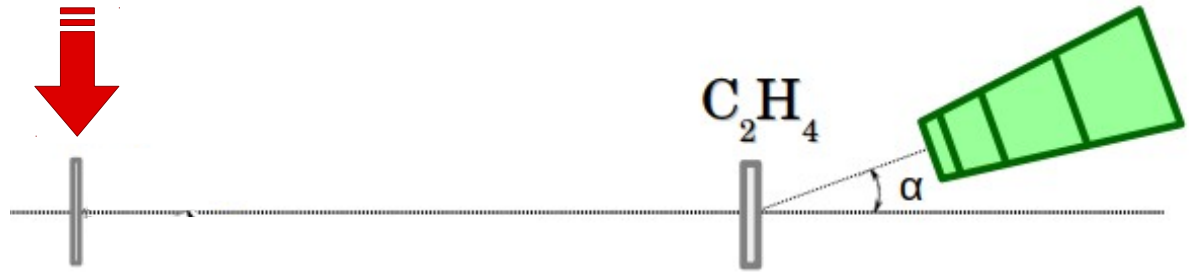


Measurement of the
 $^{235}\text{U}(n,f)$ cross section
relative to
n-p scattering
up to 500 MeV

RPTH Bkg – 1 sample



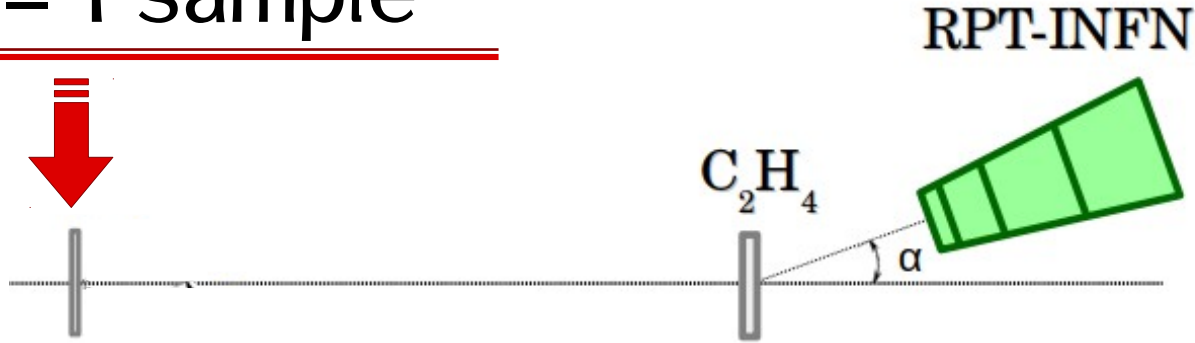
- PE 2 mm
- C 1 mm
- PE 5 mm

