Fe status

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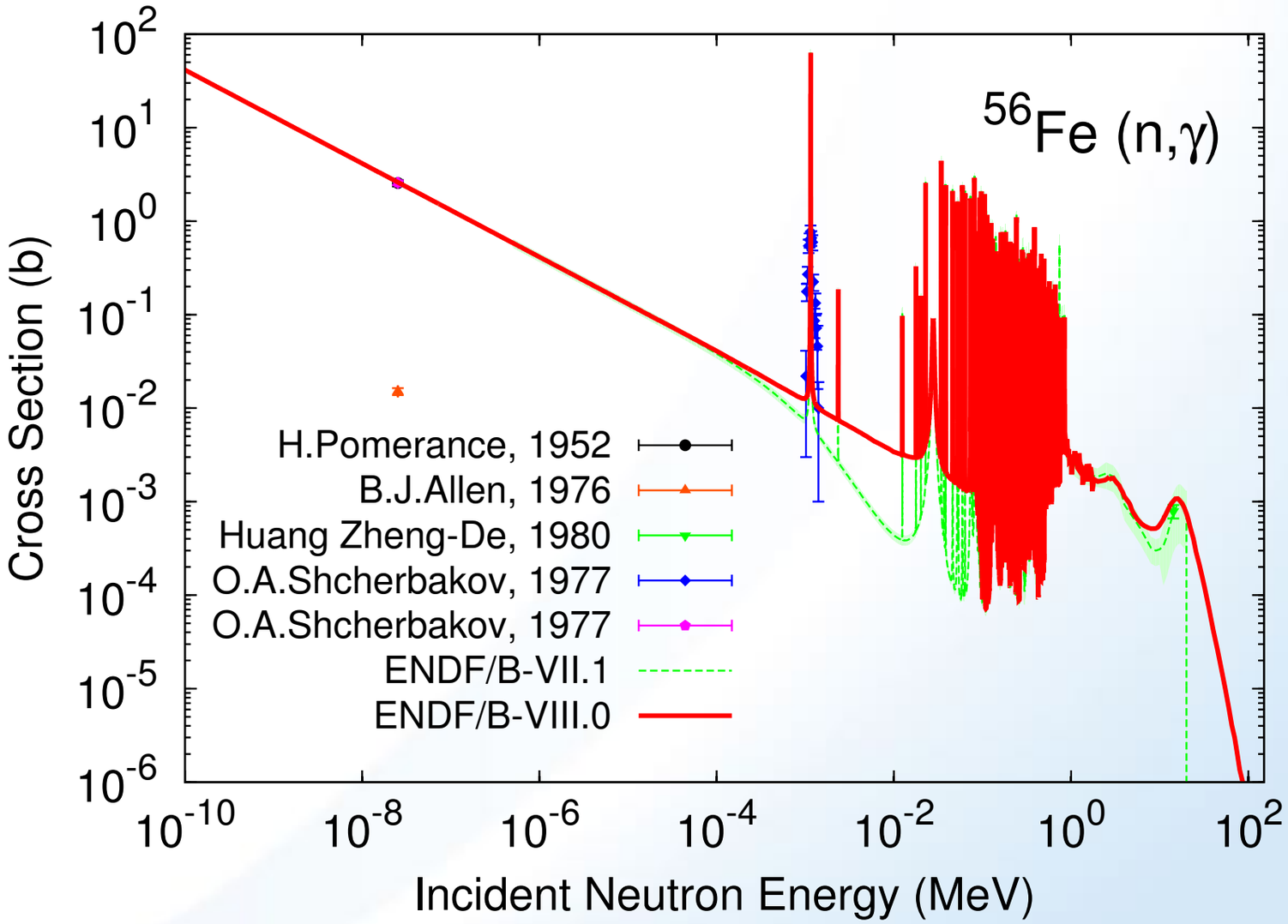
Changes in ^{56}Fe evaluation (β3 => β4)

