

Additional information to CSEWG talk on “Average Prompt-fission Neutron Multiplicity and PFNS Evaluations for ^{239}Pu ”

D. Neudecker, 12/1/20

CSEWG, Evaluation Session

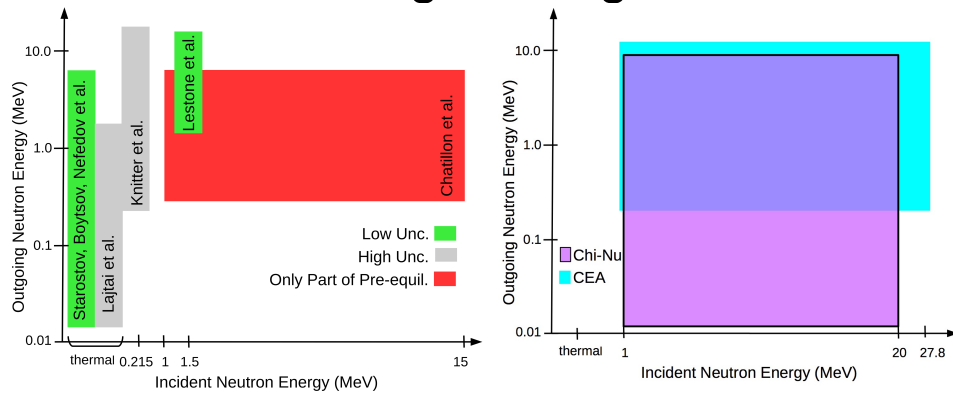
Thanks to Chi-Nu and CEA experimentalists (especially K. Kelly, M. Devlin, P. Marini and J. Taieb) for their patience in working on their data with me as well as understanding the systematic discrepancies between their data.

Thanks to A. Lovell for modeling of ν -bar with CGMF and to P. Talou, T. Kawano and I. Stetcu for guidance.

Isotopes/ reactions to update: ^{239}Pu PFNS and nu-bar

PFNS

Motivation: New data by Chi-Nu & CEA decisively improve exp. Database for evaluation -> large change in $\langle \text{PFNS} \rangle$.

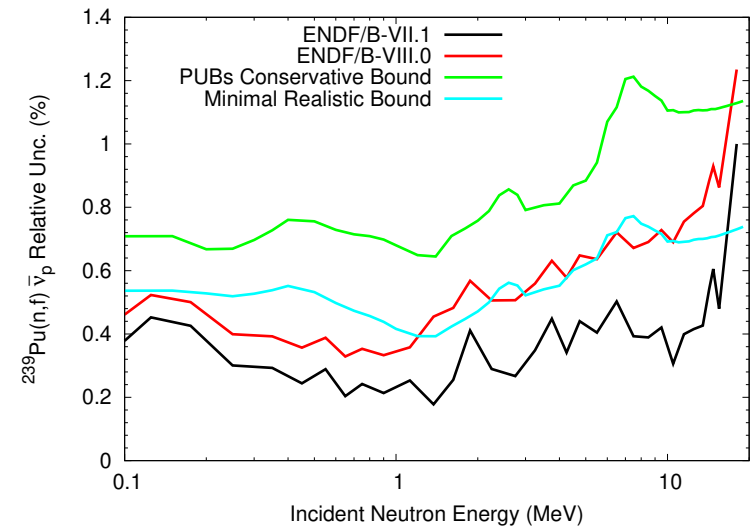


New data: Kelly et al., PRC 102, 034615 (20). Marini et al., PRC 101, 044614 20).

Validation testing: in-house and INDEN

Nu-bar

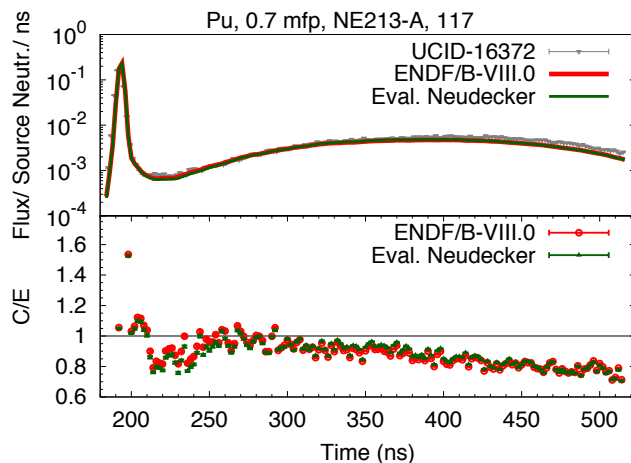
Motivation: unc. likely too low



New data/ theory:

