$^9\text{Be}(\gamma,n)$ Evaluation

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Current ^{9}Be(γ,x) Evaluation
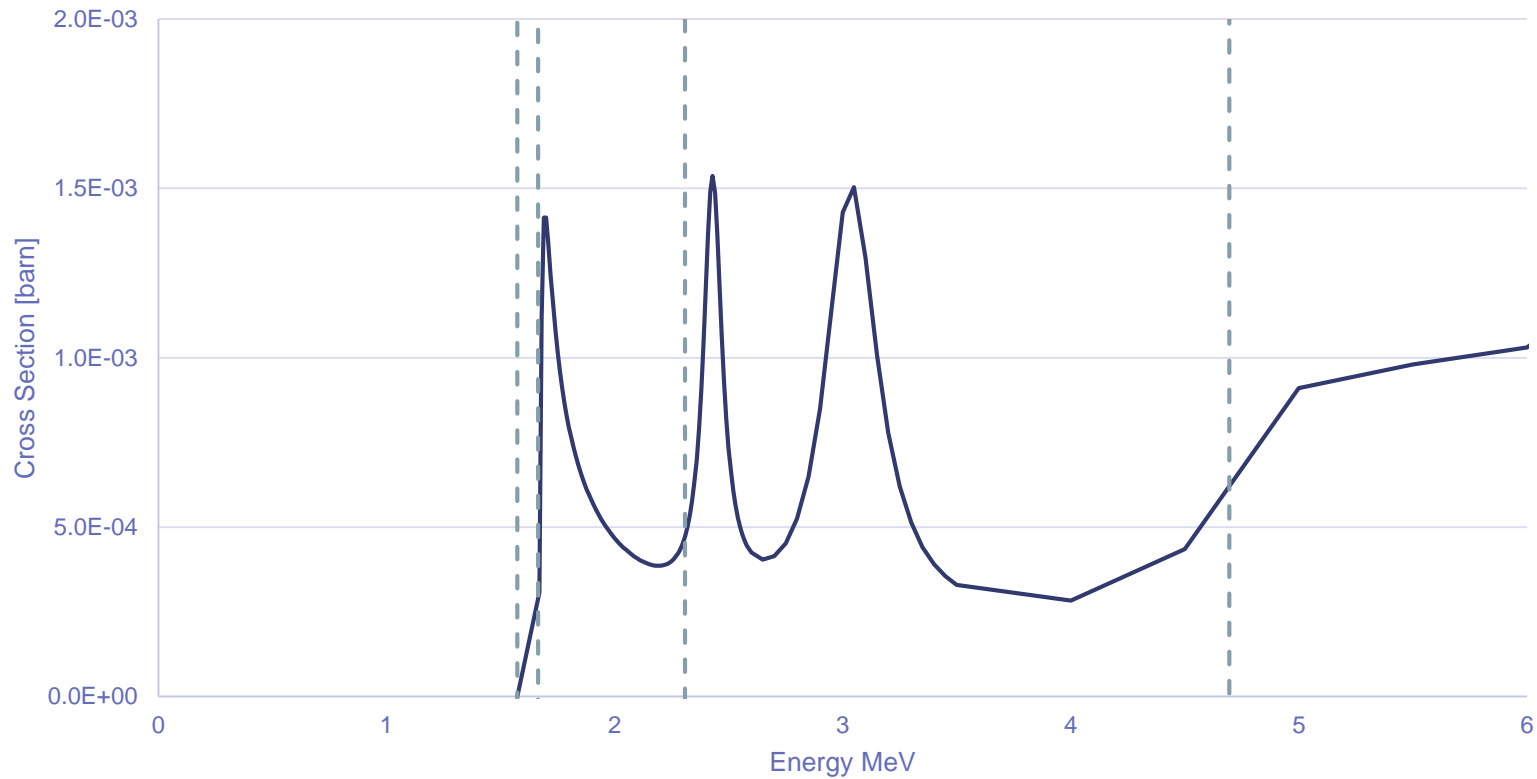
$^9Be(\gamma, n_0)\ ^8Be$ 1.665 MeV

