *A Search for Superdeformed Oblate States in ^{24}Mg*

D. Brown, A. Martinez-Davalos, K. Ioannides, W. D. M. Rae, A. E. Smith, S. J. Bennett, M. Freer, B. R. Fulton, J. T. Murgatroyd, G. J. Gyapong, N. S. Jarvis, C. D. Jones, D. L. Watson, Daresbury Lab., 1990-1991 Ann. Rept., Appendix, p. 67 (1991).

Nuclear Reactions: +10)B(^{28}Si,^{24}Mg), E not given; measured (particle)(particle)-coin total energy spectra following ejectile breakup, search for superdeformation evidence.

91CuZY *^{192}, ^{193}Hg Superdeformation Population with Light Ion Beams*

D. M. Cullen, M. A. Riley, I. Ali, C. W. Beausang, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, J. F. Sharpey-Schafer, G. Smith, R. J. Poynter, R. Wadsworth , Daresbury Lab. , 1990-1991 Ann. Rept. , Appendix, p. 41 (1991).

Nuclear Reactions: +186)W(^{13}C,6n), E=92 MeV; ^{186}W(^{13}C, 7n), E=105 MeV; measured γγ-energy correlations. ^{160}Gd(^{36}S,4n), E=162 MeV; measured not given. ^{192}, ^{193}Hg deduced levels, J, π, superdeformed bands.

91Dr04 *Superdeformed Bands in ^{189}, ^{190}Hg*

M. W. Drigert, M. P. Carpenter, R. V. F. Janssens, E. F. Moore, I. Ahmad, P. B. Fernandez, T. L. Khoo, F. L. H. Wolfs, I. G. Bearden, Ph. Benet, P. J. Daly, U. Garg, W. Reviol, D. Ye, R. Wyss , Nucl. Phys. A530, 452 (1991).

Nuclear Reactions: +160)Gd(^{34}S,xn), E=159, 162 MeV; measured Eγ, Iγ, γγ-coin, DSA. ^{189}, ^{190}Hg deduced levels, J, π, $T_{1/2}$, superdeformed band characteristics. Enriched targets, Ge detectors, array of anti-Compton spectrometers, 4π bismuth germanate ball. Cranked Woods-Saxon model calculations.

91Fa07 *The Collectivity and the De-Excitation of the Yrast Superdeformed Band in ^{150}Gd*

P. Fallon, A. Alderson, I. Ali, D. M. Cullen, P. D. Forsyth M. A. Riley, J. W. Roberts, J. F. Sharpey-Schafer, P. J. Twin, M. A. Bentley, A. M. Bruce , Phys. Lett. 257B, 269 (1991).

Nuclear Reactions: +130)Te(^{26}Mg,6n), E=145 MeV; measured γγ-coin spectra, DSA. ^{150}Gd deduced levels, J, π, deformation, superdeformation, band structure, quadrupole moment.

91FaZY *An Experiment to Search for Superdeformation in ^{195}Pb*

P. Fallon, C. W. Beausang, P. Butler, N. Clarkson, D. M. Cullen, F. Hanna, T. Hoare, S. M. Mullins, M. A. Riley, J. W. Roberts, G. Smith, R. Wadsworth, R. J. Poynter, M. A. Bentley, A. M. Bruce, J. Simpson, B. Cederwall, B. Fant, L. O. Norlin , Daresbury Lab. , 1990-1991 Ann. Rept. , Appendix, p. 45 (1991).

Nuclear Reactions: +164)Dy(^{36}S,5n), E=165 MeV; measured γγ-energy correlation. ^{195}Pb deduced no superdeformation evidence.

91HaZY *Rotational Bands in the Odd-Odd ^{132}Pr Nucleus*

C. V. Hampton, A. Rios, R. M. Ronningen, W. A. Olivier, Wm. C. McHarris , Bull. Am. Phys. Soc. 36, No. 4, 1361, K10 6 (1991)

Nuclear Reactions: +100)Mo(^{37}Cl,5n), E=160 MeV; measured γγγ-coin spectra. ^{132}Pr deduced transitions, possible superdeformation.

91He11 *Observation of Superdeformed Band in ^{192}Pb*

E. A. Henry, A. Kuhnert, J. A. Becker, M. J. Brinkman, T. F. Wang, J. A. Cizewski, W. Korten, F. Azaiez, M. A. Deleplanque, R. M. Diamond, J. E. Draper, W. H. Kelly, A. O. Macchiavelli, F. S. Stephens , Z. Phys. A338, 469 (1991).

Nuclear Reactions: +173)Yb(^{24}Mg,5n), E=128, 132 MeV; measured γγ-coin. ^{192}Pb deduced levels, J, π, superdeformed band dynamic moment of inertia.

91JaAA

Ann. Rev. Nucl. Part. Sci. 41, 321(1991) (review article) abstract unavailable.

91KuZT *Superdeformed Band in ^{194}Pb*

A. Kuhnert, J. A. Becker, E. A. Henry, S. W. Yates, T. F. Wang, M. J. Brinkman, J. A. Cizewski, R. M. Diamond, M. A. Deleplanque, F. S. Stephens, C. W. Beausang, A. O. Macchiavelli, W. H. Kelly, W. Korten, F. Azaiez, J. E. Draper, E. Rubel , Bull. Am. Phys. Soc. 36, No. 4, 1368, M10 6 (1991)

Nuclear Reactions: +176)Yb(^{24}Mg,4n), (^{26}Mg,6n), E not given; measured not given. ^{194}Pb deduced levels, superdeformed band structure.

91Mo11 *K X-Ray Yields Associated with the Superdeformed Band of ^{192}Hg*

E. F. Moore, R. V. F. Janssens, I. Ahmad, M. P. Carpenter, A. M. Baxter, M. E. Bleich, P. B. Fernandez, T. Lauritsen, T. L. Khoo, I. G. Bearden, Ph. Benet, P. J. Daly, U. Garg, W. Reviol, D. Ye , Phys. Lett. 258B, 284 (1991).

Nuclear Reactions: +160)Gd(^{36}S,4n), E=159 MeV; measured γ-, X-ray spectra, γ(X-ray)-coin, X-ray yields. ^{192}Hg; deduced no strong superdeformed band E0 decay.

91Mu08 *Superdeformation and Double Blocking in ^{142}Eu*

S. M. Mullins, R. A. Wyss, P. Fallon, T. Byrski, D. Curien, S. A. Forbes, Y. -J. He, M. S. Metcalfe, P. J. Nolan, E. S. Paul, R. J. Poynter, P. H. Regan, R. Wadsworth , Phys. Rev. Lett. 66, 1677 (1991).

Nuclear Reactions: +110)Pd(^{37}Cl,5n), E=160 MeV; measured γγ-coin sum spectra. ^{142}Eu deduced levels, superdeformed band.

91Rz01 *Excited Superdeformed Band in ^{146}Gd*

T. Rzaca-Urban, K. Strahle, G. Hebbinghaus, D. Balabanski, W. Gast, R. M. Lieder, H. Schnare, W. Urban, P. von Brentano, A. Dewald, J. Eberth, E. Ott, J. Theuerkauf, H. Wolters, K. O. Zell, D. Alber, K. H. Maier, E. M. Beck, H. Hubel, W. Schmitz , Z. Phys. A339, 421 (1991).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=175 MeV; measured γγ-coin, summed spectra. ^{146}Gd deduced superdeformed band.

91RzZZ *Search for Superdeformation in ^{145}Gd*

T. Rzaca-Urban, R. M. Lieder, K. Strahle, D. Balabanski, W. Gast, A. Georgiev, H. Schnare, M. Binderberger, M. Eschenauer, S. Freund, E. Ott, J. Theuerkauf, H. Wolters, K. O. Zell, J. Eberth, P. von Brentano, K. H. Maier, H. Grawe, C. Bach, R. Schubart , KFA-IKP Ann. Rept. , 1990, p. 23 (1991).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), (^{40}Ar,5n), E=189, 200 MeV; measured Eγ, Iγ, γ-multiplicity, DSA. ^{145}, ^{146}Gd deduced superdeformed bands.

91ThZY *Nuclear Dissipation and the Feeding of Superdeformed Bands*

M. Thoennessen, J. R. Beene, F. E. Bertrand, C. Baktash, M. L. Halbert, D. J. Horen, D. C. Hensley, R. L. Varner, D. G. Sarantites, D. W. Stracener, W. Spang , Bull. Am. Phys. Soc. 36, No. 4, 1271, C11 9 (1991)

Nuclear Reactions: +159)Tb(^{16}O,X), E not given; measured γ(fission fragment)-coin following fusion. ^{175}Ta deduced GDR decay features, feeding of superdeformed bands.

91Tw01 *Superdeformed Nuclei at High Spin*

P. J. Twin , Nucl. Phys. A522, 13c (1991).

Nuclear Structure: +152)Dy, ^{151}Tb, ^{150}Gd, ^{152}Eu; analyzed data; deduced superdeformed band evidence. Other data reviewed.

91Wa14 *Superdeformation in ^{197}, ^{198}Pb*

T. F. Wang, A. Kuhnert, J. A. Becker, E. A. Henry, S. W. Yates, M. J. Brinkman, J. A. Cizewski, F. A. Azaiez, M. A. Deleplanque, R. M. Diamond, J. E. Draper, W. H. Kelly, W. Korten, A. O. Macchiavelli, E. Rubel, F. S. Stephens , Phys. Rev. C43, R2465 (1991).

Nuclear Reactions: +154)Sm(^{48}Ca,xn), E=205 MeV; ^{176}Yb(^{26}Mg, xn), E=135 MeV; measured γγ-coin. ^{197}, ^{198}Pb deduced levels, superdeformed band features. Other isotopes discussed.

91Wa24 *Comment on ' Landau-Zener Crossing in Superdeformed ^{193}Hg: Evidence for octupole correlations in superdeformed nuclei '*

P. M. Walker , Phys. Rev. Lett. 67, 1174 (1991).

Nuclear Structure: +193)Hg; analyzed data; deduced octupole correlations role in superdeformed states.

91WaZV *A Superdeformed (SD) Band in ^{198}Pb*

T. F. Wang, J. A. Becker, E. A. Henry, A. Kuhnert, S. W. Yates, M. J.

Brinkman, J. A. Cizewski, F. A. Azaiez, M. A. Deleplanque, R. M. Diamond, J. E. Draper, W. H. Kelly, W. Korten, A. O. Macchiavelli, E. Rubel, F. S. Stephens , Bull. Am. Phys. Soc. 36, No. 4, 1388, M10 8 (1991)

.

Nuclear Reactions: +148}Sm(^{48}Ca,xn), E=205 MeV; measured not given. ^{192}Pb deduced superdeformed band.

91Zu01 *A Comparative Study of Superdeformation in ^{146}, ^{147}, ^{148}Gd. Possible Manifestations of the Pseudo-SU$_3$ Symmetry, Octupole Shape Susceptibility and Superdeformed Deep-Hole Excitations*

K. Zuber, D. Balouka, F. A. Beck, Th. Byrski, D. Curien, G. De France, G. Duchene, C. Gehringer, B. Haas, J. C. Merdinger, P. Romain, D. Santos, J. Styczen, J. P. Vivien, J. Dudek, Z. Szymanski, T. R. Werner , Phys. Lett. 254B, 308 (1991).

Nuclear Reactions: +122}Sn(^{30}Si,5n), E=155 MeV; measured Eγ, Iγ, sum spectra. ^{147}Gd deduced levels, J, π, superdeformed band features. Model comparison.

92AtZW *Observation of the Decay Out of the Superdeformed Band in ^{143}Eu*

A. Atac, M. Piiparinen, B. Herskind, J. Nyberg, G. Sletten, G. de Angelis, R. M. Clark, S. A. Forbes, N. Gjorup, G. B. Hagemann, F. Ingebretsen, H. J. Jensen, D. Jerrestam, H. Kusakari, R. M. Lieder, G. V. Marti, S. Mullins, P. J. Nolan, E. S. Paul, P. H. Regan, D. Santonocito, H. Schnare, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth , Priv. Comm. (1992).

Nuclear Reactions: +110}Pd(^{37}Cl,4n), E=160 MeV; measured γγ-coin. ^{143}Eu deduced levels, J, π, γ-branching, superdeformed to normal band transitions.

92Be18 *Characterization of the Superdeformed Band in ^{189}Hg*

I. G. Bearden, R. V. F. Janssens, M. P. Carpenter, E. F. Moore, I. Ahmad, A. M. Baxter, Ph. Benet, P. J. Daly, M. W. Drigert, P. B. Fernandez, U. Garg, Z. W. Grabowski, T. L. Khoo, T. Lauritsen, W. Reviol, D. Ye , Z. Phys. A341, 491 (1992).

Nuclear Reactions: +160}Gd(^{34}S,5n), E=165 MeV; measured γγ-coin. ^{189}Hg deduced superdeformed band, levels, J, π.

92BeZL *Higher Superdeformed Band Members in ^{190}Hg: Evidence for a band interaction (Question)*

I. G. Bearden, R. V. F. Janssens, M. P. Carpenter, I. Ahmad, P. J. Daly, M. W. Drigert, U. Garg, T. L. Khoo, T. Lauritsen, Y. Liang, W. Reviol, R. Wyss , Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 10 (1992); AECL-10613 (1992)

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Nuclear Reactions: +160}Gd(^{34}S,4n), E=159-165 MeV; measured γγ-coin, γ-multiplicity. ^{190}Hg deduced superdeformed band, dynamic moment of inertia, band interaction evidence.

92BeZR *Entrance Channel Effects and the Superdeformed Band in ^{152}Dy*

C. W. Beausang, A. Alderson, I. Ali, M. A. Bentley, P. J. Dagnall, G. de France, P. Fallon, S. Flibotte, P. D. Forsyth, B. Haas, P. Romain, G. Smith, P. J. Twin, J. P. Vivien , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 66 (1992); AECL-10613 (1992)

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92BeZT *Feeding of the Superdeformed Band in ^{192}Hg. The mechanism and Constraints on the superdeformed band energies and well depth*

Ph. Benet, T. Lauritsen, T. L. Khoo, I. Ahmad, K. Beard, I. G. Bearden, M. P. Carpenter, P. Daly, M. W. Drigert, P. B. Fernandez, U. Garg, R. V. F. Janssens, Y. Liang, E. F. Moore, W. Reviol, D. Ye , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 54 (1992); AECL-10613 (1992)

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Nuclear Reactions: +160}Gd(^{36}S,4n), E=154, 167 MeV; measured transition Iγ, quasicontinuum γ-spectra. ^{192}Hg deduced superdeformed band, feeding mechanism. Model comparison.

92BeZV *Shape Coexistence to High Spin in ^{188}Hg*

I. G. Bearden, M. P. Carpenter, A. M. Baxter, R. V. F. Janssens, I. Ahmad, Ph. Benet, P. J. Daly, M. W. Drigert, P. B. Fernandez, B. Fornal, U. Garg, Z. W. Grabowski, T. L. Khoo, R. M. Mayer, E. F. Moore, W. Reviol, D. Ye , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 18 (1992); AECL-10613 (1992)

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Nuclear Reactions: +156}Gd(^{36}S,4n), E=167 MeV; measured γγ-coin. ^{188}Hg deduced levels, J, π, band structure, shape features, no superdeformation evidence.

92BlZZ *Search for Low Spin Superdeformed States by Transfer Reaction*

J. Blons, D. Goutte, A. Lepretre, R. Lucas, V. Meot, D. Paya, X. H. Phan, G. Barreau, T. Doan, G. Pedemay , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 57 (1992); AECL-10613 (1992)

.

Nuclear Reactions: +236}U(^{16}O,^{16}O), E=9 MeV/nucleon; ^{196}Pt (^{16}O,^{14}C), E not given; measured γ sum spectra, γ(particle)-coin. ^{194}Hg deduced superdeformed band population.

92BrZY *Shape Coexistence in ^{194}Pb*

M. J. Brinkman, A. Kuhnert, M. A. Stoyer, J. A. Becker, E. A. Henry, T. F. Wang, J. A. Cizewski, R. M. Diamond, F. S. Stephens, M. A. Deleplanque, J. E. Draper , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 71 (1992); AECL-10613 (1992)

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Nuclear Reactions: +176}Yb(^{24}Mg,6n), E=132, 134 MeV; ^{150}Sm(^{48}Ca, 4n), E=205 MeV; ^{124}Sn(^{73}Ge,3n), E=305 MeV; analyzed data. ^{194}Pb deduced superdeformed, near-oblate collective states interplay.

92ClZZ *Identical Bands and Quantized Alignment in Superdeformed A = 194 Nuclei: Evidence for a new kind of rotor*

J. A. Cizewski, J. A. Becker, E. A. Henry, M. J. Brinkman, T. F. Wang, A. Kuhnert, F. S. Stephens, M. A. Deleplanque, R. M. Diamond, F. Azaiez, A. O. Macchiavelli, J. E. Draper , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 68 (1992); AECL-10613 (1992)

.

Nuclear Structure: =194; analyzed data; deduced superdeformed, identical band features. Spin-rotor framework.

92DeZV *Search for Transitions Deexciting the Superdeformed Band in ^{192}Hg*

M. A. Deleplanque, F. S. Stephens, R. M. Diamond, J. R. B. Oliveira, J. Burde, J. E. Draper, E. Rubel, C. Duyar, J. A. Becker, E. A. Henry, M. J. Brinkman, A. Kuhnert, T. F. Wang, M. A. Stoyer , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 79 (1992); AECL-10613 (1992)

.

Nuclear Reactions: +176}Yb(^{22}Ne,6n), E=125, 130 MeV; measured γγ-coin. ^{192}Hg deduced superdeformed band transition intensity features.

92Fl02 *Entrance-Channel Effects in the Population of Superdeformed Bands in ^{147}, ^{148}Gd*

S. Flibotte, H. R. Andrews, T. E. Drake, A. Galindo-Uribarri, B. Haas, V. J. Janzen, D. Prevost, D. C. Radford, J. Rodriguez, P. Romain, J. P. Vivien, J. C. Waddington, D. Ward, G. Zwartz , Phys. Rev. C45, R889 (1992).

Nuclear Reactions: +124}Sn(^{30}Si,xn), ^{122}Sn(^{30}Si,xn), E=155 MeV; ^{76}Ge(^{76}Ge,xn), E=319 MeV; measured Eγ, Iγ, γγ-coin. ^{147}, ^{148}Gd deduced superdeformed bands polulation intensity. Enriched targets, Compton-suppressed hyperpure Ge array.

92Fl03 *Multidimensional Analysis of High Resolution γ-Ray Data*

S. Flibotte, U. J. Huttmeier, P. Bednarczyk, G. de France, B. Haas, P. Romain, Ch. Theisen, J. P. Vivien, J. Zen , Nucl. Instrum. Methods Phys. Res. A320, 325 (1992)

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Nuclear Structure: +149}Gd; analyzed superdeformed band γ-transition data; deduced transitions for use in Monte Carlo simulation. Multi-dimensional analysis, algorithm development.

92FoZX *Lifetime Measurements on Superdeformed Bands in ^{132}Nd and ^{143}Eu*

S. A. Forbes, S. M. Mullins, P. J. Nolan, E. S. Paul, R. M. Clarke, P.

H. Regan, R. Wadsworth, A. Atac, G. B. Hagemann, B. Herskind, J. Nyberg, M. J. Piiparinen, A. Dewald, G. Boehm, R. Kruecken, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 65 (1992); AECL-10613 (1992)

Nuclear Reactions: +110}Pd(^{37}Cl,4n), E=160 MeV; measured γγ-coin, DSA. ^{108}Pd(^{36}S,2n2p), E=150 MeV; measured γγ-coin. ^{143}Eu deduced superdeformed band states $T_{1/2}$, deformation. ^{139}Nd deduced superdeformed band states $T_{1/2}$.

92GaZX *New Features in the Spectrum of ^{152}Dy: Evidence for hyperdeformation (Question)*

A. Galindo-Uribarri, H. R. Andrews, G. C. Ball, T. E. Drake, G. Hackmann, V. P. Janzen, S. M. Mullins, L. Persson, D. C. Radford, J. C. Waddington, D. Ward, R. Wyss, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 16 (1992); AECL-10613 (1992)

Nuclear Reactions: +120}Sn(^{37}Cl,4np), E not given; measured γγ(particle)-coin, proton gated Eγ-Eγ correlation. ^{152}Dy deduced superdeformed ridge, other ridges. Discussion of hyperdeformation evidence.

92Ha35 *Nuclear Superdeformation Data Tables*

X. -L. Han, C. -L. Wu, At. Data Nucl. Data Tables 52, 43 (1992).

Compilation: A=130, 150, 190; compiled Iγ for transitions in superdeformed bands.

92HaZR *Studies of Superdeformation in the A = 150 Region*

B. Haas, V. P. Janzen, D. Ward, H. R. Andrews, D. C. Radford, D. Prevost, J. A. Kuehner, A. Omar, J. C. Waddington, T. E. Drake, A. Galindo-Uribarri, G. Zwartz, S. Flibotte, P. Taras, I. Ragnarsson, TASCC-P-92-11 (1992).

Nuclear Reactions: +124}, ^{122}, ^{120}Sn(^{30}Si,xn), (^{29}Si, xn), (^{28}Si,xn), E=155 MeV; measured Eγ, Iγ, γγ-coin, DCO ratios. ^{148}, ^{146}, ^{147}, ^{148}, ^{146}Gd deduced levels, J, π, superdeformed bands, γ-ray multiplicities, total γ-ray sum energy. Compton-suppressed hyperpure Ge detector array, 4π-bismuth germanate ball. Cranked shell-model-Strutinski calculations.

92HaZT *Recent Results and Future Prospects Along the N = Z Line with Radioactive Nuclear Beams and RMS*

J. H. Hamilton, A. V. Ramayya, Contrib. 6th Intern. Conf. on Nuclei Far from Stability + 9th Intern. Conf. on Atomic Masses and Fundamental Constants, Bernkastel-Kues, Germany, PE10 (1992)

Nuclear Structure: +72}, ^{74}, ^{76}Kr; reviewed, analyzed data. ^{88}Ru; analyzed band structure; deduced low spin superdeformation. Nuclei along N=Z line.

92HaZX *A Superdeformed Rotational Band in ^{142}Sm*

G. S. Hackman, A. Galindo-Uribarri, V. P. Janzen, S. M. Mullins, D. Prevost, D. C. Radford, J. C. Waddington, D. Ward, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 81 (1992); AECL-10613 (1992)

Nuclear Reactions: +124}Sn(^{24}Mg,6n), E=145 MeV; measured γ-multiplicity, total sum energy. ^{142}Sm deduced levels, J, π, dynamical moment of inertia, superdeformed rotational band.

92HaZY *Study of the Superdeformed Band in ^{194}Pb with Eurogam*

F. Hannachi, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 67 (1992); AECL-10613 (1992)

Nuclear Reactions: +164}, ^{160}Dy(^{36}S,X), (^{34}S,X), E=157-162 MeV; measured γγγ-coin, DSA. ^{194}Pb deduced superdeformed band states $T_{1/2}$, decay features.

92HeZM *Superdeformation in the A = 190 Region: The lead nuclei*

E. A. Henry, J. A. Becker, M. J. Brinkman, A. Kuhnert, M. A. Stoyer, T. F. Wang, S. W. Yates, F. A. Azaiez, C. W. Beausang, J. Burde, M. A. Deleplanque, R. M. Diamond, J. E. Draper, W. H. Kelly, W. Korten, A. O. Macchiavelli, J. Oliveira, E. Rubel, F. S. Stephens, J. A. Cizewski, Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 15 (1992); AECL-10613 (1992)

Nuclear Reactions: +176}Yb(^{26}Mg,6n), E=138 MeV; measured γγ-coin. ^{196}Pb deduced new levels in superdeformed band. ^{154}Sm(^{48}Ca,X), E=205, 210 MeV; ^{176}Yb(^{24}Mg, xn), E=129-134 MeV; ^{176}Yb(^{25}Mg,xn), E=130, 135 MeV; measured not given. ^{197}, ^{198}, ^{199}Pb deduced no superdeformed bands.

Nuclear Structure: +192}, ^{194}, ^{196}Pb; analyzed superdeformed band data.

92KoZX *New Results on the Superdeformed Band in ^{194}Pb*

W. Korten, M. J. Piiparinen, A. Atac, R. A. Bark, B. Herskind, T. Ramsoy, G. Sletten, J. Gerl, H. Hubel, P. Willsau, B. Cederwall, L. O. Norlin, B. Fant, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 58 (1992); AECL-10613 (1992)

Nuclear Reactions: +164}Dy(^{34}S,4n), E=160 MeV; measured γγ-coin. ^{194}Pb deduced superdeformed band origin uncertainities.

92La07 *Dynamic Moment of Inertia of the ^{192}Hg Superdeformed Band at High Rotational Frequencies*

T. Lauritsen, R. V. F. Janssens, M. P. Carpenter, E. F. Moore, I. Ahmad, P. B. Fernandez, T. L. Khoo, J. A. Kuehner, D. Prevost, J. C. Waddington, U. Garg, W. Reviol, D. Ye, M. W. Drigert, Phys. Lett. 279B, 239 (1992).

Nuclear Reactions: +160}Gd(^{36}S,4n), E=154-167 MeV; measured γγ-coin. ^{192}Hg deduced superdeformed states, relative Iγ, increasing dynamic moment of inertia.

92La19 *Feeding of Superdeformed Bands: The mechanism and constraints on band energies and the well depth*

T. Lauritsen, Ph. Benet, T. L. Khoo, K. B. Beard, I. Ahmad, M. P. Carpenter, P. J. Daly, M. W. Drigert, U. Garg, P. B. Fernandez, R. V. F. Janssens, E. F. Moore, F. L. H. Wolfs, D. Ye, Phys. Rev. Lett. 69, 2479 (1992).

Nuclear Reactions: +160}Gd(^{36}S,4n), E=159 MeV; measured γγ-coin. ^{192}Hg deduced superdeformed band feeding, entry distribution features.

92LaZS *Search for Long-Lived Fissioning Isomers in Superdeformed High-Spin Nuclei Around ^{152}Dy and ^{190}Hg*

Yu. A. Lazarev, Yu. Ts. Oganessian, I. V. Shirokovsky, S. P. Tretyakova, V. K. Utyonkov, Contrib. 6th Intern. Conf. on Nuclei Far from Stability + 9th Intern. Conf. on Atomic Masses and Fundamental Constants, Bernkastel-Kues, Germany, PE46 (1992)

Nuclear Reactions: +116}Cd(^{40}Ar,X), E=203 MeV; measured not given; deduced no fragment delayed fission evidence, σ upper limit. ^{152}Dy deduced superdeformed rotational band population. ^{154}Sm(^{40}Ar,X), E=219 MeV; measured not given; deduced no fragment delayed fission evidence, σ upper limit.

92LaZT *Calculations of the Decay of Superdeformed Bands and Search for the γ Rays Connecting Superdeformed and Normal States*

T. Lauritsen, T. L. Khoo, E. F. Moore, I. Ahmad, M. P. Carpenter, P. Fernandez, R. V. F. Janssens, Y. Liang, M. Freer, A. Wuosmaa, P. Benet, I. Bearden, P. J. Daly, B. Fornal, D. Ye, U. Garg, M. W. Drigert, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 53 (1992); AECL-10613 (1992)

Nuclear Structure: =150, 190; analyzed superdeformed bands decay; deduced mixing into normal states role.

92LeZS *Lifetimes of the Low Spin States in the Superdeformed Band of ^{192}Hg*

I. Y. Lee, C. Baktash, D. Cullen, J. D. Garrett, N. R. Johnson, F. K. McGowan, D. F. Winchell, C. H. Yu, Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 21 (1992); AECL-10613 (1992)

Nuclear Reactions: +160}Gd(^{36}S,4n), E=159 MeV; measured γγ-coin, recoil distance. ^{192}Hg deduced superdeformed band levels $T_{1/2}$.

92Li21 *Double Blocking in the Superdeformed ^{192}Tl Nucleus*

Y. Liang, M. P. Carpenter, R. V. F. Janssens, I. Ahmad, R. G. Henry, T. L. Khoo, T. Lauritsen, F. Soramel, S. Pilotte, J. M. Lewis, L. L. Riedinger, C. -H. Yu, U. Garg, W. Reviol, I. G. Bearden , Phys. Rev. C46, R2136 (1992).

Nuclear Reactions: +160)Gd(^{37}Cl,5n), E=178, 181 MeV; measured Eγ, Iγ, γγ(θ). ^{192}Tl deduced levels, J, π, band structures, moments of inertia. Cranked shell model.

92LiZU

Y. Liang, M. P. Carpenter, R. V. F. Janssens, I. Ahmad, R. Henry, T. L. Khoo, T. Lauritsen, S. Pilotte, J. M. Lewis, L. L. Riedinger, C. -H. Yu, U. Garg, W. Reviol, I. G. Bearden , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 56 (1992); AECL-10613 (1992)

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Nuclear Reactions: +160)Gd(^{37}Cl,5n), E=187 MeV; measured γ-spectra. ^{192}Tl deduced several superdeformed band pairs.

92MaZP *Search for Superdeformation in ^{190}Au*

G. Marti, W. Gast, A. Georgiev, D. Kutchin, R. M. Lieder, K. Strahle, H. Maier, J. Heese , KFA-IKP Ann. Rept. , 1991, p. 100 (1992).

Nuclear Reactions: +176)Yb(^{19}F,4n), (^{19}F,5n), (^{19}F, 6n), E=107 MeV; measured Eγ, γγ-energy correlation. ^{190}Au deduced weak ridge structure. Discussed superdeformation aspects.

92Mu10 *Study of Superdeformed Bands in Nuclei with A 150 by Heavy-Ion-γ Coincidences*

L. Muller, F. Soramel, E. Adamides, S. Beghini, L. Corradi, G. LoBianco, B. Million, N. Molho, H. Moreno, D. R. Napoli, G. F. Prete, F. Scarlassara, G. F. Segato, S. Signorelli, C. Signorini, P. Spolaore, A. M. Stefanini , Z. Phys. A341, 131 (1992).

Nuclear Reactions: CPND ^{124}Sn(^{32}S,5n), (^{32}S,4np), (^{32}S, 6n), (^{32}S,5np), (^{32}S,7n), (^{32}S,6np), (^{32}S,5n2p), (^{32}S,7n2p), (^{32}S,5nα), E=160, 170 MeV; measured γ(evaporation residue)-coin; deduced residue relative production σ. ^{152}, ^{151}Dy, ^{151}Tb deduced superdeformed bands.

92PaZW *Highly-Deformed Bands in the Mass 130 Region*

E. S. Paul , Proc. Int. Conf. Future Directions in Nuclear Physics with 4π Gamma Detection Systems of the New Generation, Strasbourg, France (1991), J. Dudek, B. Haas, Eds. , American Institute of Physics, New York, p. 165 (1992).

Compilation: ^{130}, ^{135}, ^{137}Sm, ^{135}Gd, ^{142}Eu, ^{133}, ^{134}, ^{135}, ^{136}, ^{137}Nd, ^{134}Pr, ^{131}, ^{132}, ^{133}, ^{134}Ce, ^{130}La; compiled, reviewed superdeformed, intruder bands, $T_{1/2}$ data; deduced dominated configuration.

92PaZX *Intensity of K X-Rays in Coincidence with Superdeformed Band in ^{143}Eu*

M. Palacz, Z. Sujkowski, J. Bacelar, A. Atac, B. Herskind, J. Nyberg, M. Piiparinen, G. de Angelis, S. Forbes, N. Gjorup, G. Hagemann, F. Ingebretsen, H. Jensen, D. Jerrestam, H. Kusakari, R. Lieder, G. M. Marti, S. Mullins, D. Santonocito, H. Schnare, G. Sletten, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth , KVI 1991 Ann. Rept. , p. 31 (1992).

Nuclear Structure: +142), ^{143}Eu; analyzed data; deduced evidence for enhanced X-ray yields for coincidence with superdeformed band transitions.

92PiZR *Superdeformation in ^{191}Tl*

S. Pilotte, J. M. Lewis, L. L. Riedinger, C. -H. Yu, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, Y. Liang, F. Soramel, I. G. Bearden , Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 2 (1992); AECL-10613 (1992)

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Nuclear Reactions: +159)Tb(^{36}S,4n), E=165 MeV; measured Eγ, Iγ, γγ-coin. ^{191}Tl deduced levels, J, π, band structure, superdeformation. Enriched target. Compton-suppressed Ge detector array, BGO array. Cranked shell model.

92Re05 *Measurement of the Intrinsic Quadrupole Moments in the $vi_{13/2}$ Bands of ^{135}, ^{137}Sm*

P. H. Regan, R. Wadsworth, S. M. Mullins, J. Nyberg, A. Atac, S. A. Forbes, D. B. Fossan, Y. -J. He, J. R. Hughes, I. Jenkins, R. Ma, M. S. Metcalfe, P. J. Nolan, E. S. Paul, R. J. Poynter, D. Santonicio, A. Virtanen, N. Xu , J. Phys. (London) G18, 847 (1992).

Nuclear Reactions: +92)Mo(^{48}Ti,n2p), E=210 MeV; ^{104}Pd(^{37}Cl, 3αp), E=168 MeV; measured γγ-coin, DSA. ^{137}Sm deduced levels, J, π, $T_{1/2}$, deformation parameter $β_2$, quadrupole moments, band structure. ^{135}Sm deduced levels, J, π, $T_{1/2}$, deformation parameter $β_2$, quadrupole moments, band structure, superdeformation features.

92RzZZ *Excited Superdeformed Band in ^{149}Gd*

T. Rzaca-Urban, K. Strahle, G. Hebbinghaus, D. Balabanski, W. Gast, R. M. Lieder, H. Schnare, W. Urban, P. von Brentano, H. Wolters, K. O. Zell, D. Alber, K. H. Maier, E. M. Beck, H. Hubel, W. Schmitz , KFA-IKP Ann. Rept. , 1991, p. 92 (1992).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), E=175 MeV; measured γγ-coin, sum spectra. ^{149}Gd deduced levels, J, π, excited superdeformed band.

92ShAA

Prog. Part. Nucl. Phys. 28, 187(1992) (review article) abstract unavailable.

92ShZR *Octupole Correlations, Spin Assignments and Identical Bands in ^{193}Hg*

J. F. Sharpey-Schafer, D. M. Cullen, M. A. Riley, A. Alderson, I. Ali, T. Bengtsson, M. A. Bentley, A. M. Bruce, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, W. Nazarewicz, R. Poynter, P. Regan, J. W. Roberts, W. Satula, J. Simpson, G. Sletten, P. J. Twin, R. Wadsworth, R. Wyss , Proc. Int. Conf. Future Directions in Nuclear Physics with 4π Gamma Detection Systems of the New Generation, Strasbourg, France (1991), J. Dudek, B. Haas, Eds. , American Institute of Physics, New York, p. 64 (1992).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=213 MeV; measured Eγ, Iγ, γγ-coin, γγ(θ). ^{193}Hg deduced levels, J, π, superdeformed band. Also discussed data on ^{191}, ^{194}Hg.

