TITANIUM-I; FAST NEUTRON CROSS SECTION MEASUREMENTS*

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ABSTRACT

Energy averaged total neutron cross sections are measured from $\approx$ 1.0 to 4.5 MeV with few percent statistical accuracies. Differential elastic neutron scattering angular distributions are measured from 1.5 to 4.0 MeV at incident neutron energy intervals of $\leq$ 0.2 MeV. Differential cross sections for the inelastic neutron excitation of "states" at 158±26, 891±8, 984±15, 1428±39, 1541±30, 1670±80, 2007±8, 2304±22, 2424±16 and 2615±10 keV are measured for incident neutron energies from 1.5 to 4.0 MeV. Additional "states" are observed at approximately 2845 and 3009 keV. An energy-averaged optical-statistical model is deduced from the measured values and the implications of its use in the context of the strong fluctuating structure is discussed.

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