**REPORT TO USERS
OF
ATLAS**

JUNE 1996

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This series of reports concerning the Argonne Tandem-Linac Accelerator System (ATLAS) is aimed at informing users about the operating schedule, user policies, and recent changes in research capabilities. The reports are issued approximately three times annually.

Edited by:

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and
Bruce Glagola

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I. STATUS OF THE ATLAS ACCELERATOR

During the first half of fiscal year 1996, ATLAS provided 2820 hours of research time. No major facility down time occurred during that period and none is planned for the remainder of the fiscal year. This is the highest six-month research hours total ATLAS has ever provided and gives us a good start on a record year of over 5500 hours of research time if all goes well.

A new beam of ^{54}Cr was provided to one experiment with an intensity of approximately 15 pA at the target. The beam was produced from the ECR source with a new oven. The oven design comes from Rick Harkewicz at MSU and is an evolution of a CAPRICE oven design. The oven was also used for a recent lead run. Consumption rate tests with a germanium beam showed a usage rate of 0.4 mg/hr making isotopically enriched beams possible with this oven.

The new ECR ion source project is proceeding well. Assembly of the source is now underway on the recently completed high voltage platform shown in Fig. 1. Construction of the platform took longer than anticipated and has created a delay in the initial turn-on schedule. An optimistic initial schedule calling for a first plasma in May has been revised to July. The first analyzing magnet after the source has been ordered and delivery is scheduled for July. A second 10-GHz RF source has been obtained so that we may test the two-frequency heating mode observed by Berkeley in their AECS source.

A number of staff changes are occurring at ATLAS. Two ATLAS operators, Brian Tieman and Kirt Nakagawa, have resigned. Brian has taken a position at the Argonne Advanced Photon Source and Kirt Nakagawa has decided to seek new challenges in the southwestern U.S. Two new employees, Robert Scott and Ken Borawski, joined the staff in May and are now in training to become ATLAS operators. A third operator position is now being advertised. When our new operators have been trained, Iain Tilbrook will move into the ATLAS electronics group to provide additional depth in that area. In addition to these changes, a second person will be added to our computer control system group. The net results of the changes will be to add two ATLAS operations staff in order to provide better support for seven-day per week operation. This expansion was made possible by the DOE Scientific Facilities Initiative.

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Fig. 1. The new ECR ion source project status in early June, 1996 is summarized in this picture. The room and high-voltage platform are complete. Coil assembly is nearing completion and final assembly of the source and platform beam line are about to begin.

II. HIGHLIGHTS OF RECENT RESEARCH AT ATLAS

Some highlights of recent experiments performed at ATLAS are summarized below. Figure 2 shows a photograph of an experimental group from the Oregon State University which performed an experiment with the 36" scattering chamber.

Fig. 2. Pictured are (from left to right): Lissa Zyromski, Walter Loveland, James Dunn and George Souliotis.

A. FIRST IN-BEAM OBSERVATION OF EXCITED STATES IN ^{156}Hf USING THE RECOIL-DECAY TAGGING METHOD

(D. Seweryniak, I. Ahmad, H. Amro, D.J. Blumenthal, L.T. Brown, M.P. Carpenter, C.N. Davids, S. Fischer, D.J. Henderson, R.V.F. Janssens, T.L. Khoo, C.J. Lister, D. Nisius, ANL; T. Davinson, R.J. Irvine, P.J. Woods Univ. of Edinburgh; W.B. Walters, Univ. of Maryland; I. Hibbert, C. Parry, and R. Wadsworth, York Univ.)

