

^{239}Pu and ^{235}U PFNS and nu-bar covariances

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LA-UR-22-31319 Thanks to the following collaborations: Chi-Nu, CGMF, PFNS CRP,
NNSA/ CEA collaboration, Templates

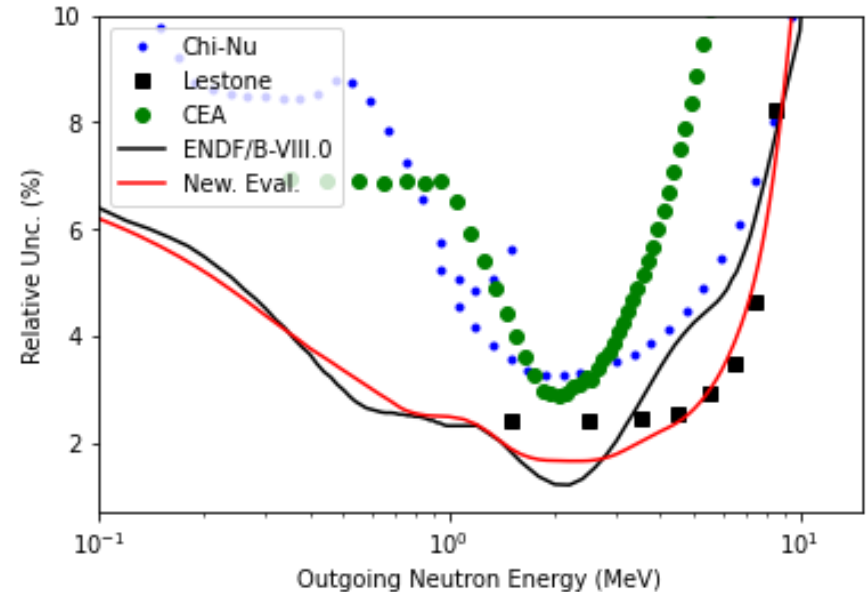
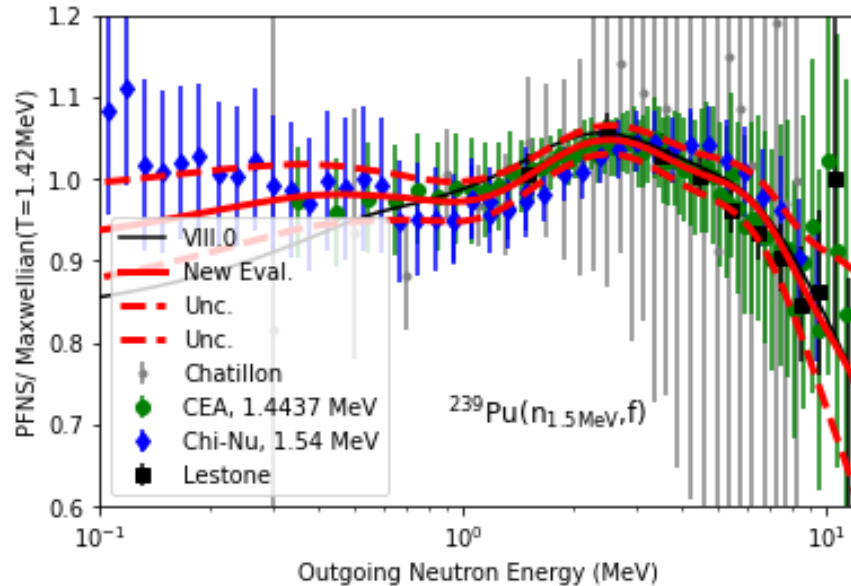
$^{239}\text{Pu}(n,f)$ PFNS

