

Nuclear Structure and Decay Data Evaluation: Current Status and Future Perspectives*

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on behalf of the International Nuclear Structure and Decay Data Network[#]

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The expression "Nuclear Structure and Decay Data" refers to complex nuclear level schemes and tables of numerical values, which quantify fundamental nuclear structure information, such as level energies and quantum numbers, lifetimes, decay modes, and other associated properties. These data are not only at the core of basic nuclear structure and nuclear astrophysics research, but they are also relevant to many applied technologies, including nuclear energy production, reactor design and safety, medical diagnostic and radiotherapy, health physics, environmental research and monitoring, safeguards, material analysis, etc.

The primary mission of the International Nuclear Structure and Decay Data Network is to evaluate, compile and disseminate nuclear structure and decay data for all known nuclei (more than 2900!). The principal effort of the network is devoted to maintain and update the two most complete and comprehensive databases in the field of nuclear physics: the Nuclear Science Reference (NSR) file and the Evaluated Nuclear Structure Data File (ENSDF). The evaluations are peer reviewed and published in the journal Nuclear Data Sheets. The corresponding data are disseminated to the Nuclear Physics community world-wide using the latest computer technologies. The research centers participating in the network are also involved in nuclear data measurements, analysis and modeling activities, as well as in development of new evaluation methodologies, that are relevant to basic science and applied physics research. In recent years, special attention has been given to specialized (horizontal) evaluations of specific nuclear properties that are useful to a broad range of nuclear structure physics and nuclear astrophysics communities.

This presentation will review recent achievements of the network, present on-going activities and reflect on ideas for future projects in the field of evaluated nuclear structure and decay data.

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