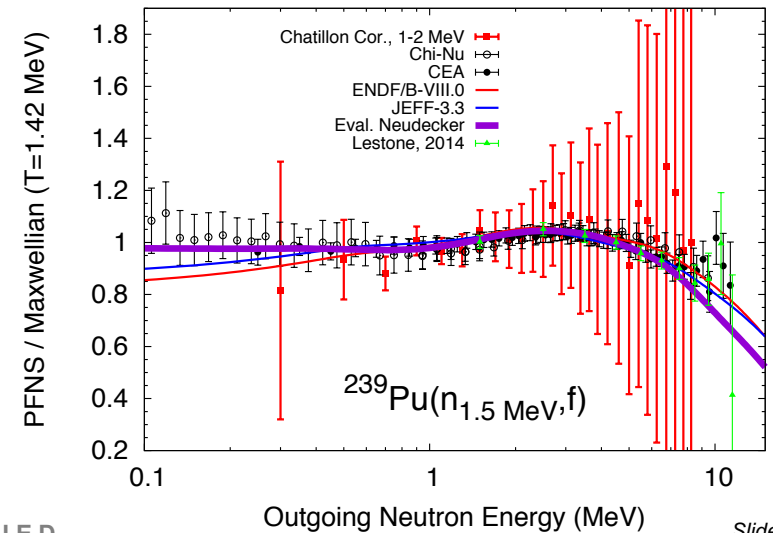
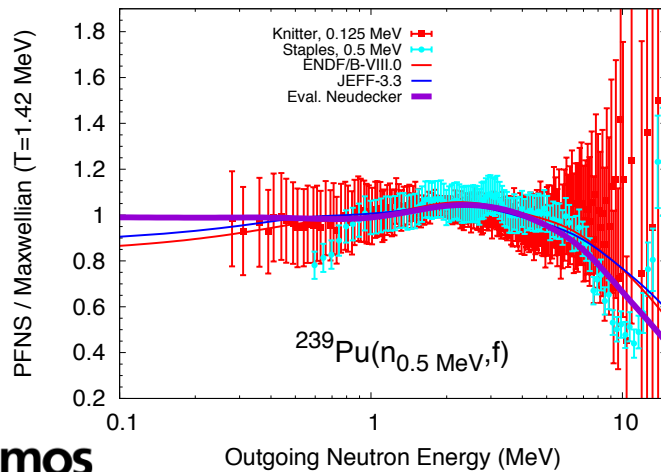
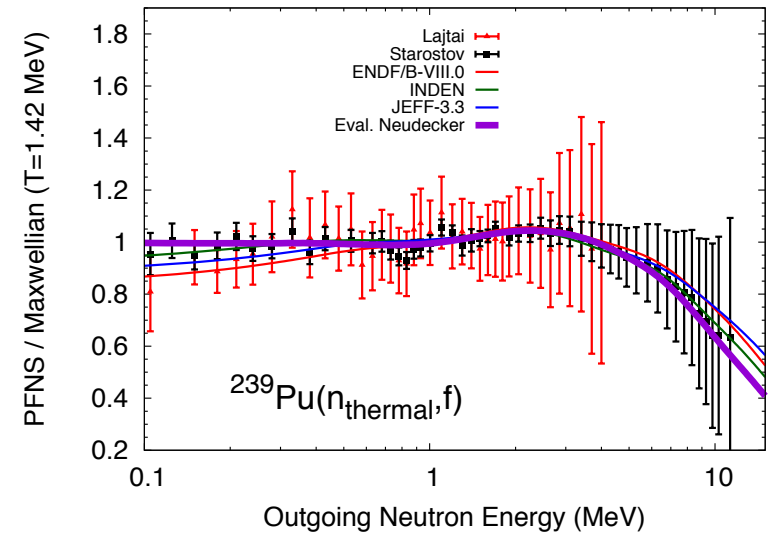
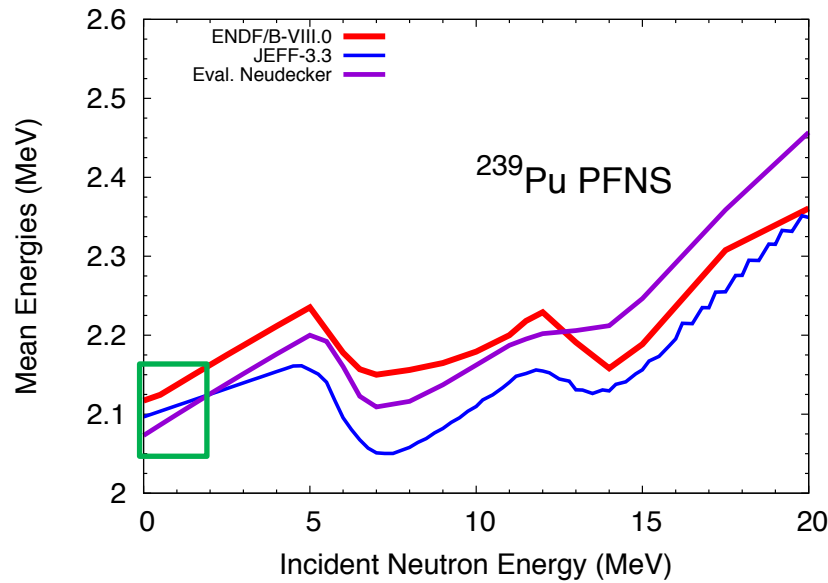
- We might include theory via CGMF (A. Lovell, NDAG)
- New exp. UQ, new CEA data.