Excited states in the very neutron-deficient nucleus ^{156}Hf were populated with the $^{102}\text{Pd}(^{58}\text{Ni}, 2p2n)$ reaction at 270 MeV in an experiment performed at ATLAS. Gamma rays were detected with AYEBALL, an array of 16 HPGe detectors and 2 LEPS spectrometers placed around the target, and were assigned to individual reaction channels using the Recoil-Decay Tagging Method (RDT) [1]. The residual nuclei were dispersed in the Fragment Mass Analyzer (FMA) according to their mass to charge state ratios and implanted into a position-sensitive Double-Sided Silicon Strip Detector (DSSD) placed behind the focal plane of the FMA. The subsequent characteristic α decays observed in the same pixel of the DSSD as the implantation allowed complete identification of the implanted residues and thus of the γ rays detected at the target position. The ground state and the isomeric state at 1959 keV in ^{156}Hf are known to predominantly α decay [2]. Evidence has been found indicating that the isomeric state is populated after the β decay of

the $\{\pi h_{11/2}; \nu f_{7/2}\}_{9+}$ state in ^{156}Ta suggesting the $\{\nu h_{9/2}; \nu f_{7/2}\}_{8+}$ configuration for the isomeric state [3]. In the present experiment prompt γ -ray cascades were associated with both ^{156}Hf alpha lines. Singles gamma-ray spectra tagged on the ^{156}Hf alpha lines are shown in Fig. 3. Figure 4 presents a preliminary level scheme of ^{156}Hf constructed using γ -ray intensities in the singles recoil-decay tagged γ -ray spectra. Because of the low statistics in the γ - γ matrix, only the strongest transitions were placed in the level scheme.

Fig. 3. Gamma-ray singles spectra tagged on a) the ground state α -decay of ^{156}Hf and b) the 1959 keV isomeric state in ^{156}Hf .

A $6^+ \rightarrow 4^+ \rightarrow 2^+ \rightarrow 0^+$ sequence of γ -ray transitions was established to be followed by α particles emitted from the ground state of ^{156}Hf . The 6^+ state was found to lie above the 8^+ isomer leaving an E4 γ -ray transition as the only competition for the β and α decays. The lowering of the 8^+ state with respect to the 6^+ state, which was interpreted as a member of the $\nu f_{7/2}^2$ multiplet, is mainly a consequence of the closing energy gap between the two lowest lying neutron orbitals, $\nu f_{7/2}$ and $\nu h_{9/2}$. In the lighter $N=84$ isotones it has been associated with the strong attractive interaction of protons occupying the $\pi h_{11/2}$ orbital and the $\nu h_{9/2}$ neutron coupled to spin $I=1$. An yrast γ -ray cascade extending up to an excitation energy of about 4 MeV was found to be correlated with the α decay of the 8^+ isomer and was associated mainly with the $\nu f_{7/2}^2$ multiplet coupled to the aligned $\pi h_{11/2}^2$ pair. In addition, excited states in several light Ta and Lu isotopes were observed for the first time. In another experiment γ -ray transitions correlated with the ground state proton decay and protons emitted from the isomeric state in ^{147}Tm were identified, truly representing in-beam γ -ray spectroscopy beyond the proton drip line, and clearly illustrating an enormous potential of the RDT method.

Fig. 4. A preliminary level scheme of ^{156}Hf .

- [1] E.S. Paul et al., Phys. Rev. **C51**, 78 (1995).
- [2] S. Hofmann et al., Z. Phys. **A291**, 53 (1979).
- [3] S. Hofmann et al., Z. Phys. **A333**, 107 (1989).
- [4] C.T. Zhang et al., Z. Phys. **A345**, 327 (1993).

B. MEASUREMENTS OF INTERNAL PAIR CONVERSION USING APEX

(A. H. Wuosmaa, I. Ahmad, R. R. Betts, B. B. Back, R. W. Dunford, S. Fischer, J. P. Greene, C. J. Lister, V. Nanal, E. Roa, ANL; C. M. Conner, R. Ganz, U. of Illinois; N. I. Kaloskakis and L. Lamm, U. of Notre Dame)

Internal Pair Conversion (IPC), the process by which a high energy photon produced in the decay of an excited nuclear state converts into a positron-electron pair, has attracted renewed interest recently. The chief motivation in returning to the study of IPC has been as a possible explanation of the unexplained peaks in positron-electron pair energy spectra observed in heavy-ion collisions. IPC, however, is a process quite interesting in its own right, and despite the fact that the theory describing it has existed for many years, many aspects of the IPC theory [1] remain to be tested precisely in experiment. In particular, for heavy nuclei where large deviations from the simple Born approximation are expected, measurements of absolute pair-conversion coefficients to better than 20% do not exist [2]. In addition, studies of the positron-electron energy and angle correlations, which provide even more sensitive tests of the theory are, with a few exceptions, not available in these cases. Of particular interest are transitions of a magnetic character, where the sensitivity to the nuclear charge distribution can be quite substantial, and where experimental data are rare or non-existent.

