



# Fission in Stockpile Science

Workshop for Applied Nuclear Data Activities (WANDA)

Feb 9 – 12, 2026

Arlington, VA

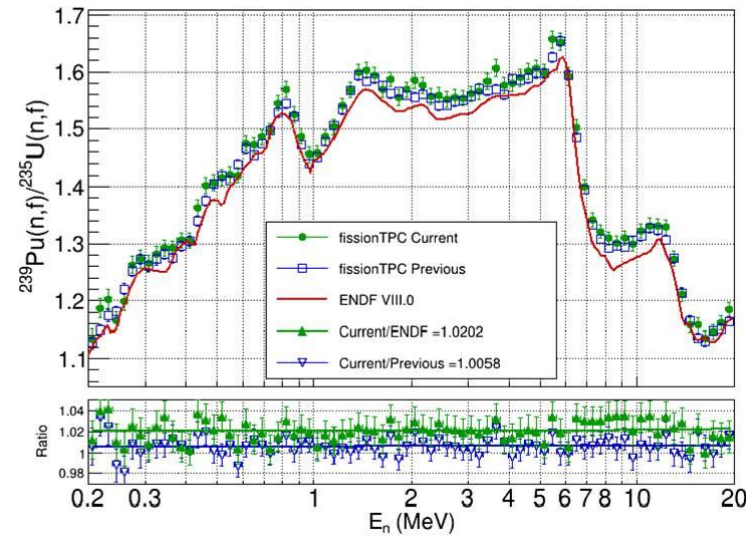
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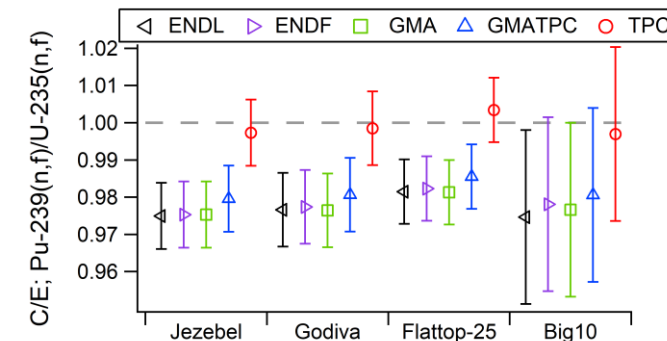
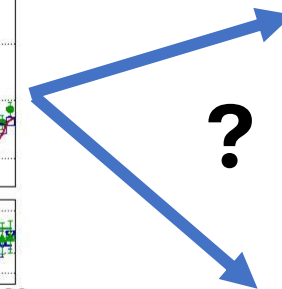
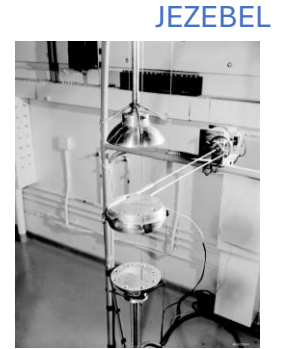
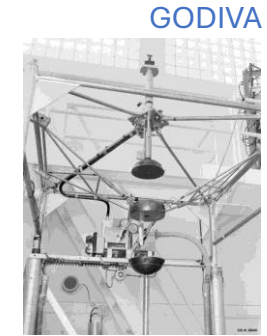
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# Fission is a complex reaction and important to predictive capabilities

- Fission multiplication
  - Cross section
  - Neutron emission,  $\bar{\nu}$
  - Prompt Fission Neutron Spectrum, PFNS
- Minor actinides
  - Fission is difficult to predict without data
  - Additional data supports unified fission description
- Photofission

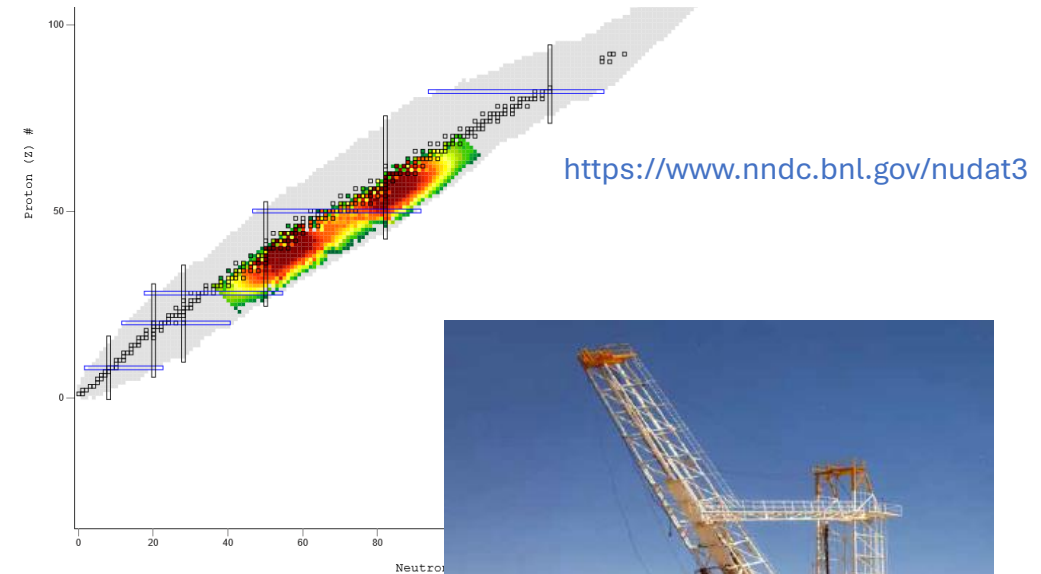


NIFFTE <https://doi.org/10.1016/j.nds.2025.04.003>



# Fission emissions are also important... and challenging

- Fission products are inherently stochastic
  - Many gaps – need predictive theory
  - Theory requires many inputs
    - Some inputs same as cross section (e.g. level densities,  $\Gamma$ -strength, transmission coefficients)
    - Additional data needs (e.g. fission fragment distributions, excitation energies and spins of fragments)
  - Measurements needed to constrain & validate theory
- Few high-quality benchmarks for validation
- Missing or incomplete uncertainties and correlations
- Are the time groups sufficient for future applications?



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