92Sm01 *Entrance-Channel Effects in the Population of Superdeformed Bands*

G. Smith, B. Haas, A. Alderson, I. Ali, C. W. Beausang, M. A. Bentley, P. Dagnall, P. Fallon, G. de France, P. D. Forsyth, U. Huttmeier, P. Romain, D. Santos, P. J. Twin, J. P. Vivien , Phys. Rev. Lett. 68, 158 (1992).

Nuclear Reactions: +74)Ge(^{82}Se,4n), E=324-346 MeV; ^{114}Pd(^{48}Ca, 4n), E=205 MeV; ^{120}Sn(^{36}S,4n), E=175 MeV; measured γγ-coin. ^{152}Dy deduced superdeformed band population entrance channel effects.

92SoZZ *Entrance-Channel Dependence in the Population of the Superdeformed Bands in ^{191}Hg (Question)*

F. Soramel, T. L. Khoo, R. V. F. Janssens, I. Ahmad, M. P. Carpenter, T. Lauritsen, Y. Liang, B. Fornal, I. Bearden, Ph. Benet, P. J. Daly, Z. W. Grabowski, R. Maier, D. Ye, U. Garg, W. Reviol, M. W. Drigert , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 52 (1992); AECL-10613 (1992)

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Nuclear Reactions: +130)Te(^{64}Ni,3n), E=259 MeV; ^{160}Gd(^{36}S, 5n), E=169 MeV; measured not given. ^{191}Hg deduced superdeformed band entrance channel dependence effects.

92StZQ *Search for Superdeformation in ^{144}, ^{146}Gd*

K. Strahle, T. Rzaca-Urban, R. M. Lieder, S. Utzelmann, D. Balabanski, B. Bochev, W. Gast, A. Georgiev, D. Kutchin, G. Marti, H. Schnare, K. Spohr, M. Binderberger, M. Eschenauer, S. Freund, E. Ott, J. Theuerkauf, H. Wolters, K. O. Zell, J. Eberth, P. von Brentano, K. H. Maier, H. Grawe, C. Bach, J. Heese, H. Kluge, M. Schramm, R. Schubarth , KFA-IKP Ann. Rept. , 1991, p. 90 (1992).

Nuclear Reactions: +110)Pd(^{40}Ar,4n), (^{40}Ar,5n), E=189 MeV; ^{108}Pd(^{40}Ar,3n), (^{40}Ar,4n), E=200 MeV; measured γγ-energy correlation, DSA. ^{144}, ^{146}Gd deduced evidence for superdeformed states.

92StZS *Superdeformation in ^{192}Pb (Question)*

M. A. Stoyer, E. A. Henry, J. A. Becker, M. J. Brinkman, A. Kuhnert, T. F. Wang, J. Burde, M. A. Deleplanque, R. M. Diamond, J. Draper, J.

Oliveira, E. Rubel, F. Stephens, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 72 (1992); AECL-10613 (1992)

Nuclear Reactions: +174)Yb(^{24}Mg,5n), (^{24}Mg,4n), (^{24}Mg, 6n), E=129, 134 MeV; measured relative σ, γγ-coin. ^{193}Pb deduced transitions, band structure, superdeformed band evidence.

92StZT *Search for Population of Superdeformed States in ^{194}Pb using ^{194}Bi β^{+}-Decay*

M. A. Stoyer, E. A. Henry, J. A. Becker, R. W. Hoff, A. Kuhnert, T. F. Wang, J. Breitenbach, M. Jarrio, J. L. Wood, Y. A. Akovali, C. R. Bingham, M. Zhang, P. Joshi, H. K. Carter, J. Kormicki, P. Mantica, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 69 (1992); AECL-10613 (1992)

Nuclear Structure: +194)Bi(β^{+}); measured Eγ, Iγ, I(ce), γγ-, γ(ce)-coin. ^{194}Pb deduced no evidence of superdeformed states. Analyzed actinide data. Deformed liquid drop model.

92StZU *Quadrupole Moment of the Excited SD Band in ^{146}Gd*

K. Strahle, T. Rzaca-Urban, G. Hebbinghaus, R. M. Lieder, D. Balabanski, W. Gast, H. Schnare, W. Urban, P. von Brentano, A. Dewald, J. Eberth, E. Ott, J. Theuerkauf, H. Wolters, K. O. Zell, D. Alber, K. H. Maier, E. M. Beck, H. Hubel, W. Schmitz, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 64 (1992); AECL-10613 (1992)

Nuclear Structure: +146)Gd; analyzed data; deduced excited superdeformed band quadrupole moment.

92StZV *Search for Superdeformation in ^{144}, ^{146}Gd*

K. Strahle, T. Rzaca-Urban, R. M. Lieder, S. Utzelmann, D. Balabanski, B. Bochev, W. Gast, A. Georgiev, D. Kutchin, G. Marti, H. Schnare, K. Spohr, M. Binderberger, M. Eschenauer, S. Freund, E. Ott, J. Theuerkauf, H. Wolters, K. O. Zell, J. Eberth, P. von Brentano, K. H. Maier, H. Grawe, C. Bach, J. Hesse, H. Kluge, M. Schramm, R. Schubarth, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 63 (1992); AECL-10613 (1992)

Nuclear Reactions: +110)Pd(^{40}Ar,xn), E=189 MeV; ^{108}Pd(^{40}Ar, xn), E=182 MeV; measured γ-spectra, sum coincidences. ^{146}Gd deduced superdeformed band.

92Vi03 *Radiation Originating from Unresolved Superdeformed States in ^{146}Gd*

J. P. Vivien, D. Balouka, B. Haas, H. R. Andrews, D. C. Radford, D. Ward, V. P. Janzen, D. Prevost, J. C. Waddington, S. Flibotte, S. Pilotte, P. Taras, A. Galindo-Uribarri, H. Kluge, S. Aberg, Phys. Lett. 278B, 407 (1992).

Nuclear Reactions: +124)Sn(^{30}Si,xn), E=155 MeV; measured correlated γγ-coincidence matrix, Iγ. ^{146}Gd deduced unresolved superdeformed states.

92WaZW *Topological Excitations and Identical Superdeformed Bands*

J. C. Waddington, R. K. Bhaduri, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 80 (1992); AECL-10613 (1992)

Nuclear Structure: +192)Hg; analyzed identical superdeformed band feautres; deduced vortices role. Topological excitations, ^{152}Dy core.

92WaZX *Feeding of the Yrast Superdeformed Band through the Superdeformed Continuum*

J. C. Waddington, J. A. Kuehner, H. R. Andrews, D. Balouka, T. Drake, S. Flibotte, A. Galindo-Uribarri, B. Haas, V. P. Janzen, J. Kluge, S. M. Mullins, S. Pilotte, D. Prevost, D. C. Radford, J. P. Vivien, D. Ward, S. Aberg, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 62 (1992); AECL-10613 (1992)

Nuclear Reactions: +124)Sn(^{30}Si,xn), E=155 MeV; measured γγγ-coin. ^{146}Gd deduced superdeformed continuum feeding of yrast superdeformed band.

92WiZS *Lifetimes of Superdeformed States in ^{194}Pb*

P. Willsau, H. Hubel, F. Azaiez, M. A. Deleplanque, R. M. Diamond, A. Macchiavelli, F. S. Stephens, H. Kluge, F. Hannachi, J. C. Bacelar, J. A. Becker, M. J. Brinkman, E. A. Henry, A. Kuhnert, T. F. Wang, J. A. Draper, E. Rubel, KVI 1991 Ann. Rept., p. 32 (1992).

Nuclear Reactions: +150)Sm(^{48}Ca,4n), E=205 MeV; measured DSA, γ-spectra. ^{194}Pb deduced superdeformed state $T_{1/2}$, transition quadrupole moment.

92WiZU *Lifetimes of Superdeformed States in ^{194}Pb*

P. Willsau, H. Hubel, F. Azaiez, M. A. Deleplanque, R. M. Diamond, W. Korten, A. O. Macchiavelli, F. S. Stephens, H. Kluge, F. Hannachi, J. C. Bacelar, J. A. Becker, M. J. Brinkman, E. A. Henry, A. Kuhnert, T. F. Wang, J. A. Draper, E. Rubel, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 82 (1992); AECL-10613 (1992)

Nuclear Reactions: +150)Sm(^{48}Ca,4n), E=205 MeV; measured γγ-coin, DSA. ^{194}Pb deduced superdeformed states $T_{1/2}$.

92YuZY *Observation of Superdeformation in ^{191}Tl*

C.-H. Yu, S. Pilotte, J. M. Lewis, L. L. Riedinger, I. Bearden, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, Y. Liang, T. Lauritsen, F. Soramel, Bull. Am. Phys. Soc. 37, No. 2, 1029, 174 (1992)

Nuclear Reactions: +159)Tb(^{36}S,4n), E=165 MeV; measured γ-multiplicity. ^{191}Tl deduced superdeformation, band structure.

92ZwZZ *Search for Superdeformed Nuclei in the A = 190 Region*

G. Zwartz, H. Andrews, M. Cromaz, T. Drake, A. Galindo-Uribarri, F. Ingebretsen, V. Janzen, S. Mullins, L. Persson, T. Porcelli, D. Prevost, D. Radford, J. Waddington, D. Ward, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 76 (1992); AECL-10613 (1992)

Nuclear Reactions: +176)Yb(^{19}F,xn), E=105, 110 MeV; ^{186}W(^{19}F, xn), E=107 MeV; measured γγ-coin. ^{186}W(^{18}O, xn), (^{18}O,xnα), E=105, 110 MeV; measured γγα-, γγn-coin. ^{190}, ^{189}Au, ^{188}, ^{189}Hg, ^{187}, ^{188} deduced levels, J, π, no superdeformed band evidence.

93At01 *Linking Transitions from the Superdeformed Band in ^{143}Eu*

A. Atac, M. Piiparinen, B. Herskind, J. Nyberg, G. Sletten, G. de Angelis, S. Forbes, N. Gjorup, G. Hagemann, F. Ingebretsen, H. Jensen, D. Jerrestam, H. Kusakari, R. M. Lieder, G. V. Marti, S. Mullins, D. Santonocito, H. Schnare, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth, Phys. Rev. Lett. 70, 1069 (1993).

Nuclear Reactions: +110)Pd(^{37}Cl,4n), E=160 MeV; measured γγγ, higher fold-coin, Eγ, Iγ. ^{143}Eu deduced levels, J, π, Iγ, normal deformed superdeformed states connection.

93At02 *Superdeformed Band in the ^{143}Eu Nucleus: Study of the decay out*

A. Atac, M. Piiparinen, B. Herskind, J. Nyberg, G. Sletten, G. de Angelis, S. Forbes, N. Gjorup, G. Hagemann, F. Ingebretsen, H. Jensen, D. Jerrestam, H. Kusakari, R. Lieder, G. M. Marti, S. Mullins, D. Santonocito, H. Schnare, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth, Acta Phys. Pol. B24, 395 (1993).

Nuclear Reactions: +110)Pd(^{37}Cl,4n), E=160 MeV; measured γγ-coin sum spectra. ^{143}Eu deduced superdeformed band decay features.

93At03 *Observation of the Decay Out of the Superdeformed Band in ^{143}Eu*

A. Atac, M. Piiparinen, B. Herskind, J. Nyberg, G. Sletten, G. de Angelis, R. M. Clark, S. A. Forbes, N. Gjorup, G. B. Hagemann, F. Ingebretsen, H. J. Jensen, D. Jerrestam, H. Kusakari, R. M. Lieder, G. V. Marti, S. Mullins, P. J. Nolan, E. S. Paul, P. H. Regan, D. Santonocito, H. Schnare, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth, Nucl. Phys. A557, 109c (1993).

Nuclear Reactions: +110)Pd(^{37}Cl,4n), E=160 MeV; measured γγ-coin, Eγ, Iγ. ^{143}Eu deduced levels, J, π, superdeformed band decay features.

93Ba20 *Linking Transitions between the Highly Deformed States and the Yrast States of Normal Deformation in ^{133}Nd*

D. Bazzacco, F. Brandolini, R. Burch, A. Buscemi, C. Cavedon, D. De Acuna, S. Lunardi, R. Menegazzo, P. Pavan, C. Rossi-Alvarez, M. Sferrazza, R. Zanon, G. de Angelis, P. Bezzon, M. A. Cardona, M. De Poli, G. Maron, M. L. Mazza, D. Napoli, J. Rico, P. Spolaore, X. N. Tang, G. Vedovato, N. Blasi, I. Castiglioni, G. Falconi, G. LoBianco, P. G. Bizzeti, P. Wyss, Phys. Lett. 309B, 235 (1993).

Nuclear Reactions: +105)Pd(^{32}S,2n2p), E=155 MeV; measured γγ-coin, γγ(θ). ^{133}Nd deduced levels, J, π, moments of inertia, intra-band transition features, deformed intruder band.

93Be29 *The First Results from EUROGAM: Superdeformed structures in ^{151}Tb*

F. A. Beck, Th. Byrski, D. Curien, G. Duchene, S. Flibotte, G. de France, B. Haas, B. Kharraja, J. C. Merdinger, C. Theisen, J. P. Vivien, J. C. Lisle, C. W. Beausang, P. Dagnall, P. Fallon, J. Simpson, P. Twin, F. Hannachi, C. Schuck, Z. Fulop, M. Jozsa, A. Kiss, B. M. Nyako, C. M. Petrache, Nucl. Phys. A557, 67c (1993).

Nuclear Reactions: +124)Sn(^{31}P,4n), E=145 MeV; ^{130}Te(^{27}Al, 6n), E=150 MeV; measured γγ-coin. ^{151}Tb deduced superdeformed bands.

93Be37 *Degenerate Superdeformed States in ^{150}Gd*

C. W. Beausang, P. Fallon, S. Clarke, F. A. Beck, Th. Byrski, D. Curien, P. J. Dagnall, G. de France, G. Duchene, P. D. Forsyth, B. Haas, M. J. Joyce, A. O. Macchiavelli, E. S. Paul, J. F. Sharpey-Schafer, J. Simpson, P. J. Twin, J. P. Vivien, Phys. Rev. Lett. 71, 1800 (1993).

Nuclear Reactions: +130)Te(^{26}Mg,6n), E=149 MeV; measured γγγ-coin. ^{150}Gd deduced levels, J, π, superdeformed state degeneracy features.

93Ca23 *New Results on Superdeformed Bands in Hg and Tl Nuclei*

M. P. Carpenter, R. V. F. Janssens, Y. Liang, I. G. Bearden, I. Ahmad, M. W. Drigert, U. Garg, R. G. Henry, J. M. Lewis, T. L. Khoo, T. Lauritsen, S. Pilotte, W. Reviol, L. L. Riedinger, F. Soramel, C. -H. Yu, Nucl. Phys. A557, 57c (1993).

Nuclear Reactions: +159)Tb(^{36}S,4n), E=165 MeV; ^{160}Gd(^{37}Cl, 5n), E=[illegible], 181 MeV; analyzed data. ^{191}, ^{192}Tl, ^{193}Hg deduced levels, J, π, superdeformed bands. Other data input.

93Cu02 *X-Ray Yields of Superdeformed States in ^{193}Hg*

D. M. Cullen, I. Y. Lee, C. Baktash, J. D. Garrett, N. R. Johnson, F. K. McGowan, D. F. Winchell, Phys. Rev. C47, 1298 (1993).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=213 MeV; measured Eγ, Iγ, X-ray spectra, γ(X-ray)-, γγ-coin. ^{193}Hg deduced superdeformed, normal deformed bands X-ray yields.

93Cu06 *Deexcitation from Superdeformed Bands in ^{151}Tb and Neighboring A 150 Nuclei*

D. Curien, G. de France, C. W. Beausang, F. A. Beck, T. Byrski, S. Clark, P. Dagnall, G. Duchene, S. Flibotte, S. Forbes, P. D. Forsyth, B. Haas, M. A. Joyce, B. Kharraja, B. M. Nyako, C. Schuck, J. Simpson, C. Theisen, P. J. Twin, J. P. Vivien, L. Zolnai, Phys. Rev. Lett. 71, 2559 (1993).

Nuclear Reactions: +130)Te(^{27}Al,6n), E=154 MeV; measured Eγ, Iγ, γγγ-coin. ^{151}Tb deduced superdeformed band transition energies, relative Iγ, decay mechanism features.

93Da04 *Coexistence of Collective Oblate and Superdeformed Prolate Shapes in ^{196}Pb*

P. J. Dagnall, C. W. Beausang, P. Fallon, P. D. Forsyth, E. S. Paul, J. F. Sharpey-Schafer, P. J. Twin, I. Ali, D. M. Cullen, M. J. Joyce, G. Smith, R. Wadsworth, R. M. Clark, P. H. Regan, A. Astier, M. Meyer, N. Redon, J. Phys. (London) G19, 465 (1993).

Nuclear Reactions: +184)W(^{16}O,4n), E=98 MeV; ^{186}W(^{16}O, 6n), E=120 MeV; measured γγ-coin. ^{196}Pb deduced levels, J, π, collective oblate, superdeformed prolate band coexistence.

93DaZV *Excited Superdeformed Bands in ^{152}Dy*

P. J. Dagnall, C. W. Beausang, S. Clarke, S. A. Forbes, P. D. Forsyth, E. S. Paul, P. J. Twin, J. Simpson, M. A. Bentley, F. Beck, D. Curien, G. De France, G. Duchene, S. Flibotte, B. Haas, A. Atac, J. Nyberg, B. Herskind, J. Styczen, K. Zuber, B. Nyako, Daresbury Lab., 1992-1993 Ann. Rept., Appendix, p. 31 (1993).

Nuclear Reactions: +108)Pd(^{48}Ca,4n), E=200 MeV; measured γγ-coin. ^{152}Dy deduced levels J, π, superdeformed band features.

93Es01 *Evidence for Superdeformed Shape Isomeric States in ^{28}Si at Excitations Above 40 MeV Through Observations of Selective Particle Decays of ^{16}O + ^{12}C Resonances in ^{8}Be and Alpha Channels*

M. A. Eswaran, S. Kumar, E. T. Mirgule, D. R. Chakrabarty, V. M. Datar, N. L. Ragoowansi, U. K. Pal, Phys. Rev. C47, 1418 (1993).

Nuclear Reactions: +12)C(^{16}O,^{8}Be), ^{16}O, α), E(cm)=25. 7-38. 6 MeV; measured spectra, σ(θ) vs E. ^{28}Si deduced resonances, J, π, configuration, superdeformed isomeric states.

93Fa07 *Evidence for M1 Transitions between Superdeformed States in ^{193}Hg*

P. Fallon, J. Burde, B. Cederwall, M. A. Deleplanque, R. M. Diamond, I. Y. Lee, J. R. B. Oliveira, F. S. Stephens, J. A. Becker, M. J. Brinkman, E. A. Henry, A. Kuhnert, M. A. Stoyer, J. E. Draper, C. Duyar, E. Rubel, Phys. Rev. Lett. 70, 2690 (1993).

Nuclear Reactions: +176)Yb(^{22}Ne,5n), E=116 MeV; measured γγ-energy correlation, γγ-coin. ^{193}Hg deduced superdeformed bands two-way decay.

93Fl03 *Multiparticle Excitations and Identical Bands in Superdeformed ^{149}Gd Nucleus*

S. Flibotte, G. Hackman, Ch. Theisen, H. R. Andrews, G. C. Ball, C. W. Beausang, F. A. Beck, G. Belier, M. A. Bentley, T. Byrski, D. Curien, G. de France, D. Disdier, G. Duchene, P. Fallon, B. Haas, V. P. Janzen, P. M. Jones, B. Kharraja, J. A. Kuehner, J. C. Lisle, J. C. Merdinger, S. M. Mullins, E. S. Paul, D. Prevost, D. C. Radford, V. Rauch, J. F. Smith, J. Styczen, P. J. Twin, J. P. Vivien, J. C. Waddington, D. Ward, K. Zuber, Phys. Rev. Lett. 71, 688 (1993).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=158 MeV; measured γγ-coin. ^{149}Gd deduced levels, J, π, superdeformed bands.

93Fl07 *ΔI = 4 Bifurcation in a Superdeformed Band: Evidence for a C_4 symmetry*

S. Flibotte, H. R. Andrews, G. C. Ball, C. W. Beausang, F. A. Beck, G. Belier, T. Byrski, D. Curien, P. J. Dagnall, G. de France, D. Disdier, G. Duchene, Ch. Finck, B. Haas, G. Hackman, D. S. Haslip, V. P. Janzen, B. Kharraja, J. C. Lisle, J. C. Merdinger, S. M. Mullins, W. Nazarewicz, D. C. Radford, V. Rauch, H. Savajols, J. Styczen, Ch. Theisen, P. J. Twin, J. P. Vivien, J. C. Waddington, D. Ward, K. Zuber, S. Aberg, Phys. Rev. Lett. 71, 4299 (1993).

Nuclear Reactions: +124)Sn(^{30}Si,5n), E=158 MeV; measured Eγ, Iγ, γγ-coin. *^{149}Gd deduced yrast superdeformed band moment of inertia,* evidence for fourfold rotational symmetry.

93Ga10 *First Evidence for the Hyperdeformed Nuclear Shape at High Angular Momentum*

A. Galindo-Uribarri, H. R. Andrews, G. C. Ball, T. E. Drake, V. P. Janzen, J. A. Kuehner, S. M. Mullins, L. Persson, D. Prevost, D. C. Radford, J. C. Waddington, D. Ward, R. Wyss, Phys. Rev. Lett. 71, 231 (1993).

Nuclear Reactions: +120)Sn(^{37}Cl,xnp), E=187 MeV; measured γγ-, γγ(particle)-coin. ^{152}, ^{153}Dy deduced levels, γ-multipolarity, band structure, moment of inertia, hyperdeformation evidence.

93Ha03 *Superdeformed Band in ^{142}Sm*

G. Hackman, S. M. Mullins, J. A. Kuehner, D. Prevost, J. C. Waddington, A. Galindo-Uribarri, V. P. Janzen, D. C. Radford, N. Schmeing, D. Ward, Phys. Rev. C47, R433 (1993).

Nuclear Reactions: +124)Sn(^{24}Mg,xn), E=145 MeV; measured γγ-coin, Eγ, Iγ. ^{142}Sm deduced superdeformed rotational band, continuum, dynamic moment of inertia.

93Ha19 *Studies of Superdeformation in the Gadolinium Nuclei*

B. Haas, V. P. Janzen, D. Ward, H. R. Andrews, D. C. Radford, D. Prevost, J. A. Kuehner, A. Omar, J. C. Waddington, T. E. Drake, A. Galindo-Uribarri, G. Zwartz, S. Flibotte, P. Taras, I. Ragnarsson, Nucl. Phys. A561, 251 (1993).

Nuclear Reactions: +120), ^{122}, ^{124}Sn(^{30}Si,xn), (^{29}Si, xn), (^{30}Si,xn), E=155 MeV; measured Eγ, Iγ, γγ-coin, DCO ratios. ^{145}, ^{146}, ^{147}, ^{148}, ^{149}Gd deduced, γ-multiplicities, J, π, levels, superdeformed bands. Compton-suppressed hyperpure Ge detector array, 4π-bismuth germanate ball. Cranked shell-model-Strutinsky calculations.

93Ha20 *Study of the Superdeformed Band in ^{194}Pb and ^{192}Hg with EUROGAM*

F. Hannachi, C. Schuck, G. Bastin, I. Deloncle, B. Gall, M. G. Porquet, A. G. Smith, F. Azaiez, C. Bourgeois, J. Duprat, A. Korichi, N. Perrin, N. Poffe, H Sergolle, A. Astier, Y. Le Coz, M. Meyer, N. Redon, M. Bentley, J. Simpson, J. F. Sharpey-Schafer, M. J. Joyce, C. W. Beausang, P. Fallon, E. S. Paul, P. J. Dagnall, S. A. Forbes, S. Gale, P. M. Jones, R. Wadsworth, R. M. Clark, M. M. Aleonard, D. Curien, G. De France, M. Carpenter, R. Henry, T. Lauritsen, P. Willsau, Nucl. Phys. A557, 75c (1993).

Nuclear Reactions: +162)Dy(^{36}S,4n), E=162 MeV; measured Eγ, Iγ, γγ-coin, DSA. ^{160}Gd(^{36}S, 4n), E=159 MeV; measured γγ-coin. ^{194}Pb deduced decay out of superdeformed band.

93HaZZ

G. S. Hackman, Priv. Comm. (1993).

Nuclear Structure: +149)Gd; measured not given; deduced superdeformed band.

93Je02 *A ' Superdeformed ' Band in ^{103}Pd*

D. Jerrestam, S. Mitarai, E. Ideguchi, B. Fogelberg, A. Gizon, J. Gizon, W. Klamra, Th. Lindblad, R. Bark, J. Nyberg, M. Piiparinen, G. Sletten, Nucl. Phys. A557, 411c (1993).

Nuclear Reactions: CPND ^{76}Ge(^{34}S,3nα), E=130-153 MeV; measured γ yields, γγ-coin, γγ(θ). ^{103}Pd deduced levels, J, π, superdeformed band, configurations.

93JoZY *First Measurement of a g-Factor in a Superdeformed Nucleus: ^{193}Hg*

M. J. Joyce, J. F. Sharpey-Schafer, P. J. Twin, C. W. Beausang, D. M. Cullen, M. A. Riley, R. M. Clark, P. J. Dagnall, I. Deloncle, J. Duprat, P. Fallon, P. D. Forsyth, N. Fotiades, S. J. Gale, B. Gall, F. Hannachi, S. Harissopulos, K. Hauschild, P. M. Jones, C. A. Kalfas, A. Korichi, I. Le Coz, M. Meyer, E. S. Paul, M. G. Porquet, N. Redon, C. Schuck, J. Simpson, R. Vlastou, R. Wadsworth, Priv. Comm. (1993).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=213 MeV; measured Eγ, γγ-coin. ^{193}Hg deduced superdeformed bands transition γ-multipolarity, g-factors, γ-branching ratio, configurations. Cranked Woods-Saxon calculations.

93Jo09 *First Measurement of Magnetic Properties in a Superdeformed Nucleus: ^{193}Hg*

M. J. Joyce, J. F. Sharpey-Schafer, P. J. Twin, C. W. Beausang, D. M. Cullen, M. A. Riley, R. M. Clark, P. J. Dagnall, I. Deloncle, J. Duprat, P. Fallon, P. D. Forsyth, N. Fotiades, S. J. Gale, B. Gall, F. Hannachi, S. Harissopulos, K. Hauschild, P. M. Jones, C. A. Kalfas, A. Korichi, Y. Le Coz, M. Meyer, E. S. Paul, M. G. Porquet, N. Redon, C. Schuck, J. Simpson, R. Vlastou, R. Wadsworth , Phys. Rev. Lett. 71, 2176 (1993).

Nuclear Reactions: +150)Nd(^{48}Ca,5n), E=213 MeV; measured γγ-coin. ^{193}Hg deduced levels, J, π, B(λ), M1/E2 branching ratios, superdeformed bands linking, g factor. Strong coupling model.

93Ko08 *On the Decay of the Superdeformed Band in ^{194}Pb*

W. Korten, M. J. Piiparinen, A. Atac, R. A. Bark, B. Herskind, T. Ramsoy, G. Sletten, J. Gerl, H. Hubel, P. Willsau, B. Cederwall, L. O. Norlin, B. Fant, Z. Phys. A344, 475 (1993).

Nuclear Reactions: +164)Dy(^{34}S,4n), E=160 MeV; measured γγ-coin. ^{194}Pb deduced levels, J, π, superdeformed band decay features.

93LIZV *Investigation of Superdeformation in Doubly-Magic ^{146}Gd*

R. M. Lieder, W. Gast, A. Georgiev, S. Utzelmann, T. Rzaca-Urban, P. von Brentano, A. Dewald, Chr. Schuhmacher, F. Linden, J. Lisle, W. Urban, F. Hannachi , Daresbury Lab. , 1992-1993 Ann. Rept. , Appendix, p. 23 (1993).

Nuclear Reactions: +102)Ru(^{48}Ca,4n), E=203 MeV; measured not given. ^{146}Gd deduced superdeformed band levels.

93Lu02 *First Results from Ga. Sp. Experiments*

S. Lunardi , Acta Phys. Pol. B24, 31 (1993).

Nuclear Reactions: +105)Pd(^{32}S,2n2p), E=155 MeV; measured γγ-coin. ^{133}Nd deduced levels, J, π, superdeformed band states decay features.

93Lu04 *First Results from Ga. Sp. Experiments: The decay out of the superdeformed band in ^{133}Nd*

S. Lunardi, and the Ga. Sp. Collaboration , Nucl. Phys. A557, 331c (1993).

Nuclear Reactions: +105)Pd(^{32}S,2n2p), E=155 MeV; measured γγ-, γγγ-coin. ^{133}Nd deduced levels, J, π, decay out of superdeformed band.

93Ma02 *First Evidence for States in Hg Nuclei with Deformations between Normal and Super Deformation*

W. C. Ma, J. H. Hamilton, A. V. Ramayya, L. Chaturvedi, J. K. Deng, W. B. Gao, Y. R. Jiang, J. Kormicki, X. W. Zhao, N. R. Johnson, J. D. Garrett, I. Y. Lee, C. Baktash, F. K. McGowan, W. Nazarewicz, R. Wyss , Phys. Rev. C47, R5 (1993).

Nuclear Reactions: +154)Gd(^{36}S,4n), E=159-175 MeV; measured γγ-coin. ^{186}Hg deduced levels, J, π, $T_{1/2}$, deformation between normal and superdeformed, configuration, Iγ, quadrupole moments.

93Mo19 *Spectroscopy of the Superdeformed Band in ^{196}Pb*

E. F. Moore, Y. Liang, R. V. F. Janssens, M. P. Carpenter, I. Ahmad, I. G. Bearden, P. J. Daly, M. W. Drigert, B. Fornal, U. Garg, Z. W. Grabowski, H. L. Harrington, R. G. Henry, T. L. Khoo, T. Lauritsen, R. H. Mayer, D. Nissius, W. Reviol, M. Sferrazza , Phys. Rev. C48, 2261 (1993).

Nuclear Reactions: +170)Er(^{30}Si,4n), E=142-151 MeV; measured Eγ, Iγ, γγ-coin, DSA. ^{196}Pb deduced superdeformed band transitions, intrinsic quadrupole moment, dynamic moment of inertia. Model comparison.

93Mu39 *Population Effects in the Highly-Deformed Bands of ^{131}Ce and ^{135}Nd from ^{16}, ^{18}O-Induced Reactions*

S. M. Mullins, J. Nyberg, A. Maj, M. S. Metcalfe, P. J. Nolan, P. H. Regan, R. Wadsworth, R. A. Wyss , Phys. Lett. 312B, 272 (1993).

Nuclear Reactions: +117)Sn(^{18}O,4n), E=85 MeV; measured Eγ, Iγ, γγ-coin, DSA. ^{122}Te(^{16}O,3n), E=85 MeV; measured Eγ, Iγ, γγ-coin. ^{131}Ce, ^{135}Nd deduced levels, J, π, highly deformed band structure.

93Mu16 *Superdeformation in ^{144}Eu*

S. M. Mullins, G. Hackman, A. Galindo-Uribarri, D. C. Radford, J. C. Waddington, D. Ward , Z. Phys. A346, 327 (1993).

Nuclear Reactions: +122)Sn(^{27}Al,5n), E=142 MeV; measured γγ-coin. ^{144}Eu deduced superdeformed band evidence.

93No04 *Superdeformation and High Spin States*

P. J. Nolan , Nucl. Phys. A553, 107c (1993).

Nuclear Structure: =130-140; A 150; A 190; compiled, reviewed superdeformation, other data features.

93Pa05 *E0 Transitions and the Depopulation of SD Bands*

M. Palacz, Z. Sujkowski, J. Bacelar, A. Atac, B. Herskind, J. Nyberg, M. Piiparinen, G. de Angelis, S. Forbes, N. Gjorup, G. Hagemann, F. Ingebretsen, H. Jensen, D. Jerrestam, H. Kusakari, R. Lieder, G. M. Marti, S. Mullins, D. Santonocito, H. Schnare, G. Sletten, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth , Acta Phys. Pol. B24, 399 (1993).

Nuclear Structure: +132)Ce, ^{143}Eu, ^{152}Dy, ^{192}Hg; calculated transition probability vs excitation energy for superdeformed states. ^{143}Eu; analyzed γ(K X-ray)-coin following superdeformed states decay.

93Pl01 *Lack of Evidence for a Superdeformed Band in ^{192}Pb*

A. J. M. Plompen, M. N. Harakeh, W. H. A. Hesselink, G. van't Hof, N.

Kalantar-Nayestanaki, J. P. S. van Schagen, R. V. F. Janssens, I. Ahmad, I. G. Bearden, M. P. Carpenter, T. L. Khoo, T. Lauritsen, Y. Liang, U. Garg, W. Reviol, D. Ye, Phys. Rev. C47, 2378 (1993).

Nuclear Reactions: +173)Yb(^{24}Mg,5n), E=132 MeV; measured γγ-coin, DSA. ^{192}Pb deduced no superdeformed band.

93Ra08 *High-Spin Studies: Recent results from the 8π spectrometer*

D. C. Radford, A. Galindo-Uribarri, G. Hackman, V. P. Janzen, and the 8π Collaboration, Nucl. Phys. A557, 311c (1993).

Nuclear Reactions: +54)Fe(^{58}Ni,3p), E=243 MeV; ^{96}Ru(^{19}F, 2n2p), E=90 MeV; ^{92}Mo(^{23}Na,2n2p), E=120 MeV; ^{94}Mo(^{23}Na,2n2p), E=117 MeV; ^{96}Zr(^{23}Na, 5n), E=102 MeV; ^{96}Zr(^{23}Na,4n), E=102 MeV; ^{104}Pd(^{11}B,4n), E=47 MeV; ^{106}Pd(^{11}B, 4n), E=45 MeV; ^{116}Cd(^{7}Li,4n), E=39 MeV; ^{54}Fe(^{58}Ni,2pα), E=243 MeV; ^{54}Fe(^{58}Ni, 4p), E=243 MeV; ^{94}Mo(^{19}F,2np), E=83 MeV; ^{94}Mo(^{23}Na,2npα), E=117 MeV; ^{74}Ge(^{37}Cl, 4n), E=138 MeV; ^{96}Zr(^{19}F,5n), E=95 MeV; ^{96}Zr(^{19}F,4n), E=85 MeV; ^{96}Zr(^{19}F, 4n), E=70 MeV; deduced band structure for Sb, Sn, In isotopes, A 100. ^{142}Sm deduced superdeformed band. Other data input. ^{124}Sn(^{37}Cl,xnp), E=187 MeV; measured γγ-, γγγ-coin. ^{152}, ^{153}Dy deduced hyperdeformation evidence. 8π γ-ray spectrometer.

