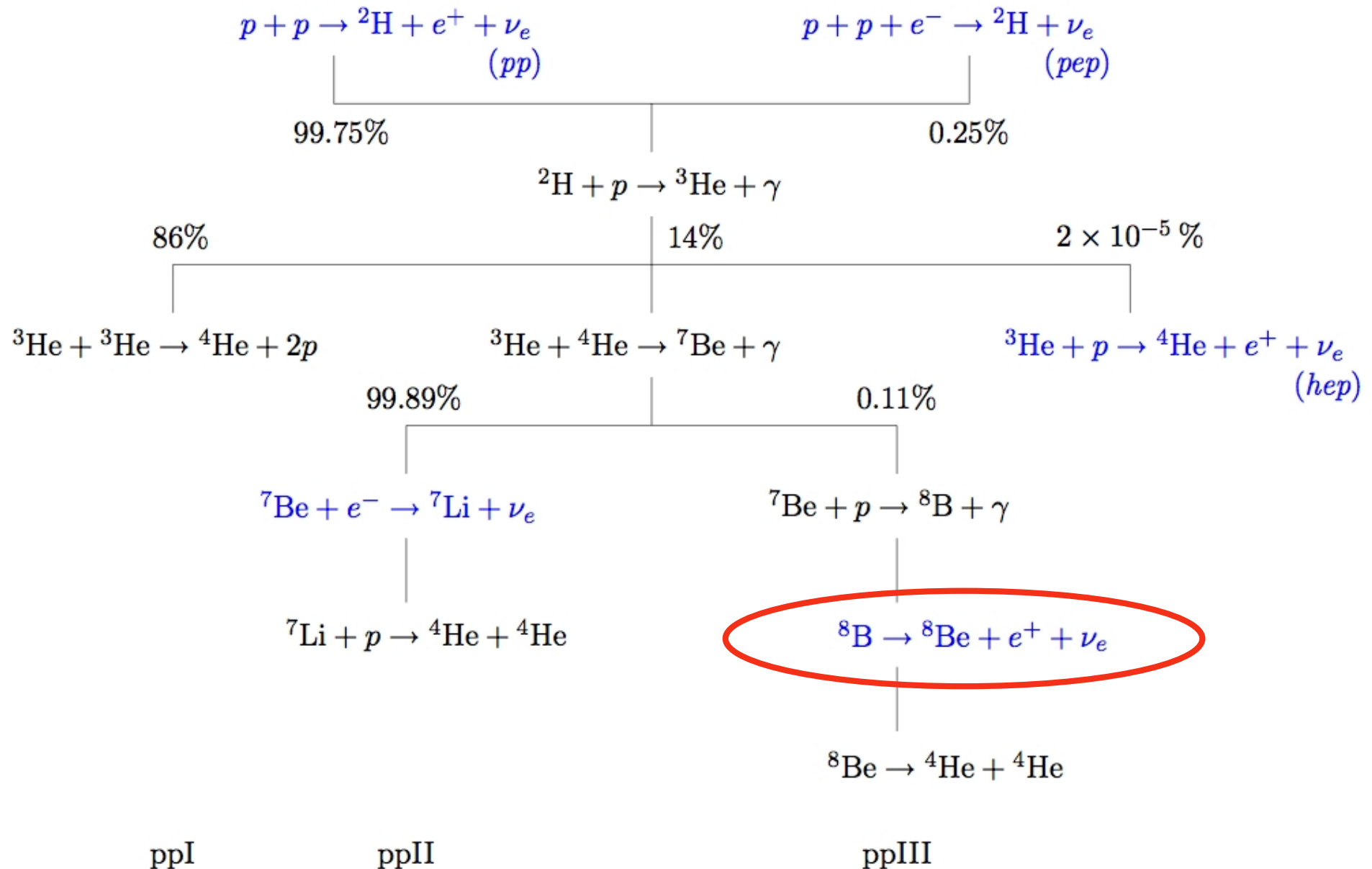


New precise measurements of the ^8B neutrino spectrum

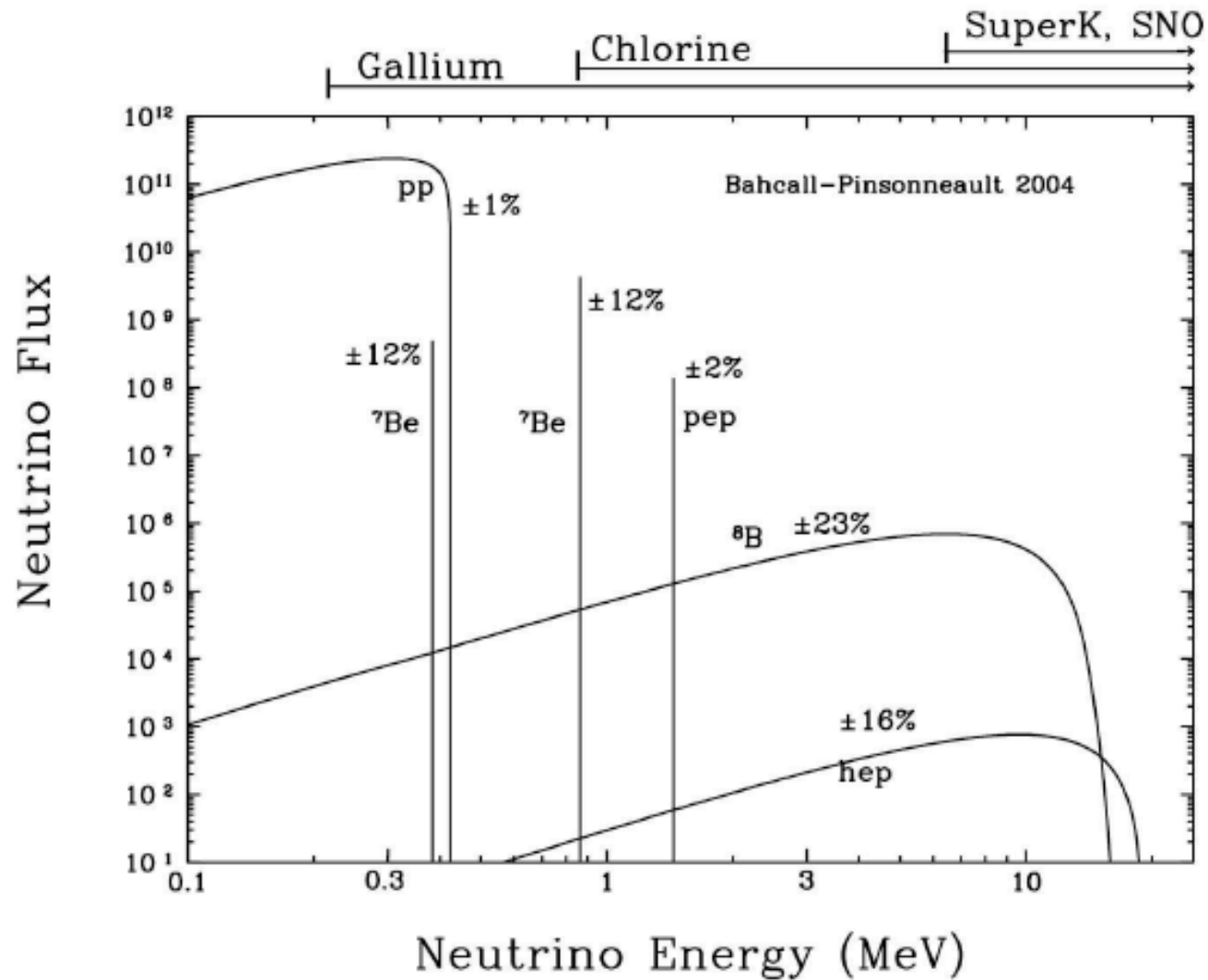
Oliver S. Kirsebom
Aarhus University
Denmark

