United States nuclear data program and evaluated nuclear structure data file (ENSDF): data evaluation at Texas A&M

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Since 2005 we have been an important participant in the nationwide United States Nuclear Data Program (USNDP). This is a national-interest activity financed by DOE, through which the relevant nuclear-science results in virtually all world publications are retrieved and put together in a large Evaluated Nuclear Structure Data File (ENSDF) database according to *general policies* [1], a set of rules that make possible a standard approach through which the data are uniformly evaluated. This activity is supported by a relatively small group of professionals organized as a national data network located mostly in national institutes but also hosted by a few universities. The nuclear data network is the nodal point for the wide dissemination of nuclear knowledge to many customers, from those in basic science to those engaged in commercial applications in American and international businesses.

The US network is the most consistent part of an international network similarly organized worldwide. The output is published in the Nuclear Data Sheets, an Elsevier publication, and also is disseminated by different on-line databases which can be retrieved at the NNDC site (http://www.nndc.bnl.gov), IAEA Vienna's site (http://www-nds.iaea.org) and several other locations.

During these years we have covered essentially all the regions of the periodic table. The superheavy A=252 mass chain, the very data-rich mid-mass chains, A=147 and A=140, and the relatively lighter chains, A=97 and A=84, have all been published previously in Nuclear Data Sheets. More recently, we have done the A=34, 36, 37 and 77 chains in collaboration with B. Singh of McMaster University, Canada. Since nuclear-data evaluation depends critically on the experience of the evaluator, with a veteran evaluator typically completing only a couple of mass chains per year, coverage of such a wide range of A chains in such a short time is a considerable accomplishment. This once more testifies to Texas A&M's qualifications to be considered a national evaluation center.

During the past year we covered a relatively heavy mass chain, A=148, by considering all world publications since 2000, when the previous full evaluation of this mass chain was published. The chain includes Xe, Cs, Ba, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, and Tm, a total of 16 nuclei about which approximately 300 papers have been published during this interval, an increase in the database file of about 22%. This work [2] is in the after-review stage and will be published in Nuclear Data Sheets by the end of this year.

This year we were also able to work with B. Singh on the review and preparation for publication of the four A chains we had evaluated together, A=34, 36, 37, and 77; one of these chains, A=36, has already appeared in print [3].

[1] Nucl. Data Sheets **111**, v (2010).
[2] N. Nica, Nuclear Data Sheets (accepted).
[3] N. Nica, J. Cameron, and B. Singh, Nucl. Data Sheets **113**, 1 (2012)