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The ^{11}B$(p,\alpha)^8$Be* Reaction at the 0.675 MeV Resonance[1] S. STAVE, S.S. HENSHAW, M.W. AHMED, B. MÜLLER, B.A. PERDUE, P.-N. SEO, H.R. WELLER, Duke U/TUNL, R.M. PRIOR, M.C. SPRAKER, NGCSU, R.H. FRANCE III, GCSU, P.P. MARTEL, UMass — There is interest in using the ^{11}B$(p,\alpha)^8$Be* reaction near the 0.675 MeV resonance in an aneutronic fusion reactor. A detailed model of the reactor requires knowledge of the angular and energy distribution of the outgoing α particles. The state-of-the-art model of the reaction near the 0.675 MeV resonance assumes a sequential process leading to one high energy α and a nearly flat continuum of energies for the remaining two "secondary" α particles. Singles and coincidence data taken at TUNL using silicon surface barrier detectors do not agree with this model. The authors propose a three-body reaction at the 0.675 MeV resonance in which two of the α particles equally share almost all of the center-of-mass energy described by a Breit-Wigner distribution and the third particle receives the remaining energy. This new reaction model is in good agreement with both the singles and coincidence data. Details of both model calculations will be presented and compared with the experimental results.

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