Abstract Submitted
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Inelastic reaction of 14 MeV neutrons from 7Li CHAD FORREST, Laboratory for Laser Energetics — Results of measurements are reported for the double-differential cross section $\langle d^2\sigma/\mathrm{d}E_\mathrm{n}\mathrm{d}\Omega_\mathrm{n}\rangle_{0^\circ<\theta<7.4^\circ}$ for the inelastic scattering and reaction of 14-MeV neutrons with ^{7}Li. In the experiment, the bright neutron source ($L = 10^{24}\,\mathrm{s}^{-1}$) created by the OMEGA pulsed Laser System[1], in inertially confined DT thermonuclear fusion reactions was used to irradiate an isotropically separated ^{7}Li target. Absolute yields and energy spectra of scattered neutrons and reactions were detected with a sensitive high-dynamic-range neutron time-of-flight spectrometer. In a forward-angle geometry ($\theta = 0^\circ$ to 7.4°), the differential neutron cross section, measured for the neutron energy range 0.5 MeV $\leq \mathrm{E_n} \leq$ 6 MeV, shows significant deviations from evaluated data in the nuclear database. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

[1]T. R. Boehly *et al.*, Opt. Commun. **133**, 495 (1997).

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