International Conference on Nuclear Data for Science and Technology

Examination of Total Cross Section Resonance Structure of Niobium and Silicon in Neutron Transmission Experiments

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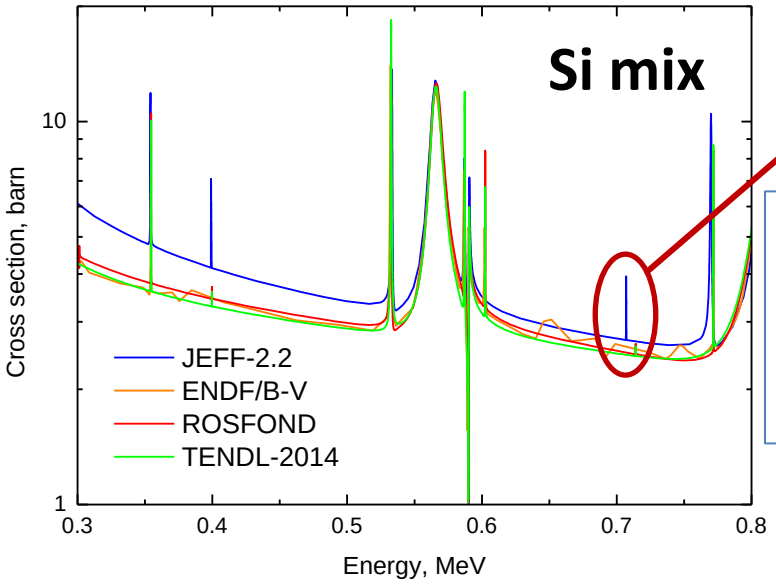
Neutron Transmission Measurements

A set of neutron transmission experiments in energy range 1 keV to 3 MeV were conducted by V. Fillipov in 1960s for a wide list of reactor materials as:

Fe, Ni, Cr (already published in ICSBEP Handbook), Si, Nb (this work), Be, Cu, Zr, Mo, W, Pb, Bi, Al, Zn, V, Ti, C, Mg, P, S, Ga, Sb, Ba, Ta.