On behalf of the JYFL and KVI ^8B collaborations

^8B neutrinos

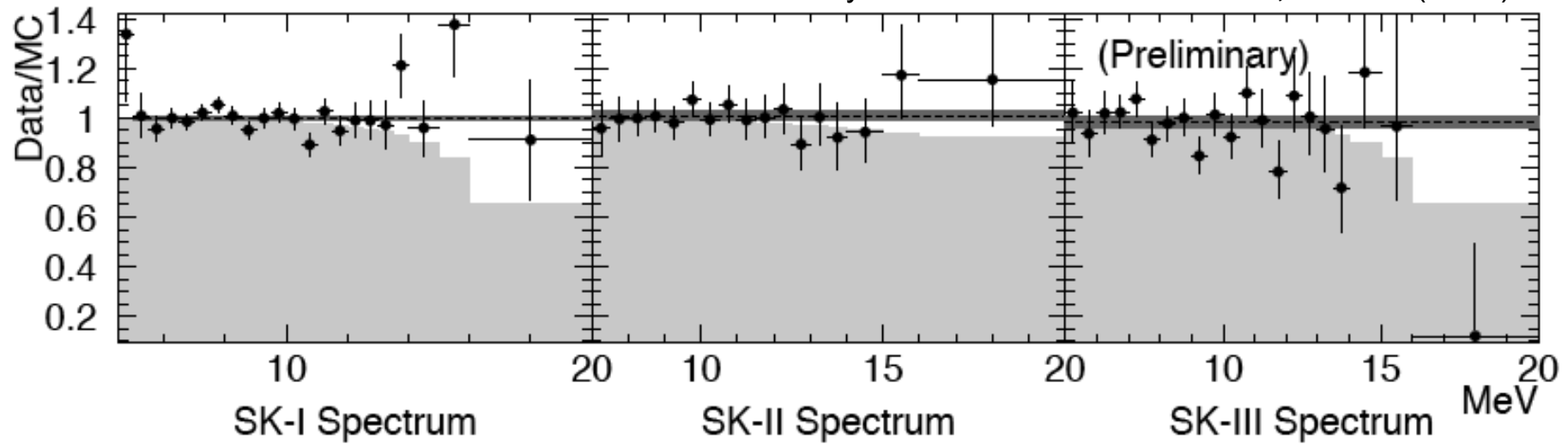


Solar neutrino experiments



Spectral distortion

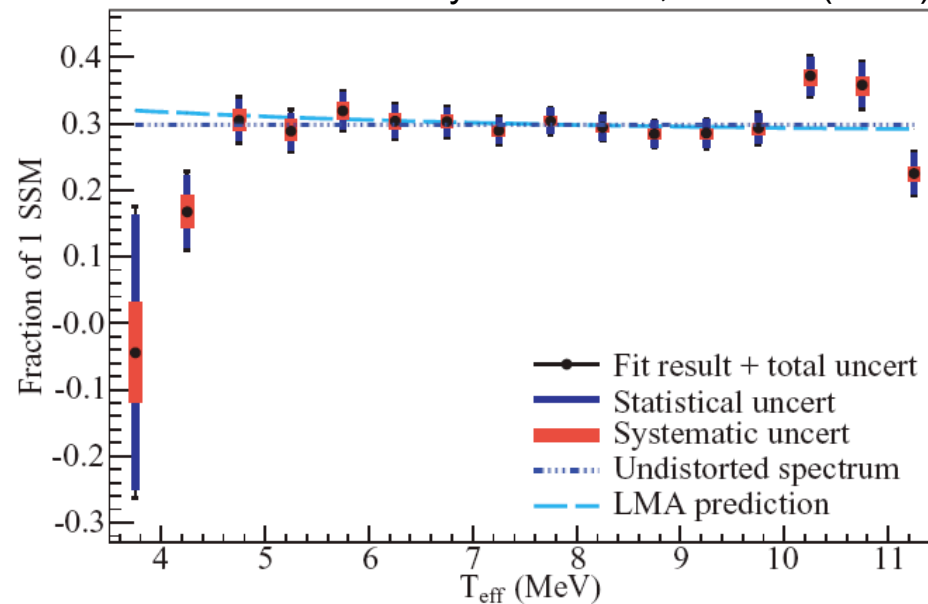
Journal of Physics: Conference Series **203**, 012082 (2010)



