Status of ENDF/B FP Yield Data

W.B. Wilson

Los Alamos National Laboratory

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BNL

History of Yield Evaluations

- **Yield evaluations performed by Meek & Rider at GE for decades.**
- **Family of programs, techniques, procedures developed for yield evaluations at GE.**
- **Rider particularly successful at gathering measured yield data through literature and personal contacts.**
- **LANL participation grew with contributions from Dave Madland & Leona Stewart (isomer branching), Tal England (evaluations, E-O effects), Art Wahl (Gaussian modeling), others …**
- **ENDF/B growth, Rider's retirement from GE, collaboration with Tal England shifted evaluation to LANL.**

- **ENDF/B-IV initial release based on last Meek & Rider evaluation with some improvements ????**
  - **50 fission systems;**
  - **For thermal (t), fast (400-650 keV), high-energy (14-14.x MeV), and/or SF;**
  - **Tabulated values for**
    - **measured independent, (if available)**
    - **measured cumulative, (if available),**
    - **calculated independent,**
    - **calculated cumulative,**
    - **recommended independent, and**
    - **recommended cumulative.**
  - **Uncertainties in all values given in alphabetic suffix, with a < 0.35% through p > 45%;**
  - **Stand-alone decay data (H-L, paths, branchings, isomer ID) used in relating independent and cumulative values --- many or most measurements are for cumulative values;**

- England and Rider evaluation of yields for data through 1993 was last work.
- Benchmarking extensive
- Documentation in LA-UR-94-3106 (ENDF-349) [October, 1994]
  - **report plus 6 appendices – w/ measured data listings**
  - **~1300 pages --- available on LANL t2 ND site as .pdf + .txt files or from me as .ps files**
  - **60 fission systems - - - t, f, h-e, and/or SF**
  - **1325 products in one or more systems**

ENDF/B-VII and BEYOND

- **Do nothing? Excellent product in hand!**
- **Known problems limited to transcription error of Rudstam value for A~88 in U235t**
- **BUT, new applications want more data**
- **New tools available for**
  - **Additional & higher energies – 200 MeV**
  - **Additional incident particles – p, γ, α**
  - **Art Wahl CYF systematics -- n & p, 89<Z<99**
  - **Marshall Blann HMS-ALICE w/ (n,f), FPs, isomers, n, p, γ, α**
    - **Mashnik & Gudima help**
  - **TALYS ?   ABLA?**