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NEUTRON SCATTERING AND MODELS:- TITANIUM

by

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ABSTRACT

Differential neutron elastic-scattering cross sections of elemental titanium were measured from 4.5 to 10.0 MeV in incident-energy increments of ≈ 0.5 MeV. At each energy the measurements were made at forty or more scattering angles distributed between $\approx 17^\circ$ and 160° degrees. Concurrently, differential neutron inelastic-scattering cross sections were measured for observed excitations of 0.975 ± 0.034 , 1.497 ± 0.033 , 2.322 ± 0.058 , 3.252 ± 0.043 , 3.700 ± 0.093 , 4.317 ± 0.075 and 4.795 ± 0.100 MeV. All of the observed inelastically-scattered neutron groups were composites of contributions from several isotopes and/or levels. The experimental results were used to develop energy-average optical, statistical and coupled-channels models.