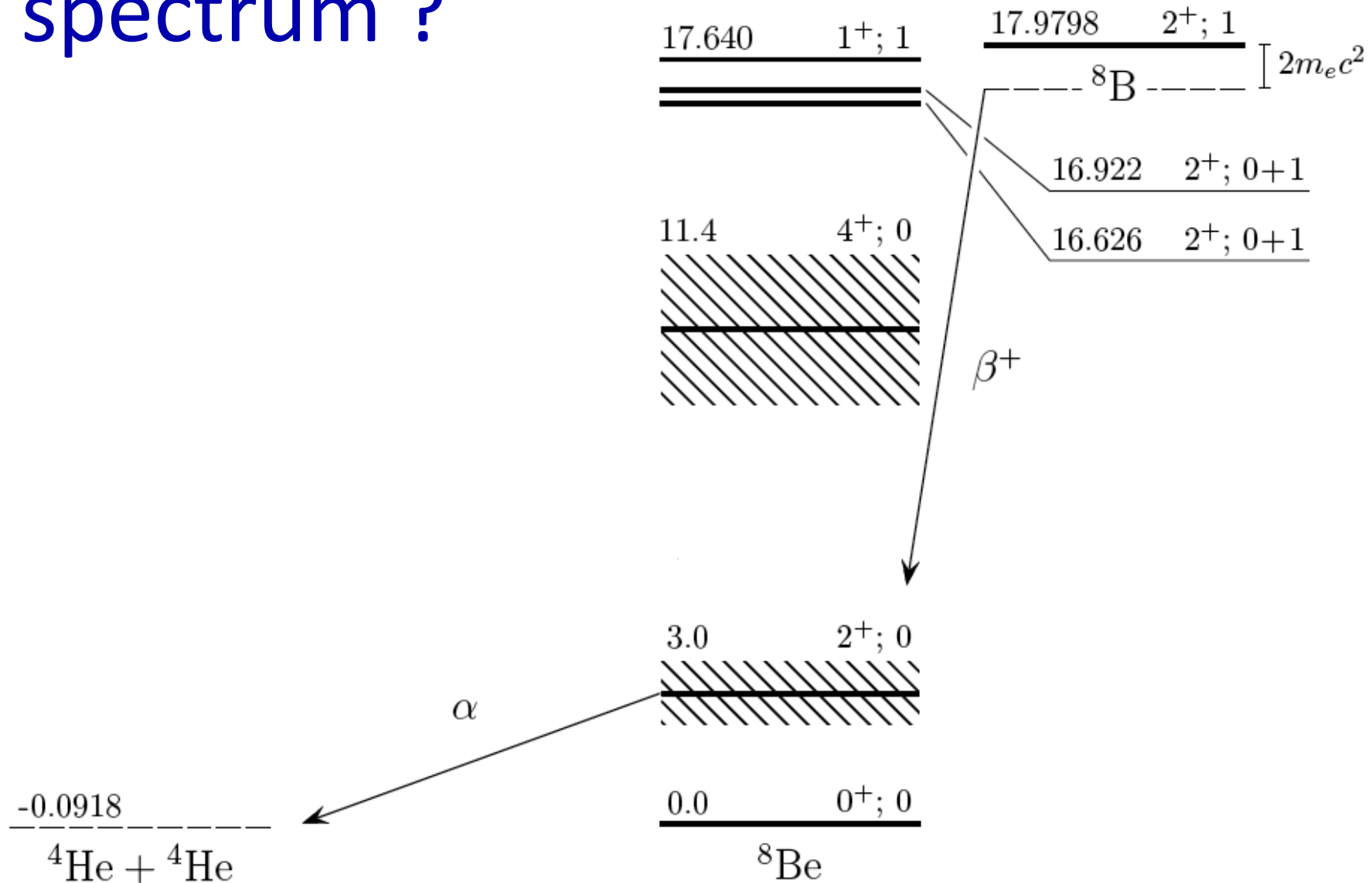
Super-K

SNO

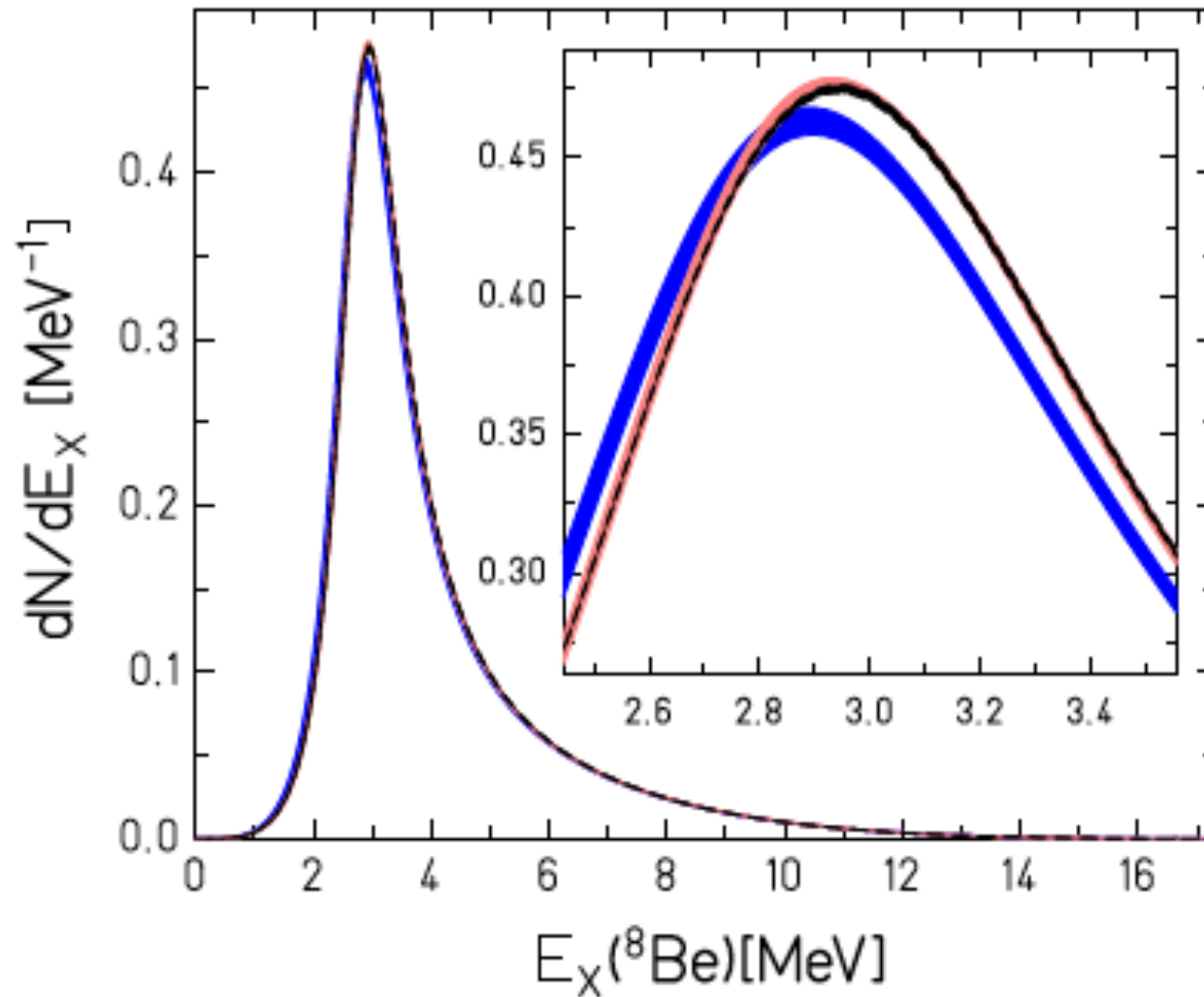
Phys Rev C **81**, 055504 (2010)



How to measure the ^8B neutrino spectrum ?



^8B measurements 2000-



Ortiz *et al.* PRL **85** 2909

- Coincidence

Winter *et al.* PRL **91** 252501

Winter *et al.* PRC **73** 25503

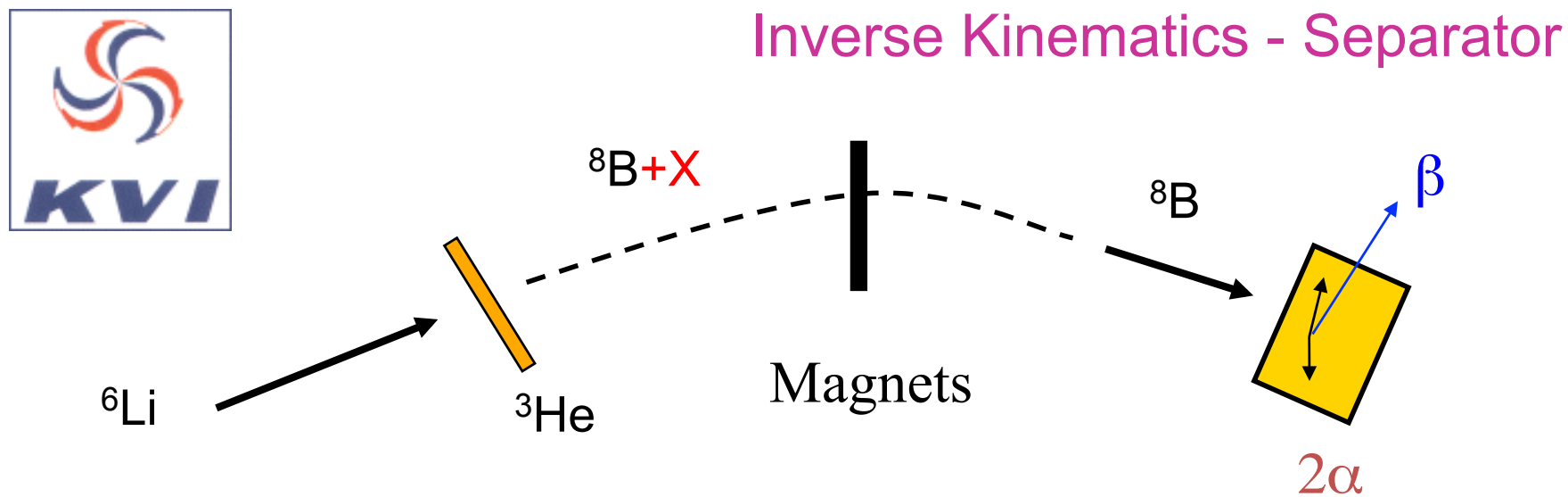
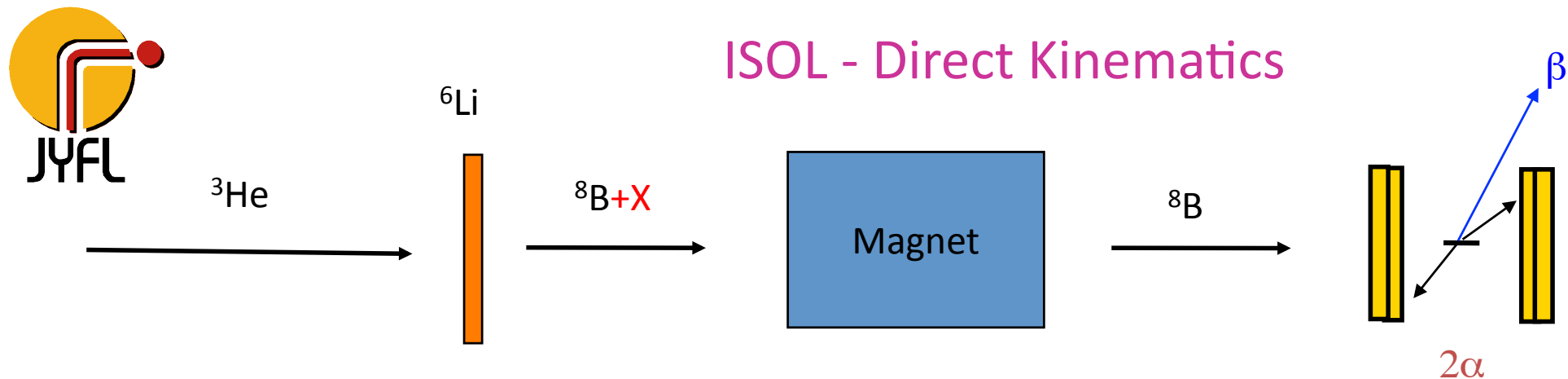
- Implantation