Validation testing: LANL, INDEN

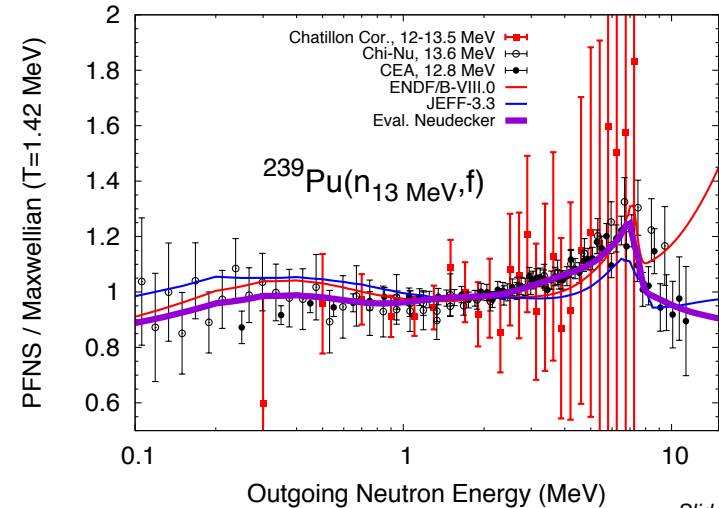
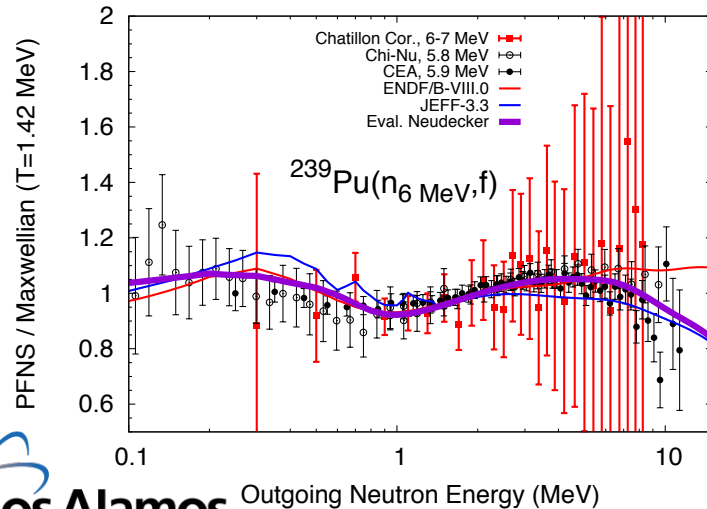
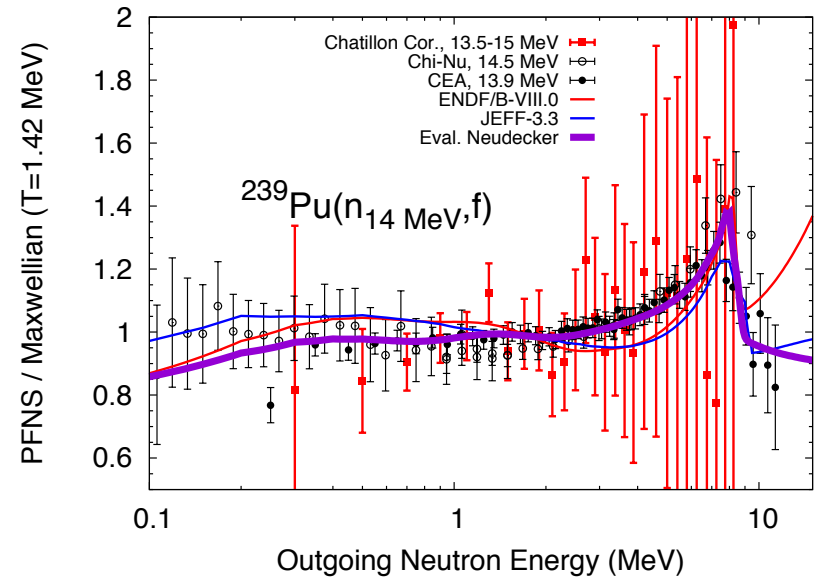
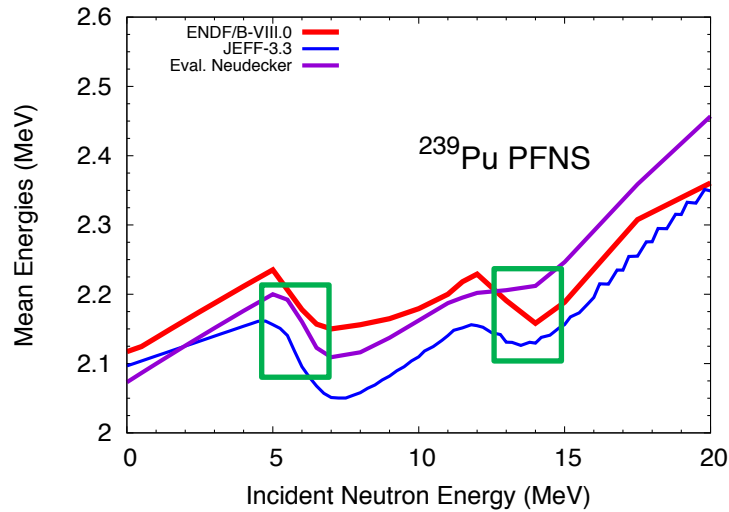


