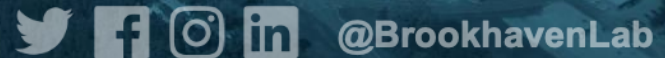




Thermal neutron capture primary gamma-rays: Issue and repair

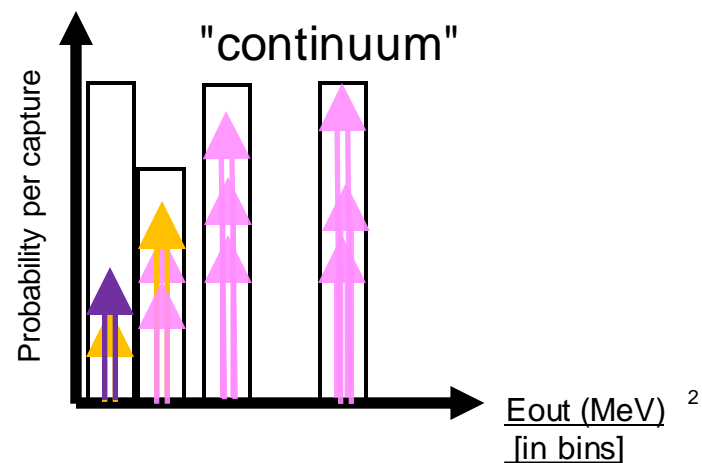
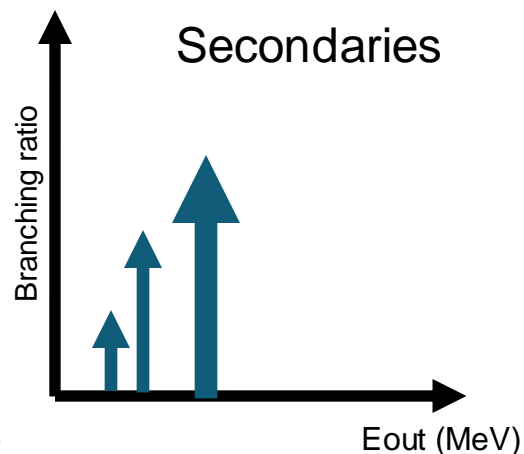
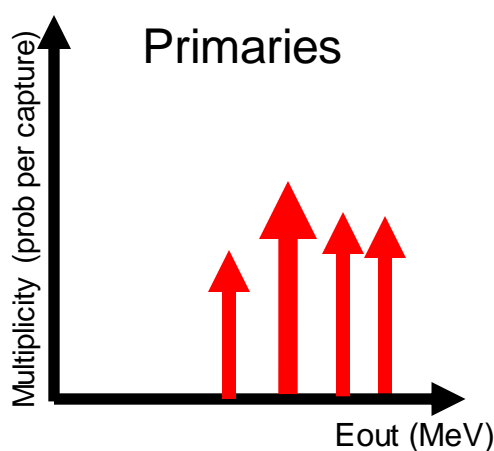
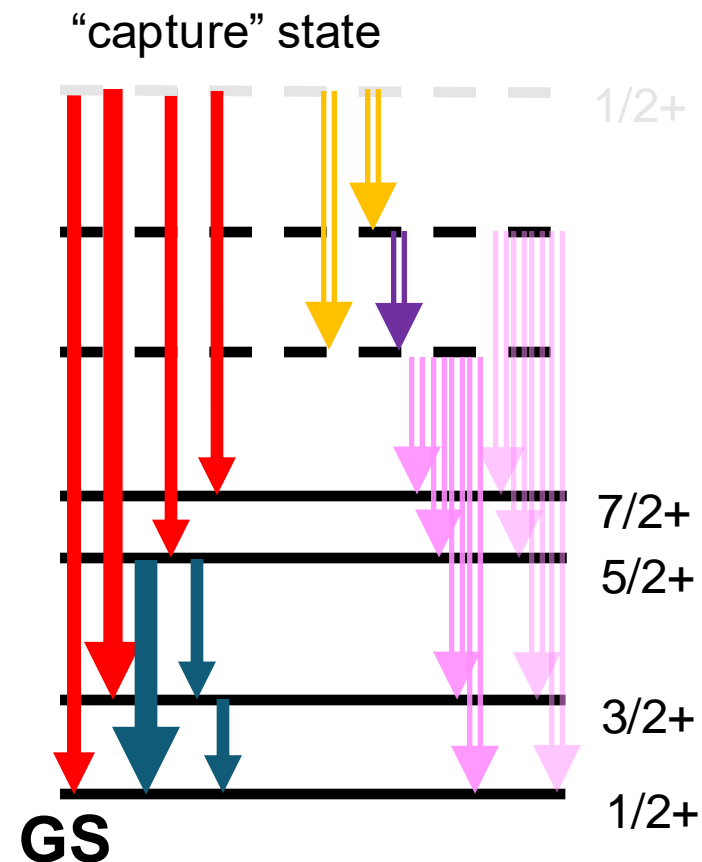
Emanuel V. Chimanski
GRIN (Gamma-Ray Induced by Neutrons)