Bhattacharya *et al.*

PRC **73** 55802

- Single α

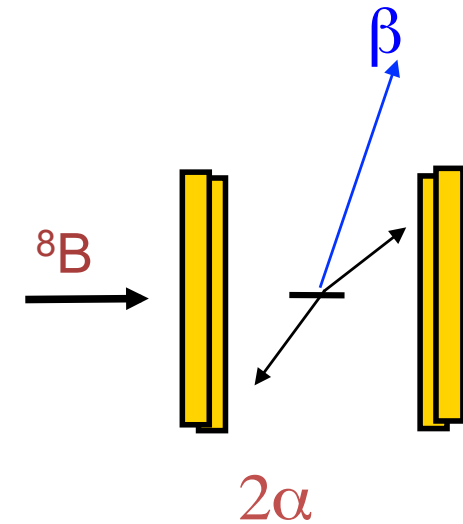
Two new measurements



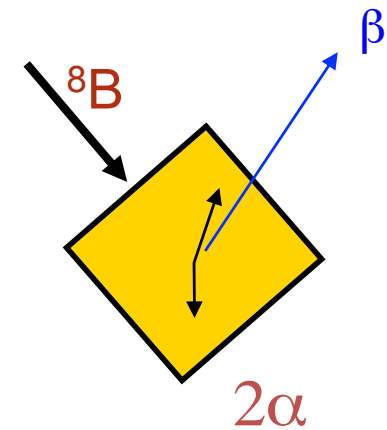
Experimental challenges

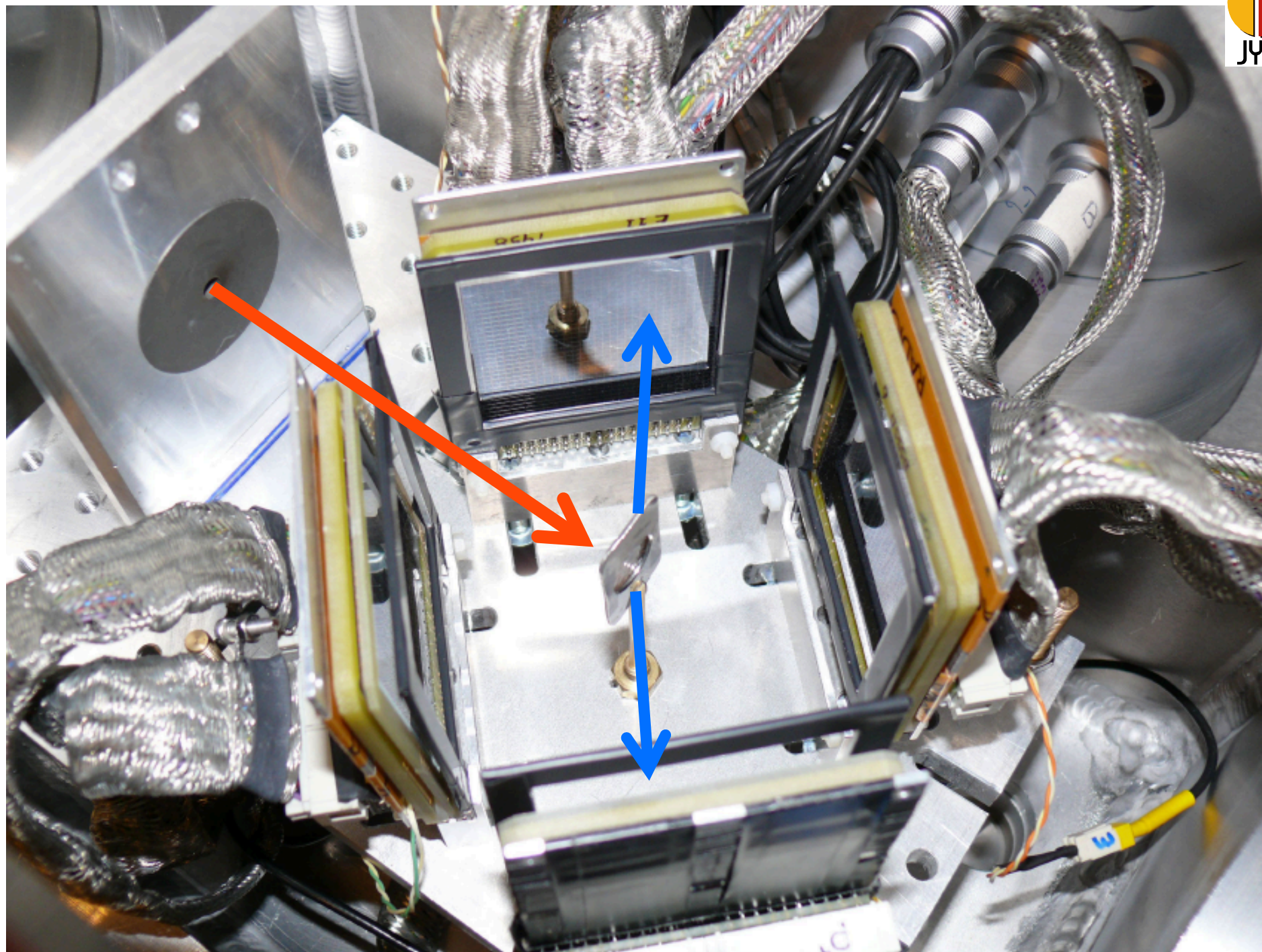


- Energy calibration and detector response
- Dead layer
- Collection foil



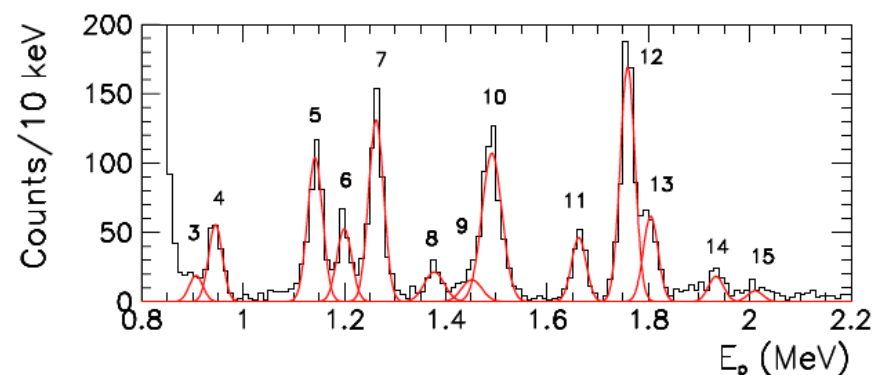
