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Precise Tests of Ab-initio Calculations of Light Nuclei and Charge Symmetry Breaking in A=10 ^{10}B S. A. KUVIN, A. H. WUOSMAA, D. G. MCNEEL, University of Connecticut, C. J. LISTER, C. MORSE, UMass Lowell, M. L. AVILA, C. R. HOFFMAN, B. P. KAY, R. B. WIRINGA, Argonne National Laboratory, E. A. MCCUTCHAN, A. A. SONZOGNI, Brookhaven National Laboratory, D. SANTIAGO-GONZALEZ, Louisiana State University, J. R. WINKELBAUER, Los Alamos National Laboratory — Electromagnetic transition matrix elements have provided stringent tests of modern ab-initio calculations using realistic nuclear forces. Precise measurements of the B(E2:2$\rightarrow$0) transition rates in ^{10}Be and ^{10}C have been compared to recent Variational and Greens Function Monte Carlo calculations and the formulation of the 3-body forces [1,2]. They revealed that these electric transitions are almost purely isoscalar in character, corresponding to tumbling of the di-alpha core. Precise measurements of the analogous transition in ^{10}B provide additional constraints for a possible isotensor contribution. The relevant state in ^{10}B, at E_x = 5.164 MeV, is particle unbound. Therefore, precise measurements of both the particle decay branch and the gamma branch are needed to extract the electric transition rate. We report on a new study of the α-particle branch by studying the ^{10}B(p,p$'$)^{10}B* reaction in inverse kinematics with the HELIOS spectrometer at Argonne National Laboratory. [1] E.A. McCutchan et al., Phys.Rev.Lett. 103, 192501 (2009). [2] E.A. McCutchan et al., Phys.Rev. C 86 014312 (2012).

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