Tables of Average Distributions of Particles
Emitted by Ionized Elements
(Z=6-100)

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ABSTRACT

Tables giving the average division of energy between electrons and x-rays emitted by singly ionized elements undergoing bound-bound transitions are provided. The expected number of particles is also given. This data is tabulated by atomic number and subshell of initial vacancy. A description of the method of calculation is also presented.

An ionized atom returns to its ground state by emitting electrons and x-rays. The vacancy created during ionization is filled by an electron from a shell farther from the nucleus with a lower binding energy. This results in the vacancy "moving" from its initial to its final shell. Following this initial transition, additional transitions occur until the vacancy has reached an outer shell of negligible binding energy.

When an electron moves from an outer shell to an inner shell either an x-ray or a second electron is emitted. These transitions are designated radiative (fluorescence) and non-radiative, respectfully. The energy of the emitted x-ray is equal to the difference in binding energy of the vacancy's initial and final positions. The emitted electron energy, however, is equal to the difference in binding energy of the vacancy's initial and final positions less the emitted electron's binding energy. While a radiative transition results in the simple motion of the original vacancy from one shell to another, a non-radiative transition results in the creation of an additional vacancy, i.e., the original location of the emitted electron. If this additional vacancy is in the same atomic shell as its sister vacancy (following its transition) the process is called Coster-Kronig; if these two vacancies occupy different shells the process is called Auger. It is possible for the number of particles emitted to be greater than the number of transitions that occurred due to the multiplicative nature of the Auger and Coster-Kronig processes.

The cascade of vacancies and the resulting electrons and x-rays is described by transition probabilities. Scofield (1) has calculated bound-bound radiative transition rates using relativistic Hartree-Slater analysis; Chen (2) for non-radiative. These rates were converted to probabilities which are written

MASTER

$P_{i \rightarrow j}^r =$ probability of a radiative transition given a vacancy in sub-shell i to sub-shell j

$P_{i \rightarrow j,k}^{nr} =$ probability of a non-radiative transition given a vacancy in sub-shell i to sub-shell j and emission of an electron from sub-shell k

For a heavy element, the number of transition probabilities and the resulting possible transitions can be very large. In the case of uranium ($Z=92$) with a vacancy in the K-shell, for example, 1012 non-radiative and 78 radiative transitions are possible. Indeed, a very large population of such atoms would exhibit a spectrum with as many lines. The average number of transitions a single such atom would actually experience, however, is much less: 10.43 non-radiative and 8.11 radiative.

A computer program has been written to calculate such average quantities analytically. Given a single initial vacancy in sub-shell i ,

$$N_i^{(0)} = 1.0,$$

the vacancy distribution after n transitions is given by

$$N_j^{(n)} = \sum_i N_i^{(n-1)} P_{i \rightarrow j}^r + \sum_{i,k} N_i^{(n-1)} (P_{i \rightarrow j,k}^{nr} + P_{i \rightarrow k,j}^{nr})$$

This procedure is repeated until all subshells that have out-going transitions are empty of vacancies. Given this distribution, the average number of x-rays is

$$\sum_n \sum_j N_j^{(n)} P_{j \rightarrow j}^r$$

and the average number of electrons is

$$\sum_n \sum_{i,k} N_i^{(n)} (P_{i \rightarrow j,k}^{nr} + P_{i \rightarrow k,j}^{nr})$$

The total energy carried by x-rays from the atom with this initial state is

$$\sum_n \sum_i N_i^{(n)} P_{i \rightarrow j}^r (E_i - E_j)$$

where E_i is the binding energy of sub-shell i . That emitted in the form of electrons is

$$\sum_n \sum_{i,k} N_i^{(n)} \left(p_{i \rightarrow j,k}^{nr} + p_{i \rightarrow k,j}^{nr} \right) (E_i - E_j - E_k) .$$

Upon completion of the cascade simulation, some vacancies remain in sub-shells for which there are no out-going transitions. This remaining energy is calculated via

$$\sum_i N_i^{(n_{max})} E_i$$

where n_{max} is the final simulation step.

Table 1 lists these calculated parameters for all the elements with atomic numbers (Z) between 6 and 100. Each row in the table gives the division of energy between x-rays, electrons, and remaining, the average number and type of particles emitted, and the average energy of these particles for a specific initial vacancy. The initial vacancy sub-shell is specified by both its x-ray notation (K, L1, etc.), where the letter designates the shell and the digit the sub-shell, and its spectral notation (1s1/2, 2s1/2, etc.), where the first digit specifies the principal quantum number, the letter the orbital angular momentum, and the fraction the total angular momentum.

Figure 1 is a plot of the fraction of particles emitted by an ionized atom that are x-rays, or fluorescence yield, during its first transition. Note that values presented in Table 1 are cumulative over all transitions. The data in Figure 1 for shells L and higher are sums over all sub-shells within each shell. Even though these data are for the first transition, they illustrate trends as a function of atomic number of the total energy released through x-rays. Because the x-ray yield drastically decreases with higher shells, the first transition that an atom undergoes represents the vast majority of the number of x-rays emitted. Further, it is the first transition that releases most of an atom's energy. The first transition fluorescence yield can be considered an estimate of the fraction of energy released through x-rays by an atom through all transitions. Table 2 is a comparison of values for selected elements of yield read from Figure 1 and energy fraction in x-rays from Table 1.

The following trends can be drawn from the curves of Figure 1:

- For atoms of Z greater than about 30 with initial vacancies in the K-shell, more than half the energy is released by x-rays. For Z greater than 60, 90% is released via x-rays.
- Electrons carry more than 90% of the energy released by atoms with Z less than about 17 and initial vacancies in the K-shell.

- Electrons are the primary energy carriers for all atoms with initial vacancies in any shell but K. As the initial vacancy shell designator increases and the atomic number decreases, the fraction of energy carried by electrons, in general, increases.

REFERENCES

1. Private Communication, J.H. Scofield, Lawrence Livermore National Laboratory, Livermore, California (1987).
2. Private Communication, M.H. Chen, Lawrence Livermore National Laboratory, Livermore, California (1987).