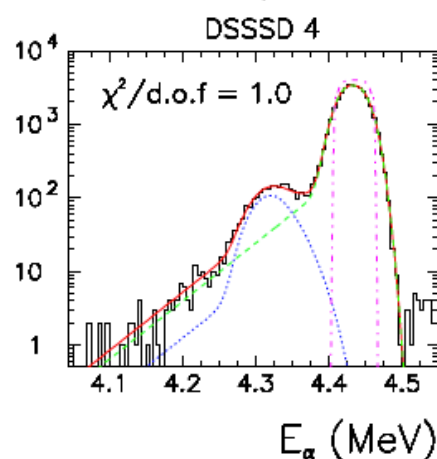
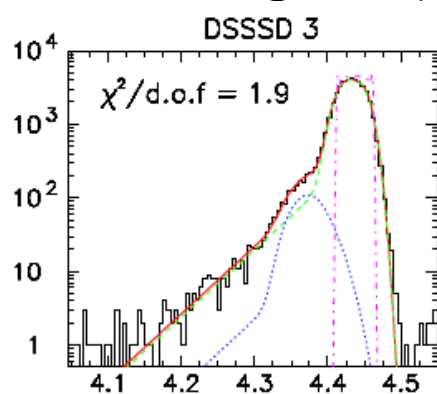
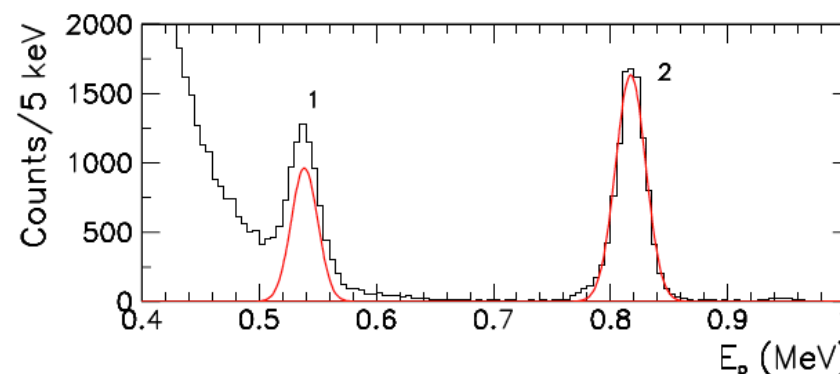
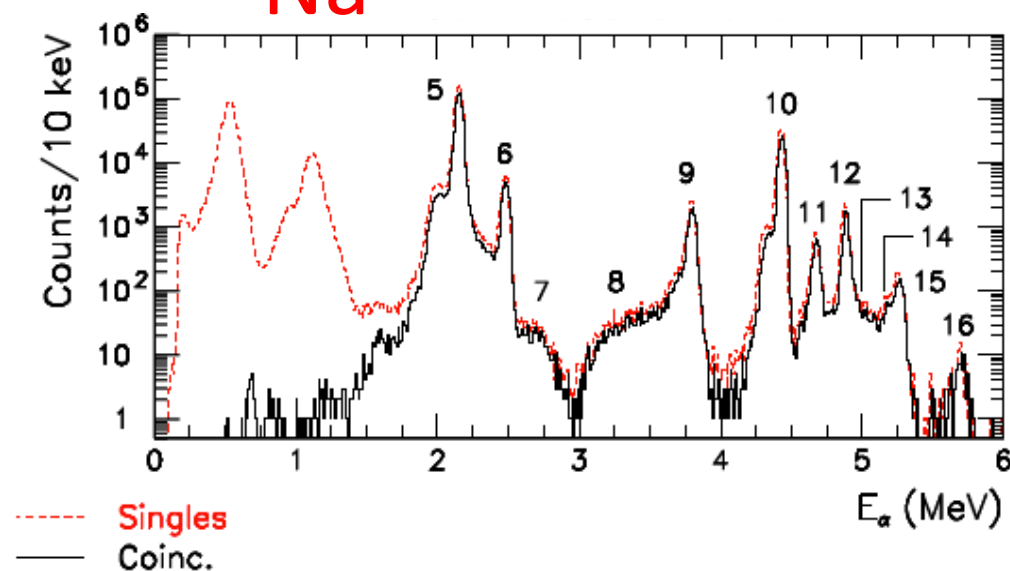
- Energy calibration and detector response
- β summing





Calibration

^{20}Na

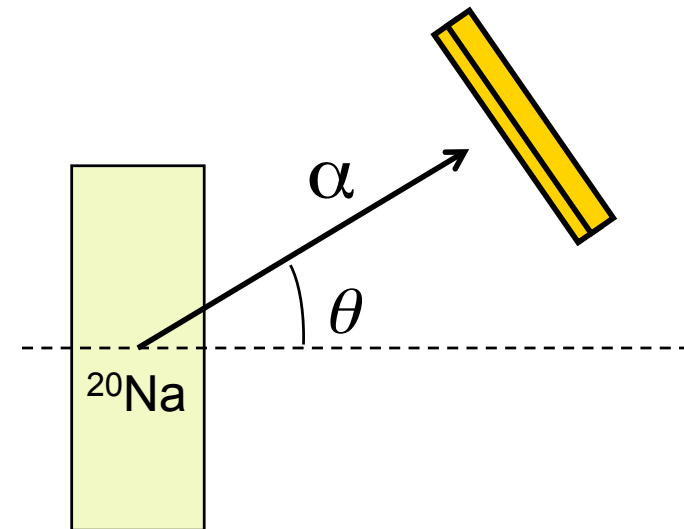
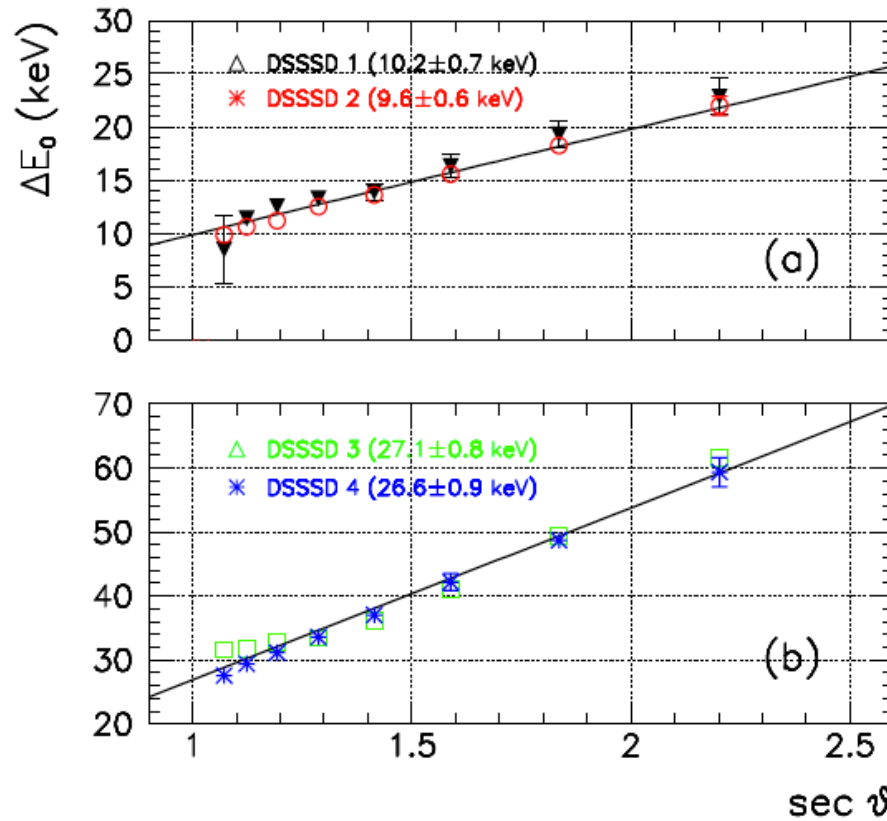


