

Nuclear Structure and Decay Data Evaluation  
and Related Activities at the INEEL

for

meeting of U.S. Nuclear Data Program  
April 26-28, 1999 at Brookhaven National Laboratory

I. Mass-Chain Evaluations

Within the Nuclear Structure and Decay Data Evaluation Network, the INEEL has had the evaluation responsibility for the twelve mass chains 87 and 153-163. The participants in this work are R. G. Helmer and C. W. Reich. Since the last Network meeting in April 1998, we have submitted the complete evaluation for A=162. During this time period, the complete evaluation for A=154 has been added to ENSDF and published in Nuclear Data Sheets.

We are currently working on two priority nuclides for A=161.

The priority list prepared in August 1998 indicated that A=162 and 163 had a significant number of new references and should be evaluated. They have both been submitted.

The current status for our twelve A chains is as follows:

A	Last Pub. Date	Status
87	2/91	
153	2/98	
154	10/98	
155	4/94	
156	1/92	3 nuclides updated
157	6/96	1 nuclide updated
158	3/96	
159	5/94	
160	8/96	
161	1/90	
162	9/91	submitted
163	2/89	submitted (by B. Singh)

## II. Nuclide Evaluations

In the last few years it has been decided that the currentness of ENSDF would be improved by allowing, and in some cases encouraging, the evaluation of the data for individual nuclides (e.g., ones with new data). In response to this desire, we have submitted a number of nuclides.

The priority list prepared in August 1998 included 16 nuclides in our mass region. Of these, 10 are included in our A=154 (published), our A=162 (submitted), and B. Singh's A=163 (submitted). Two other nuclides,  $^{161}\text{Dy}$  and  $^{161}\text{Yb}$ , are being evaluated.

## III. Decay Data Evaluation Project, DDEP

R. G. Helmer is the coordinator of an international group that is carrying out evaluations of decay data for a group of nuclides that are important for applications. This group includes evaluators from France, Germany, Russia, United Kingdom, and E. Browne and J. K. Tuli from the United States.

The members of this Project have completed evaluations for 27 nuclides.

## IV. Coordinating Activities

R. G. Helmer was chosen as Chairman of the Working Group on Nuclear Structure and Decay Data Evaluation (DDEP) of the U.S. Nuclear Data Program. This assignment involved a significant effort in coordinating the U.S. presentations at the December 1998 meeting of the international network of evaluators at the International Atomic Energy Agency in Vienna, Austria.

A smaller effort has been involved in chairing this Working Group meeting at the U.S. network meeting in April 1998 and planning the April 1999 meeting.

## V. Related Activities

R. G. Helmer is a member of a Coordinated Research Project, CRP, sponsored by the International Atomic Energy Agency, IAEA, to evaluate decay data for nuclides used in the calibration of Ge  $\gamma$ -ray detectors. This CRP will use the methodology and results of the above DDEP.

R. G. Helmer and Cor van der Leun have prepared an evaluation of precise  $\gamma$ -ray energies that are useful for the calibration of Ge  $\gamma$ -ray spectrometers. A draft report is available to Network evaluators, and will be submitted for publication in the near future.

When he died in October 1997, R. L. Heath was preparing a CD-ROM version of his earlier Catalogue of  $\gamma$ -ray spectra from Ge semiconductor detectors. This project has been completed and the results available on the Internet at <http://id.inel.gov/gamma> or on CD-ROM.