Table 1. Average Distributions of Particles Emitted by Ionized Elements

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
carbon (Z=6)									
K (1s1/2)	2.9101e-04	1.6302e-03	9.0030e-01	9.8071e-02	1.00	1.6821e-03	9.9832e-01	2.8203e-04	2.6244e-04
L1 (2s1/2)	1.7560e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L2 (2p1/2)	8.9900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	8.9800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
nitrogen (Z=7)									
K (1s1/2)	4.0485e-04	3.4627e-03	9.1354e-01	8.3000e-02	1.00	3.5638e-03	9.9644e-01	3.9336e-04	3.7117e-04
L1 (2s1/2)	2.3100e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L2 (2p1/2)	1.1500e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	1.1480e-05	0.	0.	1.00	0.	0.	0.	0.	0.
oxygen (Z=8)									
K (1s1/2)	5.3728e-04	6.0090e-03	9.2169e-01	7.2290e-02	1.00	6.1717e-03	9.9382e-01	5.2312e-04	4.9829e-04
L1 (2s1/2)	2.9230e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L2 (2p1/2)	1.4190e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	1.4150e-05	0.	0.	1.00	0.	0.	0.	0.	0.
fluorine (Z=9)									
K (1s1/2)	6.8837e-04	9.3338e-03	9.2614e-01	6.4518e-02	1.00	9.5702e-03	9.9042e-01	6.7137e-04	6.4369e-04
L1 (2s1/2)	3.5930e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L2 (2p1/2)	1.7050e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	1.6980e-05	0.	0.	1.00	0.	0.	0.	0.	0.
neon (Z=10)									
K (1s1/2)	8.5818e-04	1.3550e-02	9.2772e-01	5.8734e-02	1.00	1.3874e-02	9.8613e-01	8.3818e-04	8.0735e-04
L1 (2s1/2)	4.3230e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L2 (2p1/2)	2.0080e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	1.9960e-05	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
sodium (Z=11)									
K (1s1/2)	1.0640e-03	1.9276e-02	9.1145e-01	6.9275e-02	1.4439e+00	1.9964e-02	1.4240e+00	1.0273e-03	6.8105e-04
L1 (2s1/2)	6.4480e-05	7.4966e-06	3.5736e-01	6.4263e-01	1.00	1.7144e-05	9.9998e-01	2.8194e-05	2.3043e-05
L2 (2p1/2)	3.6420e-05	0.	0.	1.00	0.	0.	0.	0.	0.
L3 (2p3/2)	3.6220e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M1 (3s1/2)	5.1500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
magnesium (Z=12)									
K (1s1/2)	1.2945e-03	2.6346e-02	9.5056e-01	2.3084e-02	3.3696e+00	3.2565e-02	3.3370e+00	1.0473e-03	3.6874e-04
L1 (2s1/2)	8.9460e-05	1.4766e-03	7.6860e-01	2.2992e-01	1.9880e+00	2.6745e-03	1.9853e+00	4.9389e-05	3.4634e-05
L2 (2p1/2)	5.6550e-05	2.2632e-03	7.5437e-01	2.4336e-01	1.00	2.5772e-03	9.9742e-01	4.9660e-05	4.2770e-05
L3 (2p3/2)	5.6240e-05	2.4198e-03	7.5289e-01	2.4468e-01	1.00	2.7576e-03	9.9724e-01	4.9350e-05	4.2460e-05
M1 (3s1/2)	6.8900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
aluminum (Z=13)									
K (1s1/2)	1.5499e-03	3.4425e-02	9.4319e-01	2.2380e-02	3.3271e+00	3.7183e-02	3.2899e+00	1.4349e-03	4.4435e-04
L1 (2s1/2)	1.1905e-04	2.7928e-04	7.8698e-01	2.1274e-01	1.9809e+00	4.7409e-04	1.9804e+00	7.0131e-05	4.7308e-05
L2 (2p1/2)	8.1200e-05	4.1169e-04	8.0462e-01	1.9496e-01	1.00	4.7057e-04	9.9953e-01	7.1040e-05	6.5366e-05
L3 (2p3/2)	8.0730e-05	4.1425e-04	8.0396e-01	1.9563e-01	1.00	4.7389e-04	9.9953e-01	7.0570e-05	6.4934e-05
M1 (3s1/2)	1.0160e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	4.8800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	4.8700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
silicon (Z=14)									
K (1s1/2)	1.8285e-03	4.4613e-02	9.3357e-01	2.1814e-02	3.2812e+00	4.7891e-02	3.2333e+00	1.7033e-03	5.2794e-04
L1 (2s1/2)	1.5155e-04	1.7806e-04	8.0028e-01	1.9955e-01	1.9747e+00	2.8797e-04	1.9744e+00	9.3705e-05	6.1426e-05
L2 (2p1/2)	1.0867e-04	2.4491e-04	8.3206e-01	1.6770e-01	1.00	2.8003e-04	9.9973e-01	9.5040e-05	9.0444e-05
L3 (2p3/2)	1.0798e-04	2.4597e-04	8.3139e-01	1.6836e-01	1.00	2.8150e-04	9.9972e-01	9.4350e-05	8.9799e-05
M1 (3s1/2)	1.3630e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	6.5500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	6.5200e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
phosphorous (Z=15)									
K (1s1/2)	2.1504e-03	5.7038e-02	9.2136e-01	2.1602e-02	3.2321e+00	6.1264e-02	3.1708e+00	1.9834e-03	6.1903e-04
L1 (2s1/2)	1.8715e-04	1.4873e-04	8.0944e-01	1.9041e-01	1.9702e+00	2.2948e-04	1.9699e+00	1.2129e-04	7.6899e-05
L2 (2p1/2)	1.3914e-04	1.8764e-04	8.4695e-01	1.5287e-01	1.00	2.1413e-04	9.9979e-01	1.2193e-04	1.1787e-04
L3 (2p3/2)	1.3818e-04	1.8868e-04	8.4628e-01	1.5353e-01	1.00	2.1552e-04	9.9979e-01	1.2097e-04	1.1696e-04
M1 (3s1/2)	1.7210e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	8.3800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	8.3300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
sulfur (Z=16)									
K (1s1/2)	2.4559e-03	7.1223e-02	9.0732e-01	2.1455e-02	3.1813e+00	7.6664e-02	3.1046e+00	2.2816e-03	7.1773e-04
L1 (2s1/2)	2.2597e-04	1.4382e-04	8.1678e-01	1.8308e-01	1.9667e+00	2.1114e-04	1.9665e+00	1.5392e-04	9.3856e-05
L2 (2p1/2)	1.7273e-04	1.6150e-04	8.5639e-01	1.4345e-01	1.00	1.8379e-04	9.9982e-01	1.5178e-04	1.4795e-04
L3 (2p3/2)	1.7140e-04	1.6276e-04	8.5577e-01	1.4407e-01	1.00	1.8542e-04	9.9981e-01	1.5045e-04	1.4671e-04
M1 (3s1/2)	2.0950e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	1.0340e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	1.0250e-05	0.	0.	1.00	0.	0.	0.	0.	0.
chlorine (Z=17)									
K (1s1/2)	2.8049e-03	8.7352e-02	8.9137e-01	2.1275e-02	3.1261e+00	9.4230e-02	3.0319e+00	2.6002e-03	8.2464e-04
L1 (2s1/2)	2.6805e-04	1.5332e-04	8.2283e-01	1.7702e-01	1.9646e+00	2.1399e-04	1.9644e+00	1.9206e-04	1.1228e-04
L2 (2p1/2)	2.0948e-04	1.4913e-04	8.6309e-01	1.3676e-01	1.00	1.6919e-04	9.9983e-01	1.8464e-04	1.8083e-04
L3 (2p3/2)	2.0770e-04	1.5062e-04	8.6247e-01	1.3738e-01	1.00	1.7108e-04	9.9983e-01	1.8286e-04	1.7917e-04
M1 (3s1/2)	2.4840e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	1.2420e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	1.2290e-05	0.	0.	1.00	0.	0.	0.	0.	0.
argon (Z=18)									
K (1s1/2)	3.1776e-03	1.0565e-01	8.7331e-01	2.1044e-02	3.0712e+00	1.1418e-01	2.9571e+00	2.9401e-03	9.3844e-04
L1 (2s1/2)	3.1343e-04	1.7265e-04	8.2809e-01	1.7174e-01	1.9625e+00	2.2776e-04	1.9622e+00	2.3759e-04	1.3227e-04
L2 (2p1/2)	2.4943e-04	1.4298e-04	8.6825e-01	1.3160e-01	1.00	1.6173e-04	9.9983e-01	2.2051e-04	2.1660e-04
L3 (2p3/2)	2.4709e-04	1.4474e-04	8.6767e-01	1.3219e-01	1.00	1.6393e-04	9.9984e-01	2.1817e-04	2.1443e-04
M1 (3s1/2)	2.8920e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	1.4620e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	1.4430e-05	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
potassium (Z=19)									
K (1s1/2)	3.5833e-03	1.2574e-01	8.4595e-01	2.8316e-02	3.0224e+00	1.3654e-01	2.8859e+00	3.2997e-03	1.0504e-03
L1 (2s1/2)	3.7116e-04	2.1974e-04	7.8070e-01	2.1909e-01	1.9604e+00	2.8723e-04	1.9601e+00	2.8395e-04	1.4783e-04
L2 (2p1/2)	3.0165e-04	1.6745e-04	8.3004e-01	1.6980e-01	1.00	1.9342e-04	9.9981e-01	2.6115e-04	2.5043e-04
L3 (2p3/2)	2.9864e-04	1.6992e-04	8.2908e-01	1.7075e-01	1.00	1.9658e-04	9.9980e-01	2.5814e-04	2.4765e-04
M1 (3s1/2)	4.0500e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	2.3750e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	2.3470e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	4.2200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
calcium (Z=20)									
K (1s1/2)	4.0150e-03	1.4741e-01	8.1821e-01	3.4371e-02	2.9726e+00	1.6083e-01	2.8118e+00	3.6800e-03	1.1683e-03
L1 (2s1/2)	4.3411e-04	2.9237e-04	7.4460e-01	2.5510e-01	1.9557e+00	3.7342e-04	1.9553e+00	3.3989e-04	1.6531e-04
L2 (2p1/2)	3.5904e-04	2.1481e-04	8.0049e-01	1.9929e-01	1.00	2.4938e-04	9.9975e-01	3.0926e-04	2.8748e-04
L3 (2p3/2)	3.5520e-04	2.1835e-04	7.9929e-01	2.0049e-01	1.00	2.5393e-04	9.9975e-01	3.0542e-04	2.8398e-04
M1 (3s1/2)	5.3160e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M2 (3p1/2)	3.4010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M3 (3p3/2)	3.3600e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	5.4500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
scandium (Z=21)									
K (1s1/2)	4.4658e-03	1.7203e-01	8.1617e-01	1.1787e-02	6.9815e+00	1.8886e-01	6.7926e+00	4.0679e-03	5.3659e-04
L1 (2s1/2)	4.9429e-04	5.8672e-04	9.1402e-01	8.5386e-02	5.2574e+00	8.9158e-04	5.2565e+00	3.2528e-04	8.5949e-05
L2 (2p1/2)	4.1368e-04	5.5054e-04	9.3195e-01	6.7487e-02	3.1216e+00	7.0195e-04	3.1209e+00	3.2445e-04	1.2353e-04
L3 (2p3/2)	4.0886e-04	5.5015e-04	9.3143e-01	6.8025e-02	3.1203e+00	7.0909e-04	3.1196e+00	3.1721e-04	1.2207e-04
M1 (3s1/2)	6.0910e-05	3.4234e-05	6.7457e-01	3.2538e-01	1.9705e+00	6.5866e-05	1.9704e+00	3.1658e-05	2.0852e-05
M2 (3p1/2)	3.3600e-05	4.6772e-05	6.5568e-01	3.4427e-01	1.00	5.6237e-05	9.9995e-01	3.2935e-05	2.5966e-05
M3 (3p3/2)	3.9060e-05	5.4017e-05	6.5406e-01	3.4588e-01	1.00	6.5060e-05	9.9993e-01	3.2430e-05	2.5549e-05
M4 (3d3/2)	7.0800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	7.0400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	5.9000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
titanium (Z=22)									
K (1s1/2)	4.9406e-03	1.9840e-01	7.8953e-01	1.2078e-02	6.6515e+00	2.1827e-01	6.4332e+00	4.4909e-03	6.0634e-04
L1 (2s1/2)	5.5744e-04	7.6394e-04	9.1255e-01	8.6690e-02	5.0300e+00	9.9852e-04	5.0290e+00	4.2648e-04	1.0115e-04
L2 (2p1/2)	4.7122e-04	7.9668e-04	9.3070e-01	6.8506e-02	3.0106e+00	8.7417e-04	3.0098e+00	4.2945e-04	1.4571e-04
L3 (2p3/2)	4.6524e-04	7.0311e-04	9.3015e-01	6.9152e-02	3.0088e+00	7.8216e-04	3.0080e+00	4.1822e-04	1.4387e-04
M1 (3s1/2)	6.8610e-05	2.1454e-05	6.5980e-01	3.4019e-01	1.9565e+00	4.1696e-05	1.9565e+00	3.5303e-05	2.3138e-05
M2 (3p1/2)	4.5100e-05	2.9327e-05	6.4090e-01	3.5908e-01	1.00	3.5591e-05	9.9997e-01	3.7162e-05	2.8905e-05
M3 (3p3/2)	4.4420e-05	3.3126e-05	6.3821e-01	3.6176e-01	1.00	4.0275e-05	9.9996e-01	3.6535e-05	2.8350e-05
M4 (3d3/2)	8.3900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	8.3400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	6.2800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
vanadium (Z=23)									
K (1s1/2)	5.4396e-03	2.2603e-01	7.6198e-01	1.1991e-02	6.3001e+00	2.4982e-01	6.0503e+00	4.9216e-03	6.8507e-04
L1 (2s1/2)	6.2379e-04	1.2849e-03	9.1287e-01	8.5849e-02	4.8006e+00	1.5906e-03	4.7990e+00	5.0390e-04	1.1866e-04
L2 (2p1/2)	5.3188e-04	1.4558e-03	9.3089e-01	6.7659e-02	2.8830e+00	1.5286e-03	2.8815e+00	5.0656e-04	1.7183e-04
L3 (2p3/2)	5.2454e-04	1.2789e-03	9.3032e-01	6.8412e-02	2.8785e+00	1.3490e-03	2.8771e+00	4.9728e-04	1.6961e-04
M1 (3s1/2)	7.6420e-05	1.6273e-05	6.5080e-01	3.4920e-01	1.9429e+00	3.1925e-05	1.9429e+00	3.8954e-05	2.5598e-05
M2 (3p1/2)	5.0650e-05	2.3422e-05	6.3231e-01	3.6768e-01	1.00	2.8589e-05	9.9998e-01	4.1496e-05	3.2027e-05
M3 (3p3/2)	4.9790e-05	2.4107e-05	6.2767e-01	3.7231e-01	1.00	2.9477e-05	9.9997e-01	4.0719e-05	3.1252e-05
M4 (3d3/2)	9.6100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	9.5300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	6.6300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
chromium (Z=24)									
K (1s1/2)	5.9576e-03	2.5605e-01	7.3688e-01	7.0571e-03	5.8606e+00	2.8427e-01	5.5763e+00	5.3663e-03	7.8727e-04
L1 (2s1/2)	6.8734e-04	2.0898e-03	9.4647e-01	5.1437e-02	4.5335e+00	2.5048e-03	4.5310e+00	5.7346e-04	1.4358e-04
L2 (2p1/2)	5.8974e-04	2.4970e-03	9.5758e-01	3.9928e-02	2.6818e+00	2.5542e-03	2.6793e+00	5.7652e-04	2.1077e-04
L3 (2p3/2)	5.8081e-04	2.1763e-03	9.5744e-01	4.0387e-02	2.6728e+00	2.2297e-03	2.6705e+00	5.6689e-04	2.0823e-04
M1 (3s1/2)	7.9190e-05	1.2432e-05	7.6202e-01	2.3797e-01	1.9531e+00	2.3764e-05	1.9531e+00	4.1427e-05	3.0897e-05
M2 (3p1/2)	5.1250e-05	1.8086e-05	7.4991e-01	2.5007e-01	1.00	2.0695e-05	9.9999e-01	4.4790e-05	3.8434e-05
M3 (3p3/2)	5.0200e-05	1.7893e-05	7.4549e-01	2.5450e-01	1.00	2.0498e-05	9.9998e-01	4.3821e-05	3.7424e-05
M4 (3d3/2)	6.4600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	6.3700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	5.9600e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
manganese (Z=25)									
K (1s1/2)	6.5109e-03	2.8461e-01	7.0433e-01	1.1064e-02	5.5864e+00	3.1728e-01	5.2691e+00	5.8405e-03	8.7033e-04
L1 (2s1/2)	7.6647e-04	2.7099e-03	9.1791e-01	7.9377e-02	4.3067e+00	3.2434e-03	4.3035e+00	6.4038e-04	1.6348e-04
L2 (2p1/2)	6.6297e-04	3.2674e-03	9.3413e-01	6.2604e-02	2.6075e+00	3.3602e-03	2.6042e+00	6.4467e-04	2.3781e-04
L3 (2p3/2)	6.5222e-04	2.8449e-03	9.3380e-01	6.3362e-02	2.5977e+00	2.9299e-03	2.5947e+00	6.3329e-04	2.3472e-04
M1 (3s1/2)	9.2580e-05	1.3547e-05	6.4700e-01	3.5299e-01	1.9165e+00	2.6871e-05	1.9165e+00	4.6675e-05	3.1255e-05
M2 (3p1/2)	6.2090e-05	1.9877e-05	6.2784e-01	3.7214e-01	1.00	2.4355e-05	9.9997e-01	5.0675e-05	3.8984e-05
M3 (3p3/2)	6.0780e-05	1.9687e-05	6.2146e-01	3.7852e-01	1.00	2.4174e-05	9.9998e-01	4.9501e-05	3.7773e-05
M4 (3d3/2)	1.1850e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	1.1720e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	7.2500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
iron (Z=26)									
K (1s1/2)	7.0834e-03	3.1501e-01	6.7451e-01	1.0475e-02	5.2707e+00	3.5250e-01	4.9182e+00	6.3301e-03	9.7146e-04
L1 (2s1/2)	8.4296e-04	3.5909e-03	9.2020e-01	7.6211e-02	4.1373e+00	4.2634e-03	4.1331e+00	7.0999e-04	1.8768e-04
L2 (2p1/2)	7.3355e-04	4.3939e-03	9.3616e-01	5.9442e-02	2.4737e+00	4.5031e-03	2.4692e+00	7.1576e-04	2.7812e-04
L3 (2p3/2)	7.2069e-04	3.8059e-03	9.3602e-01	6.0181e-02	2.4614e+00	3.9044e-03	2.4575e+00	7.0250e-04	2.7450e-04
M1 (3s1/2)	1.0101e-04	1.3411e-05	6.4915e-01	3.5082e-01	1.9037e+00	2.6669e-05	1.9036e+00	5.0792e-05	3.4445e-05
M2 (3p1/2)	6.8040e-05	1.9834e-05	6.2950e-01	3.7048e-01	1.00	2.4293e-05	9.9997e-01	5.5551e-05	4.2832e-05
M3 (3p3/2)	6.6450e-05	1.9488e-05	6.2245e-01	3.7753e-01	1.00	2.3921e-05	9.9998e-01	5.4134e-05	4.1363e-05
M4 (3d3/2)	1.2910e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	1.2740e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	7.5300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
cobalt (Z=27)									
K (1s1/2)	7.6807e-03	3.4549e-01	6.4465e-01	9.8520e-03	4.9745e+00	3.8841e-01	4.5861e+00	6.8320e-03	1.0797e-03
L1 (2s1/2)	9.2295e-04	4.8884e-03	9.2233e-01	7.2796e-02	3.9752e+00	5.7690e-03	3.9694e+00	7.8207e-04	2.1445e-04
L2 (2p1/2)	8.0754e-04	5.6506e-03	9.3814e-01	5.6211e-02	2.3477e+00	5.7785e-03	2.3419e+00	7.8968e-04	3.2349e-04
L3 (2p3/2)	7.9229e-04	5.4130e-03	9.3766e-01	5.6922e-02	2.3331e+00	5.5366e-03	2.3276e+00	7.7460e-04	3.1918e-04
M1 (3s1/2)	1.0969e-04	1.3640e-05	6.5300e-01	3.4698e-01	1.8910e+00	2.7162e-05	1.8910e+00	5.5083e-05	3.7878e-05
M2 (3p1/2)	7.4170e-05	2.0382e-05	6.3288e-01	3.6710e-01	1.00	2.4927e-05	9.9998e-01	6.0646e-05	4.6942e-05
M3 (3p3/2)	7.2260e-05	1.9870e-05	6.2515e-01	3.7483e-01	1.00	2.4358e-05	9.9998e-01	5.8946e-05	4.5175e-05
M4 (3d3/2)	1.3930e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	1.3720e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	7.8100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
nickel (Z=28)									
K (1s1/2)	8.3028e-03	3.7574e-01	6.1502e-01	9.2382e-03	4.7102e+00	4.2421e-01	4.2860e+00	7.3541e-03	1.1914e-03
L1 (2s1/2)	1.0065e-03	6.2865e-03	9.2430e-01	6.9410e-02	3.8306e+00	7.4246e-03	3.8232e+00	8.5222e-04	2.4333e-04
L2 (2p1/2)	8.8498e-04	7.0307e-03	9.3978e-01	5.3192e-02	2.2460e+00	7.1815e-03	2.2389e+00	8.6639e-04	3.7148e-04
L3 (2p3/2)	8.6702e-04	7.1251e-03	9.3912e-01	5.3746e-02	2.2155e+00	7.3361e-03	2.2002e+00	8.4203e-04	3.6873e-04
M1 (3s1/2)	1.1864e-04	1.4099e-05	6.5796e-01	3.4203e-01	1.8791e+00	2.8084e-05	1.8791e+00	5.5563e-05	4.1543e-05
M2 (3p1/2)	8.0480e-05	2.1303e-05	6.3742e-01	3.6256e-01	1.00	2.5996e-05	9.9997e-01	6.5949e-05	5.1301e-05
M3 (3p3/2)	7.8210e-05	2.0635e-05	6.2908e-01	3.7090e-01	1.00	2.5242e-05	9.9998e-01	6.3836e-05	4.9202e-05
M4 (3d3/2)	1.4920e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	1.4660e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	8.0900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
copper (Z=29)									
K (1s1/2)	8.9432e-03	4.0681e-01	5.8771e-01	5.4743e-03	4.4158e+00	4.6039e-01	3.9554e+00	7.9024e-03	1.3268e-03
L1 (2s1/2)	1.0861e-03	7.6150e-03	9.5007e-01	4.2325e-02	3.6544e+00	8.8947e-03	3.6555e+00	9.2984e-04	2.8228e-04
L2 (2p1/2)	9.5853e-04	8.6726e-03	9.5939e-01	3.1939e-02	2.0997e+00	8.7905e-03	2.0909e+00	9.4567e-04	4.3981e-04
L3 (2p3/2)	9.3749e-04	8.6238e-03	9.5912e-01	3.2250e-02	2.0718e+00	8.7993e-03	2.0630e+00	9.1880e-04	4.3586e-04
M1 (3s1/2)	1.2126e-04	1.4521e-05	7.6508e-01	2.3490e-01	1.9041e+00	2.7816e-05	1.9040e+00	6.3302e-05	4.8725e-05
M2 (3p1/2)	8.0500e-05	2.1967e-05	7.5318e-01	2.4679e-01	1.00	2.5115e-05	9.9997e-01	7.0410e-05	6.0633e-05
M3 (3p3/2)	7.7860e-05	2.0905e-05	7.4680e-01	2.5318e-01	1.00	2.3925e-05	9.9998e-01	6.8031e-05	5.8147e-05
M4 (3d3/2)	1.0090e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	9.8000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	7.1100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
zinc (Z=30)									
K (1s1/2)	9.6224e-03	4.3485e-01	5.5706e-01	8.0914e-03	4.2469e+00	4.9390e-01	3.7530e+00	8.4720e-03	1.4282e-03
L1 (2s1/2)	1.1844e-03	8.9621e-03	9.2802e-01	6.3022e-02	3.5757e+00	1.0494e-02	3.5652e+00	1.0115e-03	3.0830e-04
L2 (2p1/2)	1.0505e-03	1.0579e-02	9.4189e-01	4.7528e-02	2.0538e+00	1.0843e-02	2.0429e+00	1.0250e-03	4.8434e-04
L3 (2p3/2)	1.0260e-03	9.9911e-03	9.4200e-01	4.8012e-02	2.0144e+00	1.0243e-02	2.0041e+00	1.0007e-03	4.8225e-04
M1 (3s1/2)	1.3743e-04	1.4818e-05	6.6987e-01	3.3011e-01	1.8558e+00	2.9716e-05	1.8558e+00	6.8532e-05	4.9606e-05
M2 (3p1/2)	9.3740e-05	2.2826e-05	6.4844e-01	3.5154e-01	1.00	2.7828e-05	9.9997e-01	7.6890e-05	6.0786e-05
M3 (3p3/2)	9.0590e-05	2.1774e-05	6.3833e-01	3.6105e-01	1.00	2.6623e-05	9.9997e-01	7.4092e-05	5.7882e-05
M4 (3d3/2)	1.6850e-05	0.	0.	1.00	0.	0.	0.	0.	0.
M5 (3d5/2)	1.6460e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N1 (4s1/2)	8.6100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
gallium (Z=31)									
K (1s1/2)	1.0331e-02	4.6228e-01	5.3083e-01	6.8792e-03	8.4037e+00	5.2673e-01	7.8769e+00	9.0669e-03	6.9621e-04
L1 (2s1/2)	1.2907e-03	1.0260e-02	9.3714e-01	5.2603e-02	7.4906e+00	1.2050e-02	7.4785e+00	1.0990e-03	1.6174e-04
L2 (2p1/2)	1.1504e-03	1.2062e-02	9.4726e-01	4.0684e-02	4.8729e+00	1.2467e-02	4.8605e+00	1.1131e-03	2.2420e-04
L3 (2p3/2)	1.1220e-03	1.1371e-02	9.4731e-01	4.1330e-02	4.8010e+00	1.1752e-02	4.7892e+00	1.0856e-03	2.2193e-04
M1 (3s1/2)	1.5775e-04	1.7082e-05	7.2857e-01	2.7141e-01	4.2404e+00	4.0011e-05	4.2403e+00	6.7347e-05	2.7105e-05
M2 (3p1/2)	1.1101e-04	2.6293e-05	7.1919e-01	2.8079e-01	2.9144e+00	3.9310e-05	2.9144e+00	7.4248e-05	2.7394e-05
M3 (3p3/2)	1.0728e-04	2.4827e-05	7.0797e-01	2.9200e-01	2.9042e+00	3.5217e-05	2.9042e+00	7.5628e-05	2.6152e-05
M4 (3d3/2)	2.7370e-05	4.8229e-06	4.2751e-01	5.7249e-01	1.00	5.8959e-06	1.00	2.2389e-05	1.1701e-05
M5 (3d5/2)	2.6870e-05	0.	4.0135e-01	5.9865e-01	1.00	0.	1.00	0.	1.0784e-05
N1 (4s1/2)	1.1690e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	5.0000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	4.8800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
germanium (Z=32)									
K (1s1/2)	1.1067e-02	4.8869e-01	5.0199e-01	9.3145e-03	8.0142e+00	5.5843e-01	7.4558e+00	9.6849e-03	7.4513e-04
L1 (2s1/2)	1.4023e-03	1.1268e-02	9.1701e-01	7.1722e-02	7.2587e+00	1.3310e-02	7.2454e+00	1.1871e-03	1.7748e-04
L2 (2p1/2)	1.2554e-03	1.3625e-02	9.3081e-01	5.5570e-02	4.7436e+00	1.4186e-02	4.7295e+00	1.2058e-03	2.4708e-04
L3 (2p3/2)	1.2228e-03	1.2798e-02	9.3094e-01	5.6266e-02	4.6552e+00	1.3322e-02	4.6419e+00	1.1747e-03	2.4523e-04
M1 (3s1/2)	1.7925e-04	1.9256e-05	6.6104e-01	3.3894e-01	3.9623e+00	4.6088e-05	3.9622e+00	7.4993e-05	2.9905e-05
M2 (3p1/2)	1.2938e-04	2.8736e-05	6.3634e-01	3.6363e-01	2.8635e+00	4.5905e-05	2.8634e+00	8.0990e-05	2.8753e-05
M3 (3p3/2)	1.2498e-04	2.7010e-05	6.2522e-01	3.7475e-01	2.8450e+00	4.0898e-05	2.8449e+00	8.2540e-05	2.7466e-05
M4 (3d3/2)	3.8820e-05	6.6946e-06	3.7091e-01	6.2908e-01	1.00	8.0327e-06	9.9999e-01	3.2353e-05	1.4399e-05
M5 (3d5/2)	3.8190e-05	0.	3.5823e-01	6.4177e-01	1.00	0.	1.00	0.	1.3681e-05
N1 (4s1/2)	1.4780e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	6.5000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	6.2900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
arsenic (Z=33)									
K (1s1/2)	1.1829e-02	5.1280e-01	4.7758e-01	9.6212e-03	7.6095e+00	5.8768e-01	7.0219e+00	1.0322e-02	8.0454e-04
L1 (2s1/2)	1.5192e-03	1.2432e-02	9.1409e-01	7.3469e-02	6.8717e+00	1.4783e-02	6.8569e+00	1.2776e-03	2.0252e-04
L2 (2p1/2)	1.3657e-03	1.5263e-02	9.2661e-01	5.8127e-02	4.6156e+00	1.6014e-02	4.5996e+00	1.3016e-03	2.7513e-04
L3 (2p3/2)	1.3283e-03	1.4280e-02	9.2703e-01	5.8691e-02	4.5086e+00	1.4973e-02	4.4936e+00	1.2668e-03	2.7403e-04
M1 (3s1/2)	2.0202e-04	2.4738e-05	6.7217e-01	3.2781e-01	3.6620e+00	5.9967e-05	3.6619e+00	8.3338e-05	3.7082e-05
M2 (3p1/2)	1.4895e-04	3.4367e-05	6.3860e-01	3.6136e-01	2.7953e+00	6.1404e-05	2.7952e+00	8.3365e-05	3.4030e-05
M3 (3p3/2)	1.4378e-04	3.1183e-05	6.2962e-01	3.7035e-01	2.7644e+00	5.1565e-05	2.7644e+00	8.6947e-05	3.2748e-05
M4 (3d3/2)	5.1320e-05	1.4823e-05	4.4146e-01	5.5852e-01	1.00	1.7589e-05	9.9998e-01	4.3249e-05	2.2656e-05
M5 (3d5/2)	5.0550e-05	0.	4.3492e-01	5.6509e-01	1.00	0.	1.00	0.	2.1985e-05
N1 (4s1/2)	1.7860e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	8.1200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	7.8100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
selenium (Z=34)									
K (1s1/2)	1.2619e-02	5.3738e-01	4.5306e-01	9.5632e-03	7.2524e+00	6.1779e-01	6.6351e+00	1.0985e-02	8.6165e-04
L1 (2s1/2)	1.6415e-03	1.3815e-02	9.1220e-01	7.3994e-02	6.6856e+00	1.6512e-02	6.6691e+00	1.3734e-03	2.2452e-04
L2 (2p1/2)	1.4812e-03	1.6996e-02	9.2467e-01	5.8332e-02	4.4910e+00	1.7970e-02	4.4730e+00	1.4009e-03	3.0620e-04
L3 (2p3/2)	1.4386e-03	1.5857e-02	9.2530e-01	5.8841e-02	4.3682e+00	1.6746e-02	4.3515e+00	1.3622e-03	3.0591e-04
M1 (3s1/2)	2.2610e-04	3.2540e-05	6.8814e-01	3.1183e-01	3.4600e+00	7.8895e-05	3.4599e+00	9.3255e-05	4.4968e-05
M2 (3p1/2)	1.6977e-04	4.3465e-05	6.5493e-01	3.4502e-01	2.7127e+00	8.4751e-05	2.7126e+00	8.7067e-05	4.0989e-05
M3 (3p3/2)	1.6371e-04	3.7272e-05	6.4773e-01	3.5223e-01	2.6645e+00	6.6164e-05	2.6644e+00	9.2221e-05	3.9799e-05
M4 (3d3/2)	6.4910e-05	2.9371e-05	5.0768e-01	4.9229e-01	1.00	3.4565e-05	9.9996e-01	5.5156e-05	3.2955e-05
M5 (3d5/2)	6.3970e-05	0.	4.9976e-01	5.0024e-01	1.00	0.	1.00	0.	3.1970e-05
N1 (4s1/2)	2.0990e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	9.8200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	9.4000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
bromine (Z=35)									
K (1s1/2)	1.3435e-02	5.6043e-01	4.3006e-01	9.5013e-03	6.8911e+00	6.4529e-01	6.2458e+00	1.1668e-02	9.2507e-04
L1 (2s1/2)	1.7692e-03	1.5767e-02	9.0970e-01	7.4533e-02	6.4829e+00	1.8911e-02	6.4640e+00	1.4751e-03	2.4898e-04
L2 (2p1/2)	1.6021e-03	1.8833e-02	9.2259e-01	5.8575e-02	4.3538e+00	2.0066e-02	4.3337e+00	1.5037e-03	3.4107e-04
L3 (2p3/2)	1.5536e-03	1.7537e-02	9.2345e-01	5.9018e-02	4.2163e+00	1.8651e-02	4.1976e+00	1.4608e-03	3.4178e-04
M1 (3s1/2)	2.5149e-04	4.3743e-05	7.0675e-01	2.9322e-01	3.2027e+00	1.0352e-04	3.2026e+00	1.0627e-04	5.5498e-05
M2 (3p1/2)	1.9182e-04	5.7075e-05	6.6916e-01	3.3078e-01	2.6130e+00	1.1753e-04	2.6129e+00	9.3152e-05	4.9126e-05
M3 (3p3/2)	1.8478e-04	4.5791e-05	6.6475e-01	3.3521e-01	2.5405e+00	8.5219e-05	2.5404e+00	9.9288e-05	4.8352e-05
M4 (3d3/2)	7.9590e-05	5.2853e-05	5.5107e-01	4.4888e-01	1.00	6.1781e-05	9.9994e-01	6.8088e-05	4.3862e-05
M5 (3d5/2)	7.8450e-05	0.	5.4253e-01	4.5746e-01	1.00	0.	1.00	0.	4.2562e-05
N1 (4s1/2)	2.4180e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	1.1590e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	1.1030e-05	0.	0.	1.00	0.	0.	0.	0.	0.
krypton (Z=36)									
K (1s1/2)	1.4280e-02	5.8196e-01	4.0867e-01	9.3662e-03	6.5099e+00	6.7171e-01	5.8382e+00	1.2372e-02	9.9959e-04
L1 (2s1/2)	1.9023e-03	1.7429e-02	9.0986e-01	7.2712e-02	6.0605e+00	2.0971e-02	6.0395e+00	1.5810e-03	2.8658e-04
L2 (2p1/2)	1.7283e-03	2.0775e-02	9.2054e-01	5.8680e-02	4.2120e+00	2.2307e-02	4.1897e+00	1.6096e-03	3.7973e-04
L3 (2p3/2)	1.6734e-03	1.9281e-02	9.2181e-01	5.8906e-02	4.0526e+00	2.0649e-02	4.0320e+00	1.5625e-03	2.8258e-04
M1 (3s1/2)	2.7817e-04	5.9009e-05	7.1310e-01	2.8685e-01	3.1178e+00	1.3789e-04	3.1177e+00	1.1904e-04	6.3625e-05
M2 (3p1/2)	2.1512e-04	7.6996e-05	6.8436e-01	3.1557e-01	2.4869e+00	1.6246e-04	2.4867e+00	1.0195e-04	5.9202e-05
M3 (3p3/2)	2.0696e-04	5.7398e-05	6.8480e-01	3.1515e-01	2.3755e+00	1.0918e-04	2.3754e+00	1.0880e-04	5.9665e-05
M4 (3d3/2)	9.5350e-05	8.9075e-05	5.8128e-01	4.1863e-01	1.00	1.0354e-04	9.9990e-01	8.2031e-05	5.5431e-05
M5 (3d5/2)	9.3980e-05	0.	5.7322e-01	4.2678e-01	1.00	0.	1.00	0.	5.3871e-05
N1 (4s1/2)	2.7440e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N2 (4p1/2)	1.3430e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	1.2720e-05	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
rubidium (Z=37)									
K (1s1/2)	1.5159e-02	6.0183e-01	3.8890e-01	9.2538e-03	8.9927e+00	6.9690e-01	8.2958e+00	1.3091e-02	7.1065e-04
L1 (2s1/2)	2.0480e-03	1.9198e-02	9.1030e-01	7.0507e-02	8.6482e+00	2.3339e-02	8.6248e+00	1.6846e-03	2.1615e-04
L2 (2p1/2)	1.8671e-03	2.2872e-02	9.1843e-01	5.8696e-02	6.2718e+00	2.4903e-02	6.2469e+00	1.7148e-03	2.7451e-04
L3 (2p3/2)	1.8051e-03	2.1132e-02	9.2023e-01	5.8640e-02	6.0517e+00	2.2938e-02	6.0288e+00	1.6630e-03	2.7553e-04
M1 (3s1/2)	3.1318e-04	8.0324e-05	7.2380e-01	2.7612e-01	4.6737e+00	2.2972e-04	4.6735e+00	1.0951e-04	4.8503e-05
M2 (3p1/2)	2.4669e-04	1.0772e-04	7.0625e-01	2.9363e-01	3.7528e+00	2.6620e-04	3.7526e+00	9.9829e-05	4.6428e-05