Vacuum unbroken

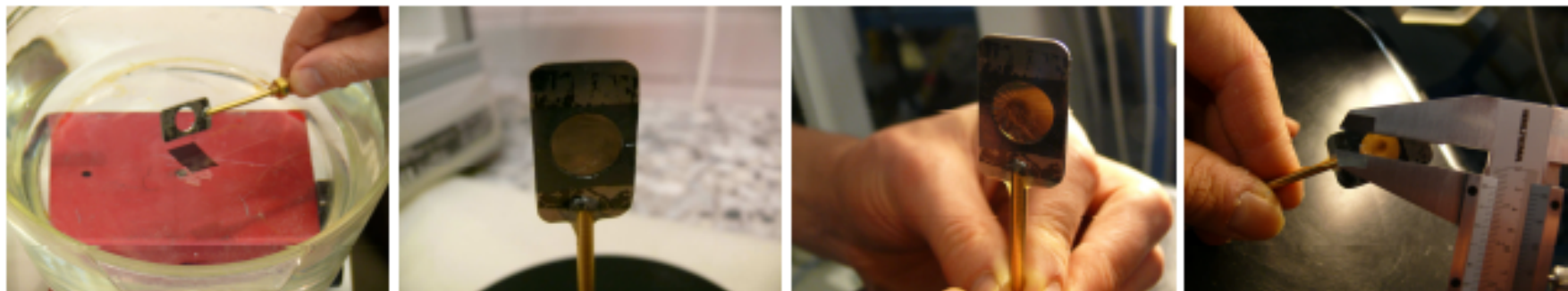
α Sources ^{20}Na (5h) ^{23}Al (8h) ^8B (72h) ^{20}Na (10h) ^{23}Al (22h) α Sources



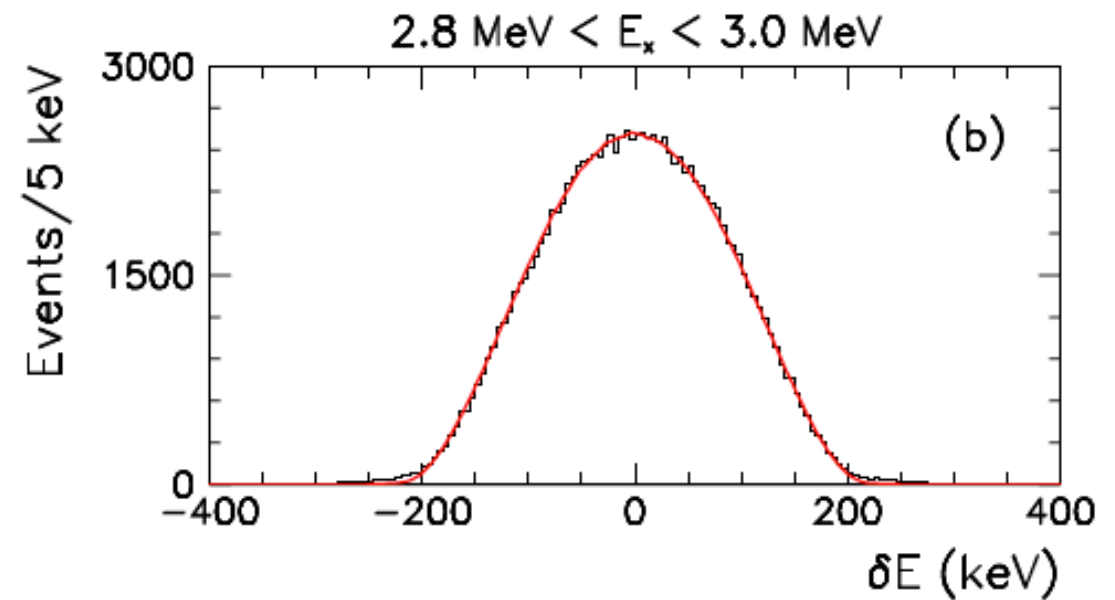
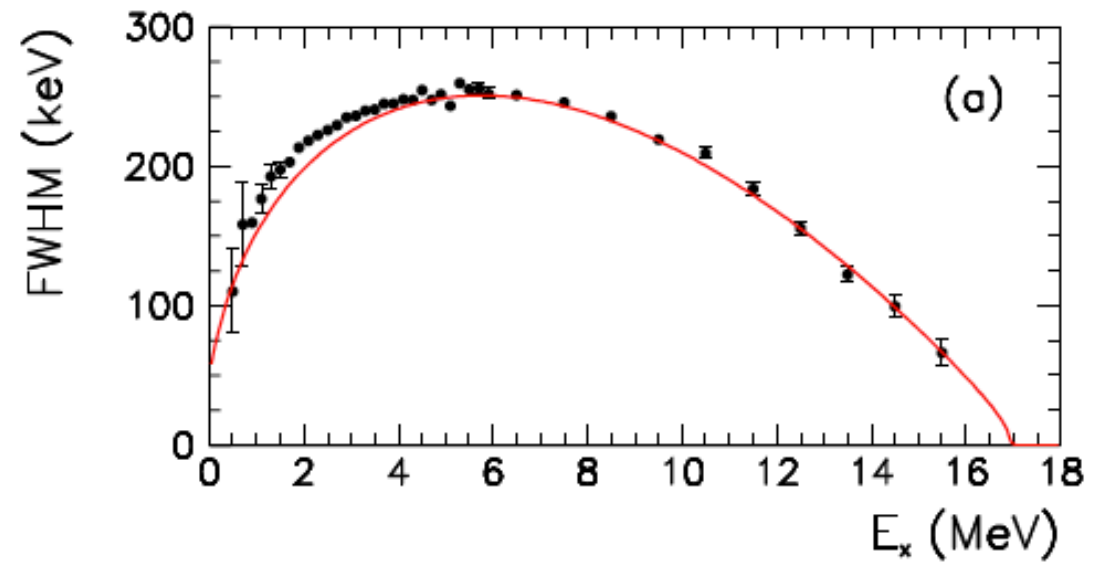
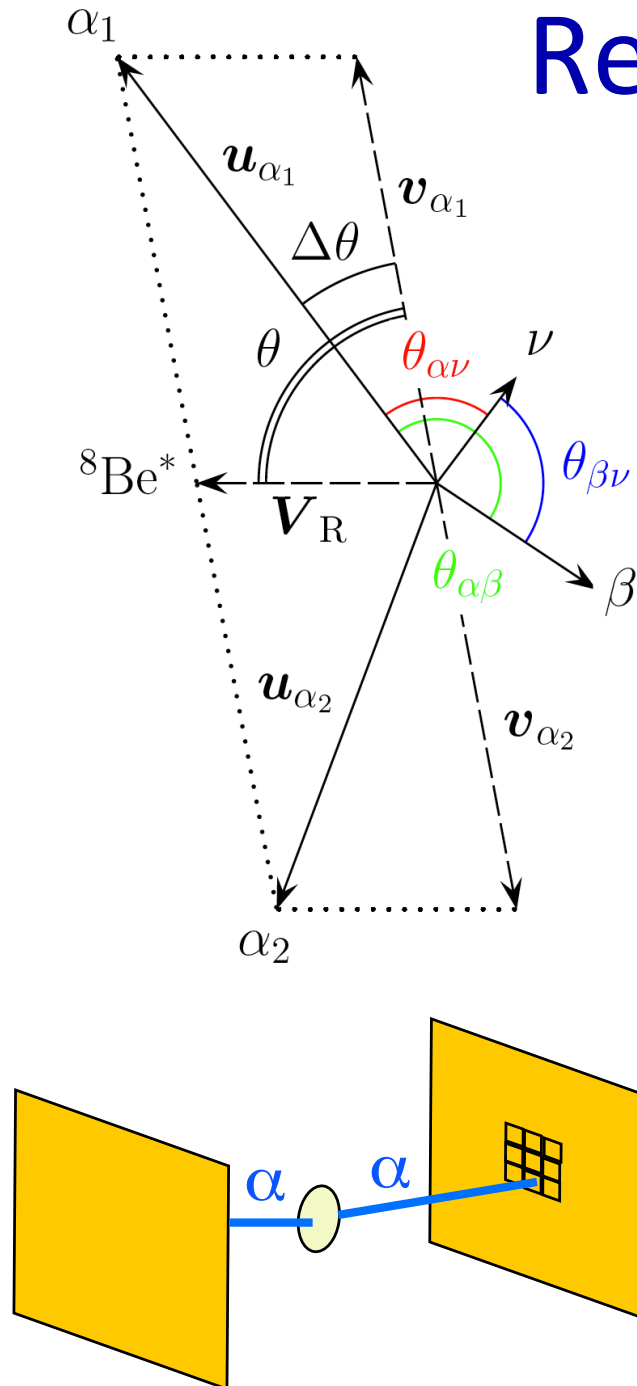
Foil thickness



