Abstract Submitted
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A new method of measuring the $^{12}C+^{12}C$ fusion cross sections towards astrophysical energies[1] X. FANG, C.L. JIANG, M. ALCORTA, B.B. BACK, C.M. DEIBEL[2], B. DIGIOVINE, J.P. GREENE, D.J. HENDERSON, R.V.F. JANSSENS, C.J. LISTER, S.T. MARLEY[3], R.C. PARDO, K.E. REHM, D. SEWERYNIAK, C. UGALDE, S. ZHU, Argonne National Laboratory, A. ALONGI, B. BUCHER, C. CAHILLANE, P. COLLON, X.T. TANG, University of Notre Dame, E. DAHLSTROM, Rice University — The $^{12}C+^{12}C$ fusion reaction plays a crucial role in a number of important astrophysical scenarios. The past studies of carbon fusion reactions at sub-barrier energies were limited by the usage of small detectors with low efficiency. A new measurement method, particle-gamma coincidence, has been tested using Gammasphere at ANL in the center-of-mass energy range 4.0-5.0 MeV. We are building a large area silicon-detector array and a new Ge-detector array (GEORGINA) which will be coupled with the forthcoming high-current accelerator at the University of Notre Dame. Preliminary results from our test experiment will be presented.

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