**References: Neudecker, Kelly, Marini, LA-UR-22-23754;
DN et al., NDS 148, p. 293 (2018).**

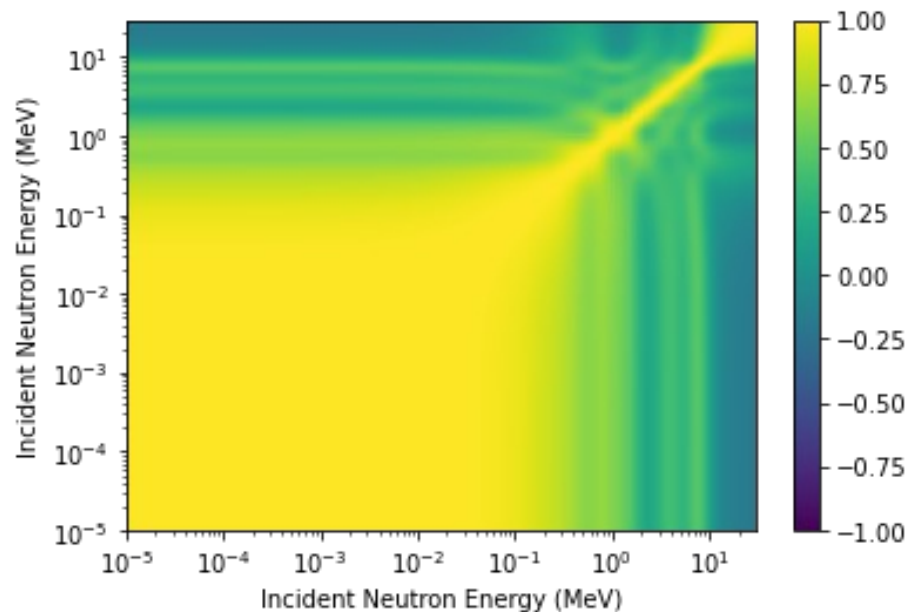
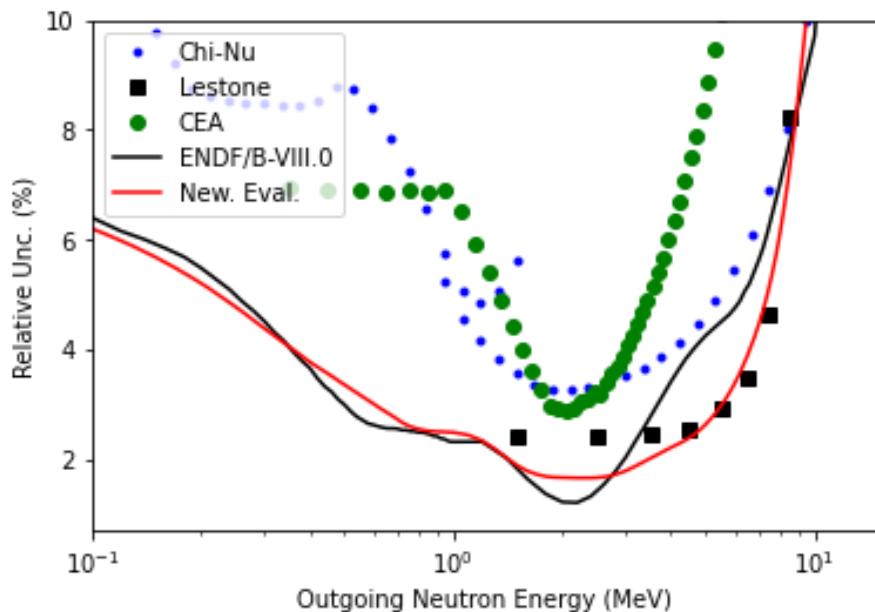
**Thanks to: Chadwick, Devlin, Haight, Kawano, Kelly,
Lee, Marini, Mosby, O'Donnell, Taddeucci, Taieb, Talou,
White, Wu**



PFNS evaluated uncertainties with model unrealistically small. Multiplied with factor 2.1.



