

Abstract Submitted
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Fusion cross sections measurements with MUSIC¹ P.F.F. CARNELLI, J.O. FERNÁNDEZ NIELLO, Laboratorio Tandem, CNEA, Argentina, S. ALMARAZ-CALDERON, K.E. REHM, M. ALBERS, B. DIGIOVINE, H. ESBENSEN, D. HENDERSON, C.L. JIANG, O. NUSAIR, T. PALCHAN-HAZAN, R.C. PARDO, C. UGALDE, Physics Division, Argonne National Laboratory, M. PAUL, Racah Institute of Physics, Hebrew University, M. ALCORTA, TRIMF, Canada, P.F. BERTONE, Marshall Space Flight Center, J. LAI, Department of Physics and Astronomy, Louisiana State University, S.T. MARLEY, Department of Physics, University of Notre Dame — The interaction between exotic nuclei plays an important role for understanding the reaction mechanism of the fusion processes as well as for the energy production in stars. With the advent of radioactive beams new frontiers for fusion reaction studies have become accessible. We have performed the first measurements of the total fusion cross sections in the systems $^{10,14,15}\text{C}+^{12}\text{C}$ using a newly developed active target-detector system (MUSIC). Comparison of the obtained cross sections with theoretical predictions show a good agreement in the energy region accessible with existing radioactive beams. This type of comparison allows us to calibrate the calculations for cases that cannot be studied in the laboratory with the current experimental capabilities. The high efficiency of this active detector system will allow future measurements with even more neutron-rich isotopes.

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