- C 2.5 mm
- PE 1 mm
- C 0.5 mm
- PE 5 mm

- PE 5 mm
- PE 5 mm
- PE 5 mm

- C 2.5 mm
- C 2.5 mm
- C 2.5 mm
- C 2.5 mm

RPTH Bkg - 1 sample



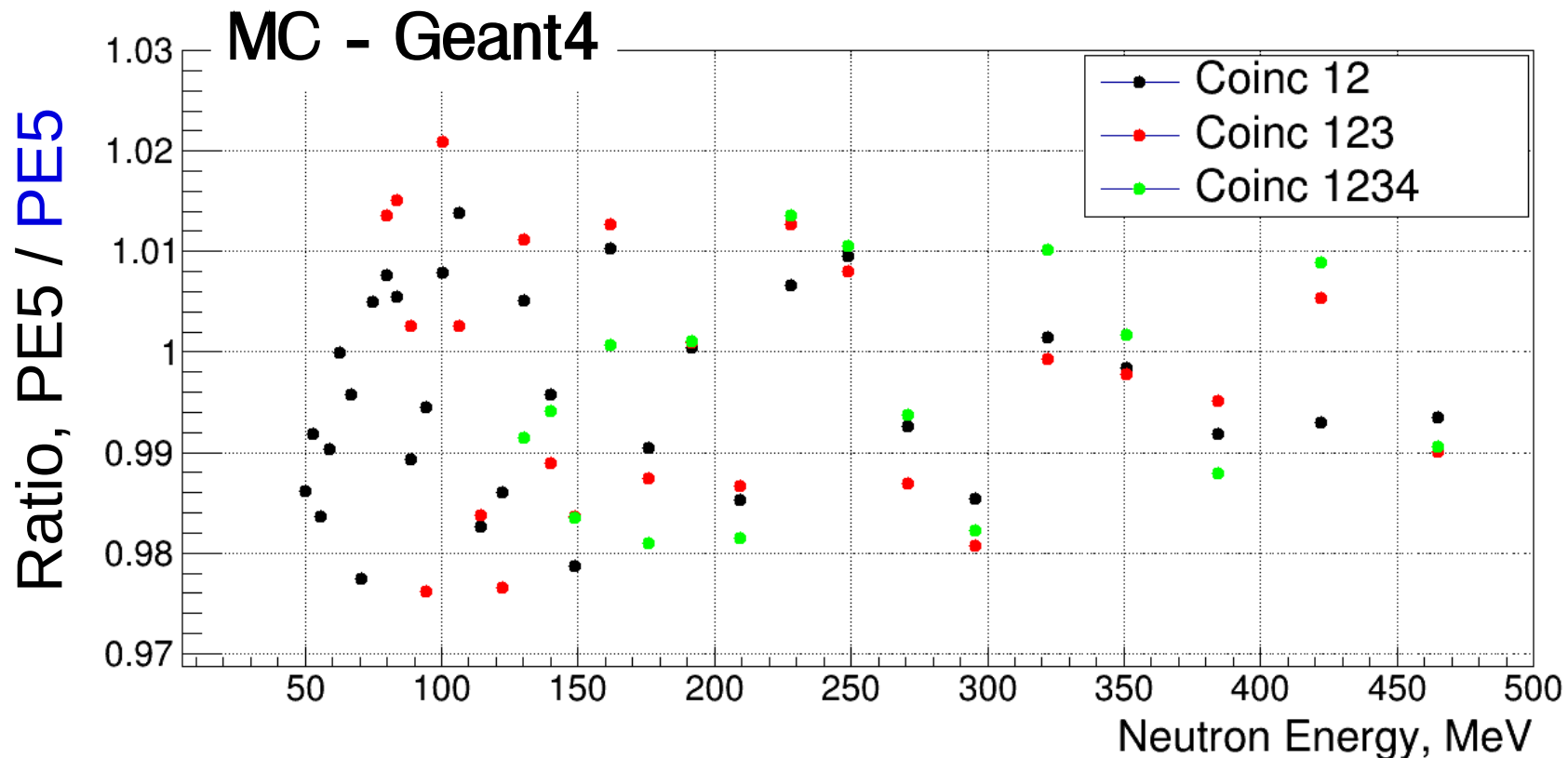
PE 5 mm_PE 5 mm - PE 2 mm_PE 5 mm \approx PE 3 mm

