

Abstract Submitted
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Measurement of the Absolute Elastic and Inelastic Differential Neutron Cross Sections for ^{23}Na between 2 and 4 MeV¹ AJAY KUMAR, M.T. MCELLISTREM, B.P. CRIDER, E.E. PETERS, F.M. PRADOS-ESTEVEZ, A. CHAKRABORTY, S.W. YATES, University of Kentucky, USA, A. SIGILLITO, P.J. MCDONOUGH, L.J. KERSTING, C.J. LUKE, S.F. HICKS, University of Dallas, USA, J.R. VANHOY, United States Naval Academy, Annapolis, USA — Elastic and inelastic neutron scattering angular distributions for ^{23}Na sample were measured at the University of Kentucky using the time-of-flight (ToF) technique, between 2 and 4 MeV incident neutron energies. Normalization of yields into scattering cross sections was accomplished by comparison of Na yields to the yields obtained from hydrogen in polyethylene samples via the well-known n-p scattering cross sections. The $^3\text{H}(p,n)$ differential cross sections are used to determine the energy-dependent efficiency of the main detector. Because the efficiency of this detector appears as a ratio in the comparison of scattered yields from different samples, the absolute values of the $^3\text{H}(p,n)$ cross sections are not critical, but their energy dependence is.

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