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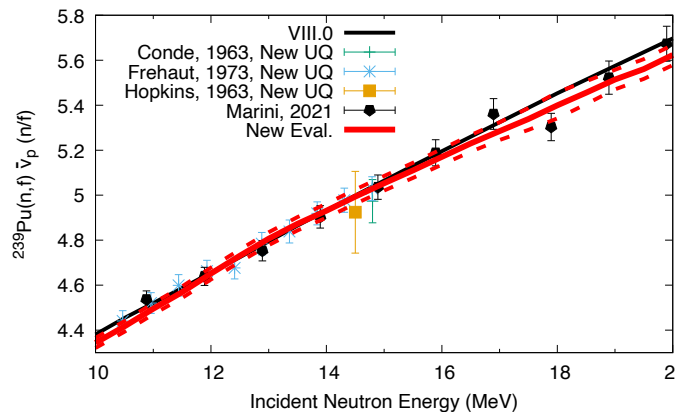
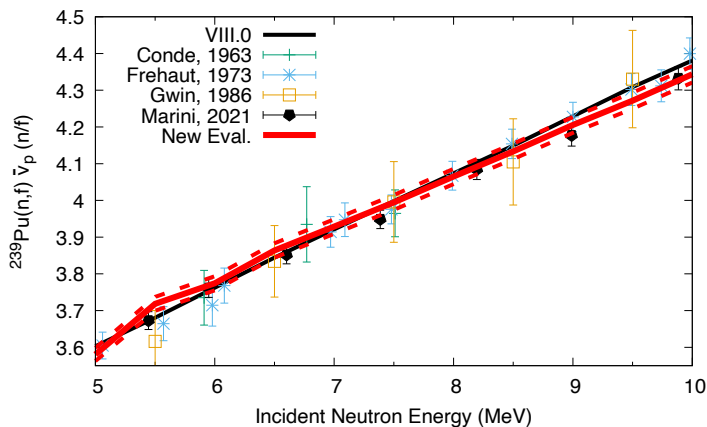
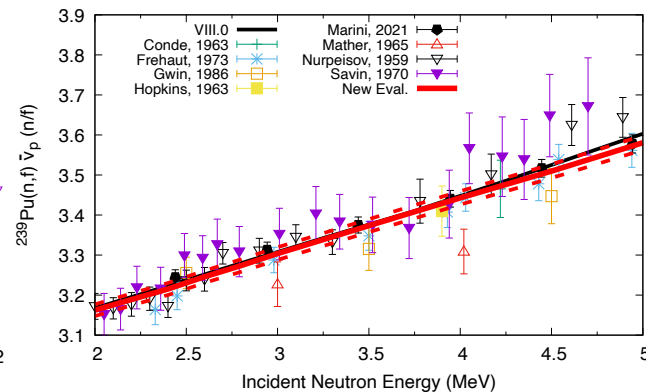
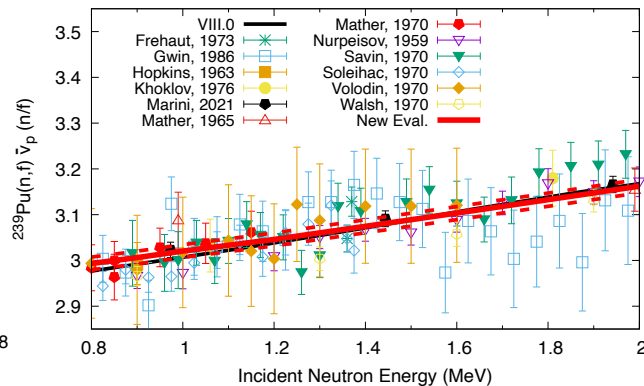
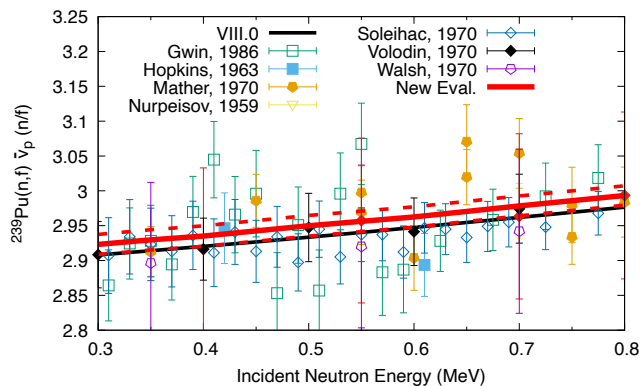
$^{239}\text{Pu}(n,f)$ nu-bar