To address these questions, we have used the APEX positron-electron spectrometer to study IPC of transitions in two lead nuclei ^{206}Pb and ^{207}Pb populated by the Electron Capture decay of ^{206}Bi and ^{207}Bi , respectively. In ^{206}Pb , the IPC spectrum is dominated by an E1 transition at a transition energy of 1719 keV, with several other E1 transitions contributing at lower levels. For ^{207}Bi , only one pair-converting transition in ^{207}Pb is populated, a predominantly M1 transition at 1770 keV. For comparison, we have also obtained data for a well understood E0 transition, the decay of the first excited 0^+ level in ^{90}Zr at 1761 keV, populated by the β^- decay of ^{90}Y .

The measurements were carried out with the sources installed at the target position of the APEX spectrometer. The short-lived ^{206}Bi source ($t_{1/2}=6.2$ d) was produced using the $^{206}\text{Pb}(p,n)$ reaction in an irradiation performed at the University of Notre Dame. Examples of positron-electron pair spectra appear in Fig. 5, with the peaks corresponding to the IPC transitions at $E(\text{sum})=(a)$ 1761 keV, (b) 1719 keV, and (c) 1770 keV clearly observed. The data are currently being analyzed, and the comparison between the results for the different sources should provide considerable new information about the IPC process, in particular for the theoretically interesting case of magnetic transitions.

Fig. 5. Positron-electron pair energy spectra for IPC transitions in (a) ^{90}Zr , (b) ^{206}Pb , and (c) ^{207}Pb . The transition energies are quoted in each case. The peaks in the IPC spectra occur at sum-energies of $E - (2 \times 511 \text{ keV})$.

- [1] P. Schlüter, G. Soff and W. Greiner, Physics Reports **75**, 327 (1981).
- [2] C. Allen, Can. J. Phys. **49**, 157 (1971).

C. THE LOW-LYING STRUCTURE OF ^{200}Rn USING THE AYEBALL SPECTROMETER

(S.J. Freeman, R.B.E. Taylor, J.L. Durell, M.J. Leddy, A.G. Smith
Univ. of Manchester; D.J. Blumenthal, M.P. Carpenter, C.N. Davids,
R.V.F. Janssens, C.J. Lister and D. Seweryniak, ANL)

In the $N < 126$, $Z > 82$ region there have been many long standing calculations indicating the presence of deformation effects in nuclei away from stability [1]. One striking prediction is the existence of an extended region of deformed nuclei lying north west of ^{208}Pb , in isotopes with $Z > 86$ and $N < 116$.

The isotope ^{202}Rn is predicted to be the last of the neutron-deficient species with a near-spherical ground-state shape in the chain of radon isotopes; lighter isotopes are expected to be deformed and the calculated onset of deformation is rather sudden [1]. An investigation of the low-lying levels of ^{200}Rn has been undertaken at ATLAS using the $^{176}\text{Hf}(^{28}\text{Si}, 4n)^{200}\text{Rn}$ reaction. The beam was chosen to be at near-barrier energies to produce compound systems as cold as possible, minimizing fission competition. Residue gamma rays were detected using a 1% efficient array of large detectors provided by the AYEBALL collaboration. The Fragment Mass Analyzer was used to implant residues into a silicon strip detector placed 40 cm behind the focal plane, where the α -decays of the residue and subsequent daughter isotopes were recorded. This system provided extremely sensitive isotopic selection. This was performed by selecting gamma-ray transitions in coincidence with those recoiling ions which subsequently decayed by the emission of α -particles corresponding, in energy and half-life, to known isotopes. The estimated cross section associated with the production of ^{200}Rn was of the order of 10 microbarn.