93Ri02 *Highly Deformed Band in ^{130}Pm and the Anomalous Dynamical Moment of Inertia Behavior in the A 135 Superdeformed Region*

M. A. Riley, T. Petters, J. Shick, D. E. Archer, J. Doring, J. W. Holcomb, G. D. Johns, T. D. Johnson, O. N. Tekyi-Mensah, S. L. Tabor, P. C. Womble, V. A. Wood, C. Baktash, M. L. Halbert, D. C. Hensley, I. Y. Lee, R. J. Charity, D. G. Sarantites, L. L. Wittmer, J. Simpson, Phys. Rev. C47, R441 (1993).

Nuclear Reactions: +106)Pd(^{32}S,xpγα), ^{106}Pd(^{32}S, xpγα), E=165 MeV; measured γγ-coin sum spectra. ^{130}Pm deduced deformed rotational band, dyamical moment of inertia. Other nuclei considered.

93SaZZ *Observation of Excited Superdeformed Bands in ^{132}Ce*

D. Santos, J. Gizon, C. Foin, J. Genevey, A. Gizon, M. Jozsa, J. A. Pinston, C. W. Beausang, S. A. Forbes, P. J. Nolan, E. S. Paul, A. T. Semple, J. N. Wilson, R. M. Clark, K. Hauschild, R. Wadsworth, J. Simpson, B. M. Nyako, L. Zolnai, W. Klamra, J. Dudek, N. El Aouad, Daresbury Lab., 1992-1993 Ann. Rept., Appendix, p. 15 (1993).

Nuclear Reactions: +100)Mo(^{36}S,4n), E=155 MeV; measured γγ-coin. ^{132}Ce deduced levels, J, π, superdeformed bands.

93SeZZ *A Search for a Superdeformed Band in ^{144}Gd*

A. T. Semple, C. W. Beausang, S. A. Forbes, P. J. Nolan, E. S. Paul, J. N. Wilson, R. M. Clark, K. Hauschild, I. M. Hibbert, R. Wadsworth, J. Simpson, A. Gizon, J. Gizon, D. Santos, Daresbury Lab., 1992-1993 Ann. Rept., Appendix, p. 22 (1993).

Nuclear Reactions: +118)Sn(^{30}Si,4n), E=155 MeV; measured γγ-coin. ^{144}Gd deduced no definite superdeformed band.

93St01 *Search for Population of Superdeformed States in ^{192}Pb Using ^{192}Bi β^{+} Decay*

M. A. Stoyer, E. A. Henry, Y. A. Akovali, J. A. Becker, C. R. Bingham, J. Breitenbach, H. K. Carter, R. W. Hoff, M. Jarrio, P. Joshi, J. Kormicki, A. Kuhnert, P. F. Mantica, T. F. Wang, J. L. Wood, M. Zhang, Phys. Rev. C47, 76 (1993).

Radioactivity: ^{192}Bi(β^{+}), (EC) [from Re(^{16}O, xn), E=170 MeV]; measured Eγ, Iγ, γγ-, γ(ce)-coin, I(ce). ^{192}Pb deduced levels, J, π upper limit for superdeformed states population.

93Vo04 *Superdeformation in ^{191}Au*

D. T. Vo, W. H. Kelly, F. K. Wohn, J. C. Hill, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, J. R. B. Oliveira, J. Burde, A. O. Macchiavelli, J. deBoer, B. Cederwall, I. Y. Lee, P. Fallon, J. A. Becker, E. A. Henry, M. J. Brinkman, A. Kuhnert, M. A. Stoyer, J. R. Hughes, J. E. Draper, C. Duyar, E. Rubel, Phys. Rev. Lett. 71, 340 (1993).

Nuclear Reactions: +186)W(^{11}B,7n), (^{11}B,6n), (^{11}B,5n), E=84, 86 MeV; ^{176}Yb(^{19}F,xn), E=100, 105 MeV; measured γγ-coin. ^{191}Au deduced levels, J, π, superdeformed band, dynamic moments of inertia.

93Wi02 *Transition Quadrupole Moments of Superdeformed States in ^{194}Pb*

P. Willsau, H. Hubel, W. Korten, F. Azaiez, M. A. Deleplanque, R. M. Diamond, A. O. Macchiavelli, F. S. Stephens, H. Kluge, F. Hannachi, J. C. Bacelar, J. A. Becker, M. J. Brinkman, E. A. Henry, A. Kuhnert, T. F. Wang, J. A. Draper, E. Rubel, Z. Phys. A344, 351 (1993).

Nuclear Reactions: +150)Sm(^{48}Ca,4n), E=205 MeV; measured γγ-coin, DSA. ^{194}Pb levels deduced $T_{1/2}$, superdeformed states transition quadrupole moments.

93Wi09 *Lifetimes of the Decay from Superdeformed to Normal Deformed in ^{132}Nd*

P. Willsau, H. Hubel, R. M. Diamond, M. A. Deleplanque, A. O. Macchiavelli, J. R. Oliveira, F. S. Stephens, H. Kluge, J. A. Becker, E. A. Henry, A. Kuhnert, M. Stoyer, Phys. Rev. C48, R494 (1993).

Nuclear Reactions: +100)Mo(^{40}Ar,5n), E=175 MeV; measured γγ-coin, Doppler shift recoil distance. ^{132}Nd deduced superdeformed states $T_{1/2}$, transition probabilities, quadrupole moments.

93WiZX *Multiple, Excited Superdeformed Bands in ^{133}Pr*

J. N. Wilson, P. J. Nolan, E. S. Paul, A. T. Semple, C. W. Beausang, S. A. Forbes, R. Wadsworth, K. Hauschild, I. M. Hibbert, R. M. Clark, J. Gizon, A. Gizon, D. Santos, B. Nyako, J. Simpson, Daresbury Lab., 1992-1993 Ann. Rept., Appendix, p. 17 (1993).

Nuclear Reactions: +100)Mo(^{37}Cl,4n), E=155 MeV; measured γγ-coin. ^{133}Pr deduced levels, J, π, superdeformed band.

93WiZZ *Highly Deformed Bands in ^{132}Ce and ^{133}Pr*

J. N. Wilson, C. W. Beausang, S. A. Forbes, P. J. Nolan, E. S. Paul, A. T. Semple, A. Gizon, J. Gizon, D. Santos, B. M. Nyako, R. M. Clark, I. M. Hibbert, K. Hauschild, R. Wadsworth, J. Simpson, Bull. Am. Phys. Soc. 38, No. 2, 981, I6 9 (1993)

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Nuclear Reactions: +100)Mo(^{36}S,4n), (^{37}Cl,4n), E not given; measured γγ-coin. ^{132}Ce, ^{133}Pr deduced levels, J, π, superdeformed bands.

94GaAA

Z. Phys. A347, 223(1994) abstract unavailable

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94HuAA

Phys. Rev. Let. 72, 824(1994) abstract unavailable

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94LuAA

Phys. Rev. Let. 72, 1427(1994) abstract unavailable

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94PIAA

Phys. Rev. C49, 718(1994) abstract unavailable

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References for Superdeformed Bands (Theoretical)

67StAA

Nucl. Phys. A95, 420(1967) abstract unavailable

70Ts01 *Shape Isomeric States in Heavy Nuclei*

C. F. Tsang, S. G. Nilsson, Nucl. Phys. A140, 275 (1970).

Nuclear Structure: =174-256; calculated potential energy surface, two-peaked fission barriers, total potential energy, $T_{1/2}$.

74Co41 *Equilibrium Configurations of Rotating Charged or Gravitating Liquid Masses with Surface Tensor. II.*

S. Cohen, F. Plasil, W. J. Swiatecki, Ann. Phys. (New York) 82, 557 (1974).

Nuclear Reactions: +107)Ag(^{20}Ne,X), E(cm)=25-205 MeV; calculated impact parameter. ^{88}Rb(^{20}Ne,X), ^{64}Cu(^{40}Ar, X), ^{48}Ti(^{16}O,X), ^{27}Al(^{16}O, X), ^{12}C(^{12}C,X), E not given; calculated fission barrier, neutron binding energy, excitation energy. ^{108}Ag, ^{68}Zn, ^{43}Sc, ^{24}Mg; deduced possible superdeformation. Rotating liquid masses.

Nuclear Structure: =1-300; calculated angular momentum where fission barrier would vanish. A=1-200; calculated fission barrier. Rotating liquid masses.

75Be35 *Yrast Bands and High-Spin Potential-Energy Surfaces*

R. Bengtsson, S. E. Larsson, G. Leander, P. Moller, S. G. Nilsson, S. Aberg, Z. Szymanski, Phys. Lett. 57B, 301 (1975).

Nuclear Structure: +146)Sm, ^{160}Yb; calculated yrast bands, energy surfaces.

79Bl09 *Alpha Decay Amplification in Superdeformed Nuclei: An Important New Mechanism of Nuclear de-Excitation at High Angular Momenta*

M. Blann, Phys. Lett. 88B, 5 (1979).

Nuclear Reactions: +109)Ag(^{40}Ar,α), E=169-337 MeV; calculated transmission coefficients for n, p, α. ^{149}Tb deduced decay probabilities for n, p, α, fission channels, evidence for superdeformation. Statistical model for deformed nuclei.

80Bl04 *Decay of Deformed and Superdeformed Nuclei Formed in Heavy Ion Reactions*

M. Blann, Phys. Rev. C21, 1770 (1980).

Nuclear Reactions: +109)Ag(^{40}Ar,X), E=236 MeV; ^{40}Ca(^{16}O, X), E=214 MeV; calculated transmission coefficients for spherical, deformed, superdeformed nuclei. ^{149}Tb, ^{56}Ni deduced fraction of α decay vs spin, α, n, p branching ratios, superdeformation effects. Rotating liquid drop model, Hauser-Feshbach calculation.

80RaAA

Nucl. Phys. A347, 287(1980) abstract unavailable

81Be41 *Some Properties of Superdeformed Nuclei*

T. Bengtsson, M. E. Faber, G. Leander, P. Moller, M. Ploszajczak, I. Ragnarsson, S. Aberg, Phys. Scr. 24, 200 (1981).

Nuclear Structure: +152)Dy; calculated potential, shell energy surfaces; ^{80}, ^{88}Zr, ^{96}Ru; calculated potential energy vs deformation; ^{96}Ru; calculated liquid drop model energy. Anisotropic harmonic oscillator potential. A 100; deduced superdeformed properties. A 150; deduced superdeformed properties.

81Fa05 *Shell Structure in Superdeformed Light Nuclei (A < 40) at High Rotational Frequencies*

M. E. Faber, M. Ploszajczak, Phys. Scr. 24, 189 (1981).

Nuclear Structure: +24)Mg, ^{26}, ^{27}Al, ^{28}, ^{30}Si; calculated deformation, superdeformation energy surfaces. Cranking Strutinsky model, Saxon-Woods potential.

82Ab01 *High-Spin Potential-Energy Surfaces*

S. Aberg, Phys. Scr. 25, 23 (1982).

Nuclear Structure: =66-218; calculated high-spin potential energy surfaces. Cranked Nilsson-Strutinsky model.

85Be12 *Study of the Decay Schemes of ^{92}Mo and ^{92}Tc Nuclei*

V. S. Belyavenko, G. P. Borozenets, I. N. Vishnevsky, V. A. Zheltonozhsky, Izv. Akad. Nauk SSSR, Ser. Fiz. 49, 103 (1985)

Radioactivity: ^{92}Mo: ^{92}Tc(β+), (EC) [from ^{92}, ^{94}, ^{96}Mo(p,xn), E=70 MeV]; measured Eγ, Iγ, γγ-coin; deduced log ft. ^{92}Mo deduced transition, level energies. ^{92}Nb deduced levels, γ-branching, possible J, π, configuration.

85Du01 *Shape Evolution in the Transitional Gadolinium, Dysprosium, Erbium, and Ytterbium Nuclei*

J. Dudek, W. Nazarewicz, Phys. Rev. C31, 298 (1985).

Nuclear Structure: +144), ^{146}, ^{148}, ^{150}Gd, ^{150}, ^{152}, ^{154}, ^{156}Dy, ^{152}, ^{154}, ^{156}, ^{158}Er, ^{154}, ^{156}, ^{158}, ^{160}Yb; calculated levels; deduced shape evolution at high J. Cranking approximation, generalized Strutinsky method.

86ChZE *High Energy Dipole Bump in the Continuum as a Probe for Super-Deformation*

Y. S. Chen, C. Baktash, Proc. Intern. Nuclear Physics Conference, Harrogate, U. K., p. 49 (1986).

Nuclear Structure: +158)Yb; calculated E2, M1 transition strength; deduced superdeformation features. Cranked shell model.

87Ch07 *Superdeformation in the Rare-Earth Region*

R. R. Chasman, Phys. Lett. 187B, 219 (1987).

Nuclear Structure: +132)Ce, ^{140}Pm, ^{141}, ^{142}, ^{147}, ^{148}Sm, ^{142}, ^{143}, ^{144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}Eu, ^{144}, ^{147}, ^{148}, ^{149}, ^{150}Gd, ^{149}, ^{150}, ^{151}, ^{152}Tb, ^{151}, ^{152}, ^{153}Dy, ^{153}Ho; calculated well depths, deformation, superdeformation parameters, excitation energies, proton, neutron unoccupied levels. Strutinsky method.

87Du02 *Shape Coexistence Effects and Superdeformation in ^{84}Zr*

J. Dudek, W. Nazarewicz, N. Rowley, Phys. Rev. C35, 1489 (1987).

Nuclear Structure: +78), ^{80}, ^{82}, ^{84}, ^{86}Zr; calculated total energy surfaces, Routhians. ^{84}Zr; calculated levels, yrast scheme, band structure; deduced shape coexistences, superdeformation. Woods-Saxon potential, cranking, Hartree-Fock-Bogolyubov method, Strutinsky generalizations, particle number projection.

87Du04 *Abundance and Systematics of Nuclear Superdeformed States; Relation to the pseudospin and pseudo-SU(3) symmetries*

J. Dudek, W. Nazarewicz, Z. Szymanski, G. A. Leander, Phys. Rev. Lett. 59, 1405 (1987).

Nuclear Structure: +148), ^{152}, ^{154}Dy, ^{136}, ^{144}, ^{150}Sm, ^{132}, ^{134}, ^{144}Nd, ^{128}, ^{132}, ^{142}Ce; calculated potential energy surfaces; deduced super elongation particle number dependence, superdeformation effects.

87He23 *Population and Decay of the Superdeformed Rotational Band of ^{152}Dy*

B. Herskind, B. Lauritzen, K. Schiffer, R. A. Broglia, F. Barranco, M. Gallardo, J. Dudek, E. Vigezzi, Phys. Rev. Lett. 59, 2416 (1987).

Nuclear Structure: +152)Dy; calculated E1 transition probabilities, superdeformed yrast band.

87Na21 *Pairing Correlations in the Superdeformed Rotational Bands: The frequency-deformation scaling*

W. Nazarewicz, Z. Szymanski, J. Dudek, Phys. Lett. 196B, 404 (1987).

Nuclear Structure: +152)Dy; calculated routhians vs deformation parameter, pairing correlation energy, associated dealignment in superdeformed states.

87Sh25 *Role of Static and Dynamic Pairing Correlations in the Superdeformed Band of ^{152}Dy*

Y. R. Shimizu, E. Vigezzi, R. A. Broglia, Phys. Lett. 198B, 33 (1987).

Nuclear Structure: *+152)Dy;* calculated superdeformed configuration kinetic, dynamic moments of inertia, correlation energy; deduced pairing correlations role.

87St08 *Superdeformed States in Rotating ^{152}Dy*

V. M. Strutinsky, Z. Phys. A326, 261 (1987).

Nuclear Structure: +152)Dy; analyzed level data; calculated deformation energy; deduced angular momentum minimum, stability against rotation criteria for superdeformation. Liquid drop, Nilsson models.

87Sw01 *Superdeformed Band in ^{152}Dy as Evidence for the Centrifugal Solidification of a Rotating Nuclei*

W. J. Swiatecki, Phys. Rev. Lett. 58, 1184 (1987).

Nuclear Structure: +152)Dy; analyzed superdeformed rotational spectrum; deduced centrifugal solidification evidence. Macroscopic model.

88Be22 *The Role of High-N Orbits in Superdeformed States*

T. Bengtsson, I. Ragnarsson, S. Aberg, Phys. Lett. 208B, 39 (1988).

Nuclear Structure: *+152)Dy,* ^{146}Gd, ^{146}Eu, ^{146}*Sm;* calculated superdeformed quadrupole moment, moment of inertia vs spin.

88Du13 *Pairing, Temperature, and Deformed-Shell Effects on the Properties of Superdeformed ^{152}Dy Nucleus*

J. Dudek, B. Herskind, W. Nazarewicz, Z. Szymanski, T. R. Werner, Phys. Rev. C38, 940 (1988).

Nuclear Structure: +152)Dy; calculated barrier heights, potential energy surfaces, high spin behaviour, deformation, superdeformation properties. Strutinsky model.

88Du16 *Dependence of the First Saddle-Point Energy on Temperature and Spin in Superdeformed Rare-Earth Nuclei*

J. Dudek, T. Werner, L. L. Riedinger, Phys. Lett. 213B, 120 (1988).

Nuclear Structure: +146), ^{152}, ^{156}, ^{162}Dy, ^{152}, ^{154}, ^{156}, ^{158}, ^{160}, ^{162}Er, ^{146}, ^{150}, ^{152}, ^{154}, ^{156}, ^{158}Gd, ^{146}, ^{148}, ^{150}, ^{152}, ^{154}, ^{156}Sm; calculated saddle point energy vs temperature, spin, superdeformation.

88FIZW *Microscopic Description of the Ground-State and High-Spin Properties of the Light Strontiums*

H. C. Flocard, Proc. Intern. Workshop Nucl. Struct. of the Zirconium Region, Bad Honnef, Germany, p. 143 (1988).

Nuclear Structure: +76), ^{78}, ^{80}, ^{84}, ^{86}, ^{88}Sr; calculated deformation energy surfaces, rms radii. ^{80}Sr calculated superdeformed band level energies, deformation energy surfaces, rms radii, fission barriers. Constrained Hartree-Fock with Skyrme interactions.

88KIZQ *Moments of Inertia of Superdeformed Nuclei*

S. -I. Kinouchi, T. Kishimoto, Univ. Tsukuba, Tandem Accel. Center, Ann. Rept., 1987, p. 54 (1988); UTTAC-54 (1988).

Nuclear Structure: +152)Dy; calculated superdeformed moments of inertia. Microscopic calculation with improved effective interactions.

88Sh37 *Superdeformation and Other Phases at Very High Spin*

J. F. Sharpey-Schafer, Nucl. Phys. A488, 127c (1988).

Nuclear Structure: +151), ^{152}Dy, ^{146}, ^{150}Gd, ^{151}Tb, ^{158}, ^{160}Er; analyzed level systematics; deduced superdeformation role.

88Sl18 *Nuclear Shapes and Phases at Very High Spin*

J. Simpson, Phys. Scr. T23, 37 (1988).

Nuclear Reactions: +114)Cd, ^{108}Pd(^{48}Ca,4n), E=205 MeV; analyzed data. ^{152}Dy, ^{156}Er deduced levels, superdeformed band features.

Nuclear Structure: +133), ^{135}, ^{137}Nd, ^{131}Ce; analyzed data; deduced superdeformed band features.

88TaZU *Intrinsic Structure of the Superdeformed Band in ^{132}Ce*

K. Tanabe, K. Sugawara-Tanabe, Proc. of the Conf. on High-Spin *Nuclear Structure and Novel Nuclear Shapes, April 13-15, 1988,* Argonne National Laboratory, Argonne, Illinois; ANL-PHY-88-2, p. 53 (1988).

Nuclear Structure: +132)Ce; calculated levels, proton, neutron pairing gaps; deduced superdeformation parameters. Cranked HFB.

89Bo24 *Superdeformation and Shape Isomerism at Zero Spin*

P. Bonche, S. J. Krieger, P. Quentin, M. S. Weiss, J. Meyer, M. Meyer, N. Redon, H. Flocard, P. -H. Heenen, Nucl. Phys. A500, 308 (1989).

Nuclear Structure: +186), ^{196}, ^{194}, ^{192}, ^{190}, ^{188}, ^{186}, ^{202}, ^{210}Os, ^{200}, ^{198}, ^{196}, ^{194}, ^{192}, ^{190}, ^{188}, ^{186}Pt, ^{194}, ^{202}, ^{210}, ^{218}Hg; calculated Hartree-Fock energies, energy surfaces. ^{192}, ^{194}, ^{196}, ^{198}, ^{200}, ^{202}, ^{204}, ^{206}, ^{208}, ^{210}, ^{212}, ^{214}, ^{216}, ^{218}Hg; calculated secondary minima deformations. ^{194}, ^{196}, ^{198}Pt; calculated axial deformation energies. ^{56}, ^{58}Ni, ^{190}, ^{192}Pt, ^{206}, ^{208}, ^{210}Os, ^{194}, ^{196}, ^{214}Hg; deduced possible superdeformation effects. Microscopic Hartree-Fock plus BCS.

89Ch06 *Superdeformation Near A = 190*

R. R. Chasman, Phys. Lett. 219B, 227 (1989).

Nuclear Structure: +178)W, ^{181}, ^{182}, ^{183}Re, ^{179}, ^{180}, ^{182}, ^{183}, ^{184}Os, ^{181}, ^{182}, ^{183}, ^{184}, ^{185}Ir, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}, ^{195}, ^{196}Pt, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}, ^{195}, ^{196}Au, ^{187}, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}, ^{195}, ^{196}Hg, ^{188}Tl, ^{191}At, ^{192}, ^{200}, ^{204}Rn, ^{193}Fr; calculated level energies; deduced superdeformation features. Cranked Strutinsky method.

89Ch41 *On the Formation of Superdeformed Nuclear States*

Y. Chen, Chin. J. Nucl. Phys. 11, No. 1, 53 (1989).

Nuclear Structure: +130), ^{131}Ce, ^{131}Pr; calculated yrast configuration potential energy surfaces; deduced superdeformation features.

89Na07 *Shape Variations, Influence of Pairing and Alignment of Angular Momentum in Superdeformed Bands in the A 150 Region*

W. Nazarewicz, R. Wyss, A. Johnson, Phys. Lett. 225B, 208 (1989).

Nuclear Structure: +152)Dy, ^{150}Gd, ^{151}Tb; calculated levels, equilibrium deformations, dynamical moments of inertia. Deformation-self-consistent pairing average model and variants. ^{152}Dy, ^{150}Gd; deduced superdeformation character.

89Na17 *Structure of Superdeformed Bands in the A 150 Mass Region*

W. Nazarewicz, R. Wyss, A. Johnson, Nucl. Phys. A503, 285 (1989).

Nuclear Structure: +144), ^{146}, ^{150}, ^{148}, ^{149}Gd, ^{150}, ^{152}, ^{153}Dy, ^{150}, ^{151}Tb, ^{153}Ho, ^{146}, ^{143}Eu; calculated levels, rotational band moments of inertia, quadrupole moments. ^{143}, ^{145}Eu, ^{144}, ^{146}, ^{148}, ^{149}Gd, ^{150}, ^{152}, ^{153}Dy, ^{153}Ho, ^{154}Er; analyzed superdeformed moments of inertia. ^{146}Gd; analyzed superdeformed moments of inertia; deduced π. ^{150}Gd; analyzed superdeformed moments of inertia, quardupole moments. ^{150}Tb; analyzed superdeformed moments of inertia; deduced configuration. ^{151}Tb; analyzed superdeformed moments of inertia; deduced π and signature. ^{151}Dy; analyzed superdeformed moments of inertia; deduced possible band crossings. Deformed shell model. Comparison with other data.

89Ok01 *Fission Stability of Superdeformed Nuclei*

J. Okolowicz, J. M. Irvine, J. Phys. (London) G15, 823 (1989).

Nuclear Structure: +144)Nd; calculated free energy vs mass quadrupole moment; deduced superdeformation shapes. Constrained Hartree-Fock.

89Sc02 *Lifetimes and Lineshapes in Superdeformed Bands*

K. Schiffer, B. Herskind, J. Gascon, Z. Phys. A332, 17 (1989).

Nuclear Structure: +152)Dy; calculated levels, $T_{1/2}$, B(λ), I(γ); deduced normal, superdeformed state mixing. Statistical model, Monte Carlo simulation.

89ShZZ *Semi-Empirical Fits for Superdeformed Band Energies*

Y. Y. Sharon, R. A. Naumann, G. Loring , Bull. Am. Phys. Soc. 34, No. 4, 1169, D6 7 (1989)

Nuclear Structure: =100-180; analyzed superdeformed band in 11 nuclei. Semi-empirical fits.

90Ab08 *Superdeformations - A Theoretical Overview*

S. Aberg , Nucl. Phys. A520, 35c (1990).

Nuclear Structure: =66-218; compiled superdeformed state calculations, data analyses.

90AbAA

Ann. Rev. Nucl. Part. Sci. 40, 439(1990) abstract unavailable.

90Be37 *Level Spin and Moments of Inertia in Superdeformed Nuclei Near A = 194*

J. A. Becker, N. Roy, E. A. Henry, S. W. Yates, A. Kuhnert, J. E. Draper, W. Korten, C. W. Beausang, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, W. H. Kelly, F. Azaiez, J. A. Cizewski, M. J. Brinkman , Nucl. Phys. A520, 187c (1990).

Nuclear Structure: +190}, ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{194}, ^{196}Pb, ^{193}, ^{194}Tl; analyzed data; deduced levels, J, superdeformed band parameters. Least-squares fit to rotational formulas.

90BeZK *Spin Determination in Superdeformed ^{192}Hg and ^{194}Hg*

J. A. Becker, N. Roy, E. A. Henry, S. W. Yates, J. E. Draper, C. W. Beausang, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, W. Korten, J. A. Cizewski, M. J. Brinkman , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 2 (1990).

Nuclear Structure: +192}, ^{194}Hg; analyzed data; deduced superdeformed band exit spin.

90Bo40 *Quadrupole Collective Correlations and the Depopulation of the Superdeformed Bands in Mercury*

P. Bonche, J. Dobaczewski, H. Flocard, P. H. Heenen, S. J. Krieger, J. Meyer, M. S. Weiss , Nucl. Phys. A519, 509 (1990).

Nuclear Structure: +190}, ^{192}, ^{194}, ^{196}, ^{198}Hg; calculated deformation energy, wave functions, proton quadrupole moments, superdeformed band decay $I\gamma$. Self-consistent generator coordinate method, Hartree-Fock plus BCS wave functions.

90Ch24 *The Effects of Pairing on Superdeformed Rotational Bands Near A = 190*

R. R. Chasman , Phys. Lett. 242B, 317 (1990).

Nuclear Structure: +190}, ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{193}, ^{194}Tl; calculated superdeformed level second moments of inertia.

90ChZI *The Criterion for the Observation of the GDR Built on Superdeformed States*

Y. S. Chen , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 200 (1990).

Nuclear Structure: +146}, ^{148}, ^{150}, ^{152}Dy, ^{132}, ^{134}, ^{136}Nd, ^{80}, ^{82}, ^{84}Sr; calculated levels, $\sigma(\gamma,X)$; deduced superdeformed state based GDR excitation criterion. Linear response theory.

90Do05 *The Superdeformed Isotope Chains in the Rare-Earth Region*

B. Dong, Y. Chen, X. Jin , Chin. J. Nucl. Phys. 12, No 1, 1 (1990).

Nuclear Structure: +144}, ^{145}, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}, ^{151}, ^{152}Gd, ^{146}, ^{148}, ^{150}, ^{152}, ^{154}Dy; calculated total equipotential energy surfaces; deduced superdeformation features. Cranked Nilsson model.

90DoZY *A Model for the Decay of Superdeformed Bands*

T. Dossing, E. Vigezzi , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 12 (1990).

Nuclear Structure: +152}Dy; calculated superdeformed band decay features.

90Dr08 *Spins in Superdeformed Bands in the Mass 190 Region*

J. E. Draper, F. S. Stephens, M. A. Deleplanque, W. Korten, R. M. Diamond, W. H. Kelly, F. Azaiez, A. O. Macchiavelli, C. W. Beausang, E. C. Rubel, J. A. Becker, N. Roy, E. A. Henry, M. J. Brinkman, A. Kuhnert, S. W. Yates , Phys. Rev. C42, R1791 (1990).

Nuclear Structure: +192}, ^{194}Hf, ^{233}U; analyzed superdeformed band structure; deduced level J. Pseudospin formalism.

90Du10 *Prediction of Octupole-Deformation Effects in Superdeformed Nuclei of A 150 and A 190 Mass Regions and Possible Interrelation with Pseudo-Spin Symmetry*

J. Dudek, T. R. Werner, Z. Szymanski , Phys. Lett. 248B, 235 (1990).

Nuclear Structure: +146}Nd, ^{148}Sm, ^{150}Gd, ^{152}Dy, ^{154}Er, ^{156}Yb, ^{186}, ^{188}, ^{190}, ^{192}, ^{194}, ^{196}, ^{198}, ^{200}, ^{202}Hg; calculated potential energy vs deformation parameter; deduced pronounced octupole effects, superdeformed nuclei.

90Ge06 *On a Possible Supersymmetry in Superdeformed Bands*

A. Gelberg, P. von Brentano, R. F. Casten , J. Phys. (London) G16, L143 (1990).

Nuclear Structure: +152}Dy, ^{151}Tb; analyzed level data; deduced supersymmetry role in superdeformation.

90Ho13 *Octupole Instability of Super- and Hyperdeformed Nuclei*

J. Holler, S. Aberg , Z. Phys. A336, 363 (1990).

Nuclear Structure: +152}Dy, ^{190}, ^{194}Hg, ^{200}Rn; calculated potential energy surfaces; deduced possible superdeformation, hyperdeformation. ^{148}Gd, ^{152}Dy, ^{194}, ^{196}Hg, ^{196}Pb, ^{198}Po, ^{200}Rn; calculated octupole softness; deduced possible superdeformation. Cranked Nilsson-Strutinsky model.

90Ja13 *Superdeformation in the Mercury Nuclei*

R. V. F. Janssens, M. P. Carpenter, M. W. Drigert, P. B. Fernandez, E. F. Moore, D. Ye, I. Ahmad, K. B. Beard, I. G. Bearden, Ph. Benet, P. J. Daly, U. Garg, Z. W. Grabowski, T. L. Khoo, W. Reviol, F. L. H. Wolfs , Nucl. Phys. A520, 75c (1990).

Nuclear Structure: +194}, ^{196}Pb, ^{193}, ^{194}Tl, ^{189}, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}Hg; compiled, analyzed superdeformed band data.

90Ko12 *A Relativistic Theory of Superdeformations in Rapidly Rotating Nuclei*

W. Koepf, P. Ring , Nucl. Phys. A511, 279 (1990).

Nuclear Structure: +152}Dy, ^{80}Sr; calculated superdeformed band structure, quadrupole moments. Cranked relativistic mean field theory.

90Kr10 *Coupling Schemes in Doubly Odd Nuclei and Identical Superdeformed Bands*

A. J. Kreiner, A. O. Macchiavelli , Phys. Rev. C42, R1822 (1990).

Nuclear Structure: +150}, ^{148}, ^{146}, ^{147}Gd; analyzed band structure, superdeformation features. Coupling schemes from pseudospin symmetry.

90Mi13 *Octupole Vibrations Built on Superdeformed Rotational Bands*

S. Mizutori, Y. R. Shimizu, K. Matsuyanagi , Prog. Theor. Phys. (Kyoto) 83, 666 (1990).

Nuclear Structure: +152}Dy; calculated giant octupole resonance strength functions; deduced resonances built on superdeformed band states. Cranking model based RPA.

90Na08 *Natural-Parity States in Superdeformed Bands and Pseudo SU(3) Symmetry at Extreme Conditions*

W. Nazarewicz, P. J. Twin, P. Fallon, J. D. Garrett , Phys. Rev. Lett. 64, 1654 (1990).

Nuclear Structure: +151}Tb, ^{152}Dy, ^{150}Gd; analyzed level schemes, superdeformed bands; deduced pseudo SU(3) symmetry features.

90Ra27 *Transition Energies in Superdeformed Bands. Dependence on Orbital and Deformation*

I. Ragnarsson , Nucl. Phys. A520, 67c (1990).

Nuclear Structure: +152}Dy; calculated superdeformed band transition energy differences; deduced orbital, deformation dependence.

90RaZW *Transition Energies in Superdeformed Bands - Dependence on Orbital and Deformation*

I. Ragnarsson , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 32 (1990).

Nuclear Structure: +151], ^{152}, ^{153}Dy; calculated superdeformed band transition energies. Pure single particle model.

90Sh05 *Effects of Pairing Correlations on Superdeformed Bands in the A 150 Region*

Y. R. Shimizu, E. Vigezzi, R. A. Broglia , Nucl. Phys. A509, 80 (1990).

Nuclear Structure: +150], ^{146}, ^{148}Gd, ^{150}, ^{151}, ^{152}Tb, ^{151}, ^{152}, ^{153}Dy; calculated deformation, superdeformation band stucture, moments of interia. Pair correlations, different models.

90Sh07 *Inertias of Superdeformed Bands*

Y. R. Shimizu, E. Vigezzi, R. A. Broglia , Phys. Rev. C41, 1861 (1990).

Nuclear Structure: +149], ^{150}Gd, ^{152}Dy; calculated superdeformed moment of inertia. Self-consistent treatment of nuclear deformation, pairing correlations.

90Sh08 *Quantum Size Effects in Rapidly Rotating Nuclei*

Y. R. Shimizu, R. A. Broglia , Phys. Rev. C41, 1865 (1990).

Nuclear Structure: +166]Yb; calculated effective pairing gap. ^{150}Gd; calculated superdeformed band moments of inertia. RPA, strongly rotating nuclei.

90Sh21 *A Comparison of the RPA and Number Projection Approaches for Calculations of Pairing Fluctuations in Fast Rotating Nuclei*

Y. R. Shimizu, P. A. Broglia , Nucl. Phys. A515, 38 (1990).

Nuclear Structure: +166]Yb; calculated correlation energy vs rotational frequency, pairing force strength. ^{150}Gd; calculated superdeformed band two moments of inertia. RPA, number projection methods.

90ShZS *Effects of Pairing Correlations on the Depopulation of Superdeformed Bands*

Y. R. Shimizu, E. Vigezzi, T. Dossing, R. A. Broglia , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 184 (1990).

Nuclear Structure: +151], ^{152}Dy; calculated potential energy surfaces vs spin; deduced pairing correlations role in superdeformed band decay. Cranked HFB plus RPA.

90ShZT *Effects of Particle Correlations on the Moment of Inertia of Superdeformed Bands*

Y. R. Shimizu, E. Vigezzi, R. A. Broglia , Proc. Inter. Conf. Nuclear Structure of the Ninoties, Oak Ridge, Tennessee, Vol. 1, p. 182 (1990).