Capture background around 25 keV slightly reduced

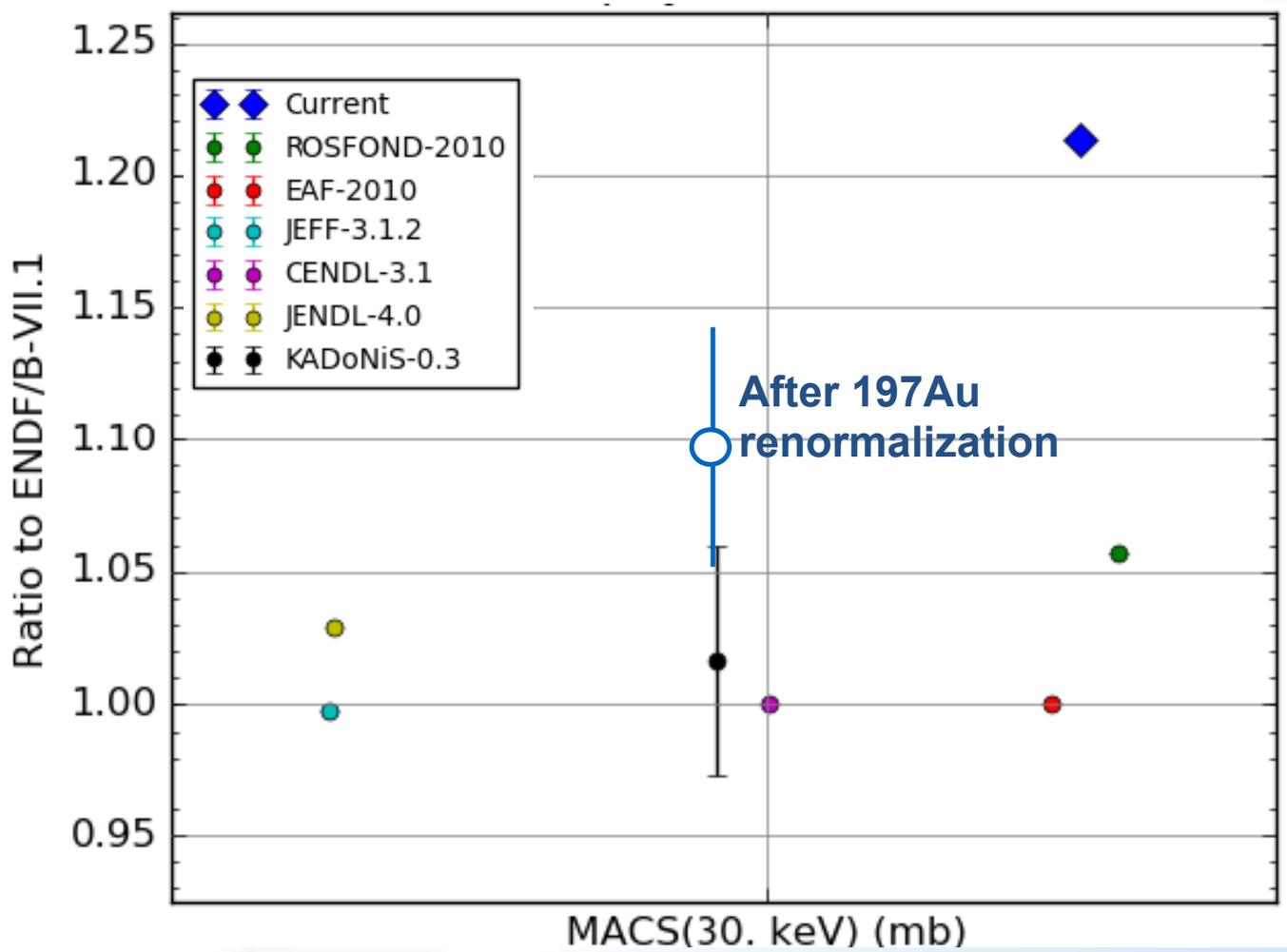
- Originally introduced to improve notoriously bad performance on ZPR-34/9 (hmi01)



Changes in ^{56}Fe evaluation (β3 => β4)

Capture background around 25 keV slightly reduced

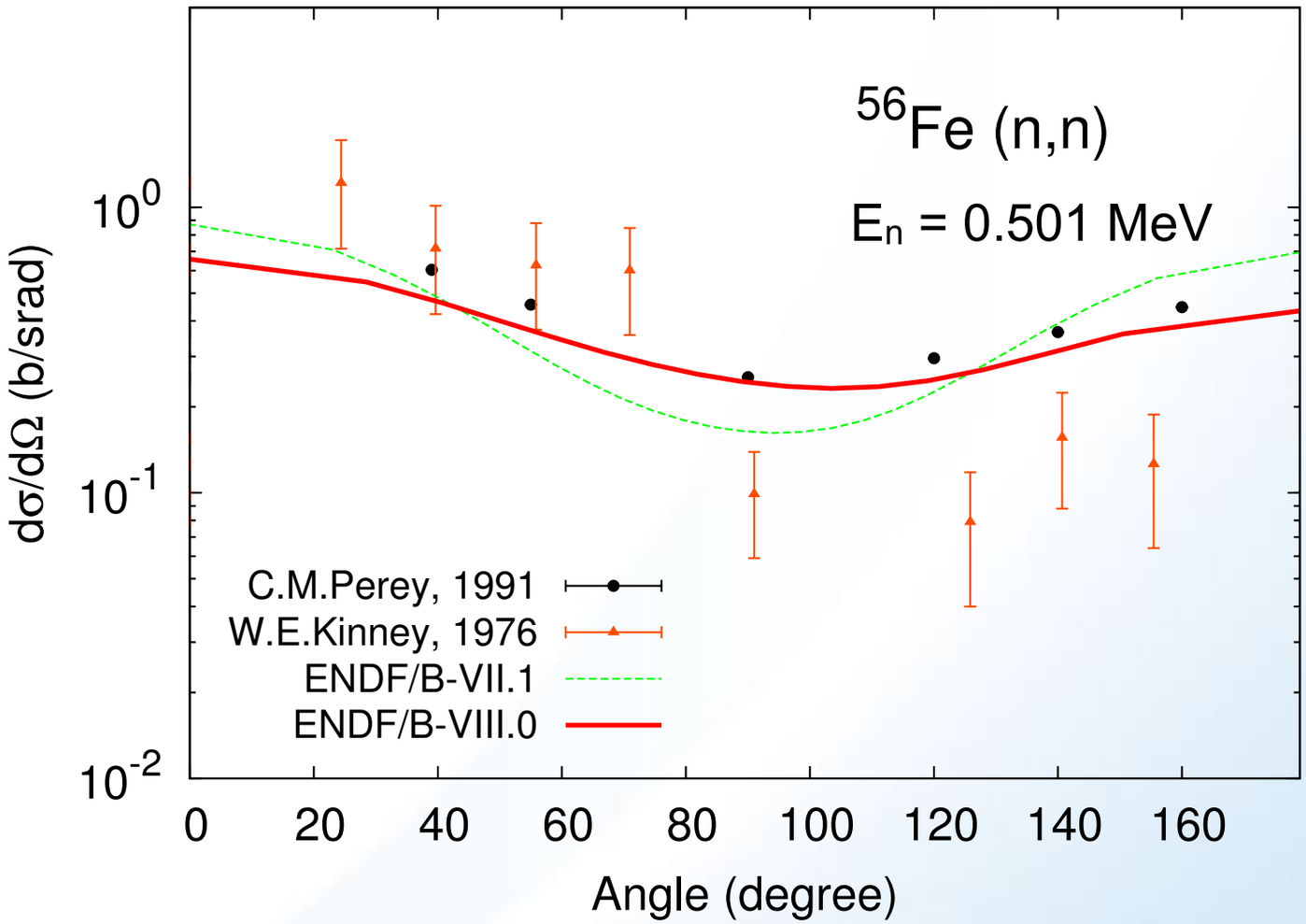
- MACS(@ 30 keV) in mb
  13.97 - VIII.0β4
  11.59 - VII.1
  15.1 +/- 1.3 Mughabghab 06
  11.7 +/- 0.5 KADoNiS v0.3
  (12.4 +/- 0.5 KADoNiS with right 197Au)
- Experimental data:
  13.9 +/- 0.7 Kappeler 1983
  14.4 +/- 2.0 Allen et al, 1977
  15.1 +/- 1.3 Allen et al, 1976
  12.2 +/- 2.1 Wang et al, 10



