

CROSS SECTIONS FOR THE  $^{66}\text{Zn}(n,p)^{66}\text{Cu}$ ,  
 $^{113}\text{In}(n,n')^{113\text{m}}\text{In}$  and  $^{115}\text{In}(n,n')^{115\text{m}}\text{In}$   
REACTIONS FROM NEAR THRESHOLD TO 10 MEV\*

by

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ABSTRACT

Activation techniques were used in the measurement of cross sections for the  $^{66}\text{Zn}(n,p)^{66}\text{Cu}$ ,  $^{113}\text{In}(n,n')^{113\text{m}}\text{In}$  and  $^{115}\text{In}(n,n')^{115\text{m}}\text{In}$  reactions from near threshold to 10 MeV. The  $^7\text{Li}(p,n)^7\text{Be}$  and  $\text{D}(d,n)^3\text{He}$  reactions were employed as sources of approximately monoenergetic neutrons. Neutron fluence was measured with a fission chamber which contained calibrated uranium deposits enriched in  $^{235}\text{U}$  or  $^{238}\text{U}$ . Gamma-ray activities of the irradiated samples were measured with NaI(Tl) scintillation and Ge(Li) detectors. The raw data were corrected for various experimental effects including activity decay, detector efficiencies, geometry, absorption, multiple scattering, internal conversion, deadtime, sum coincidences, and sample and uranium deposit properties. The response of the monoenergetic cross section data in reference neutron fields characteristic of thermal fission of  $^{235}\text{U}$  and spontaneous fission of  $^{252}\text{Cf}$  was numerically investigated. The results of our work are compared with corresponding information reported in the literature.

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