Nuclear Structure: +151], ^{152}, ^{153}Dy, ^{150}, ^{151}, ^{152}Tb, ^{146}, ^{148}, ^{150}Gd; calculated superdeformed band moments of inertia; deduced pairing correlations role. Cranked HFB plus RPA.

90St22 *Spin Alignment in Superdeformed Rotational Bands*

F. S. Stephens , Nucl. Phys. A520, 91c (1990).

Nuclear Structure: ≈151-194; calculated incremental, total alignment for bands; deduced pairing vibrations role in superdeformation. Plausibility arguments.

90Su05 *The Nuclear Meissner Effect and Superdeformation in the Number-Projected Constrained-Cranked HFB Approach*

K. Sugawara-Tanabe, K. Tanabe , Phys. Lett. 238B, 15 (1990).

Nuclear Structure: +132]Ce; calculated levels, superdeformed band structure. Self-consistent constrained-cranked HFB approach.

90SuZU *Mottelson-Valatin Effect in the Number-Projected Constrained-Cranked HFB Solution and the Superdeformation*

K. Sugawara-Tanabe, K. Tanabe , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 34 (1990).

Nuclear Structure: +132]Ce; calculated levels, alignments; deduced superdeformed band structure. Constrained-cranked HFB, number projection.

90Ta29 *Microscopic Structure of the Superdeformed Rotational Band in ^{132}Ce*

K. Tanabe, K. Sugawara-Tanabe , Prog. Theor. Phys. (Kyoto) 83, 1148 (1990).

Nuclear Structure: +132]Ce; calculated levels, average pairing gaps, g, intrinsic quadrupole moments; deduced superdeformed band structure. Self-consistent cranked HFB.

90TaZY *Microscopic Structure of the Superdeformed Bands in A = 130 Region*

K. Tanabe, K. Sugawara-Tanabe , Proc. Inter. Conf. Nuclear Structure of the Nineties, Oak Ridge, Tennessee, Vol. 1, p. 36 (1990).

Nuclear Structure: +132]Ce, ^{136}, ^{134}Nd; calculated levels, alignments; deduced superdeformed band structure. Angular momentum constrained HFB.

90Tw02 *Superdeformation - An Experimental Overview*

P. J. Twin , Nucl. Phys. A520, 17c (1990).

Compilation: A≈152; compiled, reviewed data on superdeformation.

90Vi06 *A Model for the Decay Out of Superdeformed Bands*

E. Vigezzi, R. A. Broglia, T. Dossing , Nucl. Phys. A520, 179c (1990).

Nuclear Structure: +146], ^{146}Gd, ^{150}, ^{151}Tb, ^{151}, ^{152}Dy; analyzed rotational, superdeformed band decay features. Admixture considerations.

90Vi08 *The Decay Out of Superdeformed Rotational Bands*

E. Vigezzi, R. A. Broglia, T. Dossing , Phys. Lett. 249B, 163 (1990).

Nuclear Structure: +146], ^{149}, ^{150}Gd, ^{150}, ^{151}Tb, ^{151}, ^{152}Dy; analyzed superdeformed states decay data; deduced superdeformed, normal states barrier transmission coefficient. Statistical model.

90Za05 *Variable Volume Parameters for the Radii and Kinetic Energies of Superdeformed States*

L. Zamick, E. Moya de Guerra, J. Caballero, D. Berdichevsky, D. C. Zheng , Phys. Lett. 242B, 7 (1990).

Nuclear Structure: +40]Ca; calculated level kinetic energy, radii differences, superdeformation. Hartree-Fock calculations, Skyrme interactions.

90Zh05 *Superdeformed Many-Particle - Many-Hole States in N = Z Nuclei: Beyond the 8p-8h state in ^{40}Ca*

D. C. Zheng, L. Zamick, D. Berdichevsky , Phys. Rev. C42, 1004 (1990).

Nuclear Structure: +40]Ca, ^{44}Ti, ^{48}Cr, ^{52}Fe, ^{56}Ni; calculated multi-particle, multi-hole bands, shapes; deduced possible superdeformation. Fixed configuration, deformed Hartree-Fock.

91Am03 *Supersymmetric Quantum Mechanics and Superdeformed Nuclei*

R. D. Amado, R. Bijker, F. Cannata, J. P. Dedonder , Phys. Rev. Lett. 67, 2777 (1991).

Nuclear Structure: ≈140-198; deduced supersymmetry role in superdeformation.

91Be48 *Very Elongated Nuclei Near A = 194*

J. A. Becker, E. A. Henry, S. W. Yates, T. F. Wang, A. Kuhnert, M. J. Brinkman, J. A. Cizewski, M. A. Deleplanque, R. M. Diamond, F. S. Stephens, F. Azaiez, W. Korten, J. E. Draper , Nucl. Instrum. Methods Phys. Res. B56/57, 500 (1991)

Nuclear Structure: ≈194; ^{192}, ^{194}Hg; compiled, reviewed data; deduced new superdeformation region.

91Bo07 *Cranked Hartree-Fock Study of the Yrast Line of ^{80}Sr*

P. Bonche, H. Flocard, P.-H. Heenen , Nucl. Phys. A523, 300 (1991).

Nuclear Structure: +80)Sr; calculated levels, quadrupole moments, superdeformed bands. Cranked Hartree-Fock.

91Bo11 *Description of Superdeformed Bands by the Quantum Algebra SU(q)(2)*

D. Bonatsos, S. B. Drenska, P. P. Raychev, R. P. Roussev, Yu. F. Smirnov , J. Phys. (London) G17, L67 (1991).

Nuclear Structure: +134), ^{134}Nd, ^{150}Gd, ^{152}, ^{153}Dy, ^{192}, ^{194}Hg, ^{174}Yb, ^{248}Cm; analyzed level data; deduced superdeformed band features. Quantum SU(q)(2) algebra.

91Bo19 *Octupole Softness of Superdeformed ^{194}Pb*

P. Bonche, S. J. Krieger, M. S. Weiss, J. Dobaczewski, H. Flocard, P. -H. Heenen , Phys. Rev. Lett. 66, 876 (1991).

Nuclear Structure: +194)Pb; analyzed data; deduced band structure, superdeformed softness features. Generator coordinate method, pairing projection.

91Ch01 *Giant Dipole Resonance Built on Superdeformed Rotational States*

Y. S. Chen , Phys. Rev. C43, 173 (1991).

Nuclear Structure: +146), ^{148}, ^{150}, ^{152}Dy, ^{132}, ^{134}, ^{136}Nd, ^{80}Sr, ^{82}Sr, ^{84}Sr; calculated superdeformed states based GDR, γ-anisotropy following decay. Linear response theory, superdeformed mean field, self-consistent approach.

Nuclear Reactions: +150)Dy, ^{136}Nd, ^{82}Sr(γ,X), E ≤ 20 MeV; calculated total absorption σ(E). Linear response theory, superdeformed mean field, self-consistent approach.

91Ch36 *Superdeformed and Hyperdeformed Banana Shaped Nuclides Near A = 190*

R. R. Chasman , Phys. Lett. 266B, 243 (1991).

Nuclear Structure: +190)Pt, ^{189}, ^{190}, ^{191}, ^{192}Au, ^{188}, ^{189}, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}, ^{195}Hg, ^{189}, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}, ^{197}Tl, ^{190}, ^{191}, ^{192}, ^{193}Pb, ^{193}, ^{194}, ^{195}, ^{196}Bi, ^{194}Po; calculated level energy relative to prolate mininum, barrier heights, reflection symmetric shapes; deduced superdeformed, hyperdeformed minima, deformation features.

91Cu01 *Cullen et al. Reply:*

D. M. Cullen, M. A. Riley, A. Alderson, I. Ali, C. W. Beausang, T. Bengtsson, M. A. Bentley, P. Fallon, P. D. Forsyth, F. Hanna, S. M. Mullins, W. Nazarewicz, R. J. Poynter, P. H. Regan, J. W. Roberts, W. Satula, J. F. Sharpey-Schafer, J. Simpson, G. Sletten, P. J. Twin, R. Wadsworth, R. Wyss , Phys. Rev. Lett. 67, 1175 (1991).

Nuclear Structure: +193)Hg; analyzed data; deduced superdeformed states features.

91Gu03 *Stability of the Superdeformed Z = 38 Shell Against Exotic Cluster Decays: Reinforcing and switching of shell gaps in nuclei*

R. K. Gupta, W. Scheid, W. Greiner , J. Phys. (London) G17, 1731 (1991).

Nuclear Structure: +78)Sr, ^{80}Zr; calculated cluster-decay $T_{1/2}$; deduced superdeformed Z=38 stability against exotic decay. Cluster ^{14}O-^{40}Ca nuclei.

91Ia02 *Physics of High-Spin States in the Interacting Boson Model*

F. Iachello , Nucl. Phys. A522, 83c (1991).

Nuclear Structure: +192)Hg; analyzed data; deduced superdeformed band features. Other nuclei discussed. Interacting boson model.

91Ji05 *Symmetries of the Nuclear Average Field Hamiltonian and a Search for Possible Exotic Equilibrium Deformations in Superdeformed Nuclei*

X. Ji, J. Dudek, P. Romain , Phys. Lett. 271B, 281 (1991).

Nuclear Structure: =54-78; N=86-122; calculated proton, neutron shell energies vs deformation. ^{158}Hf; calculated total energy surface vs deformations, superdeformed configurations. Nuclear average field hamiltonian.

91Ko18 *The Spin-Orbit Field in Superdeformed Nuclei: A relativistic investigation*

W. Koepf, P. Ring , Z. Phys. A339, 81 (1991).

Nuclear Structure: +208)Pb, ^{16}O; calculated nucleon single particle levels. ^{152}Dy; calculated potential parameters; analyzed superdeformation. Relativistic mean field theory.

91Me07 *Pairing Vibrations and Stability of Superdeformed States*

J. Meyer, P. Bonche, J. Dobaczewski, H. Flocard, P. H. Heenen , Nucl. Phys. A533, 307 (1991).

Nuclear Structure: +194)Hg; calculated levels, quadrupole moments; deduced pairing vibrations role in superdeformed state stability.

91Mi07 *Octupole Vibrations with K = 1 and 2 in Superconducting, Superdeformed Nuclei*

S. Mizutori, Y. R. Shimizu, K. Matsuyanagi , Prog. Theor. Phys. (Kyoto) 85, 559 (1991).

Nuclear Structure: +192)Hg, ^{146}Gd; calculated octupole strength functions, superdeformed nuclei. RPA.

91Ot02 *Interacting Boson Model for Superdeformation*

T. Otsuka, M. Honma , Phys. Lett. 268B, 305 (1991).

Nuclear Structure: +194)Hg; calculated neutron, proton occupation probabilities, Iγ, levels; deduced possible superdeformed β, γ bands features, boson charge, interaction strength. Super interacting boson model.

91Ra20 *Additivity in Superdeformed Bands*

I. Ragnarsson , Phys. Lett. 264B, 5 (1991).

Nuclear Structure: +146), ^{147}, ^{148}Gd; analyzed superdeformed bands transition energies; deduced stability, two-orbitals role.

91Sa12 *Structure of Superdeformed States in Au-Ra Nuclei*

W. Satula, S. Cwiok, W. Nazarewicz, R. Wyss, A. Johnson , Nucl. Phys. A529, 289 (1991).

Nuclear Structure: +190), ^{192}, ^{194}, ^{196}Hg, ^{192}, ^{194}, ^{196}, ^{198}Pb, ^{194}, ^{196}, ^{198}, ^{200}, ^{202}Po, ^{198}, ^{200}, ^{202}, ^{204}, ^{206}Rn, ^{204}, ^{206}, ^{208}, ^{210}, ^{212}Ra; calculated superdeformed state energies, equilibrium deformations, band head energies, barrier heights, potential energy surfaces. ^{189}, ^{191}, ^{193}, ^{195}, ^{190}, ^{192}, ^{194}, ^{196}Tl, ^{187}, ^{189}, ^{191}, ^{193}, ^{195}Au; calculated equilibrium deformations. Strutinsky shell correction method.

91Sc09 *The Population of the Superdeformed Continuum*

K. Schiffer, B. Herskind , Phys. Lett. 255B, 508 (1991).

Nuclear Structure: +152)Dy; analyzed superdeformed level data; deduced continuum features.

91St05 *Stephens et al. Reply:*

F. S. Stephens, M. A. Deleplanque, W. Korten, R. M. Diamond, F. Azaiez, A. O. Macchiavelli, J. A. Becker, E. A. Henry, A. Kuhnert, J. E. Draper, J. A. Cizewski, M. J. Brinkman , Phys. Rev. Lett. 66, 1378 (1991).

Nuclear Structure: +192), ^{194}Hg; analyzed superdeformed band data, spin assignments.

91Ta14 *Microscopic Properties of the Superdeformed Rotational States in Light Rare-Earth Nuclei ^{132}Ce and ^{134}, ^{136}Nd*

K. Tanabe, K. Sugawara-Tanabe , Phys. Lett. 259B, 12 (1991).

Nuclear Structure: +132)Ce, ^{134}, ^{136}Nd; calculated levels, g-factors, yrast sequence electric quadrupole moment, dynamical moments of inertia; deduced superdeformed to yrast transition. Particle number, angular momentum constrained HFB.

91Tw01 *Superdeformed Nuclei at High Spin*

P. J. Twin , Nucl. Phys. A522, 13c (1991).

Nuclear Structure: +152)Dy, ^{151}Tb, ^{150}Gd, ^{152}Eu; analyzed data; deduced superdeformed band evidence. Other data reviewed.

91Wa24 *Comment on ' Landau-Zener Crossing in Superdeformed ^{193}Hg: Evidence for octupole correlations in superdeformed nuclei '*

P. M. Walker , Phys. Rev. Lett. 67, 1174 (1991).

Nuclear Structure: +193)Hg; analyzed data; deduced octupole correlations role in superdeformed states.

91We12 *Superdeformation in the Quasicontinuum: Microscopic view of the excited superdeformed bands and the corresponding level densities*

T. R. Werner, J. Dudek , Phys. Rev. C44, R948 (1991).

Nuclear Structure: +152)Dy, ^{149}Gd; calculated rotational, superdeformed bands. Microscopic approach, Woods-Saxon potential, extended Strutinsky method.

91Wu01 *Superdeformations and Fermion Dynamical Symmetries*

C. -L. Wu , Nucl. Phys. A522, 31c (1991).

Nuclear Structure: +150)Gd, ^{194}Hg; calculated levels, band features, decay characteristics, superdeformation effects. Other nuclei discussed. Fermion dynamical symmetry model.

91Wu04 *Comment on ' Spin Alignment in Superdeformed Hg Nuclei '*

C. -L. Wu, D. H. Feng, M. W. Guidry , Phys. Rev. Lett. 66, 1377 (1991).

Nuclear Structure: +192), ^{194}Hg; analyzed superdeformed band data; deduced spin alignment features.

91Wy01 *Integer Alignment and Strong Coupling Limit in Superdeformed Nuclei*

R. Wyss, S. Pilotte , Phys. Rev. C44, R602 (1991).

Nuclear Structure: +191), ^{192}, ^{193}, ^{194}Hg; analyzed levels, superdeformed band spin, alignment data; deduced strong coupling limit role.

91Ze01 *Spin Determination and Quantized Alignment in the Superdeformed Bands in ^{152}Dy, ^{151}Tb, and ^{150}Gd*

J. Y. Zeng, J. Meng, C. S. Wu, E. G. Zhao, Z. Xing, X. Q. Chen , Phys. Rev. C44, R1745 (1991).

Nuclear Structure: +152)Dy, ^{151}Tb, ^{150}Gd; analyzed data. ^{152}Dy deduced superdeformed band lowest level J. ^{152}Dy, ^{151}Tb, ^{150}Gd deduced superdeformed band quantized alignment.

91Zh23 *An Excited Superdeformed band of ^{80}Zr in Skyrme Hartree-Fock Calculations*

D. C. Zheng, L. Zamick , Phys. Lett. 266, 5 (1991).

Nuclear Structure: +80)Zr; calculated levels; deduced superdeformed band features. Skyrme Hartree-Fock approach.

92Ba42 *Low-Spin Identical Bands in Neighboring Odd-A and Even-Even Nuclei: A possible challenge to mean-field theories*

C. Baktash, J. D. Garrett, D. F. Winchell, A. Smith , Phys. Rev. Lett. 69, 1500 (1992).

Nuclear Structure: +157), ^{161}, ^{163}Ho, ^{159}, ^{161}, ^{163}, ^{167}, ^{169}Tm, ^{163}, ^{165}, ^{167}, ^{169}, ^{171}, ^{173}, ^{175}, ^{177}Lu, ^{171}, ^{173}, ^{175}, ^{177}, ^{179}, ^{181}Ta, ^{177}, ^{181}, ^{183}, ^{185}Re, ^{175}, ^{177}, ^{185}Ir; analyzed band structure; deduced identical bands at deformations between normal, superdeformed values.

92Be25 *Level Spin for Superdeformed Nuclei Near A = 194*

J. A. Becker, E. A. Henry, A. Kuhnert, T. F. Wang, S. W. Yates, R. M. Diamond, F. S. Stephens, J. E. Draper, W. Korten, M. A. Deleplanque, A. O. Macchiavelli, F. Azaiez, W. H. Kelly, J. A. Cizewski, M. J. Brinkman , Phys. Rev. C46, 889 (1992).

Nuclear Structure: +189), ^{190}, ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{192}, ^{194}, ^{196}, ^{198}Pb, ^{193}, ^{194}, ^{195}Tl; analyzed superdeformed band transition Eγ; deduced J, π. Power series expansion approach.

92Ch20 *The Fermion Dynamic Symmetry Model and Superdeformation Near A = 220*

R. R. Chasman , Phys. Lett. 280B, 187 (1992).

Nuclear Structure: +222), ^{223}, ^{224}Fr, ^{222}, ^{223}, ^{224}, ^{226}Ra, ^{222}, ^{223}, ^{224}, ^{225}, ^{226}Ac, ^{223}, ^{224}, ^{225}, ^{226}, ^{227}Th, ^{223}, ^{224}, ^{225}, ^{226}, ^{227}, ^{228}Pa, ^{224}, ^{225}, ^{226}, ^{227}, ^{228}, ^{229}U; calculated well depths, quadrupole, hexadecapole deformation, level energies, static moments of inertia; deduced oblate superdeformed minima, prolate superdeformation features. Fermion dynamic symmetry model.

92Ch32 *Observation of Identical Bands in Superdeformed Nuclei with the Cranked Hartree-Fock Method*

B. -Q. Chen, P. -H. Heenen, P. Bonche, M. S. Weiss, H. Flocard , Phys. Rev. C46, R1582 (1992).

Nuclear Structure: +194), ^{192}Hg, ^{194}Pb; calculated superdeformed band level energies, quadrupole moments, dynamical, rigid moments of inertia; deduced twinning characteristics. Cranked Hartree-Fock, Skyrme effective interaction.

92CiZZ *Identical Bands and Quantized Alignment in Superdeformed A = 194 Nuclei: Evidence for a new kind of rotor*

J. A. Cizewski, J. A. Becker, E. A. Henry, M. J. Brinkman, T. F. Wang, A. Kuhnert, F. S. Stephens, M. A. Deleplanque, R. M. Diamond, F. Azaiez, A. O. Macchiavelli, J. E. Draper , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 68 (1992); AECL-10613 (1992)

Nuclear Structure: =194; analyzed data; deduced superdeformed, identical band features. Spin-rotor framework.

92Cl06 *On the DSAM and Lifetime Measurements for Superdeformed States*

R. Clark, N. Rowley , J. Phys. (London) G18, 1515 (1992).

Nuclear Structure: +152)Dy, ^{132}Nd; analyzed DSA, $T_{1/2}$ data procedures; deduced improved results possibility with inverse reactions; calculated superdeformed bands quadrupole moments. Bateman equations equivalent formalism.

92Cs03 *On the Relation between Cluster and Superdeformed States of Light Nuclei*

J. Cseh, W. Scheid , J. Phys. (London) G18, 1419 (1992).

Nuclear Structure: +12)C, ^{16}O, ^{20}Ne, ^{24}Mg, ^{28}Si, ^{32}S, ^{36}Ar, ^{40}Ca, ^{44}Ti; analyzed levels; deduced superdeformed states clusterization features.

92DeZW *Microscopic Description of Superdeformed Bands in ^{190}, ^{192}, ^{194}Hg and ^{152}Dy*

J. P. Delaroche, M. Girod, J. F. Berger, J. Libert , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 77 (1992); AECL-10613 (1992)

Nuclear Structure: +190), ^{192}, ^{194}Hg, ^{152}Dy; calculated potential energy surfaces, inertia tensors; deduced band structure, superdeformed band characteristics. Constrained HFB, Gogny force.

92DuAA

Prog. Part. Nucl. Phys. 28, 131(1992) abstract unavailable.

92Fa02 *The Influence of Pairing on the Properties of ' Identical ' Superdeformed Bands in Hg Nuclei*

P. Fallon, W. Nazarewicz, M. A. Riley, R. Wyss , Phys. Lett. 276B, 427 (1992).

Nuclear Structure: +190), ^{191}, ^{192}, ^{193}, ^{194}Hg; analyzed band structure data; deduced good reference for superdeformed bands, neutron pairing relative magnitude.

92FaZY *Differences in ' Identical ' Superdeformed Bands*

P. Fallon, W. Nazarewicz, M. A. Riley, R. Wyss , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 74 (1992); AECL-10613 (1992)

Nuclear Structure: +1 4)Hg; analyzed superdeformed band low spin state transition energies; deduced low spin deviations qualitative picture. Blocking arguments.

92Gi01 *Ab Initio Calculation of Superdeformed Bands in ^{192}Hg*

M. Girod, J. P. Delaroche, J. Libert, I. Deloncle , Phys. Rev. C45, R1420 (1992).

Nuclear Structure: +192)Hg; calculated levels, kinematic moment of inertia, B(λ); deduced superdeformed bands. Griffin-Hill-Wheeler equation, Gaussian overlap approximation, constrained Hartree-Fock-Bogoliubov calculation based potential, tensor of inertia, Gogny's force.

92Hs32 *Magnetic Dipole Strength in Superdeformed Nuclei*

I. Hamamoto, W. Nazarewicz, Phys. Lett. 297B, 25 (1992).

Nuclear Structure: +192)Hg, ^{152}Dy; calculated B(M1), superdeformed nuclei; deduced isovector GQR, scissors mode overlap.

92Ha35 *Nuclear Superdeformation Data Tables*

X.-L. Han, C.-L. Wu, At. Data Nucl. Data Tables 52, 43 (1992).

Compilation: A=130, 150, 190; compiled Iγ for transitions in superdeformed bands.

92HaZT *Recent Results and Future Prospects Along the N = Z Line with Radioactive Nuclear Beams and RMS*

J. H. Hamilton, A. V. Ramayya, Contrib. 6th Intern. Conf. on Nuclei Far from Stability + 9th Intern. Conf. on Atomic Masses and Fundamental Constants, Bernkastel-Kues, Germany, PE10 (1992)

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Nuclear Structure: +72), ^{74}, ^{76}Kr; reviewed, analyzed data. ^{88}Ru; analyzed band structure; deduced low spin superdeformation. Nuclei along N=Z line.

92Kr07 *Super-Deformation and Shape Isomerism: Mapping the isthmus*

S. J. Krieger, P. Bonche, M. S. Weiss, J. Meyer, H. Flocard, P.-H. Heenen, Nucl. Phys. A542, 43 (1992).

Nuclear Structure: =108-152; calculated excitation energy, rigid moment of inertia. ^{180}, ^{182}, ^{184}, ^{186}, ^{188}, ^{200}, ^{202}, ^{204}, ^{206}, ^{210}, ^{212}, ^{214}, ^{216}, ^{218}, ^{220}, ^{222}, ^{224}, ^{226}, ^{228}, ^{230}Pb calculated rigid moment of inertia, quadrupole moment, superdeformed isomers; deduced shape isomerism isthmus superdeformation region. Microscopic Hartree-Fock-BCS formalism.

92Me01 *Superdeformed Single-Particle Orbitals in the A = 190 Region from Hartree-Fock Plus BCS Calculations*

M. Meyer, N. Redon, P. Quentin, J. Libert, Phys. Rev. C45, 233 (1992).

Nuclear Structure: +192), ^{194}, ^{196}, ^{198}, ^{200}Pb, ^{194}, ^{192}, ^{190}Hg; calculated superdeformed nucleon state components, spectra; deduced particle number symmetry restoration role. Self-consistent axial Hartree-Fock plus BCS.

92Na03 *Dynamical Symmetries, Multiclustering, and Octupole Susceptibility in Superdeformed and Hyperdeformed Nuclei*

W. Nazarewicz, J. Dobaczewski, Phys. Rev. Lett. 68, 154 (1992).

Nuclear Structure: =66-230; calculated minimum shell correction energy; deduced new superdeformation and hyperdeformation classification schemes.

92Na12 *Quadrupole Splitting of Octupole Vibrational States*

R. Nazmitdinov, S. Aberg, Phys. Lett. 289B, 238 (1992).

Nuclear Structure: =150; calculated giant octupole, dipole, quadrupole resonance K-component splittings; deduced analytical RPA solutions at spherical, superdeformed, hyperdeformed shells.

92Na15 *Octupole Vibrations in the Harmonic-Oscillator-Potential Model with Axis Ratio Two to One*

T. Nakatsukasa, S. Mizutori, K. Matsuyanagi, Prog. Theor. Phys. (Kyoto) 87, 607 (1992).

Nuclear Structure: =80; N=80; calculated RPA octupole transition strength functions; deduced open shell superdeformed configurations octupole vibrations evidence. Harmonic osillator potential model, axis ratio two to one, RPA solutions.

92NaZZ *Couplings between Octupole-Vibrational and Quasiparticle Modes of Excitation in Rotating, Superconducting, Superdeformed Nuclei*

T. Nakatsukasa, S. Mizutori, K.-I. Arita, Y. R. Shimizu, K. Matsuyanagi, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 87 (1992); AECL-10613 (1992)

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Nuclear Structure: +193)Hg; calculated intraband coupling effects, superdeformed states. Microscopic particle-vibration couplings.

92NaZS *New Vistas in Superdeformation*

W. Nazarewicz, Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 32 (1992); AECL-10613 (1992)

.

Nuclear Structure: +170), ^{180}, ^{190}, ^{200}Hg; analyzed total potential energies. ^{166}, ^{168}, ^{170}, ^{172}, ^{174}, ^{176}, ^{178}, ^{180}, ^{182}, ^{184}, ^{186}, ^{188}, ^{190}, ^{192}, ^{194}, ^{196}, ^{198}, ^{200}Hg; analyzed shape-coexisting states energies; deduced superdeformation related features. Other nuclei discussed.

92Pa22 *On a Possible Origin of Identical Superdeformed and Normally Deformed Bands and Absence of Polarization in Interacting Boson-Fermion Model*

V. Paar, D. K. Sunko, D. Vretenar, J. Phys. (London) G18, L191 (1992).

92PaZW *Highly-Deformed Bands in the Mass 130 Region*

E. S. Paul, Proc. Int. Conf. Future Directions in Nuclear Physics with 4π Gamma Detection Systems of the New Generation, Strasbourg, France (1991), J. Dudek, B. Haas, Eds., American Institute of Physics, New York, p. 165 (1992).

Compilation: ^{133}, ^{135}, ^{137}Sm, ^{139}Gd, ^{142}Eu, ^{133}, ^{134}, ^{135}, ^{136}, ^{137}Nd, ^{134}Pr, ^{131}, ^{132}, ^{133}, ^{134}Ce, ^{130}La; compiled, reviewed superdeformed, intruder bands, $T_{1/2}$ data; deduced dominated configuration.

92RaZV *Assignment of Nilsson Orbitals at Superdeformation - Identical Bands*

I. Ragnarsson, Proc. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 187 (1992); AECL-10613 (1992)

.

Nuclear Structure: +146), ^{147}, ^{148}, ^{149}Gd; analyzed superdeformed bands data; deduced effective alignments direct imaging of Nilsson orbitals, other features.

92Se01

P. B. Semmes, I. Ragnarsson, S. Aberg, Phys. Rev. Lett. 68, 460 (1992).

Nuclear Structure: +193), ^{194}Hg; calculated transition Iγ in superdeformed bands. ^{193}Hg deduced internal conversion dominated M1 cross talk evidence.

92Sh04 *Superfluid Tunneling in Superdeformed Nuclei*

Y. R. Shimizu, F. Barranco, R. A. Broglia, T. Dossing, E. Vigezzi, Phys. Lett. 274B, 253 (1992).

Nuclear Structure: +152)Dy; calculated potential energy vs adiabatic path. ^{149}, ^{150}Gd, ^{150}, ^{151}Tb, ^{151}, ^{152}Dy; calculated invariant adiabatic action vs angular momentum, superdeformed band decay related parameter. Superfluid tunneling model.

92ShZX *On the Mechanism of Decay Out of Superdeformed Bands*

Y. R. Shimizu, T. Dossing, E. Vigezzi, R. A. Broglia, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 70 (1992); AECL-10613 (1992)

.

Nuclear Structure:
150, 190; analyzed superdeformed decay characteristics; deduced possible mechanism plausibility.

92Sk01 *Octupole Correlations at Superdeformed Shape in the Hg-Pb Region - Including Nonaxial Components*

J. Skalski, Phys. Lett. 274B, 1 (1992).

Nuclear Structure: +192), ^{194}Hg, ^{192}, ^{194}, ^{196}, ^{198}Pb; calculated routhian stiffness vs octupole deformation components; deduced octupole vibration frequencies at superdeformed minima.

92So10 *Intrinsic Structures and Associated Rotational Bands in Deformed Even-Even Nuclei of the Actinide Region*

P. C. Sood, D. M. Headly, R. K. Sheline , At. Data Nucl. Data Tables 51, 273 (1992).

Nuclear Structure: ≥ 88; N ≥ 134; ^{230}, ^{232}, ^{234}, ^{236}, ^{238}U, ^{220}, ^{222}, ^{224}, ^{226}, ^{228}, ^{230}, ^{232}, ^{234}Th, ^{218}, ^{220}, ^{222}, ^{224}, ^{226}, ^{228}, ^{230}Ra; analyzed levels; deduced band structure, fission isomers superdeformation, hyperdeformation evidence.

92TaZX *The Anisotropy Coefficient of Gamma-Rays from Thermal High-Spin Giant-Dipole-Resonances*

K. Tanabe, K. Sugawara-Tanabe , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 94 (1992); AECL-10613 (1992) .

Nuclear Structure: +132)Ce; calculated γ-ray anisotropy coefficients, σ(γ,X); deduced behavior for superdeformed states. Thermal RPA, GDR, high spin.

92TaZY *The Thermal Energy-Weighted Sum Rule for Giant-Dipole-Resonances in Hot Nuclei*

K. Tanabe, K. Sugawara-Tanabe , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 93 (1992); AECL-10613 (1992) .

Nuclear Structure: +132)Ce; calculated GDR resonance thermal energy-weighted sum rule; deduced γ(θ) asymmetry behavior for superdeformed band. Thermal RPA.

92Th01 *Nuclear Dissipation and the Feeding of Superdeformed Bands*

M. Thoennessen, J. R. Beene , Phys. Rev. C45, 873 (1992).

Nuclear Reactions: +159)Tb(^{18}O,X), E=160 MeV; calculated fusion, fission, evaporation residue σ vs spin, high energy γ-spectra; deduced dissipation role, enhanced superdeformed band feeding features. Statistical model.

92WaZW *Topological Excitations and Identical Superdeformed Bands*

J. C. Waddington, R. K. Bhaduri , Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 80 (1992); AECL-10613 (1992) .

Nuclear Structure: +192)Hg; analyzed identical superdeformed band feautres; deduced vortices role. Topological excitations, ^{152}Dy core.

92Wu01 *Spin Determination and Calculation of Nuclear Superdeformed Bands in A 190 Region*

C. S. Wu, J. Y. Zeng, Z. Xing, X. Q. Chen, J. Meng , Phys. Rev. C45, 261 (1992).

Nuclear Structure: +190), ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{193}, ^{194}Tl, ^{194}, ^{196}Pb; calculated superdeformed bands, transition energies. Two-parameter approach.

92Wu05 *Relation between the Kinematic and Dynamic Moments of Inertia in Superdeformed Nuclei*

C. S. Wu, L. Cheng, C. Z. Lin, J. Y. Zeng , Phys. Rev. C45, 2507 (1992).

Nuclear Structure: +164), ^{166}Er, ^{168}, ^{170}, ^{172}, ^{174}, ^{176}Yb, ^{170}, ^{172}, ^{174}, ^{176}, ^{178}Hf, ^{238}U, ^{242}Pu, ^{248}Cm; analyzed ground state bands data. ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{193}, ^{194}Tl, ^{194}, ^{196}Pb, ^{151}, ^{152}Dy, ^{150}Tb, ^{149}Gd; analyzed superdeformed band level data; deduced R-parameter remains independent of spin.

92Wu06 *Is There Objective Evidence for Quantized Spin Alignment in Superdeformed Nuclei (Question)*

C. -L. Wu, D. H. Feng, M. Guidry , Phys. Rev. C46, 1339 (1992).

Nuclear Structure: +192), ^{192}, ^{193}, ^{194}Hg, ^{194}Pb, ^{194}Tl; analyzed superdeformed band γ-transition energy analyses for spin determination; deduced quantized spin alignment related characteristics.

93Ab08 *Superdeformed Nuclei*

S. Aberg , Nucl. Phys. A557, 17c (1993).

Nuclear Structure: +146), ^{150}Gd, ^{151}Tb, ^{152}Dy, ^{189}, ^{190}, ^{191}, ^{192}, ^{193}, ^{194}Hg; compiled, reviewed superdeformed band related data. ^{146}Gd deduced hyperdeformation evidence. Other nuclei included.

93Ba17 *On the Question of Spin Fitting and Quantized Alignment in Rotational Bands*

C. Baktash, W. Nazarewicz, R. Wyss , Nucl. Phys. A555, 375 (1993).

Nuclear Structure: +76), ^{76}Kr; analyzed level energy rms deviation vs spin. ^{150}Gd, ^{151}, ^{152}Dy, ^{151}Tb, ^{192}, ^{194}Hg; analyzed superdeformed states data, level energy rms deviation vs spin. ^{180}Pt, ^{174}Ir, ^{175}Re, ^{177}Pt, ^{182}Os, ^{238}U, ^{172}, ^{160}Yb, ^{160}Lu, ^{174}, ^{178}Hf, ^{180}, ^{182}Os, ^{186}Hg; calculated superdeformed, rotational bands. Harris expansion formula.

93Ba36 *High-Spin States and Superdeformation in the Proton-Neutron Interacting Boson Model*

A. F. Barfield, B. R. Barrett , Nucl. Phys. A557, 551c (1993).

Nuclear Structure: +192)Hg, ^{238}U; calculated levels, moment of inertia for bands. ^{192}Hg deduced possible new superdeformed band candidate. Neutron-proton interacting boson model.