Changes in ^{56}Fe evaluation (β3 => β4)

Elastic angular distributions refitted (β3 tweaks to $P_{2,4}$ removed)

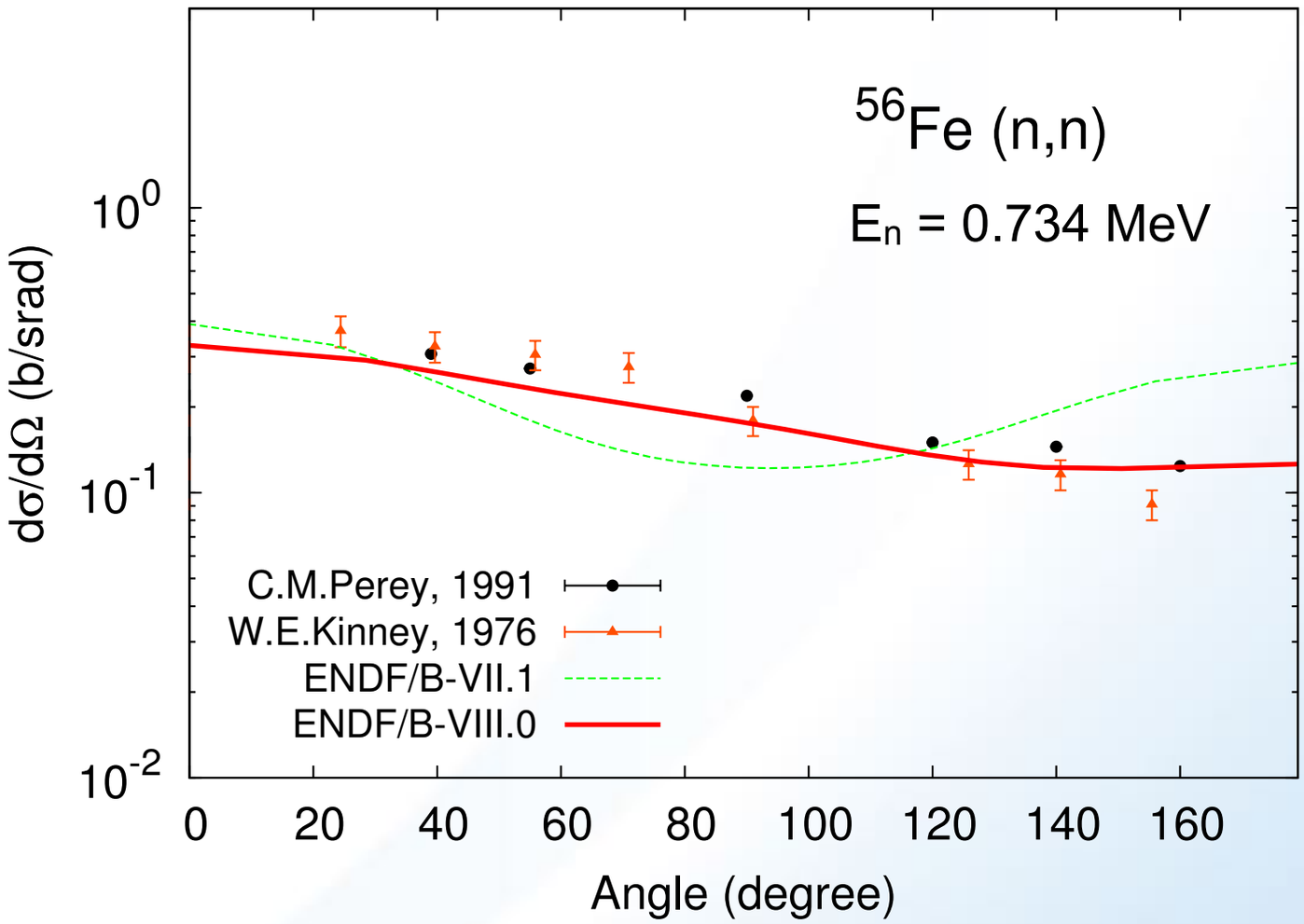
- In the RR range fitted to resolution-broadened Perey data.
- Above the RR up to 2.5 MeV re-fitted to Kinney data with some adjustments based on the comparison with Perey data.
- In the range 2.5-4.0 MeV fitted to Smith (1973).
- Above 4.0 MeV from Empire calculation.



