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Simulations of ^{12}C Break Up In A Twin Ionization Chamber[1] C.B. SEGAL, Florida State University, N.R. PATEL, U. GREIFE, Colorado School of Mines, K.E. REHM, C.M. DEIBEL, J. GREENE, D. HENDERSON, C.L. JIANG, B.P. KAY, H.Y. LEE, R. PARDO, M. NOTANI, Argonne National Laboratory, S.T. MARLEY, Western Michigan University, X.D. TANG, University of Notre Dame
— In stellar explosions the triple α decay process is key to forming the life-giving ^{12}C . This experiment is to further investigate the energy region in ^{12}C around 10 MeV where a theoretically predicted 2^+ state has yet to be observed. The motivation for studying this is to better understand the ^{12}C nucleosynthesis process that occurs in red giant stars where the short lived ^{8}Be interacts with alphas at extreme temperature and pressure scenarios which then in turn creates ^{12}C. We study the particle-unbound states by implanting ^{12}B into a twin Frisch grid ionization chamber and following the decay into ^{12}C and subsequently into three α particles. The response of this ionization chamber to the detection of multiple α particles was studied using various simulation programs. Results of these simulations and limits for the predicted 2^+ state will be presented.

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