Abstract Submitted
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The ^{11}B(p,α)$\alpha\alpha$ Reaction at Low Energies[1] R.M. PRIOR, M.C. SPRAKER, North GA College and State U, R.H. FRANCE III, GA College and State U, S. STAVE, P.-N. SEO, N. BROWN, S.S. HENSHAW, M.W. AHMED, B.A. PERDUE, H.R. WELLER, Duke U/TUNL, A. TEYMURZYAN, P.P. MARTEL, UMass — The ^{11}B(p,α)$\alpha\alpha$ reaction has been proposed for use in an aneutronic fusion reactor. Detailed knowledge of the angular and energy distribution of the outgoing α particles is needed to model this reactor. The reaction has been previously modeled as a two-step process proceeding through the first excited state of ^{8}Be. The 2^- resonance at 0.675 MeV is critical in the reactor models. We have previously studied the reaction at proton beam energies of 0.40 MeV and above and have developed a three-body reaction model that describes the spectra of the emitted alphas in that energy range. To further the study of the reaction, we have taken data at 5 angles between 50° and 150° for several energies between 0.40 MeV and 0.15 MeV which includes the region of the 2^+ resonance at 0.162 MeV. The measured α-particle energy distributions are consistent with the higher energy data and our model except at energies in the vicinity of the 0.162 MeV resonance. We will discuss our results and the deviation from the model.

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