Changes in ^{56}Fe evaluation (β3 => β4)

Elastic angular distributions

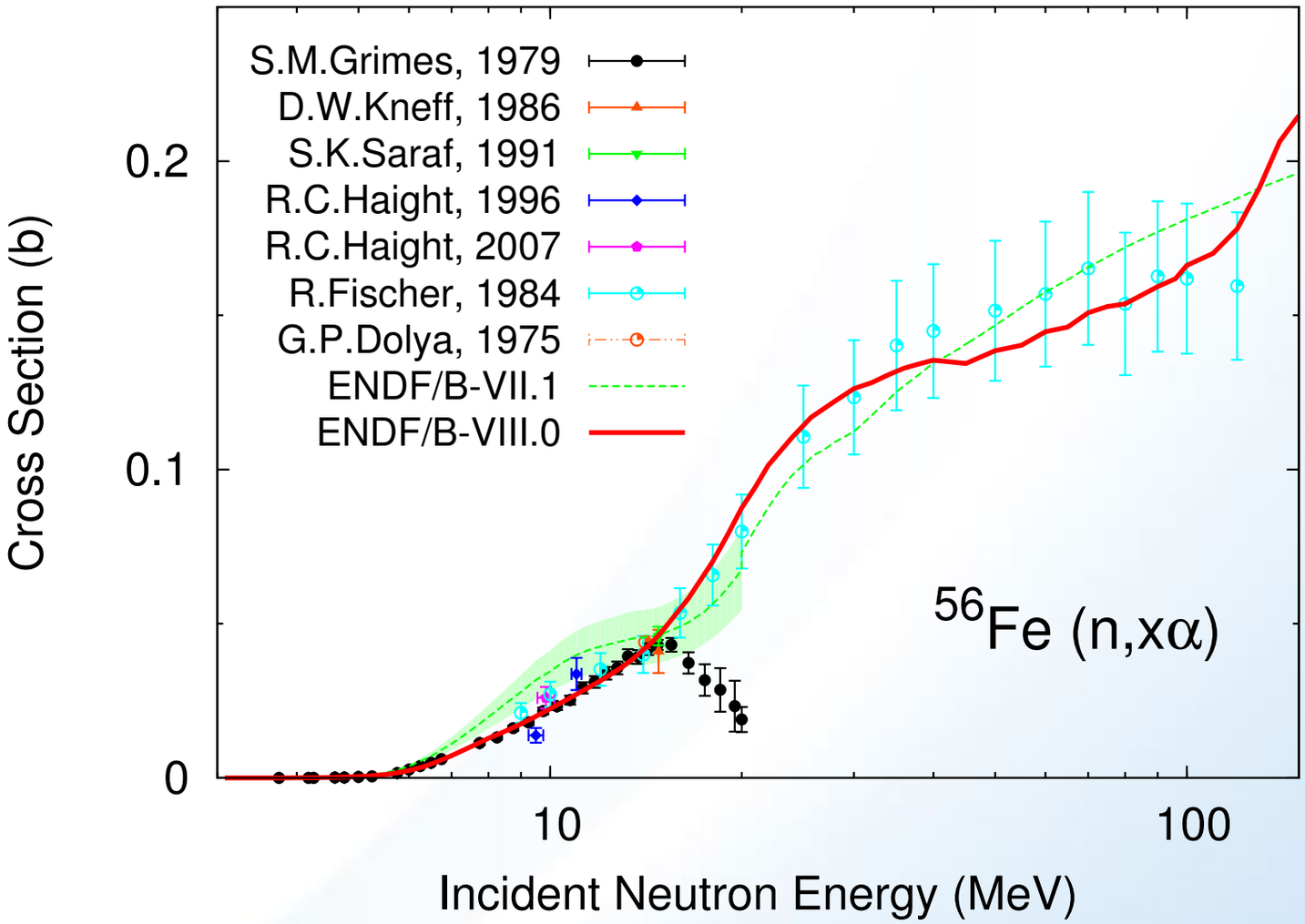
- In the RR range taken from resolution-broadened Perey data.
- Above the RR up to 2.5 MeV re-fitted Kinney data with some adjustments based on the comparison with Perey data in the overlapping region.
- In the range 2.5-4.0 MeV taken from Smith (1973).
- Above 4.0 MeV from Empire calculation.



