Planned fast evaluations for ^{240}Pu

A.E. Lovell, D. Neudecker, M.R. Mumpower, T. Kawano,
N. Kleedtke, I. Stetcu, N. Gibson
Los Alamos National Laboratory

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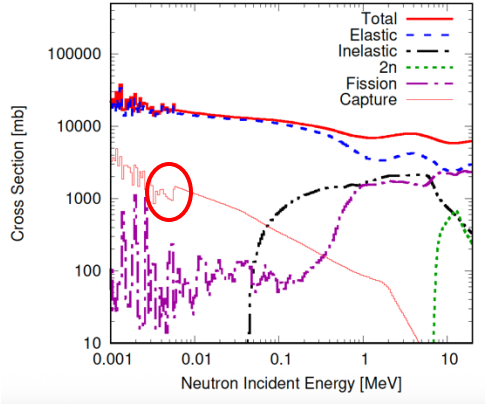
Motivation for fast cross section, nubar, and PFNS changes

Previous evaluations are from ENDF/B-VII.1

Cross Section:

- Unphysical connections between the RRR and fast (e.g. capture, unpublished data from DANCE can guide the evaluation)



- Fission xs uncertainties are below ^{239}Pu (0.5% for some energies)!

PFNS:

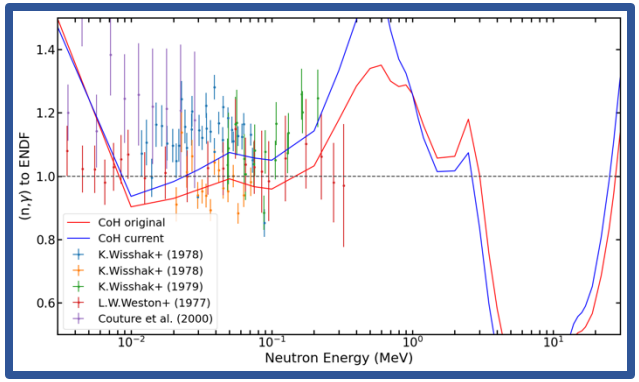
- No reasonable data exist until the recent ChiNu experiment
- Previous evaluation misses important multi-chance fission physics (pre-equilibrium component)
- ENDF/B-VII.1 only gives a single covariance block for E_{inc}=0.5 MeV

Nubar:

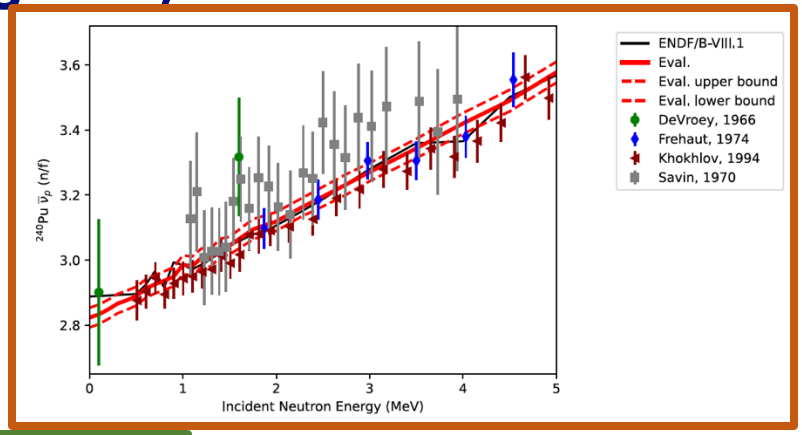
- VII.1 evaluation was purely based on data (data sets have significant discrepancies)
- Unphysical structures appear due to overfitting
- Experimental UQ + model-based evaluation help understand these difficulties

Evaluation is part of an FY26 milestone
Connection to be made with RRR

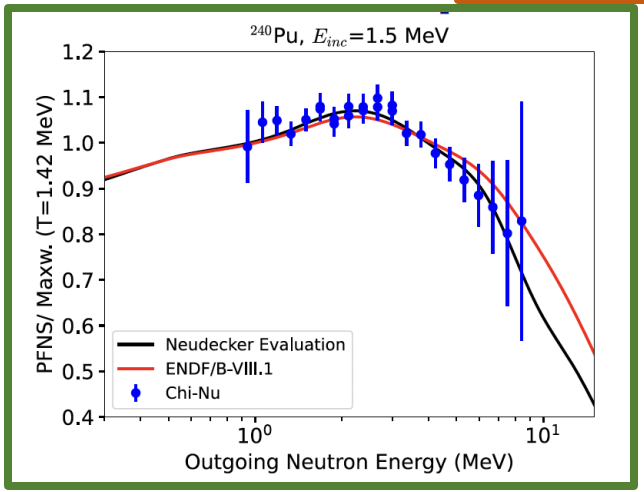
Current evaluation status (in progress)



ChiNu data have been used with improved Madland-Nix modeling. Covariances are defined across whole E_{inc} range.



Unpublished DANCE data are being used to guide the evaluation. Experimental data sets from LANL LDRD can be leveraged for robust UQ. Covariances are being developed.



Experimental UQ is addressing data discrepancies. CGMF+data evaluation removes overfitting.

Impacts to crits are being assessed (mainly dirty Jezebel)