$^9Be(\gamma, n_1)\ ^8Be^*$ 4.695 MeV

$^9Be(\gamma, n2\alpha)$ 1.573 MeV

$^9Be(\gamma, \alpha)\ ^5He$ 2.308 MeV

Cross Section Between the (γ,n2α) and (γ,n) Thresholds
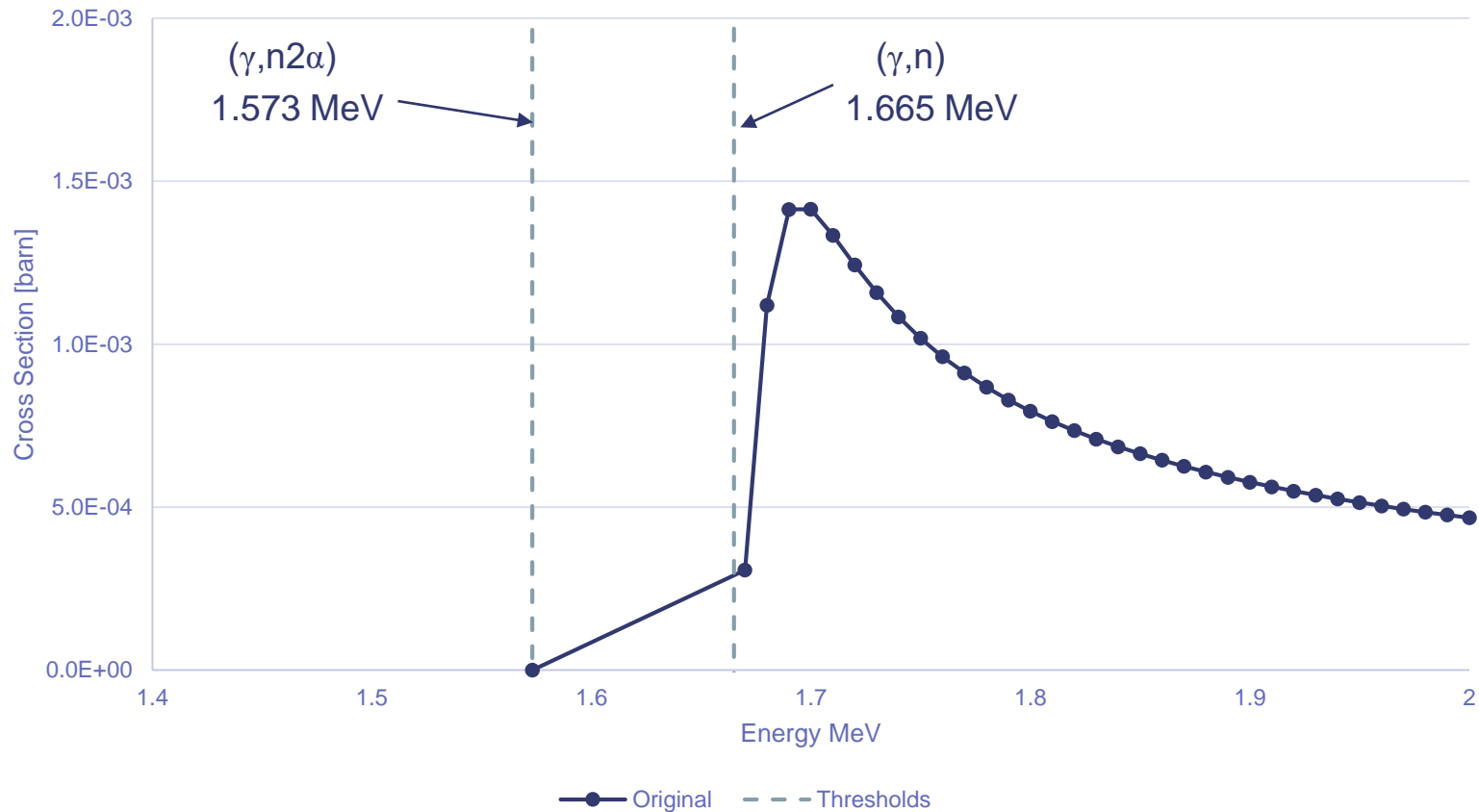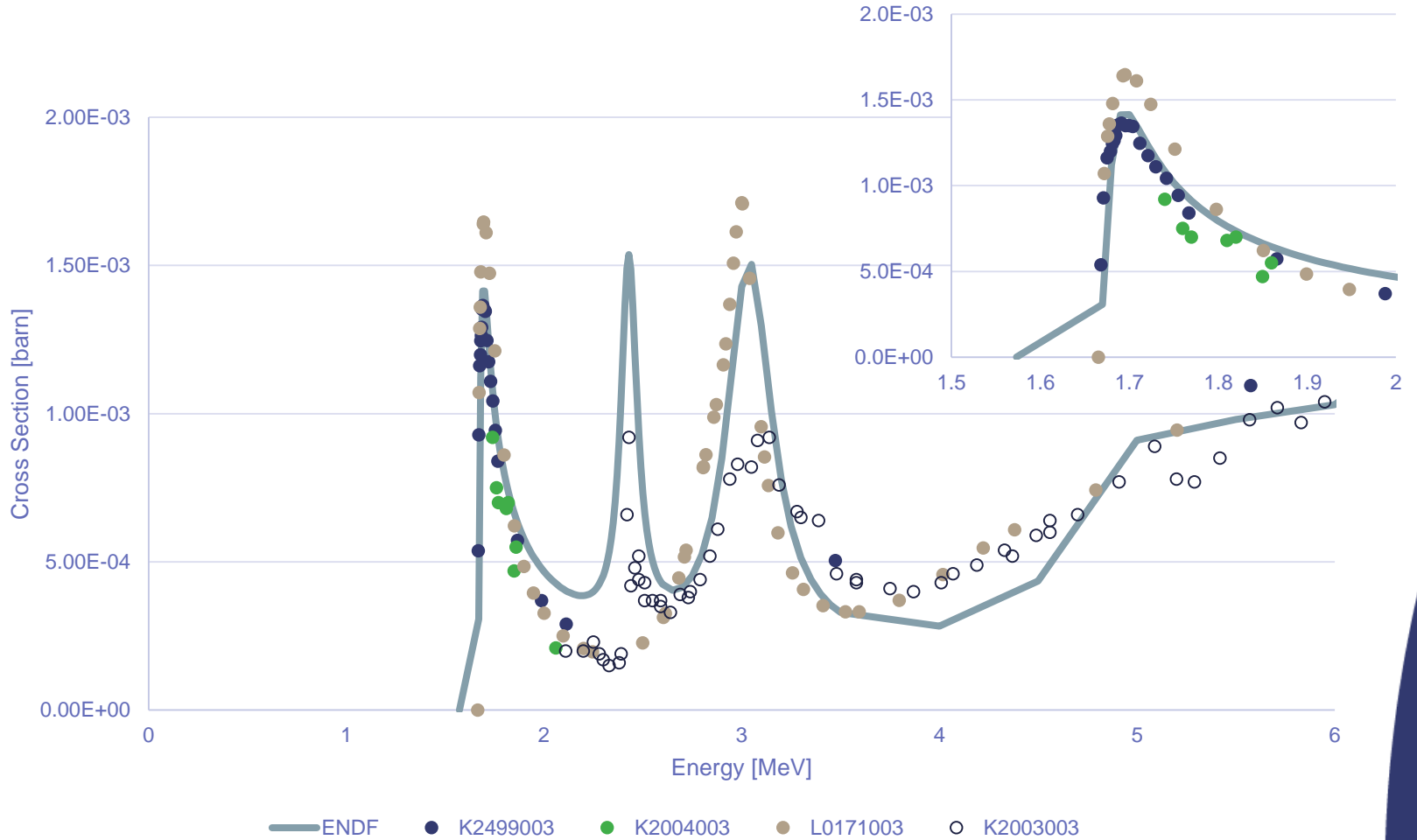

At 1.576 MeV
9.18 µb from evaluation
0.40±0.18 µb from Fujishiro *et al.*,
Canadian J. of Phys., **6**, p1579 (1983)

