

United States Nuclear Structure Data Program (USNDP) and Evaluated Nuclear Structure Data File (ENSDF) at Texas A&M University

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Since 2005 we have been an important partner in the nationwide United States Nuclear Data Program (USNDP), which is part of the Nuclear Structure and Decay Data (NSDD) international nuclear data-evaluation network. USNDP is in fact the main part of the NSDD network, making the greatest effort in completion of the goals of the nuclear-structure data evaluation communities. Nuclear data evaluation is a national-interest activity financed by DOE, through which 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 polices, a set of rules that makes possible a standard approach through which the data are uniformly evaluated.

This activity is carried out by a relatively small group of professionals located mostly in national laboratories but also hosted by a few universities. The nuclear data network is the nodal point for the wide dissemination of nuclear knowledge to many users, from those in basic science to those engaged in commercial applications in American and international businesses. 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 other locations.

Starting at the beginning of 2017 our status in the evaluation network has changed. Since 2005, evaluation work at the Cyclotron Institute has been funded by a contract with Brookhaven National Laboratory. From 2017 on, it will be funded directly as part of the DOE Grant for the Cyclotron Institute at 0.67% FTE, with one of us (NN) as principal investigator, and the other (JCH) as scientific adviser. While initially this is primarily an administrative change, it will qualify us to become in future a standalone evaluation center, the seventh in the US.

In the 12 years that the Cyclotron Institute of Texas A&M has been involved, we have completed and published the evaluation of mass chains covering a large part of the nuclear chart. We have published in Nuclear Data Sheets the superheavy $A=252$ mass chain [1]; the very data-rich mid-mass chains, $A=140$ [2], $A=141$ [3], $A=147$ [4] and $A=148$ [5]; the relatively lighter chains, $A=97$ [6] and $A=84$ [7], the latter in a large international collaboration; and in collaboration with B. Singh and a group of authors from McMaster University, Canada, we also published the $A=77$ [8], $A=37$ [9], $A=36$ [10], and $A=34$ [11] chains. At the beginning of 2016 another big mass chains, $A=157$ was published in Nuclear Data Sheets [12], followed by $A=158$ in the 2017 March-April issue of the same journal [13]. Another two massive mass chains, $A=140$ and $A=155$ are in the pipeline for publication.

During the spring of 2017 we started a new full evaluation for the mass chain $A=160$, updating it to include all the publications that have appeared since the last evaluation closed in June 2005. The chains consist of the following $A=160$ isobars: Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, and Re: in total 16 nuclei. Our bibliographical search found that, since June 2005, 383 papers were

published concerning this mass chain, of which 337 were primary references (most important); 92% of all publications are experimental. The work is in progress.

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- [8] B. Singh and N. Nica, Nucl. Data Sheets **113**, 1115 (2012).
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