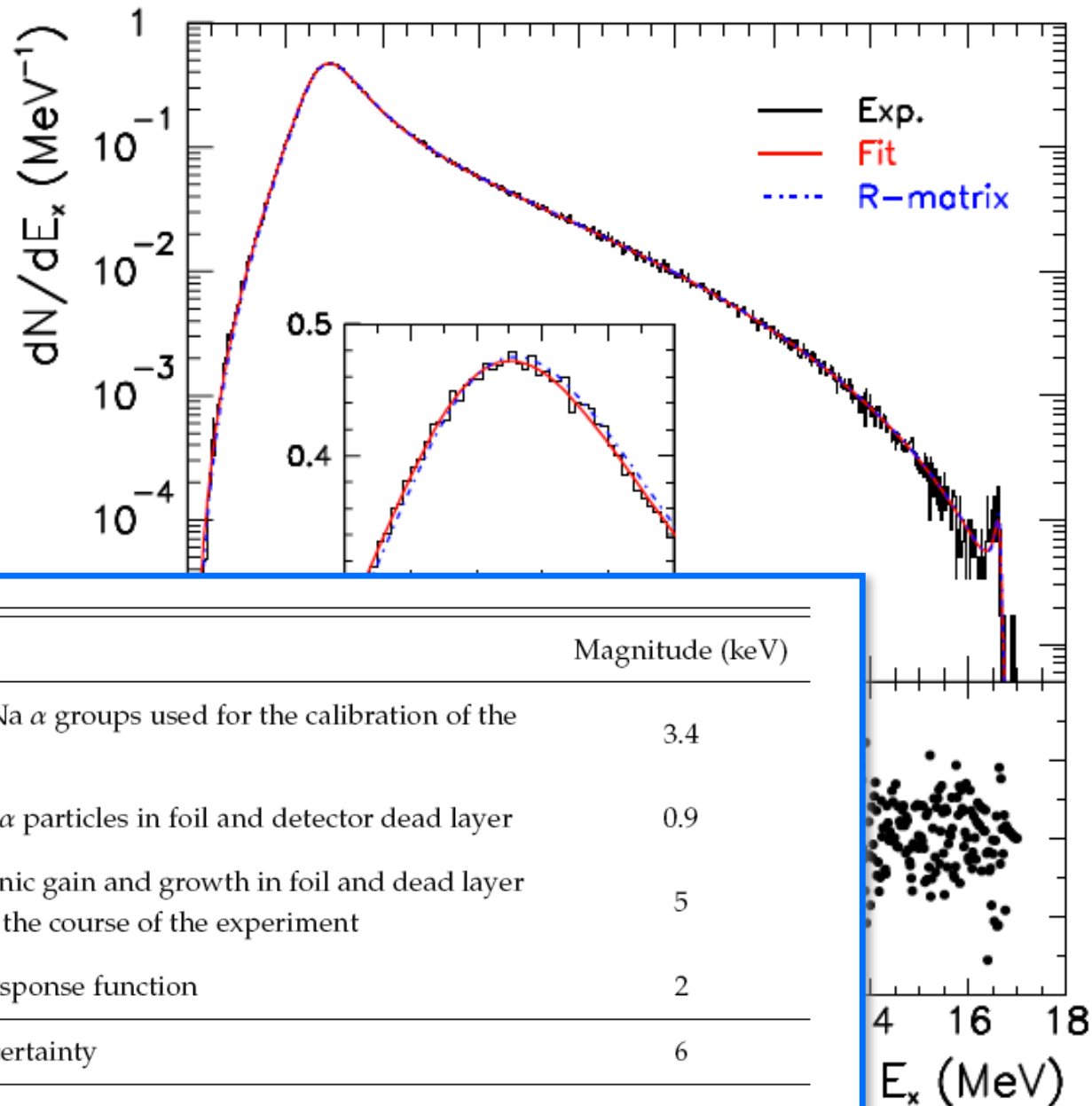
$25 \mu\text{g}/\text{cm}^2$



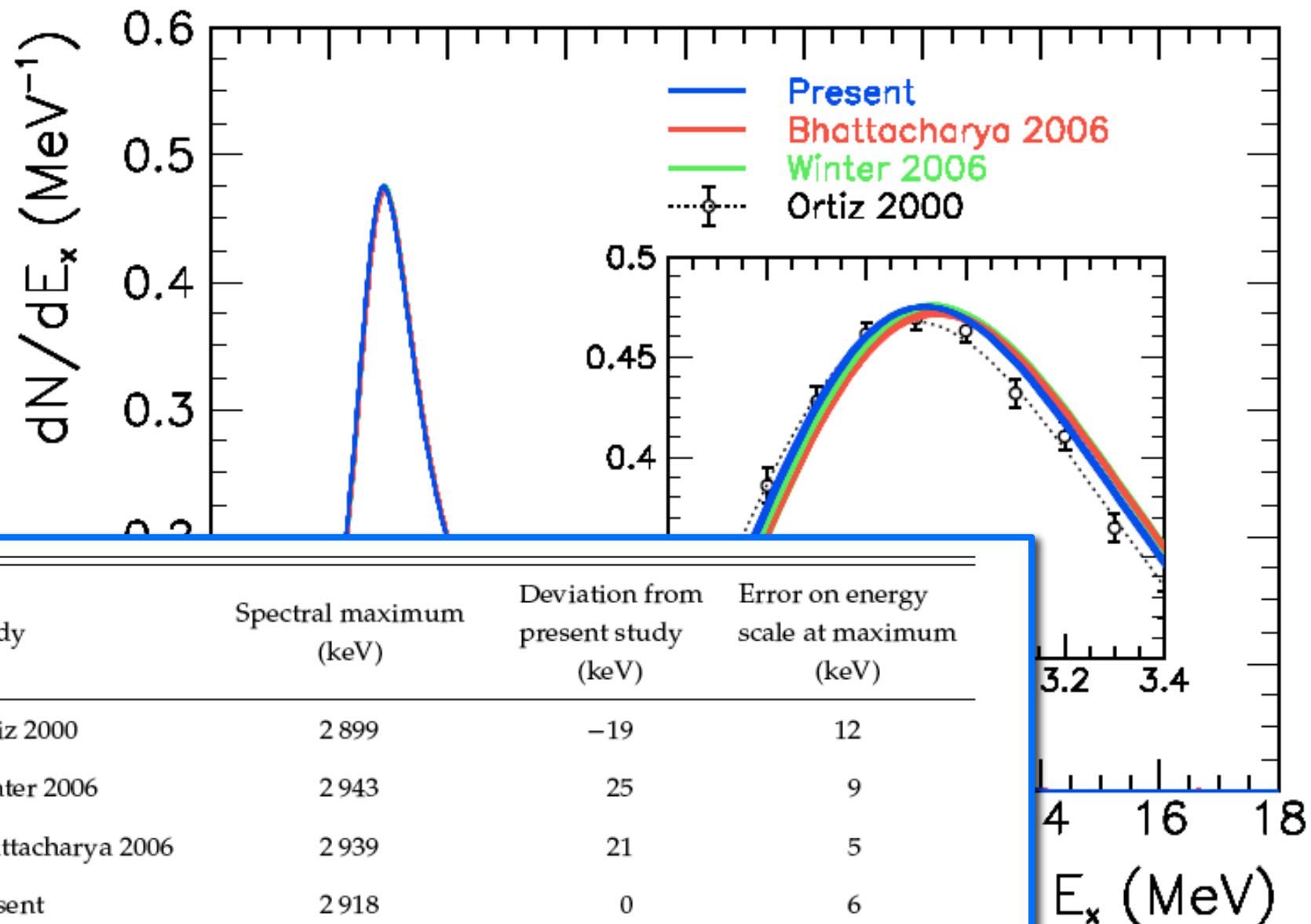
Recoil correction



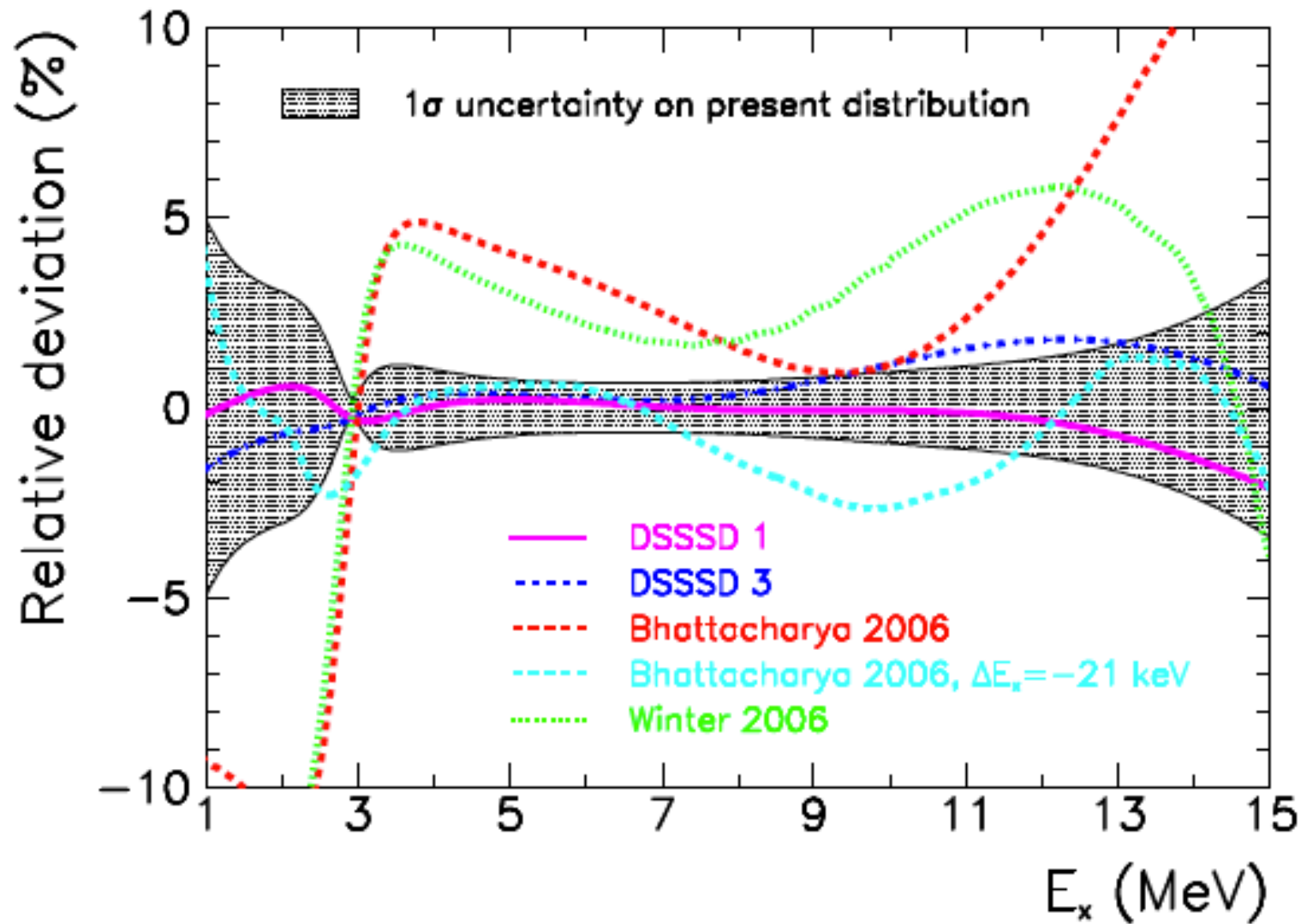
Results: E_x spectrum



