Abstract Submitted
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Precise Measurement of the 2_1^+ Level Lifetime in ^{12}Be[1] E.A. MCCUTCHAN, A.A. SONZOGNI, T.D. JOHNSON, NNDC, Brookhaven National Lab, C.J. LISTER, P. CHOWDHURY, E. MERCHAN, V.S. PRASHER, University of Massachusetts, Lowell, H. IWASAKI, D. WEISSHAAR, A. GADE, V.M. BADER, S. BECEIRO NOVO, C. LOELIUS, E.M. LUNDERBERG, C. MORSE, F. RECCHIA, K. WHITMORE, Michigan State University/NSCL — For many years, it has been suggested that ^{12}Be exhibits a breakdown of the N=8 shell gap. This reflects the tension between the propensity for alpha-clustering in beryllium, with ^{12}Be appearing as a 2-alpha dumb bell bound by a cloud of four poorly bound neutrons, and a more conventional Shell Model picture with the N=8 neutrons filling the p-shell and holding the nucleus to a near spherical shape. To provide a better understanding of the extent of the breakdown of the N=8 shell gap, the lifetime of the first 2^+ state in ^{12}Be was measured using intermediate-energy inelastic scattering of a ^{12}Be beam combined with the Doppler Shift attenuation method. Gamma rays emitted at the target position were measured with GRETINA in coincidence with reaction residues detected in the S800 spectrometer at NSCL. Three different targets were measured, allowing for consistency checks and a better understanding of systematic effects. Preliminary results on the B(E2) transition strength from the first 2^+ state will be presented.

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