M3 (3p3/2)	2.3729e-04	7.2790e-05	7.0852e-01	2.9140e-01	3.5303e+00	1.7501e-04	3.5301e+00	9.8694e-05	4.7625e-05
M4 (3d3/2)	1.1920e-04	1.4105e-04	6.3139e-01	3.6846e-01	1.9558e+00	1.9315e-04	1.9556e+00	8.7048e-05	3.8485e-05
M5 (3d5/2)	1.1757e-04	3.9547e-06	6.2720e-01	3.7279e-01	1.9764e+00	2.7871e-05	1.9763e+00	1.6683e-05	3.7312e-05
N1 (4s1/2)	3.6720e-05	1.2969e-05	3.4324e-01	6.5674e-01	1.00	2.8546e-05	9.9997e-01	1.6683e-05	1.2604e-05
N2 (4p1/2)	2.0730e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N3 (4p3/2)	1.9750e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.0200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
strontium (Z=38)									
K (1s1/2)	1.6067e-02	6.2079e-01	3.7459e-01	4.6143e-03	1.4263e+01	7.2576e-01	1.3537e+01	1.3743e-02	4.4461e-04
L1 (2s1/2)	2.2001e-03	2.1021e-02	9.4323e-01	3.5753e-02	1.4454e+01	3.0587e-02	1.4424e+01	1.5120e-03	1.4387e-04
L2 (2p1/2)	2.0121e-03	2.5158e-02	9.4537e-01	2.9463e-02	1.0655e+01	3.1424e-02	1.0624e+01	1.6109e-03	1.7905e-04
L3 (2p3/2)	1.9424e-03	2.3153e-02	9.4743e-01	2.9418e-02	1.0233e+01	2.8851e-02	1.0204e+01	1.5588e-03	1.8034e-04
M1 (3s1/2)	3.5032e-04	2.9404e-04	8.6767e-01	1.3204e-01	8.0730e+00	3.1874e-03	8.0698e+00	3.2317e-05	3.7667e-05
M2 (3p1/2)	2.8032e-04	3.5197e-04	8.6366e-01	1.3600e-01	6.4780e+00	2.8752e-03	6.4751e+00	3.4316e-05	3.7390e-05
M3 (3p3/2)	2.6953e-04	2.7424e-04	8.6750e-01	1.3223e-01	5.9906e+00	2.3824e-03	5.9883e+00	3.1026e-05	3.9046e-05
M4 (3d3/2)	1.4493e-04	4.6298e-04	8.2756e-01	1.7198e-01	3.8890e+00	1.8663e-03	3.8871e+00	3.5953e-05	7.0855e-05
M5 (3d5/2)	1.4301e-04	2.3902e-04	8.2494e-01	1.7483e-01	3.9039e+00	1.5042e-03	3.9024e+00	2.2724e-05	3.0231e-05
N1 (4s1/2)	4.6390e-05	3.8689e-04	6.7082e-01	3.2880e-01	1.9916e+00	7.8950e-04	1.9908e+00	2.2733e-05	1.5632e-05
N2 (4p1/2)	2.8470e-05	1.0008e-03	6.4095e-01	3.5805e-01	1.00	1.2192e-03	9.9878e-01	2.3370e-05	1.8270e-05
N3 (4p3/2)	2.7200e-05	4.4098e-04	6.2466e-01	3.7490e-01	1.00	5.4274e-04	9.9946e-01	2.2100e-05	1.7000e-05
O1 (5s1/2)	5.1000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
yttrium (Z=39)									
K (1s1/2)	1.7000e-02	6.3858e-01	3.5726e-01	4.1683e-03	1.3105e+01	7.4427e-01	1.2360e+01	1.4586e-02	4.9136e-04
L1 (2s1/2)	2.3549e-03	2.2792e-02	9.4472e-01	3.2482e-02	1.3450e+01	2.8399e-02	1.3421e+01	1.8899e-03	1.6576e-04
L2 (2p1/2)	2.1597e-03	2.7527e-02	9.4592e-01	2.6544e-02	9.8395e+00	3.0711e-02	9.8088e+00	1.9358e-03	2.0827e-04
L3 (2p3/2)	2.0815e-03	2.5222e-02	9.4792e-01	2.6847e-02	9.5643e+00	2.8029e-02	9.5363e+00	1.8730e-03	2.0690e-04
M1 (3s1/2)	3.8579e-04	1.3480e-04	8.8133e-01	1.1852e-01	7.6195e+00	4.6515e-04	7.6190e+00	1.1180e-04	4.4626e-05
M2 (3p1/2)	3.1226e-04	1.7989e-04	8.8598e-01	1.1384e-01	5.7027e+00	4.9947e-04	5.7022e+00	1.1247e-04	4.8517e-05
M3 (3p3/2)	2.9992e-04	1.1124e-04	8.8130e-01	1.1858e-01	5.7052e+00	3.4167e-04	5.7049e+00	9.7646e-05	4.6332e-05
M4 (3d3/2)	1.6874e-04	2.8605e-04	8.5491e-01	1.4479e-01	3.6062e+00	4.3377e-04	3.6057e+00	1.1127e-04	4.0008e-05
M5 (3d5/2)	7.6651e-04	1.5702e-05	8.5249e-01	1.4749e-01	3.6312e+00	9.6770e-05	3.6311e+00	2.7018e-05	3.9092e-05
N1 (4s1/2)	3.3350e-05	2.7858e-05	7.0252e-01	2.9743e-01	1.9875e+00	5.5542e-05	1.9874e+00	2.6758e-05	1.8853e-05
N2 (4p1/2)	3.3710e-05	4.3430e-05	6.8620e-01	3.1375e-01	1.00	5.1722e-05	9.9995e-01	2.8305e-05	2.3133e-05
N3 (4p3/2)	3.2140e-05	4.2859e-05	6.6992e-01	3.3003e-01	1.00	5.1446e-05	9.9994e-01	2.6782e-05	2.1533e-05
N4 (4d3/2)	5.2400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	5.1300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.6800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
zirconium (Z=40)									
K (1s1/2)	1.7962e-02	6.5462e-01	3.4094e-01	4.4457e-03	1.1991e+01	7.6504e-01	1.1226e+01	1.5369e-02	5.4552e-04
L1 (2s1/2)	2.5146e-03	2.4587e-02	9.4082e-01	3.4590e-02	1.2348e+01	3.0645e-02	1.2318e+01	2.0175e-03	1.7206e-04
L2 (2p1/2)	2.3122e-03	3.0036e-02	9.4150e-01	2.8469e-02	9.1088e+00	3.3575e-02	9.0752e+00	2.0685e-03	2.3988e-04
L3 (2p3/2)	2.2248e-03	2.7446e-02	9.4378e-01	2.8771e-02	8.8318e+00	3.0545e-02	8.8012e+00	1.9991e-03	2.3857e-04
M1 (3s1/2)	4.2206e-04	1.4527e-04	8.7271e-01	1.2715e-01	7.2179e+00	3.9737e-04	7.2175e+00	1.5430e-04	5.1033e-05
M2 (3p1/2)	3.4493e-04	1.9296e-04	8.7954e-01	1.2027e-01	5.3488e+00	4.5962e-04	5.3483e+00	1.4481e-04	5.6724e-05
M3 (3p3/2)	3.3088e-04	1.1313e-04	8.7465e-01	1.2524e-01	5.3469e+00	2.8010e-04	5.3466e+00	1.3365e-04	5.4129e-05
M4 (3d3/2)	1.9309e-04	3.1740e-04	8.5585e-01	1.4383e-01	3.2478e+00	4.3034e-04	3.2474e+00	1.4242e-04	5.0889e-05
M5 (3d5/2)	1.9049e-04	6.9457e-06	8.5313e-01	1.4686e-01	3.2858e+00	4.3316e-05	3.2858e+00	3.0545e-05	4.9460e-05
N1 (4s1/2)	5.9960e-05	1.4185e-05	6.7519e-01	3.2479e-01	1.9846e+00	2.8239e-05	1.9846e+00	3.0120e-05	2.0399e-05
N2 (4p1/2)	3.8630e-05	2.1793e-05	6.6058e-01	3.3939e-01	1.00	2.6237e-05	9.9997e-01	3.2087e-05	2.5519e-05
N3 (4p3/2)	3.6740e-05	2.1232e-05	6.4475e-01	3.5523e-01	1.00	2.5735e-05	9.9998e-01	3.0311e-05	2.3689e-05
N4 (4d3/2)	6.6700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	6.5200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.1200e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
niobium (Z=41)									
K (1s1/2)	1.8948e-02	6.7039e-01	3.2624e-01	3.3831e-03	1.0778e+01	7.8610e-01	9.9922e+00	1.6159e-02	6.1864e-04
L1 (2s1/2)	2.6763e-03	2.7130e-02	9.4643e-01	2.6448e-02	1.1173e+01	3.3720e-02	1.1139e+01	2.1533e-03	2.2739e-04
L2 (2p1/2)	2.4666e-03	3.3477e-02	9.4474e-01	2.1785e-02	8.2468e+00	3.7362e-02	8.2094e+00	2.2101e-03	2.8386e-04
L3 (2p3/2)	2.3691e-03	3.0390e-02	9.4764e-01	2.1977e-02	7.9640e+00	3.3782e-02	7.9302e+00	2.1313e-03	2.8310e-04
M1 (3s1/2)	4.5598e-04	1.5858e-04	9.0055e-01	9.9282e-02	6.7629e+00	3.6003e-04	6.7625e+00	2.0084e-04	6.0722e-05
M2 (3p1/2)	3.7522e-04	2.0595e-04	9.0739e-01	9.2413e-02	4.9404e+00	4.3034e-04	4.9400e+00	1.7957e-04	6.8922e-05
M3 (3p3/2)	3.5928e-04	1.2474e-04	9.0371e-01	9.6158e-02	4.9274e+00	2.5393e-04	4.9272e+00	1.7649e-04	6.5897e-05
M4 (3d3/2)	2.1482e-04	3.0094e-04	8.9556e-01	1.0413e-01	2.8273e+00	3.8336e-04	2.8269e+00	1.6864e-04	6.8055e-05
M5 (3d5/2)	2.1181e-04	2.5275e-06	8.9373e-01	1.0627e-01	2.8655e+00	1.6308e-05	2.8655e+00	3.2826e-05	6.6063e-05
N1 (4s1/2)	6.3450e-05	6.6265e-06	7.2581e-01	2.7417e-01	1.9834e+00	1.3087e-05	1.9834e+00	3.2127e-05	2.3219e-05
N2 (4p1/2)	4.0580e-05	1.0884e-05	7.1143e-01	2.8856e-01	1.00	1.2746e-05	9.9998e-01	3.4653e-05	2.8870e-05
N3 (4p3/2)	3.8360e-05	9.2579e-06	6.9652e-01	3.0347e-01	1.00	1.0899e-05	9.9999e-01	3.2585e-05	2.6719e-05
N4 (4d3/2)	5.9400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	5.7600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.7300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
molybdenum (Z=42)									
K (1s1/2)	1.9965e-02	6.8461e-01	3.1191e-01	3.4846e-03	9.9625e+00	8.0543e-01	9.1571e+00	1.6970e-02	6.8006e-04
L1 (2s1/2)	2.8465e-03	3.0126e-02	9.4253e-01	2.7346e-02	1.0404e+01	3.7390e-02	1.0366e+01	2.2935e-03	2.5881e-04
L2 (2p1/2)	2.6295e-03	3.6679e-02	9.4078e-01	2.2538e-02	7.6870e+00	4.1055e-02	7.6460e+00	2.3492e-03	3.2354e-04
L3 (2p3/2)	2.5210e-03	3.3145e-02	9.4415e-01	2.2710e-02	7.3985e+00	3.6958e-02	7.3616e+00	2.2609e-03	3.2333e-04
M1 (3s1/2)	4.9409e-04	1.7639e-04	8.9664e-01	1.0318e-01	6.4447e+00	3.7364e-04	6.4443e+00	2.3325e-04	6.8746e-05
M2 (3p1/2)	4.0964e-04	2.2337e-04	9.0482e-01	9.4946e-02	4.6719e+00	4.4405e-04	4.6714e+00	2.0606e-04	7.9345e-05
M3 (3p3/2)	3.9163e-04	1.3716e-04	9.0113e-01	9.8723e-02	4.6493e+00	2.6112e-04	4.6490e+00	2.0571e-04	7.5911e-05
M4 (3d3/2)	2.4045e-04	3.0429e-04	8.9785e-01	1.0184e-01	2.5636e+00	3.8251e-04	2.5632e+00	1.9128e-04	8.4227e-05
M5 (3d5/2)	2.3700e-04	1.6659e-06	8.9616e-01	1.0384e-01	2.6005e+00	1.0979e-05	2.6005e+00	3.5962e-05	8.1672e-05
N1 (4s1/2)	6.9630e-05	5.1153e-06	7.0703e-01	2.9296e-01	1.9800e+00	1.0164e-05	1.9800e+00	3.5044e-05	2.4863e-05
N2 (4p1/2)	4.5070e-05	8.1347e-06	6.9448e-01	3.0551e-01	1.00	9.6305e-06	9.9999e-01	3.8070e-05	3.1300e-05
N3 (4p3/2)	4.2460e-05	7.1162e-06	6.7807e-01	3.2193e-01	1.00	8.4606e-06	9.9999e-01	3.5713e-05	2.8791e-05
N4 (4d3/2)	7.0000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	6.7700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.9700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
technetium (Z=43)									
K (1s1/2)	2.1012e-02	6.9784e-01	2.9861e-01	3.5541e-03	9.3032e+00	8.2377e-01	8.4794e+00	1.7800e-02	7.3996e-04
L1 (2s1/2)	3.0224e-03	3.2851e-02	9.3914e-01	2.8014e-02	9.7907e+00	4.0843e-02	9.7499e+00	2.4310e-03	2.9113e-04
L2 (2p1/2)	2.7979e-03	4.0140e-02	9.3677e-01	2.3090e-02	7.2381e+00	4.5044e-02	7.1930e+00	2.4933e-03	3.6438e-04
L3 (2p3/2)	2.6776e-03	3.6111e-02	9.4066e-01	2.3228e-02	6.9390e+00	4.0371e-02	6.8986e+00	2.3950e-03	3.6510e-04
M1 (3s1/2)	5.3342e-04	1.9485e-04	8.9380e-01	1.0599e-01	6.1787e+00	3.8770e-04	6.1783e+00	2.6808e-04	7.7169e-05
M2 (3p1/2)	4.4524e-04	2.4267e-04	9.0305e-01	9.6701e-02	4.4576e+00	4.6040e-04	4.4571e+00	2.3468e-04	9.0210e-05
M3 (3p3/2)	4.2495e-04	1.4938e-04	8.9940e-01	1.0045e-01	4.4238e+00	2.6488e-04	4.4235e+00	2.3965e-04	8.6402e-05
M4 (3d3/2)	2.6701e-04	3.0084e-04	9.0026e-01	9.9453e-02	2.3564e+00	3.7504e-04	2.3560e+00	2.1418e-04	1.0203e-04
M5 (3d5/2)	2.6307e-04	1.1725e-04	8.9877e-01	1.0122e-01	2.3890e+00	7.8915e-06	2.3890e+00	3.9087e-05	9.8969e-05
N1 (4s1/2)	7.5850e-05	4.1798e-06	6.9111e-01	3.0887e-01	1.9765e+00	8.3651e-06	1.9765e+00	3.7900e-05	2.6522e-05
N2 (4p1/2)	4.9600e-05	6.8569e-06	6.8040e-01	3.1959e-01	1.00	8.1893e-06	9.9999e-01	4.1530e-05	3.3748e-05
N3 (4p3/2)	4.6550e-05	5.5774e-06	6.6234e-01	3.3765e-01	1.00	6.7015e-06	9.9999e-01	3.8742e-05	3.0832e-05
N4 (4d3/2)	8.0700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	7.7800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.1900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
ruthenium (Z=44)									
K (1s1/2)	2.2087e-02	7.1012e-01	2.8628e-01	3.6011e-03	8.7647e+00	8.4113e-01	7.9235e+00	1.8647e-02	7.9802e-04
L1 (2s1/2)	3.2039e-03	3.5703e-02	9.3581e-01	2.8494e-02	9.2894e+00	4.4455e-02	9.2450e+00	2.5732e-03	3.2431e-04
L2 (2p1/2)	2.9718e-03	4.3790e-02	9.3273e-01	2.3479e-02	6.8685e+00	4.9253e-02	6.8192e+00	2.6422e-03	4.0648e-04
L3 (2p3/2)	2.8387e-03	3.9210e-02	9.3718e-01	2.3607e-02	6.5665e+00	4.3947e-02	6.5226e+00	2.5327e-03	4.0787e-04
M1 (3s1/2)	5.7403e-04	2.1771e-04	8.9174e-01	1.0805e-01	5.9610e+00	4.1126e-04	5.9606e+00	3.0388e-04	8.5878e-05
M2 (3p1/2)	4.8206e-04	2.6597e-04	9.0181e-01	9.7923e-02	4.2871e+00	4.8221e-04	4.2867e+00	2.6588e-04	1.0141e-04
M3 (3p3/2)	4.5929e-04	1.6865e-04	8.9820e-01	1.0163e-01	4.2432e+00	2.8254e-04	4.2429e+00	2.7415e-04	9.7229e-05
M4 (3d3/2)	2.9453e-04	2.9418e-04	9.0245e-01	9.7255e-02	2.1965e+00	3.6474e-04	2.1961e+00	2.3755e-04	1.2103e-04
M5 (3d5/2)	2.9005e-04	9.0457e-07	9.0121e-01	9.8779e-02	2.2248e+00	6.2093e-06	2.2248e+00	4.2254e-05	1.1749e-04
N1 (4s1/2)	8.2140e-05	3.6857e-06	6.7769e-01	3.2230e-01	1.9732e+00	7.4184e-06	1.9732e+00	4.0810e-05	2.8211e-05
N2 (4p1/2)	5.4190e-05	6.0760e-06	6.6875e-01	3.3124e-01	1.00	7.3104e-06	9.9999e-01	4.5040e-05	3.6240e-05
N3 (4p3/2)	5.0660e-05	4.8453e-06	6.4907e-01	3.5092e-01	1.00	5.9674e-06	9.9999e-01	4.1835e-05	3.2882e-05
N4 (4d3/2)	9.1500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	8.7900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.3800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
rhodium (Z=45)									
K (1s1/2)	2.3191e-02	7.2154e-01	2.7483e-01	3.6350e-03	8.3219e+00	8.5769e-01	7.4642e+00	1.9510e-02	8.5389e-04
L1 (2s1/2)	3.3912e-03	3.8730e-02	9.3242e-01	2.8860e-02	8.8783e+00	4.8288e-02	8.8300e+00	2.7200e-03	3.5810e-04
L2 (2p1/2)	3.1515e-03	4.7704e-02	9.2851e-01	2.3783e-02	6.5693e+00	5.3769e-02	6.5156e+00	2.7960e-03	4.4911e-04
L3 (2p3/2)	3.0045e-03	4.2517e-02	9.3360e-01	2.3894e-02	6.2605e+00	4.7762e-02	6.2128e+00	2.6745e-03	4.5149e-04
M1 (3s1/2)	6.1595e-04	2.4818e-04	8.9002e-01	1.0973e-01	5.7889e+00	4.4606e-04	5.7884e+00	3.4269e-04	9.4707e-05
M2 (3p1/2)	5.2015e-04	2.9464e-04	9.0095e-01	9.8758e-02	4.1479e+00	5.1057e-04	4.1474e+00	3.0017e-04	1.1299e-04
M3 (3p3/2)	4.9466e-04	1.9258e-04	8.9738e-01	1.0242e-01	4.0944e+00	3.0576e-04	4.0941e+00	3.1155e-04	1.0842e-04
M4 (3d3/2)	3.2303e-04	2.8693e-04	9.0447e-01	9.5246e-02	2.0698e+00	3.5417e-04	2.0695e+00	2.6171e-04	1.4118e-04
M5 (3d5/2)	3.1796e-04	7.2670e-07	9.0344e-01	9.6565e-02	2.0946e+00	5.0853e-06	2.0946e+00	4.5437e-05	1.3714e-04
N1 (4s1/2)	8.8520e-05	3.3440e-06	6.6630e-01	3.3370e-01	1.9693e+00	6.7724e-06	1.9693e+00	4.3709e-05	2.9951e-05
N2 (4p1/2)	5.8840e-05	5.5376e-06	6.5889e-01	3.4111e-01	1.00	6.7044e-06	9.9999e-01	4.8600e-05	3.8769e-05
N3 (4p3/2)	5.4780e-05	4.3333e-06	6.3745e-01	3.6254e-01	1.00	5.2835e-06	9.9999e-01	4.4928e-05	3.4920e-05
N4 (4d3/2)	1.0240e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	9.8100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.5600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
palladium (Z=46)									
K (1s1/2)	2.4321e-02	7.3231e-01	2.6510e-01	2.5980e-03	7.9129e+00	8.7358e-01	7.0393e+00	2.0388e-02	9.1592e-04
L1 (2s1/2)	3.5800e-03	4.2611e-02	9.3675e-01	2.0641e-02	8.4592e+00	5.2913e-02	8.4063e+00	2.8830e-03	3.9893e-04
L2 (2p1/2)	3.3326e-03	5.1983e-02	9.3094e-01	1.7073e-02	6.2833e+00	5.8604e-02	6.2247e+00	2.9560e-03	4.9841e-04
L3 (2p3/2)	3.1706e-03	4.6125e-02	9.3674e-01	1.7140e-02	5.9735e+00	5.1837e-02	5.9217e+00	2.8212e-03	5.0155e-04
M1 (3s1/2)	6.5494e-04	2.8087e-04	9.2029e-01	7.9426e-02	5.6167e+00	4.8027e-04	5.6162e+00	3.8302e-04	1.0732e-04
M2 (3p1/2)	5.5525e-04	3.3075e-04	9.2835e-01	7.1319e-02	4.0217e+00	5.4103e-04	4.0211e+00	3.3944e-04	1.2819e-04
M3 (3p3/2)	5.2680e-04	2.2379e-04	9.2596e-01	7.3814e-02	3.9566e+00	3.3389e-04	3.9563e+00	3.5308e-04	1.2330e-04
M4 (3d3/2)	3.4824e-04	2.7050e-04	9.3243e-01	6.7293e-02	1.9542e+00	3.2904e-04	1.9539e+00	2.8629e-04	1.6619e-04
M5 (3d5/2)	3.4251e-04	5.7418e-07	9.3212e-01	6.7875e-02	1.9760e+00	4.0999e-06	1.9760e+00	4.7968e-05	1.6157e-04
N1 (4s1/2)	9.1010e-05	3.1036e-06	7.4391e-01	2.5609e-01	1.9661e+00	6.1458e-06	1.9661e+00	4.5959e-05	3.4436e-05
N2 (4p1/2)	5.9680e-05	5.2161e-06	7.3401e-01	2.6599e-01	1.00	6.0399e-06	1.00	5.1540e-05	4.3806e-05
N3 (4p3/2)	5.5090e-05	4.0509e-06	7.1607e-01	2.8393e-01	1.00	4.7107e-06	1.00	4.7374e-05	3.9448e-05
N4 (4d3/2)	8.1400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	7.6700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
silver (Z=47)									
K (1s1/2)	2.5489e-02	7.4200e-01	2.5433e-01	3.6623e-03	7.6162e+00	8.8865e-01	6.7276e+00	2.1283e-02	9.6360e-04
L1 (2s1/2)	3.7834e-03	4.6384e-02	9.2473e-01	2.8896e-02	8.1129e+00	5.7494e-02	8.0554e+00	3.0523e-03	4.3432e-04
L2 (2p1/2)	3.5281e-03	5.6355e-02	9.1953e-01	2.4123e-02	6.0965e+00	6.3752e-02	6.0328e+00	3.1188e-03	5.3776e-04
L3 (2p3/2)	3.3500e-03	4.9788e-02	9.2599e-01	2.4229e-02	5.7814e+00	5.6149e-02	5.7252e+00	2.9705e-03	5.4183e-04
M1 (3s1/2)	7.0380e-04	3.1707e-04	8.8843e-01	1.1125e-01	5.4835e+00	5.2781e-04	5.4830e+00	4.2280e-04	1.1404e-04
M2 (3p1/2)	6.0019e-04	3.7249e-04	9.0010e-01	9.9534e-02	3.9330e+00	5.9156e-04	3.9324e+00	3.7792e-04	1.3738e-04
M3 (3p3/2)	5.6853e-04	2.5649e-04	8.9673e-01	1.0302e-01	3.8573e+00	3.7021e-04	3.8570e+00	3.9389e-04	1.3218e-04
M4 (3d3/2)	3.8299e-04	2.7401e-04	9.0800e-01	9.1739e-02	1.8841e+00	3.3583e-04	1.8837e+00	3.1249e-04	1.8461e-04
M5 (3d5/2)	3.7655e-04	5.1225e-07	9.0735e-01	9.2659e-02	1.9031e+00	3.7179e-06	1.9031e+00	5.1881e-05	1.7953e-04
N1 (4s1/2)	1.0161e-04	2.9225e-06	6.4637e-01	3.5163e-01	1.9618e+00	6.0041e-06	1.9618e+00	4.9458e-05	3.3582e-05
N2 (4p1/2)	6.8410e-05	4.8550e-06	6.4361e-01	3.5639e-01	1.00	5.9373e-06	9.9999e-01	5.5940e-05	4.4030e-05
N3 (4p3/2)	6.3140e-05	3.6940e-06	6.1874e-01	3.8125e-01	1.00	4.5536e-06	9.9999e-01	5.1221e-05	3.9068e-05
N4 (4d3/2)	1.2470e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	1.1860e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.8900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
cadmium (Z=48)									
K (1s1/2)	2.6688e-02	7.5145e-01	2.4375e-01	4.7930e-03	7.3536e+00	9.0391e-01	6.4497e+00	2.2187e-02	1.0086e-03
L1 (2s1/2)	3.9941e-03	5.1012e-02	9.1177e-01	3.7211e-02	7.7252e+00	6.2860e-02	7.6623e+00	3.2413e-03	4.7528e-04
L2 (2p1/2)	3.7309e-03	6.1024e-02	9.0732e-01	3.1659e-02	5.9369e+00	6.9274e-02	5.8677e+00	3.2866e-03	5.7691e-04
L3 (2p3/2)	3.5354e-03	5.4100e-02	9.1408e-01	3.1821e-02	5.6176e+00	6.1173e-02	5.5565e+00	3.1266e-03	5.8160e-04
M1 (3s1/2)	7.5537e-04	3.6428e-04	8.5527e-01	1.4437e-01	5.3587e+00	5.9022e-04	5.3581e+00	4.6621e-04	1.2057e-04
M2 (3p1/2)	6.4779e-04	4.1900e-04	8.7064e-01	1.2894e-01	3.8574e+00	6.4906e-04	3.8567e+00	4.1818e-04	1.4624e-04
M3 (3p3/2)	6.1263e-04	3.1110e-04	8.6618e-01	1.3351e-01	3.7729e+00	4.3041e-04	3.7725e+00	4.4281e-04	1.4066e-04
M4 (3d3/2)	4.2006e-04	2.8043e-04	8.8312e-01	1.1659e-01	1.8294e+00	3.4668e-04	1.8290e+00	3.3979e-04	2.0282e-04
M5 (3d5/2)	4.1286e-04	4.9285e-07	8.8211e-01	1.1790e-01	1.8462e+00	3.6064e-06	1.8462e+00	5.6422e-05	1.9726e-04
N1 (4s1/2)	1.1336e-04	2.9133e-06	5.5361e-01	4.4640e-01	1.9563e+00	6.1740e-06	1.9563e+00	5.3491e-05	3.2079e-05
N2 (4p1/2)	7.8220e-05	4.7872e-06	5.5682e-01	4.4318e-01	1.00	6.1377e-06	1.00	6.1009e-05	4.3555e-05
N3 (4p3/2)	7.2190e-05	3.6159e-06	5.2508e-01	4.7492e-01	1.00	4.6824e-06	1.00	5.5747e-05	3.7906e-05
N4 (4d3/2)	1.7710e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N5 (4d5/2)	1.6970e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	8.2200e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
indium (Z=49)									
K (1s1/2)	2.7921e-02	7.6016e-01	2.3569e-01	4.1516e-03	1.4190e+01	9.1826e-01	1.3272e+01	2.3114e-02	4.9585e-04
L1 (2s1/2)	4.2138e-03	5.6429e-02	9.1277e-01	3.0809e-02	1.5041e+01	6.8457e-02	1.4973e+01	3.4734e-03	2.5688e-04
L2 (2p1/2)	3.9425e-03	6.5818e-02	9.0652e-01	2.7658e-02	1.2417e+01	7.5020e-02	1.2342e+01	3.4589e-03	2.8959e-04
L3 (2p3/2)	3.7284e-03	5.8114e-02	9.1427e-01	2.7622e-02	1.1792e+01	6.5981e-02	1.1726e+01	3.2838e-03	2.9069e-04
M1 (3s1/2)	8.1124e-04	4.0961e-04	8.7659e-01	1.2301e-01	1.1274e+01	6.5724e-04	1.1273e+01	5.6559e-04	6.3082e-05
M2 (3p1/2)	6.9962e-04	4.6970e-04	8.8804e-01	1.1150e-01	8.5039e+00	7.2122e-04	8.5032e+00	4.5564e-04	7.3066e-05
M3 (3p3/2)	6.6067e-04	3.5314e-04	8.8561e-01	1.1405e-01	8.3303e+00	4.8491e-04	8.3298e+00	4.8114e-04	7.0241e-05
M4 (3d3/2)	4.6104e-04	2.8772e-04	8.9941e-01	1.0032e-01	4.5346e+00	3.6539e-04	4.5342e+00	3.6304e-04	9.1451e-05
M5 (3d5/2)	4.5300e-04	5.8283e-07	9.0220e-01	9.7808e-02	4.5635e+00	6.1915e-06	4.5635e+00	4.2643e-05	8.9557e-05
N1 (4s1/2)	1.2790e-04	3.3953e-06	6.2925e-01	3.7074e-01	4.8434e+00	1.0147e-05	4.8434e+00	4.2794e-05	1.6617e-05
N2 (4p1/2)	9.0770e-05	5.4393e-06	6.3378e-01	3.6622e-01	2.9835e+00	1.0221e-05	2.9834e+00	4.8304e-05	1.9282e-05
N3 (4p3/2)	8.3870e-05	3.8089e-06	6.2008e-01	3.7992e-01	2.9816e+00	6.7653e-06	2.9816e+00	4.7220e-05	1.7443e-05
N4 (4d3/2)	2.5490e-05	2.8801e-06	2.9938e-01	7.0062e-01	1.00	3.5587e-06	9.9999e-01	2.0629e-05	7.6311e-06
N5 (4d5/2)	2.4580e-05	0.	3.8484e-01	6.1516e-01	1.00	0.	1.00	0.	9.4594e-06
O1 (5s1/2)	1.0830e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	4.9100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	4.5800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
tin (Z=50)									
K (1s1/2)	2.9184e-02	7.6824e-01	2.2661e-01	5.1513e-03	1.3781e+01	9.3206e-01	1.2849e+01	2.4055e-02	5.1471e-04
L1 (2s1/2)	4.4403e-03	6.0625e-02	9.0110e-01	3.8273e-02	1.4727e+01	7.3815e-02	1.4653e+01	3.6469e-03	2.7306e-04
L2 (2p1/2)	4.1608e-03	7.0899e-02	8.9503e-01	3.4076e-02	1.2150e+01	8.1128e-02	1.2069e+01	3.6362e-03	3.0857e-04
L3 (2p3/2)	3.9268e-03	6.2295e-02	9.0328e-01	3.4432e-02	1.1522e+01	7.1003e-02	1.1451e+01	3.4452e-03	3.0975e-04
M1 (3s1/2)	8.6905e-04	4.5972e-04	8.4874e-01	1.5080e-01	1.1072e+01	7.3344e-04	1.1071e+01	5.4472e-04	6.6625e-05
M2 (3p1/2)	7.5336e-04	5.2714e-04	8.6464e-01	1.3484e-01	8.3670e+00	8.0136e-04	8.3662e+00	4.9557e-04	7.7859e-05
M3 (3p3/2)	7.1032e-04	3.9870e-04	8.5916e-01	1.4043e-01	8.1851e+00	5.4303e-04	8.1845e+00	5.2153e-04	7.4565e-05
M4 (3d3/2)	5.0357e-04	2.9873e-04	8.8245e-01	1.1725e-01	4.4538e+00	3.8755e-04	4.4534e+00	3.8815e-04	9.9783e-05
M5 (3d5/2)	4.9462e-04	7.1126e-07	8.7953e-01	1.2047e-01	4.4791e+00	8.3747e-06	4.4791e+00	4.2008e-05	9.7127e-05
N1 (4s1/2)	1.4281e-04	4.0087e-06	5.5852e-01	4.4146e-01	4.8044e+00	1.3489e-05	4.8043e+00	4.2440e-05	1.6602e-05
N2 (4p1/2)	1.0364e-04	6.4246e-06	5.8439e-01	4.1560e-01	2.9785e+00	1.3990e-05	2.9785e+00	4.7595e-05	2.0334e-05
N3 (4p3/2)	9.5800e-05	4.1754e-06	5.4890e-01	4.5109e-01	2.9769e+00	8.5980e-06	2.9768e+00	4.6523e-05	1.7665e-05
N4 (4d3/2)	3.3490e-05	5.4884e-06	3.5695e-01	6.4304e-01	1.00	6.7363e-06	9.9999e-01	2.7286e-05	1.1954e-05
N5 (4d5/2)	3.2390e-05	0.	3.2588e-01	6.7412e-01	1.00	0.	1.00	0.	1.0555e-05
O1 (5s1/2)	1.3390e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	6.2800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	5.7700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
antimony (Z=51)									
K (1s1/2)	3.0479e-02	7.7545e-01	2.1913e-01	5.4253e-03	1.3390e+01	9.4522e-01	1.2445e+01	2.5005e-02	5.3669e-04
L1 (2s1/2)	4.6737e-03	6.5163e-02	8.9446e-01	4.0375e-02	1.4419e+01	7.9606e-02	1.4339e+01	3.8257e-03	2.9154e-04
L2 (2p1/2)	4.3860e-03	7.6224e-02	8.8790e-01	3.5873e-02	1.1884e+01	8.7541e-02	1.1797e+01	3.8190e-03	3.3012e-04
L3 (2p3/2)	4.1305e-03	6.7104e-02	8.9662e-01	3.6273e-02	1.1256e+01	7.6721e-02	1.1179e+01	3.6127e-03	3.3128e-04
M1 (3s1/2)	9.2898e-04	5.1429e-04	8.4230e-01	1.5719e-01	1.0872e+01	8.1558e-04	1.0871e+01	5.8579e-04	7.1979e-05
M2 (3p1/2)	8.0916e-04	5.8727e-04	8.5934e-01	1.4008e-01	8.2216e+00	8.8476e-04	8.2207e+00	5.3709e-04	8.4585e-05
M3 (3p3/2)	7.6169e-04	4.4831e-04	8.5363e-01	1.4594e-01	8.0366e+00	6.0606e-04	8.0360e+00	5.6343e-04	8.0911e-05
M4 (3d3/2)	5.4779e-04	3.1242e-04	6.7905e-01	1.2065e-01	4.3808e+00	4.1276e-04	4.3804e+00	4.1463e-04	1.0993e-04
M5 (3d5/2)	5.3785e-04	8.7455e-07	8.7643e-01	1.2358e-01	4.3984e+00	1.0453e-05	4.3984e+00	4.5001e-05	1.0717e-04
N1 (4s1/2)	1.5827e-04	4.7405e-06	5.5331e-01	4.4667e-01	4.7446e+00	1.6581e-05	4.7446e+00	4.5249e-05	1.8458e-05
N2 (4p1/2)	1.1702e-04	7.7210e-06	5.8307e-01	4.1692e-01	2.9719e+00	1.7880e-05	2.9719e+00	5.0531e-05	2.2959e-05
N3 (4p3/2)	1.0812e-04	4.7007e-06	5.4790e-01	4.5209e-01	2.9718e+00	1.0423e-05	2.9718e+00	4.8760e-05	1.9934e-05
N4 (4d3/2)	4.1870e-05	8.0927e-06	4.1422e-01	5.8578e-01	1.00	9.8944e-06	9.9999e-01	3.4246e-05	1.7343e-05
N5 (4d5/2)	4.0560e-05	0.	3.9159e-01	6.0841e-01	1.00	0.	1.00	0.	1.5883e-05
O1 (5s1/2)	1.5920e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	7.7300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	7.0200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
tellurium (Z=52)									
K (1s1/2)	3.1805e-02	7.8210e-01	2.1225e-01	5.6581e-03	1.2964e+01	9.5759e-01	1.2007e+01	2.5976e-02	5.6224e-04
L1 (2s1/2)	4.9142e-03	6.9636e-02	8.8828e-01	4.2080e-02	1.4027e+01	8.5358e-02	1.3942e+01	4.0091e-03	3.1309e-04
L2 (2p1/2)	4.6182e-03	8.1604e-02	8.8102e-01	3.7376e-02	1.1571e+01	9.4062e-02	1.1477e+01	4.0065e-03	3.5450e-04
L3 (2p3/2)	4.3397e-03	7.1618e-02	8.9053e-01	3.7848e-02	1.0953e+01	8.2183e-02	1.0871e+01	3.7818e-03	3.5551e-04
M1 (3s1/2)	9.9108e-04	5.7348e-04	8.3768e-01	1.6175e-01	1.0586e+01	9.0969e-04	1.0585e+01	6.2478e-04	7.8434e-05
M2 (3p1/2)	8.6709e-04	6.5282e-04	8.5519e-01	1.4416e-01	8.0380e+00	9.8127e-04	8.0370e+00	5.7686e-04	9.2263e-05
M3 (3p3/2)	8.1485e-04	5.0155e-04	8.4931e-01	1.5020e-01	7.8472e+00	6.7822e-04	7.8465e+00	6.0259e-04	8.8200e-05
M4 (3d3/2)	5.9374e-04	3.2883e-04	8.7639e-01	1.2328e-01	4.2916e+00	4.4541e-04	4.2912e+00	4.3834e-04	1.2126e-04
M5 (3d5/2)	5.8274e-04	1.2591e-06	8.7399e-01	1.2601e-01	4.3046e+00	1.4778e-05	4.3046e+00	4.9651e-05	1.1832e-04
N1 (4s1/2)	1.7433e-04	7.2058e-06	5.6181e-01	4.3819e-01	4.5210e+00	2.3871e-05	4.5210e+00	5.2623e-05	2.1664e-05
N2 (4p1/2)	1.3097e-04	1.0279e-05	5.8106e-01	4.1892e-01	2.9651e+00	2.5100e-05	2.9651e+00	5.3637e-05	2.5666e-05
N3 (4p3/2)	1.2092e-04	5.9711e-06	5.4567e-01	4.5432e-01	2.9683e+00	1.4086e-05	2.9682e+00	5.1258e-05	2.2230e-05
N4 (4d3/2)	5.0710e-05	1.3068e-05	4.5342e-01	5.4657e-01	1.00	1.5924e-05	9.9999e-01	4.1616e-05	2.2993e-05
N5 (4d5/2)	4.9180e-05	0.	4.3656e-01	5.6344e-01	1.00	0.	1.00	0.	2.1470e-05
O1 (5s1/2)	1.8450e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	9.2300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	8.3100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
iodine (Z=53)									
K (1s1/2)	3.3164e-02	7.8868e-01	2.0558e-01	5.7401e-03	1.2413e+01	9.7013e-01	1.1443e+01	2.6961e-02	5.9581e-04
L1 (2s1/2)	5.1619e-03	7.4381e-02	8.8313e-01	4.2481e-02	1.3422e+01	9.1559e-02	1.3330e+01	4.1935e-03	3.4197e-04
L2 (2p1/2)	4.8575e-03	8.7324e-02	8.7479e-01	3.7879e-02	1.1136e+01	1.0109e-01	1.1035e+01	4.1959e-03	3.8509e-04
L3 (2p3/2)	4.5545e-03	7.6317e-02	8.8522e-01	3.8454e-02	1.0532e+01	8.7950e-02	1.0444e+01	3.9521e-03	3.8604e-04
M1 (3s1/2)	1.0554e-03	6.4793e-04	8.3886e-01	1.6050e-01	1.0073e+01	1.0746e-03	1.0072e+01	6.3635e-04	8.7904e-05
M2 (3p1/2)	9.2720e-04	7.3888e-04	8.5508e-01	1.4419e-01	7.7502e+00	1.1540e-03	7.7490e+00	5.9365e-04	1.0231e-04
M3 (3p3/2)	8.6981e-04	5.6601e-04	8.4905e-01	1.5038e-01	7.5481e+00	8.0085e-04	7.5473e+00	6.1475e-04	9.7851e-05
M4 (3d3/2)	6.4146e-04	3.8250e-04	8.7702e-01	1.2260e-01	4.1527e+00	5.5153e-04	4.1521e+00	4.4487e-04	1.3549e-04
M5 (3d5/2)	6.2931e-04	3.1268e-06	8.7429e-01	1.2570e-01	4.1593e+00	3.6697e-05	4.1593e+00	5.3622e-05	1.3228e-04
N1 (4s1/2)	1.9104e-04	1.6719e-05	6.0969e-01	3.9029e-01	3.8841e+00	5.3828e-05	3.8841e+00	5.9337e-05	2.9988e-05
N2 (4p1/2)	1.4553e-04	2.2904e-05	5.8455e-01	4.1543e-01	2.9568e+00	6.0948e-05	2.9568e+00	5.4691e-05	2.8771e-05
N3 (4p3/2)	1.3421e-04	1.3505e-05	5.4679e-01	4.5320e-01	2.9665e+00	3.4289e-05	2.9665e+00	5.2862e-05	2.4738e-05