Changes in ^{56}Fe evaluation (β3 => β4)

Improve α-spectra at high-energies (50 - 150 MeV)

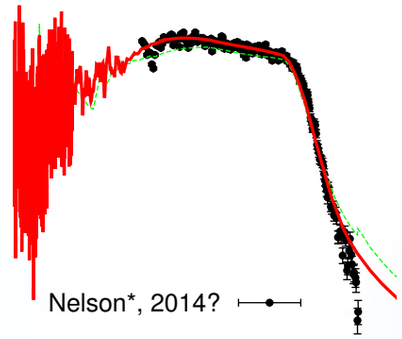
- Identifying which nuclei contribute the most to alpha emissions at 150 MeV and then fitted the level-density and alpha-emission tuning parameters for those nuclei. This fit was done through sensitivity matrix calculations and Kalman.

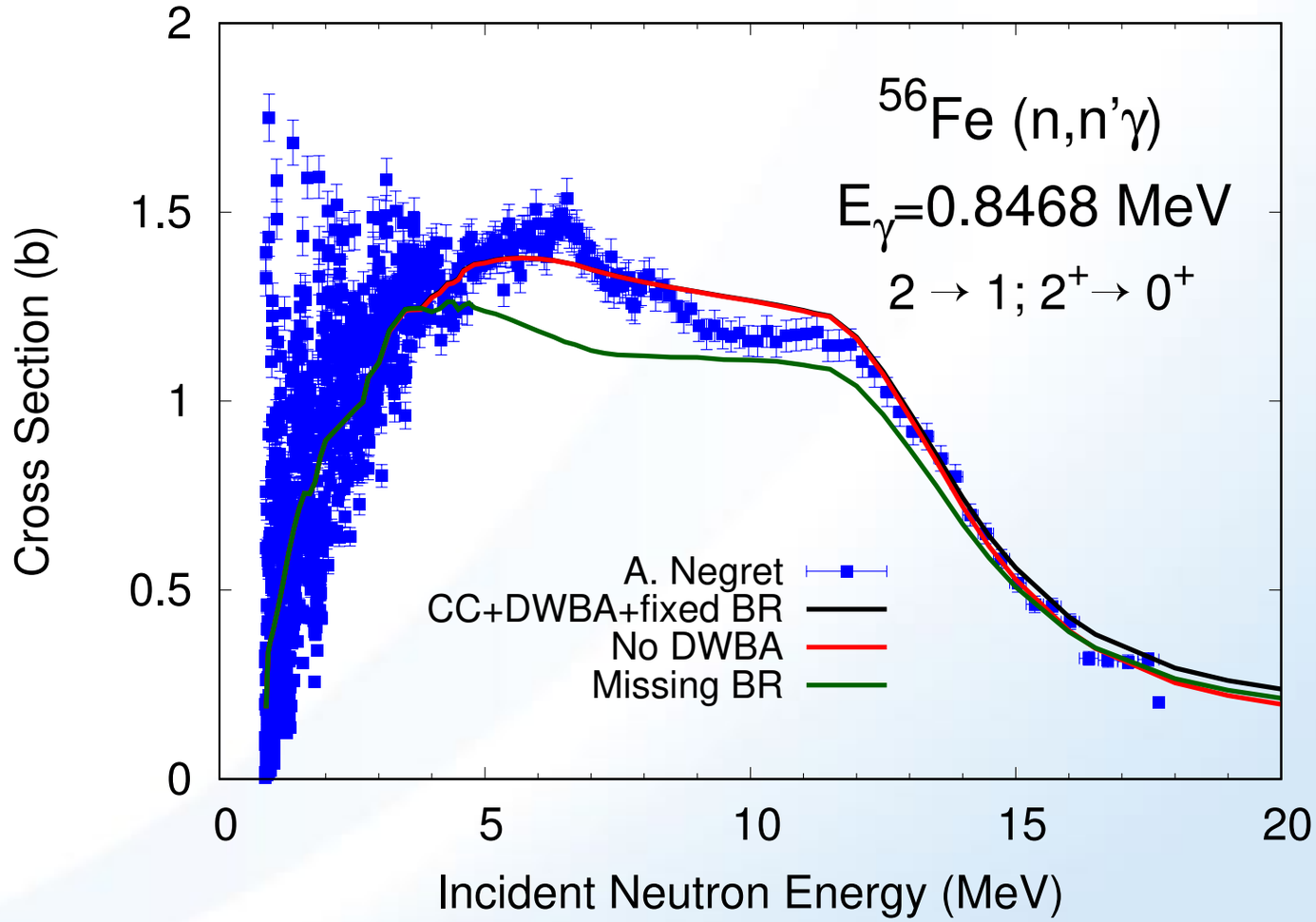


Changes in ^{56}Fe evaluation (β3 => β4)

Complete discrete level decay schemes

- Fixed missing branching ratios for 56Fe (and 57Fe).