93Fl04 *Hartree-Fock and Hartree-Fock-Bogoliubov Calculations of Superdeformed Bands*

H. Flocard, B. Q. Chen, B. Gall, P. Bonche, J. Dobaczewski, P. H. Heenen, M. S. Weiss , Nucl. Phys. A557, 559c (1993).

Nuclear Structure: +192), ^{194}Hg, ^{194}Pb; calculated superdeformed bands quadrupole moments, dynamical, rigid body moments of inertia. Hartree-Fock, HFB calculations, limitations discussed.

93Gu08 *Some General Constraints on Identical Band Symmetries*

M. W. Guidry, M. R. Strayer, C. -L. Wu, D. H. Feng , Phys. Rev. C48, 1739 (1993).

Nuclear Structure: +192), ^{194}, ^{192}Hg, ^{234}, ^{236}, ^{238}U, ^{238}, ^{240}, ^{242}, ^{244}Pu, ^{248}, ^{246}Cm, ^{248}, ^{250}Cf; analyzed band structure; deduced normal, superdeformed identical bands related features.

93Ho17 *E2 Contribution to the Decay Out of a Superdeformed Band*

M. Honma, T. Otsuka , Phys. Lett. 314B, 1 (1993).

Nuclear Structure: +199)Hg; calculated superdeformed band B(λ), Eγ; deduced superdeformed band sudden termination reason. Nilsson+particle number conserving BCS model.

93Hu06 *Spin Determination of Superdeformed Bands, A - 190 and A - 150 Regions*

J. Hu, C. Zheng , Chin. J. Nucl. Phys. 15, No 1, 45 (1993).

Nuclear Structure: +190), ^{191}, ^{192}, ^{193}, ^{194}Hg, ^{193}, ^{194}Tl, ^{194}, ^{196}, ^{198}Pb, ^{143}, ^{147}, ^{148}, ^{149}, ^{150}Gd, ^{150}, ^{151}Tb, ^{151}, ^{152}, ^{153}Dy; analyzed level spectra, Eγ; deduced superdeformed band states spin. Different methods.

93Kh06 *Feeding and Decay of Superdeformed States*

T. L. Khoo, T. Lauritsen, I. Ahmad, M. P. Carpenter, P. B. Fernandez, R. V. F. Janssens, E. F. Moore, F. L. H. Wolfs, Ph. Benet, P. J. Daly, K. B. Beard. U. Garg, D. Ye, M. W. Drigert , Nucl. Phys. A557, 83c (1993).

Nuclear Structure: +192)Hg; analyzed superdeformed band feeding, decay data; deduced mechanisms.

93Ko41 *Identical Bands in Superdeformed Nuclei: A relativistic description*

J. Konig, P. Ring , Phys. Rev. Lett. 71, 3079 (1993).

Nuclear Structure: +152)Dy, ^{151}Tb; calculated binding energy, mass quadrupole moment, static, rigid body moment of inertia, transitional energy differences for superdeformed band. Relativistic mean field theory, rotating frame.

93Li09 *Microscopic Description of Superdeformed Bands in ^{190}, ^{192}, ^{194}Hg*

J. Libert, J. F. Berger, J. P. Delaroche, M. Girod , Nucl. Phys. A553, 523c (1993).

Nuclear Structure: +190), ^{192}, ^{194}Hg; calculated levels, normal, superdeformation bands. Microscopic model.

93Lu08 *On the Fits to the Superdeformed Bands*

W. Luo, Y. Chen, Chin. J. Nucl. Phys. 15, No 1, 50 (1993).

Nuclear Structure: +146}, ^{147}, ^{148}, ^{149}, ^{150}Gd, ^{150}, ^{151}Tb, ^{151}, ^{152}, ^{153}Dy; analyzed level spectra, $E\gamma$; deduced superdeformed band states spin. Different methods.

93Mi10 *Octupole Correlations in Superdeformed High-Spin States*

S. Mizutori, T. Nakatsukasa, K. Arita, Y. R. Shimizu, K. Matsuyanagi, Nucl. Phys. A557, 125c (1993).

Nuclear Structure: +158}, ^{156}, ^{154}, ^{152}, ^{150}, ^{148}, ^{146}, ^{144}, ^{142}Gd, ^{184}, ^{186}, ^{188}, ^{190}, ^{192}, ^{194}, ^{196}, ^{198}, ^{200}Hg; calculated curvature against octupole deformation, stretched octupole strengths; deduced octupole instability, superdeformed shape relationship.

93No04 *Superdeformation and High Spin States*

P. J. Nolan, Nucl. Phys. A553, 107c (1993).

Nuclear Structure: =130-140; A 150; A 190; compiled, reviewed superdeformation, other data features.

93Pa05 *E0 Transitions and the Depopulation of SD Bands*

M. Palacz, Z. Sujkowski, J. Bacelar, A. Atac, B. Herskind, J. Nyberg, M. Piiparinen, G. de Angelis, S. Forbes, N. Gjorup, G. Hagemann, F. Ingebretsen, H. Jensen, D. Jerrestam, H. Kusakari, R. Lieder, G. M. Marti, S. Mullins, D. Santonocito, H. Schnaro, G. Sletten, K. Strahle, M. Sugawara, P. O. Tjom, A. Virtanen, R. Wadsworth, Acta Phys. Pol. B24, 399 (1993).

Nuclear Structure: +132}Ce, ^{143}Eu, ^{152}Dy, ^{192}Hg; calculated transition probability vs excitation energy for superdeformed states. ^{143}Eu; analyzed γ(K X-ray)-coin following superdeformed states decay.

93Pa10 *Shapes of Exotic Nuclei in the Mass A = 70 Region*

S. K. Patra, C. R. Praharaj, Phys. Rev. C47, 2978 (1993).

Nuclear Structure: +64}Ge, ^{68}Se, ^{72}Kr, ^{76}Sr, ^{80}Zr; calculated ground state deformation parameters. ^{76}Se; calculated occupation probability vs neutron single particle energies for normal deformation, superdeformation. Deformed relativistic mean field theory.

93Pi03 *Model of Superfluid Liquid with Triplet Pairing, Cranking Model and Model of Variable Moment of Inertia in Superdeformed Bands in A 190 Region*

R. Piepenbring, K. V. Protasov, Z. Phys. A345, 7 (1993).

Nuclear Structure: +189}, ^{190}, ^{191}, ^{192}, ^{194}Hg, ^{194}, ^{196}Pb, ^{193}, ^{194}Tl; calculated superdeformed band states transition energies; deduced spin assignments. Triplet pairing model.

93Pr01 *Rotational Spectra of Nuclei: Equivalence of a superfluid liquid model, the cranking model and a model with a variable moment of inertia*

K. V. Protasov, R. Piepenbring, J. Phys. (London) G19, 597 (1993).

Nuclear Structure: +194}Tl; calculated superdeformed band transition energies; deduced model equivalences. Superfluid liquid, cranking, variable moment of inertia models.

93Ra07 *Orbital and Spin Assignment of SD Bands in the Dy/ Gd Region - Identical Bands*

I. Ragnarsson, Nucl. Phys. A557, 167c (1993).

Nuclear Structure: +146}, ^{147}, ^{148}, ^{149}, ^{150}Gd, ^{151}Tb, ^{151}, ^{152}, ^{153}Dy; analyzed superdeformed band transition $I\gamma$, other data; deduced J, π assignments.

93Ro04 *Hyperdeformation in ^{152}Dy at Very High Spins*

G. Royer, F. Haddad, Phys. Rev. C47, 1302 (1993).

Nuclear Structure: +152}Dy; calculated macroscopic, rotational energies, rigid moment of inertia, electric quadrupole moment vs deformation. ^{56}Ni; calculated macroscopic, rotational energies vs deformation. ^{152}Dy deduced hyperdeformed states evidence. Rotational liquid drop model.

93Sh18 *Tunneling Probability for Decays Out of Superdeformed Bands*

Y. R. Shimizu E. Vigezzi, T. Dossing, R. A. Broglia, Nucl. Phys. A557, 99c (1993).

Nuclear Structure: +151}, ^{152}Dy, ^{192}Hg; ^{143}Eu, ^{146}, ^{147}, ^{148}, ^{149}, ^{150}Gd, ^{150}, ^{151}Tb; analyzed data; deduced tunneling probability for decays out of superdeformed bands.

93Sk01 *Octupole Correlations in Superdeformed Mercury and Lead Nuclei: A generator-coordinate method analysis*

J. Skalski, P. -H. Heenen, P. Bonche, H. Flocard, J. Meyer, Nucl. Phys. A551, 109 (1993).

Nuclear Structure: +194}Pb, ^{194}, ^{192}Hg; calculated axial, nonaxial octupole level energies built on superdeformed states, B(λ); deduced weak coupling. Generator coordinate method, self-consistent Hartree-Fock BCS basis.

93Su10 *The Angular Distribution of Gamma-Rays from Thermal High-Spin Giant-Dipole-Resonances on Superdeformed States*

K. Sugawara-Tanabe, K. Tanabe, Nucl. Phys. A559, 42 (1993).

Nuclear Structure: +132}Ce; calculated levels, transition $\gamma(\theta)$, absorption $\sigma(E\gamma)$, thermal high spin GDR, superdeformed states. Microscopic approach, thermal RPA, thermal cranked HFB ensemble.

93Su14 *Quantization of Alignment and Different Parity Pair Levels with Omega = 1/2*

K. Sugawara-Tanabe, A. Arima, Nucl. Phys. A557, 157c (1993).

Nuclear Structure: +192}Hg, ^{152}Dy; calculated l-s operator matrix element for parity doublet levels; deduced degeneracy features at superdeformation.

93Su23 *Parity Doublet Levels in Superdeformation*

K. Sugawara-Tanabe, A. Arima, Phys. Lett. 317B, 1 (1993).

Nuclear Structure: +192}Hg, ^{152}Dy; calculated parity-doublet levels; deduced degeneracy features at Fermi surface in superdeformed shape.

93Zh21 *Comment on ' Evidence for Superdeformed Shape Isomeric States in ^{28}Si at Excitations Above 40 MeV Through Observations of Selective Particle Decays of ^{16}O + ^{12}C Resonances in ^{8}Be and Alpha Channels '*

J. Zhang, A. C. Merchant, W. D. M. Rae, Phys. Rev. C48, 2117 (1993).

Nuclear Reactions: +12}C(^{16}O,^{8}Be), (^{16}O,α), E(cm)=25. 7-38. 6 MeV; analyzed previous data analyses. ^{28}Si deduced superdeformed shape isomeric states structure.

References for Fission Isomers

62Po09 *Spontaneous Fission with an Anomalously Short Period. I.*

S. M. Polikanov, V. A. Druin, V. A. Karnaukhov, V. L. Mikheev, A. A. Pleve, N. K. Skobelev, G. M. Ter-Akopyan, V. A. Fomichev , Zhur. Ekspti. i Teoret. Fiz. 42, 1464 (1962); Soviet Phys. JETP 15, 1016 (1962).

Nuclear Structure: ission ^{242}Am; measured not abstracted; deduced nuclear properties.

62Pe26 *Spontaneous Fission with an Anomalously Short Period. II*

V. P. Perelygin, S. P. Almazova, B. A. Gvozdev, Y. T. Chuburkov , Zhur. Ekspti. i Teoret. Fiz. 42, 1472 (1962); Soviet Phys. JETP 15, 1022 (1962).

63Fl08 *Formation of a Spontaneously Fissioning Isomer in Reactions Involving α Particles and Deuterons*

G. N. Flerov, S. M. Polikanov, K. A. Gavrilov, V. L. Mikheev, V. P. Perelygin, A. A. Pleve , Zh. Eksperim. i Teor. Fiz. 45, 1396 (1963); Soviet Phys. JETP 18, 964 (1964).

63Pe27 *Half-Life of a Spontaneously Fissioning Isomer*

V. G. Perelygin, S. P. Tretyakova , Zh. Eksperim. i Teor. Fiz. 45, 863 (1963); Soviet Phys. JETP 18, 592 (1964).

Nuclear Structure: ission [illegible]U; measured not abstracted; deduced nuclear properties.

65Fl04 The Excitation Function and the *Isomeric Yield Ratio for the 14 msec Fissioning Isomer from Deuteron Irradiation of Plutonium*

G. N. Flerov, A. A. Pleve, S. M. Polikanov, E. Ivanov, N. Martalogu, D. Poenaru, N. Vilcov , Rev. Roumaine Phys. 10, 217 (1965).

Nuclear Structure: +242)Am; measured not abstracted; deduced nuclear properties.

65Le22 *Decay of the Am^{242m} 14-msec Isomer*

R. B. Leachman, B. H. Erkkila , Bull. Am. Phys. Soc. 10, No. 9, 1204, P12 (1965)

Nuclear Structure: +242)Am; measured not abstracted; deduced nuclear properties.

65Li05 *The Formation of a Spontaneously Fissioning Isomer in the Capture of Neutrons by Am*

A. F. Linev, B. N. Markov, A. A. Pleve, S. M. Polikanov , Nucl. Phys. 63, 173 (1965).

Radioactivity: ^{242}Am; measured $T_{1/2}$, SF. ^{243}Am(n, 2n), E=14 MeV; measured σ.

66Br23 *A Study of Nuclear Isomers Which Decay by Spontaneous Fission*

D. S. Brenner, L. Westgaard, S. Bjornholm , Nucl. Phys. 89, 267 (1966).

Radioactivity: ^{242}Am isomer [from ^{242}Pu(d,2n)]; measured $T_{1/2}$(SF), E(fragment)-spectrum. Enriched target. ^{242}Pu(d,2n), (d,F), E = 12 MeV; measured σ(F)(delayed)/ σ(F)(prompt). Enriched target. ^{232}Th, ^{238}U, ^{239}Pu, ^{241}Am, ^{243}Am(d, xn)(d,F), E = 12 MeV; ^{243}Am(p,xn)(p,F), E = 13 MeV; measured upper limits σ(F)(delayed)/σ(F)(prompt). Enriched targets.

66Ma48 *Structure of Spontaneously Fissionable Isomers*

L. A. Malov, S. M. Polikanov, V. G. Soloviev , Yadern. Fiz. 4, 528 (1966); Soviet J. Nucl. Phys. 4, 376 (1967).

67Bj03 *Excitation Energy of the Spontaneously Fissioning Isomeric State in ^{240}Am*

S. Bjornholm, J. Borggreen, L. Westgaard, V. A. Karnaukhov , Nucl. Phys. A95, 513 (1967).

Nuclear Reactions: +240)Pu(d,2n), E = 12. 1 MeV; ^{240}Pu(p,n), E = 10. 3-11. 3 MeV; measured σ (delayed fission). ^{241}Pu(p,2n), E = 9. 6-13. 6 MeV; measured σ (delayed fission); deduced threshold. Enriched target. ^{240m}Am measured $T_{1/2}$ for spontaneous fission.

67Bo23 *A New Spontaneously Fissioning Isomer: ^{238}Am*

J. Borggreen, Y. P. Gangrsky, G. Sletten, S. Bjornholm , Phys. Letters 25B, 402 (1967).

Nuclear Structure: +238)Am; measured not abstracted; deduced nuclear properties.

67Fl03 *Excitation Energy of Spontaneously Fissioning Isomer 242m-Am*

G. N. Flerov, A. A. Pleve, S. M. Polikanov, S. P. Tretyakova, N. Martalogu, D. Poenaru, M. Sezon, I. Vilcov, N. Vilcov , Nucl. Phys. A97, 444 (1967).

Nuclear Reactions: +243)Am(n,2nF), E = 8-14. 4 MeV; measured σ(E), n, F-delay. ^{242}Am deduced level, $T_{1/2}$. Enriched target.

67Fl08 *A Study of the Spontaneously-Fissioning Isomer of ^{242}Am Through the ^{241}Am(n,γ) Reaction*

G. N. Flerov, A. A. Pleve, S. M. Polikanov, S. P Tretyakova, I. Boca, M. Sezon, I. Vilcov, N. Vilcov , Nucl. Phys. A102, 443 (1967).

Nuclear Reactions: ission ^{241}Am(n,γ); E=0-6. 5 MeV; measured σ(E).

Radioactivity: Fission ^{244m}Am [from ^{243}Am(n,γ)]; measured $T_{1/2}$ (SF).

67Ga04 *Investigation of the Reaction U^{238}+B^{11}, Which Leads to the Spontaneously-Fissioning Isomer Am^{244}*

Y. P. Gangrskii, B. N. Markov, S. M. Polikanov, G. Jungclaussen , Yadern. Fiz. 5, 22 (1967); Soviet J. Nucl. Phys. 5, 16 (1967).

Nuclear Structure: +242)Am; measured not abstracted; deduced nuclear properties.

67Vi01 *On the Spin Value of the 14-msec Spontaneously Fissioning Isomer of Am^{242}*

N. Vilcov , Rev. Roumaine Phys. 12, 487 (1967).

Nuclear Structure: +242)Am; measured not abstracted; deduced nuclear properties.

68Bj04 *Investigation of (d,p) and (d,t) Reactions Leading to Spontaneously Fissile Isomeric States*

S. Bjornholm, I. Borggreen, Y. P. Gangrskii, G. Sletten , Yadern. Fiz. 8, 459 (1968); Soviet J. Nucl. Phys. 8, 267 (1969).

Nuclear Reactions: +241), ^{243}Am(d,p), (d,t), E=9-13 MeV; measured σ(E); deduced isomeric ratio.

68Ca23 *Autocorrelation Effects in the Neutron Induced Fission Cross Section of ^{235}U*

M. G. Cao, E. Migneco, J. P. Theobald , Phys. Lett. 27B, 409 (1968).

Nuclear Reactions: ission ^{235}U(n,F), E=0. 006-3 keV; measured σ(E). ^{236}U deduced resonance, autocorrelation, intermediate state, shape isomer. Reanalysis of data.

68Er01 *Energy of ^{242}Am and ^{240m}Am Fission Fragments*

B. H. Erkkila, R. B. Leachman , Nucl. Phys. A108, 689 (1968).

Radioactivity: Fission ^{242m}Am(SF) [from ^{242}Pu(d,2n)]; measured $T_{1/2}$, E(fragment). ^{252}Cf measured E(fragment).

Nuclear Reactions: ission ^{240}Pu(d,F), E=7. 6-14 MeV; measured σ(E; E(fragment)) ^{230}Th, ^{233}U, ^{242}Pu(d, F), E=14 MeV; measured σ(E(fragment)).

68Mi14 *Resonance Grouping Structure in Neutron Induced Subthreshold Fission of ^{240}Pu*

E. Migneco, J. P. Theobald , Nucl. Phys. A112, 603 (1968).

Nuclear Reactions: +240)Pu(n,F), E=0. 2 to 8 keV; measured σ(nf)(E). ^{241}Pu resonances deduced F-width.

68WoZZ *Short-Lived Spontaneous Fission Isomers*

K. L. Wolf, R. Vandenbosch , Bull. Am. Phys. Soc. 13, No. 11, 1407, CF4(1968)

Nuclear Reactions: +238)U(α,2n), E=21-42 MeV; measured isomer ratio, σ(Eα). ^{240}Pu deduced $T_{1/2}$, spontaneous fission.

69BJ02 *Intermediate States in Fission*

S. Bjornholm, V. M. Strutinsky , Nucl. Phys. A136, 1 (1969).

69Bo25 *Population of the Spontaneously Fissioning Isomer ^{244}mf-Am Through the (n,γ) Reaction*

I. Boca, N. Martalogu, M. Sezon, I. Vilcov, N. Vilcov, G. N. Flerov, A. A. Pleve, S. M. Polikanov, S. P. Tretyakova , Nucl. Phys. A134, 541 (1969).

Nuclear Reactions: +243)Am(n,γ), (n,F), E = 0. 3-4 MeV; measured σ(E). ^{244}Am deduced $T_{1/2}$, spontaneous fission. Enriched target.

69El06 *Discussion on Papers SM 122/110 and SM 122/29*

A. J. Elwyn, A. T. G. Ferguson , 2nd Symp. Phys. Chem. of Fission, Vienna, Intern. At. Energy Agency, Vienna, p. 457 (1969).

69Ja01 *Fission Components in ^{243}Pu Resonances*

G. D. James , Nucl. Phys. A123, 24 (1969).

Nuclear Reactions: +242)Pu(n,F), E=16 eV-35 keV; measured σ(E). ^{243}Pu deduced resonances, resonance parameters. Enriched target.

69JoZU

A. B. Jorgensen, S. M. Polikanov, G. Sletten , Priv. Comm. , quoted by 70PO01, unpublished (1969)

69Ka27 *Photofission of Even-Even Nuclei and Structure of the Fission Barrier*

S. P. Kapitza, N. S. Rabotnov, G. N. Smirenkin, A. S. Soldatov, L. N. Usachev, Y. M. Tsipenyuk , ZhETF Pisma v Redaktsiyu 9, 128 (1969); JETP Letters 9, 73 (1969).

Nuclear Reactions: +232)Th, ^{238}U, ^{240}, ^{242}, ^{238}Pu(γ, F), E < 5-8 MeV; measured σ(E;E(fragment),θ(fragment)). ^{232}Th, ^{238}U, ^{238}, ^{240}, ^{242}Pu deduced fission barrier structure.

69Kr12 *The Moment of Inertia of the Fission Isomer*

J. Krumlinde , Phys. Letters 30B, 221 (1969).

Nuclear Structure: ission ^{236}U, ^{242}Pu, ^{244}Cm, ^{250}Cf(SF); calculated moments of inertia. Cranking model.

69La14 *Spontaneously Fissioning Isomers in U, Np, Pu and Am Isotopes*

N. L. Lark, G. Sletten, J. Pedersen, S. Bjornholm , Nucl. Phys. A139, 481 (1969).

Radioactivity: Fission ^{236m}U, ^{238m}Np, ^{236m}Pu, ^{237m}Pu, ^{240m}Pu, ^{241m}Pu, ^{242m}Pu, ^{243m}Pu, ^{238m}Am, ^{241m}Am(SF); measured $T_{1/2}$.

Nuclear Reactions: +235)U, ^{236}, ^{241}; ^{242}Pu(d,p), ^{240}Pu(d,X), E=11-13 MeV; measured σ delayed fission. ^{237}Np(p,2n), E=9-14 MeV; ^{240}Pu(p, 2n), E=10-13 MeV; ^{242}Pu(p,2n), E=8. 8-13 MeV; measured σ delayed fission; deduced thresholds. ^{238}U, ^{237}Np(d,X), ^{239}Pu, ^{241}Pu(d, 2n), E=13 MeV; measured σ delayed fission. ^{237}Np(p, 2n), E=13 MeV; measured σ ground state. Enriched targets.

69Na20 *On the Detection of Spontaneously Fissioning Isomer States*

L. Nagy, T. Nagy, I. Vinnay , KFKI Kozlemen. 17, 165 (1969).

69Me11 *Fission Isomerism Induced by Helium Ions*

V. Metag, R. Repnow, P. Von Brentano, J. D. Fox , Z. Physik 226, 1 (1969).

Nuclear Reactions: +233), ^{235}, ^{236}, ^{238}U, ^{237}Np, ^{239}Pu(α,2n), E=26. 1 MeV; measured α. ^{235}, ^{237}, ^{238}, ^{240}Pu, ^{239}Am, ^{241}Cm deduced $T_{1/2}$ (SF-isomer). ^{239}Pu(^{3}He, 2np), E=30 MeV; measured σ. ^{239}Am deduced $T_{1/2}$(SF-isomer). ^{236}U(α,n), E=26 MeV; measured σ. ^{239}Pu deduced $T_{1/2}$(SF-isomer). ^{237}Np(^{3}He,p)(^{3}He,np), (^{3}He, 2np), E=26, 30 MeV; measured σ. ^{237}, ^{238}, ^{239}Pu deduced $T_{1/2}$ (SF-isomer).

69MeZX *Chraged-Particle Studies of Isomeric Fission*

V. Metag, R. Repnow, P. von Brentano, J. D. Fox , Proc. Symp. Phys. Chem. Fission, 2nd, Vienna, Intern. At. En. Agency, p. 449 (1969).

69Ni13 *On the Nuclear Structure and Stability of Heavy and Superheavy Elements*

S. G. Nilsson, C. F. Tsang, A. Sobiczewski, Z. Szymanski, S. Wycech, C. Gustafson, I. -L. Lamm, P. Moller, B. Nilsson , Nucl. Phys. A131, 1 (1969).

69SlZZ *Discussion on Papers SM-122/110 and SM-122/29*

G. Sletten, S. M. Polikanov , Symp. Phys. Chem. Of Fission, 2nd, Vienna, Intern. At. Energy Agency, Vienna, p. 461 (1969).

Radioactivity: Fission ^{237m}Am, ^{238m}Am, ^{240m}Am, ^{241m}Cm, ^{243m}Cm, ^{244m}Am; measured $T_{1/2}$.

69VaZX *Spontaneous Fission Isomers with Very Short Half-Lives*

R. Vandenbosch, K. L. Wolf , Proc. Symp. Phys. Chem. Fission, 2nd, Vienna, Intern. At. En. Agency, Vienna, p. 439 (1969).

Radioactivity: Fission ^{236}, ^{237}, ^{238}, ^{239}, ^{240}Pu(SF); measured $T_{1/2}$.

Nuclear Reactions: +236), ^{239}U(α,3n), ^{238}U(α,2n), E=21-42 MeV; measured σ(E); deduced isomer ratios.

69Vo18 *Analysis of Neutron Fission of the Odd-Even Nuclei Pa^{231}, Np^{237}, and Am^{241}*

P. E. Vorotnikov , Yadern. Fiz. 9, 538 (1969); Soviet J. Nucl. Phys. 9, 308 (1969).

Nuclear Reactions: +231)Pa, ^{237}Np, ^{241}Am(n,γ), (n,F), E=0-1 MeV; calculated σ(E). ^{232}Pa, ^{238}Np, ^{242}Am calculated level-width, fission barrier penetrability.

70AlZT *On Vibrational Type Resonances in Fission*

J. Almberger, S. Jagare , Ann. Rept. , Research Inst. Phys. , Stockholm, p. 217 (1970).

Nuclear Structure: ission ^{238}, ^{240}Pu, ^{242}Am; calculated fission branching ratios. Vibrational-type resonances.

70Be44 *Search for a Long-Lived Spontaneous Fission Isomer of ^{241}Pu*

C. E. Bemis, Jr. , R. J. Silva, J. E. Bigelow, A. M. Friedman , Inorg. Nucl. Chem. Lett. 6, 747 (1970); ORNL-4581, p. 36 (1970).

Nuclear Reactions: +240)Pu(n,γ), E=thermal, > 1 MeV; ^{242}Pu(n, 2n), E > 6. 2 MeV; ^{238}U(α,n), E=40 MeV; measured σ. ^{241}Pu deduced no 0. 3-yr SF-isomer.

70BJ02 *Search for New Islands of Fission Isomerism*

S. Bjornholm, J. Borggreen, E. K. Hyde , Nucl. Phys. A156, 561 (1970).

Nuclear Reactions: +197)Au(HI,X), E=5-10 MeV/nucleon for HI=^{11}B, ^{12}C, ^{14}N, ^{16}O; measured σ(E) for SF-isomers. ^{200}, ^{201}, ^{202}, ^{203}, ^{204}Po, ^{201}, ^{202}, ^{203}, ^{204}, ^{205}At, ^{202}, ^{203}, ^{204}, ^{205}, ^{206}, ^{207}Rn, ^{202}, ^{203}, ^{204}, ^{205}, ^{206}, ^{207}, ^{208}, ^{209}, ^{210}Fr deduced no SF-isomer (σ < 0.1 μb) with 2ns < $T_{1/2}$<2000s.

70Br32 *Fission of Odd-A Uranium and Plutonium Isotopes Excited by (d,p), (t,d), and (t,p) Reactions*

H. C. Britt, J. D. Cramer , Phys. Rev. C2, 1758 (1970).

Nuclear Reactions: +234), ^{236}, ^{238}U, ^{242}Pu(d,pF), ^{233}, ^{235}U, ^{239}Pu(t,pF), ^{236}U, ^{240}, ^{242}Pu(t,dF), E=18 MeV; measured (p)(fragment)(θ), (d)(fragment)(θ). ^{235}, ^{237}, ^{239}U, ^{241}, ^{243}Pu deduced fission probabilities.

70Bu02 *Systematics of Plutonium Fission Isomers*

S. C. Burnett, H. C. Britt, B. H. Erkkila, W. E. Stein, Phys. Lett. 31B, 523 (1970).

Radioactivity: Fission ^{235m}Pu, ^{237m}Pu, ^{238m}Pu, ^{239m}Pu, ^{240m}Pu(SF); measured $T_{1/2}$.

Nuclear Reactions: +233), ^{235}, ^{236}, ^{238}U(α,2n), E=20-28 MeV; ^{234}U(α,xn), ^{235}U(α, n), ^{238}U(α,n), (α,3n), E=20-29 MeV; measured isomeric σ ratios(E); deduced thresholds for SF-isomer production.

70Da05 *Production of Spontaneously Fissioning Isomers ^{242}Am and ^{244}Am by Slow Neutron Capture*

B. Dalhsuren, G. N. Flerov, Y. P. Gangrsky, Y. A. Lazarev, B. N. Markov, Nguyen Cong Khanh, Nucl. Phys. A148, 492 (1970).

Nuclear Reactions: +241), ^{243}Am(n,γ), (n,F), E=0. 2-20 eV; measured delayed, prompt fission σ ratios, (n)(fission fragment)-delay. ^{242}, ^{244}Am (SF-isomers) deduced $T_{1/2}$.

70El03 *Short-Lived Fission Isomers from Neutron Studies*

A. J. Elwyn, A. T. G. Ferguson, Nucl. Phys. A148, 337 (1970).

Nuclear Reactions: +233), ^{234}, ^{235}, ^{238}U, ^{239}Pu(n, γ), E=0. 55, 2. 2 MeV; measured σ for SF-isomer production; deduced isomeric σ ratios. ^{234}, ^{236}, ^{238}, ^{239}U, ^{240}Pu deduced SF-isomers, $T_{1/2}$.

70Ga04 *Study of (γ,n) Reactions Leading to Formation of Spontaneously Fissile Isomers of Am*

Y. P. Gangrskii, B. N. Markov, Y. M. Tsipenyuk, Yad. Fiz. 11, 54 (1970); Sov. J. Nucl. Phys. 11, 30 (1970).

Nuclear Reactions: +241), ^{243}Am(γ,n), E < 9. 5-13. 5 MeV; measured σ(E) for producing SF-isomers. ^{240}, ^{242}Am deduced energy of SF isomeric state.

70Ga10 *Investigation of the Properties of the Spontaneously Fissioning Isomer ^{241}Pu in the Reaction (γ, n)*

Y. P. Gangrsky, B. N. Markov, Y. M. Tsipenyuk, Phys. Lett. 32B, 182 (1970).

Nuclear Reactions: +242)Pu(γ,nF), E < 8-13 MeV; measured σ(E), (γ)(fragment)-delay. ^{241}Pu deduced SF-isomer $T_{1/2}$.

70Ga34 *Production of Spontaneously Fissioning Isomers of Uranium, Plutonium, and Americium in the Neutron Reactions*

Y. P. Gangrsky, T. Nagy, I. Vinnay, I. Kovacs, JINR-P3-5528 (1970).

Nuclear Reactions: +232)Th, ^{235}, ^{238}U, ^{239}Pu, ^{243}Am(n, 2n), ^{238}U, ^{242}Pu, ^{243}Am(n,n'), E not given; measured SF-isomer production σ.

70Ja16 *Exitation Energies of Fissioning Shape Isomers*

S. Jagare, Phys. Lett. 32B, 571 (1970).

Nuclear Reactions: +239), ^{240}, ^{241}, ^{242}Pu(p,2n), E=10. 9-13. 5 MeV; calculated σ for SF-isomer production. ^{238}, ^{239}, ^{240}, ^{241}, ^{242}Am calculated SF-isomer excitation energies.

70KrZT

Report: IN-1407 P151

Radioactivity: ^{241}Pu; measured activity; deduced no SF-isomer.

70Ot02 *Fragment Angular Distributions from Neutron-Induced Fission of ^{240}Pu*

K. Otozai, J. W. Meadows, A. N. Behkami, J. R. Huizenga, Nucl. Phys. A144, 502 (1970).

Nuclear Reactions: fission ^{240}Pu(n,F), En=500, 620, 730, 990, 1230 keV; measured σ(En,θ(fragment)). ^{240}Pu deduced information on transition states.

70PaZU

Report: CEA-N-1339, D Payn, 7/12/71

Nuclear Reactions: fission ^{237}Np(n,F), E not given; measured(fragment)(fragment)-coin, (fragment)(fragment)-delay. ^{238}Np deduced no SF-isomer.

70Po01 *Spontaneously Fissioning Isomers in U, Pu, Am and Cm Isotopes*

S. M. Polikanov, G. Sletten, Nucl. Phys. A151, 656 (1970).

Nuclear Reactions: +233)U(d,p), ^{235}U(d,pn), ^{237}Np(d,2n), ^{239}, ^{240}Pu(p,2n), ^{239}, ^{240}Pu(d, p), ^{239}, ^{241}Pu(d,pn), ^{241}, ^{243}Am(p, 2n), ^{241}, ^{243}Am(d,2n), ^{243}Am(d,pn); E=9-14. 2 MeV; measured σ(E) delayed fission. ^{239}Pu(p,2n), E=12. 1-14. 0 MeV; measured σ(E); deduced threshold. Enriched targets.

Radioactivity: Fission ^{237m}, ^{238m}, ^{240m}, ^{241m}, ^{243m}Pu(SF), ^{243m}, ^{237m}Am(SF), ^{240m}, ^{241m}, ^{242m}, ^{243m}Cm(SF), ^{234m}U(SF); measured $T_{1/2}$. ^{237m}, ^{240m}, ^{243m}Pu(SF); analyzed data, reevaluated $T_{1/2}$. ^{236}Np deduced misassignment of (SF) isomer. ^{236m}U(SF) deduced $T_{1/2}$.

70Re05 *Evidence for a Direct Reaction Mechanism in the Production of Fission Isomers*

R. Repnow, V. Metag, J. D. Fox, P. von Brentano, Nucl. Phys. A147, 183 (1970).

Nuclear Reactions: +235)U(d,p), E=13-20 MeV; measured σ delayed fission. Enriched target. ^{233}U(d,pn), E=11-20 MeV; measured σ delayed fission. Enriched target. ^{236}U(d,pn), E=11-20 MeV; measured σ delayed fission. Natural target. ^{238}U(d,X), ^{238}U(p, X), E = 14, 20 MeV; E upper limits σ delayed fission. Enriched targets. ^{236}U(p,X), E=14-20 MeV; measured upper limits σ delayed fission. Natural target.

Radioactivity: Fission ^{236}, ^{238}U deduced $T_{1/2}$ (SF-isomer). ^{234}, ^{237}U deduced no SF-isomer.