References: Neudecker, Lovell, Talou, LA-UR-21-29906

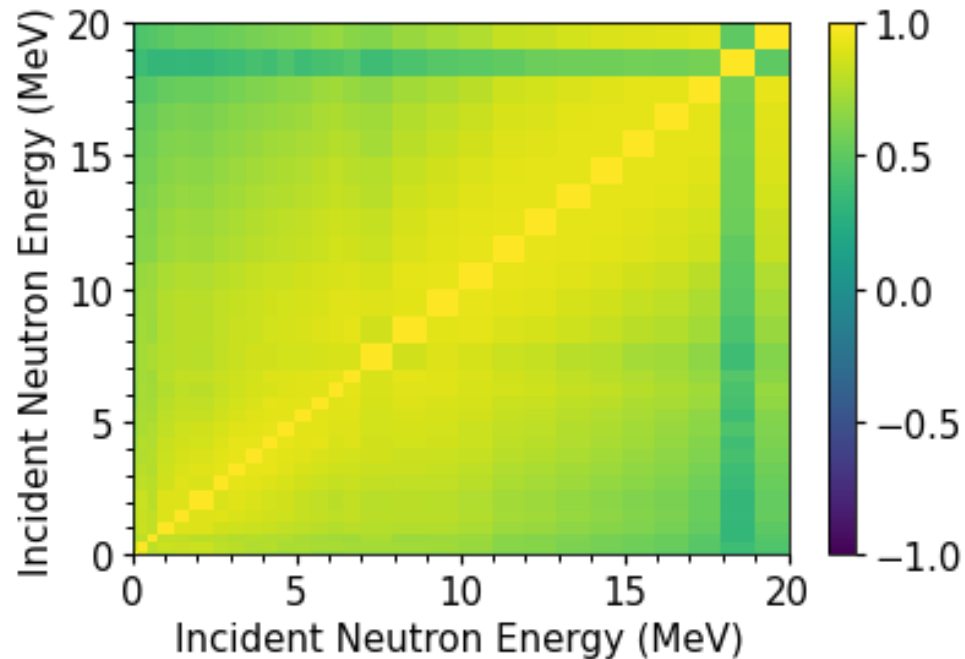
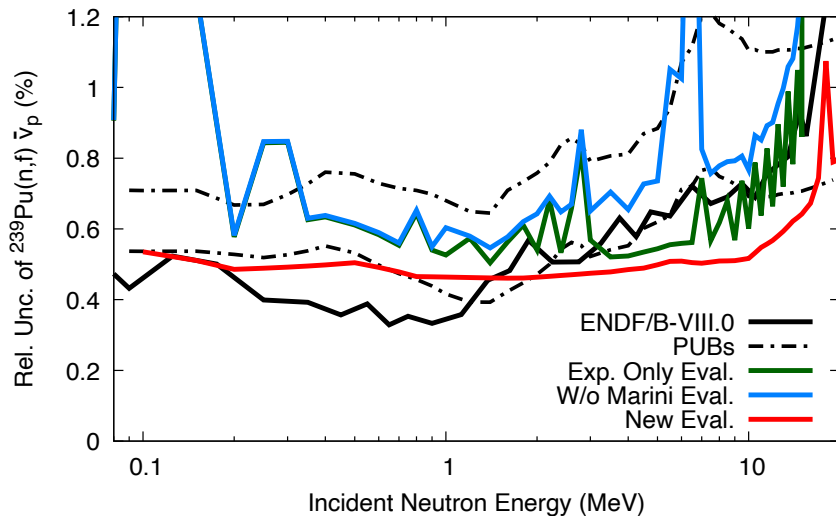
Thanks to: A. Lovell, P. Marini, J. Taieb, P. Talou, S. Croft



^{239}Pu nu-bar unc. are lower than VIII.0 due to Marini & CGMF.



