Measurement of the neutron-capture cross section on $^{63,65}\text{Cu}$ between 0.4 and 7.5 MeV

ISABEL BRAY, MEGHA BHIKE, (NONE) KRISHICHAYAN, W TORNOW, None — Copper is currently being used as a cooling and shielding material in most experimental searches for $0\nu\beta\beta$ decay. In order to accurately interpret background events in these experiments, the cross section of neutron-induced reactions on copper must be known. The purpose of this work was to measure the cross section of the $^{63,65}\text{Cu}(n,\gamma)^{64,66}\text{Cu}$ reactions. Data were collected through the activation method at a range of energies from approximately 0.4 MeV to 7.5 MeV, employing the neutron production reactions $^3\text{H}(p,n)^{3}\text{He}$ and $^2\text{H}(d,n)^{3}\text{He}$. Previous data were limited to energies below approximately 3 MeV. The results are compared to predictions from the nuclear data libraries ENDF/B-VII.1 and TENDL-2014.