THE NONELASTIC-SCATTERING CROSS SECTIONS OF ELEMENTAL NICKEL*

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ABSTRACT

Neutron total cross sections of elemental nickel are measured from 1.3 to 4.5 MeV, at intervals of ~50 keV, with resolutions of 30-50 keV and to accuracies of 1-2.5%. Neutron differential-elastic-scattering cross sections are measured from 1.45 to 3.8 MeV, at intervals and with resolutions comparable to those of the total cross sections, and to accuracies of 3-5%. The nonelastic-scattering cross section is derived from the measured values to accuracies of $\gtrsim$6%. The experimental results are compared with previously reported values as represented by ENDF/B-V and areas of consistency and discrepancy noted. The measured results are shown to be in good agreement with the predictions of a model previously reported by the authors.

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