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Title: Validating 239Pu and 206-208Pb Files in Preparation for Mini-CSEWG 8/2021

Author(s): Neudecker, Denise

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Validating ^{239}Pu and $^{206-208}$Pb Files in Preparation for Mini-CSEWG 8/2021

D. Neudecker

August 10, 2021

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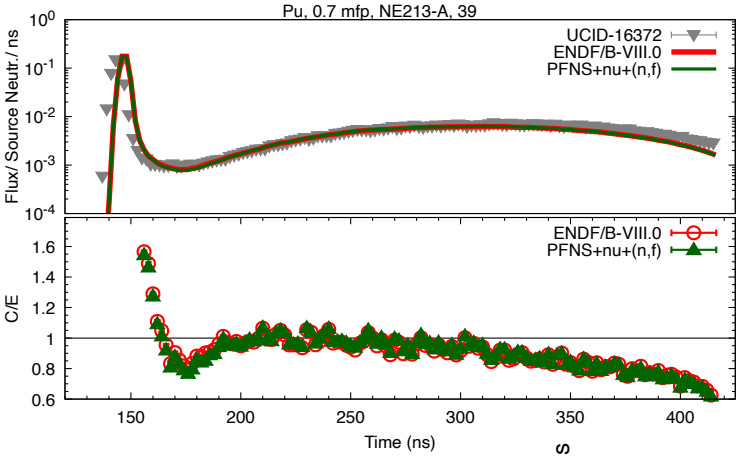
^{239}Pu files validated:

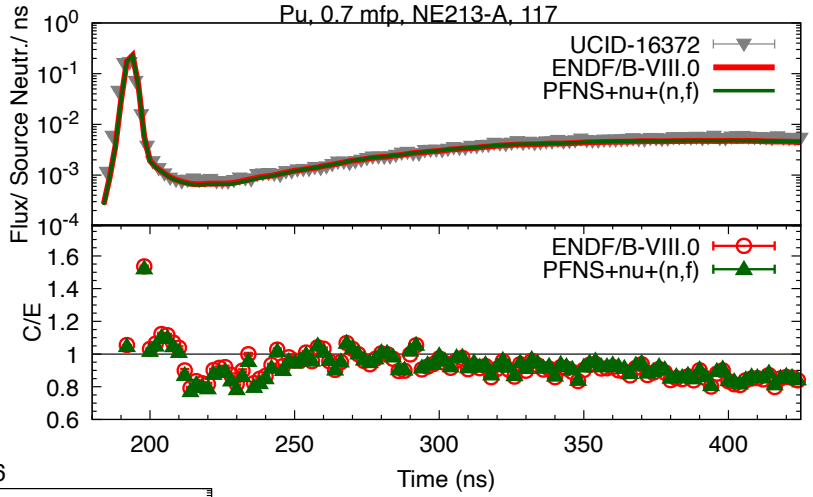
- ENDF/B-VIII.0
- ENDF/B-VIII.0 except for:
  - New PFNS (including Chi-Nu/ CEA data, thermal: INDEN),
  - New (n,f) cs (including updates of templates, fissionTPC ratio data),
  - New nubar (new UQ of past experiments, including CEA data, CGMF model by A. Lovell).
- P26 from INDEN:
  - Includes (n,f) cs from above but not nu-bar and newest PFNS.
- P26 + new nu-bar and PFNS from above.
- P27 from INDEN: updated (n,inl) cs.

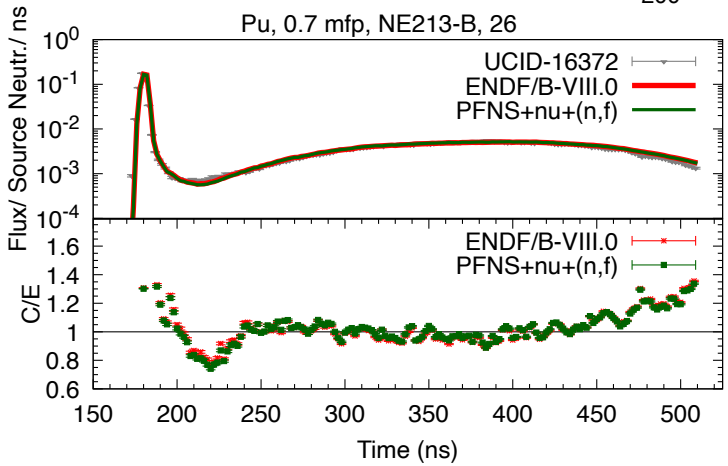
Benchmarking (green: change within VIII.0+ MC unc., red: change outside of VIII.0+MC unc., unc. on last digit).