~~C 1 mm_PE 5 mm~~

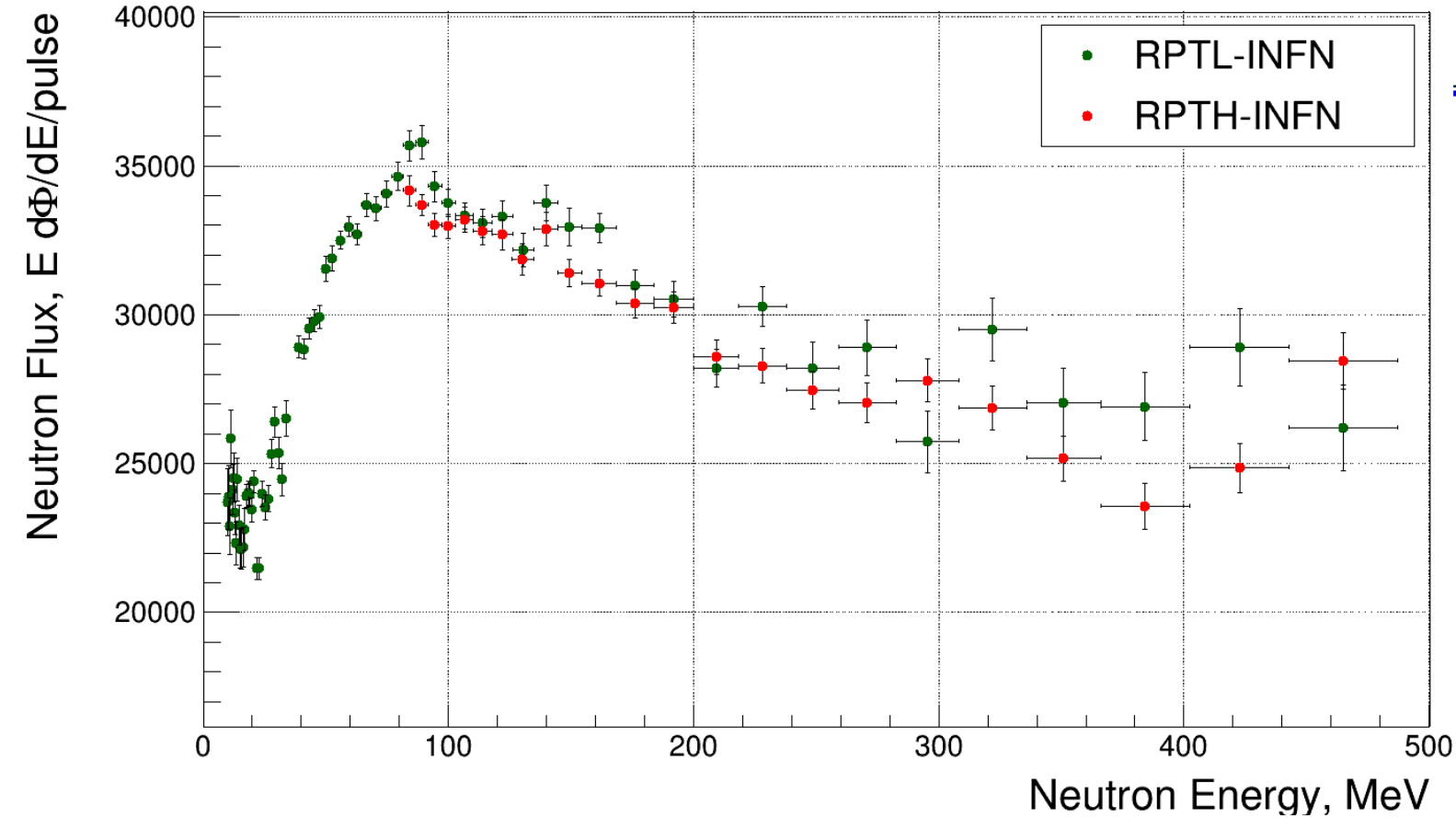
C 2.5 mm_C 2.5 mm - C 0.5 mm_C 2.5 mm \approx C 2 mm

