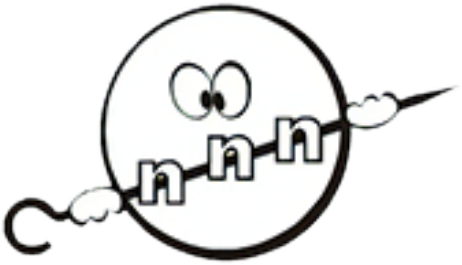

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Cross Sections of the 148Sm(n, α)145Nd Reaction in the 4.8–5.3 MeV Neutron Energy Region

Tuesday, 27 May 2025 16:25 (15 minutes)

Cross sections for the 148Sm(n,α)145Nd reaction were measured at neutron energies of 4.8, 5.1, and 6.3 MeV, performed at the EG-5 Van de Graaff accelerator at the Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research. A double-section gridded ionization chamber was employed to detect the emitted alpha particles. Samples of 148Sm2O3 were positioned back-to-back on the common cathode plate of the chamber. Monoenergetic neutrons were produced via the D(d,n)3He reaction in a deuterium gas target. The neutron flux was monitored with a 3He long counter, and the absolute flux was determined using a 238U3O8 sample. The experimental results are compared with evaluated data and calculations from the TALYS-1.96 nuclear reaction code.

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