

ENDF Report

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**ENDF/B-VIII.0 was released on
2 Feb. 2018 by the Cross Section
Evaluation Working Group
(CSEWG)**

ENDF
B-VIII.0

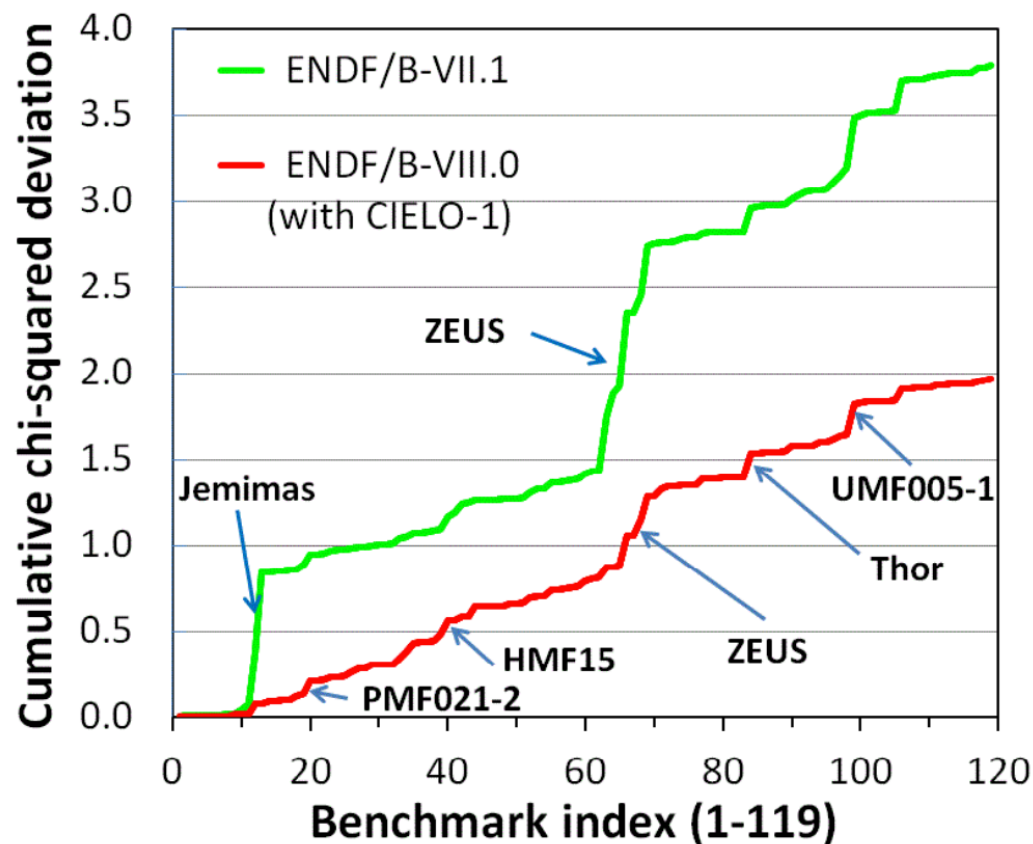
Integrates contributions for many sources

- **Neutron Data Standards** *IAEA, NIST*
- **CIELO Pilot Project** *BNL led Fe, LANL led ^{16}O and ^{239}Pu , IAEA led $^{235,238}\text{U}$*
- **Many new and improved neutron evaluations** *(DP, Crit. Safety, NE, USNDP)*
- **New thermal scattering libraries** *(Crit. Safety, Naval Reactors)*
- **Decay data** *USNDP (BNL)*
- **Charged particles** *USNDP (LLNL)*
- **New atomic data** *(LLNL)*
- **Success rests on EXFOR & ENSDF libraries**
USNDP (BNL) compiles EXFOR reaction data for US & Canada
USNDP develops the ENSDF library

Happy
50th
Anniversary! *

ENDF/B-VIII.0 is our best performing and highest quality library yet

- **Validate by simulating well characterized systems**
 - Thousands of critical assembly benchmarks
 - 14 MeV & $^{252}\text{Cf}(\text{sf})$ source transmission
 - Many other tests
- **Quality also assured by**
 - ADVANCE continuous integration system at BNL
 - Annual Hackathons



M.B. Chadwick et al, Nuclear Data Sheets 148, 189 (2018)