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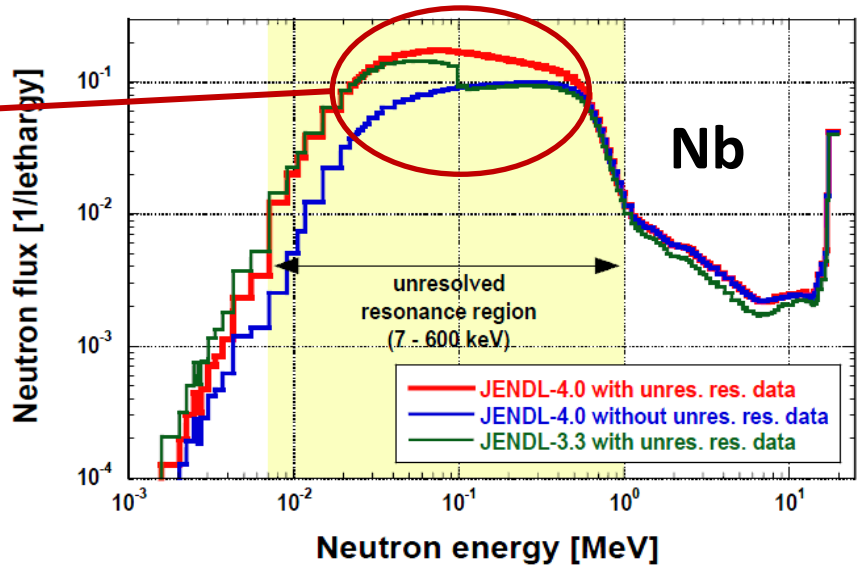
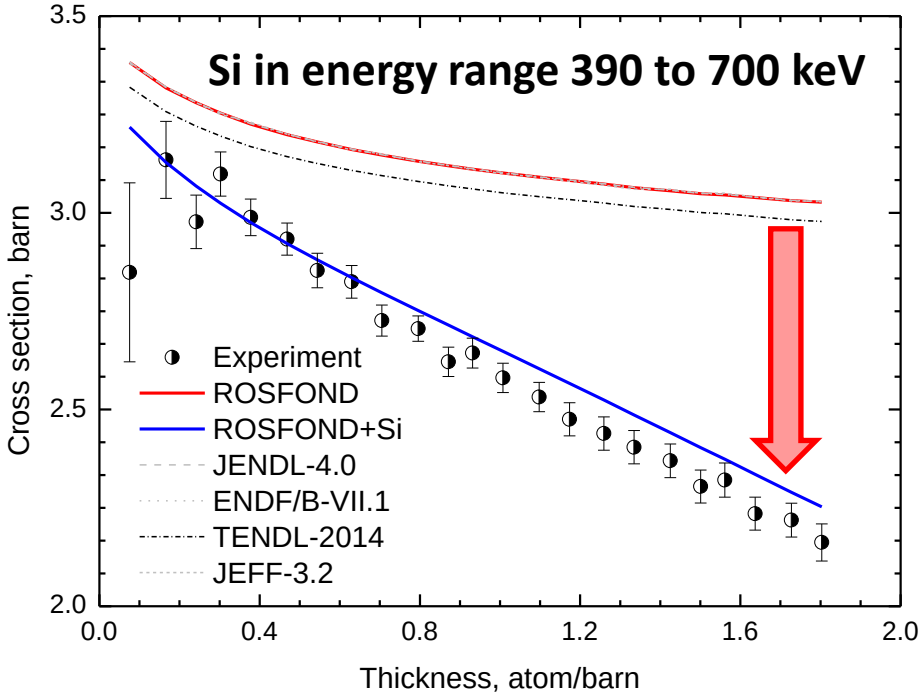
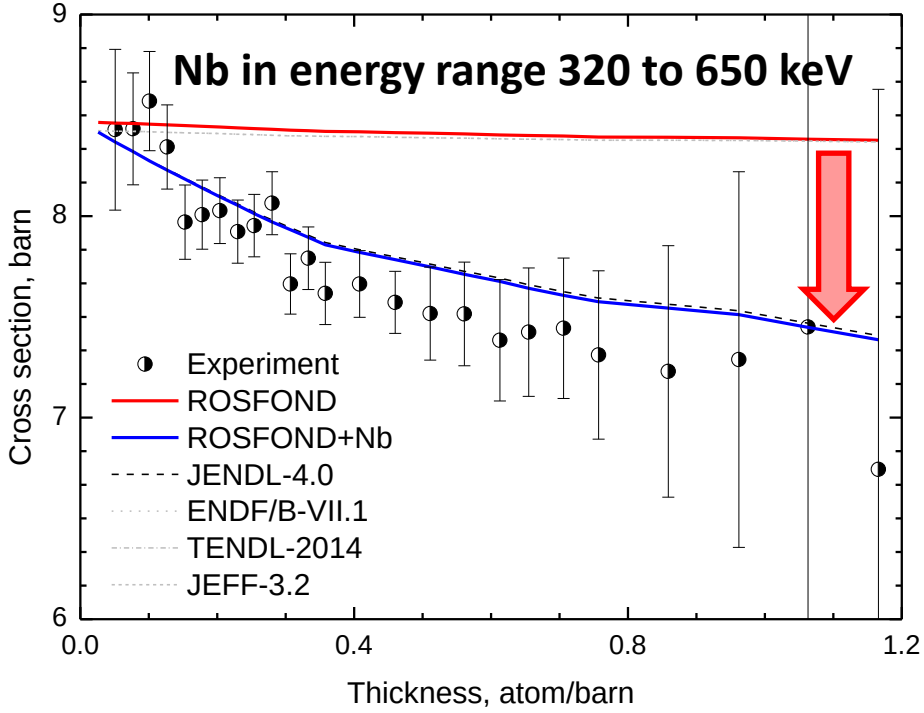
Issues that need to resolve