N4 (4d3/2)	6.0040e-05	3.8897e-05	4.9261e-01	5.0735e-01	1.00	4.7238e-05	9.9996e-01	4.9438e-05	2.9578e-05
N5 (4d5/2)	5.8260e-05	0.	4.7108e-01	5.2892e-01	1.00	0.	1.00	0.	2.7445e-05
O1 (5s1/2)	2.1010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	1.0770e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	9.6300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
xenon (Z=54)									
K (1s1/2)	3.4556e-02	7.9953e-01	1.9485e-01	5.6267e-03	1.1913e+01	9.9199e-01	1.0921e+01	2.7851e-02	6.1652e-04
L1 (2s1/2)	5.4169e-03	8.4439e-02	8.7403e-01	4.1523e-02	1.2891e+01	1.0421e-01	1.2786e+01	4.3890e-03	3.7028e-04
L2 (2p1/2)	5.1039e-03	9.9091e-02	8.6368e-01	3.7230e-02	1.0783e+01	1.1511e-01	1.0668e+01	4.3938e-03	4.1322e-04
L3 (2p3/2)	4.7747e-03	8.5922e-02	8.7611e-01	3.7957e-02	1.0202e+01	9.9402e-02	1.0103e+01	4.1272e-03	4.1405e-04
M1 (3s1/2)	1.1220e-03	7.6153e-04	8.4896e-01	1.5027e-01	9.3354e+00	1.2957e-03	9.3341e+00	6.5942e-04	1.0205e-04
M2 (3p1/2)	9.8947e-04	8.3109e-04	8.6000e-01	1.3916e-01	7.4645e+00	1.3625e-03	7.4631e+00	6.0355e-04	1.1402e-04
M3 (3p3/2)	9.2656e-04	6.3280e-04	8.5297e-01	1.4639e-01	7.3082e+00	9.3987e-04	7.3073e+00	6.2384e-04	1.0816e-04
M4 (3d3/2)	6.9091e-04	4.2191e-04	8.8120e-01	1.1838e-01	4.0454e+00	6.6838e-04	4.0447e+00	4.3613e-04	1.5053e-04
M5 (3d5/2)	6.7752e-04	6.0311e-06	8.7792e-01	1.2206e-01	4.0490e+00	6.6969e-05	4.0489e+00	6.1016e-05	1.4690e-04
N1 (4s1/2)	2.0837e-04	2.9508e-05	6.5231e-01	3.4766e-01	3.4491e+00	9.0525e-05	3.4490e+00	6.7922e-05	3.9409e-05
N2 (4p1/2)	1.6069e-04	4.6467e-05	6.0178e-01	3.9818e-01	2.9434e+00	1.2335e-04	2.9433e+00	6.0533e-05	3.2854e-05
N3 (4p3/2)	1.4798e-04	2.0196e-05	5.6334e-01	4.3664e-01	2.9408e+00	4.8888e-05	2.9407e+00	6.1130e-05	2.8347e-05
N4 (4d3/2)	6.9840e-05	8.4634e-05	5.4014e-01	4.5977e-01	1.00	1.0245e-04	9.9989e-01	5.7693e-05	3.7727e-05
N5 (4d5/2)	6.7780e-05	0.	5.1250e-01	4.8750e-01	1.00	0.	1.00	0.	3.4737e-05
O1 (5s1/2)	2.3610e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	1.2350e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	1.0960e-05	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
cesium (Z=55)									
K (1s1/2)	3.5985e-02	8.0502e-01	1.8776e-01	7.2278e-03	1.1637e+01	1.0033e+00	1.0634e+01	2.8874e-02	6.3537e-04
L1 (2s1/2)	5.6849e-03	8.9758e-02	8.5683e-01	5.3408e-02	1.2688e+01	1.1122e-01	1.2576e+01	4.5880e-03	3.8731e-04
L2 (2p1/2)	5.3632e-03	1.0540e-01	8.4657e-01	4.7736e-02	1.0584e+01	1.2295e-01	1.0461e+01	4.5977e-03	4.3416e-04
L3 (2p3/2)	5.0061e-03	9.1001e-02	8.6015e-01	4.8848e-02	1.0038e+01	1.0578e-01	9.9320e+00	4.3068e-03	4.3355e-04
M1 (3s1/2)	1.1964e-03	8.1252e-04	8.0846e-01	1.9074e-01	9.2060e+00	1.4177e-03	9.2046e+00	6.8570e-04	1.0508e-04
M2 (3p1/2)	1.0595e-03	7.6592e-04	8.2458e-01	1.7466e-01	7.2925e+00	1.2531e-03	7.2913e+00	6.4760e-04	1.1982e-04
M3 (3p3/2)	9.9068e-04	7.0159e-04	8.1348e-01	1.8581e-01	7.2300e+00	1.0819e-03	7.2289e+00	6.4243e-04	1.1148e-04
M4 (3d3/2)	7.4770e-04	4.6472e-04	8.5034e-01	1.4918e-01	4.0063e+00	7.9157e-04	4.0055e+00	4.3897e-04	1.5873e-04
M5 (3d5/2)	7.3298e-04	9.1245e-06	8.4662e-01	1.5338e-01	4.0151e+00	9.5221e-05	4.0150e+00	7.0238e-05	1.5456e-04
N1 (4s1/2)	2.3186e-04	4.1139e-05	5.7178e-01	4.2818e-01	3.4541e+00	1.2398e-04	3.4539e+00	7.6936e-05	3.8383e-05
N2 (4p1/2)	1.8197e-04	7.1435e-05	5.1987e-01	4.8005e-01	2.9176e+00	1.8629e-04	2.9174e+00	6.9781e-05	3.2427e-05
N3 (4p3/2)	1.6776e-04	2.5171e-05	4.7256e-01	5.2741e-01	2.9407e+00	6.0301e-05	2.9407e+00	7.0027e-05	2.6959e-05
N4 (4d3/2)	8.5610e-05	1.2365e-04	4.8196e-01	5.1791e-01	1.00	1.5657e-04	9.9984e-01	6.7611e-05	4.1267e-05
N5 (4d5/2)	8.3240e-05	0.	4.5831e-01	5.4169e-01	1.00	0.	1.00	0.	3.8150e-05
O1 (5s1/2)	3.0970e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	1.8270e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	1.6430e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	3.6900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
barium (Z=56)									
K (1s1/2)	3.7449e-02	8.0975e-01	1.8233e-01	7.5193e-03	1.0550e+01	1.0143e+00	9.5360e+00	2.9898e-02	7.1603e-04
L1 (2s1/2)	5.9608e-03	9.5789e-02	8.4589e-01	5.8319e-02	1.1469e+01	1.1902e-01	1.1350e+01	4.7974e-03	4.4426e-04
L2 (2p1/2)	5.6303e-03	1.1196e-01	8.3547e-01	5.2571e-02	9.6469e+00	1.3119e-01	9.5157e+00	4.8052e-03	4.9434e-04
L3 (2p3/2)	5.2434e-03	9.6169e-02	8.5035e-01	5.3484e-02	9.0697e+00	1.1224e-01	8.9574e+00	4.4927e-03	4.9777e-04
M1 (3s1/2)	1.2734e-03	8.5007e-04	7.9451e-01	2.0465e-01	8.2658e+00	1.5374e-03	8.2643e+00	7.0411e-04	1.2242e-04
M2 (3p1/2)	1.1322e-03	8.5850e-04	8.0958e-01	1.8956e-01	6.6346e+00	1.4778e-03	6.6331e+00	6.5774e-04	1.3819e-04
M3 (3p3/2)	1.0570e-03	5.8053e-04	8.0300e-01	1.9640e-01	6.3863e+00	9.5896e-04	6.3854e+00	6.3989e-04	1.3292e-04
M4 (3d3/2)	8.0664e-04	5.1429e-04	8.3654e-01	1.6295e-01	3.6753e+00	9.3339e-04	3.6743e+00	4.4445e-04	1.8365e-04
M5 (3d5/2)	7.9049e-04	1.4857e-05	8.3231e-01	1.6767e-01	3.6892e+00	1.3851e-04	3.6891e+00	8.4792e-05	1.7834e-04
N1 (4s1/2)	2.5635e-04	6.3649e-05	5.5928e-01	4.4065e-01	3.0389e+00	1.7890e-04	3.0387e+00	9.1204e-05	4.7182e-05
N2 (4p1/2)	2.0421e-04	9.4855e-05	4.6352e-01	5.3639e-01	2.8738e+00	2.4046e-04	2.8736e+00	8.0556e-05	3.2939e-05
N3 (4p3/2)	1.8835e-04	6.6216e-05	5.6301e-01	4.3693e-01	1.9697e+00	1.3178e-04	1.9696e+00	9.4639e-05	5.3840e-05
N4 (4d3/2)	1.0216e-04	1.5876e-04	4.4850e-01	5.5133e-01	1.00	2.0741e-04	9.9978e-01	7.8197e-05	4.5828e-05
N5 (4d5/2)	9.9460e-05	0.	4.2566e-01	5.7433e-01	1.00	0.	1.00	0.	4.2337e-05
O1 (5s1/2)	3.8390e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.4300e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.2000e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	4.6400e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
lanthanum (Z=57)									
K (1s1/2)	3.8943e-02	8.1425e-01	1.7777e-01	7.9726e-03	1.0217e+01	1.0251e+00	9.1917e+00	3.0935e-02	7.5315e-04
L1 (2s1/2)	6.2418e-03	1.0171e-01	8.3961e-01	5.8677e-02	1.1142e+01	1.2712e-01	1.1015e+01	4.9941e-03	4.7578e-04
L2 (2p1/2)	5.9025e-03	1.1885e-01	8.2845e-01	5.2703e-02	9.3563e+00	1.3962e-01	9.2167e+00	5.0243e-03	5.3055e-04
L3 (2p3/2)	5.4838e-03	1.0166e-01	8.4445e-01	5.3898e-02	8.8168e+00	1.1900e-01	8.6978e+00	4.6847e-03	5.3241e-04
M1 (3s1/2)	1.3504e-03	9.2125e-04	7.9510e-01	2.0398e-01	8.0372e+00	1.6373e-03	8.0356e+00	7.5983e-04	1.3362e-04
M2 (3p1/2)	1.2048e-03	8.9396e-04	8.1158e-01	1.8752e-01	6.4234e+00	1.5234e-03	6.4219e+00	7.0699e-04	1.5226e-04
M3 (3p3/2)	1.1227e-03	6.3718e-04	8.0411e-01	1.9526e-01	6.1971e+00	1.0260e-03	6.1961e+00	6.9725e-04	1.4570e-04
M4 (3d3/2)	8.6496e-04	4.1598e-04	8.3767e-01	1.6192e-01	3.6132e+00	8.4765e-04	3.6124e+00	4.2447e-04	2.0057e-04
M5 (3d5/2)	8.4728e-04	1.6638e-05	8.3355e-01	1.6643e-01	3.6153e+00	1.4669e-04	3.6152e+00	9.6102e-05	1.9536e-04
N1 (4s1/2)	2.7913e-04	7.0927e-05	5.6734e-01	4.3259e-01	2.9614e+00	1.9042e-04	2.9612e+00	1.0397e-04	5.3479e-05
N2 (4p1/2)	2.2473e-04	1.0870e-04	5.1511e-01	4.8478e-01	2.5755e+00	2.5481e-04	2.5752e+00	9.5870e-05	4.4951e-05
N3 (4p3/2)	2.0707e-04	6.7138e-05	5.6649e-01	4.3344e-01	1.9680e+00	1.3502e-04	1.9679e+00	1.0296e-04	5.9608e-05
N4 (4d3/2)	1.1683e-04	1.7534e-04	4.7931e-01	5.2051e-01	1.00	2.3043e-04	9.9977e-01	8.8899e-05	5.6011e-05
N5 (4d5/2)	1.1376e-04	0.	4.5903e-01	5.4097e-01	1.00	0.	1.00	0.	5.2219e-05
O1 (5s1/2)	4.3650e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.8330e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.5590e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	5.5800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	5.3400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.1400e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
cerium (Z=58)									
K (1s1/2)	4.0456e-02	8.1876e-01	1.7632e-01	4.9315e-03	1.0841e+01	1.0364e+00	9.8048e+00	3.1960e-02	7.2752e-04
L1 (2s1/2)	6.5133e-03	1.0830e-01	8.5521e-01	3.6482e-02	1.1931e+01	1.3555e-01	1.1796e+01	5.2041e-03	4.7222e-04
L2 (2p1/2)	6.1653e-03	1.2699e-01	8.4032e-01	3.2691e-02	1.0179e+01	1.4948e-01	1.0029e+01	5.2379e-03	5.1657e-04
L3 (2p3/2)	5.7128e-03	1.0799e-01	8.5874e-01	3.3272e-02	9.3813e+00	1.2655e-01	9.2547e+00	4.8749e-03	5.3009e-04
M1 (3s1/2)	1.4099e-03	1.1377e-03	8.7217e-01	1.2670e-01	8.6015e+00	1.7575e-03	8.5998e+00	9.1270e-04	1.4299e-04
M2 (3p1/2)	1.2599e-03	1.3286e-03	8.8161e-01	1.1707e-01	7.0752e+00	1.9107e-03	7.0733e+00	8.7607e-04	1.5703e-04
M3 (3p3/2)	1.1705e-03	7.6309e-04	8.7856e-01	1.2069e-01	6.5403e+00	1.0401e-03	6.5392e+00	8.5877e-04	1.5726e-04
M4 (3d3/2)	9.0549e-04	1.2805e-03	8.9677e-01	1.0195e-01	4.2239e+00	1.5416e-03	4.2224e+00	7.5216e-04	1.9231e-04
M5 (3d5/2)	8.8614e-04	9.2088e-06	8.9830e-01	1.0170e-01	3.8053e+00	7.4800e-05	3.8052e+00	1.0909e-04	2.0919e-04
N1 (4s1/2)	2.8501e-04	4.6061e-05	7.0266e-01	2.9730e-01	3.2037e+00	1.1183e-04	3.2036e+00	1.1739e-04	6.2513e-05
N2 (4p1/2)	2.2858e-04	5.9488e-05	6.7861e-01	3.2134e-01	3.1628e+00	1.2605e-04	3.1626e+00	1.0788e-04	4.9047e-05
N3 (4p3/2)	2.0935e-04	4.6884e-05	7.1566e-01	2.8429e-01	2.0326e+00	8.8227e-05	2.0325e+00	1.1125e-04	7.3714e-05
N4 (4d3/2)	1.1579e-04	8.6919e-05	6.5031e-01	3.4961e-01	1.4530e+00	9.7745e-05	1.4529e+00	1.0297e-04	5.1828e-05
N5 (4d5/2)	1.1244e-04	0.	6.6316e-01	3.3684e-01	1.00	0.	1.00	0.	7.4566e-05
N6 (4f5/2)	6.8500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	6.5100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.1750e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.6350e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.3590e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	4.8100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
praseodymium (Z=59)									
K (1s1/2)	4.2010e-02	8.2332e-01	1.7249e-01	4.1956e-03	1.0360e+01	1.0481e+00	9.3117e+00	3.3000e-02	7.7819e-04
L1 (2s1/2)	6.7998e-03	1.1493e-01	8.5398e-01	3.1081e-02	1.1415e+01	1.4431e-01	1.1271e+01	5.4154e-03	5.1521e-04
L2 (2p1/2)	6.4429e-03	1.3510e-01	8.3715e-01	2.7737e-02	9.7007e+00	1.5957e-01	9.5411e+00	5.4549e-03	5.6531e-04
L3 (2p3/2)	5.9544e-03	1.1435e-01	8.5731e-01	2.8336e-02	8.9862e+00	1.3440e-01	8.8518e+00	5.0660e-03	5.7669e-04
M1 (3s1/2)	1.4801e-03	1.3210e-03	8.9115e-01	1.0752e-01	8.2224e+00	2.0327e-03	8.2204e+00	9.6189e-04	1.6045e-04
M2 (3p1/2)	1.3257e-03	1.6457e-03	8.9951e-01	9.8855e-02	6.7138e+00	2.3486e-03	6.7115e+00	9.2894e-04	1.7768e-04
M3 (3p3/2)	1.2284e-03	8.7044e-04	8.9669e-01	1.0243e-01	6.2646e+00	1.1749e-03	6.2634e+00	9.1010e-04	1.7586e-04
M4 (3d3/2)	9.5598e-04	1.8160e-03	9.1175e-01	8.6441e-02	4.0196e+00	2.0912e-03	4.0175e+00	8.3020e-04	2.1696e-04
M5 (3d5/2)	9.3486e-04	9.7649e-06	9.1403e-01	8.5957e-02	3.6685e+00	7.9075e-05	3.6684e+00	1.1544e-04	2.3293e-04
N1 (4s1/2)	2.9925e-04	4.8411e-05	7.3873e-01	2.6121e-01	3.0915e+00	1.1690e-04	3.0913e+00	1.2392e-04	7.1512e-05
N2 (4p1/2)	2.4064e-04	6.8081e-05	7.3073e-01	2.6920e-01	2.9309e+00	1.4248e-04	2.9308e+00	1.1499e-04	5.9998e-05
N3 (4p3/2)	2.1956e-04	4.5133e-05	7.5170e-01	2.4824e-01	1.9975e+00	8.4818e-05	1.9974e+00	1.1683e-04	8.2629e-05
N4 (4d3/2)	1.2228e-04	1.0219e-04	7.0444e-01	2.9546e-01	1.3071e+00	1.1345e-04	1.3070e+00	1.1014e-04	6.5905e-05
N5 (4d5/2)	1.1859e-04	0.	7.1301e-01	2.8697e-01	1.00	0.	1.00	0.	8.4557e-05
N6 (4f5/2)	7.6500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	7.2400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.3300e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.7260e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.4260e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	4.8900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
neodymium (Z=60)									
K (1s1/2)	4.3597e-02	8.2725e-01	1.6903e-01	3.7146e-03	1.0012e+01	1.0592e+00	8.9525e+00	3.4050e-02	8.2316e-04
L1 (2s1/2)	7.0933e-03	1.2173e-01	8.5074e-01	2.7529e-02	1.1045e+01	1.5330e-01	1.0892e+01	5.6328e-03	5.5403e-04
L2 (2p1/2)	6.7274e-03	1.4339e-01	8.3212e-01	2.4499e-02	9.3702e+00	1.6986e-01	9.2004e+00	5.6792e-03	6.0845e-04
L3 (2p3/2)	6.2007e-03	1.2093e-01	8.5397e-01	2.5102e-02	8.7004e+00	1.4250e-01	8.5579e+00	5.2620e-03	6.1875e-04
M1 (3s1/2)	1.5518e-03	1.5103e-03	9.0358e-01	9.4899e-02	7.9517e+00	2.2980e-03	7.9494e+00	1.0199e-03	1.7639e-04
M2 (3p1/2)	1.3928e-03	1.9742e-03	9.1090e-01	8.7115e-02	6.4809e+00	2.7815e-03	6.4781e+00	9.8854e-04	1.9584e-04
M3 (3p3/2)	1.2871e-03	9.8358e-04	9.0876e-01	9.0248e-02	6.0517e+00	1.3045e-03	6.0504e+00	9.7047e-04	1.9332e-04
M4 (3d3/2)	1.0073e-03	2.3602e-03	9.2105e-01	7.6580e-02	3.9094e+00	2.6333e-03	3.9068e+00	9.0283e-04	2.3748e-04
M5 (3d5/2)	9.8432e-04	9.5471e-06	9.2431e-01	7.5669e-02	3.5660e+00	7.7082e-05	3.5659e+00	1.2191e-04	2.5514e-04
N1 (4s1/2)	3.1358e-04	4.8279e-05	7.6256e-01	2.3739e-01	3.0219e+00	1.1556e-04	3.0218e+00	1.3101e-04	7.9133e-05
N2 (4p1/2)	2.5276e-04	6.8801e-05	7.6238e-01	2.3755e-01	2.7930e+00	1.4263e-04	2.7928e+00	1.2192e-04	6.8998e-05
N3 (4p3/2)	2.2972e-04	4.3282e-05	7.7522e-01	2.2474e-01	1.9757e+00	8.1113e-05	1.9756e+00	1.2258e-04	9.0142e-05
N4 (4d3/2)	1.2868e-04	1.0537e-04	7.3816e-01	2.6173e-01	1.2322e+00	1.1615e-04	1.2321e+00	1.1674e-04	7.7091e-05
N5 (4d5/2)	1.2462e-04	0.	7.4402e-01	2.5598e-01	1.00	0.	1.00	0.	9.2720e-05
N6 (4f5/2)	8.3200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	7.8500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.4800e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.8120e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.4880e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	4.9600e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
promethium (Z=61)									
K (1s1/2)	4.5219e-02	8.3177e-01	1.6490e-01	3.3261e-03	9.6332e+00	1.0713e+00	8.5619e+00	3.5110e-02	8.7090e-04
L1 (2s1/2)	7.3941e-03	1.2886e-01	8.4643e-01	2.4718e-02	1.0658e+01	1.6276e-01	1.0495e+01	5.8539e-03	5.9632e-04
L2 (2p1/2)	7.0192e-03	1.5212e-01	8.2591e-01	2.1981e-02	9.0418e+00	1.8072e-01	8.8611e+00	5.9083e-03	6.5423e-04
L3 (2p3/2)	6.4519e-03	1.2769e-01	8.4983e-01	2.2486e-02	8.3747e+00	1.5087e-01	8.2238e+00	5.4603e-03	6.6672e-04
M1 (3s1/2)	1.6251e-03	1.7557e-03	9.1371e-01	8.4534e-02	7.6345e+00	2.6417e-03	7.6319e+00	1.0801e-03	1.9456e-04
M2 (3p1/2)	1.4616e-03	2.3349e-03	9.1945e-01	7.8214e-02	6.2663e+00	3.2577e-03	6.2630e+00	1.0476e-03	2.1457e-04
M3 (3p3/2)	1.3469e-03	1.2019e-03	9.1990e-01	7.8903e-02	5.7110e+00	1.5554e-03	5.7094e+00	1.0407e-03	2.1701e-04
M4 (3d5/2)	1.0596e-03	2.9507e-03	9.2775e-01	6.9301e-02	3.8169e+00	3.2229e-03	3.8137e+00	9.7009e-04	2.5777e-04
M5 (3d5/2)	1.0346e-03	9.2865e-06	9.3189e-01	6.8102e-02	3.4711e+00	7.4864e-05	3.4711e+00	1.2834e-04	2.7776e-04
N1 (4s1/2)	3.2807e-04	4.8318e-05	7.8028e-01	2.1967e-01	2.9668e+00	1.1482e-04	2.9667e+00	1.3805e-04	8.6288e-05
N2 (4p1/2)	2.6501e-04	6.9986e-05	7.8511e-01	2.1482e-01	2.6854e+00	1.4406e-04	2.6853e+00	1.2874e-04	7.7482e-05
N3 (4p3/2)	2.3987e-04	4.1953e-05	7.9203e-01	2.0793e-01	1.9596e+00	7.8400e-05	1.9595e+00	1.2836e-04	9.6955e-05
N4 (4d3/2)	1.3505e-04	1.0641e-04	7.6168e-01	2.3822e-01	1.1814e+00	1.1673e-04	1.1813e+00	1.2311e-04	8.7078e-05
N5 (4d5/2)	1.3059e-04	0.	7.6538e-01	2.3462e-01	1.00	0.	1.00	0.	9.9951e-05
N6 (4f5/2)	8.8800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	8.3500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.6270e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.8960e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.5460e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.0300e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
samarium (Z=62)									
K (1s1/2)	4.6876e-02	8.3532e-01	1.6162e-01	3.0537e-03	9.3588e+00	1.0823e+00	8.2765e+00	3.6178e-02	9.1540e-04
L1 (2s1/2)	7.7023e-03	1.3619e-01	8.4111e-01	2.2693e-02	1.0368e+01	1.7249e-01	1.0195e+01	6.0816e-03	6.3545e-04
L2 (2p1/2)	7.3192e-03	1.6117e-01	8.1870e-01	2.0130e-02	8.7848e+00	1.9197e-01	8.5928e+00	6.1441e-03	6.9726e-04
L3 (2p3/2)	6.7079e-03	1.3462e-01	8.4473e-01	2.0651e-02	8.1419e+00	1.5943e-01	7.9825e+00	5.6640e-03	7.0985e-04
M1 (3s1/2)	1.7001e-03	1.9693e-03	9.2066e-01	7.7364e-02	7.4205e+00	2.9408e-03	7.4175e+00	1.1385e-03	2.1101e-04
M2 (3p1/2)	1.5319e-03	2.7208e-03	9.2580e-01	7.1469e-02	6.0869e+00	3.7674e-03	6.0831e+00	1.1063e-03	2.3314e-04
M3 (3p3/2)	1.4077e-03	1.3257e-03	9.2641e-01	7.2271e-02	5.5521e+00	1.6971e-03	5.5504e+00	1.0997e-03	2.3496e-04
M4 (3d3/2)	1.1129e-03	3.5853e-03	9.3275e-01	6.3652e-02	3.7357e+00	3.8570e-03	3.7318e+00	1.0345e-03	2.7817e-04
M5 (3d5/2)	1.0858e-03	8.9457e-06	9.3778e-01	6.2215e-02	3.3786e+00	7.2044e-05	3.3785e+00	1.3482e-04	3.0139e-04
N1 (4s1/2)	3.4277e-04	4.8302e-05	7.9397e-01	2.0599e-01	2.9204e+00	1.1401e-04	2.9202e+00	1.4522e-04	9.3194e-05
N2 (4p1/2)	2.7743e-04	7.0546e-05	8.0208e-01	1.9785e-01	2.5918e+00	1.4423e-04	2.5917e+00	1.3570e-04	8.5859e-05
N3 (4p3/2)	2.5006e-04	4.1041e-05	8.0453e-01	1.9544e-01	1.9480e+00	7.6471e-05	1.9479e+00	1.3420e-04	1.0328e-04
N4 (4d3/2)	1.4140e-04	1.0577e-04	7.7822e-01	2.2168e-01	1.1538e+00	1.1561e-04	1.1537e+00	1.2936e-04	9.5379e-05
N5 (4d5/2)	1.3652e-04	0.	7.8090e-01	2.1910e-01	1.00	0.	1.00	0.	1.0661e-04
N6 (4f5/2)	9.3700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	8.7500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.7740e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	2.9790e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.6020e-05	0.	0.	1.00	0.	0.	0.	0.	0.
F1 (6s1/2)	5.0900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
europium (Z=63)									
K (1s1/2)	4.8568e-02	8.3909e-01	1.5809e-01	2.8277e-03	9.1186e+00	1.0938e+00	8.0247e+00	3.7257e-02	9.5679e-04
L1 (2s1/2)	8.0181e-03	1.4380e-01	8.3519e-01	2.1022e-02	1.0121e+01	1.8258e-01	9.9387e+00	6.3151e-03	6.7379e-04
L2 (2p1/2)	7.6248e-03	1.7056e-01	8.1085e-01	1.8598e-02	8.5635e+00	2.0362e-01	6.3599e+00	6.3867e-03	7.3955e-04
L3 (2p3/2)	6.9688e-03	1.4180e-01	8.3909e-01	1.9127e-02	7.9366e+00	1.6828e-01	7.7684e+00	5.8721e-03	7.5272e-04
M1 (3s1/2)	1.7769e-03	2.1873e-03	9.2630e-01	7.1514e-02	7.2444e+00	3.2452e-03	7.2412e+00	1.1976e-03	2.2730e-04
M2 (3p1/2)	1.6040e-03	3.1181e-03	9.3093e-01	6.5955e-02	5.9400e+00	4.2917e-03	5.9357e+00	1.1654e-03	2.5156e-04
M3 (3p3/2)	1.4696e-03	1.4492e-03	9.3176e-01	6.6793e-02	5.4137e+00	1.8376e-03	5.4119e+00	1.1590e-03	2.5302e-04
M4 (3d3/2)	1.1672e-03	4.2269e-03	9.3676e-01	5.9026e-02	3.6688e+00	4.4974e-03	3.6643e+00	1.0970e-03	2.9839e-04
M5 (3d5/2)	1.1378e-03	8.5971e-06	9.4270e-01	5.7297e-02	3.2932e+00	6.9245e-05	3.2931e+00	1.4126e-04	3.2571e-04
N1 (4s1/2)	3.5770e-04	4.8337e-05	8.0516e-01	1.9480e-01	2.8894e+00	1.1348e-04	2.8893e+00	1.5237e-04	9.9679e-05
N2 (4p1/2)	2.9005e-04	7.0532e-05	8.1455e-01	1.8539e-01	2.5429e+00	1.4362e-04	2.5427e+00	1.4244e-04	9.2916e-05
N3 (4p3/2)	2.6030e-04	4.0487e-05	8.1486e-01	1.8511e-01	1.9388e+00	7.5226e-05	1.9387e+00	1.4010e-04	1.0941e-04
N4 (4d3/2)	1.4776e-04	1.0512e-04	7.9128e-01	2.0862e-01	1.1381e+00	1.1455e-04	1.1380e+00	1.3560e-04	1.0274e-04
N5 (4d5/2)	1.4244e-04	0.	7.9340e-01	2.0659e-01	1.00	0.	1.00	0.	1.1301e-04
N6 (4f5/2)	9.7700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.0800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	4.9210e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.0610e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.6560e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.1600e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
gadolinium (Z=64)									
K (1s1/2)	5.0303e-02	8.4220e-01	1.5413e-01	3.6722e-03	8.6633e+00	1.1046e+00	7.5586e+00	3.8352e-02	1.0258e-03
L1 (2s1/2)	8.3498e-03	1.5137e-01	8.2149e-01	2.7134e-02	9.5977e+00	1.9286e-01	9.4049e+00	6.5536e-03	7.2934e-04
L2 (2p1/2)	7.9470e-03	1.7973e-01	7.9627e-01	2.4002e-02	8.0698e+00	2.1531e-01	7.8545e+00	6.6337e-03	8.0565e-04
L3 (2p3/2)	7.2427e-03	1.4880e-01	8.2629e-01	2.4908e-02	7.5480e+00	1.7716e-01	7.3708e+00	6.0832e-03	8.1193e-04
M1 (3s1/2)	1.8646e-03	2.4227e-03	9.0566e-01	9.1920e-02	6.8682e+00	3.6100e-03	6.8646e+00	1.2514e-03	2.4600e-04
M2 (3p1/2)	1.6869e-03	3.5322e-03	9.1218e-01	8.4290e-02	5.5682e+00	4.8871e-03	5.5633e+00	1.2192e-03	2.7659e-04
M3 (3p3/2)	1.5418e-03	1.5920e-03	9.1199e-01	8.6419e-02	5.1561e+00	2.0290e-03	5.1541e+00	1.2097e-03	2.7281e-04
M4 (3d3/2)	1.2316e-03	4.8812e-03	9.1871e-01	7.6412e-02	3.4450e+00	5.2084e-03	3.4397e+00	1.1542e-03	3.2894e-04
M5 (3d5/2)	1.1990e-03	9.6605e-06	9.2566e-01	7.4331e-02	3.1487e+00	7.7310e-05	3.1486e+00	1.4992e-04	3.5273e-04
N1 (4s1/2)	3.8137e-04	5.4660e-05	7.6231e-01	2.3765e-01	2.7524e+00	1.2801e-04	2.7523e+00	1.6286e-04	1.0563e-04
N2 (4p1/2)	3.1130e-04	8.4576e-05	7.7842e-01	2.2150e-01	2.1434e+00	1.7257e-04	2.1432e+00	1.5257e-04	1.1307e-04
N3 (4p3/2)	2.7886e-04	4.2873e-05	7.6395e-01	2.3601e-01	1.9148e+00	8.0684e-05	1.9147e+00	1.4818e-04	1.1126e-04
N4 (4d3/2)	1.6216e-04	1.1726e-04	7.3936e-01	2.6052e-01	1.0103e+00	1.3304e-04	1.0102e+00	1.4293e-04	1.1869e-04
N5 (4d5/2)	1.5630e-04	0.	7.3113e-01	2.6888e-01	1.00	0.	1.00	0.	1.1427e-04
N6 (4f5/2)	1.7030e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	1.6200e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.4660e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.4830e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	3.0180e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	5.1900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	4.8500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.7100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
terbium (Z=65)									
K (1s1/2)	5.2060e-02	8.4539e-01	1.5215e-01	2.4682e-03	8.7335e+00	1.1157e+00	7.6177e+00	3.9446e-02	1.0398e-03
L1 (2s1/2)	8.6731e-03	1.5948e-01	8.2217e-01	1.8346e-02	9.7281e+00	2.0338e-01	9.5247e+00	6.8009e-03	7.4866e-04
L2 (2p1/2)	8.2609e-03	1.9000e-01	7.9383e-01	1.6161e-02	8.2207e+00	2.2769e-01	7.9930e+00	6.8935e-03	8.2044e-04
L3 (2p3/2)	7.5053e-03	1.5657e-01	8.2675e-01	1.6674e-02	7.5916e+00	1.8648e-01	7.4051e+00	6.3016e-03	8.3793e-04
M1 (3s1/2)	1.9358e-03	2.5956e-03	9.3511e-01	6.2308e-02	6.9786e+00	3.8091e-03	6.9748e+00	1.3191e-03	2.5953e-04
M2 (3p1/2)	1.7534e-03	3.8186e-03	9.3840e-01	5.7781e-02	5.7877e+00	5.2106e-03	5.7825e+00	1.2850e-03	2.8455e-04
M3 (3p3/2)	1.5968e-03	1.6930e-03	9.4022e-01	5.8085e-02	5.1859e+00	2.1119e-03	5.1837e+00	1.2801e-03	2.8963e-04
M4 (3d3/2)	1.2790e-03	5.5293e-03	9.4291e-01	5.1565e-02	3.5660e+00	5.7951e-03	3.5602e+00	1.2203e-03	3.3874e-04
M5 (3d5/2)	1.2446e-03	7.8182e-06	9.5058e-01	4.9405e-02	3.1417e+00	6.3022e-05	3.1416e+00	1.5440e-04	3.7659e-04
N1 (4s1/2)	3.8839e-04	4.8375e-05	8.2314e-01	1.7681e-01	2.8581e+00	1.1255e-04	2.8579e+00	1.6694e-04	1.1186e-04
N2 (4p1/2)	3.1600e-04	6.9183e-05	8.3274e-01	1.6720e-01	2.5294e+00	1.4016e-04	2.5292e+00	1.5597e-04	1.0404e-04
N3 (4p3/2)	2.8104e-04	4.0045e-05	8.3105e-01	1.6891e-01	1.9279e+00	7.3957e-05	1.9278e+00	1.5217e-04	1.2115e-04
N4 (4d3/2)	1.6059e-04	1.0115e-04	8.0921e-01	1.9069e-01	1.1530e+00	1.0962e-04	1.1529e+00	1.4819e-04	1.1271e-04
N5 (4d5/2)	1.5429e-04	0.	8.1297e-01	1.8704e-01	1.00	0.	1.00	0.	1.2543e-04
N6 (4f5/2)	1.0390e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.5300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.2170e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.2240e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.7590e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.2900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
dysprosium (Z=66)									
K (1s1/2)	5.3861e-02	8.4955e-01	1.4815e-01	2.3071e-03	8.5220e+00	1.1280e+00	7.3940e+00	4.0564e-02	1.0792e-03
L1 (2s1/2)	9.0125e-03	1.6766e-01	8.1518e-01	1.7162e-02	9.5116e+00	2.1429e-01	9.2973e+00	7.0514e-03	7.9021e-04
L2 (2p1/2)	8.5907e-03	2.0013e-01	7.8480e-01	1.5068e-02	8.0214e+00	2.4026e-01	7.7812e+00	7.1557e-03	8.6645e-04
L3 (2p3/2)	7.7810e-03	1.6417e-01	8.2024e-01	1.5591e-02	7.4051e+00	1.9587e-01	7.2092e+00	6.5219e-03	8.8529e-04
M1 (3s1/2)	2.0182e-03	2.8262e-03	9.3895e-01	5.8228e-02	6.8272e+00	4.1327e-03	6.8231e+00	1.3802e-03	2.7773e-04
M2 (3p1/2)	1.8309e-03	4.2487e-03	9.4183e-01	5.3928e-02	5.6631e+00	5.7815e-03	5.6573e+00	1.3455e-03	3.0481e-04
M3 (3p3/2)	1.6621e-03	1.8218e-03	9.4388e-01	5.4301e-02	5.0637e+00	2.2583e-03	5.0614e+00	1.3409e-03	3.0996e-04
M4 (3d3/2)	1.3366e-03	6.2367e-03	9.4549e-01	4.8275e-02	3.5012e+00	6.5032e-03	3.4947e+00	1.2818e-03	3.6162e-04
M5 (3d5/2)	1.2995e-03	7.5446e-06	9.5400e-01	4.5996e-02	3.0608e+00	6.0850e-05	3.0608e+00	1.6112e-04	4.0504e-04
N1 (4s1/2)	4.0420e-04	4.8939e-05	8.3112e-01	1.6884e-01	2.8365e+00	1.1349e-04	2.8364e+00	1.7430e-04	1.1844e-04
N2 (4p1/2)	3.2938e-04	6.9915e-05	8.4117e-01	1.5676e-01	2.5016e+00	1.4120e-04	2.5014e+00	1.6309e-04	1.1076e-04
N3 (4p3/2)	2.9156e-04	4.0235e-05	8.3792e-01	1.6204e-01	1.9219e+00	7.4098e-05	1.9219e+00	1.5832e-04	1.2712e-04
N4 (4d3/2)	1.6707e-04	1.0073e-04	8.1689e-01	1.8301e-01	1.1579e+00	1.0888e-04	1.1578e+00	1.5457e-04	1.1788e-04
N5 (4d5/2)	1.6024e-04	0.	8.2108e-01	1.7892e-01	1.00	0.	1.00	0.	1.3157e-04
N6 (4f5/2)	1.0620e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.6600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.3670e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.3060e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.8090e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.3500e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
holmium (Z=67)									
K (1s1/2)	5.5699e-02	8.5274e-01	1.4510e-01	2.1554e-03	8.3098e+00	1.1393e+00	7.1705e+00	4.1690e-02	1.1271e-03
L1 (2s1/2)	9.3602e-03	1.7576e-01	8.0821e-01	1.6035e-02	9.2853e+00	2.2510e-01	9.0602e+00	7.3084e-03	8.3498e-04
L2 (2p1/2)	8.9287e-03	2.1039e-01	7.7558e-01	1.4035e-02	7.8159e+00	2.5297e-01	7.5629e+00	7.4258e-03	9.1564e-04
L3 (2p3/2)	8.0617e-03	1.7187e-01	8.1357e-01	1.4567e-02	7.2130e+00	2.0536e-01	7.0076e+00	6.7469e-03	9.3594e-04
M1 (3s1/2)	2.1025e-03	3.0494e-03	9.4249e-01	5.4464e-02	6.6795e+00	4.4471e-03	6.6751e+00	1.4417e-03	2.9686e-04