70So06 *Intermediate Structure Effects in the Fission of Some Actinide Nuclei*

D. K. Sood, N. Sarma, Nucl. Phys. A151, 532 (1970).

Nuclear Reactions: fission ^{233}, ^{235}U, ^{239}, ^{240}, ^{241}Pu, ^{242}Am(n,F), E < 1 MeV; measured nothing; analyzed σ(E) data; deduced spacing of second minimum levels.

70Vi05 *Izomeri Spontan Fisionabili Ai Nucleelor Transuraniene*

N. Vilcov, Stud. Cercet. Fiz. 22, 795 (1970).

Radioactivity: Fission ^{236}U, ^{236}Np, ^{238}, ^{240}, ^{241}, ^{242}, ^{243}Pu, ^{238}, ^{241}Am(SF); measured $T_{1/2}$.

70Wo06 *Spontaneous Fission Isomerism in Uranium Isotopes*

K. L. Wolf, R. Vandenbosch, P. A. Russo, M. K. Mehta, C. R. Rudy, Phys. Rev. C1, 2096 (1970).

Radioactivity: Fission ^{236m}U, ^{238m}U(SF); measured $T_{1/2}$.

Nuclear Reactions: +236), ^{238}U(d,X), (d,pn), E=13-22 MeV; measured σ(E;Ep). ^{236}, ^{238}U deduced isomer ratios.

71Au06 *Neutron-Induced Fission Cross Sections of ^{242}Pu and ^{244}Pu*

G. F. Auchampaugh, J. A. Farrell, D. W. Bergen, Nucl. Phys. A171, 31 (1971).

Nuclear Reactions: fission ^{242}, ^{244}Pu(n,F), E=20 eV-10 MeV; measured σ(E). ^{243}, ^{244}Pu deduced level spacings, resonance parameters, second barrier widths.

71Ba30 *Fission of U, Np, Pu and Am Isotopes Excited in the (d,p) Reaction*

B. B. Back, J. P. Bondorf, G. A. Otroschenko, J. Pedersen, B. Rasmussen, Nucl. Phys. A165, 449 (1971).

Nuclear Reactions: fission ^{233}, ^{235}U, ^{237}Np, ^{238}, ^{239}, ^{241}Pu, ^{241}, ^{243}Am(d,pF), E=13. 0 MeV; measured σ(Ep,E(fragment)). ^{234}, ^{236}U, ^{238}Np, ^{239}, ^{240}, ^{242}Pu, ^{242}, ^{244}Am deduced fission probability, fission barrier heights, transparencies.

71Be12 *Neutron-Induced Fission Cross Section of ^{242}Pu*

D. W. Bergen, R. R. Fullwood, Nucl. Phys. A163, 577 (1971).

Nuclear Reactions: ission ^{240}Pu(n,F), E=50 eV-5 keV, 0. 1-3 MeV; measured σ(E). ^{240}Pu deduced resonances, F-width, fission barrier.

71Be62 *Production of the Spontaneously Fissioning U^{236} Isomer in Thermal Neutron Radiative Capture*

A. G. Belov, Y. P. Gangrskii, B. Dalkhsuren, A. M. Kucher , Yad. Fiz. 14, 685 (1971); Sov. J. Nucl. Phys. 14, 385 (1972).

Nuclear Reactions: ission ^{235}U(n,γF), E=thermal; measured σ, (fragment)(ce)-delay. ^{236m}U deduced $T_{1/2}$.

71Bo61 *Study of the ^{236}mf-U Isomeric Fission Through the ^{235}U(n,γ) Reaction in the Energy Range 0. 25 - 4 MeV*

I. Boca, M. Sezon, I. Vilcov, N. Vilcov , Rev. Roum. Phys. 16, 473 (1971).

Radioactivity: ^{236m}U(SF); measured $T_{1/2}$.

Nuclear Reactions: ission ^{235}U(n,γF), E=0. 25-4 MeV; measured σ(E) for ^{236m}U(SF) production.

71Br38 *Population of Fission Isomers in ^{236}U by the (d,p) Reaction*

H. C. Britt, B. H. Erkkila , Phys. Rev. C4, 1441 (1971).

Nuclear Reactions: ission ^{235}U(d,pf), (d,p), E=12 MeV; measured σ ratios, σ(Ep), (d)(fragment)-delay. ^{236m}U deduced $T_{1/2}$.

Radioactivity: Fission ^{236m}U; measured $T_{1/2}$.

71Br39 *Systematics of Spontaneously Fissioning Isomers*

H. C. Britt, S. C. Burnett, B. H. Erkkila, J. E. Lynn, W. E. Stein , Phys. Rev. C4, 1444 (1971).

Radioactivity: Fission ^{236m}, ^{237m}, ^{238m}, ^{239m}, ^{240m}, ^{241m}Pu(SF), ^{241m}, ^{242m}, ^{243m}, ^{244m}, ^{245m}Cm(SF), ^{238m}U(SF), ^{239m}, ^{240m}, ^{242m}, ^{243m}, ^{244m}Am(SF); measured $T_{1/2}$, $T_{1/2}$ lower limits.

71Ga19 *Excitation of the Spontaneously Fissioning Isomeric States of ^{239}Pu and ^{243}Am at Inelastic γ-Quantum Scattering*

Y. P. Gangrsky, B. N. Markov, I. F. Kharisov, Y. M. Tsipenyuk , JINR-P15-5959 (1971).

Nuclear Reactions: +239]Pu, ^{243}Am(γ,γ'), E=7-11 MeV; measured σ(E;Eγ), (γ)(fragment)-delay. ^{239}Pu, ^{243}Am deduced SF-isomer excitation. ^{239m}Pu deduced $T_{1/2}$.

71Ga35 *Spontaneously Fissioning Isomers of Uranium, Plutonium, and Americium from Neutron Reactions*

Y. P. Gangrskii, T. Nad, I. Vinnai, I. Kovach , At. Energ. 31, 156 (1971); Sov. At. Energy 31, 874 (1972).

Nuclear Reactions: +232]Th, ^{235}, ^{238}U, ^{239}Pu, ^{243}Am(n, 2n), E=14. 7 MeV; ^{238}U, ^{240}Pu, ^{243}Am(n, n'), E=2-7 MeV; measured σ(SF isomers). ^{231}Th, ^{234}, ^{237}U, ^{238}Pu deduced no SF-isomer yield. ^{238}U, ^{242}U, ^{242}, ^{243}Am deduced SF isomer yield.

71Ga39 *Excitation of Spontaneously Fissioning Isomer States ^{239}Pu and ^{243}Am in Inelastic Scattering of γ Quanta*

Y. P. Gangrskii, B. N. Markov, I. F. Kharisov, Y. M. Tsipenyuk , Pisma Zh. Eksp. Teor. Fiz. 14, 370 (1971); JETP Lett. (USSR) 14, 249 (1971).

Nuclear Reactions: ission ^{239}Pu, ^{243}Am(γ,γ'F), E < 11 MeV; measured (γ)(fragment)-delay. ^{239m}Pu deduced $T_{1/2}$. ^{239}Pu, ^{243}Am deduced isomer yields.

71MaZE

Thesis: , Univ Kansas,D E Maharry,DABBB 32B 5981,5/5/72

Nuclear Reactions: +92]Mo(d,pγ), measured σ(Ep,Eγ). ^{93}Mo deduced levels.

Nuclear Structure: =230-256; ^{236}U; calculated fission barriers, shape isomer excitation energies, equilibrium deformations, total energy surfaces.

71Me03 *Correlation between Fission Isomer Half-Lives and Liquid-Drop Model Parameters*

V. Metag, R. Repnow, P. von Brentano , Nucl. Phys. A165, 289 (1971).

71Mo11 *Analysis of the Fission and Capture Cross Sections of the Curium Isotopes*

M. S. Moore, G. A. Keyworth , Phys. Rev. C3, 1656 (1971).

Nuclear Reactions: +244), ^{245}, ^{246}, ^{247}, ^{248}Cm(n, F), ^{244}, ^{246}Cm(n,γ), E=20 eV-3 MeV; measured σ(E). ^{243}, ^{245}, ^{247}, ^{244}, ^{248}Cm deduced resonances, level-width.

71Na26 *Investigations of the Radiative Capture of Fast Neutrons Producing the Spontaneously Decaying Isomers ^{242}Am and ^{244}Am*

T. Nagy, A. G. Belov, Y. P. Gangrsky, B. N. Markov, I. V. Sizov, I. F. Harisov , Acta Phys. 30, 293 (1971).

Nuclear Reactions: +241), ^{243}Am(n,γ), E < 16 MeV; measured σ ratios for ^{242}, ^{244}Am SF-isomer production.

71Pa33 *Fission Threshold Energies in the Actinide Region*

H. C. Pauli, T. Ledergerber , Nucl. Phys. A175, 545 (1971).

Nuclear Structure: ission ^{232}, ^{234}Th, ^{234}, ^{236}, ^{238}, ^{240}U, ^{236}, ^{238}, ^{240}, ^{242}, ^{244}Pu; calculated liquid-drop barriers, first, second saddle point energies.

71Re11 *Fission Isomers in Cm and Bk Isotopes*

R. Repnow, V. Metag, P. von Brentano , Z. Phys. 243, 418 (1971).

Radioactivity: Fission ^{245m}Bk, ^{243m}Cm, ^{241m}Cm, ^{243m}Am, ^{243m}Cm, ^{237m}Pu; measured $T_{1/2}$. ^{243}Am(α,2nγ), E=26 MeV; ^{243}Am(p, 2nγ), (p,3nγ), E=14, 20 MeV; ^{243}Am(d,pn), (d,2nγ), E=13-20 MeV; ^{237}Np(d,2nγ), E=12-18 MeV; measured delays, σ(E).

71Ru03 *Spin Isomers of the Shape Isomer ^{237m}Pu*

P. A. Russo, R. Vandenbosch, M. Mehta, J. R. Tesmer, K. L. Wolf , Phys. Rev. C3, 1595 (1971).

Radioactivity: Fission ^{237m}Pu(SF); measured $T_{1/2}$; deduced shape isomerism.

71Ta17 *Search for Bremsstrahlung-Induced Fission Isomers of ^{238}U and ^{239}Pu*

B. Tamain, B. Pfeiffer, H. Wollnik, E. Konecny , Nucl. Phys. A173, 465 (1971).

Radioactivity: Fission ^{238}U, ^{239}Pu(SF); measured $T_{1/2}$.

Nuclear Reactions: ission ^{238}U, ^{239}Pu(γ,F), E < 53 MeV; measured (γ)(fragment)-delay. ^{238}U, ^{239}Pu deduced fission isomers, $T_{1/2}$.

71Te07 *Spontaneously Fissioning Isomers in ^{237}Pu*

J. K. Temperley, J. A. Morrissey, S. L. Bacharach , Nucl. Phys. A175, 433 (1971).

Radioactivity: Fission ^{237m}Pu(SF) [from ^{237}Np(d,2n)]; measured $T_{1/2}$, E(fragment). ^{237}Np(d,2n), E=8. 5-14. 5 MeV; measured delayed, prompt fission σ ratios, (d)(fission-fragment)-delay;E=13. 0 MeV, measured E(fragment).

72Bo48 *Search for Spontaneously Fissioning Isomers Produced with 600 MeV Protons*

A. H. Boos, R. Brandt, D. Molzahn, D. M. Montgomery , J. Inorg. Nucl. Chem. 34, 3309 (1972).

Nuclear Reactions: , Th, Bi, Pb(p,X), E=600 MeV; measured fission activities; deduced σ for SF-isomer production.

72Br04 *Investigation of γ-Ray Emission Preceding Isomeric Fission of ^{236}U*

J. C. Browne, C. D. Bowman , Phys. Rev. Lett. 28, 617 (1972).

Nuclear Reactions: ission ^{235}U(n,γF), E=1-100 eV; measured (γ)(fragment)-delay; deduced limit on pre-fission γ-emission. ^{236}U deduced relative double barrier penetrabilities.

72Br35 *Excitation Functions for the Production of Fission Isomers in Various Am Isotopes*

H. C. Britt, B. H. Erkkila, B. B. Back , Phys. Rev. C6, 1090 (1972).

Radioactivity: Fission ^{238m}Am, ^{240m}Am; measured $T_{1/2}$.

Nuclear Reactions: +239), ^{240}, ^{242}, ^{244}Pu(p,2n), (t, 2n), (t,3n), E=10-16 MeV; measured σ for SF-isomer production.

72Ga04 *Measurement of the Excitation Energy of the Spontaneously Fissioning Isomer Pu^{238}(γ,n)*

Y. P. Gangrskii, V. N. Maykov, I. F. Kharisov, Y. M. Tsipenyuk , Yad. Fiz. 16, 271 (1972); Sov. J. Nucl. Phys. 16, 151 (1973).

Nuclear Reactions: +240]Pu(γ,n), E < 15 MeV; measured σ(E) for ^{239m}Pu(SF) production. ^{239m}Pu(SF) deduced excitation energy.

72Gr42 *Production of Spontaneously Fissioning Isomers with Nanosecond Lifetimes in α-Particle Reactions*

Y. P. Gangrskii, Nguen Kong Khan, D. D. Pulatov , At. Energ. 33, 829 (1972); Sov. At. Energy 33, 948 (1973).

Nuclear Reactions: +233], ^{236}, ^{238}U, ^{239}, ^{242}Pu, ^{241}, ^{243}Am(α,xn), E=20-36 MeV; measured σ(E) for SF-isomers. ^{236}, ^{237}, ^{240}Pu, ^{241}, ^{243}Cm, ^{240}, ^{243}, ^{244}, ^{246}Bk deduced SF-isomers, $T_{1/2}$.

72Ho11 *Total Spontaneous and Isomer Fission Half-Lives of ^{234}U, ^{236}U and ^{240}Pu*

M. A. Hooshyar, F. B. Malik , Phys. Lett. 38B, 495 (1972).

Nuclear Structure: ission ^{234}, ^{236}U, ^{240}Pu(SF); calculated total $T_{1/2}$, $T_{1/2}$(SF), average fragment kinetic energies. Coupled-channel decay theory.

72Ho48 *A Coupled Channel Approach to the Isomer Fission State*

M. A. Hooshyar, F. B. Malik , Helv. Phys. Acta 45, 567 (1972).

72HoXQ *Suche nach γ-Ubergangen im Spaltungs-Isomer ^{236}U*

F. Horsch, E. Konecny, K. E. G. Lobner, H. J. Specht , Univ. , Tech. Univ. Munchen, Jahresbericht 1972, p. 104 (1973).

Nuclear Reactions: +235]U(n,Fγ); measured Eγ, Iγ. ^{236}U deduced isomer.

72Ka59 *Search for γ-Branch in the ^{236m}U Fission Isomer Decay*

E. Kashy, J. Hattula, J. Borggreen, V. Maarbjerg , Comment. Phys. -Math. 42, 266 (1972).

Radioactivity: ^{236m}U; measured upper limit for γ-ray decay.

72Ko10 *Search for Conversion Electrons Populating the ^{236}U Fission Isomer*

E. Konecny, H. J. Specht, J. Weber, H. Weigmann, R. L. Ferguson, P. Osterman, M. Waldschmidt, G. Siegert , Nucl. Phys. A187, 426 (1972).

Nuclear Reactions: ission ^{235}U(n,γF), E=thermal; measured (fragment)(ce)-coin, -delay; deduced upper limit for isomeric/prompt fission ratio.

72Ku26 *Search for Fission Isomers in the Radium Region*

I. M. Kuks, V. I. Matvienko, Y. A. Nemilov, Y. A. Selitskii, V. B. Funshtein , Yad. Fiz. 16, 438 (1972); Sov. J. Nucl. Phys. 16, 244 (1973).

Nuclear Reactions: +226]Ra(d,X), E=6. 6, 11. 3 MeV; ^{226}Ra(n,X), E=0. 7-10, 14. 5 MeV; measured σ(F). ^{224}, ^{225}, ^{226}, ^{227}Ra, ^{225}, ^{226}, ^{227}Ac deduced no SF-isomer.

72La05 *Fission Barriers and the Inclusion of Axial Asymmetry*

S. E. Larson, I. Ragnarsson, S. G. Nilsson , Phys. Lett. 38B, 269 (1972).

Nuclear Structure: ission ^{186}, ^{188}, ^{190}, ^{192}W, ^{196}Pt, ^{198}Hg, ^{198}, ^{204}Pb, ^{242}Pu, ^{246}Cm, ^{252}Fm, ^{254}104, superheavy; calculated potential energy surfaces vs deformation parameters, fission barriers. Modified oscillator model, axial symmetry.

72Ma11 *A Single-Particle Model Calculation of Total Energy Surfaces in Heavy Nuclei*

D. E. Maharry, J. P. Davidson , Nucl. Phys. A183, 371 (1972).

Nuclear Structure: ission ^{230}U, ^{230}, ^{232}Th, ^{234}, ^{236}, ^{238}U, ^{246}, ^{248}, ^{250}, ^{252}Cf, ^{238}, ^{240}, ^{242}, ^{244}Am, ^{238}, ^{238}, ^{240}, ^{242}, ^{244}Pu, ^{240}, ^{242}, ^{244}, ^{246}, ^{248}, ^{250}Cm; calculated total energy surfaces, fission barriers. Single-particle model.

72Mo27 *Odd-Multipole Shape Distortions and the Fission Barriers of Elements in the Region 84 < Z < 120*

P. Moller , Nucl. Phys. A192, 529 (1972).

Nuclear Structure: ission Z=84-120;^{210}Po, ^{236}U, ^{250}Fm, ^{252}Fm; calculated potential energy surfaces, fission barriers.

72NaYU

Thesis: T Nagy, Dubna

Nuclear Reactions: +241], ^{243}Am(n,γ), E=0. 8-16 MeV; ^{238}U, ^{239}Pu(n,γ), E=th; ^{238}U, ^{239}, ^{242}Pu, ^{243}Am(n,n'), E=3-7 MeV, 14. 7 MeV; ^{240}, ^{242}Pu, ^{243}Am(n,2n), E=14. 7 MeV; measured σ(E) for SF isomers. ^{232}Th, ^{233}, ^{235}, ^{238}U, ^{237}Np, ^{239}Pu(n, 2n), E=14. 7 MeV; measured no SF isomer.

72Pe01 *An Investigation of the Population of the Shape Isomer ^{236m}U Through the (d,p) Reaction*

J. Pedersen, B. Rasmussen , Nucl. Phys. A178, 449 (1972).

Nuclear Reactions: +235]U(d,pF), E=11 MeV; measured (p)(fragment)-delay. ^{236m}U deduced $T_{1/2}$, fission barrier parameters.

72PIZR *Fission Isomer in Uranium-236*

J. V. Pilcher, F. D. Brooks, W. R. McMurray , INDC(SEC)-28/L, p. 249 (1972).

Radioactivity: Fission ^{236m}U(SF); measured $T_{1/2}$.

72Sp06 *Identification of a Rotational Band in the ^{240}Pu Fission Isomer*

H. J. Specht, J. Weber, E. Konecny, D. Heunemann , Phys. Lett. 41B, 43 (1972).

Radioactivity: Fission ^{240}Pu(SF) [from ^{238}U(α,2nγ); E=25 MeV]; measured I(ce), (α)(fragment)-delay, E(ce). ^{240m}Pu deduced levels, rotational band structure.

72Va08 *Spontaneous-Fission-Isomer Excitation Energies from Threshold Measurements*

R. Vandenbosch , Phys. Rev. C5, 1428 (1972).

72Va44 *Searches for the Spontaneously Fissioning Isomer $Pu^{240}m$ in the Thermal-Neutron Capture Reaction*

G. V. Valskii, O. M. Mrachkovskii, G. A. Petrov, Y. S. Pleva , Yad. Fiz. 16, 667 (1972); Sov. J. Nucl. Phys. 16, 374 (1973).

Nuclear Reactions: ission ^{239}Pu(n,F); E=thermal; measured σ production for ^{240m}Pu.

72Vl10 *^{237m}Pu(f) Double Fission Isomer Study Through the ^{237}Np(d,2n) Reaction in the E = 9-12 MeV Energy Range*

N. Vilcov, G. Griffith, I. Vilcov, R. B. Leachman , Rev. Roum. Phys. 17, 1031 (1972).

Nuclear Reactions: +237]Np(d,2n), E=9. 1-12. 1 MeV; measured σ(E) ratio for two isomers. ^{237}Pu deduced levels, $T_{1/2}$.

72Vy07 *Excitation Energies of the Spontaneously Fissile Isomers of Pu^{240}, Cm^{241}, and Bk^{243} in Reactions with α-Particles*

I. Vylkov, N. Vylkov, Y. P. Gangrskii, M. Marinescu, A. A. Pleve, D. Posnaru, I. F. Kharisov , Yad. Fiz. 16, 454 (1972); Sov. J. Nucl. Phys.

16, 253 (1973).

Nuclear Reactions: +238)U, ^{239}Pu, ^{241}Am(α,2n), E=20-26 MeV; measured σ for SF-isomer production. ^{240}Pu, ^{241}Cm, ^{240}Bk deduced SF isomer excitation energies.

72We09 *Evaluation of Fission Barrier Parameters from Near-Barrier Fission and Isomeric Half-Life Data*

H. Weigmann, J. P. Theobald, Nucl. Phys. A187, 305 (1972).

Nuclear Structure: fission ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}U, ^{237}, ^{238}, ^{239}, ^{240}Np, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Pu, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}Am, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Cm, ^{246}, ^{247}Cm, ^{244}, ^{245}, ^{246}Bk; calculated fission barriers, $T_{1/2}$.

72Wo07 *Fissioning Isomers of Americium, Curium and Berkelium Isotopes*

K. L. Wolf, J. P. Unik, Phys. Lett. 38B, 405 (1972).

Radioactivity: Fission ^{240m}Am, ^{242m}Am, ^{243m}Am, ^{244m}Am, ^{245m}Am, ^{238m}Pu, ^{242m}Bk, ^{244m}Bk, ^{242m}Cm, ^{243m}Cm; measured $T_{1/2}$.

Nuclear Reactions: +242), ^{244}Pu, ^{241}, ^{243}Am(α,xF), E=25-46 MeV; measured σ(E) for SF-isomer production.

73Al08 *A New Two-Center Shell Model for Nuclear Fission*

K. Albrecht, Nucl. Phys. A207, 225 (1973).

Nuclear Structure: +226)Ra, ^{232}Th, ^{236}, ^{238}U, ^{240}, ^{242}Pu, ^{244}Cm, ^{248}, ^{252}Cf, ^{252}Fm; calculated deformation energies, isomer energies.

73Ba19 *Fission and Decay of Excited Nuclei*

V. S. Barashenkov, A. S. Iljinov, V. D. Toneev, F. G. Gereghi, Nucl. Phys. A206, 131 (1973).

Nuclear Structure: +149)Eu, ^{167}Ho, ^{179}Ta, ^{186}Os, ^{187}Os, ^{188}Os, ^{186}Ir, ^{189}Ir, ^{191}Ir, ^{194}Hg, ^{198}Hg, ^{210}Po, ^{211}Po, ^{212}Po, ^{213}At, ^{227}Ra, ^{232}U, ^{234}U, ^{235}U, ^{236}U, ^{237}U, ^{238}U, ^{239}U, ^{237}Np, ^{239}Np, ^{241}Am, ^{243}Am, ^{244}Am, ^{242}Cm, ^{244}Cm, ^{246}Cm, ^{248}Cm, ^{248}Cf, ^{249}Cf, ^{250}Cf, ^{252}Cf, ^{251}No, ^{252}No, ^{253}No, ^{254}No, ^{255}No, ^{256}No, ^{257}No, ^{258}No; calculated fission barrier, level-width(n)/level-width(F).

73Be04 *Production of Spontaneously Fissioning Isomers in Th, U, Np, Pu and Am Isotopes in Reactions Induced by 14. 7 MeV Neutrons*

A. G. Belov, Y. P. Gangrsky, B. Dalkhsuren, A. M. Kucher, T. Nagy, D. M. Nadkarni, Indian J. Phys. 47, 232 (1973).

Nuclear Reactions: +232)Th, ^{235}, ^{238}U, ^{237}Np, ^{240}, ^{242}Pu, ^{241}, ^{243}Am(n,2n), ^{239}Pu, ^{241}, ^{243}Am(n,n'), E=14. 7 MeV; measured production σ for SF isomers, *nF(t)*. ^{238m}, ^{241m}Pu, ^{240m}, ^{242m}, ^{244m}, ^{243m}Am deduced $T_{1/2}$.

73Be05 *Search for α Emission in the Decay of Spontaneously Fissionable Isomers*

A. G. Belov, Y. P. Gangrskii, B. Dalkhsuren, A. M. Kucher, Nguen Kong Khan, Yad. Fiz. 17, 942 (1973); Sov. J. Nucl. Phys. 17, 493 (1974).

Radioactivity: Fission ^{240m}, ^{242m}Am, ^{241m}Pu(SF); measured Eα, Iα. Deduced no α-emission.

73Be10 *Search for γ-Rays Emitted in the Formation of a Fission Isomer*

D. Benson, Jr., C. M. Lederer, E. Cheifetz, Nucl. Phys. A201, 445 (1973).

Nuclear Reactions: +238)U(α,γF); measured σf(t), γf(t), Eγ. ^{240m}Pu(SF); deduced limits on pre-fission γ-ray photons.

73Br04 *Fission Barriers Deduced from the Analysis of Fission Isomer Results*

H. C. Britt, M. Bolsterli, J. R. Nix, J. L. Norton, Phys. Rev. C7, 801 (1973).

73Br38 *Properties of Fission Isomers*

H. C. Britt, At. Data Nucl. Data Tables 12, 407 (1973).

73BrWU

Report: USNDC-7 P106

Nuclear Reactions: +243)Pu(n,F); measured σ(Eγ). ^{243}Pu deduced fission isomer.

73Fl03 *Excitation Functions for Spallation Products and Fission Isomers in ^{237}Np(^{4}He,xn)^{241}:x-Am Reactions*

A. Fleury, F. H. Ruddy, M. N. Namboodiri, J. M. Alexander, Phys. Rev. C7, 1231 (1973).

Nuclear Reactions: +237)Np(α,2n), (α,3n), (α,4n), E=19-45 MeV; measured σ(E), σ, isomer σ ratio. ^{238m}Am deduced $T_{1/2}$.

73HeYN *Search for Conversion Electrons from the Decay of Excited States in the Secondary Minimum of ^{239}U*

R. Heffner, J. Pedersen, P. A. Russo, H. Swanson, RLO-1388-221, p. 123 (1973).

Radioactivity: ^{239}U; measured I(ce).

73Kh06 *Angular Distribution of Fragments of Spontaneously Fissioning Isomers*

Fam Zui Khien, Yad. Fiz. 17, 489 (1973); Sov. J. Nucl. Phys. 17, 251 (1974).

Nuclear Reactions: +235)U(α,3n); calculated ^{236}Pu fission isomer angular distribution.

73Li01 *A Subnanosecond and a Nanosecond Fission Isomer in ^{238}Pu*

P. Limkilde, G. Sletten, Nucl. Phys. A199, 504 (1973).

Radioactivity: Fission ^{238m}Pu, ^{240m}Pu; measured $T_{1/2}$.

Nuclear Reactions: +236)U(α,2n), E=21. 0-27. 0 MeV; measured σ(1)(E), , σ(2)(E) delayed fission;deduced thresholds; ^{236}U(α,F), E=20. 0-28. 0 MeV; measured σ(E) prompt fission; ^{238}U(α,2n), E approx 25 MeV; measured σ delayed fission.

73Me23 *Neutron-Fission Competition Near Threshold; The Influence of Shells and Pairing on the Decay of the ^{241}Cm Compound Nucleus*

V. Metag, S. M. Lee, E. Liukkonen, G. Sletten, S. Bjornholm, A. S. Jensen, Nucl Phys. A213, 397 (1973).

Nuclear Reactions: +238)Pu(α,n), E=19. 9-23 MeV; ^{239}Pu(α, 2n), E=19. 9-27 MeV; ^{241}Am(p,2n), E=8. 2-16 MeV; measured σ(^{241}Cm), σ (^{240}Cm), σ(fission). ^{241}, ^{240}Cm deduced n-width, F-width.

73Na03 *Excitation Functions for the Fission Isomers ^{240m}Pu and ^{238m}Pu from ^{238}U(^{4}He,xn) Reactions*

M. N. Namboodiri, F. H. Ruddy, J. M. Alexander, Phys. Rev. C7, 1222 (1973).

Nuclear Reactions: +238)U(α,2n), (α,3n), E < 28 MeV; measured σ(E), σ. ^{240m}Pu deduced $T_{1/2}$.

73Na35 *Neutronokkal Letrehozott, Izomer Allapotbol Spontan Hasado Magok Keletkezesere Vezeto Reakciok Vizsgalata*

T. Nagy, Magy. Fiz. Foly. 21, 555 (1973).

Radioactivity: Fission ^{238}U, ^{238}, ^{241}, ^{242}Pu, ^{240}, ^{243}, ^{244}Am, ^{236}Np(SF); measured $T_{1/2}$. ^{238}Pu, ^{232}, ^{234}, ^{237}U, ^{231}Th measured $T_{1/2}$ limits.

Nuclear Reactions: +241), ^{243}Am(n,γ), E=0. 8-16mev; ^{233}, ^{235}, ^{238}U, ^{239}Pu(n,γ), E=thermal; ^{238}U, ^{233}, ^{242}Pu, ^{243}Am(n, n'), E=3-7, 14. 7 MeV; ^{237}Np, ^{233}, ^{235}, ^{238}U, ^{232}Th, ^{239}, ^{240}, ^{242}Pu, ^{243}Am(n,2n), E=14. 7 MeV; measured σ(E) for production of SF isomers.

73OtZX

Report: RCN-203 P169

Nuclear Reactions: +235)U(n,F), E=1 MeV; measured fission isomer yield.

73Po05 *Spontaneously Fissioning Isomer U^{236}m Excited by Capture of Thermal Neutrons*

L. A. Popeko, G. A. Petrov, E. F. Kochubei, T. K. Zvezdkina, Yad. Fiz. 17, 234 (1973); Sov. J. Nucl. Phys. 17, 120 (1974).

Nuclear Reactions: +235)U(n,F), E=thermal; measured (fragment)(ce,γ, X)-delay. ^{236m}U deduced yield.

73Po08 *Neutron Resonance Parameters of ^{242}Pu*

F. Poortmans, G. Rohr, J. P. Theobald, H. Weigmann, G. J. Vanpraet, Nucl. Phys. A207, 342 (1973).

Nuclear Reactions: +242)Pu(n,n), ^{242}Pu(n,γ), E=20-1300 eV; measured σ. ^{242}Pu resonances deduced resonance parameters n-width, γ-width. Enriched target.

73PoZA *Fission Isomers, Eleven Years of Experimental Work*

D. N. Poenaru, IFA-CRD-54-1973 (1973).

Compilation: Fission ^{234m}, ^{235m}, ^{236m}, ^{238m}U(SF), ^{237m}Np(SF), ^{235m}, ^{236m}, ^{237m}, ^{238m}, ^{239m}, ^{240m}, ^{241m}, ^{243m}, ^{244m}Pu(SF), ^{237m}, ^{238m}, ^{239m}, ^{240m}, ^{241m}, ^{242m}, ^{243m}, ^{244m}, ^{245m}, ^{246m}Am, ^{240m}, ^{241m}, ^{242m}, ^{243m}, ^{245m}Cm, ^{242m}, ^{243m}, ^{244m}, ^{245m}Bk; compiled experimental $T_{1/2}$.

73Sp04 *Statistical Theory of Isomer Ratios for Shape (Fission) Isomers in (n,γ) Reactions*

D. Sperber, Nuovo Cim. 13A, 373 (1973).

Nuclear Reactions: +233), ^{235}U, ^{239}Pu, ^{241}Am(n,γ); calculated isomer ratios.

73Va16 *Relative Excitations of the ^{237}Pu Shape Isomers*

R. Vandenbosch, P. A. Russo, G. Sletten, M. Mehta, Phys. Rev. C8, 1080 (1973).

Radioactivity: Fission ^{237m}Pu(SF), ^{237}Pu; measured delayed yields. ^{237}Pu deduced levels, J, π, $T_{1/2}$.

73Va30 *Probability of Formation of Spontaneously Fissioning Isomer States Following Thermal Neutron Capture by U^{235} and Pu^{239}*

G. V. Valskii, O. M. Mrachkovskii, G. A. Petrov, Y. S. Pleva, Yad. Fiz. 18, 492 (1973); Sov. J. Nucl. Phys. 18, 253 (1974).

Nuclear Reactions: +235)U, ^{239}Pu(n,γ); measured σ(isomer).

73Wo03 *The Fissioning Isomer ^{237m}Np*

K. L. Wolf, J. P. Unik, Phys. Lett. 43B, 25 (1973).

Radioactivity: Fission ^{237m}Np(SF); measured $T_{1/2}$, excitation energy.

73Ze05 *Search for a Spontaneously Fissioning Isomer Nucleus U^{236}m in the Reaction U^{235}(n,γ)*

Zen Chang Bom, A. Lajtai, A. A. Omelyananko, T. T. Panteleev, S. M. Polikanov, Y. V. Ryabov, Tang San Khak, Yad. Fiz. 18, 34 (1973); Sov. J. Nucl. Phys. 18, 18 (1974).

Nuclear Reactions: +235]U(n,γ), E approx 60 keV; measured σ for SF isomer. ^{236}U deduced no SF isomer.

74Ba73 *Fission of Odd-A and Doubly Odd Actinide Nuclei Induced by Direct Reactions*

B. B. Back, H. C. Britt, O. Hansen, B. Leroux, J. D. Garrett, Phys. Rev. C10, 1948 (1974).

Nuclear Reactions: +230), ^{232}Th(^{3}He,αF), ^{230}, ^{232}Th, ^{233}, ^{234}, ^{235}, ^{236}, ^{238}U, ^{239}, ^{240}, ^{242}Pu, ^{248}Cm(^{3}He, dF), E=24 MeV; ^{230}Th, ^{231}Pa, ^{237}Np, ^{248}Cm(d,pF), E=15 MeV; ^{243}Am, ^{239}Pu(t, pF), E=15 MeV; ^{248}Cm(t,αF), E=16 MeV; measured fission probabilities. ^{229}, ^{231}Th, ^{231}, ^{232}, ^{233}Pa, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}Np, ^{241}Pu, ^{240}, ^{241}, ^{243}, ^{246}, ^{247}Am, ^{249}Cm, ^{250}Bk deduced barrier heights.

74Ba28 *Fission of Doubly Even Actinide Nuclei Induced by Direct Reactions*

B. B. Back, O. Hansen, H. C. Britt, J. D. Garrett, Phys. Rev. C9, 1924 (1974).

Nuclear Reactions: +230), ^{232}Th, ^{234}, ^{236}, ^{238}U, ^{236}, ^{240}, ^{242}Pu, ^{248}Cm(t,pF), E=15 MeV; ^{231}Pa(t,αF), E=16 MeV; ^{231}Pa, ^{237}Np, ^{243}Am(^{3}He,dF), E=24 MeV; ^{233}U(d,pF), E=13 MeV; ^{248}Cm(p,p'F), E=22. 5 MeV; measured E(fragment), I(fragment). ^{230}, ^{232}, ^{234}Th, ^{232}, ^{234}, ^{236}, ^{238}, ^{240}U, ^{238}, ^{240}, ^{242}, ^{244}Pu, ^{244}, ^{246}, ^{250}Cm deduced fission probability.

