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Experimental Studies of ^{65}Cu(α,p) ^{68}Zn reaction for Nuclear Astrophysics SAMUEL TEYE, MOHAMMED ISLAM, Ball State University, RICHARD DEBOER, W TAN, University of Notre Dame — Nuclear reaction rates are necessary for the network of calculations for the understanding of the origin of elements. By studying these nuclear reactions, we can understand the full process of elemental synthesis and abundance. Production of heavier elements can also occur during the supernova explosion. (α,p) reactions on elements heavier than iron may quickly produce heavier elements in short time. r- and s- processes are currently well understood. However, a third process, known as p- process may provide an understanding for the proton rich elements which cannot be explained by r- and s-processes. ^{65}Cu(α,p)^{68}Zn experiment was conducted at the Nuclear Facility at the University of Notre Dame. The energy of the incident alpha particle ranges between 5 to 10 MeV. An array of solid state detectors placed at angles between 15 to 160 degrees was used so that data can be accumulated at various angles for a given incident energy, all at one time. Data at a different energy is obtained by simply changing the energy of the incident alpha particle. Experimental set up and the analysis of data will be reported.

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