Using these techniques the gamma-ray transitions between low-lying states in ^{200}Rn were identified, as shown in Fig. 6, and a level scheme has been inferred from intensity

Fig. 6. Spectrum of prompt gamma-rays in coincidence with recoiling ions which subsequently decay by the emission of α particles with energy appropriate to ^{200}Rn .

arguments. The $2^+ \rightarrow 0^+$ transition has an energy of 434 keV and suggests that ^{200}Rn has a near-spherical shape. The low-lying levels in ^{200}Rn follow the trend of other less neutron-deficient isotopes previously studied at ATLAS [2], that of a smooth and gradual fall in energy. It appears that the predicted onset of deformation does not occur, or, that its onset is delayed until lighter isotopes. This might be explained by, for example, imprecise knowledge of the energy of particular shape-driving single-particle orbitals leading to poor prediction of the point at which deformation sets in. Neglect of triaxiality could lead to the prediction of a large static deformation whereas a low deformation, gamma-soft system might be a better description.

- [1] P. Möller and J.R. Nix, *At. and Nucl. Data Tables*, **59**, 185 (1995).
- [2] S.J. Freeman et al., *Phys. Rev. C* **50**, 1754 (1994).

D. STATUS REPORT ABOUT THE RADIOACTIVE BEAM EXPERIMENTS AT ATLAS

(K.E. Rehm, ANL)

1. Experiments with ^{18}F :

Following our studies of the $^{18}\text{F}(p,\alpha)^{15}\text{O}$ reaction we have performed the first experiment of the $^{18}\text{F}(p,\gamma)^{19}\text{Ne}$ reaction which is a possible breakout route from the hot CNO cycle to the rp process. Since the cross sections for radiative capture reactions are typically of the order of tens of microbarns, a detection system with high efficiency is needed in order to compensate for the low beam intensities of the radioactive ion beams. In our experiments we have used the Fragment Mass Analyzer with its position sensitive Parallel Grid Avalanche Detector followed by a large ionization chamber for particle identification in the focal plane. The system was tested by a measurement of the $1/2^+$ resonance in ^{19}F at $E_x=8.793$ MeV populated via the $p(^{18}\text{O}, ^{19}\text{F})\gamma$ reaction. The total detection efficiency of the system is about 30% and a background suppression ratio between reaction products and incident beam of better than 10^{-12} has been achieved. Figure 7 shows a comparison of the cross sections measured in the present experiment in

Fig. 7. Excitation functions for the $^{18}\text{O}(p,\gamma)^{19}\text{F}$ reaction. The shaded area is calculated with resonance parameters taken from *Nucl. Phys. A* **349**, 165 (1980).

inverse kinematics (solid points) with the parameters obtained in a high-current proton beam experiment (shaded area). Due to a small F contaminant in the CH_2 target the resonance sits on a 20 microbarn background caused by ^{19}F recoils. In the $p(^{18}\text{F}, ^{19}\text{Ne})\gamma$ experiment no ^{19}Ne reaction products were observed which translates to an upper limit of 42 microbarns for the $^{18}\text{F}(p,\gamma)^{19}\text{Ne}$ cross section.

2. *First Production Tests for a ^{56}Ni Beam:*

Based on our experience with ^{18}F we have started with the development of a ^{56}Ni beam at the ATLAS accelerator. ^{56}Ni is the heaviest $N=Z$ doubly magic nucleus for which a beam with sufficient intensity can be generated, and is also of considerable interest as a major component in supernovae. In our experiment we have produced ^{56}Ni via the $^{58}\text{Ni}(p,p2n)^{56}\text{Ni}$ reaction using the 50 MeV proton beam from the IPNS injector at Argonne. A one-hour test irradiation with a beam intensity of 10 microamperes showed that in a 24-hour bombardment sufficient amounts of ^{56}Ni can be produced. This one-day irradiation occurred in early May. After a two-day cool-down period the sample was installed in the SNICS ion source at ATLAS. The main stable isobar contamination expected for ^{56}Ni comes from ^{56}Fe . In order to keep this contribution to a minimum, the ATLAS accelerator was tuned with $^{28}\text{Si}^{5+}$ ions which have the same velocity and magnetic rigidity as $^{56}\text{Ni}^{10+}$ ions. While the behavior of the ion source was satisfactory with close to 1 ppA of $^{56}\text{Ni}^{10+}$ measured at the tandem low energy cup, the transmission through the accelerator system was very low, due to the lack of a pilot beam which is needed to create a phase control signal for the pre-tandem buncher. A mass-Z spectrum measured with the focal plane detector at the split-pole spectrograph is given in Fig. 8, showing the isobars ^{56}Ni , ^{56}Co and ^{56}Fe , respectively. The $^{56}\text{Ni}^{10+}$ count rate at the spectrograph was between