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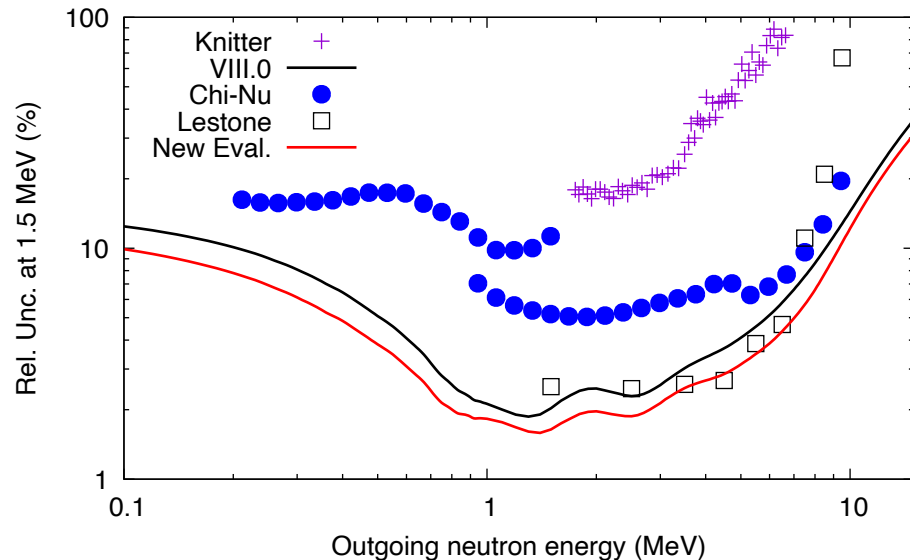
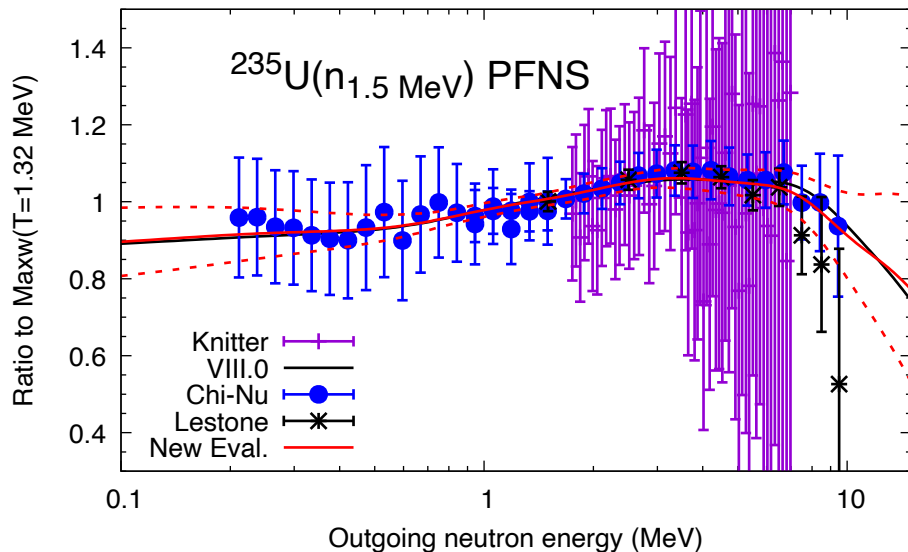
$^{235}\text{U}(\text{n},\text{f})$ PFNS

References: Neudecker, Kelly, LA-UR-22-22220; DN et al., NDS 148, p. 293 (2018).