Correction of Si and Nb Nuclear Data

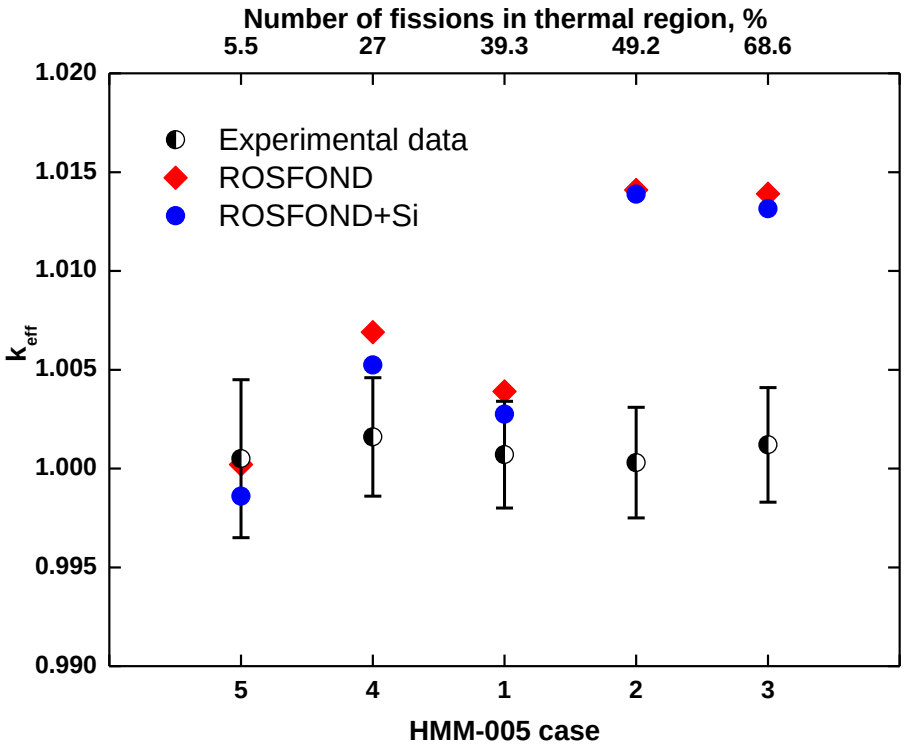
The considered transmission measurement results show a necessity to improve niobium and silicon resonance structure parameters for the ROSFOND nuclear data files in energy range 100 to 600 keV for the niobium and 300 to 800 keV for the silicon.



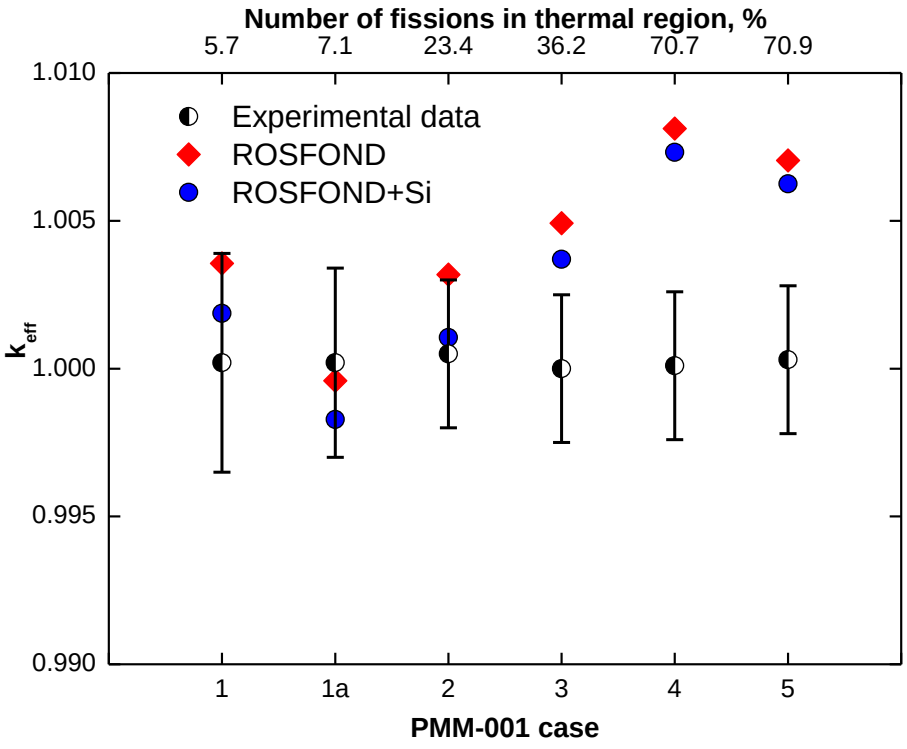


Testing the Data Through Calculation of ICSBEP Benchmarks

HEU-MET-MIXED-005



PU-MET-MIXED-001



and HEU-MET-FAST-047

	Benchmark	ROSFOND	ROSFOND+Nb
k_{eff}	1.0007±0.0037	1.00497±0.00025	1.00198±0.00026