	Jezebel	Flattop	PMI-002
VIII.0	0.998981(8)	0.99978(10)	1.00409
VIII.0+ new PFNS	0.99782(8)	0.99756(10)	1.00495(12)

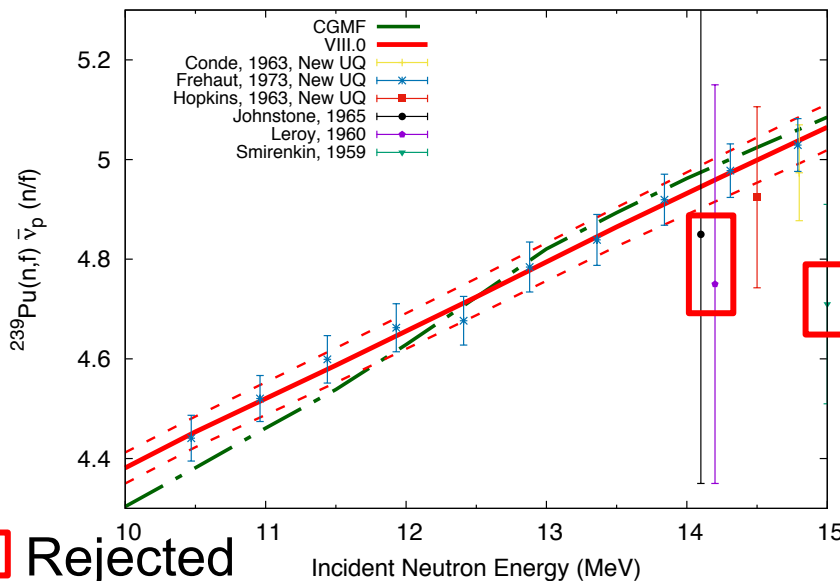
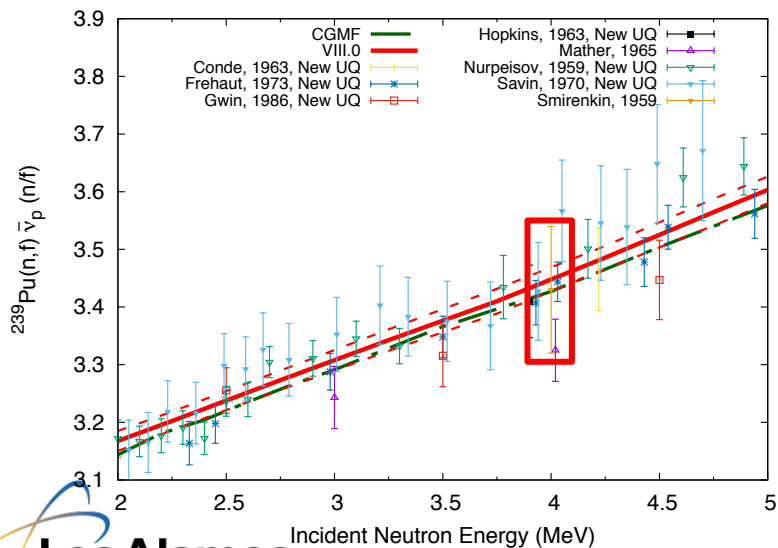
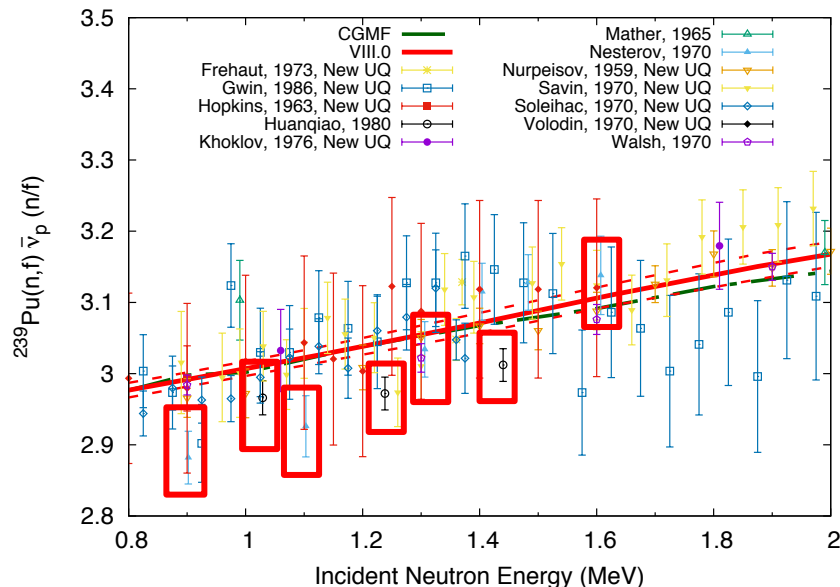
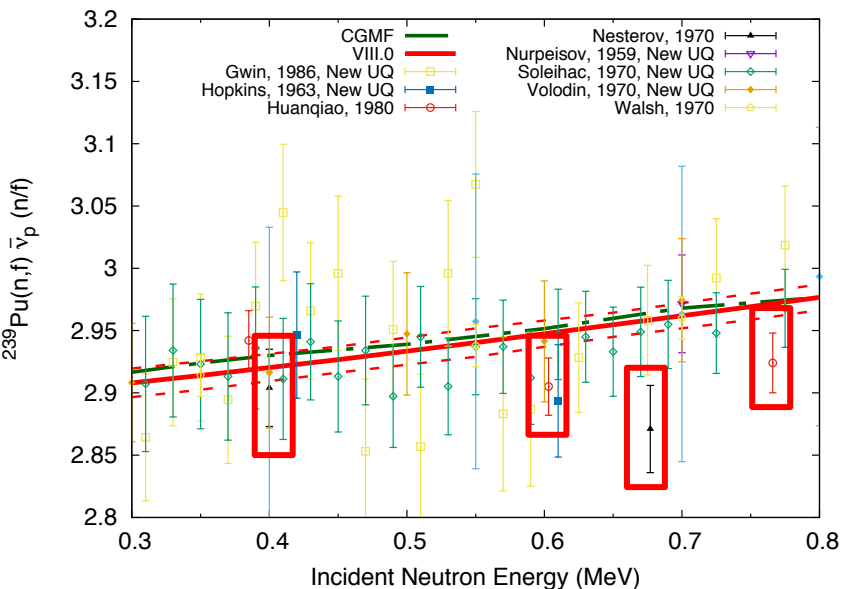
$E_{inc} = \text{Thermal and 1.5 MeV}$: Evaluation agrees with thermal exp. data and close to INDEN evaluation.



Chi-Nu and CEA provide better understanding of physics for the evaluation.



Changes in experimental database of Phil Young.



 Rejected

UNCLASSIFIED

Acknowledgements

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