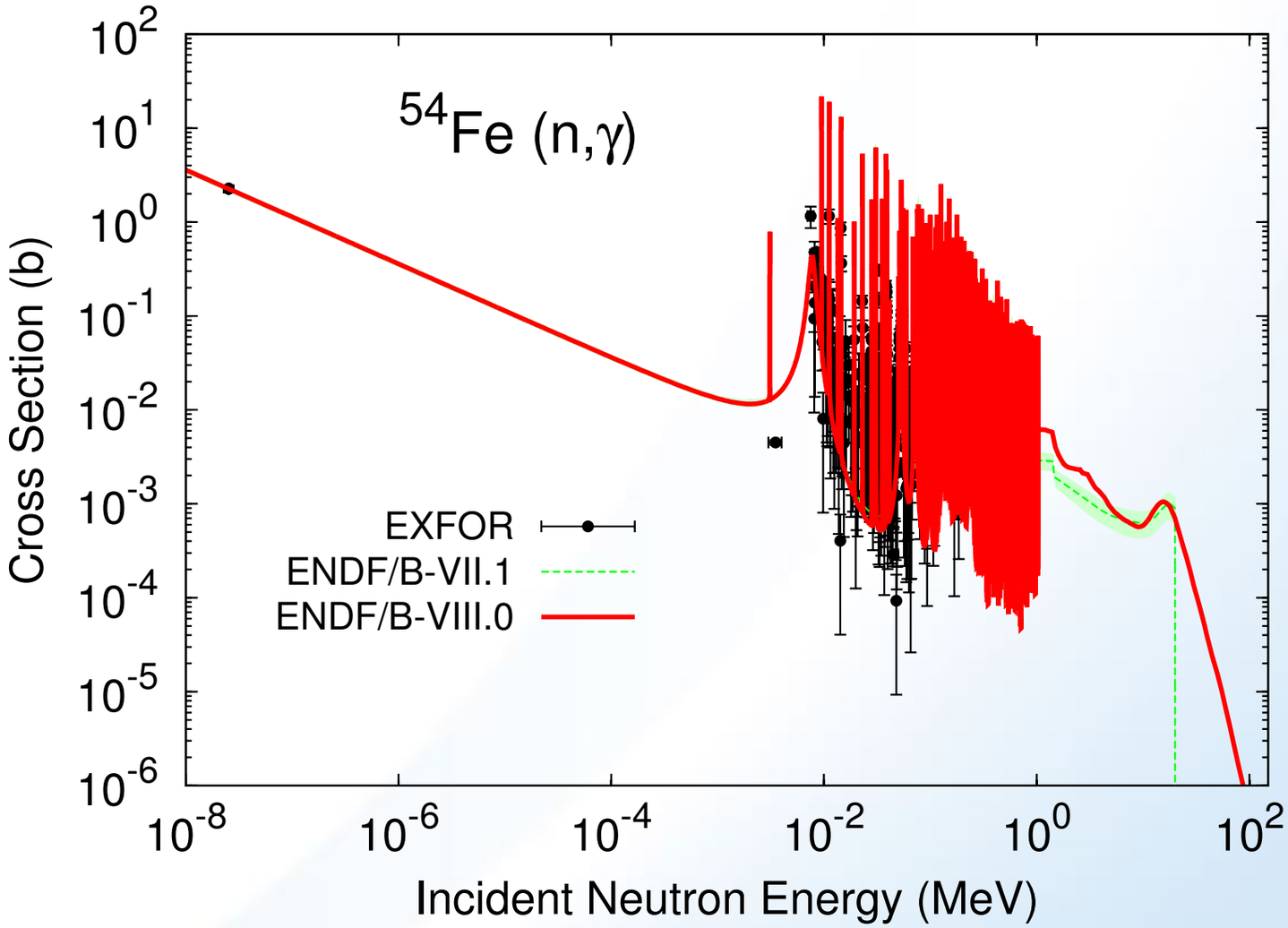




Changes in ^{54}Fe evaluation (β3 => β4)