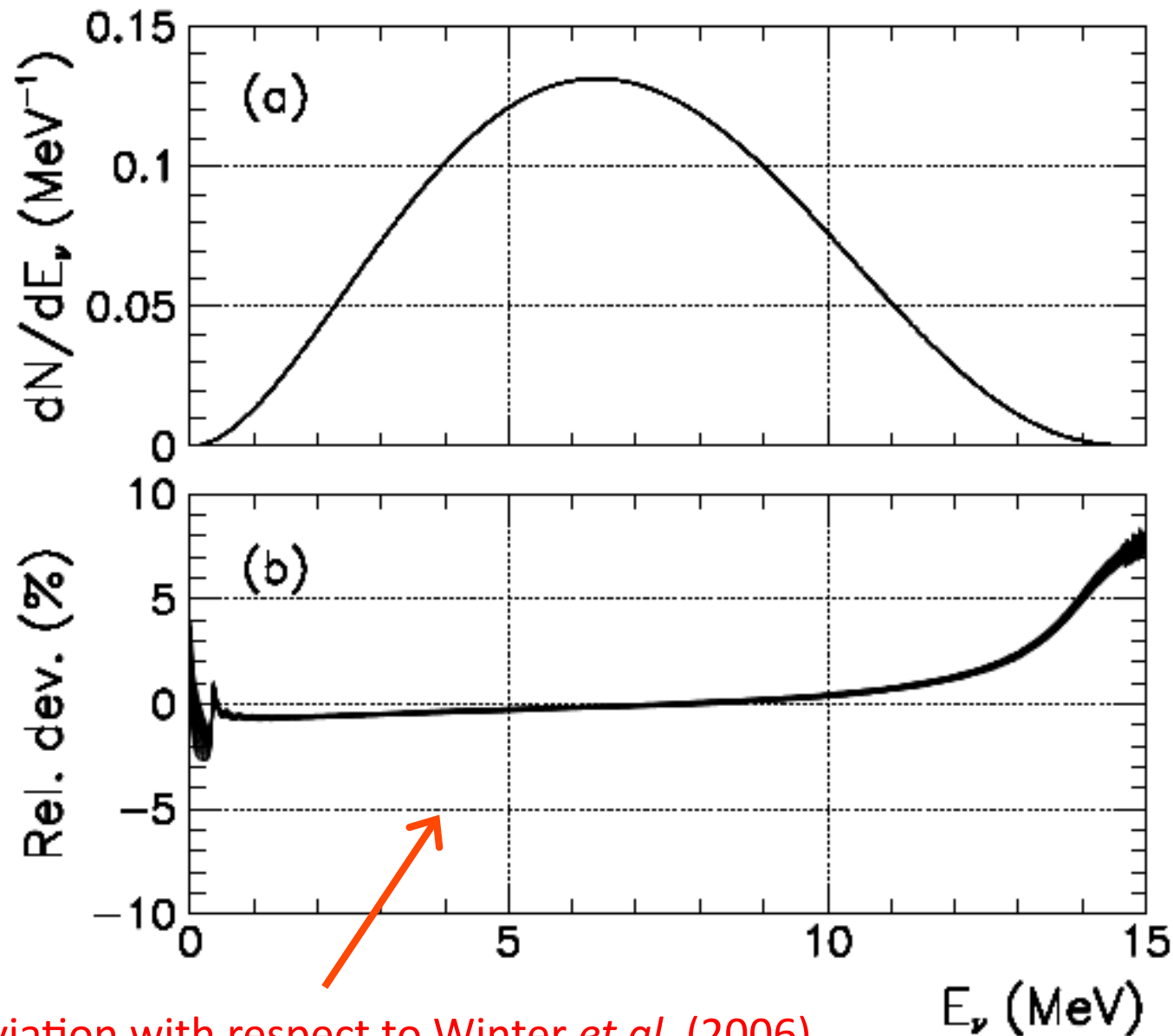
Results: E_x spectrum



Results: E_x spectrum



Results: neutrino spectrum



Our deviation with respect to Winter *et al.* (2006)

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