Thanks to: Devlin, Haight, Kawano, Kelly, Lee, Marini, Mosby, O'Donnell, Taddeucci, Taieb, Talou, White, Wu



PFNS evaluated uncertainties with model unrealistically small. Multiplied with factor 4.9.



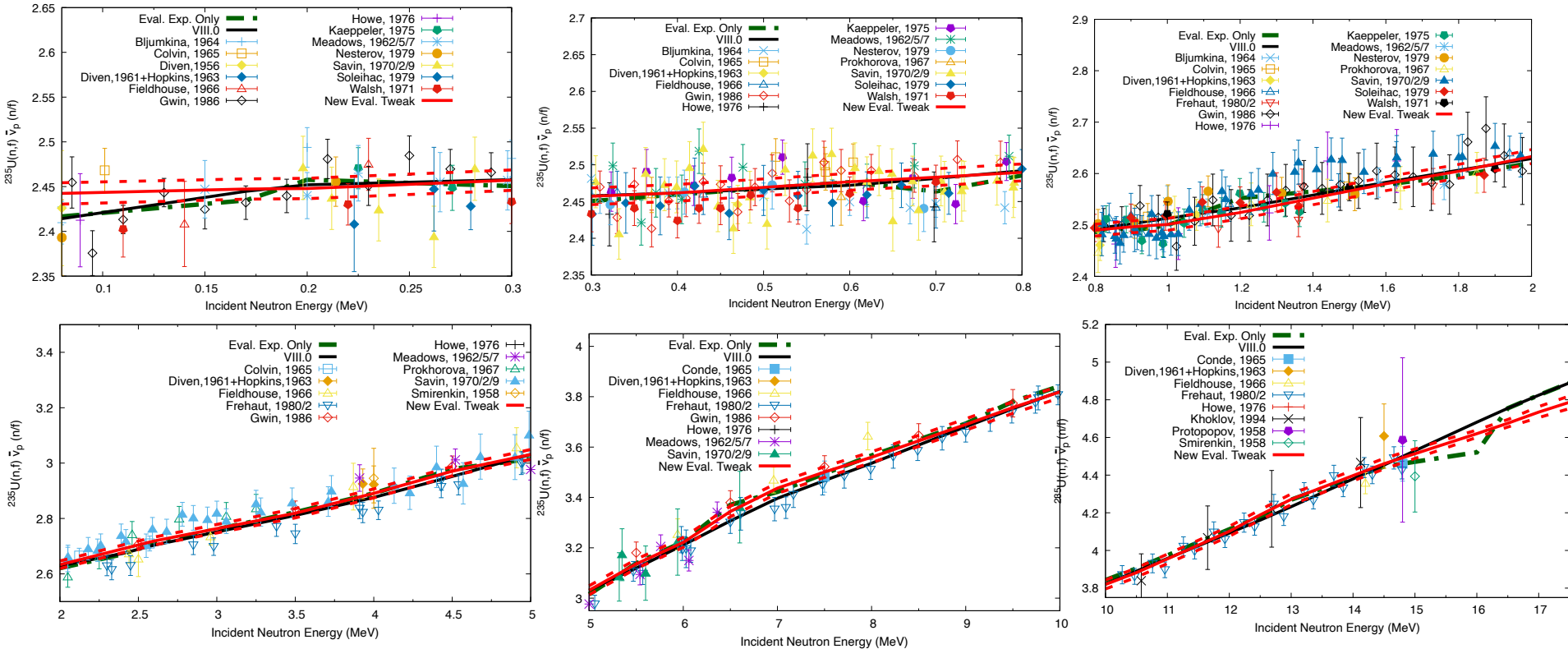
$^{235}\text{U}(\text{n},\text{f}) \text{nu-bar}$