Jezebel	keff	Pu9(n,2n)/(n,f)	Pu9(n,g)/(n,f)	U8/U5(n,f)	Np/U5(n,f)	U3/U5(n,f)	Pu9/U5(n,f)
VIII.0	1.00069(1)	0.00230(5)	0.0345(2)	0.212(1)	0.9768(5)	1.566(7)	1.427(6)
VIII.0+new: PFNS, (n,f)+nu	1.00047(1)	0.00224(5)	0.0355(2)	0.209(1)	0.9662(5)	1.566(7)	1.423(6)
p26	1.00023(1)	0.00208(5)	0.0359(2)	0.207(1)	0.9612(5)	1.567(7)	1.421(6)
p26 + nu + PFNS	1.00084(1)	0.00222(5)	0.0356(2)	0.208(1)	0.9646(5)	1.567(7)	1.423(6)

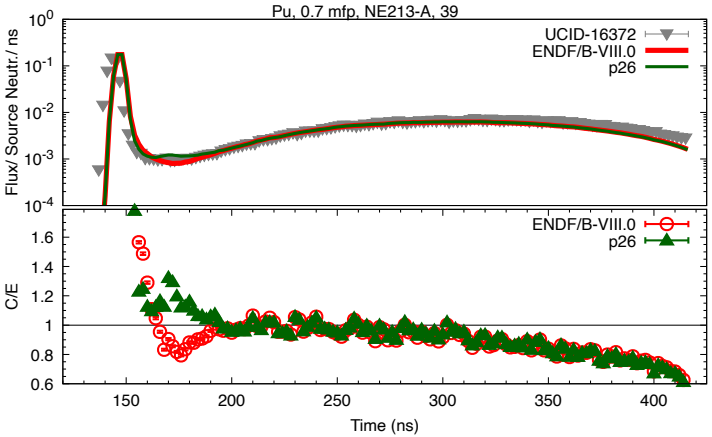
Benchmarking Pulsed Sphere: little change with VIII.0+new PFNS+ nu-bar + (n,f).