PE 5 mm_C 2.5 mm - PE 1 mm_C 2.5 mm \approx PE 4 mm

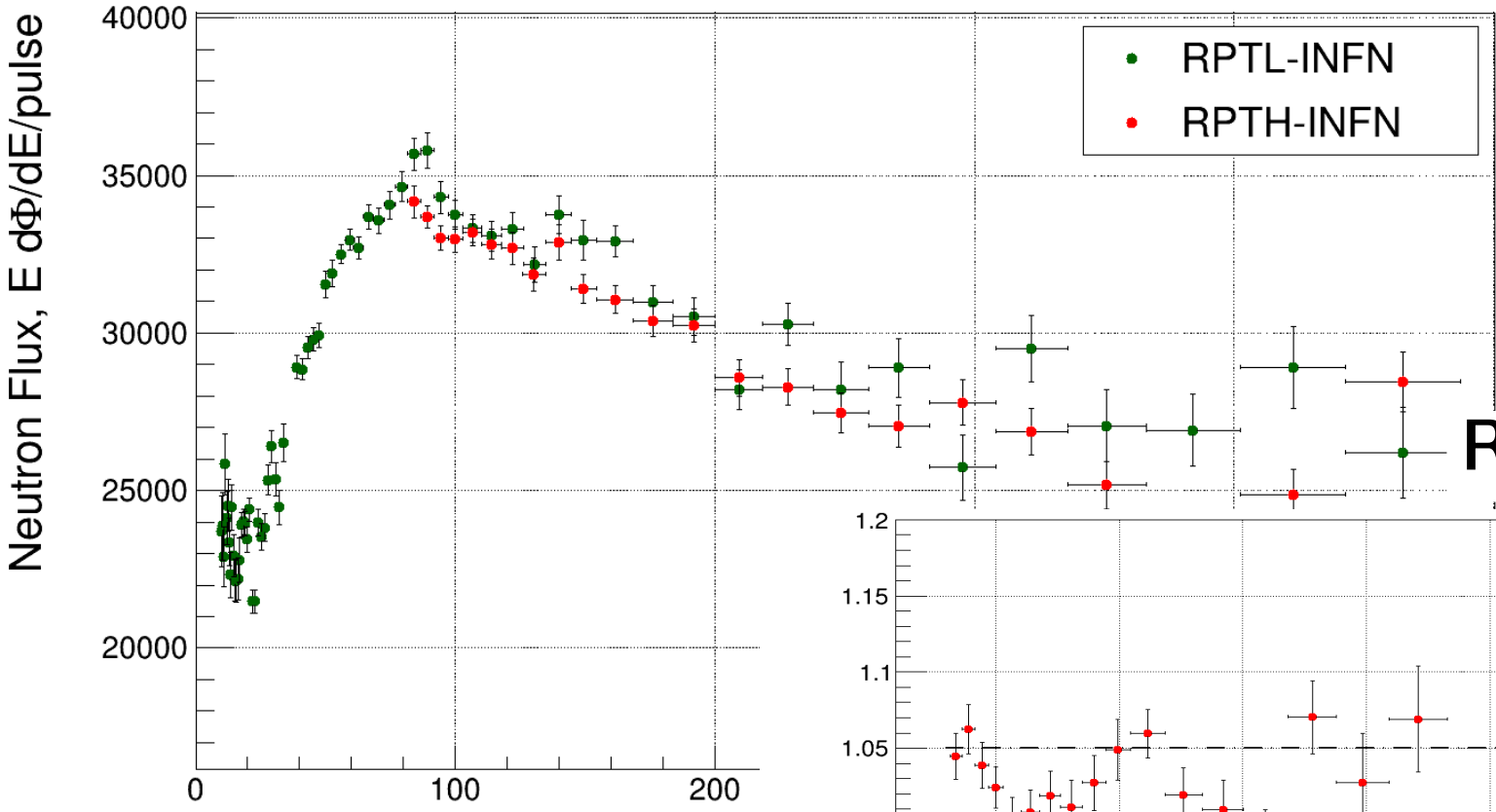
$$\text{PE 5 mm_PE 5 mm} - \frac{5}{3}(\text{PE 5 mm_PE 5 mm} - \text{PE 2 mm_PE 5 mm}) = \text{PE 5 mm}$$



