

## Evaluated Nuclear Structure Data File (ENSDF) at Texas A&M

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In August 2005 we began, under contract, contributing to the *Evaluated Nuclear Structure Data File* (ENSDF) maintained by the National Nuclear Data Center at Brookhaven National Laboratory. This data file is sponsored by DOE and contains evaluated nuclear-structure and decay data in a standard format, updated regularly by an international network of evaluators. The evaluations are also published in *Nuclear Data Sheets*, a monthly journal published by Academic Press, a division of Elsevier Science. All experimental data known for each nuclide are collected and each type of experiment is presented as a separate data set. Finally a comprehensive data set containing the values determined by the evaluators is built as *Adopted Levels, Gammas*. By April 2006, the ENSDF database contained 15,700 data sets for 2982 nuclides.

The internet-accessible ENSDF has become more and more the central point of nuclear-data users and is extensively used by both basic and applied scientists. The data sets, especially the *Adopted Levels, Gammas*, are the most complete available image of each nuclide, which is built by comparison and integration of all known data. The evaluator is not a referee and does not give any verdict on the quality and impact of the data, but rather tries to achieve the best synthesis based on all published data. ENSDF is the most comprehensive nuclear structure data base, on which other evaluation products are based, and it is often the starting point for more refined evaluations.

So far, we have accepted two mass chains for evaluation,  $A=252$ , and  $A=140$ . The  $A=252$  mass chain consisted of eight nuclei (Cm, Bk, Cf, Es, Fm, Md, No, Lr) and has already been published [1]. The  $A=140$  mass chain is one of the largest, with sixteen nuclei (Te, I, Xe, Cs, Ba, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho), and covers more than 1000 references, of which about 150 were published in the period since the last cut-off date. This evaluation is still in progress.

ENSDF can also be used as an effective research tool in our lab. Searches of particular parameters are possible in ENSDF, and the file is now readily accessible here for systematic studies of nuclear properties. When analyzing experiments or making theoretical studies, one can now easily access the most complete nuclear data set available anywhere.

[1] N. Nica, Nucl. Data Sheets **106**, 813 (2005).