74Ba82 *Comparison of Fragment Kinetic Energies from Two ^{237}Pu Fission Isomers*

S. L. Bacharach, P. S. Hoeper, J. A. Morrissey, J. K. Temperley, Phys. Rev. C10, 2636 (1974).

Radioactivity: Fission ^{237m}Pu(SF); measured $T_{1/2}$.

74Be52 *Attempted Coulomb Excitation of the Spontaneous-Fission Isomeric State in ^{239}Pu*

C. E. Bemis, Jr., F. Plasil, R. L. Ferguson, E. E. Gross, A. Zucker, Phys. Rev. C10, 1590 (1974).

Nuclear Reactions: +239)Pu(^{20}Ne,^{20}Ne'), E=100, 117 MeV; measured fission fragments. ^{239m}Pu deduced upper limit on yield.

74BeYO

Report: ORNL-4937 P26

Nuclear Reactions: +239)Pu(^{20}Ne,^{20}Ne'), E=100, 117 MeV; measured σ(fragment mass,θ). ^{239}Pu deduced fission isomer.

74Bo02 *Search for a γ-Branch from Shape Isomers in ^{236}U and ^{238}Np*

J. Borggreen, J. Hattula, E. Kashy, V. Maarbjerg, Nucl. Phys. A218, 621 (1974).

Nuclear Reactions: +235)U(d,p), E=11 MeV; ^{238}U(p,n), E=8 MeV; measured σ(delayed γ), $T_{1/2}$=130 ns, 2 μs < $T_{1/2}$ < 20 ms. ^{236m}U, ^{238m}Np deduced limits on σ for delayed γ from shape isomer.

74Br05 *Investigation of the γ Decay of Subthreshold-Fission Resonances of ^{242}Pu to a Fission Isomeric State*

J. C. Browne, C. D. Bowman, Phys. Rev. C9, 1177 (1974).

Nuclear Reactions: +242)Pu(n,Fγ), E=400-3000 eV; measured σ(E), γ(t). ^{243}Pu resonance deduced γ-branching.

74BrYE

Conference proceedings: Rochester(Phys, Chem of Fission),Vol2 P493

Nuclear Reactions: +242)Pu(n,F), E=subthreshold; measured Eγ. ^{243}Pu deduced no fission isomer.

74Ga41 *Investigation of Photonuclear Reactions Leading to Spontaneously Fissioning Isomers*

Y. P. Gangrsky, B. N. Markov, Y. M. Tsypenyuk, Fortschr. Phys. 22, 199 (1974).

Nuclear Reactions: +239)Pu, ^{243}Am(γ,γ'), ^{240}, ^{242}Pu, ^{241}, ^{243}Am(γ,n), E=7-16 MeV; measured σ(E) for the production of spontaneously fissioning isomers; deduced barrier parameters.

74GaZD *Delayed Fission Fragment Angular Distributions in Some Alpha-Particle-Induced Reactions*

D. Galeriu, M. Marinescu, D. Poenaru, I. Vilcov, N. Vilcov, Y. P. Gangrsky, P. Z. Hien, N. C. Khan, Proc. Symp. Phys. Chem. Fission, 3rd, Rochester, N. Y. (1973), Int. At. En. Agency, Vienna, Vol. 1, p. 297 (1974).

Nuclear Reactions: +235], ^{238}U, ^{239}Pu, ^{241}Am(α,2n), ^{234}U, ^{242}Pu(α,3n), E=26-33 MeV; measured σ(fragment mass,θ), fragment(t). ^{236m}, ^{237m}, ^{240m}Pu, ^{241m}, ^{243m}Cm deduced anisotropies.

74HeZE *Experimental Study of the Deformation of the Fission Isomer in ^{236}U*

R. H. Heffner, Thesis, Univ. Washington (1973); Diss. Abstr. Int. B35, 435 (1974).

Radioactivity: Fission ^{236m}U(SF); measured γce(t); deduced $T_{1/2}$, β.

74LoZN *Gamma-Ray Transitions Preceding Isomeric Fission in ^{236}U*

K. E. G. Lobner, D. Harrach, E. Konecny, N. Nenoff, H. J. Specht, J. Weber, Contrib. Int. Symp. Neutron Capture Gamma Ray Spectroscopy and Related Topics, 2nd, Petten, p. 409 (1974)

Nuclear Reactions: +235)U(n,F); measured (fragment)γ(t). ^{236}U deduced transitions.

74Me10 *Detection of Fission Isomers with Half-Lives in the Picosecond Range by the Recoil-Distance Technique*

V. Metag, E. Liukkonen, G. Sletten, O. Glomset, S. Bjornholm , Nucl. Instrum. Methods 114, 445 (1974).

Nuclear Reactions: +237)Np(p,F), ^{240}Pu(d,pnF); measured recoil distance. ^{240}Pu level deduced $T_{1/2}$.

74MeYP *Half-Life Systematics of Fission Isomers in Even-Even Pu Isotopes*

V. Metag, E. Liukkonen, O. Glomset, A. Bergman , Proc. Symp. Phys. Chem. Fission, 3rd, Rochester, N. Y. (1973), Int. At. En. Agency, Vienna, Vol. 1, p. 317 (1974).

Nuclear Reactions: +238), ^{240}, ^{242}, ^{244}Pu(d,pn), ^{237}Np(p, 2n), ^{234}U(α,2n); measured delayed fission. ^{236}, ^{238}, ^{242}, ^{244}Pu deduced fission isomers, $T_{1/2}$.

74MoYC *Calculation of Fission Barriers*

P. Moller, J. R. Nix , Proc. Symp. Phys. Chem. Fission, 3rd, Rochester, N. Y. (1973), Int. At. En. Agency, Vienna, Vol. 1, p. 103 (1974).

Nuclear Structure: +244), ^{246}, ^{252}, ^{256}, ^{260}No, ^{240}, ^{244}, ^{248}, ^{252}, ^{256}Cf, ^{236}, ^{240}, ^{244}, ^{248}, ^{252}Pu, ^{232}, ^{236}, ^{240}, ^{244}, ^{248}Th; calculated fission barriers. A=242; calculated single particle energies.

74SpZS *Fragment Anisotropy in Isomeric Fission*

H. J. Specht, E. Konecny, J. Weber, C. Kozhuharov , Proc. Symp. Phys. and Chem. Fission, Rochester, N. Y. , 3rd, (1973), IAEA, Vienna, Vol. I, p. 285 (1974).

Nuclear Reactions: +235), ^{236}U, ^{239}Pu(α,2n), E=25 MeV; measured σ(fragment mass,θ), fragment(t). ^{237m}, ^{239m}Pu, ^{241m}Cm deduced anisotropies, J.

74WoZW *Measurements on the Fissioning Isomer ^{238m}U with the (n,n') and (d,pn) Reactions*

K. L. Wolf, J. W. Meadows , Bull. Am. Phys. Soc. 19, No. 4, 595, KH1 (1974)

Nuclear Reactions: fission ^{238}U(n,n'F), (d,pnF); measured σ(E;E(fragment), t). ^{238m}U deduced $T_{1/2}$.

75Ch09 *Investigation of Delayed Fission in ^{236}U*

J. Christiansen, G. Hempel, H. Ingwersen, W. Klinger, G. Schatz, W. Witthuhn , Nucl. Phys. A239, 253 (1975).

Nuclear Reactions: +235)U(d,pF), E=11 MeV; measured prompt, delayed fission. ^{236m}U(SF) deduced $T_{1/2}$, isomeric to prompt fission ratio. ^{232}Th(d,F), E=11 MeV; measured prompt fission.

7Ε r16 *Feasibility of Experimental Verification of the Shape-Isomerism H:pothesis in Heavy Nuclei*

D. P. Grechukhin , Yad. Fiz. 21, 956 (1975); Sov. J. Nucl. Phys. 21, 491 (1976).

Nuclear Structure: +242), ^{242m}Am; calculated isomeric shift.

75Ha09 *An Investigation of the Properties of Single-Particle-States in the Second Minimum of ^{237}Pu*

I. Hamamoto, W. Ogle , Nucl. Phys. A240, 54 (1975).

Nuclear Reactions: +235)U(α,2n), E=22-25 MeV; analyzed data. ^{237}Pu levels deduced g, J, π, K.

75Kh06 *Determination of the Spins of Spontaneously-Fissioning Isomers*

P. Z. Hien , Yad. Fiz. 22, 938 (1975); Sov. J. Nucl. Phys. 22, 489 (1976).

Radioactivity: Fission ^{241}Cm(SF), ^{236}, ^{237}, ^{238}Pu (SF); calculated spins of SF isomers.

75LoZT *Gamma-Ray Transitions Preceding Isomeric Fission in ^{236}U*

K. E. G. Lobner, D. Harrach, E. Konecny, N. Nenoff, H. J. Specht, J. Weber , Proc. Int. Symp. Neutron Capture Gamma Ray Spectroscopy and Related Topics, 2nd, Petten, The Netherlands (1974), K. Abrahams, F. Stecher-Rasmussen, P. Van Assche, Eds. , Reactor Centrum Nederland, p. 665 (1975).

Nuclear Reactions: +235)U(n,γ), E=thermal; measured fragment γ(t). ^{236}U deduced levels.

75Me28 *Systematics of Fission Isomer Halflives*

V. Metag , Nukleonika 20, 789 (1975).

Nuclear Structure: +236), ^{238}, ^{242}, ^{244}Pu, ^{242}, ^{244}Cm; analyzed, reviewed fission isomer $T_{1/2}$. Systematics.

75Ru03 *Gamma Decay of the ^{238}U Shape Isomer*

P. A. Russo, J. Pedersen, R. Vandenbosch , Nucl. Phys. A240, 13 (1975).

Nuclear Reactions: +238)U(d,npγ), E=13, 18 MeV; ^{238}U(p,p'γ), E=13 MeV; measured σ(Eγ,t). ^{238}U deduced levels, J, π, $T_{1/2}$, barrier parameters.

75Va21 *Formation of the Spontaneously Fissile Isomer ^{242m}Am in Thermal-Neutron Capture*

G. V. Valsky, V. L. Varentsov, G. A. Petrov, Y. S. Pleva, B. M. Aleksandrov, A. S. Krivokhatsky , Yad. Fiz. 22, 701 (1975); Sov. J. Nucl. Phys. 22, 363 (1976).

Nuclear Reactions: +241)Am(n,γ), E=thermal; measured σ for production of ^{242}Am(SF) isomer. ^{242m}Am deduced $T_{1/2}$.

76An11 *The Shape Isomer in ^{236}U Populated by Thermal Neutron Capture*

V. Andersen, C. J. Christensen, J. Borggreen , Nucl. Phys. A269, 338 (1976).

Nuclear Reactions: +235)U(n,γ), E=th; measured ce X-coin, fragment delay; obtained isomeric/prompt fission ratio. ^{236m}U shape isomer deduced γ/F branching ratio.

76Be55 *Search for Conversion Electrons Emitted during the Decay of Spontaneously Fissile Isomeru*

A. G. Belov, Y. P. Gangrskii, B. Dalkhsuren, M. B. Miller , Izv. Akad. Nauk SSSR, Ser. Fiz. 40, 1109 (1976); Bull. Acad. Sci. USSR, Phys. Ser. 40, No. 6, 10 (1976).

Nuclear Reactions: +238)U, ^{239}, ^{242}Pu, ^{241}, ^{243}Am(n, X), E=14. 7 MeV; ^{238}U, ^{239}, ^{242}Pu, ^{241}, ^{243}Am(γ,X), E=9, 15 MeV; measured E(ce), I(ce). ^{238}U deduced γ-decay for SF isomer.

76BeZM *Search for the Conversion Electrons Emitted in the Decay of Spontaneously Fissioning Isomers*

A. G. Belov, Y. P. Gangrsky, B. Dalkhsuren, M. B. Miller , JINR-P6-9397 (1976).

Radioactivity: Fission ^{238}U, ^{236}, ^{241}Pu, ^{240}, ^{241}, ^{242}, ^{243}Am(SF); measured ce spectra.

76Br38 *Search for Fissile Isomers in the (n,2n)-Reaction*

J. S. Browne, R. E. Houve , At. Energ. 40, 491(1976); Sov. At. Energy 40, 587 (1976).

Nuclear Reactions: +238)U, ^{242}, ^{244}Pu(n,2n), E=14 MeV; measured σ for production of SF isomers. ^{237}U, ^{241}, ^{243}Pu deduced no SF isomers.

76Ga11 *Γn/Γf for Actinide Nuclei Using (^{3}He,df) and (^{3}He,tf) Reactions*

A. Gavron, H. C. Britt, E. Konecny, J. Weber, J. B. Wilhelmy , Phys. Rev. C13, 2374 (1976).

Nuclear Structure: +230), ^{231}, ^{232}, ^{233}Pa, ^{231}, ^{233}U, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}Np, ^{237}, ^{239}Pu, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}Am, ^{241}, ^{242}, ^{243}, ^{244}Cm; measured fission probability in ^{3}He induced reactions; deduced barrier heights, average

Γn/Γf.

Nuclear Reactions: +230], ^{232}Th, ^{231}Pa, ^{234}, ^{236}, ^{238}U, ^{237}Np, ^{239}, ^{241}Pu, ^{241}, ^{243}Am(^{3}He,df), (^{3}He,tf); ^{235}U, ^{242}Pu(^{3}He,df); E=25 MeV; measured fission spectra; deduced barrier heights, average neutron-, fission-widths. ^{230}, ^{231}, ^{232}, ^{233}Pa, ^{231}, ^{232}U, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}Np, ^{237}, ^{238}Pu, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}Am, ^{241}, ^{242}, ^{243}, ^{244}Cm deduced fission probability.

76Ga29 *Study of the γ-Ray Spectra Emitted in Formation of the Spontaneously Fissile Isomer ^{236}U in the (n,γ) Reaction*

Y. P. Gangrskii, A. Lajtai, B. N. Markov , Yad. Fiz. 24, 880 (1976); Sov. J. Nucl. Phys. 24, 460 (1976).

Nuclear Reactions: +235}U(n,γ), E=th; measured γ-spectrum from ^{236m}U(SF), fragment γ-coin.

76Sl01 *Picosecond Fission Isomers in Even-Even Cm Isotopes*

G. Sletten, V. Metag, E. Liukkonen , Phys. Lett. 60B, 153 (1976).

Radioactivity: Fission ^{240}, ^{242}Cm(SF); measured $T_{1/2}$. ^{244}Cm(SF); measured $T_{1/2}$ upper limit.

76We03 *Mass and Kinetic Energy Measurements of Fragments from the Isomeric and Excited State Fission of ^{242}Am*

J. Weber, B. R. Erdal, A. Gavron, J. B. Wilhelmy , Phys. Rev. C13, 189 (1976).

Radioactivity: Fission ^{242m}Am(SF); measured $T_{1/2}$, σ(E(fragment mass)).

Nuclear Reactions: +241}Am(d,pF), E=15 MeV; measured σ(E(fragment mass)).

77ArZZ *Excitation and Spontaneous Fission of ^{238m}U Isomer by Neutrons with 14 MeV Energy*

R. Arlt, G. Musiol, D. Hoffman , Proc. Conf. Neutron Physics, Kiev, Part 3, p. 247 (1977).

Nuclear Reactions: +238}U(n,n'), E=14 MeV; measured isomer excitation, σ(ratio).

Radioactivity: Fission ^{238m}U(SF); measured σ(fragment) vs t.

77BoZO *On the Spontaneous Fission of ^{238}U Isomer*

A. P. Bordulya, S. N. Ezhov , Proc. Conf. Neutron Physics, Kiev, Part 3, p. 244 (1977).

Radioactivity: ^{238}Pa [from ^{238}U(n,p), E=14. 7 MeV]; measured β-delayed γ-decay. ^{238}U deduced isomer fission probability.

77Bo09 *The Rotational Band of the ^{236}U Shape Isomer*

J. Borggreen, J. Pedersen, G. Sletten, R. Heffner, E. Swanson , Nucl. Phys. A279, 189 (1977).

Nuclear Reactions: +235}U(d,p), E=12 MeV; measured ce-delayed fission coin, pce-coin. ^{236m}U deduced rotational constant.

77Di09 *Near Threshold Neutron-Fission Cross Section*

M. Di Toro, G. Russo , Nucl. Phys. A284, 177 (1977).

Nuclear Structure: +235}U, ^{238}Np, ^{243}Pu; calculated fission parameters. ^{238}Np; calculated, predicted isomer.

77Ga09 *Γn/Γf in Heavy Actinides*

A. Gavron, H. C. Britt, P. D. Goldstone, R. Schoenmackers, J. Weber, J. B. Wilhelmy , Phys. Rev. C15, 2238 (1977).

Nuclear Reactions: +244}Pu, ^{245}, ^{248}, ^{246}Cm, ^{249}, ^{250}Cf(^{3}He,d), (^{3}He,t), E=8, 11 MeV; measured fission probability of compound systems ^{244}, ^{247}Am, ^{246}, ^{248}, ^{247}, ^{249}, ^{250}Bk, ^{249}, ^{250}, ^{251}Es.

77Go03 *Cross Section for Fission of ^{244}Pu by Fast Neutrons*

B. M. Gokhberg, S. M. Dubrovina, V. A. Shigin , Yad. Fiz. 25, 21 (1977); Sov. J. Nucl. Phys. 25, 11 (1977).

Nuclear Reactions: +244}Pu(n,F), E=fast; measured σ(E); deduced fission threshold. ^{245}Pu deduced fission barrier height.

77GoZH *Transmissionresonanzen und Winkelverteilungen der prompten Spaltung in der ^{239}Pu(d,pf) Reaktion*

U. Goerlach, D. Habs, M. Just, V. Metag, E. Mosler, B. Neumann, P. Paul, J. Schukraft, P. Singer, H. J. Specht, G. Ulfert, C. O. Wene , Max-Planck Institut fur Keinphysik (Heidelberg), Jahresbericht 1976, p. 49 (1977).

Nuclear Reactions: +239}Pu(d,p), E=11 MeV; measured fission yields; deduced transmission resonance. ^{238}U(α,3n); measured γ(θ,H,t). ^{239m}Pu deduced g.

77GoYZ *Messung der Energie- und Massenverteilung bei der Spaltung des ^{239m}Pu mit Hilfe des Magnetischen Ruckstossionenseparator*

U. Goerlach, D. Habs, M. Just, V. Metag, E. Mosler, J. Pedersen, J. Schukraft, P. Singer, H. J. Specht, G. Ulfert, C. O. Wene , Max-Planck Institut fur Keinphysik (Heidelberg), Jahresbericht 1977, p. 51 (1977).

Radioactivity: Fission ^{239}Pu(SF) [from ^{238}U(α,3n)]; measured fragment mass, kinetic energy distribution. Compared with neutron induced fission.

77Ha01 *Quadrupole Moment of the 8-μs Fission Isomer in ^{239}Pu*

D. Habs, V. Metag, H. J. Specht, G. Ulfert , Phys. Rev. Lett. 38, 387 (1977).

Nuclear Reactions: +238}U(α,3n), E=33 MeV; measured charge distribution, activity by charge-plunger technique. ^{239}Pu fission isomer deduced quadrupole moment.

77KeZI *Investigation of (n,γF) Reaction*

J. Kecskemeti, Gy. Kluge, A. Lajtai , INDC(SEC)-61/LN, p. 44 (1977).

Nuclear Reactions: +235}U(n,F), E=th; measured γγ(t). ^{236m}U(SF) deduced transitions.

77Me08 *The Quadrupole Moment of the 40 ps Fission Isomer in ^{236}Pu*

V. Metag, G. Sletten , Nucl. Phys. A282, 77 (1977).

Nuclear Reactions: +234}U(α,2n), E=25 MeV; measured delayed fission fragment(θ). ^{236}Pu shape isomer deduced $T_{1/2}$, Q_0.

77Mi09 *Fission Isomer of ^{237m}Np*

E. Migneco, G. Russo, R. De Leo, A. Pantaleo , Phys. Rev. C16, 1919 (1977).

Nuclear Reactions: +238}U(n,2n), E=9. 75, 11. 6, 12. 5 MeV; measured delayed/prompt fission ratios. ^{237m}Np deduced partial $T_{1/2}$ for γ, fission, branching ratio.

77Ta05 *^{239}Pu Fission Isomer in the Reaction with 3-5 MeV Neutrons*

E. Takekoshi, Y. Tsukihashi , J. Phys. Soc. Jap. 42, 1773 (1977).

Nuclear Reactions: +239}Pu(n,n'), (n,F), E=3-5 MeV; measured σ for isomer production/σ prompt fission; deduced σ for isomer production/σ ground state.

77VaYN *Spontaneously Fissioning Isomers*

R. Vandenbosch , Ann. Rev. Nucl. Sci. 27, 1 (1977).

Nuclear Structure: +236}, ^{238}U, ^{237}Np, ^{236}, ^{237}, ^{238}, ^{241}, ^{243}Pu, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Am, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}Cm, ^{232}, ^{234}, ^{238}, ^{250}Bk; compiled, reviewed isomer SF-decay $T_{1/2}$ data.

77VoZU *Production of Fission Isomers in the Reaction ^{238}U(n, n')*

P. E. Vorotnikov, V. A. Vukolov, E. A. Koltypin, Yu. D. Molchanov, G. A. Otroschenko , Proc. Conf. Neutron Physics, Kiev, Part 3, p. 239 (1977).

Nuclear Reactions: +238}U(n,n'), E=2. 5-4. 7 MeV; measured fission isomer yield, $T_{1/2}$, reaction threshold.

78Ba47 *Search for a γ-Decay of the ^{238}U Shape Isomer*

H. Bartsch, W. Gunther, K. Huber, U. Kneissl, H. Krieger, H. J. Maier, Nucl. Phys. A306, 29 (1978).

Radioactivity: ^{236m}U shape isomer [from ^{238}U(γ,2n), E=45 MeV bremsstrahlung]; measured Eγ, Iγ; deduced Γγ/Γf.

78De07 *Fission-Evaporation Competition in Pu Isotopes of Mass 235-239*

H. Delagrange, A. Fleury, J. M. Alexander, Phys. Rev. C17, 1706 (1978).

Nuclear Reactions: +233), ^{234}, ^{235}U(α,xn), X=1-4, E ≤ 46 MeV; measured fusion σ(E).

78Fl05 *Statistical-Model Analysis of Fission Isomer Production for ^{237}, ^{239}Pu And ^{239}Am*

A. Fleury, H. Delagrange, J. M. Alexander, Phys. Rev. C17, 1721 (1978).

Nuclear Reactions: +235), ^{236}U, ^{237}Np(α,2n), E=22-28 MeV; calculated σ(E), isomer production σ(E). Statistical model analysis.

78Go10 *Resonances in the Isomeric and Prompt Fission Probabilities of ^{240}Pu*

U. Goerlach, D. Habs, M. Just, V. Metag, P. Paul, H. J. Specht, H. J. Maier, Z. Phys. A287, 171 (1978).

Nuclear Reactions: +239)Pu(d,p), E=11 MeV; measured proton-fragment time distributions, prompt, delayed fission σ; deduced fission probability.

78Gu02 *Population of the ^{236}U Shape Isomer in a Photonuclear Reaction*

W. Gunther, K. Huber, U. Kneissl, H. Krieger, Nucl. Phys. A297, 254 (1978).

Nuclear Reactions: +238)U(γ,2n), E=45 MeV bremsstrahlung; measured isomer/prompt yields; deduced σ for isomer production. ^{236m}U shape isomer deduced $T_{1/2}$, Γγ/Γf. Natural target.

78Po01 *Properties of Fission Isomers*

K. Pomorski, A. Sobiczewski, Acta Phys. Pol. B9, 61 (1978).

Nuclear Structure: +226)Ra, ^{230}, ^{232}Th, ^{234}, ^{236}, ^{238}U, ^{236}, ^{238}, ^{240}, ^{242}, ^{244}Pu, ^{240}, ^{242}, ^{244}, ^{246}, ^{248}, ^{250}Cm; calculated fission isomer properties: moment of inertia, pairing energy gap, g. Nilsson potential.

78SoZP *Production of ^{236m}U Fission Isomer and ^{236}Pu in the Reactions α + ^{233}U and ^{3}He + ^{234}U*

L. P. Somerville, M. J. Nurmia, A. Ghiorso, G. T. Seaborg, LBL-8151, p. 39 (1976).

Nuclear Reactions: +234)U(^{3}He,2n), E=21. 5-31. 4 MeV; ^{233}U(α, 2n), E=36. 1 MeV; measured production σ(E). ^{236m}Pu level deduced $T_{1/2}$. Mica spontaneous fission detector.

78Ul01 *Lifetime Measurements of Nuclear Levels with the Charge Plunger Technique*

G. Ulfert, D. Habs, V. Metag, H. J. Specht, Nucl. Instrum. Methods 148, 369 (1978).

Nuclear Reactions: +239)Pu(α,3n), E=27, 33 MeV; measured recoil distance. ^{240}Cm levels deduced $T_{1/2}$, Q.

79Ba02 *Spectroscopy in the Second Minimum of the Potential Energy Surface of ^{239}Pu*

H. Backe, L. Richter, D. Habs, V. Metag, J. Pedersen, P. Singer, H. J. Specht, Phys. Rev. Lett. 42, 490 (1979).

Radioactivity: ^{239m}Pu [from ^{238}U(α,3n), E=33 MeV]; measured E(ce), I(ce). ^{239}Pu deduced levels in second minimum, J, π, δ, rotational parameters. Nilsson assignments.

79Be33 *Deep Subthreshold Photofission Yields Analysis*

G. Bellia, A. Del Zoppo, E. Migneco, R. C. Barna, D. De Pasquale, Phys. Rev. C20, 1059 (1979).

Nuclear Reactions: +232)Th, ^{235}, ^{236}, ^{238}U(γ,F), E=3. 6, 4. 1, 4. 6, 5. 1 MeV (bremsstrahlung); measured σ. ^{232}Th deduced three-humped fission barrier. ^{232}Th, ^{235}, ^{236}, ^{238}U deduced energies, fission branching ratios for shape isomers. Double-humped fission barrier model.

79Be46 *Optical Isomer Shift for the Spontaneous-Fission Isomer ^{240}Am-m*

C. E. Bemis, Jr., J. R. Beene, J. P. Young, S. D. Kramer, Phys. Rev. Lett. 43, 1854 (1979); Erratum Phys. Rev. Lett. 44, 500 (1980).

Radioactivity: ^{240m}Am; measured $T_{1/2}$, optical isomer shift. ^{240m}Am, ^{240}Am deduced difference in rms radii.

Atomic Physics: +240)Am(SF); measured optical isomer shift. ^{240m}, ^{240}Am deduced difference in rms radii.

79Gr04 *Excitation of a Spontaneously Fissile Isomer in Positron Annihilation in the K Shell of an Atom*

D. P. Grechukhin, A. A. Soldatov, Yad. Fiz. 29, 296 (1979); Sov. J. Nucl. Phys. 29, 146 (1979).

Radioactivity: Fission ^{236}, ^{238}U; calculated $T_{1/2}$ (SF).

79Gu03 *Photonuclear Yields of the ^{237}Pu Fission Isomers*

W. Gunther, K. Huber, U. Kneissl, H. Krieger, H. J. Maier, Phys. Rev. C19, 433 (1979).

Nuclear Reactions: +239)Pu(γ,2n), E=45 MeV bremsstrahlung; measured $T_{1/2}$, isomeric yield ratio. ^{237m}Pu levels deduced isomeric ratio, spin. Nilsson assignments.

79Ul01 *Quadrupole Moment of the 200-ns Fission Isomer in ^{237}U*

G. Ulfert, V. Metag, D. Habs, H. J. Specht, Phys. Rev. Lett. 42, 1596 (1979).

Nuclear Reactions: +238)U(d,pn), E=20 MeV; measured yield of fission-isomeric recoil. ^{236m}U level deduced quadrupole moment.

79Va25 *On Gamma-Rays in the Population of the Spontaneously Fissioning Isomer in the Reaction ^{241}Am(n,γ)^{242m}Am*

G. V. Valskii, V. L. Varentsov, G. A. Petrov, Y. S. Pleva, Y. A. Otchik, Pisma Zh. Eksp. Teor. Fiz. 29, 92 (1979); JETP Lett. 29, 84 (1979).

Nuclear Reactions: +241)Am(n,γ), E=thermal; measured γ(t). ^{242}Am deduced transition, E(SF) isomer.

80Bj02 *The Double-Humped Fission Barrier*

S. Bjornholm, J. E. Lynn, Rev. Mod. Phys. 52, 725 (1980).

Nuclear Structure: =231-245; analyzed resonance structure, fission data; deduced fission features. Double-humped fission barrier concept.

80Bu13 *Experimental Upper Limit for a γ Branch from the ^{236}U Shape Isomer*

P. A. Butler, R. Daniel, A. D. Irving, T. P. Morrison, P. J. Nolan, V. Metag, J. Phys. (London) G6, 1165 (1980).

Nuclear Reactions: +235)U(d,p), E=11 MeV; measured σ(Eγ), γp(t). ^{236}U level deduced limit on Γγ/ΓF.

80BuZL *Experimential Upper Limit for a γ-Branch from the ^{236}U Shape Isomer*

P. A. Butler, R. Deniels, A. D. Irving, T. P. Morrison, P. J. Nolan, V. Metag, R. Wadsworth, Univ. Liverpool, 1979-1980 Ann. Rept., p. 52 (1980)

Nuclear Reactions: +235)U(d,p), E=11 MeV; measured Eγ, Iγ, γp(t). ^{236}U deduced shape isomer Γγ/Γf upper limit.

80Gu20 *Systematics of Photonuclear Yields and Cross Sections for Plutonium and Uranium Fission Isomers*

W. Gunther, K. Huber, U. Kneissl, H. Krieger, H. Ries, H. Stroher, W. Wilke, H. J. Maier, Nucl. Phys. A350, 1 (1980).

Nuclear Reactions: fission ^{240}Pu, ^{238}U(γ,xn), ^{239}Pu(γ, 2n), ^{242}Pu(γ,n), E=45 MeV bremsstrahlung; measured $T_{1/2}$, isomeric to prompt yield ratios. ^{236}U, ^{237}, ^{238}, ^{241}Pu levels deduced σ(fission). Natural, enriched targets.

80Ku14 *A Simple Description of Dependence of Fission Barriers and of the Ratio Γ(n)/Γ(f) on the Nucleonic Composition for Transuranium Nuclei*

V. M. Kupriyanov, K. K. Istekov, B. I. Fursov, G. N. Smirenkin, Yad. Fiz. 32 355 (1980); Sov. J. Nucl. Phys. 32, 184 (1980).

Nuclear Structure: +225), ^{226}, ^{227}, ^{228}Ra, ^{226}, ^{227}, ^{228}Ac, ^{227}, ^{228}, ^{229}, ^{230}, ^{231}, ^{232}, ^{233}, ^{234}Th, ^{230}, ^{231}, ^{232}, ^{233}Pa, ^{231}, ^{232}, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}U, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{237}, ^{238}Np, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Pu, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}Am, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}, ^{250}Cm, ^{243}, ^{244}, ^{247}, ^{248}, ^{249}, ^{250}Bk, ^{250}, ^{252}Cf, ^{249}, ^{250}, ^{251}Es; calculated < Γn/Γf >, fission barrier height dependences on neutron number. Phenomenological model.

80Li15 *Spectroscopic Properties of ^{237}, ^{239}Pu Fission Isomers from Self-Consistent Calculations*

J. Libert, M. Meyer, P. Quentin, Phys. Lett. B95, 175 (1980).

Nuclear Structure: +237), ^{239}Pu; calculated levels, B(λ), fission isomer spectroscopic properties. Rotor plus quasiparticle model, self-consistent single particle states.

80Ma15 *Composite Particle Emission from ^{64}Zn*

H. Machner, Phys. Rev. C21, 2695 (1980).

Nuclear Reactions: +63)Cu(d,X), E=24. 7 MeV; ^{61}Ni(^{3}He,X), E=24. 3 MeV; ^{61}Ni(α,X), E=35. 5 MeV; calculated σ(θ(X)) for X=p, d, α. Exciton-coalescence model.

80Pa16 *Superprolate shape of the Spontaneous-Fission Isomer ^{240}Am*

L. Pauling, Phys. Rev. C22, 1585 (1980).

Nuclear Structure: +240)Am; calculated deformation parameter. Cluster, polyspheron theory.

80Ti03 *Isomeric-to-Prompt Fission Ratios for the Uranium Fission Isomers ^{236m}U and ^{238m}U*

R. Tischler, A. Kleinrahm, R. Kroth, C. Gunther, Phys. Rev. C22, 324 (1980).

Nuclear Reactions: +235)U(d,pF), ^{236}, ^{238}U(d,npF), E=17-25 MeV; measured delayed E(fission fragment). ^{236}, ^{238}U deduced isomeric to prompt fission ratio.

81Be48 *Study of the Fission Isomer ^{240m}Am(S.F.) using Laser-Induced Nuclear Polarization*

J. R. Beene, C. E. Bemis, Jr., J. P. Young, S. D. Kramer, Hyperfine Interactions 9, 143 (1981).

Radioactivity: Fission ^{240m}Am(SF) [from ^{238}U(^{7}Li, 5n), E=49 MeV]; measured optical isomer shift; deduced quadrupole moment. Laser induced nuclear polarization, optical pumping.

81Ga25 *A Rotating Wheel System for the Detection of Spontaneously Fissioning Nuclides from Heavy Ion Reactions*

H. Gaggeler, W. Bruchle, J. V. Kratz, M. Schadel, K. Summerer, W. Weber, G. Wirth, G. Herrmann, Nucl. Instrum. Methods 188, 367 (1981).

Radioactivity: Fission ^{252}Cf(SF), ^{244}Fm(SF) [from ^{207}Pb(^{40}Ar, 3n), E=199 MeV]; ^{242m}Am(SF) [from ^{238}U(^{238}U, X), E=7. 6 MeV/nucleon]; measured $T_{1/2}$. Rotating wheel technique, catcher foil, fission tract detectors.

Nuclear Reactions: +238)U(^{238}U,X), E=7. 6 MeV/nucleon; ^{207}Pb(^{40}Ar, 3n), E=199 MeV; measured production σ(E) for ^{244}Fm, ^{242}Am. Rotating wheel technique, catcher foil, fission track detectors.

81Gu04 *Yield Ratio for the Two ^{241}Pu Fission Isomers in the ^{242}Pu(γ,n) Reaction*

W. Gunther, K. Huber, U. Kneissl, H. Krieger, H. Ries, H. Stroher, W. Wilke, Nucl. Phys. A359, 397 (1981).

Nuclear Reactions: +242)Pu(γ,n), E=40-48 MeV bremsstrahlung; measured $T_{1/2}$, isomeric to prompt yield ratio. ^{241}Pu levels deduced isomeric ratio, J. Enriched target.