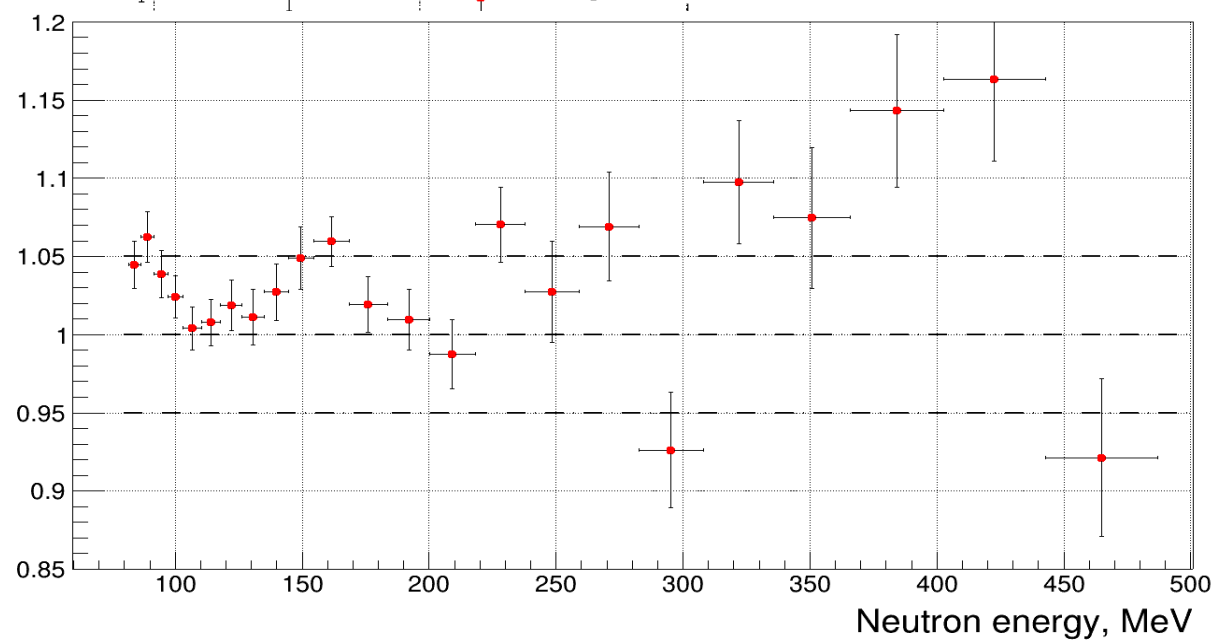
Neutron flux



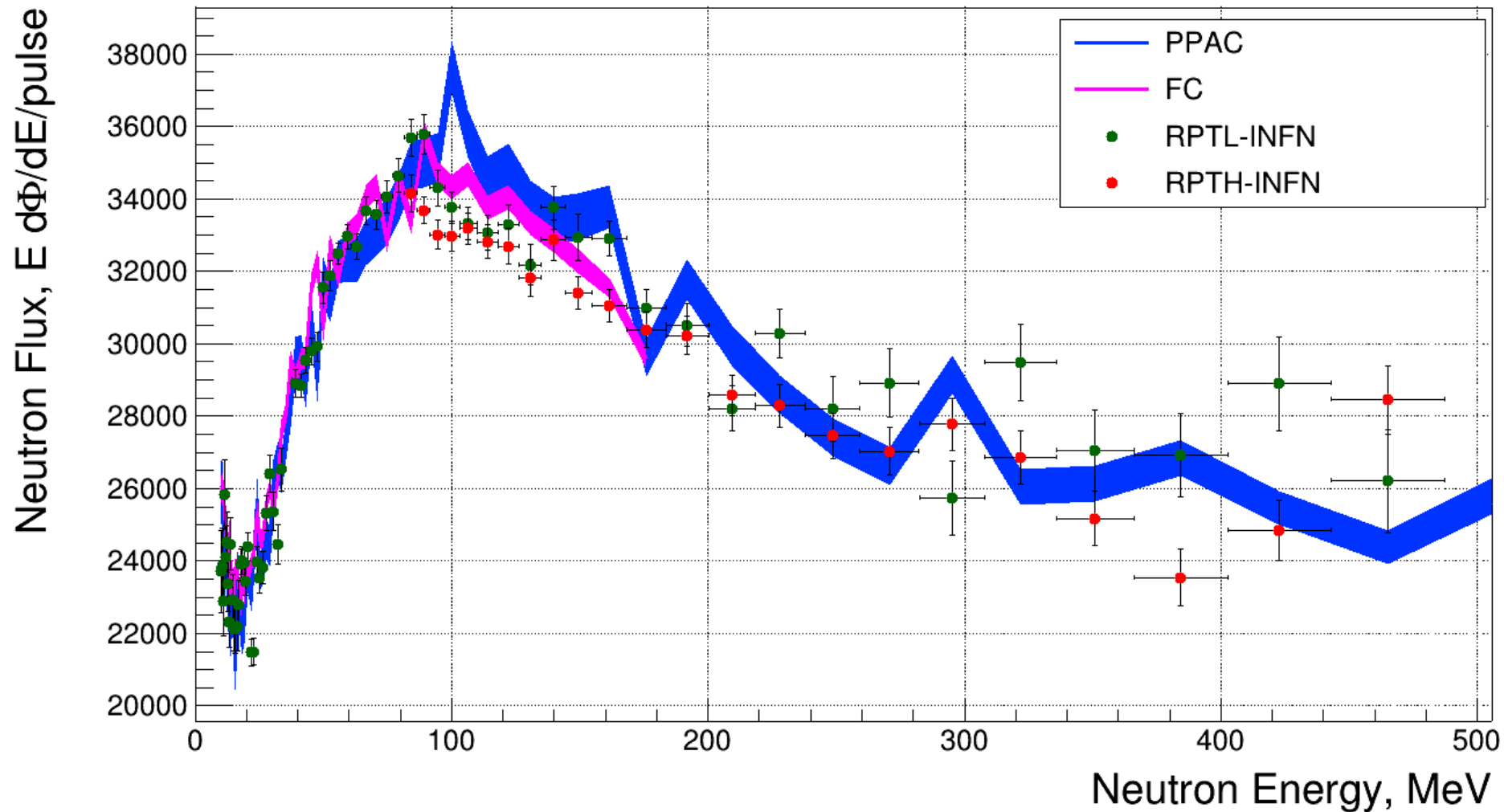
Neutron flux



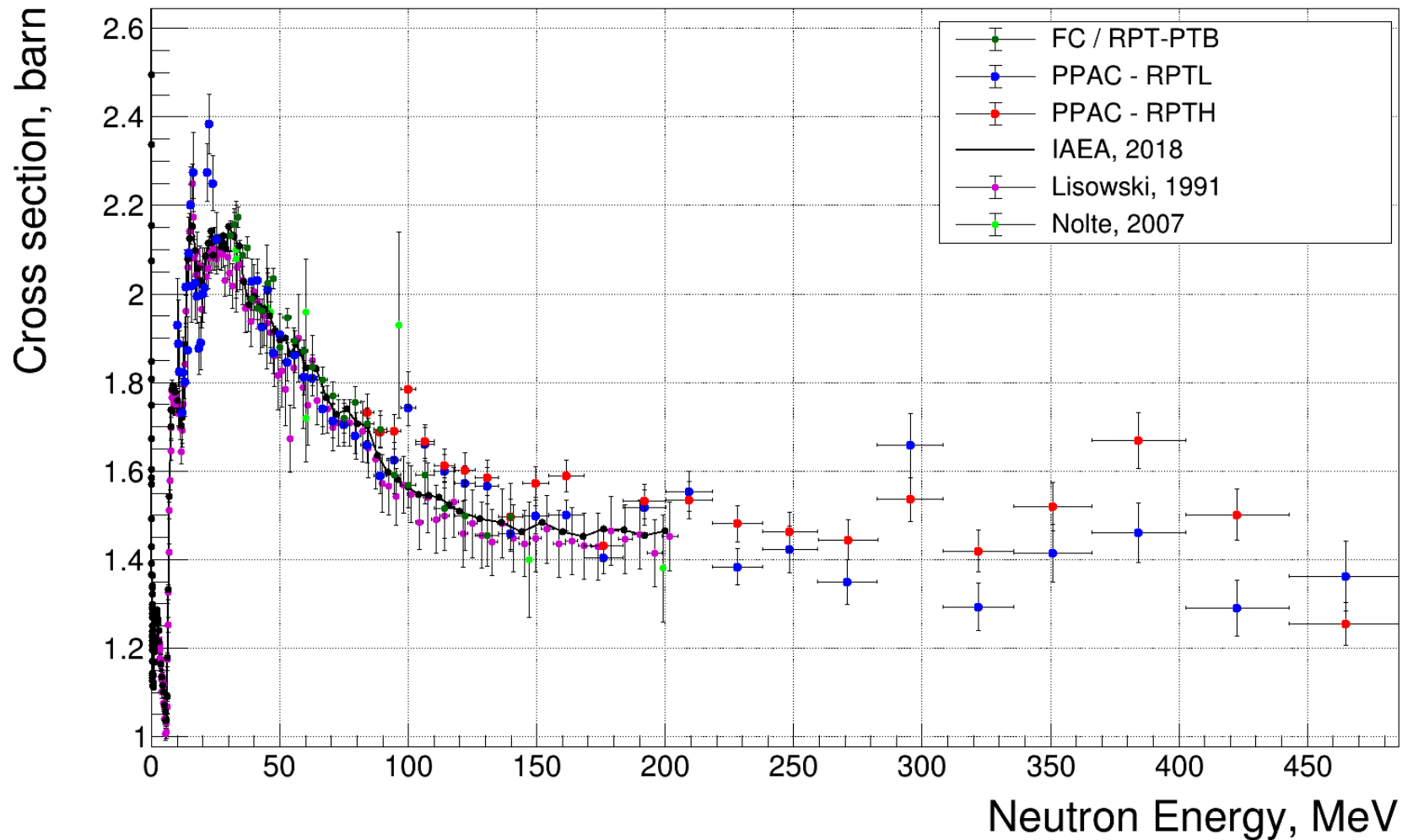
Ratio, RPTL/RPTH



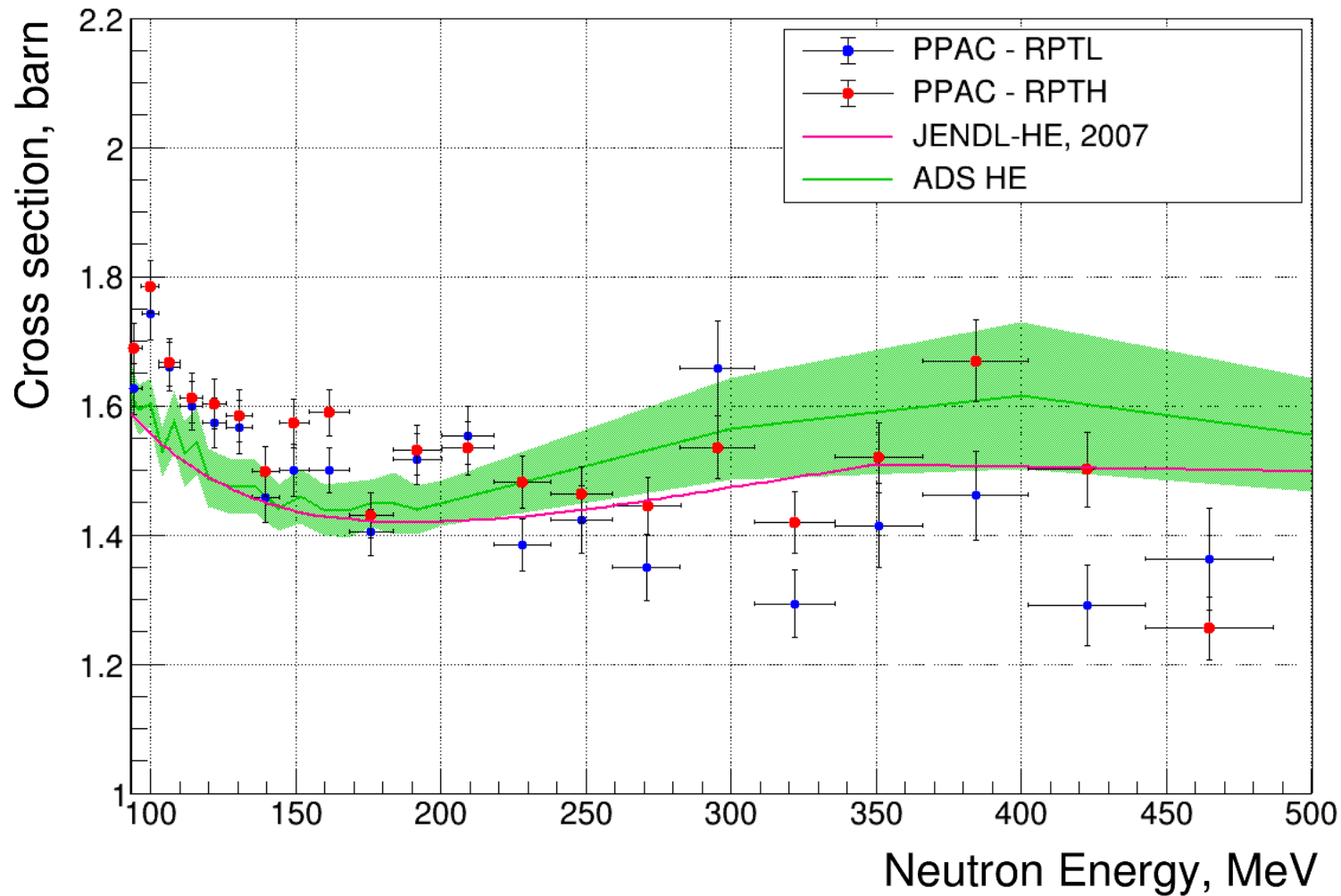
$^{235}\text{U}(n,f)$ cross section



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



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



Two technical articles:

1. RPTs-INFN + PPAC
2. RPT-PRT + FC

Outline:

RPTs:

- description of the detectors
- detection efficiency: from MC simulation (Geant4 + MCNP)
- bkg subtraction
- experimental measurement: recovery time from the gamma-flash, timing and dead-time

Fission Chamber:

- description of the chamber
- efficiency calculation

Measurement @ n_TOF:

- experimental campaign + sample characterization
- time-to-energy-calibration

Performance of the detectors (with cross reference between the two articles):
Evaluated Flux (using the 4 detectors) and/or ratios between the results

+ Two articles:

1. Measurement $^{235}\text{U}(n,f) < 200 \text{ MeV}$

Cross section

Comparison with experimental data + IAEA evaluation

2. Measurement $^{235}\text{U}(n,f) > 200 \text{ MeV}$

Cross section

Comparison with existing models

Calculation (Alberto V.??)