Adding 64 resonances

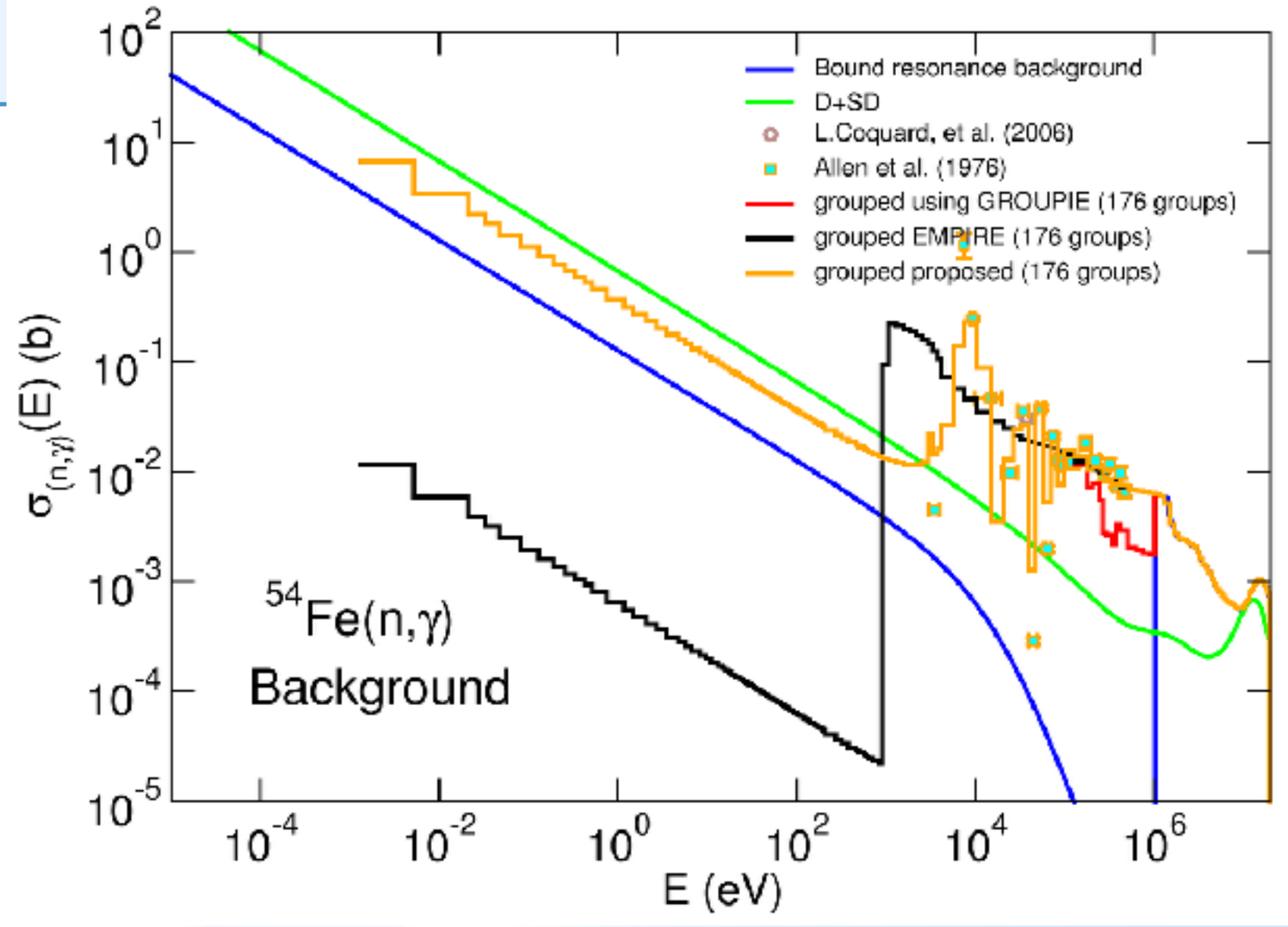
- G. Giubrone's thesis "Neutron capture measurement of 54Fe and 57Fe at CERN n_TOF", University of Valencia (2014), noted in Atlas evaluation but missing from IRSN evaluation



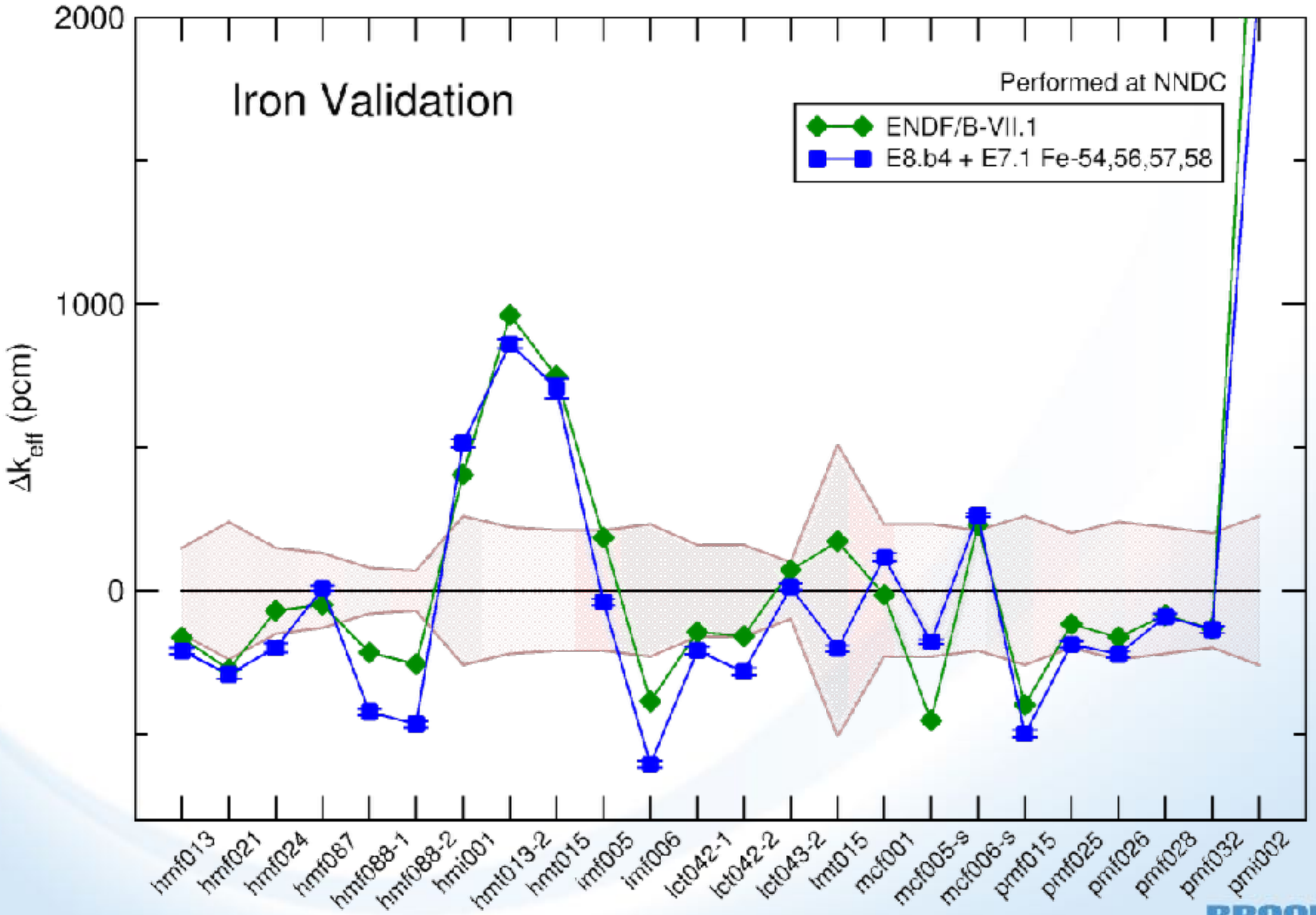
Changes in ^{54}Fe evaluation (β3 => β4)