Overall high quality in thermal and fast benchmarks

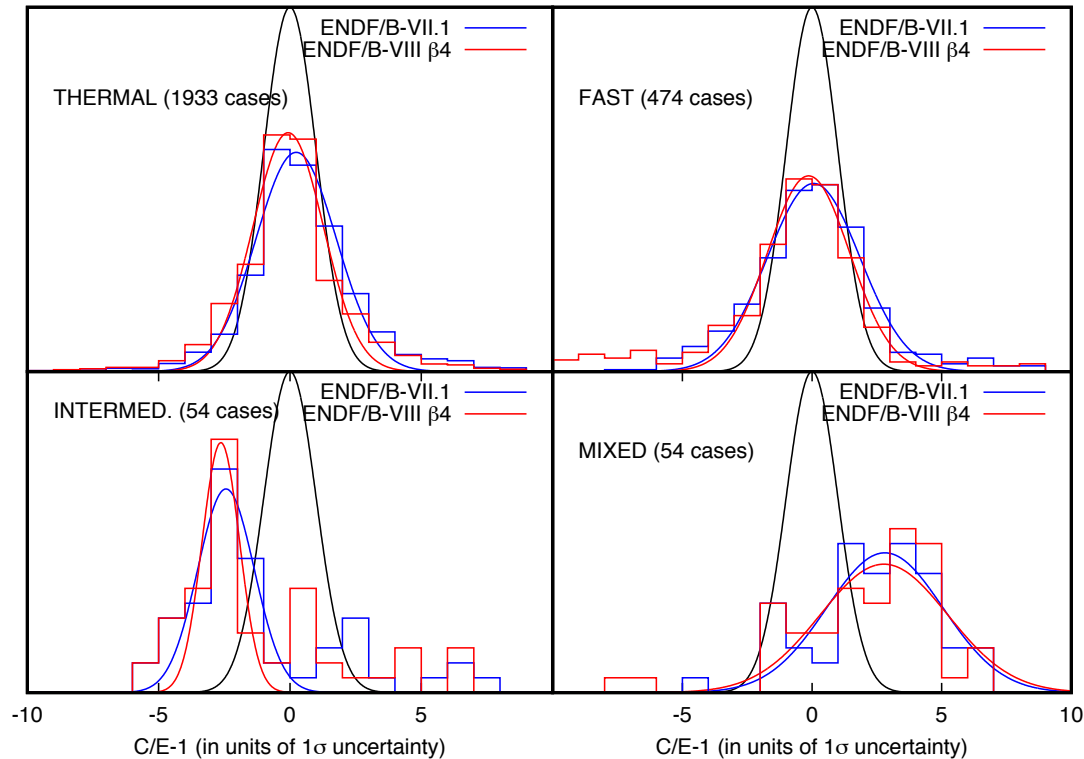


FIG. 29. (Color online) The distribution of C/E , in units of the combined benchmark and statistical uncertainty. The normal distribution (in black) would be the perfect situation.

M. Chadwick et al., Nuclear
Data Sheets 148, 189 (2018)

Library and evaluations detailed in Nuclear Data Sheets vol. 148 (2018)

- **ENDF/B-VIII.0:** D. Brown *et al.*, Nuclear Data Sheets 148, 1 (2018)
- **Neutron Data Standards:** A. Carlson *et al.*, Nuclear Data Sheets 148, 143 (2018)
- **CIELO Overview:** M.B. Chadwick, *et al.*, Nuclear Data Sheets 148, 189 (2018)
- **CIELO Iron:** M. Herman, *et al.*, Nuclear Data Sheets 148, 214 (2018)
- **CIELO Uranium:** R. Capote, *et al.*, Nuclear Data Sheets 148, 254 (2018)
- **PFNS evaluation:** D. Neudecker, *et al.*, Nuclear Data Sheets 148, 293 (2018)
- **$^{239}\text{Pu}(n,g)$ measurement:** S. Mosby, *et al.*, Nuclear Data Sheets 148, 312 (2018)
- **^{235}U PFNS measurement:** M. Devlin, *et al.*, Nuclear Data Sheets 148, 322 (2018)



The ENDF/B-VIII.0 Publicity Tour



- **9th Tri-Lab Nuclear Data Workshop, LANL (Mar. 2018)**
 - Invited talk
- **NCSP Tech. Prog. Review, ORNL (Mar. 2018)**
 - Several talks by community
- **PHYSOR 2018, Cancun, MX (Apr. 2018)**
 - Several talks by community
 - Invited talk
 - Proceedings
- **MeV Summer School, ANL (July 2018)**
- **RPSD 2018, Santa Fe, NM (Aug. 2018)**
 - Special session
 - Invited talk
 - Proceedings
- **UC Berkeley Dept. Nucl. Eng. Colloquium (Sep. 2018)**
- **ANS Winter Meeting 2018, Orlando, FL (Nov. 2018)**
 - Special session
 - Panel discussion
 - Proceedings