Fig. 8. Particle identification spectrum measured for mass 56^{25+} ions in the focal plane of the split-pole spectrograph.

$1-2 \times 10^3$ which was too low for a real experiment. In order to improve the transmission for the next experiment we are planning to install a pair of scintillator slits after the 90 degree bending magnet which will provide the necessary timing signal for the pre-tandem buncher.

3. *Production of a ^{17}F Beam:*

In order to investigate other crucial reactions in the rp process it becomes necessary to produce beams with shorter halflives ($T_{1/2} < 10$ min) where the two-accelerator methods utilized in the ^{18}F and ^{56}Ni experiments can not be used. We are developing a technique which is based on the modular structure of the ATLAS accelerator. In a first experiment we are planning to develop a ^{17}F beam ($T_{1/2} = 65$ sec) with sufficient intensity for nuclear reaction experiments. ^{17}F was produced in a hydrogen cell with a 70 MeV ^{17}O beam. Due to the favorable kinematics the ^{17}F ions are emitted at forward angles with an emittance that is small enough to transport a good fraction of the secondary beam onto target. In our first test run we used a low-intensity primary ^{17}O beam ($I = 1.5$ pA) on a hydrogen cell at 160 Torr (140 microg/cm²). A ^{17}F count rate of 60 $^{17}\text{F}^9$ /sec was measured in the magnetic spectrograph. Improving the transport efficiency from the production target to the spectrograph through the installation of an additional quadrupole should result in a 10 fold increase of the count rate. Together with a higher (~ 200 pA) primary ^{17}O beam one can expect count rates of the order of 10^5 ^{17}F /sec. This should allow a first measurement of the cross section for the $^{17}\text{F}(p,\alpha)^{14}\text{O}$ reaction, the inverse of the $^{14}\text{O}(\alpha,p)^{17}\text{F}$ reaction, which is the first step in the hot CNO cycle.

These experiments involve a number of individuals from Argonne, M. Paul from the Hebrew University, Jerusalem and R.E. Segel from Northwestern University. M. Wiescher (and collaborators) from Notre Dame University are involved with the ^{56}Ni project.

III. PROGRAM ADVISORY COMMITTEE

The ATLAS Program Advisory Committee met on January 18 and 19, 1996 and reviewed 27 proposals requesting 130 days running time and recommended 21 proposals (8 from outside user spokespersons) for 97 days. The ATLAS Program Advisory Committee also met on June 10 and 11, 1996 and reviewed 22 proposals requesting 108 days running time and recommended 16 proposals (9 from outside user spokespersons) for 70 days.

The present Program Advisory Committee members are:

Russell Betts	ANL
David Church	Texas A&M University
David Fossan	SUNY @ Stony Brook
I. Y. Lee	Lawrence Berkeley National Laboratory
Witek Nazarewicz	University of Tennessee
Peter Paul	SUNY @ Stony Brook
Michael Wiescher	University of Notre Dame
Frank Wolfs	University of Rochester

The Committee is chaired by John Schiffer.

