

THE INTERACTION OF FAST NEUTRONS WITH  $^{60}\text{Ni}$ \*

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## ABSTRACT

Neutron total cross sections of  $^{60}\text{Ni}$  are measured with broad resolutions from  $\sim 0.5$  to 5.0 MeV at intervals of  $\sim 50$  keV. Differential elastic-neutron-scattering cross sections are measured from 1.5 to 4.0 MeV at intervals of  $\sim 50$  keV over the scattered-neutron angular range of  $\sim 20$ -160 deg. Differential cross sections for the inelastic-neutron excitation states at  $1.342 \pm 0.013$ ,  $2.168 \pm 0.010$ ,  $2.304 \pm 0.026$ ,  $2.509 \pm 0.022$ ,  $2.636 \pm 0.019$  and  $3.164 \pm 0.041$  MeV are measured. The experimental results are interpreted in terms of optical-statistical and coupled-channels models including consideration of compound-nucleus fluctuations and direct-vibrational processes.

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