

Progress towards the ENDF/B-VIII.1 release

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Abstract: The efficient, safe, and high-performance design and operation of nuclear reactors, and other nuclear applications, rely on complete and accurate nuclear data files. The ENDF/B library is the main nuclear reaction data library in the United States and one of the main ones in the world [1]. It encompasses sub-libraries for neutron, proton, alpha, deuteron, ^3He , and gamma projectiles, in addition to thermal neutron scattering law, fission product yields and atomic ones. The last release of ENDF/B was its VIII.0 version in 2018 [1]. Since then, many important and impactful developments have been made, in particular for actinides, structural materials and light elements. Some of these contributions are part of the IAEA-coordinated International Nuclear Data Evaluation Network (INDEN) [2]. This warrants a new library release, namely ENDF/B-VIII.1, which is scheduled for early 2024. This release is planned to happen in both ENDF-6 and GNDS-2.0 formats. The present work will describe the updates expected to be present in ENDF/B-VIII.1, as well as the review process and quality control procedures developed and implemented at the National Nuclear Data Center (NNDC). We will also show preliminary results from the Beta versions already released.

[1] D.A. Brown, et al., "ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data", Nuclear Data Sheets, Vol. 148 (2018), 1-142

[2] <https://www-nds.iaea.org/INDEN/>