

NUCLEAR DATA FOR NUCLEAR SCIENCES AND APPLICATIONS

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Nuclear data are essential for many applications including nuclear power, nuclear fusion, medicine, non-destructive testing, and environmental monitoring. Reliable, up-to-date and well-structured data libraries are indispensable not only for nuclear specialists in the various applications fields, but also for nuclear physics researchers who need the data to improve their knowledge and plan future activities that may lead to new discoveries.

The IAEA supports nuclear research activities by providing essential nuclear data and serving as the central agency for the collection and dissemination of data from laboratories worldwide. The EXFOR database contains a compilation of experimental reaction data from all around the world. The Evaluated Nuclear Structure Data File (ENSDF) includes the most extensive and comprehensive set of nuclear structure and decay data evaluations performed by the International Network of Nuclear Structure and Decay Data evaluators, coordinated by the IAEA.

The IAEA has also developed tools for visualization and retrieval of data. The LiveChart application interactively presents nuclide properties taken from ENSDF, while the Isotope Browser provides the same data on a smart phone (Androids and iPhones).

The compilation, evaluation and dissemination of nuclear data are laborious tasks that rely heavily on contributions from experts in both the basic and applied science research communities. Efforts carried out at national and international levels benefit from the coordination provided by the IAEA through its Coordinated Research Projects.

This paper will present the achievements of the IAEA Nuclear Data Section with emphasis on the unique connection between nuclear data development and nuclear physics research.