Abstract Submitted for the DNP10 Meeting of The American Physical Society

A Study of  ${}^{12}C({}^{12}C, n){}^{23}Mg$  BRIAN BUCHER, JUSTIN BROWNE, ADAM ALONGI, XIAO FANG, ALEXANDER MONCION, KATHERINE O'CONNOR, WANPENG TAN, XIAODONG TANG, University of Notre Dame — The  ${}^{12}C({}^{12}C, n){}^{23}Mg$  reaction may be a significant neutron source for the weak s-process, which occurs in massive stars and is largely responsible for the elements iron through strontium. It has been studied with the FN Tandem Van de Graaff accelerator at the University of Notre Dame using beta and gamma spectroscopy. Measurements have been made at center-of-mass energies ranging from 6.5 MeV down to 3.5 MeV. Only one other data set reaches this low in energy (Dayras et al. 1977), so it is important to check these results and attempt to push the measurements towards lower energies, in order to more accurately predict the reaction rate in astrophysical environments. Preliminary results of the new measurements, along with a comparison to previous measurements, will be presented at the conference.

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