At 1.63 MeV
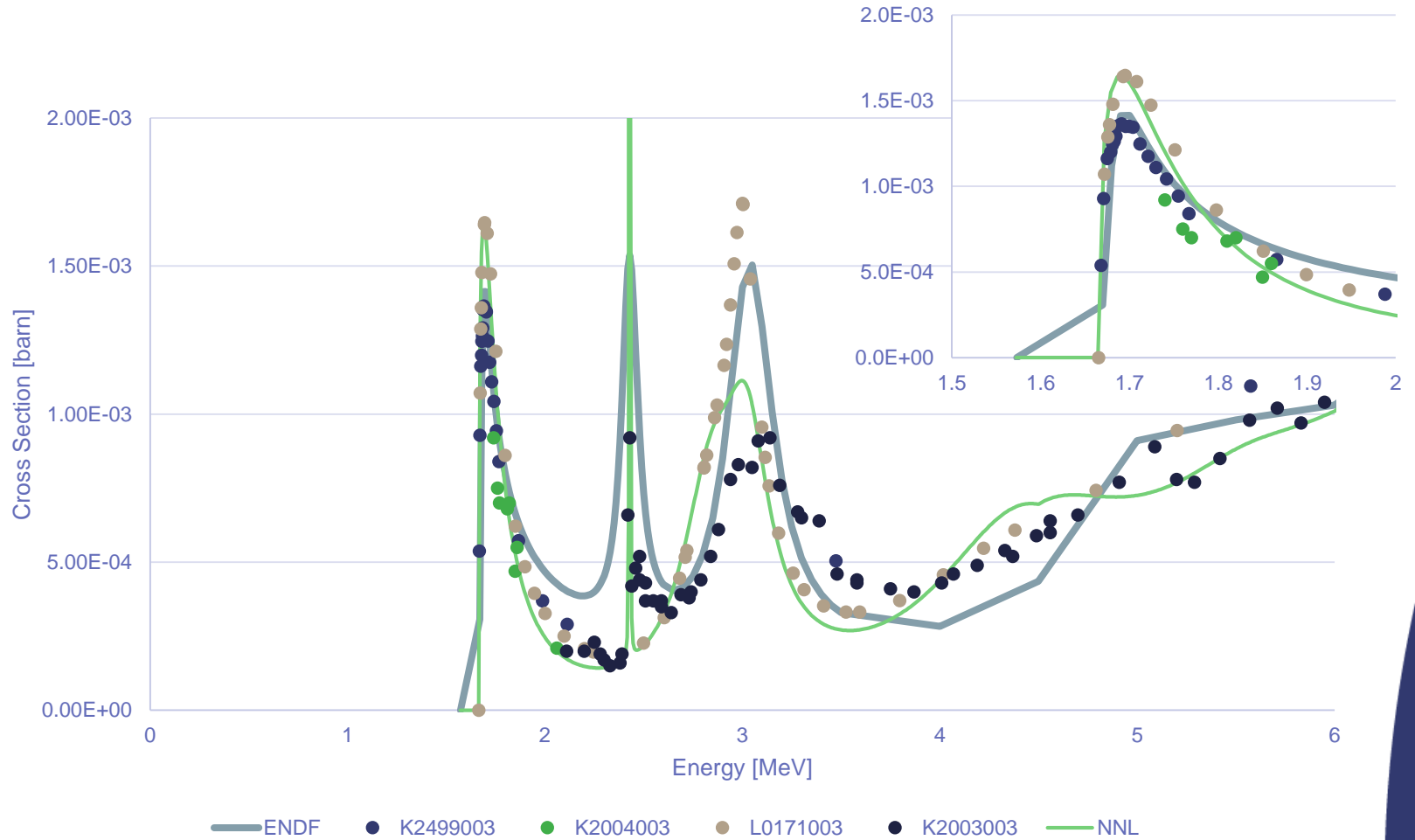180 µb from evaluation
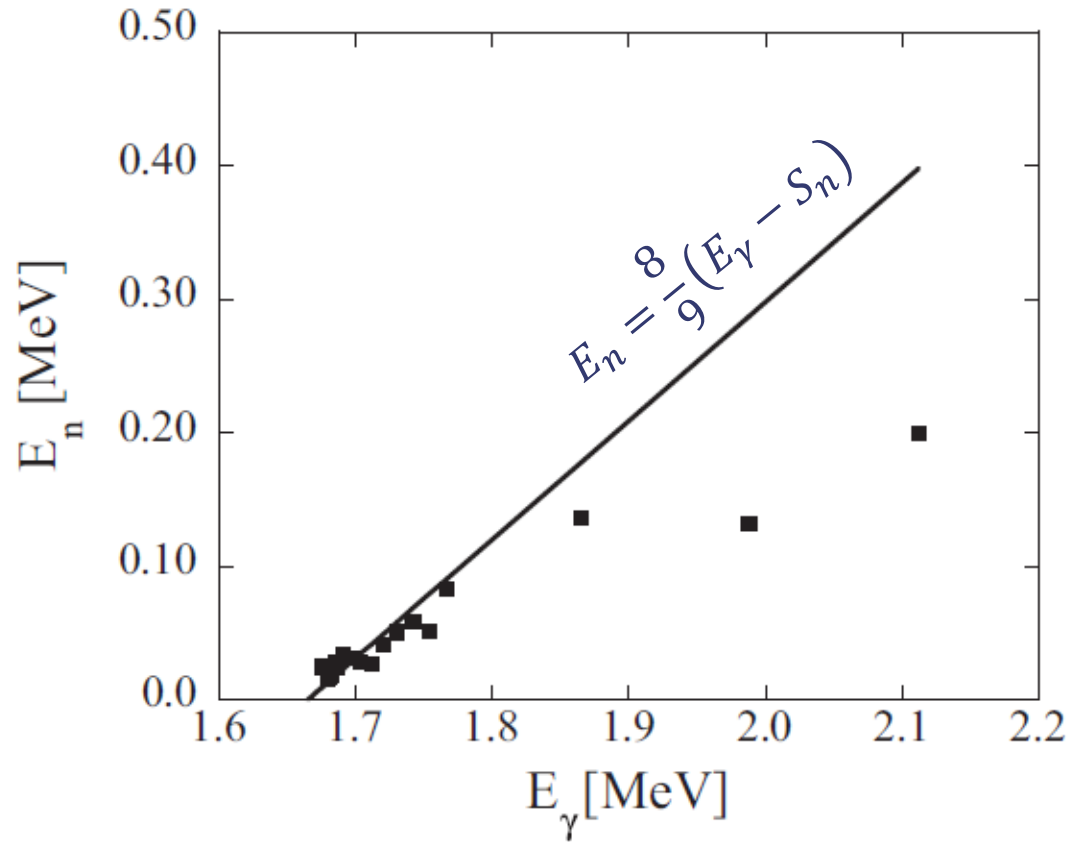0.093±16 µb from Utsunomiya *et al.*
Rev C 92, 064323 (2015)

New Data

New Evaluation

Average Neutron Energy

Utsunomiya, Phys. Rev. C **92**, 064323 (2015).

Multilevel Breit Wigner Parameters

E_R MeV	J^π	Γ_γ eV	Γ_n keV	Γ keV
1.735	1/2$^+$	0.5333	260	260
2.429.4	5/2$^-$	0.065333	0.0468	0.78
2.880	1/2$^-$	1.2	393	393
3.049	5/2$^+$	0.3	197.4	282
4.704	3/2$^+$	5.2	585.58	1541
5.590	3/2$^-$	1.046667	357.58	941

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Conclusions

- NNL has a new ^{9}Be(γ,x) evaluation base on the multilevel Breit-Wigner formalism
    - We plan to provide this evaluation (preprocessed into a MF=3 format) to the NNDC later this year or early next
    - This evaluation does a better job of matching the low cross section between resonances (~2-3 MeV)
    - The second resonance is significantly more narrow than the ENDF/B-VIII.0 evaluation
- Secondary angle/energy measurement at low energy would help distinguish between reactions and simple specify the secondary distributions

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