Apr 25, 2023



Outline

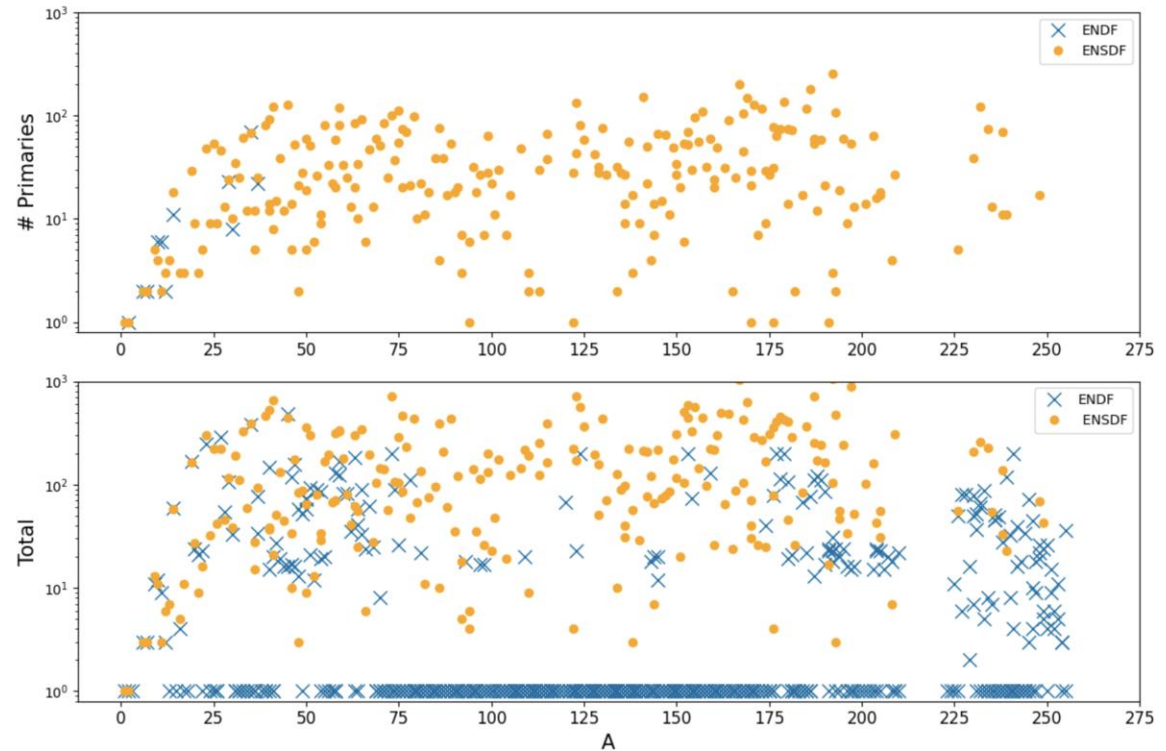
- Triage of differences in thermal capture spectrum between GNDS and ENSDF (and EGAF):
- One should have *one* primary capture emission for *each neutron capture event*
- Summary and repair strategy;