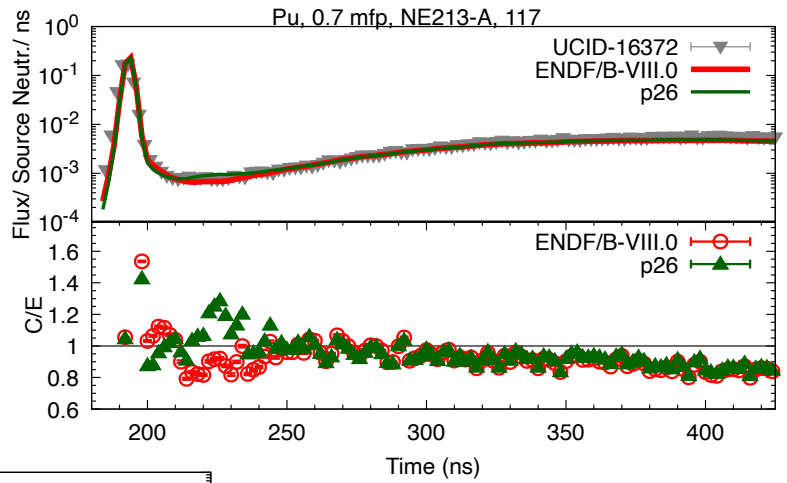


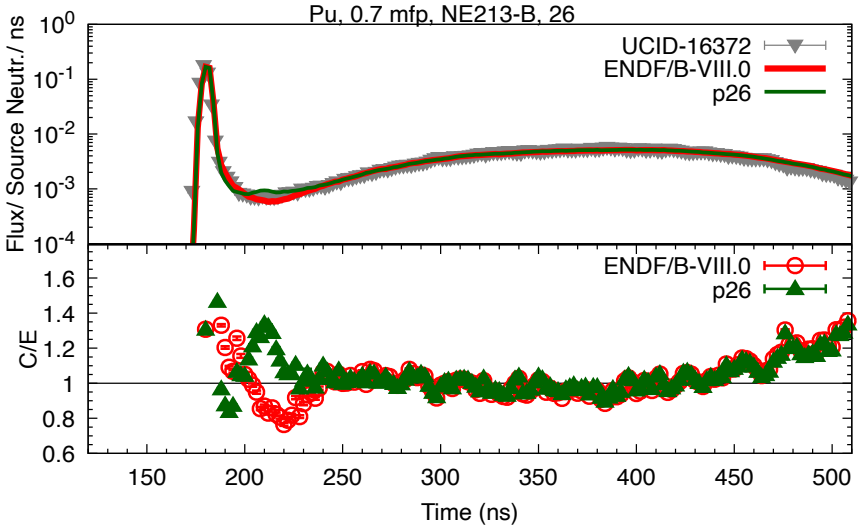




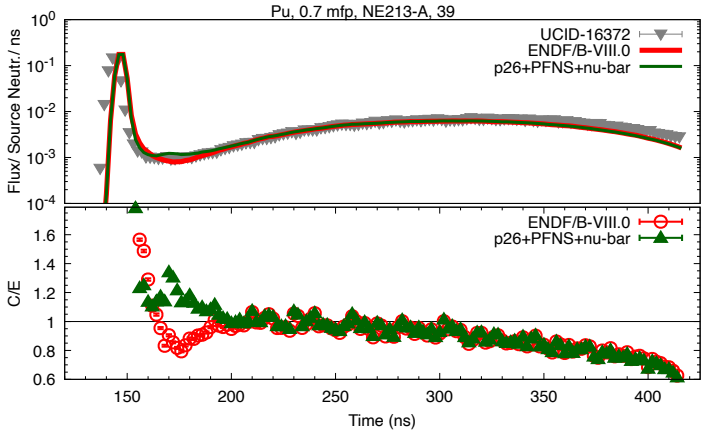
Benchmarking Pulsed Sphere: valley changes with p26.