References: Lovell, Neudecker, Talou, LA-UR-22-23475

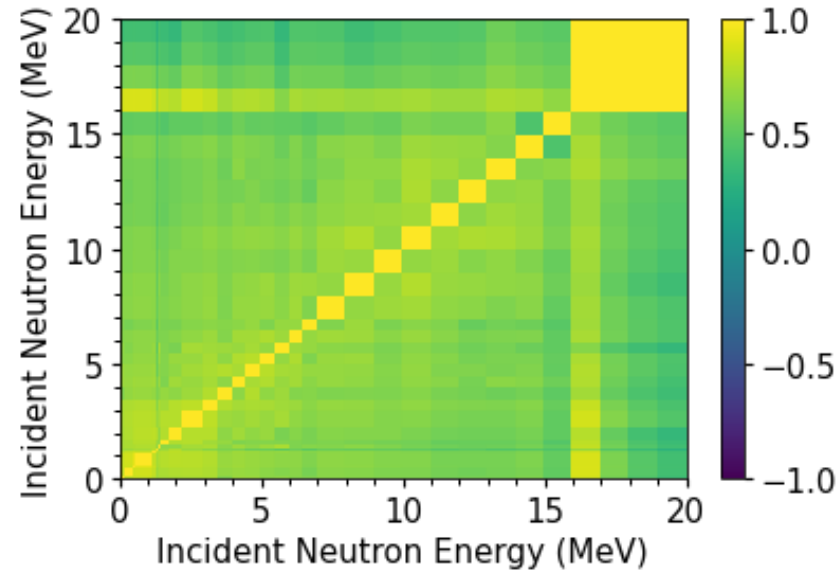
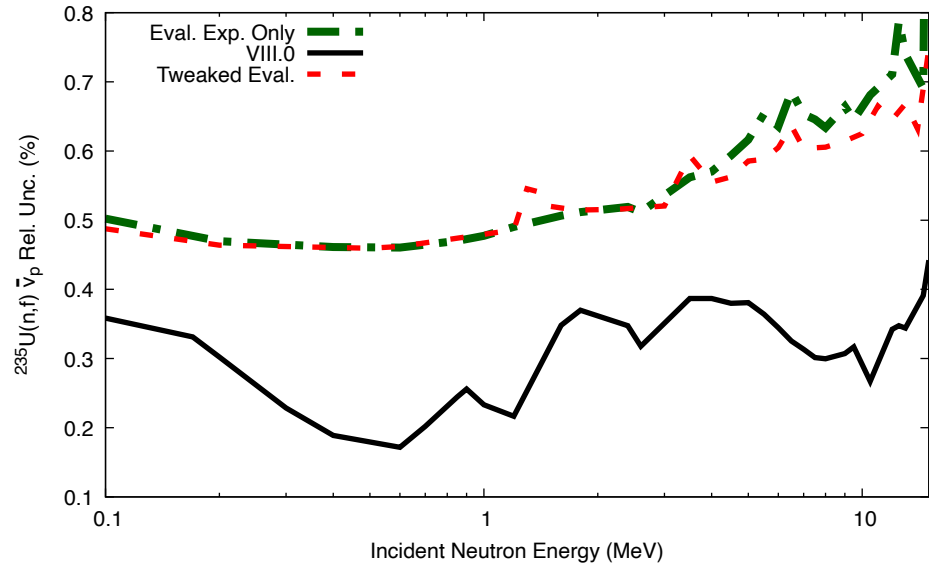
Thanks to: A. Lovell, P. Talou.



Evaluated ^{235}U nu-bar uncertainties enclose majority of exp. only evaluation and VIII.0.



New Evaluated ^{235}U nu-bar uncertainties are distinctly larger than ENDF/B-VIII.0 due to new standard uncertainties.



Summary and outlook:

- Covariances are under development for ^{239}Pu and ^{235}U PFNS and nu-bar,
- There are distinct differences from VIII.0 in all cases,
- ^{235}U nu-bar uncertainties are distinctly increased because of increased $^{252}\text{Cf}(\text{sf})$ nu-bar uncertainties.

Thank you for letting me speak!

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