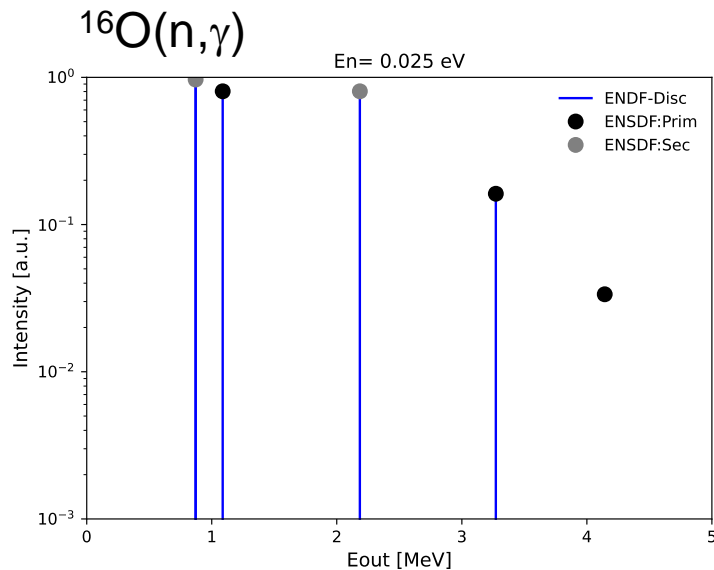
Photon (gamma) distributions (@termal)

ENDF/VIII.0

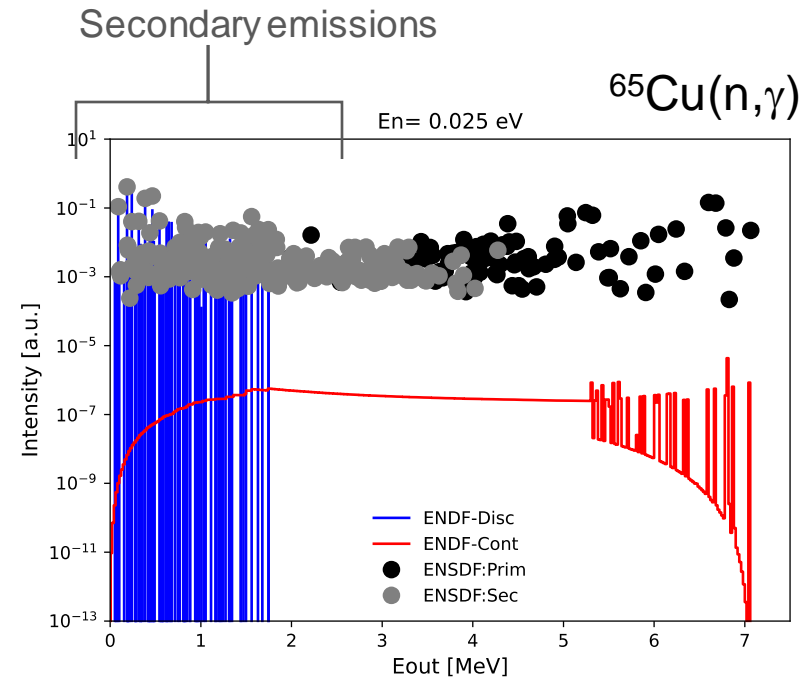
- 144 targets with no photon data for capture in ENDF
- **11 with primary + discrete photons**
- 161 with only discrete photons
- **Most isotopes in ENDF do not have flagged primary transitions** separately but seem to include them all into the discrete type or into the "continuum"



Some selected cases with highlighting differences



- ENDF does not always flag primaries



- Sometimes ENDF includes primaries into the “continuum” spectrum
- Likely to require new cascade simulation

Repair strategy

ENDF > library > neutrons > Issues > #479

Open Issue created just now by Emanuel Chimanski (Developer) Edit Close issue

Thermal neutron capture primary gamma-rays: Issue and repair

Only about 11 isotopes have flagged thermal primary gammas. Most of the cases seem to include all gamma-rays into the discrete type or into the "continuum". The primary gammas should be properly flagged. I could go over the isotopes and flag primaries (matching energy to ENSDF or EGAF)

0 0

Create merge request

- Do not change ENDF capture gamma structure (MF-6, MF-12)
- Use FUDGE to Flag primaries accordingly to ENSDF-Thermal or EGAF