M2 (3p1/2)	1.9104e-03	4.6736e-03	9.4499e-01	5.0339e-02	5.5403e+00	6.3474e-03	5.5340e+00	1.4066e-03	3.2622e-04
M3 (3p3/2)	1.7285e-03	1.9463e-03	9.4722e-01	5.0823e-02	4.9464e+00	2.4004e-03	4.9440e+00	1.4015e-03	3.3117e-04
M4 (3d3/2)	1.3952e-03	6.9156e-03	9.4796e-01	4.5125e-02	3.4267e+00	7.1832e-03	3.4196e+00	1.3432e-03	3.8677e-04
M5 (3d5/2)	1.3553e-03	7.3776e-06	9.5720e-01	4.2797e-02	2.9755e+00	5.9615e-05	2.9755e+00	1.6772e-04	4.3599e-04
N1 (4s1/2)	4.2035e-04	4.9869e-05	8.3859e-01	1.6136e-01	2.8177e+00	1.1552e-04	2.8176e+00	1.8147e-04	1.2511e-04
N2 (4p1/2)	3.4305e-04	7.1153e-05	8.4838e-01	1.5156e-01	2.4985e+00	1.4376e-04	2.4983e+00	1.6979e-04	1.1649e-04
N3 (4p3/2)	3.0220e-04	4.0843e-05	8.4445e-01	1.5550e-01	1.9132e+00	7.5012e-05	1.9132e+00	1.6455e-04	1.3339e-04
N4 (4d3/2)	1.7363e-04	1.0323e-04	8.2542e-01	1.7448e-01	1.1425e+00	1.1129e-04	1.1424e+00	1.6105e-04	1.2545e-04
N5 (4d5/2)	1.6623e-04	0.	8.2869e-01	1.7130e-01	1.00	0.	1.00	0.	1.3775e-04
N6 (4f5/2)	1.0800e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.7300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.5190e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.3890e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.8580e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.4200e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
erbium (Z=68)									
K (1s1/2)	5.7574e-02	0.5544e-01	1.4254e-01	2.0155e-03	8.1192e+00	1.1502e+00	6.9691e+00	4.2821e-02	1.1776e-03
L1 (2s1/2)	9.7162e-03	1.8405e-01	8.0095e-01	1.4993e-02	9.0821e+00	2.3616e-01	8.8460e+00	7.5723e-03	8.7974e-04
L2 (2p1/2)	9.2748e-03	2.2111e-01	7.6579e-01	1.3093e-02	7.6396e+00	2.6621e-01	7.3734e+00	7.7034e-03	9.6327e-04
L3 (2p3/2)	8.3474e-03	1.7967e-01	8.0672e-01	1.3613e-02	7.0364e+00	2.1496e-01	6.8214e+00	6.9770e-03	9.8718e-04
M1 (3s1/2)	2.1889e-03	3.2474e-03	9.4582e-01	5.0920e-02	6.5366e+00	4.7160e-03	6.5319e+00	1.5073e-03	3.1696e-04
M2 (3p1/2)	1.9918e-03	5.1069e-03	9.4784e-01	4.7048e-02	5.4318e+00	6.9215e-03	5.4248e+00	1.4696e-03	3.4801e-04
M3 (3p3/2)	1.7962e-03	2.0080e-03	9.5059e-01	4.7394e-02	4.8125e+00	2.4554e-03	4.8100e+00	1.4689e-03	3.5498e-04
M4 (3d3/2)	1.4550e-03	7.6279e-03	9.5003e-01	4.2340e-02	3.3754e+00	7.8946e-03	3.3675e+00	1.4058e-03	4.1048e-04
M5 (3d5/2)	1.4120e-03	7.0522e-06	9.6009e-01	3.9901e-02	2.9035e+00	5.6982e-05	2.9035e+00	1.7475e-04	4.6690e-04
N1 (4s1/2)	4.3685e-04	5.0393e-05	8.4552e-01	1.5444e-01	2.8058e+00	1.1640e-04	2.8057e+00	1.8913e-04	1.3165e-04
N2 (4p1/2)	3.5704e-04	7.1347e-05	8.5509e-01	1.4484e-01	2.4956e+00	1.4370e-04	2.4955e+00	1.7727e-04	1.2234e-04
N3 (4p3/2)	3.1297e-04	4.1209e-05	8.5044e-01	1.4952e-01	1.9109e+00	7.5461e-05	1.9108e+00	1.7091e-04	1.3929e-04
N4 (4d3/2)	1.8025e-04	1.0127e-04	8.3094e-01	1.6897e-01	1.1687e+00	1.0891e-04	1.1686e+00	1.6762e-04	1.2817e-04
N5 (4d5/2)	1.7226e-04	0.	8.3582e-01	1.6418e-01	1.00	0.	1.00	0.	1.4398e-04
N6 (4f5/2)	1.0940e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.7600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.6730e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.4730e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.9060e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.4800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
thulium (Z=69)									
K (1s1/2)	5.9488e-02	8.5802e-01	1.4009e-01	1.8864e-03	7.9383e+00	1.1610e+00	6.7773e+00	4.3963e-02	1.2296e-03
L1 (2s1/2)	1.0081e-02	1.8808e-01	7.9756e-01	1.4366e-02	9.1517e+00	2.4449e-01	8.9072e+00	7.7548e-03	9.0267e-04
L2 (2p1/2)	9.6294e-03	2.3187e-01	7.5593e-01	1.2197e-02	7.4510e+00	2.7955e-01	7.1715e+00	7.9870e-03	1.0150e-03
L3 (2p3/2)	8.6381e-03	1.8773e-01	7.9954e-01	1.2725e-02	6.8619e+00	2.2491e-01	6.6370e+00	7.2100e-03	1.0406e-03
M1 (3s1/2)	2.2774e-03	3.4756e-03	9.4890e-01	4.7633e-02	6.3972e+00	5.0380e-03	5.3922e+00	1.5711e-03	3.3807e-04
M2 (3p1/2)	2.0752e-03	5.5665e-03	9.5050e-01	4.3945e-02	5.3173e+00	7.5363e-03	5.3097e+00	1.5328e-03	3.7148e-04
M3 (3p3/2)	1.8651e-03	2.1347e-03	9.5346e-01	4.4396e-02	4.7065e+00	2.5995e-03	4.7039e+00	1.5316e-03	3.7805e-04
M4 (3d3/2)	1.5160e-03	8.3643e-03	9.5205e-01	3.9586e-02	3.3034e+00	8.6333e-03	3.2948e+00	1.4688e-03	4.3806e-04
M5 (3d5/2)	1.4698e-03	6.9119e-06	9.6283e-01	3.7167e-02	2.8257e+00	5.5940e-05	2.8256e+00	1.8161e-04	5.0083e-04
N1 (4s1/2)	4.5373e-04	5.1544e-05	8.5216e-01	1.4779e-01	2.7908e+00	1.1902e-04	2.7907e+00	1.9649e-04	1.3855e-04
N2 (4p1/2)	3.7137e-04	7.2865e-05	8.6144e-01	1.3848e-01	2.4990e+00	1.4683e-04	2.4988e+00	1.8430e-04	1.2803e-04
N3 (4p3/2)	3.2387e-04	4.2100e-05	8.5622e-01	1.4373e-01	1.9041e+00	7.6977e-05	1.9040e+00	1.7736e-04	1.4564e-04
N4 (4d3/2)	1.8695e-04	1.0380e-04	8.3830e-01	1.6160e-01	1.1612e+00	1.1133e-04	1.1611e+00	1.7430e-04	1.3498e-04
N5 (4d5/2)	1.7833e-04	0.	8.4264e-01	1.5735e-01	1.00	0.	1.00	0.	1.5027e-04
N6 (4f5/2)	1.1030e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.7400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.8300e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.5580e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	2.9540e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.5500e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
ytterbium (Z=70)									
K (1s1/2)	6.1441e-02	8.6054e-01	1.3769e-01	1.7658e-03	7.7727e+00	1.1720e+00	6.6007e+00	4.5114e-02	1.2817e-03
L1 (2s1/2)	1.0454e-02	1.9065e-01	7.9553e-01	1.3817e-02	9.2836e+00	2.5202e-01	9.0316e+00	7.9084e-03	9.2082e-04
L2 (2p1/2)	9.9926e-03	2.4299e-01	7.4565e-01	1.1363e-02	7.2761e+00	2.9331e-01	6.9828e+00	8.2782e-03	1.0670e-03
L3 (2p3/2)	8.9338e-03	1.9606e-01	7.9204e-01	1.1893e-02	6.6992e+00	2.3519e-01	6.4640e+00	7.4475e-03	1.0947e-03
M1 (3s1/2)	2.3681e-03	3.7048e-03	9.5168e-01	4.4617e-02	6.2755e+00	5.3617e-03	6.2702e+00	1.6363e-03	3.5943e-04
M2 (3p1/2)	2.1607e-03	6.0290e-03	9.5289e-01	4.1081e-02	5.2147e+00	8.1560e-03	5.2065e+00	1.5972e-03	3.9545e-04
M3 (3p3/2)	1.9352e-03	2.2607e-03	9.5611e-01	4.1631e-02	4.6112e+00	2.7419e-03	4.6085e+00	1.5956e-03	4.0149e-04
M4 (3d3/2)	1.5781e-03	9.1143e-03	9.5386e-01	3.7029e-02	3.2382e+00	9.3845e-03	3.2288e+00	1.5327e-03	4.6621e-04
M5 (3d5/2)	1.5285e-03	6.7018e-06	9.6540e-01	3.4595e-02	2.7501e+00	5.4275e-05	2.7500e+00	1.8874e-04	5.3659e-04
N1 (4s1/2)	4.7100e-04	5.2607e-05	8.5860e-01	1.4134e-01	2.7771e+00	1.2137e-04	2.7770e+00	2.0415e-04	1.4563e-04
N2 (4p1/2)	3.8604e-04	7.4096e-05	8.6759e-01	1.3233e-01	2.4986e+00	1.4913e-04	2.4984e+00	1.9181e-04	1.3405e-04
N3 (4p3/2)	3.3492e-04	4.2935e-05	8.6181e-01	1.3814e-01	1.8994e+00	7.8178e-05	1.8993e+00	1.8393e-04	1.5197e-04
N4 (4d3/2)	1.9373e-04	1.0484e-04	8.4444e-01	1.5546e-01	1.1688e+00	1.1217e-04	1.1687e+00	1.8107e-04	1.3997e-04
N5 (4d5/2)	1.8444e-04	0.	8.4923e-01	1.5077e-01	1.00	0.	1.00	0.	1.5663e-04
N6 (4f5/2)	1.1090e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.6700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	5.9900e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	3.6440e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	3.0010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.6100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
lutetium (Z=71)									
K (1s1/2)	6.3442e-02	8.6290e-01	1.3462e-01	2.4789e-03	7.4439e+00	1.1830e+00	6.2610e+00	4.6278e-02	1.3641e-03
L1 (2s1/2)	1.0845e-02	1.9558e-01	7.8506e-01	1.9348e-02	8.9181e+00	2.6094e-01	8.6572e+00	8.1289e-03	9.8346e-04
L2 (2p1/2)	1.9373e-02	2.5413e-01	7.3002e-02	1.5841e-02	6.9023e+00	3.0749e-01	6.5948e+00	8.5731e-03	1.1483e-03
L3 (2p3/2)	9.2432e-03	2.0413e-01	7.7913e-01	1.6738e-02	6.4054e+00	2.4546e-01	6.1599e+00	7.6869e-03	1.1691e-03
M1 (3s1/2)	2.4705e-03	3.9393e-03	9.3416e-01	6.1908e-02	5.9811e+00	5.7233e-03	5.9754e+00	1.7004e-03	3.8622e-04
M2 (3p1/2)	2.2580e-03	6.5701e-03	9.3626e-01	5.7165e-02	4.9528e+00	8.9367e-03	4.9438e+00	1.6600e-03	4.2762e-04
M3 (3p3/2)	2.6161e-03	2.4249e-03	9.3913e-01	5.8446e-02	4.4262e+00	2.9564e-03	4.4233e+00	1.6537e-03	4.2805e-04
M4 (3d3/2)	1.6508e-03	9.9896e-03	9.3781e-01	5.2191e-02	3.0622e+00	1.0331e-02	3.0519e+00	1.5963e-03	5.0727e-04
M5 (3d5/2)	1.5978e-03	7.6084e-06	9.5125e-01	4.8730e-02	2.6316e+00	6.1548e-05	2.6316e+00	1.9752e-04	5.7757e-04
N1 (4s1/2)	4.9785e-04	5.9063e-05	8.1585e-01	1.8408e-01	2.6812e+00	1.3672e-04	2.6812e+00	2.1507e-04	1.5150e-04
N2 (4p1/2)	4.1019e-04	8.6889e-05	8.2420e-01	1.7572e-01	2.2450e+00	1.7708e-04	2.2448e+00	2.0126e-04	1.5060e-04
N3 (4p3/2)	3.5505e-04	4.6486e-05	8.1223e-01	1.8772e-01	1.8717e+00	8.5562e-05	1.8717e+00	1.9290e-04	1.5409e-04
N4 (4d3/2)	2.0938e-04	1.2506e-04	7.9385e-01	2.0602e-01	1.0027e+00	1.3863e-04	1.0027e+00	1.8893e-04	1.6579e-04
N5 (4d5/2)	1.9932e-04	0.	7.8703e-01	2.1298e-01	1.00	0.	1.00	0.	1.5687e-04
N6 (4f5/2)	1.8960e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	1.7320e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	6.6340e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	4.1520e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	3.4220e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	4.4500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	4.0300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.3300e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
hafnium (Z=72)									
K (1s1/2)	6.5482e-02	8.655e-01	1.3128e-01	3.1523e-03	7.2584e+00	1.1940e+00	6.0644e+00	4.7468e-02	1.4176e-03
L1 (2s1/2)	1.1245e-02	2.0274e-01	7.7263e-01	2.4632e-02	8.7340e+00	2.7184e-01	8.4622e+00	8.3868e-03	1.0267e-03
L2 (2p1/2)	1.0763e-02	2.6506e-01	7.1490e-01	2.0042e-02	6.7063e+00	3.2151e-01	6.3847e+00	8.8733e-03	1.2051e-03
L3 (2p3/2)	9.5583e-03	2.1210e-01	7.6658e-01	2.1318e-02	6.2421e+00	2.5565e-01	5.9865e+00	7.9303e-03	1.2240e-03
M1 (3s1/2)	2.5760e-03	3.9856e-03	9.1815e-01	7.7855e-02	5.8066e+00	5.7760e-03	5.8009e+00	1.7775e-03	4.0772e-04
M2 (3p1/2)	2.3581e-03	7.1858e-03	9.2057e-01	7.2244e-02	4.8232e+00	9.8127e-03	4.8134e+00	1.7268e-03	4.5099e-04
M3 (3p3/2)	2.0990e-03	2.6224e-03	9.2302e-01	7.4357e-02	4.3348e+00	3.2037e-03	4.3316e+00	1.7181e-03	4.4727e-04
M4 (3d3/2)	1.7255e-03	1.0998e-02	9.2246e-01	6.6545e-02	2.9858e+00	1.1411e-02	2.9744e+00	1.6630e-03	5.3513e-04
M5 (3d5/2)	1.6687e-03	7.8752e-06	9.3801e-01	6.1989e-02	2.5691e+00	6.3262e-05	2.5690e+00	2.0773e-04	6.0928e-04
N1 (4s1/2)	5.2569e-04	6.3874e-05	7.7746e-01	2.2248e-01	2.6375e+00	1.4725e-04	2.6373e+00	2.2803e-04	1.5497e-04
N2 (4p1/2)	4.3527e-04	9.4408e-05	7.8672e-01	2.1319e-01	2.1043e+00	1.9326e-04	2.1041e+00	2.1263e-04	1.6275e-04
N3 (4p3/2)	3.7582e-04	4.8922e-05	7.6687e-01	2.3309e-01	1.8666e+00	9.0766e-05	1.8665e+00	2.0256e-04	1.5441e-04
N4 (4d3/2)	2.255e-04	1.2504e-04	7.4057e-01	2.5930e-01	1.0077e+00	1.4321e-04	1.0076e+00	1.9697e-04	1.6581e-04
N5 (4d5/2)	2.1471e-04	0.	7.3170e-01	2.6830e-01	1.00	0.	1.00	0.	1.5710e-04
N6 (4f5/2)	2.7260e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	2.5400e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	7.2560e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	4.6340e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	3.8100e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	5.7500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	5.1800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.8600e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
tantalum (Z=73)									
K (1s1/2)	6.7565e-02	8.6777e-01	1.2849e-01	3.7389e-03	7.0213e+00	1.2050e+00	5.8163e+00	4.8657e-02	1.4926e-03
L1 (2s1/2)	1.1656e-02	2.0897e-01	7.6140e-01	2.9622e-02	8.5924e+00	2.8335e-01	8.3090e+00	8.5965e-03	1.0681e-03
L2 (2p1/2)	1.1163e-02	2.7661e-01	6.9967e-01	2.3728e-02	6.4815e+00	3.3622e-01	6.1453e+00	9.1837e-03	1.2710e-03
L3 (2p3/2)	9.8792e-03	2.2009e-01	7.5462e-01	2.5293e-02	6.0185e+00	2.6591e-01	5.7526e+00	8.1769e-03	1.2959e-03
M1 (3s1/2)	2.6847e-03	4.1423e-03	9.0527e-01	9.0603e-02	5.5195e+00	5.9780e-03	5.5135e+00	1.8603e-03	4.4080e-04
M2 (3p1/2)	2.4614e-03	7.8887e-03	9.0615e-01	8.5964e-02	4.6994e+00	1.0814e-02	4.6886e+00	1.7956e-03	4.7571e-04
M3 (3p3/2)	2.1891e-03	2.8280e-03	9.1129e-01	8.5893e-02	4.0617e+00	3.4176e-03	4.0583e+00	1.8073e-03	4.9044e-04
M4 (3d3/2)	1.8023e-03	1.2180e-02	9.0814e-01	7.9690e-02	2.9121e+00	1.2680e-02	2.8994e+00	1.7312e-03	5.6451e-04
M5 (3d5/2)	1.7416e-03	8.1615e-06	9.2563e-01	7.4371e-02	2.5169e+00	6.5142e-05	2.5169e+00	2.1820e-04	6.4051e-04
N1 (4s1/2)	5.5465e-04	6.9158e-05	7.4256e-01	2.5737e-01	2.6103e+00	1.5883e-04	2.6101e+00	2.4151e-04	1.5779e-04
N2 (4p1/2)	4.6141e-04	1.0099e-04	7.5167e-01	2.4823e-01	2.0350e+00	2.0843e-04	2.0348e+00	2.2357e-04	1.7045e-04
N3 (4p3/2)	3.9736e-04	5.1842e-05	7.2558e-01	2.7437e-01	1.8606e+00	9.6796e-05	1.8605e+00	2.1282e-04	1.5497e-04
N4 (4d3/2)	2.4248e-04	1.2549e-04	6.9253e-01	3.0735e-01	1.0131e+00	1.4630e-04	1.0129e+00	2.0518e-04	1.6578e-04
N5 (4d5/2)	2.3072e-04	0.	6.8210e-01	3.1789e-01	1.00	0.	1.00	0.	1.5738e-04
N6 (4f5/2)	3.6140e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	3.4040e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	7.8810e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	5.1150e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	4.1890e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	7.0100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	6.3000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	7.3100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
tungsten (Z=74)									
K (1s1/2)	6.9689e-02	8.6994e-01	1.2575e-01	4.3064e-03	6.8552e+00	1.2164e+00	5.6387e+00	4.9839e-02	1.5541e-03
L1 (2s1/2)	1.2077e-02	2.1511e-01	7.5032e-01	3.4567e-02	8.5275e+00	2.9539e-01	8.2321e+00	8.7945e-03	1.1008e-03
L2 (2p1/2)	1.1573e-02	2.8806e-01	6.8477e-01	2.7164e-02	6.3022e+00	3.5131e-01	5.9509e+00	9.4894e-03	1.3317e-03
L3 (2p3/2)	1.0206e-02	2.2873e-01	7.4213e-01	2.9141e-02	5.8642e+00	2.7702e-01	5.5872e+00	8.4271e-03	1.3556e-03
M1 (3s1/2)	2.7965e-03	4.5021e-03	8.9205e-01	1.0343e-01	5.3645e+00	6.5373e-03	5.3579e+00	1.9259e-03	4.6560e-04
M2 (3p1/2)	2.5678e-03	8.8875e-03	8.9238e-01	9.8731e-02	4.5978e+00	1.2247e-02	4.5855e+00	1.8633e-03	4.9971e-04
M3 (3p3/2)	2.2712e-03	3.1754e-03	8.9846e-01	9.8358e-02	3.9418e+00	3.8750e-03	3.9379e+00	1.8612e-03	5.1819e-04
M4 (3d3/2)	1.8811e-03	1.3895e-02	8.9470e-01	9.1395e-02	2.8275e+00	1.4513e-02	2.8130e+00	1.8010e-03	5.9831e-04
M5 (3d5/2)	1.8162e-03	8.4043e-06	9.1382e-01	8.6157e-02	2.4778e+00	6.6457e-05	2.4777e+00	2.2968e-04	6.6984e-04
N1 (4s1/2)	5.8470e-04	7.4172e-05	7.1075e-01	2.8917e-01	2.5954e+00	1.6882e-04	2.5952e+00	2.5689e-04	1.6013e-04
N2 (4p1/2)	4.8861e-04	1.0607e-04	7.1681e-01	2.8308e-01	2.0221e+00	2.2107e-04	2.0218e+00	2.3444e-04	1.7323e-04
N3 (4p3/2)	4.1962e-04	5.3665e-05	6.8816e-01	3.1179e-01	1.8542e+00	9.9425e-05	1.8541e+00	2.2649e-04	1.5574e-04
N4 (4d3/2)	2.6005e-04	1.2638e-04	6.4923e-01	3.5064e-01	1.0179e+00	1.5388e-04	1.0177e+00	2.1358e-04	1.6589e-04
N5 (4d5/2)	2.4734e-04	0.	6.3759e-01	3.6240e-01	1.00	0.	1.00	0.	1.5770e-04
N6 (4f5/2)	4.5610e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	4.3250e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	8.5140e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	5.6020e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	4.5650e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	8.2700e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	7.4100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	7.7000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
rhenium (Z=75)									
K (1s1/2)	7.1856e-02	8.7209e-01	1.2307e-01	4.8423e-03	6.7252e+00	1.2280e+00	5.4972e+00	5.1031e-02	1.6087e-03
L1 (2s1/2)	1.2508e-02	2.2207e-01	7.3881e-01	3.9120e-02	8.4431e+00	3.0795e-01	8.1352e+00	9.0198e-03	1.1359e-03
L2 (2p1/2)	1.1993e-02	2.9986e-01	6.6984e-01	3.0308e-02	6.1506e+00	3.6681e-01	5.7838e+00	9.8038e-03	1.3889e-03
L3 (2p3/2)	1.0538e-02	2.3743e-01	7.2979e-01	3.2790e-02	5.7469e+00	2.8828e-01	5.4566e+00	6.6791e-03	1.4089e-03
M1 (3s1/2)	2.9116e-03	4.9046e-03	8.7900e-01	1.1610e-01	5.2848e+00	7.1563e-03	5.2777e+00	1.9955e-03	4.8493e-04
M2 (3p1/2)	2.6774e-03	9.9159e-03	8.7965e-01	1.1044e-01	4.5107e+00	1.3733e-02	4.4969e+00	1.9332e-03	5.2373e-04
M3 (3p3/2)	2.3605e-03	3.4290e-03	8.8561e-01	1.1098e-01	3.8902e+00	4.1961e-03	3.8860e+00	1.9290e-03	5.3795e-04
M4 (3d3/2)	1.9618e-03	1.5689e-02	8.8246e-01	1.0186e-01	2.7489e+00	1.6443e-02	2.7324e+00	1.8718e-03	6.3358e-04
M5 (3d5/2)	1.8927e-03	8.7494e-06	9.0293e-01	9.7066e-02	2.4425e+00	6.8609e-05	2.4424e+00	2.4137e-04	6.9972e-04
N1 (4s1/2)	6.1583e-04	8.0132e-05	6.8286e-01	3.1706e-01	2.5819e+00	1.7989e-04	2.5817e+00	2.7433e-04	1.6289e-04
N2 (4p1/2)	5.1683e-04	1.1165e-04	6.8567e-01	3.1423e-01	2.0097e+00	2.3498e-04	2.0094e+00	2.4558e-04	1.7635e-04
N3 (4p3/2)	4.4259e-04	5.7742e-05	6.5497e-01	3.4496e-01	1.8480e+00	1.0733e-04	1.8479e+00	2.3810e-04	1.5687e-04
N4 (4d3/2)	2.7826e-04	1.2745e-04	6.1075e-01	3.8911e-01	1.0226e+00	1.5964e-04	1.0224e+00	2.2214e-04	1.6622e-04
N5 (4d5/2)	2.6454e-04	0.	5.9851e-01	4.0149e-01	1.00	0.	1.00	0.	1.5833e-04
N6 (4f5/2)	5.5640e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	5.2990e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	9.1570e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	6.0970e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	4.9400e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	9.5200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	8.5000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	8.0600e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
osmium (Z=76)									
K (1s1/2)	7.4066e-02	8.7413e-01	1.2055e-01	5.3260e-01	6.5948e+00	1.2393e+00	5.3555e+00	5.2241e-02	1.6672e-03
L1 (2s1/2)	1.2950e-02	2.2948e-01	7.2748e-01	4.3037e-02	5.2974e+00	3.2044e-01	7.9770e+00	9.2742e-03	1.1810e-03
L2 (2p1/2)	1.2424e-02	3.1173e-01	6.5523e-01	3.3039e-02	5.9928e+00	3.8267e-01	5.6101e+00	1.0121e-02	1.4511e-03
L3 (2p3/2)	1.0877e-02	2.4570e-01	7.1819e-01	3.6108e-02	5.6316e+00	2.9915e-01	5.3324e+00	8.9337e-03	1.4650e-03
M1 (3s1/2)	3.0300e-03	5.3733e-03	8.6676e-01	1.2787e-01	5.2179e+00	7.8826e-03	5.2100e+00	2.0655e-03	5.0408e-04
M2 (3p1/2)	2.7902e-03	1.1141e-02	8.6813e-01	1.2074e-01	4.4162e+00	1.5515e-02	4.4007e+00	2.0037e-03	5.5043e-04
M3 (3p3/2)	2.4517e-03	3.7036e-03	8.7344e-01	1.2286e-01	3.8487e+00	4.5462e-03	3.8442e+00	1.9973e-03	5.5705e-04
M4 (3d3/2)	2.0445e-03	1.7902e-02	8.7152e-01	1.1058e-01	2.6575e+00	1.8828e-02	2.6387e+00	1.9439e-03	6.7527e-04
M5 (3d5/2)	1.9709e-03	9.1592e-06	8.9286e-01	1.0714e-01	2.4087e+00	7.1350e-05	2.4086e+00	2.5300e-04	7.3061e-04
N1 (4s1/2)	6.4803e-04	8.7435e-05	6.5810e-01	3.4181e-01	2.5724e+00	1.9584e-04	2.5722e+00	2.8932e-04	1.6580e-04
N2 (4p1/2)	5.4607e-04	1.1784e-04	6.5773e-01	3.4215e-01	1.9989e+00	2.5023e-04	1.9986e+00	2.5715e-04	1.7971e-04
N3 (4p3/2)	4.6623e-04	6.2474e-05	6.2590e-01	3.7404e-01	1.8416e+00	1.1639e-04	1.8415e+00	2.5026e-04	1.5847e-04
N4 (4d3/2)	2.9708e-04	1.2904e-04	5.7665e-01	4.2322e-01	1.0270e+00	1.6603e-04	1.0268e+00	2.3089e-04	1.6684e-04
N5 (4d5/2)	2.8229e-04	0.	5.6400e-01	4.3600e-01	1.00	0.	1.00	0.	1.5921e-04
N6 (4f5/2)	6.6210e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	6.3260e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	9.8120e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	6.6010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	5.3150e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	1.0790e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	9.6000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	8.3900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
Iridium (Z=77)									
1s(1/2)	7.6314e-02	8.7620e-01	1.1854e-01	5.2545e-03	6.4607e+00	1.2510e+00	5.2097e+00	5.3451e-02	1.7364e-03
2s(1/2)	1.3396e-02	2.3617e-01	7.2146e-01	4.2373e-02	8.1184e+00	3.3234e-01	7.7861e+00	9.5195e-03	1.2413e-03
2p(1/2)	1.2859e-02	3.2395e-01	6.4380e-01	3.2257e-02	5.8237e+00	3.9913e-01	5.4246e+00	1.0437e-02	1.5261e-03
2p(3/2)	1.1214e-02	2.5426e-01	7.1002e-01	3.5716e-02	5.5154e+00	3.1036e-01	5.2051e+00	9.1871e-03	1.5297e-03
3s(1/2)	3.1457e-03	5.9762e-03	8.6712e-01	1.2690e-01	5.1491e+00	8.8051e-03	5.1402e+00	2.1351e-03	5.3066e-04
3p(1/2)	2.9002e-03	1.2748e-02	8.6852e-01	1.1872e-01	4.3175e+00	1.7818e-02	4.2997e+00	2.0749e-03	5.8583e-04
3p(3/2)	2.5390e-03	4.0702e-03	8.7337e-01	1.2255e-01	3.8051e+00	5.0012e-03	3.8001e+00	2.0663e-03	5.8354e-04
3d(3/2)	2.1232e-03	2.0845e-02	8.7181e-01	1.0735e-01	2.5506e+00	2.1937e-02	2.5286e+00	2.0175e-03	7.3202e-04
3d(5/2)	2.0448e-03	9.8265e-06	8.9319e-01	1.0679e-01	2.3806e+00	7.5004e-05	2.3805e+00	2.6789e-04	7.6723e-04
4s(1/2)	6.7532e-04	9.8427e-05	6.6396e-01	3.3594e-01	2.5735e+00	2.1672e-04	2.5733e+00	3.0671e-04	1.7424e-04
4p(1/2)	5.7035e-04	1.2555e-04	6.6081e-01	3.3906e-01	1.9893e+00	2.6558e-04	1.9890e+00	2.6963e-04	1.8949e-04
4p(3/2)	4.8455e-04	7.4895e-05	6.3083e-01	3.6910e-01	1.8368e+00	1.3252e-04	1.8367e+00	2.7385e-04	1.6642e-04
4d(3/2)	3.1052e-04	1.3179e-04	5.7761e-01	4.2225e-01	1.0371e+00	1.7067e-04	1.0369e+00	2.3977e-04	1.7297e-04
4d(5/2)	2.9458e-04	0.	5.6598e-01	4.3401e-01	1.00	0.	1.00	0.	1.6673e-04
4f(5/2)	7.1330e-05	0.	0.	1.00	0.	0.	0.	0.	0.
4f(7/2)	6.8060e-05	0.	0.	1.00	0.	0.	0.	0.	0.
5s(1/2)	9.9140e-05	0.	0.	1.00	0.	0.	0.	0.	0.
5p(1/2)	6.5680e-05	0.	0.	1.00	0.	0.	0.	0.	0.
5p(3/2)	5.1660e-05	0.	0.	1.00	0.	0.	0.	0.	0.
5d(3/2)	7.9900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
5d(5/2)	6.7900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
platinum ($\omega=7.8$)									
K (1s1/2)	7.8615e-02	8.7810e-01	1.1606e-01	5.8464e-03	6.3283e+00	1.2624e+00	5.0659e+00	5.4681e-02	1.8011e-03
L1 (2s1/2)	1.3862e-02	2.4356e-01	7.0935e-01	4.7079e-02	7.0325e+00	3.4514e-01	7.6074e+00	9.7821e-03	1.2926e-03
L2 (2p1/2)	1.3313e-02	3.3550e-01	6.2898e-01	3.5515e-02	5.6598e+00	4.1539e-01	5.2444e+00	1.0753e-02	1.5967e-03
L3 (2p3/2)	1.1567e-02	2.6233e-01	6.9744e-01	3.9821e-02	5.4003e+00	3.2135e-01	5.0790e+00	9.4426e-03	1.5893e-03
M1 (3s1/2)	3.2732e-03	6.6174e-03	8.5268e-01	1.4130e-01	5.0711e+00	9.8593e-03	5.0612e+00	2.1969e-03	5.5106e-04
M2 (3p1/2)	3.0220e-03	1.4555e-02	8.5430e-01	1.3114e-01	4.2177e+00	2.0811e-02	4.1969e+00	2.1136e-03	6.1514e-04
M3 (3p3/2)	2.6369e-03	4.4497e-03	8.5843e-01	1.3710e-01	3.7527e+00	5.4894e-03	3.7472e+00	2.1375e-03	6.0408e-04
M4 (3d3/2)	2.2124e-03	2.3872e-02	8.5893e-01	1.1720e-01	2.4486e+00	2.5243e-02	2.4234e+00	2.0922e-03	7.8415e-04
M5 (3d5/2)	2.1290e-03	1.0486e-05	8.8034e-01	1.1964e-01	2.3533e+00	7.9332e-05	2.3533e+00	2.8140e-04	7.9645e-04
N1 (4s1/2)	7.1221e-04	1.0807e-04	6.3330e-01	3.6659e-01	2.5618e+00	2.3796e-04	2.5616e+00	3.2346e-04	1.7608e-04
N2 (4p1/2)	6.0419e-04	1.3338e-04	6.2733e-01	3.7254e-01	1.9727e+00	2.8561e-04	1.9725e+00	2.8216e-04	1.9216e-04
N3 (4p3/2)	5.1204e-04	8.3020e-05	5.9628e-01	4.0364e-01	1.8298e+00	1.4625e-04	1.8296e+00	2.9067e-04	1.6688e-04
N4 (4d3/2)	3.3310e-04	1.3423e-04	5.3697e-01	4.6290e-01	1.0395e+00	1.7960e-04	1.0394e+00	2.4895e-04	1.7209e-04
N5 (4d5/2)	3.1596e-04	0.	5.2563e-01	4.7437e-01	1.00	0.	1.00	0.	1.6608e-04
N6 (4f5/2)	8.5490e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	8.1870e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	1.0844e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	7.3340e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	5.7740e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	1.1020e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	9.5400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	8.0700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
gold (Z=79)									
K (s1/2)	8.0960e-02	8.8001e-01	1.1382e-01	6.1670e-03	6.2019e+00	1.2736e+00	4.9282e+00	5.5940e-02	1.8698e-03
L1 (2s1/2)	1.4336e-02	2.5131e-01	6.9906e-01	4.9620e-02	7.7984e+00	3.5768e-01	7.4407e+00	1.0073e-02	1.3469e-03
L2 (2p1/2)	1.3776e-02	3.4752e-01	6.1526e-01	3.7220e-02	5.5272e+00	4.3111e-01	5.0961e+00	1.1105e-02	1.6632e-03
L3 (2p3/2)	1.1922e-02	2.7079e-01	6.8715e-01	4.2059e-02	5.2843e+00	3.3240e-01	4.9519e+00	9.7125e-03	1.6543e-03
M1 (3s1/2)	3.4014e-03	7.1619e-03	8.4402e-01	1.4881e-01	4.9720e+00	1.0711e-02	4.9613e+00	2.2744e-03	5.7865e-04
M2 (3p1/2)	3.1443e-03	1.5601e-02	8.4598e-01	1.3842e-01	4.1540e+00	2.2401e-02	4.1316e+00	2.1897e-03	6.4383e-04
M3 (3p3/2)	2.7340e-03	4.9889e-03	8.5108e-01	1.4392e-01	3.6420e+00	6.1590e-03	3.6358e+00	2.2146e-03	6.3998e-04
M4 (3d3/2)	2.3007e-03	2.5639e-02	8.5104e-01	1.2531e-01	2.3994e+00	2.7210e-02	2.3722e+00	2.1679e-03	8.2538e-04
M5 (3d5/2)	2.2122e-03	1.1213e-05	8.7281e-01	1.2718e-01	2.3270e+00	8.3922e-05	2.3269e+00	2.9559e-04	8.2978e-04
N1 (4s1/2)	7.4740e-04	1.1905e-04	6.1887e-01	3.8101e-01	2.5528e+00	2.6128e-04	2.5526e+00	3.4056e-04	1.8121e-04
N2 (4p1/2)	6.3628e-04	1.4216e-04	6.0833e-01	3.9052e-01	1.9595e+00	3.0648e-04	1.9592e+00	2.9514e-04	1.9789e-04
N3 (4p3/2)	5.3739e-04	9.3142e-05	5.7286e-01	4.2006e-01	1.8228e+00	1.6200e-04	1.8227e+00	3.0897e-04	1.7096e-04
N4 (4d3/2)	3.5348e-04	1.3792e-04	5.1478e-01	4.8508e-01	1.0422e+00	1.8871e-04	1.0420e+00	2.5834e-04	1.7462e-04
N5 (4d5/2)	3.3505e-04	0.	5.0440e-01	4.9560e-01	1.00	0.	1.00	0.	1.6900e-04
N6 (4f5/2)	3.7370e-05	0.	0.	1.00	0.	0.	0.	0.	0.
N7 (4f7/2)	9.3390e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O1 (5s1/2)	1.1523e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O2 (5p1/2)	7.8550e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O3 (5p3/2)	6.1370e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O4 (5d3/2)	1.2160e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.0460e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	8.3000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
mercury (Z=80)									
K (1s1/2)	8.3353e-02	8.8184e-01	1.1589e-01	2.2752e-03	1.3185e+01	1.2848e+00	1.1900e+01	5.7210e-02	8.1171e-04
L1 (2s1/2)	1.4826e-02	2.5923e-01	7.2248e-01	1.8294e-02	1.7829e+01	3.7071e-01	1.7458e+01	1.0367e-02	6.1355e-04
L2 (2p1/2)	1.4254e-02	3.5923e-01	6.2706e-01	1.3713e-02	1.2714e+01	4.4667e-01	1.2267e+01	1.1464e-02	7.2863e-04