Summary of the January 1996 ATLAS PAC Meeting

• Number of new proposals submitted	27
• Total number of days requested in the proposals for this period	130
• Total number of proposals approved	21
• Total number of days recommended	97
• Active backlog of approved beam time (in days) prior to the PAC meeting	86
• Number of scientists involved in proposals submitted to the January 1996 PAC	125
• Number of institutions represented	38
• Number of countries represented	11

LIST OF PROPOSALS APPROVED AFTER THE January 1996 PAC MEETING

Exp. No.	Spokes- person	Title	Days Approved
433-6	Steel	Ion Irradiation of Anisotropic High Temperature Superconductors: Probing Dynamics of Magnetic Vortices	1
466-3	Wauters	Fine Structure in the Alpha Decay of ^{192}Po	6
557-2	Carpenter	Continuing Study of Nuclide Production Near ^{100}Sn using a Radioactive Beam	4
580X	Davids	Test of the Silicon Box Detector at the FMA Focal Plane	2
581	Lister	A Search for Radiative Decay from High Lying States in ^{24}Mg	5
582X	Lister	Test of a Channel-Plate Detector at the FMA Focal Plane	2
583	Charity	Production of Neutron-Deficient Isotopes in the $^{60}\text{Ni} + ^{100}\text{Mo}$ Reaction	6
585	Freeman	Delayed Onset of Deformation in Light Radon Isotopes	5
586	deSouza	Near Scission Emission of IMFs in $^{12}\text{C} + ^{232}\text{Th}$ at $E_{\text{Lab}} = 150$ and 230 MeV	7
587	Cizewski	^{192}Po and Critical Nuclear Phase Transitions	6
588	Dunford	Spectral Distributions of Two-Phonon Decays in Ni^{26+} and Ni^{27+}	5
589	Hofman	Survival Probability of Pb and Au-Like Fragments – Energy Dissipation in Hot Nuclei	5

590X	Hofman	γ -Ray Energy Response of a 16 Element BaF ₂ Spectrometer – LEPPEX Development	2
591	Wuosmaa	Systematic Study of Positron Production in Heavy-Ion Collisions	9
592	Nanal	Exclusive Studies of GDR in the Decay of ¹⁶⁴ Er	5
594	Phillips	Long-Lived Atomic States in Highly-Charged ⁸³ Kr Ions	1
597X	Rehm	Study of the ¹⁷ F(p, α) ¹⁴ O Reaction at Low Energies	4
598	Ackermann	Spin Distributions for ⁶⁴ Ni + ¹⁰⁰ Mo and ¹⁶ O + ¹⁵⁴ Sm with the ANL BGO Array	5
599	Seweryniak	In-Beam Studies of Very Neutron-Deficient Even-Even Os and Pt Isotopes using RDT	7
600	Fischer	Measurement of Absolute B(E2)s in the A ~ 130 Even-Even Xe Nuclei	7
601	Wauters	Shape Coexistence in ^{172,174} Os Studied by Alpha Decay of ^{176,178} Pt	3

Summary of the June 1996 ATLAS PAC Meeting

• Number of new proposals submitted	22
• Total number of days requested in the proposals for this period	108
• Total number of proposals approved	16
• Total number of days recommended	70
• Active backlog of approved beam time (in days) prior to the PAC meeting	46
• Number of scientists involved in proposals submitted to the June 1996 PAC	93
• Number of institutions represented	29
• Number of countries represented	5

LIST OF PROPOSALS APPROVED AFTER THE June 1996 PAC MEETING

Exp. No.	Spokes-person	Title	Days Approved
433-7	Kwok	Patterning of Vortex Channels in High T _c Superconductors with Heavy Ion Irradiation	2
529-2	Sanders	Ternary Breakup of ⁴⁸ Cr	5
574-3	Rehm	Study of Spectroscopic Factors in the Mass 56 Region using Radioactive Ion Beams	7