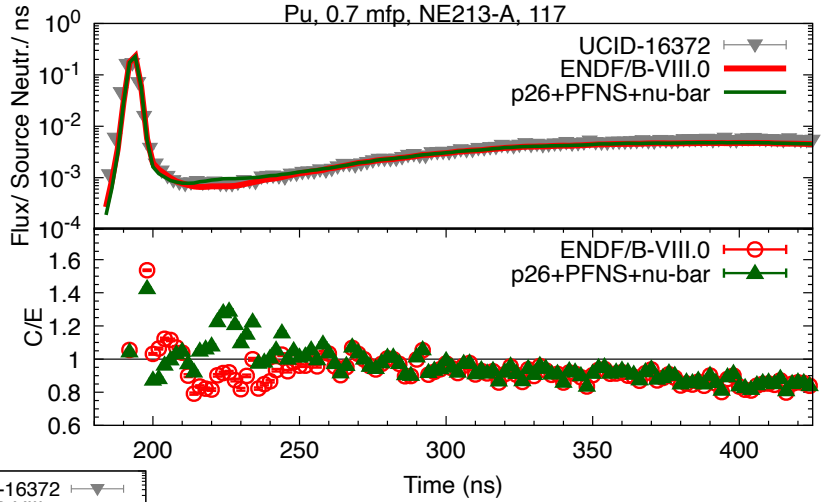


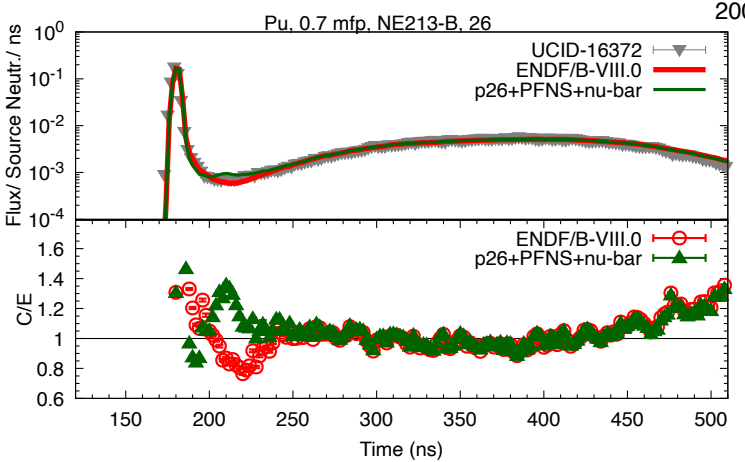




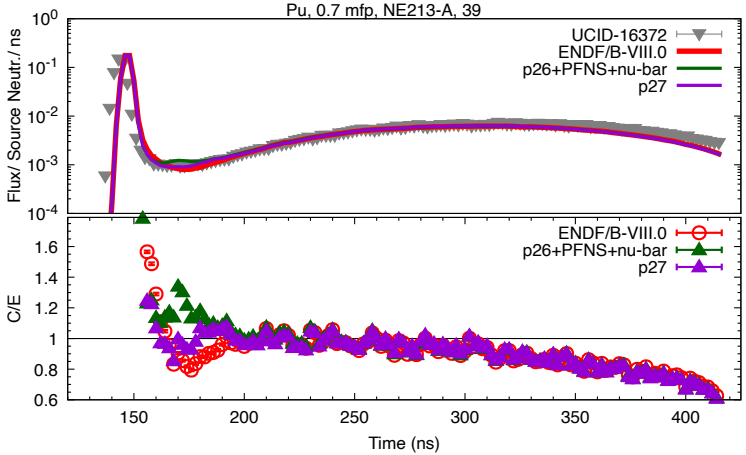
Benchmarking Pulsed Sphere: little change with p26+new PFNS+ nu-bar compared to p26.