L3 (2p3/2)	1.2287e-02	2.7914e-01	7.0536e-01	1.5504e-02	1.2318e+01	3.4359e-01	1.1974e+01	9.9821e-03	7.2378e-04
M1 (3s1/2)	3.5368e-03	7.8179e-03	9.3786e-01	5.4323e-02	1.2088e+01	1.1871e-02	1.2076e+01	2.3292e-03	2.7468e-04
M2 (3p1/2)	3.2739e-03	1.6565e-02	9.3226e-01	5.1175e-02	1.0392e+01	2.4019e-02	1.0368e+01	2.2578e-03	2.9438e-04
M3 (3p3/2)	2.8369e-03	5.7882e-03	9.4238e-01	5.1829e-02	9.0264e+00	7.2508e-03	9.0151e+00	2.2646e-03	2.9642e-04
M4 (3d3/2)	2.3948e-03	2.7163e-02	9.3699e-01	4.5841e-02	6.4539e+00	2.9037e-02	6.4248e+00	2.2402e-03	3.4553e-04
M5 (3d5/2)	2.3008e-03	1.5164e-05	9.5292e-01	4.7070e-02	6.3949e+00	1.7107e-04	6.3947e+00	2.0394e-04	3.4286e-04
N1 (4s1/2)	7.8744e-04	1.3807e-04	8.5707e-01	1.4280e-01	6.6550e+00	3.5378e-04	6.6547e+00	3.0732e-04	1.0142e-04
N2 (4p1/2)	6.7317e-04	1.5832e-04	8.5511e-01	1.4473e-01	5.5988e+00	3.8765e-04	5.5984e+00	2.7492e-04	1.0282e-04
N3 (4p3/2)	5.6713e-04	1.1320e-04	8.4174e-01	1.5816e-01	5.1235e+00	2.4033e-04	5.1233e+00	2.6712e-04	9.3178e-05
N4 (4d3/2)	3.7821e-04	1.4882e-04	8.2155e-01	1.7829e-01	3.5390e+00	2.3248e-04	3.5387e+00	2.4210e-04	8.7806e-05
N5 (4d5/2)	3.5842e-04	1.2876e-05	8.1974e-01	1.8025e-01	3.4280e+00	5.2548e-05	3.4280e+00	8.7827e-05	8.5711e-05
N6 (4f5/2)	1.1350e-04	3.2532e-06	6.7642e-01	3.2358e-01	1.4321e+00	5.7604e-06	1.4321e+00	6.4099e-05	5.3609e-05
N7 (4f7/2)	1.0913e-04	3.5965e-05	6.8470e-01	3.1527e-01	1.3880e+00	4.2897e-05	1.3880e+00	9.1494e-05	5.3835e-05
O1 (5s1/2)	1.2573e-04	8.2537e-06	6.4806e-01	3.5193e-01	2.0174e+00	1.7062e-05	2.0174e+00	6.0823e-05	4.0390e-05
O2 (5p1/2)	8.7340e-05	1.7092e-05	6.0888e-01	3.9111e-01	1.2822e+00	2.1483e-05	1.2822e+00	6.9489e-05	4.1477e-05
O3 (5p3/2)	6.8300e-05	7.8341e-06	5.7543e-01	4.2457e-01	1.00	9.8004e-06	9.9999e-01	5.4597e-05	3.9302e-05
O4 (5d3/2)	1.5980e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.3960e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	9.5500e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
thallium (Z=81)									
K (1s1/2)	8.5798e-02	8.8360e-01	1.1334e-01	3.0515e-03	1.2910e+01	1.2956e+00	1.1614e+01	5.8516e-02	8.3728e-04
L1 (2s1/2)	1.5330e-02	2.6692e-01	7.0861e-01	2.4461e-02	1.7456e+01	3.8310e-01	1.7073e+01	1.0681e-02	6.3627e-04
L2 (2p1/2)	1.4746e-02	3.7105e-01	6.1070e-01	1.8252e-02	1.2405e+01	4.6199e-01	1.1943e+01	1.1843e-02	7.5402e-04
L3 (2p3/2)	1.2660e-02	2.8742e-01	6.9179e-01	2.0800e-02	1.2055e+01	3.5444e-01	1.1700e+01	1.0266e-02	7.4852e-04
M1 (3s1/2)	3.6787e-03	8.1628e-03	9.1910e-01	7.2741e-02	1.1911e+01	1.2504e-02	1.1899e+01	2.4015e-03	2.8415e-04
M2 (3p1/2)	3.4097e-03	1.7259e-02	9.1430e-01	6.8442e-02	1.0246e+01	2.5221e-02	1.0221e+01	2.3333e-03	3.0501e-04
M3 (3p3/2)	2.9446e-03	6.0701e-03	9.2428e-01	6.9053e-02	8.9038e+00	7.6745e-03	8.8961e+00	2.3290e-03	3.0594e-04
M4 (3d3/2)	2.4937e-03	2.8278e-02	9.1045e-01	6.1269e-02	6.3570e+00	3.0437e-02	6.3266e+00	2.3168e-03	3.5887e-04
M5 (3d5/2)	2.3939e-03	1.7907e-05	9.3698e-01	6.3006e-02	6.2897e+00	2.1145e-04	6.2895e+00	2.0273e-04	3.5663e-04
N1 (4s1/2)	8.3143e-04	1.5458e-04	8.1233e-01	1.8752e-01	6.5195e+00	4.0587e-04	6.5191e+00	3.1667e-04	1.0360e-04
N2 (4p1/2)	7.1397e-04	1.7128e-04	8.0919e-01	1.9063e-01	5.5352e+00	4.3476e-04	5.5348e+00	2.8129e-04	1.0438e-04
N3 (4p3/2)	6.0032e-04	1.2994e-04	7.9232e-01	2.0754e-01	5.0225e+00	2.8247e-04	5.0222e+00	2.7616e-04	9.4710e-05
N4 (4d3/2)	4.0635e-04	1.5660e-04	7.6776e-01	2.3208e-01	3.5048e+00	2.5783e-04	3.5045e+00	2.4680e-04	8.9022e-05
N5 (4d5/2)	3.8513e-04	1.9688e-05	7.6519e-01	2.3480e-01	3.3841e+00	7.4852e-05	3.3841e+00	1.0130e-04	8.7084e-05
N6 (4f5/2)	1.3295e-04	3.6097e-06	6.1056e-01	3.8942e-01	1.4423e+00	6.7584e-06	1.4423e+00	7.1009e-05	5.6282e-05
N7 (4f7/2)	1.2816e-04	5.3026e-05	6.1819e-01	3.8175e-01	1.3944e+00	6.4774e-05	1.3943e+00	1.0492e-04	5.6821e-05
O1 (5s1/2)	1.3916e-04	8.4425e-06	5.5427e-01	4.4572e-01	1.9960e+00	1.7813e-05	1.9959e+00	6.5956e-05	3.8645e-05
O2 (5p1/2)	9.9030e-05	1.8228e-05	5.2606e-01	4.7393e-01	1.2275e+00	2.3909e-05	1.2275e+00	7.5499e-05	4.2441e-05
O3 (5p3/2)	7.7960e-05	7.3780e-06	4.7316e-01	5.2684e-01	1.00	9.8079e-06	9.9099e-01	5.8646e-05	3.6888e-05
O4 (5d3/2)	2.2400e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	2.0010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	1.2360e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	5.4600e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	4.3000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction in remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
lead (Z=82)									
K (1s1/2)	8.8290e-02	8.8558e-01	1.1073e-01	3.6831e-03	1.2503e+01	1.3054e+00	1.1197e+01	5.9895e-02	8.7311e-04
L1 (2s1/2)	1.5847e-02	2.7317e-01	6.9735e-01	2.9485e-02	1.6926e+01	3.9433e-01	1.6531e+01	1.0978e-02	6.6848e-04
L2 (2p1/2)	1.5251e-02	3.8253e-01	5.9557e-01	2.1889e-02	1.1978e+01	4.7704e-01	1.1501e+01	1.2230e-02	7.8975e-04
L3 (2p3/2)	1.3040e-02	2.9562e-01	6.7921e-01	2.5175e-02	1.1690e+01	3.6526e-01	1.1325e+01	1.0554e-02	7.8208e-04
M1 (3s1/2)	3.8243e-03	8.5456e-03	9.0361e-01	8.7835e-02	1.1619e+01	1.3216e-02	1.1606e+01	2.4728e-03	2.9775e-04
M2 (3p1/2)	3.5493e-03	1.8380e-02	8.9914e-01	8.2479e-02	9.9888e+00	2.7029e-02	9.9618e+00	2.4136e-03	3.2036e-04
M3 (3p3/2)	3.0545e-03	6.3454e-03	9.0916e-01	8.4499e-02	8.7019e+00	8.1097e-03	8.6938e+00	2.3901e-03	3.1944e-04
M4 (3d3/2)	2.5947e-03	2.9462e-02	8.9672e-01	7.3821e-02	6.1866e+00	3.1932e-02	6.1547e+00	2.3939e-03	3.7804e-04
M5 (3d5/2)	2.4890e-03	2.1745e-05	9.2375e-01	7.6230e-02	6.1360e+00	2.6639e-04	6.1357e+00	2.0317e-04	3.7472e-04
N1 (4s1/2)	8.7672e-04	1.7395e-04	7.7751e-01	2.2232e-01	6.3217e+00	4.7027e-04	6.3212e+00	3.2430e-04	1.0784e-04
N2 (4p1/2)	7.5602e-04	1.8764e-04	7.7372e-01	2.2609e-01	5.3951e+00	4.9474e-04	5.3946e+00	2.8673e-04	1.0843e-04
N3 (4p3/2)	6.3430e-04	1.4961e-04	7.5436e-01	2.4549e-01	4.8596e+00	3.3342e-04	4.8593e+00	2.8462e-04	9.8469e-05
N4 (4d3/2)	4.3523e-04	1.7053e-04	7.2823e-01	2.7160e-01	3.4013e+00	2.9411e-04	3.4011e+00	2.5235e-04	9.3190e-05
N5 (4d5/2)	4.1249e-04	2.9333e-05	7.2323e-01	2.7673e-01	3.3048e+00	1.0513e-04	3.3046e+00	1.1509e-04	9.0274e-05
N6 (4f5/2)	1.5304e-04	4.4955e-06	5.6987e-01	4.3012e-01	1.4259e+00	8.6669e-06	1.4259e+00	7.9383e-05	6.1163e-05
N7 (4f7/2)	1.4781e-04	7.6311e-05	5.7421e-01	4.2571e-01	1.3909e+00	9.4988e-05	1.3908e+00	1.1875e-04	6.1025e-05
O1 (5s1/2)	1.5283e-04	9.3812e-06	4.8772e-01	5.1228e-01	1.9410e+00	1.9788e-05	1.9410e+00	7.2454e-05	3.8402e-05
O2 (5p1/2)	1.1091e-04	2.2139e-05	4.9897e-01	5.0100e-01	1.0608e+00	2.9723e-05	1.0608e+00	8.2611e-05	5.2170e-05
O3 (5p3/2)	8.7640e-05	7.0192e-06	3.9520e-01	6.3480e-01	1.00	9.7888e-06	9.9999e-01	6.2843e-05	3.4635e-05
O4 (5d3/2)	2.8810e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	2.6030e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	1.5050e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	7.0000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	5.2900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
bismuth (Z=83)									
K (1s1/2)	9.0832e-02	8.8727e-01	1.0845e-01	4.2807e-03	1.2253e+01	1.3161e+00	1.0937e+01	6.1237e-02	9.0069e-04
L1 (2s1/2)	1.6376e-02	2.8052e-01	6.8530e-01	3.4184e-02	1.6597e+01	4.0671e-01	1.6191e+01	1.1295e-02	6.9314e-04
L2 (2p1/2)	1.5768e-02	3.9409e-01	5.8066e-01	2.5250e-02	1.1696e+01	4.9224e-01	1.1204e+01	1.2624e-02	8.1722e-04
L3 (2p3/2)	1.3425e-02	3.0372e-01	6.6701e-01	2.9275e-02	1.1452e+01	3.7613e-01	1.1076e+01	1.0840e-02	8.0845e-04
M1 (3s1/2)	3.9739e-03	9.1697e-03	8.8892e-01	1.0191e-01	1.1454e+01	1.4255e-02	1.1440e+01	2.5562e-03	3.0878e-04
M2 (3p1/2)	3.6927e-03	1.9223e-02	8.8514e-01	9.5637e-02	9.8537e+00	2.8495e-02	9.8252e+00	2.4911e-03	3.3267e-04
M3 (3p3/2)	3.1669e-03	7.1745e-03	8.9445e-01	9.8379e-02	8.5867e+00	9.1247e-03	8.5776e+00	2.4900e-03	3.3024e-04
M4 (3d3/2)	2.6980e-03	3.0708e-02	8.8368e-01	8.5612e-02	6.0961e+00	3.3514e-02	6.0626e+00	2.4721e-03	3.9326e-04
M5 (3d5/2)	2.5860e-03	2.7058e-02	9.1134e-01	8.8627e-02	6.0540e+00	3.3682e-02	6.0536e+00	2.0775e-04	3.8931e-04
N1 (4s1/2)	9.2343e-04	1.9970e-04	7.4572e-01	2.5408e-01	6.2147e+00	5.4891e-04	6.2142e+00	3.3595e-04	1.1081e-04
N2 (4p1/2)	7.9943e-04	2.0604e-04	7.4110e-01	2.5870e-01	5.3369e+00	5.6185e-04	5.3363e+00	2.9316e-04	1.1102e-04
N3 (4p3/2)	6.6916e-04	1.8382e-04	7.2057e-01	2.7925e-01	4.7557e+00	4.0384e-04	4.7553e+00	3.0459e-04	1.0140e-04
N4 (4d3/2)	4.6495e-04	1.8317e-04	6.9223e-01	3.0759e-01	3.3598e+00	3.3032e-04	3.3595e+00	2.5782e-04	9.5804e-05
N5 (4d5/2)	4.4061e-04	4.2494e-05	6.8660e-01	3.1336e-01	3.2600e+00	1.4434e-04	3.2599e+00	1.2972e-04	9.2801e-05
N6 (4f5/2)	1.7387e-04	4.5865e-06	5.3641e-01	4.6159e-01	1.4252e+00	9.4448e-06	1.4251e+00	8.4433e-05	6.5687e-05
N7 (4f7/2)	1.6917e-04	1.0855e-04	5.4007e-01	4.5982e-01	1.4029e+00	1.3696e-04	1.4028e+00	1.3328e-04	6.4745e-05
O1 (5s1/2)	1.6686e-04	9.9036e-06	4.2870e-01	5.7129e-01	1.9271e+00	2.1170e-05	1.9270e+00	7.8058e-05	3.7120e-05
O2 (5p1/2)	1.2312e-04	2.4147e-05	4.5656e-01	5.4341e-01	1.0338e+00	3.3479e-05	1.0338e+00	8.8803e-05	5.4377e-05
O3 (5p3/2)	9.7460e-05	6.8375e-06	3.3230e-01	6.6769e-01	1.00	9.9195e-06	9.9999e-01	6.7179e-05	3.2386e-05
O4 (5d3/2)	3.5370e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	3.2170e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	1.7690e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	8.6000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	6.3500e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
polonium (Z=84)									
K (1s1/2)	9.3424e-02	8.8891e-01	1.0625e-01	4.8480e-03	1.2090e+01	1.3266e+00	1.0764e+01	6.2601e-02	9.2217e-04
L1 (2s1/2)	1.6918e-02	2.8809e-01	6.7331e-01	3.8603e-02	1.6386e+01	4.1935e-01	1.5967e+01	1.1623e-02	7.1342e-04
L2 (2p1/2)	1.6297e-02	4.0542e-01	5.6620e-01	2.8387e-02	1.1505e+01	5.0714e-01	1.0998e+01	1.3028e-02	8.3903e-04
L3 (2p3/2)	1.3817e-02	3.1183e-01	6.5500e-01	3.3170e-02	1.1300e+01	3.8704e-01	1.0913e+01	1.1132e-02	8.2928e-04
M1 (3s1/2)	4.1276e-03	9.7389e-03	8.7510e-01	1.1516e-01	1.1371e+01	1.5281e-02	1.1356e+01	2.6306e-03	3.1808e-04
M2 (3p1/2)	3.1032e-03	2.0028e-02	8.7190e-01	1.0808e-01	9.7556e+00	2.9946e-02	9.7656e+00	2.5683e-03	3.4286e-04
M3 (3p3/2)	3.2815e-03	7.9041e-03	8.8050e-01	1.1160e-01	8.5348e+00	1.0110e-02	8.5247e+00	2.5655e-03	3.3894e-04
M4 (3d3/2)	2.8035e-03	3.1948e-02	8.7124e-01	9.6807e-02	6.0579e+00	3.5106e-02	6.0228e+00	2.5513e-03	4.0555e-04
M5 (3d5/2)	2.6851e-03	3.3255e-02	8.9959e-01	1.0038e-01	6.0168e+00	4.1923e-04	6.0164e+00	2.1299e-04	4.0149e-04
N1 (4s1/2)	9.7164e-04	2.2532e-04	7.1197e-01	2.8181e-01	6.1222e+00	6.3052e-04	6.1216e+00	3.4722e-04	1.1396e-04
N2 (4p1/2)	8.4430e-04	2.2691e-04	7.1082e-01	2.8895e-01	5.3268e+00	6.3891e-04	5.3261e+00	2.9986e-04	1.1268e-04
N3 (4p3/2)	7.0496e-04	2.1123e-04	6.8957e-01	3.1022e-01	4.6957e+00	4.7142e-04	4.6953e+00	3.1587e-04	1.0353e-04
N4 (4d3/2)	4.9556e-04	1.9782e-04	6.5977e-01	3.4003e-01	3.3490e+00	3.7133e-04	3.3486e+00	2.6401e-04	9.7638e-05
N5 (4d5/2)	4.6954e-04	5.8850e-05	6.5380e-01	3.4615e-01	3.2399e+00	1.9099e-04	3.2399e+00	1.4468e-04	9.4755e-05
N6 (4f5/2)	1.9550e-04	4.9150e-06	5.1236e-01	4.8763e-01	1.4438e+00	1.0620e-05	1.4438e+00	9.0475e-05	6.9380e-05
N7 (4f7/2)	1.8930e-04	1.4878e-04	5.0997e-01	4.8987e-01	1.4360e+00	1.9005e-04	1.4358e+00	1.4819e-04	6.7238e-05
O1 (5s1/2)	1.8134e-04	1.0327e-05	3.7726e-01	6.2273e-01	1.9237e+00	2.2441e-05	1.9237e+00	8.3446e-05	3.5563e-05
O2 (5p1/2)	1.3573e-04	2.5923e-05	4.1521e-01	5.8477e-01	1.0419e+00	3.7045e-05	1.0419e+00	9.4980e-05	5.4090e-05
O3 (5p3/2)	1.0752e-04	6.7527e-06	2.7939e-01	7.2060e-01	1.00	1.0128e-05	9.9999e-01	7.1689e-05	3.0040e-05
O4 (5d3/2)	4.2160e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	3.8510e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	2.0330e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	1.0250e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	7.4400e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
astatine (Z=85)									
K (1s1/2)	9.6068e-02	8.9091e-01	1.0372e-01	5.3659e-03	1.1953e+01	1.3375e+00	1.0615e+01	6.3992e-02	9.3867e-04
L1 (2s1/2)	1.7473e-02	2.9550e-01	6.6188e-01	4.2628e-02	1.6218e+01	4.3177e-01	1.5786e+01	1.1958e-02	7.3260e-04
L2 (2p1/2)	1.6840e-02	4.1686e-01	5.5195e-01	3.1200e-02	1.1346e+01	5.2220e-01	1.0824e+01	1.3443e-02	8.5874e-04
L3 (2p3/2)	1.4215e-02	3.1993e-01	6.4332e-01	3.6756e-02	1.1178e+01	3.9722e-01	1.0780e+01	1.1432e-02	8.4828e-04
M1 (3s1/2)	4.2855e-03	1.0119e-02	8.6261e-01	1.2727e-01	1.1316e+01	1.6020e-02	1.1300e+01	2.7070e-03	3.2714e-04
M2 (3p1/2)	3.9918e-03	2.1353e-02	8.5925e-01	1.1940e-01	9.7629e+00	3.1940e-02	9.7310e+00	2.6687e-03	3.5248e-04
M3 (3p3/2)	3.3985e-03	8.1504e-03	8.6807e-01	1.2377e-01	8.5013e+00	1.0535e-02	8.4908e+00	2.6294e-03	3.4745e-04
M4 (3d3/2)	2.9114e-03	3.3194e-02	8.5965e-01	1.0715e-01	6.0457e+00	3.6725e-02	6.0089e+00	2.6315e-03	4.1651e-04
M5 (3d5/2)	2.7862e-03	4.0686e-05	8.8874e-01	1.1122e-01	5.9956e+00	5.1309e-04	5.9951e+00	2.2094e-04	4.1304e-04
N1 (4s1/2)	1.0214e-03	2.5287e-04	6.9373e-01	3.0602e-01	6.0476e+00	7.1915e-04	6.0469e+00	3.5915e-04	1.1718e-04
N2 (4p1/2)	8.9065e-04	2.5081e-04	6.8428e-01	3.1546e-01	5.3239e+00	7.2529e-04	5.3231e+00	3.0800e-04	1.1449e-04
N3 (4p3/2)	7.4171e-04	2.3997e-04	6.6227e-01	3.3750e-01	4.6470e+00	5.4226e-04	4.6464e+00	3.2824e-04	1.0572e-04
N4 (4d3/2)	5.2708e-04	2.1554e-04	6.3180e-01	3.6798e-01	3.3484e+00	4.1762e-04	3.3480e+00	2.7203e-04	9.9464e-05
N5 (4d5/2)	4.9928e-04	7.7897e-05	6.2604e-01	3.7389e-01	3.2187e+00	2.4289e-04	3.2185e+00	1.6012e-04	9.7118e-05
N6 (4f5/2)	2.1793e-04	5.3927e-06	4.9106e-01	5.0893e-01	1.4820e+00	1.2181e-05	1.4820e+00	9.6484e-05	7.2211e-05
N7 (4f7/2)	2.1120e-04	1.9638e-04	4.0535e-01	5.1445e-01	1.4721e+00	2.5346e-04	1.4718e+00	1.6364e-04	6.9647e-05
O1 (5s1/2)	1.9627e-04	9.1733e-06	3.3940e-01	6.6059e-01	1.8976e+00	2.1158e-05	1.8975e+00	8.5097e-05	3.5106e-05
O2 (5p1/2)	1.4878e-04	2.8206e-05	3.8126e-01	6.1872e-01	1.0466e+00	4.1378e-05	1.0465e+00	1.0142e-04	5.4201e-05
O3 (5p3/2)	1.1782e-04	6.7559e-06	2.3438e-01	7.6561e-01	1.00	1.0423e-05	9.9999e-01	7.6366e-05	2.7615e-05
O4 (5d3/2)	4.9200e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	4.5060e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	2.3010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	1.1940e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	8.5400e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
radon (Z=86)									
K (1s1/2)	9.8764e-02	8.9251e-01	1.0165e-01	5.8434e-03	1.1834e+01	1.3479e+00	1.0486e+01	6.5397e-02	9.5742e-04
L1 (2s1/2)	1.8042e-02	3.2306e-01	6.5065e-01	4.6286e-02	1.6067e+01	4.4432e-01	1.5623e+01	1.2306e-02	1.5141e-04
L2 (2p1/2)	1.7396e-02	4.2828e-01	5.3799e-01	3.3720e-02	1.1199e+01	5.3716e-01	1.0662e+01	1.3870e-02	8.7782e-04
L3 (2p3/2)	1.4619e-02	3.2840e-01	6.3154e-01	4.0051e-02	1.1068e+01	4.0885e-01	1.0659e+01	1.1742e-02	8.6618e-04
M1 (3s1/2)	4.4477e-03	1.0490e-02	8.5101e-01	1.3850e-01	1.1289e+01	1.7120e-02	1.1272e+01	2.7253e-03	3.3580e-04
M2 (3p1/2)	4.1476e-03	2.2210e-02	8.4790e-01	1.2989e-01	9.7517e+00	3.3490e-02	9.7182e+00	2.7506e-03	3.6187e-04
M3 (3p3/2)	3.5179e-03	8.2539e-03	8.5674e-01	1.3500e-01	8.4755e+00	1.0774e-02	8.4647e+00	2.6952e-03	3.5606e-04
M4 (3d3/2)	3.0216e-03	3.4521e-02	8.4888e-01	1.1659e-01	6.0333e+00	3.8443e-02	5.9948e+00	2.7133e-03	4.2787e-04
M5 (3d5/2)	2.8893e-03	4.8689e-05	8.7858e-01	1.2137e-01	5.9906e+00	6.0741e-04	5.9900e+00	2.3160e-04	4.2378e-04
N1 (4s1/2)	1.0727e-03	2.8140e-04	6.7135e-01	3.2837e-01	6.0064e+00	8.0986e-04	6.0056e+00	3.7272e-04	1.1991e-04
N2 (4p1/2)	9.3851e-04	2.7607e-04	6.6097e-01	3.3875e-01	5.3224e+00	8.1360e-04	5.3216e+00	3.1845e-04	1.1657e-04
N3 (4p3/2)	7.7939e-04	2.6837e-04	6.3813e-01	3.6161e-01	4.6062e+00	6.1044e-04	4.6055e+00	3.4265e-04	1.0799e-04
N4 (4d3/2)	5.5950e-04	2.3382e-04	6.0835e-01	3.9141e-01	3.3405e+00	4.6383e-04	3.3401e+00	2.8205e-04	1.0191e-04
N5 (4d5/2)	5.2982e-04	9.7138e-05	6.0211e-01	3.9780e-01	3.2012e+00	2.9267e-04	3.2009e+00	1.7585e-04	9.9662e-05
N6 (4f5/2)	2.4116e-04	5.9794e-06	4.7505e-01	5.2494e-01	1.5147e+00	1.4018e-05	1.5147e+00	1.0287e-04	7.5633e-05
N7 (4f7/2)	2.3387e-04	2.4588e-04	4.6235e-01	5.3741e-01	1.5267e+00	3.2035e-04	1.5264e+00	1.7950e-04	7.0838e-05
O1 (5s1/2)	2.1169e-04	8.5345e-06	3.0947e-01	6.9051e-01	1.8691e+00	2.0354e-05	1.8691e+00	8.8763e-05	3.5051e-05
O2 (5p1/2)	1.6229e-04	3.1020e-05	3.5413e-01	6.4583e-01	1.0468e+00	4.6549e-05	1.0468e+00	1.0815e-04	5.4904e-05
O3 (5p3/2)	1.2837e-04	6.8063e-06	1.9591e-01	8.0408e-01	1.00	1.0758e-05	9.9999e-01	8.1218e-05	2.5150e-05
O4 (5d3/2)	5.6490e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	5.1840e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	2.5720e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	1.3690e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	9.6400e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
Francium (Z=87)									
K (1s1/2)	1.0152e-01	8.9400e-01	9.9172e-02	6.8333e-03	1.1735e+01	1.3583e+00	1.0376e+01	6.6820e-02	9.7028e-04
L1 (2s1/2)	1.8630e-02	3.1048e-01	6.3556e-01	5.3958e-02	1.5944e+01	4.5706e-01	1.5487e+01	1.2655e-02	7.6456e-04
L2 (2p1/2)	1.7971e-02	4.3967e-01	5.2127e-01	3.9061e-02	1.1055e+01	5.5235e-01	1.0503e+01	1.4305e-02	8.9193e-04
L3 (2p3/2)	1.5034e-02	3.3627e-01	6.1683e-01	4.6889e-02	1.0984e+01	4.1958e-01	1.0564e+01	1.2049e-02	8.7781e-04
M1 (3s1/2)	4.6191e-03	1.0927e-02	8.2741e-01	1.6166e-01	1.1277e+01	1.8034e-02	1.1259e+01	2.7988e-03	3.3946e-04
M2 (3p1/2)	4.3125e-03	2.3155e-02	8.2540e-01	1.5145e-01	9.7470e+00	3.5224e-02	9.7118e+00	2.8349e-03	3.6652e-04
M3 (3p3/2)	3.6445e-03	8.6732e-03	8.3298e-01	1.5834e-01	8.4872e+00	1.1430e-02	8.4757e+00	2.7654e-03	3.5817e-04
M4 (3d3/2)	3.1389e-03	3.5928e-02	8.2826e-01	1.3582e-01	6.0215e+00	4.0318e-02	5.9812e+00	2.7971e-03	4.3466e-04
M5 (3d5/2)	2.9992e-03	5.7015e-05	8.5789e-01	1.4205e-01	5.9947e+00	6.9460e-04	5.9940e+00	2.4619e-04	4.2926e-04
N1 (4s1/2)	1.1303e-03	3.2231e-04	6.2300e-01	3.7668e-01	5.9730e+00	9.1173e-04	5.9721e+00	3.9958e-04	1.1791e-04
N2 (4p1/2)	9.9269e-04	3.0162e-04	6.1218e-01	3.8752e-01	5.3071e+00	9.0295e-04	5.3062e+00	3.3159e-04	1.1453e-04
N3 (4p3/2)	8.2280e-04	2.9505e-04	5.8643e-01	4.1329e-01	4.5672e+00	6.7369e-04	4.5665e+00	3.6035e-04	1.0566e-04
N4 (4d3/2)	5.9760e-04	2.5139e-04	5.5691e-01	4.4284e-01	3.3277e+00	5.1004e-04	3.3272e+00	2.9454e-04	1.0003e-04
N5 (4d5/2)	5.6595e-04	1.1313e-04	5.4928e-01	4.5061e-01	3.1820e+00	3.3380e-04	3.1816e+00	1.9181e-04	9.7707e-05
N6 (4f5/2)	2.6995e-04	6.8397e-06	4.2546e-01	5.7454e-01	1.5528e+00	1.6603e-05	1.5528e+00	1.1121e-04	7.3964e-05
N7 (4f7/2)	2.6207e-04	2.8659e-04	4.0294e-01	5.9678e-01	1.5868e+00	3.8345e-04	1.5864e+00	1.9587e-04	6.6565e-05
O1 (5s1/2)	2.3234e-04	8.8674e-06	2.3987e-01	7.6012e-01	1.8499e+00	2.1788e-05	1.8499e+00	9.4558e-05	3.0128e-05
O2 (5p1/2)	1.8100e-04	3.3440e-05	2.9642e-01	7.0355e-01	1.0415e+00	5.2477e-05	1.0415e+00	1.1534e-04	5.1516e-05
O3 (5p3/2)	1.4391e-04	6.8401e-06	1.2407e-01	8.7592e-01	1.00	1.1371e-05	9.9999e-01	8.6564e-05	1.7856e-05
O4 (5d3/2)	6.8730e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	6.3520e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	3.2640e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	1.9280e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	1.4140e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	3.8000e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
radium (Z=88)									
K (1s1/2)	1.0432e-01	8.9481e-01	9.7382e-02	7.8190e-03	1.1716e+01	1.3663e+00	1.0350e+01	6.8319e-02	9.8156e-04
L1 (2s1/2)	1.9232e-02	3.1596e-01	6.2243e-01	6.1612e-02	1.5957e+01	4.6850e-01	1.5489e+01	1.2970e-02	7.7285e-04
L2 (2p1/2)	1.8560e-02	4.4254e-01	5.1223e-01	4.5223e-02	1.1235e+01	5.6049e-01	1.0675e+01	1.4654e-02	8.9061e-04
L3 (2p3/2)	1.5456e-02	3.4444e-01	6.0243e-01	5.3131e-02	1.0858e+01	4.3049e-01	1.0428e+01	1.2366e-02	8.9294e-04
M1 (3s1/2)	4.7951e-03	1.1652e-02	8.0844e-01	1.7990e-01	1.1037e+01	1.9363e-02	1.1018e+01	2.8856e-03	3.5185e-04
M2 (3p1/2)	4.4820e-03	2.4200e-02	8.0471e-01	1.7110e-01	9.7150e+00	3.7118e-02	9.6779e+00	2.9222e-03	3.7267e-04
M3 (3p3/2)	3.7737e-03	9.1054e-03	8.1065e-01	1.8024e-01	8.4861e+00	1.2095e-02	8.4740e+00	2.8410e-03	3.6100e-04
M4 (3d3/2)	3.2587e-03	3.7545e-02	8.0912e-01	1.5334e-01	5.9919e+00	4.2435e-02	5.9494e+00	2.8832e-03	4.4318e-04
M5 (3d5/2)	3.1113e-03	6.5166e-05	8.3852e-01	1.6141e-01	5.9516e+00	7.7120e-04	5.9908e+00	2.6290e-04	4.3549e-04
N1 (4s1/2)	1.1897e-03	3.6140e-04	5.9102e-01	4.0862e-01	5.7641e+00	9.9881e-04	5.7631e+00	4.3047e-04	1.2201e-04
N2 (4p1/2)	1.0486e-03	3.2723e-04	5.6813e-01	4.3154e-01	5.2990e+00	9.8737e-04	5.2980e+00	3.4752e-04	1.1245e-04
N3 (4p3/2)	8.6731e-04	3.2704e-04	5.4363e-01	4.5605e-01	4.4920e+00	7.3626e-04	4.4912e+00	3.8525e-04	1.0498e-04
N4 (4d3/2)	6.3677e-04	2.6932e-04	5.1340e-01	4.8634e-01	3.3021e+00	5.5484e-04	3.3015e+00	3.0909e-04	9.9021e-05
N5 (4d5/2)	6.0306e-04	1.2656e-04	5.0206e-01	4.9782e-01	3.1704e+00	3.6753e-04	3.1700e+00	2.0766e-04	9.5510e-05
N6 (4f5/2)	2.9970e-04	8.3676e-06	3.8312e-01	6.1688e-01	1.5968e+00	2.0691e-05	1.5967e+00	1.2120e-04	7.1910e-05
N7 (4f7/2)	2.9119e-04	3.2041e-04	3.4988e-01	6.4980e-01	1.6469e+00	4.3904e-04	1.6464e+00	2.1251e-04	6.1880e-05
O1 (5s1/2)	2.5363e-04	1.0357e-05	1.8612e-01	8.1386e-01	1.8306e+00	2.5745e-05	1.8306e+00	1.0203e-04	2.5787e-05
O2 (5p1/2)	2.0032e-04	3.7093e-05	2.5069e-01	7.4929e-01	1.0402e+00	6.0489e-05	1.0401e+00	1.2284e-04	4.8280e-05
O3 (5p3/2)	1.5983e-04	7.6440e-06	6.8167e-02	9.3182e-01	1.00	1.3245e-05	9.9998e-01	9.2243e-05	1.0895e-05
O4 (5d3/2)	8.1320e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	7.5520e-05	0.	0.	1.00	0.	0.	0.	0.	0.
F1 (6s1/2)	3.9540e-05	0.	0.	1.00	0.	0.	0.	0.	0.
F2 (6p1/2)	2.4680e-05	0.	0.	1.00	0.	0.	0.	0.	0.
F3 (6p3/2)	1.8620e-05	0.	0.	1.00	0.	0.	0.	0.	0.
G1 (7s1/2)	4.7300e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
actinium (Z=89)									
K (1s1/2)	1.0719e-01	8.9621e-01	9.5326e-02	8.4685e-03	1.1661e+01	1.3763e+00	1.0285e+01	6.9799e-02	9.9349e-04
L1 (2s1/2)	1.9848e-02	3.2291e-01	6.1058e-01	6.6508e-02	1.5892e+01	4.8076e-01	1.5411e+01	1.3331e-02	7.8636e-04
L2 (2p1/2)	1.9163e-02	4.5351e-01	4.9797e-01	4.8526e-02	1.1132e+01	5.7515e-01	1.0557e+01	1.5110e-02	9.0390e-04
L3 (2p3/2)	1.5883e-02	3.5203e-01	5.9035e-01	5.7623e-02	1.0818e+01	4.4084e-01	1.0377e+01	1.2683e-02	9.0354e-04
M1 (3s1/2)	4.9743e-03	1.2158e-02	7.9309e-01	1.9475e-01	1.1082e+01	2.0392e-02	1.1062e+01	2.9657e-03	3.5664e-04
M2 (3p1/2)	4.6547e-03	2.5149e-02	7.8990e-01	1.8496e-01	9.7517e+00	3.8878e-02	9.7128e+00	3.0109e-03	3.7855e-04
M3 (3p3/2)	3.9039e-03	9.5663e-03	7.9449e-01	1.9594e-01	8.5337e+00	1.2793e-02	8.5209e+00	2.9191e-03	3.6400e-04
M4 (3d3/2)	3.3796e-03	3.8972e-02	7.9535e-01	1.6568e-01	6.0040e+00	4.4341e-02	5.9597e+00	2.9704e-03	4.5103e-04
M5 (3d5/2)	3.2241e-03	7.2965e-05	8.2468e-01	1.7525e-01	6.0244e+00	8.4766e-04	6.0236e+00	2.7752e-04	4.4141e-04
N1 (4s1/2)	1.2495e-03	3.9691e-04	5.6672e-01	4.3289e-01	5.7309e+00	1.0965e-03	5.7298e+00	4.5230e-04	1.2358e-04
N2 (4p1/2)	1.1048e-03	3.5332e-04	5.4093e-01	4.5872e-01	5.3045e+00	1.0761e-03	5.3035e+00	3.6276e-04	1.1269e-04
N3 (4p3/2)	9.1144e-04	3.5554e-04	5.1488e-01	4.8477e-01	4.4896e+00	8.0328e-04	4.4888e+00	4.0341e-04	1.7455e-04
N4 (4d3/2)	6.7551e-04	2.8770e-04	4.9004e-01	5.0968e-01	3.2751e+00	6.0196e-04	3.2745e+00	3.2285e-04	1.0109e-04
N5 (4d5/2)	6.3962e-04	1.3967e-04	4.7222e-01	5.2765e-01	3.1839e+00	4.0304e-04	3.1835e+00	2.2166e-04	9.4876e-05
N6 (4f5/2)	3.2890e-04	1.2052e-05	3.5834e-01	6.4163e-01	1.6571e+00	2.9851e-05	1.6570e+00	1.3275e-04	7.1127e-05
N7 (4f7/2)	3.1974e-04	3.4820e-04	3.2167e-01	6.7798e-01	1.7037e+00	4.8792e-04	1.7032e+00	2.2818e-04	6.0386e-05
O1 (5s1/2)	2.7410e-04	1.4510e-05	1.7110e-01	8.2888e-01	1.8088e+00	3.6821e-05	1.8088e+00	1.0801e-04	2.5928e-05
O2 (5p1/2)	2.1879e-04	4.1626e-05	2.2288e-01	7.7708e-01	1.0422e+00	6.9825e-05	1.0421e+00	1.3043e-04	4.6793e-05
O3 (5p3/2)	1.7466e-04	1.3405e-05	6.4910e-02	9.3507e-01	1.00	2.3855e-05	9.9997e-01	9.8147e-05	1.1337e-05
O4 (5d3/2)	9.2820e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	8.6380e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	4.5170e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	2.9310e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.1950e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.4900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	4.0000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.4100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
thorium (Z=90)									
K (1s1/2)	1.1011e-01	8.9764e-01	9.3962e-02	8.3941e-03	1.1532e+01	1.3866e+00	1.0145e+01	7.1281e-02	1.0198e-03
L1 (2s1/2)	2.0478e-02	3.3066e-01	6.0370e-01	6.5637e-02	1.570e+01	4.9390e-01	1.5212e+01	1.3710e-02	8.1267e-04
L2 (2p1/2)	1.9780e-02	4.6450e-01	4.8772e-01	4.7776e-02	1.0958e+01	5.8989e-01	1.0368e+01	1.5575e-02	9.3047e-04
L3 (2p3/2)	1.6315e-02	3.6011e-01	5.8271e-01	5.7176e-02	1.0708e+01	4.5192e-01	1.0256e+01	1.3001e-02	9.2698e-04
M1 (3s1/2)	5.1579e-03	1.3094e-02	7.9459e-01	1.9232e-01	1.1023e+01	2.1922e-02	1.1001e+01	3.0808e-03	3.7255e-04
M2 (3p1/2)	4.8316e-03	2.6129e-02	7.9043e-01	1.8344e-01	9.7221e+00	4.0780e-02	9.6814e+00	3.0957e-03	3.9447e-04
M3 (3p3/2)	4.0362e-03	1.0082e-02	7.9545e-01	1.9446e-01	8.5125e+00	1.3628e-02	8.4988e+00	2.9860e-03	3.7777e-04
M4 (3d3/2)	3.5024e-03	4.0439e-02	7.9461e-01	1.6494e-01	5.9800e+00	4.6347e-02	5.9336e+00	3.0559e-03	4.6903e-04
M5 (3d5/2)	3.3386e-03	8.2401e-05	8.2575e-01	1.7417e-01	6.0243e+00	9.7347e-04	6.0233e+00	2.8260e-04	4.5770e-04
N1 (4s1/2)	1.3106e-03	4.4244e-04	5.8113e-01	4.1843e-01	5.6254e+00	1.2565e-03	5.6242e+00	4.6148e-04	1.3542e-04
N2 (4p1/2)	1.1623e-03	3.8316e-04	5.5066e-01	4.4895e-01	5.2746e+00	1.2087e-03	5.2734e+00	3.6845e-04	1.2137e-04