Adding high energy capture background to the RRR

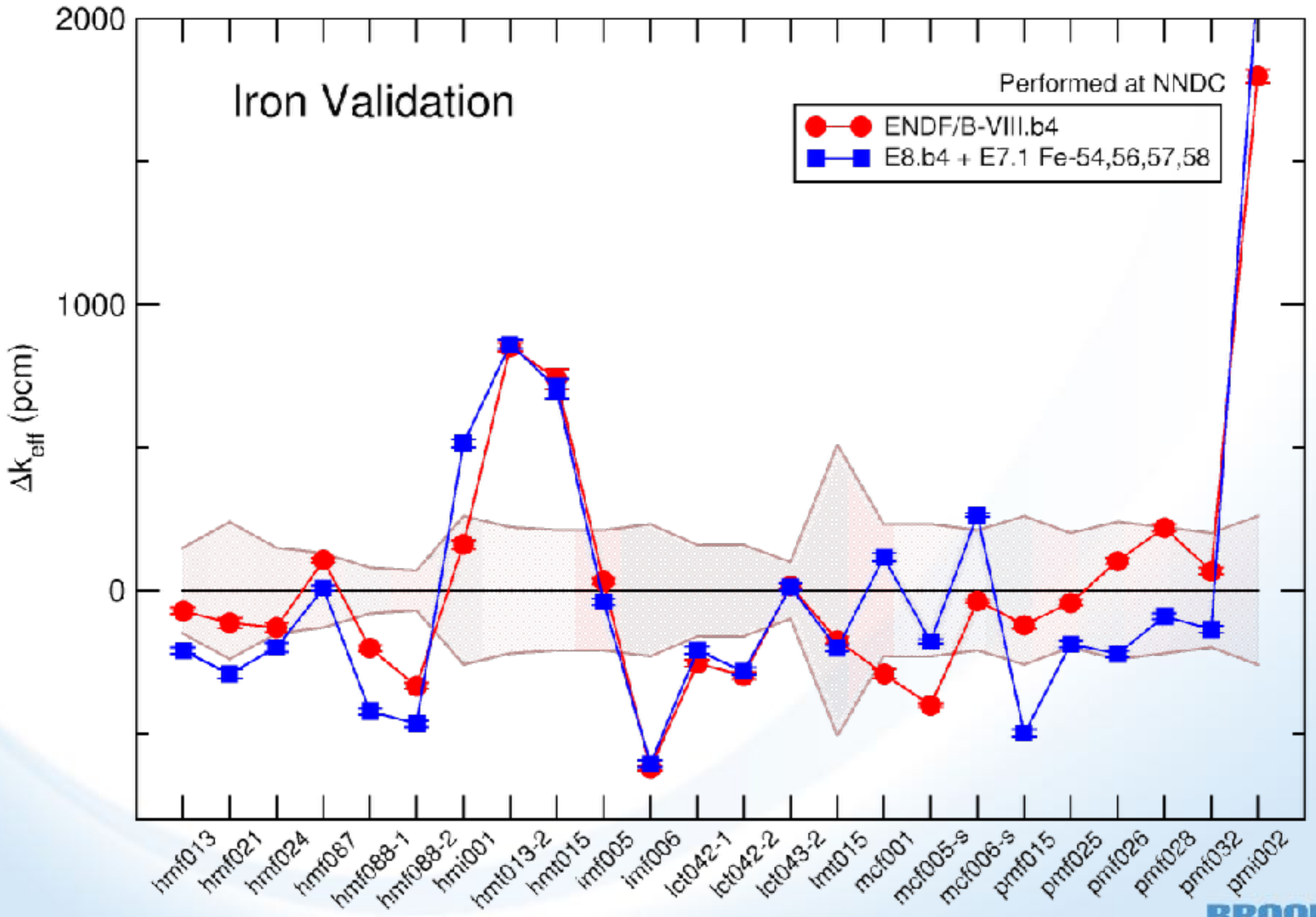
- Account for missing p- & d-wave resonances



Validation: the effect of β4 (keeping VII.1 Fe)



Validation: the effect of β4 Fe



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Validation: VII.1 versus β4