602	Daulton	Ion Irradiations of Carbonaceous Materials to Investigate Radiation-Induced Diamond Formation	1
605	Schwartz	A Search for ^{12}C Emission from ^{114}Ba : (1) Determination of ^{114}Ba α -Decay, Half-Life, and Mass	4
606	Batchelder	Investigation of the Saturation Effect for α -Reduced Widths of Light Po Isotopes: Study of $^{190,191}\text{Po}$ α -Decays	4
608	Smith	Shapes of Very Neutron-Deficient Barium, Cesium and Xenon Isotopes: Gamma-Ray Spectroscopy with Mass Identification	4
609	Loveland	Fusion Enhancement Studies with Neutron Halo Nuclei	3
610	Cizewski	Superdeformation in $Z > 83$ Nuclei: ^{200}Po	6
611X	Paul	Development of a Focal-Plane Ionization Chamber for Experiments with the Gas-Filled Magnetic Spectrograph	2
612	Janssens	Coulomb Excitation of ^{240}Pu and ^{242}Pu	10
613	Hackman	A Detailed Mapping of Angular Momentum and Energy Dependence of the GDR in ^{156}Dy	5
614	Hofman	Survival Probability of ^{238}U -Like Fragments – Energy Dissipation in Hot Nuclei	7
616X	Ganz	Test of a Heavy-Ion Beam Tracking System	3
617	Carpenter	Search for α -Decay of $^{172-174}\text{Hg}$	4
619	Jiang	Measurement of the Fusion Excitation Function in the System $^{78}\text{Kr} + ^{100}\text{Mo}$ at very Sub-Barrier Energies	3

IV. ATLAS USER GROUP EXECUTIVE COMMITTEE

The current members of the ATLAS User Group Executive Committee are:

Partha Chowdhury	University of Massachusetts, Lowell
John Fox	Florida State University
Lee Riedinger	University of Tennessee
Frank Wolfs (Chair)	University of Rochester

Frank Wolfs can be reached on INTERNET at wolfs@nsrl31.nsrl.rochester.edu. Users are encouraged to communicate with the Executive Committee about ATLAS issues. The location of the ATLAS World Wide Web pages (through the ANL Physics Division pages) is <http://www.phy.anl.gov/>.

V. FMA INFORMATION AVAILABLE ON THE WORLD WIDE WEB

A variety of information about the FMA is available on the World Wide Web. A summary of this information is given below:

FMA:

A great deal of information about the FMA has been posted on the WWW so that it is readily available. It is accessible from the Argonne Physics Division homepage under HeavyIon (or more directly <http://www.phy.anl.gov/fma/>). Some of what exists so far includes:

1. Overview and up-to-date list of publications.
2. A form can be filled out to simplify calculation of the recoil energy setting of the FMA. It allows for most conceivable experimental situations including backed and/or stacked targets.
3. Some documentation has been written on the installation, set-up, and use of various pieces of equipment used with the FMA, such as detectors and target chambers.
4. AYEball information.

Data Acquisition:

An ATLAS-specific guide to the MSU data acquisition system exists and is accessible on the WWW. This eliminates the problem of not being able to find the manual. Mosaic is available on the data acquisition workstations so you can get help as you need it. The documentation can be found on the Argonne Physics Division homepage under Division Information/Info on Computing/MSU (or more directly <http://www.phy.anl.gov/computers/msu/online>). It provides a step-by-step guide to hardware and software set-up, more specific information such as how to begin/end runs or change tapes, hints for better programs, and a list of some known problems along with explanations. If you are starting from scratch, sample programs can be downloaded and used as a template for writing your own.

VI. CONFERENCE ON NUCLEAR STRUCTURE AT THE LIMITS

A conference on "Nuclear Structure at the Limits" will be held at Argonne from July 22-26, 1996. We are expecting 150 participants from all over the world. All sessions will be held at the Argonne APS center. The conference program and other relevant information are available on the world wide web at <http://www.phy.anl.gov/limits96>. Further details can be obtained from Jeannie Glover, phone number (708) 252-4020 and bitnet address Glover@anlphy.phy.anl.gov.

VII. WORKSHOP ON EXPERIMENTS WITH GAMMASPHERE AT ATLAS

Following the conference on "Nuclear Structure at the Limits", a one-day workshop is planned at Argonne to address the possible physics experiments which can be performed with the combination of Gammasphere and FMA when Gammasphere moves to Argonne for a year of operation in September 1997. The workshop will be held at Argonne in the Physics Division on Saturday, July 27, 1996. Details about the workshop can be obtained from Jeannie Glover, phone number (708) 252-4020 and bitnet address Glover@anlphy.phy.anl.gov, and from <http://www.phy.anl.gov/limits96>.