N3 (4p3/2)	9.5616e-04	4.1523e-04	5.4034e-01	4.5925e-01	4.3265e+00	9.5152e-04	4.3256e+00	4.1726e-04	1.1944e-04
N4 (4d3/2)	7.1481e-04	3.0744e-04	5.0408e-01	4.9561e-01	3.2309e+00	6.7469e-04	3.2302e+00	3.2573e-04	1.1155e-04
N5 (4d5/2)	6.7664e-04	1.5465e-04	4.8594e-01	5.1390e-01	3.1853e+00	4.6578e-04	3.1849e+00	2.2466e-04	1.0324e-04
N6 (4f5/2)	3.5855e-04	2.2038e-05	3.7594e-01	6.2404e-01	1.6991e+00	5.9541e-05	1.6991e+00	1.3271e-04	7.9334e-05
N7 (4f7/2)	3.4869e-04	3.7319e-04	3.5697e-01	6.4266e-01	1.7556e+00	5.5121e-04	1.7551e+00	2.3607e-04	7.0922e-05
O1 (5s1/2)	2.9476e-04	2.9855e-05	2.3900e-01	7.6097e-01	1.7680e+00	7.9088e-05	1.7679e+00	1.1127e-04	3.9848e-05
O2 (5p1/2)	2.3743e-04	4.7540e-05	2.0858e-01	7.9137e-01	1.0343e+00	8.1890e-05	1.0343e+00	1.3784e-04	4.7884e-05
O3 (5p3/2)	1.8941e-04	4.3900e-05	2.1901e-01	7.8094e-01	1.00	7.9733e-05	9.9992e-01	1.0429e-04	4.1486e-05
O4 (5d3/2)	1.0423e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	9.7110e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.0550e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.3520e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.5010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	5.6200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	4.9800e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.9700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
protactinium (Z=91)									
K (1s1/2)	1.1308e-01	8.9804e-01	9.4296e-02	7.6683e-03	1.1944e+01	1.3935e+00	1.0551e+01	7.2876e-02	1.0106e-03
L1 (2s1/2)	2.1113e-02	3.3673e-01	6.0467e-01	5.8608e-02	1.5980e+01	5.0572e-01	1.5475e+01	1.4058e-02	8.2498e-04
L2 (2p1/2)	2.0402e-02	4.5642e-01	4.9809e-01	4.5494e-02	1.1988e+01	5.9426e-01	1.1393e+01	1.5670e-02	8.9193e-04
L3 (2p3/2)	1.6743e-02	3.6797e-01	5.8089e-01	5.1140e-02	1.0843e+01	4.6235e-01	1.0381e+01	1.3325e-02	9.3691e-04
M1 (3s1/2)	5.3349e-03	1.3827e-02	8.1508e-01	1.7108e-01	1.1230e+01	2.3041e-02	1.1207e+01	3.2014e-03	3.8801e-04
M2 (3p1/2)	5.0018e-03	2.7296e-02	8.0874e-01	1.6397e-01	1.0046e+01	4.2670e-02	1.0004e+01	3.1996e-03	4.0437e-04
M3 (3p3/2)	4.1594e-03	1.1110e-02	8.1608e-01	1.7279e-01	8.6174e+00	1.4801e-02	8.6026e+00	3.1221e-03	3.9459e-04
M4 (3d3/2)	3.6161e-03	4.2263e-02	8.0990e-01	1.4784e-01	6.2439e+00	4.8469e-02	6.1955e+00	3.1531e-03	4.7271e-04
M5 (3d5/2)	3.4436e-03	8.0241e-02	8.4357e-01	1.5634e-01	6.1313e+00	8.8575e-04	6.1375e+00	3.1196e-04	4.7331e-04
N1 (4s1/2)	1.3621e-03	4.7008e-04	6.1857e-01	3.8096e-01	5.7665e+00	1.2760e-03	5.7652e+00	5.0179e-04	1.4614e-04
N2 (4p1/2)	1.2101e-03	4.0831e-04	5.9607e-01	4.0352e-01	5.4877e+00	1.2484e-03	5.4865e+00	3.9579e-04	1.3147e-04
N3 (4p3/2)	9.9057e-04	4.3087e-04	5.7983e-01	4.1974e-01	4.3959e+00	9.2633e-04	4.3949e+00	4.6075e-04	1.3069e-04
N4 (4d3/2)	7.4375e-04	3.3836e-04	5.5382e-01	4.4583e-01	3.4342e+00	7.3646e-04	3.4335e+00	3.4171e-04	1.1997e-04
N5 (4d5/2)	7.0321e-04	1.3229e-04	5.3604e-01	4.6382e-01	3.2102e+00	3.8356e-04	3.2098e+00	2.4253e-04	1.1744e-04
N6 (4f5/2)	3.7763e-04	9.6444e-05	4.6023e-01	5.3967e-01	1.9965e+00	1.5787e-04	1.9964e+00	2.3070e-04	8.7056e-05
N7 (4f7/2)	3.6704e-04	3.0595e-04	4.4279e-01	5.5690e-01	1.7472e+00	4.4138e-04	1.7468e+00	2.5442e-04	9.3039e-05
O1 (5s1/2)	3.0517e-04	2.4525e-05	2.9096e-01	7.0901e-01	1.7917e+00	6.2993e-05	1.7916e+00	1.1881e-04	1.9560e-05
O2 (5p1/2)	2.4589e-04	4.9034e-05	2.5677e-01	7.4319e-01	1.0526e+00	8.3479e-05	1.0525e+00	1.4443e-04	5.9986e-05
O3 (5p3/2)	1.9407e-04	2.9925e-05	2.6618e-01	7.3378e-01	1.00	5.3686e-05	9.9994e-01	1.0818e-04	5.1661e-05
O4 (5d3/2)	1.0608e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	9.8400e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	7.6400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	6.8000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.0010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.2610e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.3820e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.7100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	4.1300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.6700e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
uranium (Z=92)									
K (1s1/2)	1.1611e-01	8.9939e-01	9.3346e-02	7.2694e-03	1.1829e+01	1.4032e+00	1.0426e+01	7.4422e-02	1.0396e-03
L1 (2s1/2)	2.1768e-02	3.4342e-01	6.0122e-01	5.5358e-02	1.5823e+01	5.1785e-01	1.5306e+01	1.4436e-02	8.5507e-04
L2 (2p1/2)	2.1044e-02	4.6700e-01	4.9022e-01	4.2777e-02	1.1819e+01	6.0855e-01	1.1211e+01	1.6149e-02	9.2020e-04
L3 (2p3/2)	1.7182e-02	3.7562e-01	5.7581e-01	4.8556e-02	1.0742e+01	4.7260e-01	1.0269e+01	1.3656e-02	9.6344e-04
M1 (3s1/2)	5.5213e-03	1.4476e-02	8.2354e-01	1.6199e-01	1.1201e+01	2.4151e-02	1.1177e+01	3.3094e-03	4.0683e-04
M2 (3p1/2)	5.1815e-03	2.8404e-02	8.1636e-01	1.5524e-01	1.0022e+01	4.4557e-02	9.9773e+00	3.3031e-03	4.2396e-04
M3 (3p3/2)	4.2896e-03	1.1635e-02	8.2422e-01	1.6414e-01	8.5945e+00	1.5452e-02	8.5791e+00	3.2300e-03	4.1212e-04
M4 (3d3/2)	3.7368e-03	4.4014e-02	8.1561e-01	1.4037e-01	6.2276e+00	5.0580e-02	6.1770e+00	3.2517e-03	4.9341e-04
M5 (3d5/2)	3.5552e-03	8.1141e-05	8.5138e-01	1.4854e-01	6.1191e+00	8.6451e-04	6.1183e+00	3.3368e-04	4.9472e-04
N1 (4s1/2)	1.4199e-03	4.9860e-04	6.3810e-01	3.6141e-01	5.7576e+00	1.3263e-03	5.7562e+00	5.3380e-04	1.5740e-04
N2 (4p1/2)	1.2642e-03	4.2733e-04	6.1891e-01	3.8067e-01	5.4747e+00	1.2865e-03	5.4734e+00	4.1993e-04	1.4295e-04
N3 (4p3/2)	1.0305e-03	4.5299e-04	6.0048e-01	3.9907e-01	4.3902e+00	9.4880e-04	4.3893e+00	4.9200e-04	1.4098e-04
N4 (4d3/2)	7.7818e-04	3.4944e-04	5.7918e-01	4.2047e-01	3.4190e+00	7.5965e-04	3.4183e+00	3.5797e-04	1.3185e-04
N5 (4d5/2)	7.3514e-04	1.2697e-04	5.6071e-01	4.3916e-01	3.2101e+00	3.6482e-04	3.2097e+00	2.5587e-04	1.2842e-04
N6 (4f5/2)	4.0209e-04	9.8227e-05	5.0373e-01	4.9617e-01	2.0288e+00	1.6130e-04	2.0286e+00	2.4485e-04	9.9844e-05
N7 (4f7/2)	3.9075e-04	2.8568e-04	4.9111e-01	5.0860e-01	1.7488e+00	4.1375e-04	1.7483e+00	2.6980e-04	1.0976e-04
O1 (5s1/2)	3.2065e-04	2.6290e-05	3.3667e-01	6.6331e-01	1.7884e+00	6.6842e-05	1.7884e+00	1.2612e-04	6.0364e-05
O2 (5p1/2)	2.5938e-04	5.2347e-05	2.7748e-01	7.2246e-01	1.0571e+00	8.9371e-05	1.0570e+00	1.5193e-04	6.8093e-05
O3 (5p3/2)	2.0339e-04	3.0887e-05	3.3745e-01	6.6252e-01	1.00	5.5509e-05	9.9994e-01	1.1317e-04	6.8638e-05
O4 (5d3/2)	1.1235e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.0402e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	8.9100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	7.9500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.2230e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.4090e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.4570e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.7400e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	4.1300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.7800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
neptunium (Z=93)									
K (1s1/2)	1.1920e-01	9.0071e-01	9.2409e-02	6.8815e-03	1.1652e+01	1.4128e+00	1.0239e+01	7.5996e-02	1.0758e-03
L1 (2s1/2)	2.2440e-02	3.5048e-01	5.9728e-01	5.2230e-02	1.5584e+01	5.3038e-01	1.5054e+01	1.4829e-02	8.9033e-04
L2 (2p1/2)	2.1702e-02	4.7755e-01	4.8231e-01	4.0152e-02	1.1575e+01	6.2256e-01	1.0952e+01	1.6647e-02	9.5568e-04
L3 (2p3/2)	1.7626e-02	3.8316e-01	5.7078e-01	4.6059e-02	1.0584e+01	4.8271e-01	1.0101e+01	1.3991e-02	9.9595e-04
M1 (3s1/2)	5.7122e-03	1.5151e-02	8.3172e-01	1.5313e-01	1.1100e+01	2.5312e-02	1.1075e+01	3.4191e-03	4.2899e-04
M2 (3p1/2)	5.3655e-03	2.9515e-02	8.2364e-01	1.4684e-01	9.9326e+00	4.6458e-02	9.8861e+00	3.4087e-03	4.4701e-04
M3 (3p3/2)	4.4216e-03	1.2204e-02	8.3209e-01	1.5570e-01	8.5181e+00	1.6158e-02	8.5019e+00	3.3396e-03	4.3274e-04
M4 (3d3/2)	3.8592e-03	4.5805e-02	8.2096e-01	1.3323e-01	6.1656e+00	5.2726e-02	6.1128e+00	3.3526e-03	5.1829e-04
M5 (3d5/2)	3.6681e-03	8.2389e-05	8.5882e-01	1.4110e-01	6.0692e+00	8.4605e-04	6.0684e+00	3.5720e-04	5.1912e-04
N1 (4s1/2)	1.4789e-03	5.2939e-04	6.5701e-01	3.4246e-01	5.7208e+00	1.3799e-03	5.7194e+00	5.6736e-04	1.6989e-04
N2 (4p1/2)	1.3195e-03	4.4712e-04	6.4049e-01	3.5906e-01	5.4265e+00	1.3230e-03	5.4252e+00	4.4595e-04	1.5578e-04
N3 (4p3/2)	1.0708e-03	4.8049e-04	6.2188e-01	3.7765e-01	4.3485e+00	9.7564e-04	4.3475e+00	5.2736e-04	1.5317e-04
N4 (4d3/2)	8.1294e-04	3.5849e-04	6.0278e-01	3.9685e-01	3.3739e+00	7.7488e-04	3.3731e+00	3.7609e-04	1.4528e-04
N5 (4d5/2)	7.6729e-04	1.2262e-04	5.8403e-01	4.1586e-01	3.1954e+00	3.4854e-04	3.1951e+00	2.6994e-04	1.4025e-04
N6 (4f5/2)	4.2675e-04	9.4151e-05	5.4194e-01	4.5796e-01	2.0274e+00	1.5585e-04	2.0272e+00	2.5781e-04	1.1408e-04
N7 (4f7/2)	4.1460e-04	2.7061e-04	5.3412e-01	4.6560e-01	1.7418e+00	3.9233e-04	1.7414e+00	2.8597e-04	1.2716e-04
O1 (5s1/2)	3.3625e-04	2.7787e-05	3.7801e-01	6.2197e-01	1.7878e+00	6.9823e-05	1.7877e+00	1.3381e-04	7.1100e-05
O2 (5p1/2)	2.7295e-04	5.5838e-05	2.9900e-01	7.0094e-01	1.0617e+00	9.5465e-05	1.0616e+00	1.5965e-04	7.6879e-05
O3 (5p3/2)	2.1256e-04	3.0890e-05	4.0215e-01	5.9781e-01	1.00	5.5555e-05	9.9994e-01	1.1819e-04	8.5486e-05
O4 (5d3/2)	1.1848e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.0947e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.0120e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	9.0300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.4390e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.5520e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.5250e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.7500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	4.1100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.8800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
plutonium (Z=94)									
K (1s1/2)	1.2235e-01	9.0206e-01	9.1531e-02	6.3940e-03	1.1580e+01	1.4227e+00	1.0157e+01	7.7575e-02	1.1025e-03
L1 (2s1/2)	2.3122e-02	3.5727e-01	5.9431e-01	4.8424e-02	1.5504e+01	5.4297e-01	1.4961e+01	1.5214e-02	9.1851e-04
L2 (2p1/2)	2.2371e-02	4.8847e-01	4.7455e-01	3.6968e-02	1.1467e+01	6.3725e-01	1.0830e+01	1.7148e-02	9.8025e-04
L3 (2p3/2)	1.8071e-02	3.9082e-01	5.6626e-01	4.2913e-02	1.0520e+01	4.9308e-01	1.0027e+01	1.4323e-02	1.0206e-03
M1 (3s1/2)	5.9021e-03	1.5878e-02	8.3925e-01	1.4486e-01	1.1315e+01	2.6556e-02	1.1288e+01	3.5288e-03	4.3881e-04
M2 (3p1/2)	5.5485e-03	3.0984e-02	8.327e-01	1.3628e-01	9.9605e+00	4.8864e-02	9.9117e+00	3.5182e-03	4.6616e-04
M3 (3p3/2)	4.5499e-03	1.3385e-02	8.4173e-01	1.4488e-01	8.4913e+00	1.7520e-02	8.4738e+00	3.4761e-03	4.5196e-04
M4 (3d3/2)	3.9778e-03	4.8221e-02	8.2781e-01	1.2397e-01	6.1990e+00	5.5464e-02	6.1436e+00	3.4584e-03	5.3598e-04
M5 (3d5/2)	3.7769e-03	8.4852e-05	8.6831e-01	1.3160e-01	6.0548e+00	8.1959e-04	6.0539e+00	3.9102e-04	5.4172e-04
N1 (4s1/2)	1.5337e-03	5.6834e-04	6.7818e-01	3.2125e-01	5.7449e+00	1.4386e-03	5.7435e+00	6.0593e-04	1.8110e-04
N2 (4p1/2)	1.2705e-03	4.8890e-04	6.6505e-01	3.3446e-01	5.4647e+00	1.3887e-03	5.4633e+00	4.8248e-04	1.6683e-04
N3 (4p3/2)	1.1060e-03	5.0904e-04	6.4217e-01	3.5731e-01	4.3501e+00	9.9209e-04	4.3491e+00	5.6749e-04	1.6331e-04
N4 (4d3/2)	8.4255e-04	4.1779e-04	6.2789e-01	3.7169e-01	3.4269e+00	8.3964e-04	3.4260e+00	4.1923e-04	1.5441e-04
N5 (4d5/2)	7.9417e-04	1.1571e-04	6.1009e-01	3.8980e-01	3.1869e+00	3.1818e-04	3.1866e+00	2.8882e-04	1.5205e-04
N6 (4f5/2)	4.4608e-04	1.0641e-04	5.8337e-01	4.1653e-01	2.1118e+00	1.6732e-04	2.1116e+00	2.8368e-04	1.2324e-04
N7 (4f7/2)	4.3309e-04	2.5000e-04	5.7479e-01	4.2496e-01	1.7193e+00	3.5418e-04	1.7189e+00	3.0570e-04	1.4482e-04
O1 (5s1/2)	3.4664e-04	2.5764e-05	4.0638e-01	5.9359e-01	1.7992e+00	6.2758e-05	1.7991e+00	1.4231e-04	7.8297e-05
O2 (5p1/2)	2.8133e-04	5.7972e-05	3.4304e-01	6.5691e-01	1.0659e+00	9.7510e-05	1.0658e+00	1.6726e-04	9.0547e-05
O3 (5p3/2)	2.1642e-04	2.3445e-05	3.9347e-01	6.0651e-01	1.00	4.1552e-05	9.9996e-01	1.2211e-04	8.5157e-05
O4 (5d3/2)	1.1950e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.0985e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	7.4000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	6.2500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.3120e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.3920e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.3420e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.4200e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
americium (Z=95)									
K (1s1/2)	1.2557e-01	9.0336e-01	9.0478e-02	6.1575e-03	1.1372e+01	1.4325e+00	9.9394e+00	7.9186e-02	1.1431e-03
L1 (2s1/2)	2.3827e-02	3.6371e-01	5.8979e-01	4.6466e-02	1.5223e+01	5.5542e-01	1.4668e+01	1.5603e-02	9.5807e-04
L2 (2p1/2)	2.3062e-02	4.9910e-01	4.6555e-01	3.5352e-02	1.1209e+01	6.5144e-01	1.0558e+01	1.7669e-02	1.0169e-03
L3 (2p3/2)	1.8527e-02	3.9824e-01	5.6034e-01	4.1425e-02	1.0332e+01	5.0328e-01	9.8284e+00	1.4660e-02	1.0563e-03
M1 (3s1/2)	6.1021e-03	1.6955e-02	8.4411e-01	1.3893e-01	1.1136e+01	2.8405e-02	1.1108e+01	3.6425e-03	4.6372e-04
M2 (3p1/2)	5.7416e-03	3.2236e-02	8.3625e-01	1.3150e-01	9.8573e+00	5.1036e-02	9.8063e+00	3.6266e-03	4.8963e-04
M3 (3p3/2)	4.6855e-03	1.4732e-02	8.4681e-01	1.3846e-01	8.2999e+00	1.9195e-02	8.2807e+00	3.5961e-03	4.7915e-04
M4 (3d3/2)	4.1036e-03	5.0149e-02	8.2966e-01	1.2018e-01	6.1339e+00	5.7759e-02	6.0761e+00	3.5629e-03	5.6033e-04
M5 (3d5/2)	3.8925e-03	8.7365e-05	8.7227e-01	1.2764e-01	6.0004e+00	8.1356e-04	5.9996e+00	4.1800e-04	5.6592e-04
N1 (4s1/2)	1.5952e-03	6.0764e-04	6.8888e-01	3.1050e-01	5.7061e+00	1.5130e-03	5.7046e+00	6.4067e-04	1.9263e-04
N2 (4p1/2)	1.4282e-03	5.1686e-04	6.7681e-01	3.2266e-01	5.4297e+00	1.4431e-03	5.4283e+00	5.1153e-04	1.7807e-04
N3 (4p3/2)	1.1470e-03	5.3819e-04	6.5236e-01	3.4709e-01	4.3270e+00	1.0263e-03	4.3260e+00	6.0146e-04	1.7297e-04
N4 (4d3/2)	8.7790e-04	4.4110e-04	6.3975e-01	3.5980e-01	3.4003e+00	8.6865e-04	3.3994e+00	4.4579e-04	1.6522e-04
N5 (4d5/2)	8.2668e-04	1.1346e-04	6.2306e-01	3.7681e-01	3.1687e+00	3.0805e-04	3.1684e+00	3.0448e-04	1.6256e-04
N6 (4f5/2)	4.7103e-04	9.8201e-05	6.0583e-01	3.9407e-01	2.0836e+00	1.5585e-04	2.0834e+00	2.9680e-04	1.3697e-04
N7 (4f7/2)	4.5717e-04	2.4228e-04	5.9907e-01	4.0068e-01	1.7170e+00	3.4257e-04	1.7167e+00	3.2332e-04	1.5954e-04
O1 (5s1/2)	3.6244e-04	2.6829e-05	4.2944e-01	5.7053e-01	1.8004e+00	6.3919e-05	1.8003e+00	1.5213e-04	8.6455e-05
O2 (5p1/2)	2.9506e-04	6.1781e-05	3.6196e-01	6.3798e-01	1.0693e+00	1.0385e-04	1.0692e+00	1.7553e-04	9.9883e-05
O3 (5p3/2)	2.2525e-04	2.2457e-05	4.1763e-01	5.8215e-01	1.00	3.9789e-05	9.9996e-01	1.2713e-04	9.4119e-05
O4 (5d3/2)	1.2529e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.1490e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	8.2900e-06	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	7.0000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	5.5060e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.5140e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.3890e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.4900e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
curium (Z=96)									
K (1s1/2)	1.2886e-01	9.0460e-01	8.9000e-02	6.4016e-03	1.1104e+01	1.4419e+00	9.6619e+00	8.0841e-02	1.1870e-03
L1 (2s1/2)	2.4554e-02	3.7055e-01	5.8130e-01	4.8153e-02	1.4849e+01	5.6798e-01	1.4281e+01	1.6019e-02	9.9943e-04
L2 (2p1/2)	2.3776e-02	5.0981e-01	4.5377e-01	3.6412e-02	1.0857e+01	6.6554e-01	1.0191e+01	1.8213e-02	1.0587e-03
L3 (2p3/2)	1.8994e-02	4.0539e-01	5.5146e-01	4.3150e-02	1.0088e+01	5.1308e-01	9.5751e+00	1.5008e-02	1.0939e-03
M1 (3s1/2)	6.3131e-03	1.7449e-02	8.3855e-01	1.4399e-01	1.0896e+01	2.9337e-02	1.0867e+01	3.7550e-03	4.8716e-04
M2 (3p1/2)	5.9456e-03	3.3344e-02	8.2995e-01	1.3670e-01	9.6589e+00	5.3054e-02	9.6058e+00	3.7368e-03	5.1370e-04
M3 (3p3/2)	4.8290e-03	1.5296e-02	8.4020e-01	1.4450e-01	8.1480e+00	1.9937e-02	8.1280e+00	3.7051e-03	4.9917e-04
M4 (3d3/2)	4.2372e-03	5.1948e-02	8.2276e-01	1.2529e-01	5.9846e+00	6.0008e-02	5.9246e+00	3.6681e-03	5.8842e-04
M5 (3d5/2)	4.0156e-03	8.8428e-05	8.6688e-01	1.3303e-01	5.8962e+00	8.1429e-04	5.8954e+00	4.3608e-04	5.9047e-04
N1 (4s1/2)	1.6641e-03	6.2229e-04	6.7913e-01	3.2025e-01	5.6260e+00	1.5584e-03	5.6244e+00	6.6450e-04	2.0093e-04
N2 (4p1/2)	1.4932e-03	4.5465e-04	6.6618e-01	3.3337e-01	5.3392e+00	1.3828e-03	5.3379e+00	4.9096e-04	1.8635e-04
N3 (4p3/2)	1.1944e-03	5.6883e-04	6.4051e-01	3.5892e-01	4.2720e+00	1.0719e-03	4.2710e+00	6.3383e-04	1.7912e-04
N4 (4d3/2)	9.1964e-04	4.5563e-04	6.2797e-01	3.7157e-01	3.3183e+00	8.8861e-04	3.3174e+00	4.7154e-04	1.7408e-04
N5 (4d5/2)	8.6544e-04	1.1500e-04	6.1313e-01	3.8676e-01	3.1188e+00	3.1043e-04	3.1185e+00	3.2062e-04	1.7015e-04
N6 (4f5/2)	5.0225e-04	7.7156e-05	5.9795e-01	4.0197e-01	1.9771e+00	1.2942e-04	1.9770e+00	2.9943e-04	1.5191e-04
N7 (4f7/2)	4.8747e-04	2.4447e-04	5.9381e-01	4.0595e-01	1.7166e+00	3.4877e-04	1.7162e+00	3.4169e-04	1.6866e-04
O1 (5s1/2)	3.8430e-04	2.9368e-05	4.2220e-01	5.7777e-01	1.7934e+00	6.9586e-05	1.7933e+00	1.6219e-04	9.0475e-05
O2 (5p1/2)	3.1480e-04	6.6917e-05	3.5406e-01	6.4587e-01	1.0715e+00	1.1400e-04	1.0714e+00	1.8478e-04	1.0403e-04
O3 (5p3/2)	2.3965e-04	2.2494e-05	4.1014e-01	5.8983e-01	1.00	4.0411e-05	9.9996e-01	1.3339e-04	9.8295e-05
O4 (5d3/2)	1.3646e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.2523e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.3480e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	1.1950e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.0690e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.9640e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.7000e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.6500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	3.9300e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	6.1800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
berkelium (Z=97)									
X (1s1/2)	1.3221e-01	9.0556e-01	8.8203e-02	6.2366e-03	1.1201e+01	1.4500e+00	9.7507e+00	8.2569e-02	1.1959e-03
L1 (2s1/2)	2.5294e-02	3.7714e-01	5.7638e-01	4.6485e-02	1.4914e+01	5.8014e-01	1.4334e+01	1.6443e-02	1.0171e-03
L2 (2p1/2)	2.4503e-02	5.1572e-01	4.4870e-01	3.5593e-02	1.1039e+01	6.7582e-01	1.0364e+01	1.8698e-02	1.0609e-03
L3 (2p3/2)	1.9462e-02	4.1255e-01	5.4558e-01	4.1870e-02	1.0141e+01	5.2260e-01	9.6180e+00	1.5364e-02	1.1040e-03
M1 (3s1/2)	6.5233e-03	1.8063e-02	8.4252e-01	1.3942e-01	1.0997e+01	3.0384e-02	1.0967e+01	3.8780e-03	5.0114e-04
M2 (3p1/2)	6.1488e-03	3.4460e-02	8.3321e-01	1.3233e-01	9.7541e+00	5.5011e-02	9.6991e+00	3.8517e-03	5.2822e-04
M3 (3p3/2)	4.9686e-03	1.5726e-02	8.4375e-01	1.4053e-01	8.2369e+00	2.0403e-02	8.2165e+00	3.8296e-03	5.1023e-04
M4 (3d3/2)	4.3669e-03	5.3835e-02	8.2432e-01	1.2184e-01	6.0606e+00	6.2233e-02	5.9984e+00	3.7776e-03	6.0012e-04
M5 (3d5/2)	4.1343e-03	8.2707e-05	8.7081e-01	1.2910e-01	5.9702e+00	7.1765e-04	5.9695e+00	4.7647e-04	6.0310e-04
N1 (4s1/2)	1.7288e-03	6.2656e-04	6.8792e-01	3.1145e-01	5.6973e+00	1.5636e-03	5.6958e+00	6.9274e-04	2.0880e-04
N2 (4p1/2)	1.5540e-03	4.8041e-04	6.7643e-01	3.2309e-01	5.4017e+00	1.4273e-03	5.4003e+00	5.2306e-04	1.9465e-04
N3 (4p3/2)	1.2366e-03	5.7581e-04	6.4934e-01	3.5009e-01	4.3450e+00	1.0237e-03	4.3440e+00	6.9557e-04	1.8485e-04
N4 (4d3/2)	9.5612e-04	4.9259e-04	6.3680e-01	3.6270e-01	3.3732e+00	9.3965e-04	3.3723e+00	5.0122e-04	1.8055e-04
N5 (4d5/2)	8.9882e-04	5.4851e-05	6.2789e-01	3.7205e-01	3.2195e+00	1.5543e-04	3.2193e+00	3.1719e-04	1.7530e-04
N6 (4f5/2)	5.2802e-04	8.9958e-05	6.1621e-01	3.8371e-01	2.0522e+00	1.4513e-04	2.0521e+00	3.2730e-04	1.5856e-04
N7 (4f7/2)	5.1227e-04	2.2900e-04	6.1322e-01	3.8656e-01	1.7221e+00	3.2518e-04	1.7217e+00	3.6076e-04	1.8245e-04
O1 (5s1/2)	4.0087e-04	2.9328e-05	4.3569e-01	5.6428e-01	1.8029e+00	6.8207e-05	1.8029e+00	1.7237e-04	9.6876e-05
O2 (5p1/2)	3.2926e-04	6.9749e-05	3.7531e-01	6.2463e-01	1.0742e+00	1.1851e-04	1.0741e+00	1.9379e-04	1.1505e-04
O3 (5p3/2)	2.4862e-04	1.9242e-05	4.1295e-01	5.8703e-01	1.00	3.4106e-05	9.9997e-01	1.4026e-04	1.0267e-04
O4 (5d3/2)	1.4239e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.3035e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.4530e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	1.2840e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.2790e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	4.1010e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.7510e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P4 (6d3/2)	4.6000e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P5 (6d5/2)	3.8500e-06	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	6.2800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
californium (Z=98)									
K (1s1/2)	1.3563e-01	9.0681e-01	8.7531e-02	5.6620e-03	1.0849e+01	1.4593e+00	9.3902e+00	8.4281e-02	1.2643e-03
L1 (2s1/2)	2.6047e-02	3.8398e-01	5.7397e-01	4.2047e-02	1.4409e+01	5.9296e-01	1.3816e+01	1.6867e-02	1.0821e-03
L2 (2p1/2)	2.5242e-02	5.2639e-01	4.4157e-01	3.2035e-02	1.0650e+01	6.8979e-01	9.9593e+00	1.9263e-02	1.1191e-03
L3 (2p3/2)	1.9929e-02	4.1962e-01	5.4228e-01	3.8097e-02	9.7749e+00	5.3216e-01	9.2427e+00	1.5714e-02	1.1693e-03
M1 (3s1/2)	6.7325e-03	1.8769e-02	8.5452e-01	1.2670e-01	1.0718e+01	3.1757e-02	1.0687e+01	3.9791e-03	5.3835e-04
M2 (3p1/2)	6.3509e-03	3.5772e-02	8.4387e-01	1.2036e-01	9.5438e+00	5.7377e-02	9.4865e+00	3.9596e-03	5.6495e-04
M3 (3p3/2)	5.1038e-03	1.6156e-02	8.5567e-01	1.2817e-01	7.9990e+00	2.1009e-02	7.9779e+00	3.9249e-03	5.4741e-04
M4 (3d3/2)	4.4922e-03	5.6102e-02	8.3272e-01	1.1117e-01	5.9255e+00	6.4845e-02	5.8607e+00	3.8865e-03	6.3828e-04
M5 (3d5/2)	4.2481e-03	9.4394e-05	8.8231e-01	1.1759e-01	5.7462e+00	8.1135e-04	5.7454e+00	4.9423e-04	6.5237e-04
N1 (4s1/2)	1.7887e-03	6.8395e-04	7.1350e-01	2.8581e-01	5.5893e+00	1.7063e-03	5.5876e+00	7.1697e-04	2.2841e-04
N2 (4p1/2)	1.6099e-03	5.2459e-04	7.0257e-01	2.9691e-01	5.3446e+00	1.5319e-03	5.3430e+00	5.5129e-04	2.1169e-04
N3 (4p3/2)	1.2729e-03	6.3373e-04	6.7671e-01	3.2265e-01	4.1695e+00	1.1451e-03	4.1683e+00	7.0447e-04	2.0665e-04
N4 (4d3/2)	9.8674e-04	5.4401e-04	6.6470e-01	3.3476e-01	3.3534e+00	1.0039e-03	3.3524e+00	5.3472e-04	1.9565e-04
N5 (4d5/2)	9.2620e-04	1.0710e-04	6.6167e-01	3.3822e-01	2.9414e+00	2.7827e-04	2.9412e+00	3.5648e-04	2.0837e-04
N6 (4f5/2)	5.4773e-04	9.1575e-05	6.5424e-01	3.4567e-01	2.0455e+00	1.4578e-04	2.0454e+00	3.4407e-04	1.7520e-04
N7 (4f7/2)	5.3098e-04	2.2871e-04	6.5157e-01	3.4820e-01	1.7032e+00	3.1996e-04	1.7029e+00	3.7954e-04	2.0317e-04
O1 (5s1/2)	4.1158e-04	3.1000e-05	4.7345e-01	5.2652e-01	1.8047e+00	7.0573e-05	1.8046e+00	1.8079e-04	1.0798e-04
O2 (5p1/2)	3.3787e-04	7.5050e-05	4.1214e-01	5.8778e-01	1.0763e+00	1.2539e-04	1.0761e+00	2.0223e-04	1.2940e-04
O3 (5p3/2)	2.5158e-04	1.8076e-05	4.3982e-01	5.6017e-01	1.00	3.1535e-05	9.9997e-01	1.4420e-04	1.1065e-04
O4 (5d3/2)	1.4247e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.2966e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.0780e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	9.0200e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.0880e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	3.8790e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.5100e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.7100e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
einsteinium (Z=99)									
K (1s1/2)	1.3911e-01	9.0794e-01	8.6545e-02	5.5123e-03	1.0676e+01	1.4681e+00	9.2082e+00	8.6034e-02	1.3075e-03
L1 (2s1/2)	2.6824e-02	3.9054e-01	5.6868e-01	4.0771e-02	1.4165e+01	6.0534e-01	1.3559e+01	1.7306e-02	1.1250e-03
L2 (2p1/2)	2.6007e-02	5.3638e-01	4.3272e-01	3.0897e-02	1.0415e+01	7.0280e-01	9.7123e+00	1.9849e-02	1.1587e-03
L3 (2p3/2)	2.0409e-02	4.2648e-01	5.3634e-01	3.7177e-02	9.6151e+00	5.4143e-01	9.0736e+00	1.6076e-02	1.2064e-03
M1 (3s1/2)	6.9531e-03	1.9373e-02	8.5738e-01	1.2324e-01	1.0593e+01	3.2928e-02	1.0560e+01	4.0907e-03	5.6451e-04
M2 (3p1/2)	6.5646e-03	3.6792e-02	8.4586e-01	1.1735e-01	9.4605e+00	5.9319e-02	9.4012e+00	0.716e-03	5.9064e-04
M3 (3p3/2)	5.2472e-03	1.6487e-02	8.5832e-01	1.2519e-01	7.9010e+00	2.1445e-02	7.8796e+00	4.0341e-03	5.7158e-04
M4 (3d3/2)	4.6255e-03	5.8062e-02	8.3337e-01	1.0857e-01	8.5556e+00	6.7185e-02	5.7884e+00	3.9974e-03	6.6595e-04
M5 (3d5/2)	4.3696e-03	9.9323e-05	8.8505e-01	1.1485e-01	5.6773e+00	8.2957e-04	5.6765e+00	5.2316e-04	6.8129e-04
N1 (4s1/2)	1.8563e-03	7.3316e-04	7.2039e-01	2.7888e-01	5.5599e+00	1.8141e-03	5.5581e+00	7.5023e-04	2.4060e-04
N2 (4p1/2)	1.6736e-03	5.6223e-04	7.1055e-01	2.8889e-01	5.3026e+00	1.6189e-03	5.3010e+00	5.8124e-04	2.2433e-04
N3 (4p3/2)	1.3159e-03	6.6991e-04	6.8318e-01	3.1616e-01	4.1334e+00	1.1958e-03	4.1322e+00	7.3716e-04	2.1756e-04
N4 (4d3/2)	1.0240e-03	5.8838e-04	6.7215e-01	3.2727e-01	3.3256e+00	1.0620e-03	3.3246e+00	5.6734e-04	2.0703e-04
N5 (4d5/2)	9.6007e-04	1.0819e-04	6.6982e-01	3.3008e-01	2.9143e+00	2.7793e-04	2.9140e+00	3.7374e-04	2.2068e-04
N6 (4f5/2)	5.7393e-04	9.0238e-05	6.6804e-01	3.3186e-01	2.0208e+00	1.4413e-04	2.0207e+00	3.5934e-04	1.8974e-04
N7 (4f7/2)	5.5613e-04	2.2891e-04	6.6821e-01	3.3156e-01	1.6793e+00	3.1899e-04	1.6789e+00	3.9908e-04	2.2134e-04
O1 (5s1/2)	4.2863e-04	3.3028e-05	4.8403e-01	5.1594e-01	1.8061e+00	7.4307e-05	1.8060e+00	1.9052e-04	1.1488e-04
O2 (5p1/2)	3.5277e-04	8.0547e-05	4.2720e-01	5.7272e-01	1.0783e+00	1.3421e-04	1.0782e+00	2.1171e-04	1.3977e-04
O3 (5p3/2)	2.6036e-04	1.7204e-05	4.4050e-01	5.5948e-01	1.00	2.9966e-05	9.9997e-01	1.4948e-04	1.1469e-04
O4 (5d3/2)	1.4817e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.3448e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.1549e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	9.6100e-06	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.2850e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	4.0020e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.5440e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.7800e-06	0.	0.	1.00	0.	0.	0.	0.	0.