81Me19 *New Results on the Spectroscopy and Dynamics of Fission*

V. Metag, Nucl. Phys. A354, 271c (1981).

Nuclear Structure: +236), ^{238}U, ^{236}, ^{238}Pu, ^{240}Am; compiled, reviewed fission isomer, ground state quadrupole moment, deformation data. Other nuclei included in review.

81Re06 *Analysis of Fissionability Data at High Excitation Energies I. The Level Density Problem*

W. Reisdorf, Z. Phys. A300, 227 (1981).

Nuclear Structure: +208)Pb, ^{210}, ^{212}Th, ^{212}Rn; calculated level density constant; ^{230}, ^{231}, ^{232}, ^{233}Pa, ^{231}, ^{233}U, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}Np, ^{237}, ^{239}Pu, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}Am, ^{241}, ^{242}, ^{243}, ^{244}Cm; analyzed fission probabilites; deduced barrier parameters, shell correction effects. Balian-Bloch single particle level density, shell, pairing effect Ansatz.

Nuclear Reactions: fission ^{232}Th, ^{237}Np, ^{238}U, ^{240}Pu(^{3}He, dF), E=25 MeV; calculated fission probability vs excitation energy. Balian-Bloch single particle level density, shell, pairing effect Ansatz.

81VaZQ *Experiments on the Transfermium Element Production in Nuclear Reactions induced by Mg Ions*

V. M. Vasko, G. G. Gulbekyan, S. P. Tretyakova, E. A. Cherepanov, JINR-P7-81-863 (1981).

Radioactivity: ^{242}Am(SF) [from ^{243}Am(^{26}Mg,X), E=110-140 MeV]; measured $T_{1/2}$.

Nuclear Reactions: +232)Th, ^{238}U, ^{243}Am(^{24}Mg,F), E=130 MeV; ^{232}Th, ^{238}U, ^{243}Am(^{26}Mg, F), E=110-140 MeV; measured fission production σ for ^{252}102, ^{260}107, ^{260}104, $T_{1/2}$(SF).

82Fo08 *Parameters of Fission Barriers for Compound Nuclei ^{245}Cm, ^{247}Cm and ^{249}Cm*

E. F. Fomushkin, G. F. Novoselov, Yu. I. Vinogradov, V. V. Gavrilov, Yad. Fiz. 36, 582 (1982).

Nuclear Reactions: +248)Cm(n,F), E=0. 3-5. 5 MeV; measured fission σ(E). ^{245}, ^{247}, ^{249}Cm deduced fission barrier parameters. Underground nuclear explosion impulse neutron source.

82Go02 *Lowest β-Vibrational Phonon in the Second Minima of ^{236}, ^{238}U*

U. Goerlach, D. Habs, V. Metag, B. Schwartz, H. J. Specht, H. Backe, Phys. Rev. Lett. 48, 1160 (1982).

Nuclear Reactions: fission ^{236}, ^{238}U(d,np), E=20 MeV; measured I(ce), ce(fragment)(t). ^{236}, ^{238}U deduced shape isomer decay characteristics, K/L ratio, transition multipolarity, vibrational band characteristics.

82Ma34 *Symmetry Considerations on the Fission Isomer Spectra*

G. Maino, A. Ventura, Lett. Nuovo Cim. 34, 533 (1982).

Nuclear Structure: +236), ^{239}U; calculated levels, B(E2), band structure. Interacting boson model, SU_{3} limit.

82Ra04 *Measurement of the g Factor of the ^{237}Pu Short-Lived Fission Isomer*

M. H. Rafailovich, E. Dafni, G. Schatz, S. Y. Zhu, K. Dybdal, S. Vajda, C. Alonso-Arias, G. D. Sprouse, Phys. Rev. Lett. 48, 982 (1982); Erratum Phys. Rev. Lett. 49, 244 (1982).

Nuclear Reactions: +235)U(α,2n), E=25. 2 MeV; measured γ(θ,H, T). ^{237}Pu deduced fission isomer g, Nilsson configuration.

83Dm04 *Yield of Fissionable Isomers from Reactions ^{234}U(n, n'), ^{236}U(n,n'), and ^{238}U(n,n')*

S. V. Dmitriev, G. A. Otroshchenko, S. M. Solovyev, Yad. Fiz. 38, 1394 (1983).

Nuclear Reactions: +234), ^{236}, ^{238}U(n,n'), E=2. 6-4. 7 MeV; measured fission isomer production σ(E).

83Dr14 *The Decay of Uranium Shape Isomers Investigated by Photonuclear Reactions*

J. Drexler, R. Heil, K. Huber, U. Kneissl, G. Mank, R. Ratzek, H. Ries, H. Stroher, T. Weber, W. Wilke , Nucl. Phys. A411, 17 (1983).

Nuclear Reactions: +238}U(γ,γ'), E=12 MeV bremsstrahlung; measured isomer $T_{1/2}$, isomeric to prompt yield ratio; deduced isomeric fission cross section. ^{238}U deduced isomer decay branching ratio. Natural target.

83Ka11 *Observation of an E0 Isomeric Transition from the ^{238}U Shape Isomer*

J. Kantele, W. Stoffl, L. E. Ussery, D. J. Decman, E. A. Henry, R. W. Hoff, L. G. Mann, G. L. Struble , Phys. Rev. Lett. 51, 91 (1983).

Radioactivity: ^{238m}U [from ^{238}U(d,pn), E=18 MeV]; measured I(ce); deduced shape isomer E0 transition, J, π, $T_{1/2}$ assignment consistency. Reevaluation of Iγ data, superconducting, solenoid type electron spectrometer.

83Po14 *Identification of ^{246}Pu, ^{247}Pu, ^{246m}Am, and ^{247}Am and Determination of Their Half-Lives*

Yu. S. Popov, P. A. Privalova, G. A. Timofeev, V. B. Mishenev, A. V. Mamelin, B. I. Levakov, V. M. Prokopev , Radiokhimiya 25, 482 (1983); Sov. Radiochemistry 25, 458 (1983).

Radioactivity: ^{246}, ^{247}Pu, ^{246m}, ^{247}Am(β$^-$) [from Pu neutron irradiation]; measured Eγ, Iγ, E(X-ray), I(X-ray); deduced $T_{1/2}$, ^{246}Pu burnout σ. Isotope identification by α-, β-, γ-spectroscopy techniques.

83Ra36 *g-Factor Measurements of Fission Isomers*

M. H. Rafailovich, E. Dafni, G. Schatz, S. Y. Zhu, K. Dybdal, S. Vajda, C. Alonso-Arias, S. Rolston, G. D. Sprouse , Hyperfine Interactions 15/16, 43 (1983).

Radioactivity: ^{238m}Am, ^{237}Pu(SF) [from ^{235}U, ^{237}Np(α, 2n), E=25 MeV]; measured fission fragment anisotropy, isomer $T_{1/2}$, g.

Nuclear Reactions: +235}U, ^{237}Np(α,2n), E=25 MeV; measured γ(θ, H,t). ^{238}Am, ^{237}Pu deduced fission isomer g, $T_{1/2}$.

83WeZT *Search for Alpha Particle Emission from the 14-ms ^{242m}Am Shape Isomer*

J. Weber, H. C. Britt, C. Fontenla, M. M. Fowler, Z. Fraenkel, A. Gavron, K. Rudolph, J. Van der Plicht, J. B. Wilhelmy , LA-9797-PR, p. 151 (1983); Isotope and Nucl. Chem. Div. Ann. Rept. , 1981-1982, H. A. Lindberg Ed. , Los Alamos Nat. Lab. , p. 151 (1983).

Radioactivity: ^{242m}Am(α)(SF) [from ^{240}Pu(t,3n), E=17 MeV]; measured Eα, Iα; deduced deexcitation shape dependence, $T_{1/2}$, long range α-particle to SF branching ratio.

83WeZU *Messungen zum α-Zerfall des Formisomers ^{242m}Am*

J. Weber, K. Rudolph, C. Ley, K. E. G. Lobner, S. M. Skorka, J. B. Wilhelmy, H. C. Britt, A. Gavron, Z. Fraenkel , Univ. , Tech. Univ. Munich, Jahresbericht 1982, p. 16 (1983).

Radioactivity: ^{242}Am(α) [from ^{240}Pu(t,3n), (d,2n)]; measured Eα, Iα.

84Bc33 *Alpha Decay of Fission Isomers*

N. M. Borstnik , ATOMKI Kozlem. 26, 100 (1984).

Nuclear Structure: +242m}Am; calculated α-decay characteristics. Vibrational degrees, α-particle motion dynamical coupling.

84Du03 *Theoretical Analysis of the Single-Particle States in the Secondary Minima of Fissioning Nuclei*

J. Dudek, W. Nazarewicz, A. Faessler , Nucl. Phys. A412, 61 (1984).

Nuclear Structure: +239m}, ^{237m}Pu, ^{238m}Am, ^{231}, ^{233}Th; calculated g, single particle resonances, deformations near fission second minima. Deformed Woods-Saxon potential.

84Ka10 *Reinvestigation of the Gamma Branch from the ^{238}U Shape Isomer*

J. Kantele, W. Stoffl, L. E. Ussery, D. J. Decman, E. A. Henry, R. J. Estep, R. W. Hoff, L. G. Mann , Phys. Rev. C29, 1693 (1984).

Nuclear Reactions: CPND ^{238}U(d,np), E=18. 1 MeV; measured Eγ, Iγ; deduced (isomeric/ground state) σ. ^{238}U deduced shape isomer SF, conversion decay characteristics, levels.

Radioactivity: ^{238m}U(SF), (IT) [from ^{238}U(d,np), E=18. 1 MeV]; measured Eγ, Iγ; deduced isomer decay process relative probabilities.

84Ku05 *Systematics of Neutron Cross Sections and Other Characteristics of Fission Probabilities of Transuranium Nuclei*

V. M. Kupriyanov, G. N. Smirenkin, B. I. Fursov , Yad. Fiz. 39, 281 (1984).

Nuclear Structure: +228}, ^{229}, ^{230}, ^{231}, ^{232}, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}U, ^{230}, ^{231}, ^{232}, ^{233}, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}Np, ^{234}, ^{235}, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}Pu, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}Am, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}, ^{250}Cm, ^{242}, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}, ^{250}, ^{251}, ^{252}, ^{253}Bk, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}, ^{250}, ^{251}, ^{252}, ^{253}, ^{254}, ^{255}, ^{256}Cf, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}, ^{250}, ^{251}, ^{252}, ^{253}, ^{254}, ^{255}Es, ^{250}, ^{251}, ^{252}, ^{253}, ^{254}, ^{255}, ^{256}, ^{257}Fm; calculated fast neutron induced fission σ; analyzed fission data systematics; deduced fission barrier heights, (Γ(n)/Γ(F)). Statistical approach, two-hump fission barrier model.

84Ma44 α *Decay of Fission Isomers*

N. Mankoc-Borstnik , J. Phys. (London) G10, 1371 (1984).

Radioactivity: ^{242}Am(EC), (β$^-$), (α), ^{242m}Am(SF), (α); calculated α-decay constant. First-order perturbation theory.

84Ni04 *On Connection between α Decay and Ternary Fission of Heavy Nuclei*

A. M. Nikitin , Yad. Fiz. 39, 380 (1984).

Nuclear Structure: +252}Cf, ^{233}, ^{234}, ^{235}, ^{236}U, ^{242}, ^{242m}Am; analyzed ternary fission light fragment emission, α-decay characteristics systematics; deduced initial nucleus quasistationary α-particle state role.

84Oh09 *Systematic Analysis of Fission Cross Sections of Actinides by Means of Double-Humped Barrier Model*

T. Ohsawa, Y. Shigemitsu, M. Ohta, K. Kudo , J. Nucl. Sci. Technol. (Tokyo) 21, 887 (1984).

Nuclear Reactions: +231}Pa, ^{232}, ^{234}, ^{235}, ^{236}, ^{238}U, ^{237}Np, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{244}Pu, ^{241}, ^{242}, ^{243}Am, ^{243}, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}Cm, ^{249}Bk, ^{252}Cf(n, F), E 0. 5-6 MeV; calculated σ(E); deduced optical model parameters. ^{232}Pa, ^{233}, ^{235}, ^{236}, ^{237}, ^{239}U, ^{238}Np, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{245}Pu, ^{242}, ^{243}, ^{244}Am, ^{244}, ^{245}, ^{246}, ^{247}, ^{248}, ^{249}Cm, ^{250}Bk, ^{253}Cf deduced fission barriers. Double-humped barrier model.

84Vo18 *Energy Dependence of Yield of Fission Isomers in the Reactions ^{241}Am(n,γ) and ^{243}Am(n,γ)*

P. E. Vorotnikov, G. A. Otroshchenko , Yad. Fiz. 40, 1135 (1984).

Nuclear Reactions: +241}, ^{243}Am(n,γ), E=0. 2-1. 3 MeV; measured fission isomer, prompt fission product yield ratios.

85Ba20 *On Measurement of the Angular Momenta of Fission Isomer*

A. L. Barabanov, D. P. Grechukhin , Yad. Fiz. 41, 582 (1985).

Nuclear Reactions: +238}U(^{7}Li,5n), E=46. 1 MeV; analyzed data. ^{240m}Am deduced fission isomer J estimate. Residual orientation in laser radiation field.

85Be58 *Laser Optical Pumping in Nuclear Physics: Fission isomers, oriented targets, and hyperfine pumping in single-electron atoms*

C. E. Bemis, Jr. , Hyperfine Interactions 24, 139 (1985).

Radioactivity: ^{240m}Am(SF); measured optical isomer shift. Oriented targets, anisotropic fission decay from resonant laser optical pumping.

85Dr01 *The ' Isomeric Shelf ' in the Deep Subbarrier Photofission of ^{238}U*

J. Drexler, R. D. Heil, K. Huber, U. Kneissl, G. Mank, R. Ratzek, H. Ries, T. Weber, W. Wilke, B. Fischer, H. Hollick , Nucl. Phys. A437, 253 (1985).

Nuclear Reactions: +238}U(γ,F), E=3. 9-4. 3 MeV bremsstrahlung; measured $T_{1/2}$, isomeric to prompt yield ratio. Depleted targets.

85Ig01 *Analysis of Cross Sections of U and Pu Isotope Fission Induced by Neutrons in the Range of the First ' Plateau '*

A. V. Ignatyuk, A. B. Klepatsky, V. M. Maslov, E. Sh. Sukhovitsky , Yad.

Fiz. 42, 569 (1985).

Nuclear Reactions: +239), $^{240, 241, 242, 244, 246}$Pu, $^{234, 235, 236, 237, 238, 239, 240}$U(n,F), E=1-5. 5 MeV; analyzed fission σ(E). $^{240, 241, 242, 243, 245, 246}$Pu, $^{235, 236, 237, 238, 239, 240, 241}$U deduced fission barriers, transitional states statistical characteristics.

85Jo04 *^{241}Am and ^{243}Am Charge Distributions from Muonic X-Ray Spectroscopy and the Quadrupole Moment of the ^{240}Am Fission Isomer*

M. W. Johnson, E. B. Shera, M. V. Hoehn, R. A. Naumann, J. D. Zumbro, C. E. Bemis, Jr. , Phys. Lett. 161B, 75 (1985).

Nuclear Reactions: +241), ^{243}Am(μ⁻,X), E at rest; measured muonic E X-ray, I X-ray. $^{241, 243}$Am deduced intrinsic quadrupole moment, Barrett radii. ^{240}Am deduced fission isomer quadrupole moment. Optical isotope shift data input.

Atomic Physics: esic-Atoms $^{241, 243}$Am(μ,X), E at rest; measured muonic X-rays.

85Ku18 *Excitation of Fission Isomer ^{242m}Am, ^{242}Am(I) by Electrons in the Energy Region 17. 5-78 MeV*

V. L. Kuznetsov, L. E. Lazareva, V. G. Nedorezov, N. V. Nikitina, A. S. Sudov , Yad. Fiz. 42, 29 (1985).

Nuclear Reactions: +243)Am(e,n), (γ,n), E=17. 5-78 MeV; measured residual fission isomer production σ(E); ^{243}Am(e,F), (γ,F), E=17. 5-78 MeV; measured fission σ(E); deduced fission isomer production mechanism. Virtual photon theory.

85Ra28 *A g-Factor Measurement of the ^{238}Am Fission Isomer*

M. H. Rafailovich, S. Vajda, E. Dafni, G. Schatz, S. Rolston, S. Y. Zhu, G. D. Sprouse , Phys. Lett. 163B, 327 (1985).

Nuclear Reactions: +237)Np(α,2n), E=tandem; measured γ(θ,H,t). ^{239}Am deduced fission isomer g.

85Vo17 *Anisotropy of Fission of ^{242m}Am by Fast Neutrons*

P. E. Vorotnikov, B. M. Gokhberg, V. A. Shigin, E. F. Fomushkin, G. F. Novoselov , Yad. Fiz. 42, 1038 (1985); Sov. J. Nucl. Phys. 42, 656 (1985).

Radioactivity: ^{242m}Am(SF); measured fission fragment decay σ(θn=0°)/σ(θn=90°), anisotropy.

86Bl10 *Intermediate Structure in the Fission Cross Sections of the Even Curium Isotopes*

R. C. Block, D. R. Harris, H. T. Maguire, Jr. , C. R. S. Stopa, R. E. Slovacek, J. W. T. Dabbs, R. J. Dougan, R. W. Hoff, R. W. Lougheed , Radiat. Eff. 92, 305 (1986).

Nuclear Reactions: +244), $^{246, 248}$Cm(n,F), E ≤ 100 keV; analyzed fission σ(E); deduced structure. $^{245, 247, 249}$Cm deduced barrier parameter differences.

86De04 *Excitation Function and Half-Life for the Fission Isomer ^{240m}Pu from the ^{238}U(α,2n)^{240m}Pu Reaction*

S. de Barros, S. D. de Magalhaes, H. Wolf, J. Barreto, J. Eichler, N. Lisbona, I. O. de Souza, D. M. Vianna , Z. Phys. A323, 101 (1986).

Radioactivity: ^{240m}Pu(SF) [from ^{238}U(α,2n), E=20. 1-27. 3 MeV]; measured $T_{1/2}$.

Nuclear Reactions: CPND ^{238}U(α,2n), E=20. 1-27. 3 MeV; measured residual fission isomer production σ(E). ^{240m}Pu deduced delayed fission σ, isomeric σ ratio.

87Ah07 *Search for the Shape-Isomeric Gamma Decay in Muonic Uranium*

S. Ahmad, G. A. Beer, B. H. Olaniyi, A. Olin, S. N. Kaplan, A. Mireshghi, J. A. Macdonald, O. Hausser , Can. J. Phys. 65, 753 (1987).

Nuclear Reactions: +236), $^{235, 238}$U(μ⁻,γ), E at rest; measured Eγ, Iγ, E X-ray, I X-ray, γ(t); deduced no shape isomer excitation evidence. $^{236, 238}$, ^{236}U deduced μ-capture $T_{1/2}$.

Atomic Physics: esic-Atoms $^{235, 238, 236}$U(μ⁻, γ), E at rest; measured Eγ, Iγ, E X-ray, I X-ray, γ(t).

87Gu03 *A New Macroscopic-Microscopic Description of the Double-Humped Fission Barriers*

S. K. Gupta, L. Satpathy , Z. Phys. A326, 221 (1987).

Nuclear Structure: +228)Ra, ^{228}Ac, ^{228}Th, ^{229}Pa, ^{234}U, ^{238}Np, ^{238}Pu, ^{241}Am, ^{243}Cm, ^{249}Bk, ^{252}Cf, ^{254}Es, ^{254}Fm, ^{256}Md, ^{257}No, ^{259}Lr, ^{261}104; calculated binding energies; Z=90-98; calculated doubled-humped fission barriers, shell energies. New mass relation.

87ScZP *On the γ-Decay of the Shape Isomer in ^{236}U*

J. Schirmer, D. Habs, D. Schwalm, H. J. Maier , GSI-87-1, p. 32 (1987).

Nuclear Reactions: +235)U(d,p), E=11 MeV; measured γ-spectra, γ(t). ^{236}U deduced shape isomer decay characteristics.

88Ma43 *α-Decay Probability of Spontaneously Fissioning Isomer and Deformation Hindrance Factor*

V. E. Makarenko, V. G. Nosov , Yad. Fiz. 48, 73 (1988).

Radioactivity: ^{238m}U(α); calculated α-decay probability; deduced deformation hindrance factor.

88Ma52 Triple Fission of the Spontaneously Fissioning Isomer ^{238}U

V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, G. B. Yankov , Pisma Zh. Eksp. Teor. Fiz. 47, 489 (1988); JETP Lett. (USSR) 47, 573 (1988).

Radioactivity: ^{238m}U(α), (SF) [from ^{238}U(n,n'), E=4. 5 MeV]; measured decay $T_{1/2}$, triple fission branching ratio.

Nuclear Reactions: +238)U(n,n'), E=4. 5 MeV; measured isomer production yield.

89Eg01 *Actinide Nuclei Fission Cross-Section Irregularities*

S. A. Egorov, V. A. Rubchenya, S. V. Khlebnikov , Nucl. Phys. A494, 75 (1989).

Nuclear Reactions: +227)Ac(n,F), E 2-16 MeV; ^{226}Ra(n,F), E 3-16 MeV; ^{244}Cm(n,F), E 1-3 MeV; $^{242, 246, 248}$Cm(n,F), E 0. 5-5 MeV; calculated fission σ(E). $^{243, 245, 247, 249}$Cm, $^{228, 229, 227}$Ra, $^{228, 227}$Ac deduced fission barrier parameters.

89Ha40 *Spectroscopy of the Second Minimum*

D. Habs , Nucl. Phys. A502, 105c (1989).

Nuclear Structure: 150; analyzed high spin level systematics; deduced comparison with fission second minimum in actnide region.

89HoZP *Second Minimum Spectroscopy Using Heavy Ion Transfer Reactions*

T. H. Hoare, P. A. Butler, G. D. Jones, R. J. Poynter, C. A. White , Daresbury Lab. , 1988-1989 Ann. Rept. , Appendix, p. 92 (1989).

Nuclear Reactions: +238)U(^{58}Ni,^{58}Ni), E=325 MeV; measured γγ-coin, γγ(t); deduced residue fission isomer σ.

89Ma54 *Ternary Fission of Neutron Induced Uranium Fissioning Isomers*

V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, G. B. Yankov , Nucl. Phys. A502, 363c (1989).

Radioactivity: $^{236m, 238m}$U(SF) [from $^{235, 238}$U(n, n'), E=4. 5 MeV]; measured $T_{1/2}$, fission fragment; deduced relative fission probabilities.

89Ma64 *Spontaneous Fission Isomers α-Decay Hindrance Factor*

V. E. Makarenko, V. G. Nosov , Izv. Akad. Nauk SSSR, Ser. Fiz. 53, 933 (1989); Bull. Acad. Sci. USSR, Phys. Ser. 53, No. 5, 105 (1989).

Radioactivity: ^{238m}U(SF); calculated α-decay hindrance factor.

89Ma57 *Ternary Fission of Uranium Fissioning Isomers Excited by Neutrons*

V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, G. B. Yankov

, Yad. Fiz. 50, 928 (1989).

Radioactivity: ^{236m}, ^{238m}U(SF) [from ^{236}, ^{238}U(n, n'), E=4. 5 MeV]; measured fission fragment spectra; deduced $T_{1/2}$, decay probability, fission mechanism.

89Sc30 *γ Decay of the Superdeformed Shape Isomer in ^{236}U*

J. Schirmer, J. Gerl, D. Habs, D. Schwalm, Phys. Rev. Lett. 63, 2196 (1989).

Nuclear Reactions: +235}U(d,p), E=11 MeV; measured γ time spectra, missing energy vs delayed sum energy. ^{236}U deduced isomer, decay, superdeformation features, γ-decay to fission branching ratio.

89SoZZ *Production of the Fission Isomer ^{236m}Pu and ^{234}Pu in the Reactions α + ^{233}U and ^{3}He + ^{234}U*

L. P. Somerville, M. J. Nurmia, A. Ghiorso, J. M. Nitschke, G. T. Seaborg, Bull. Am. Phys. Soc. 34, No. 1, 69, EG7 (1989)

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Nuclear Reactions: CPND ^{234}U(^{3}He,2n), (^{3}He,3n), E not given; measured σ(E). ^{233}U(α,3n), E=36 MeV; measured E(α), I(α); deduced reaction σ, ^{236}, ^{234}Pu production.

90Bh02 *Test of the Adequacy of Using Smoothly Joined Parabolic Segments to Parametrize the Multihumped Fission Barriers in Actinides*

B. S. Bhandari, Phys. Rev. C42, 1443 (1990).

Nuclear Structure: +236}, ^{238}U, ^{237}Np, ^{236}, ^{237}, ^{238}, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Pu, ^{239}, ^{240}, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Am, ^{241}, ^{242}, ^{243}, ^{244}, ^{245}Cm; calculated fission $T_{1/2}$; deduced fission barrier parametrization.

90HoZU *Second Minimum Spectroscopy Using Heavy Ion Reactions*

T. H. Hoare, P. A. Butler, N. Clarkson, G. D. Jones, C. A. White, R. J. Poynter, R. A. Cunningham, Daresbury Labs., 1989-1990 Ann. Rept., Appendix, p. 84 (1990).

Nuclear Reactions: CPND ^{238}U(^{58}Ni,^{60}Ni), E=325 MeV; ^{238}U(^{62}Ni,^{64}Ni), E=332 MeV; measured fission isomer production σ upper limit.

90Ku17 *Energy of Alpha Particles in Triple Fission of the Fissile Isomer Uranium-238*

I. A. Kukushkin, V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, G. B. Yankov, Pisma Zh. Eksp. Teor. Fiz. 51, 611 (1990); JETP Lett. (USSR) 51, 693 (1990).

Radioactivity: ^{238m}U [from ^{238}U(n,n'), E=4. 5 MeV]; measured fission fragment, α-spectra; deduced $T_{1/2}$, triple fission α-distribution features, branching ratio relative to SF-decay.

90Ma59 *Method of Half-Life Determination*

V. E. Makarenko, G. A. Otroshchenko, Yad. Fiz. 51, 1201 (1990); Sov. J. Nucl. Phys. 51, 765 (1990).

Radioactivity: ^{236m}, ^{238m}U; calculated $T_{1/2}$. Time spectrum processing method proposed.

91Ku23 *Energies of Long-Range Particles in Ternary Fission of the ^{238}U Spontaneously Fissioning Isomer*

I. A. Kukushkin, V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, G. B. Yankov, Yad. Fiz. 54, 8 (1991); Sov. J. Nucl. Phys. 54, 4 (1991).

Nuclear Reactions: +238}U(n,n'), E=4. 5 MeV; measured (fragment)(fragment)-coin following SF-decay, ternary fission. ^{238m}U deduced $T_{1/2}$, fission branching ratio.

92Ba67 *First Observation of a Resonance Ionization Signal on ^{240m}Am Fission Isomers*

H. Backe, Th. Blonnigen, M. Dahlinger, U. Doppler, P. Graffe, D. Habs, M. Hies, Ch. Ilgner, H. Kunz, W. Lauth, H. Schope, P. Schwamb, W. Theobald, R. Zahn, Hyperfine Interactions 74, 47 (1992).

Radioactivity: ^{240m}Am(SF) [from ^{242}Pu(d,2n), E=12 MeV]; measured resonance ionization followed by isomer fission decay. Buffer gas cell, two-step resonance ionization, excimer dye laser combination.

92Bh03 *Systematics of the Deduced Fission Barriers for the Doubly Even Transactinium Nuclei*

B. S. Bhandari, Y. B. Bendardaf, Phys. Rev. C45, 2803 (1992).

Nuclear Structure: +236}, ^{238}, ^{240}, ^{242}, ^{244}Pu, ^{240}, ^{242}, ^{244}, ^{246}, ^{248}, ^{250}Cm; calculated isomer energies, $T_{1/2}$, SF-decay $T_{1/2}$, outer barrier heights. ^{230}, ^{232}Th, ^{230}, ^{232}, ^{234}, ^{236}, ^{238}U, ^{246}, ^{248}, ^{250}, ^{252}, ^{254}, ^{256}Cf, ^{242}, ^{244}, ^{246}, ^{248}, ^{250}, ^{252}, ^{254}, ^{256}, ^{258}Fm, ^{250}, ^{252}, ^{254}, ^{256}, ^{258}, ^{260}, ^{262}No, ^{250}104, ^{252}104, ^{254}104, ^{256}104, ^{258}104, ^{260}104; calculated SF-decay $T_{1/2}$, outer barrier height. Double humped fission barrier model. Other nuclei, other aspects discussed.

92BlZZ *Search for Low Spin Superdeformed States by Transfer Reaction*

J. Blons, D. Goutte, A. Lepretre, R. Lucas, V. Meot, D. Paya, X. H. Phan, G. Barreau, T. Doan, G. Pedemay, Contrib. Int. Conf. Nuclear Structure at High Angular Momentum, Ottawa, p. 57 (1992); AECL-10613 (1992)

.

Nuclear Reactions: +236}U(^{16}O,^{16}O), E=9 MeV/nucleon; ^{196}Pt (^{16}O,^{14}C), E not given; measured γ sum spectra, γ(particle)-coin. ^{198}Hg deduced superdeformed band population.

92Ch08 *Limits on the Lifetime of the Shape Isomer of ^{238}U*

C. R. Chinn, J.-F. Berger, D. Gogny, M. S. Weiss, Phys. Rev. C45, 1700 (1992).

Radioactivity: ^{238}U; calculated fission isomer partial $T_{1/2}$. Constrained Hartree-Fock-Bogoliubov.

92DeZZ *Population of the 0. 5ns Fission Isomer and Excited States in ^{238}Pu by Heavy-Ion Induced 1n-Transfer*

M. Devlin, D. Cline, K. G. Helmer, R. Ibbotson, C. Y. Wu, A. Cresswell, P. A. Butler, G. D. Jones, M. A. Stoyer, J. O. Rasmussen, Bull. Am. Phys. Soc. 37, No. 2, 870, A8 1 (1992)

.

Nuclear Reactions: +239}Pu(^{117}Sn,^{118}Sn), E=630 MeV; measured Eγ, Iγ, γ-multiplicity, particle spectra, (fragment)(fragment)-coin. ^{239}Pu deduced levels, J, π. ^{238}Pu deduced levels, J, π, fission isomer population.

92Er01 *Quasi-Stationary State Population Probability of the Actinide Nuclei Second Well*

D. O. Eremenko, S. Yu. Platonov, O. A. Yuminov, Bull. Rus. Acad. Sci. Phys. 56, 70 (1992).

Nuclear Structure: +239}, ^{236}, ^{237}, ^{238}Np, ^{240}, ^{239}, ^{237}Pu, ^{233}, ^{232}Pa; calculated quasistationary states population probability under induced fission, second potential. Fluctuation dissipation dynamics.

92Ma34 *α and γ Spectroscopy of Spontaneous-Fission Isomers*

V. E. Makarenko, Yad. Fiz. 55, 1759 (1992); Sov. J. Nucl. Phys. 55, 973 (1992).

Nuclear Structure: +238}U, ^{239}, ^{241}Pu, ^{240}, ^{241}, ^{242}, ^{243}Am; compiled, reviewed fission isomer decay by α-, γ- emission.

92So10 *Intrinsic Structures and Associated Rotational Bands in Deformed Even-Even Nuclei of the Actinide Region*

P. C. Sood, D. M. Headly, R. K. Sheline, At. Data Nucl. Data Tables 51, 273 (1992).

Nuclear Structure: ≥ 88; N ≥ 134; ^{240}, ^{238}, ^{234}, ^{236}, ^{232}U, ^{230}, ^{232}, ^{234}, ^{236}, ^{238}, ^{226}, ^{228}, ^{234}Th, ^{224}, ^{226}, ^{222}, ^{234}, ^{228}, ^{230}, ^{232}Ra; analyzed levels; deduced band structure, fission isomers superdeformation, hyperdeformation evidence.

92St05 *Fission and Gamma-Ray Decay of the ^{236}U Shape Isomer*

M. Steinmayer, K. E. G. Lobner, L. Corradi, U. Lenz, U. Quade, P. R. Pascholati, K. Rudolph, W. Schomburg, Z. Phys. A341, 145 (1992).

Radioactivity: ^{236m}U [from ^{235}U(d,np), E=18 MeV]; measured γ(ce)-coin; deduced delayed fission $T_{1/2}$. ^{236}U deduced transitions.

93Ar03 *Fission of Heavy Hypernuclei Formed in Antiproton Annihilation*

T. A. Armstrong, J. P. Bocquet, G. Ericsson, T. Johansson, T. Krogulski, R. A. Lewis, F. Malek, M. Maurel, E. Monnand, J. Mougey, H. Nifenecker, J. Passaneau, P. Perrin, S. M. Polikanov, M. Rey-Campagnolle, C. Ristori, G. A. Smith, G. Tibell, Phys. Rev. C47, 1957 (1993).

Nuclear Reactions: +238)U(p-bar,X), E at 105 MeV/c; measured hypernuclei yield, fission (fragment)(fragment)-coin; deduced fission hypernuclei $T_{1/2}$.

93Ku16 *Yield of the Fissioning Isomer in the Reaction $^{241}Am(n, n')$*

I. A. Kukushkin, V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, Yad. Fiz. 56, No 9, 13 (1993); Phys. Atomic Nuclei 56, 1157 (1993).

Nuclear Reactions: +241)Am(n,n'), (n,γ), E=4. 5 MeV; measured fission isomer yields; deduced reaction dependence.

Radioactivity: ^{242m}, ^{241m}Am(SF) [from ^{241}Am(n,n'), (n,γ), E=4. 5 MeV]; *measured fission fragment spectra.* *^{241}Am deduced isomeric state fission* probability, $T_{1/2}$.

93Ro07 *The Study of Prompt and Delayed Muon Induced Fission III. The Radios of Prompt to Delayed Fission Yields*

Ch. Rosel, H. Hanscheid, J. Hartfiel, R. von Mutius, J. F. M. d'Achard van Enschut, P. David, H. Janszen, T. Johansson, J. Konijn, T. Krogulski, C. T. A. M. de Laat, H. Paganetti, C. Petitjean, S. M. Polikanov, H. W. Reist, F. Risse, L. A. Schaller, L. Schellenberg, W. Schrieder, A. K. Sinha, A. Taal, J. P. Theobald, G. Tibell, N. Trautmann, Z. Phys. A345, 89 (1993).

Nuclear Reactions: +233], ^{234}, ^{235}, ^{236}, ^{238}U, ^{237}Np, ^{242}, ^{244}Pu(μ^-,F), E not given; measured prompt to delayed fission yields, absolute probabilities; deduced fission probabilities per muon capture.