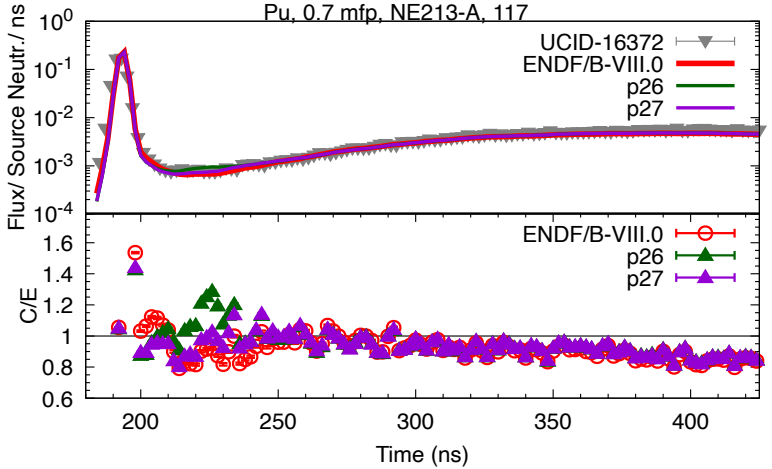


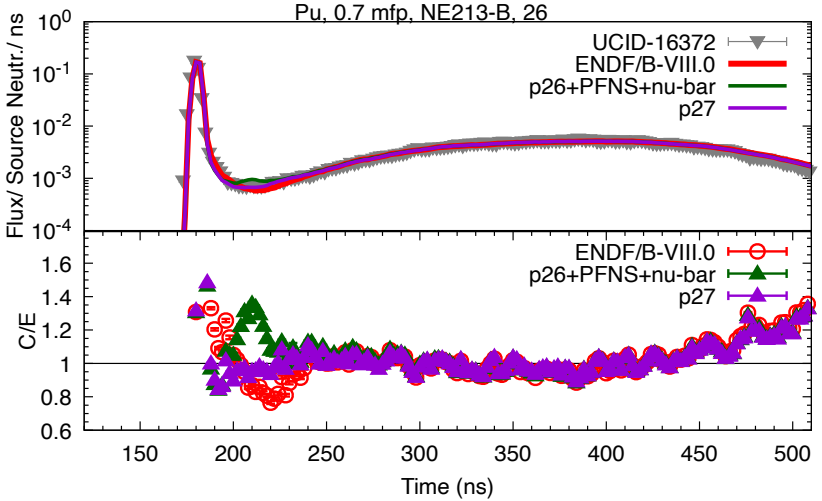




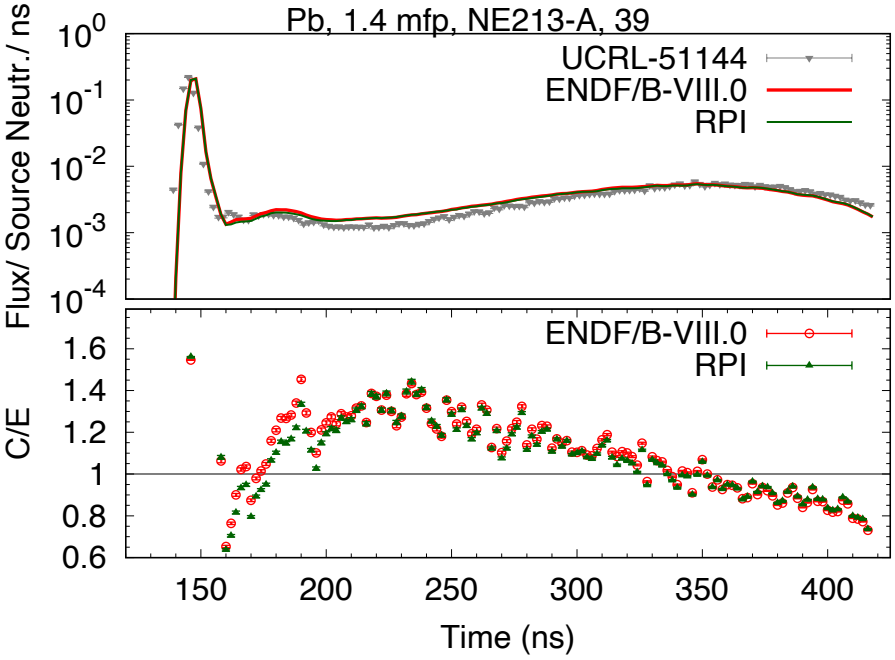
Benchmarking Pulsed Sphere: improvement with p27.

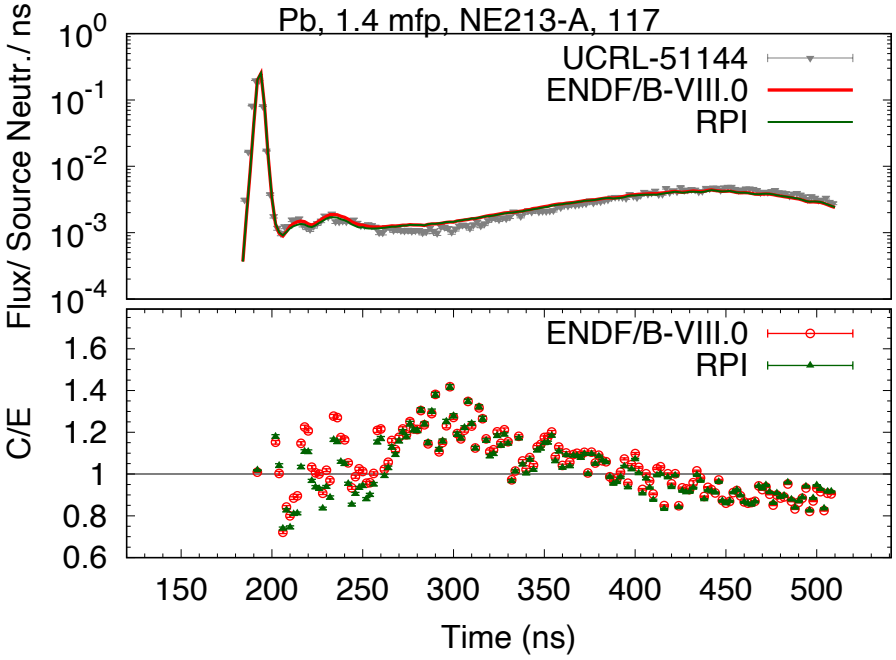






Benchmarking new $^{206\text{-}208}$Pb from RPI. Slight improvement.





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