initial vacancy	Energy				Number			Average Energy	
	total (MeV)	fraction in x-rays	fraction in electrons	fraction remaining	total	x-rays	electrons	x-rays (MeV)	electrons (MeV)
fermium (Z=100)									
K (1s1/2)	1.4268e-01	9.0907e-01	8.5575e-02	5.3576e-03	1.0500e+01	1.4768e+00	9.0228e+00	8.7828e-02	1.3532e-03
L1 (2s1/2)	2.7622e-02	3.9724e-01	5.6330e-01	3.9464e-02	1.3913e+01	6.1806e-01	1.3295e+01	1.7753e-02	1.1703e-03
L2 (2p1/2)	2.6792e-02	5.4632e-01	4.2394e-01	2.9746e-02	1.0177e+01	7.1574e-01	9.4608e+00	2.0450e-02	1.2005e-03
L3 (2p3/2)	2.0894e-02	4.3321e-01	5.3055e-01	3.5233e-02	9.4524e+00	5.5061e-01	8.9018e+00	1.6439e-02	1.2453e-03
M1 (3s1/2)	7.1797e-03	2.0036e-02	8.6019e-01	1.1977e-01	1.0469e+01	3.4226e-02	1.0435e+01	4.2030e-03	5.9184e-04
M2 (3p1/2)	6.7840e-03	3.7966e-02	8.4803e-01	1.1401e-01	9.3510e+00	6.1541e-02	9.2894e+00	4.1851e-03	6.1931e-04
M3 (3p3/2)	5.3926e-03	1.6886e-02	8.6093e-01	1.2218e-01	7.8025e+00	2.1973e-02	7.7805e+00	4.1440e-03	5.9670e-04
M4 (3d3/2)	4.7608e-03	6.0122e-02	8.3398e-01	1.0590e-01	5.7825e+00	6.9642e-02	5.7128e+00	4.1100e-03	6.9500e-04
M5 (3d5/2)	4.4927e-03	1.0470e-04	8.8794e-01	1.1196e-01	5.6016e+00	8.5093e-04	5.6007e+00	5.5280e-04	7.1227e-04
N1 (4s1/2)	1.9258e-03	7.8907e-04	7.2740e-01	2.7181e-01	5.5284e+00	1.9373e-03	5.5265e+00	7.8440e-04	2.5348e-04
N2 (4p1/2)	1.7390e-03	6.0346e-04	7.1825e-01	2.8114e-01	5.2685e+00	1.7158e-03	5.2668e+00	6.1162e-04	2.3715e-04
N3 (4p3/2)	1.3596e-03	7.0664e-04	6.8850e-01	3.1079e-01	4.1095e+00	1.2493e-03	4.1083e+00	7.6901e-04	2.2785e-04
N4 (4d3/2)	1.0618e-03	6.4220e-04	6.7951e-01	3.1985e-01	3.2954e+00	1.1332e-03	3.2943e+00	6.0176e-04	2.1902e-04
N5 (4d5/2)	9.9436e-04	1.0954e-04	6.7772e-01	3.2217e-01	2.8872e+00	2.7852e-04	2.8869e+00	3.9106e-04	2.3343e-04
N6 (4f5/2)	6.0052e-04	8.9701e-05	6.8108e-01	3.1884e-01	1.9980e+00	1.4372e-04	1.9979e+00	3.7481e-04	2.0472e-04
N7 (4f7/2)	5.8167e-04	2.2987e-04	6.8389e-01	3.1588e-01	1.6557e+00	3.1917e-04	1.6554e+00	4.1889e-04	2.4029e-04
O1 (5s1/2)	4.4611e-04	3.5371e-05	4.9396e-01	5.0601e-01	1.8072e+00	7.8656e-05	1.8071e+00	2.0061e-04	1.2194e-04
O2 (5p1/2)	3.6806e-04	8.6627e-05	4.4161e-01	5.5830e-01	1.0803e+00	1.4391e-04	1.0801e+00	2.2156e-04	1.5048e-04
O3 (5p3/2)	2.6917e-04	1.6427e-05	4.4099e-01	5.5901e-01	1.00	2.8566e-05	9.9998e-01	1.5479e-04	1.1870e-04
O4 (5d3/2)	1.5389e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O5 (5d5/2)	1.3929e-04	0.	0.	1.00	0.	0.	0.	0.	0.
O6 (5f5/2)	1.2290e-05	0.	0.	1.00	0.	0.	0.	0.	0.
O7 (5f7/2)	1.0180e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P1 (6s1/2)	6.4850e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P2 (6p1/2)	4.1270e-05	0.	0.	1.00	0.	0.	0.	0.	0.
P3 (6p3/2)	2.5770e-05	0.	0.	1.00	0.	0.	0.	0.	0.
Q1 (7s1/2)	5.8500e-06	0.	0.	1.00	0.	0.	0.	0.	0.

Table 2. First Transition Fluorescence Yields and Energy Fractions in X-rays of Representative Elements

Initial Vacancy	Yield	Fraction
neon (Z=10)		
K	1.1e-02	1.36e-02
calcium (z=20)		
K	0.15	0.147
L	1.2e-04	2.42e-04
tin (z=50)		
K	0.82	0.786
L	6.0e-02	6.42e-02
M	3.0e-04	3.37e-04
N	4.0e-06	4.02e-04
fermium (Z=100)		
K	1.0	0.909
L	0.4	0.459
M	1.8e-02	2.70e-02
N	8.0e-04	4.53e-04
O	5.0e-05	1.98e-05

Figure 1