

Abstract Submitted
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Data Analysis for Experimental Studies of Nuclear Reactions for Astrophysics SAMUEL TEYE, MOHAMMED ISLAM, Ball State University, RICHARD DEBOER, WANPENG TAN, University of Notre Dame — Nuclear reaction rates provide an essential ingredient for the understanding of the synthesis of elements. Very often these reaction rates are calculated from the nuclear cross sections predicted by models. Temperatures in various phases of a stellar evolution as well as supernova explosions correspond to very low energy charged particles. Experimental measurements at these low energies are extremely difficult, and so the nuclear models are used to calculate cross sections. Experiments are conducted at higher energies (near the coulomb threshold) to measure nuclear cross sections and compare with the theoretical predictions. A scale factor is obtained by comparing experimental cross section with the theoretical calculation. This factor is then used to scale the cross sections at low energy, predicted by theory. Experimental data obtained at the nuclear facility at University of Notre Dame are analyzed. Total angle integrated cross sections are obtained by fitting experimental data with Legendre coefficients. Results of these analysis will be reported.

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