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A=10 charge independence and the T=1, J=2-0 electromagnetic transition in ^{10}B CHRISTOPHER LISTER, E.A. MCCUTCHAN, J.P. GREENE, R.B. WIRINGA, STEVEN PIEPER, Argonne Nat. Lab., M. ELVERS, A. HEINZ, D. SAVRAN, T. AHN, G. ILLIE, R. RADECK, V. WERNER, N. COOPER, WNSL Yale, T. AHMED, R.O. HUGHES, P. PAUERSTEIN, N. SHENKOV, U Richmond — Electromagnetic transition matrix elements have proven to be a very sensitive probe of the wave functions predicted by modern ab-initio theories based on realistic two- and three-body forces. We have carefully measured the electric quadrupole decays in ^{10}Be (T=1, T_z=+1) and ^{10}C (T=1, T_z=-1) [1,2] and found them to be very similar. Thus the isovector component of the E2 matrix element, which has contributions from both charge dependence of the wave functions and the E2 operator, is small. Isotensor components can come only from charge independence breaking in the wave functions; and this can be tested by determining the gamma decay matrix element from the unbound analog transition in ^{10}B. We populated the 5164 keV state in ^{10}B using the ^{10}B(p,p') reaction at 10 MeV using a proton beam from the ESTU accelerator at Yale University. Gamma decays were detected in the "YrastBall" array. We determined the branch for this transition to be 0.16(4)%. This indicates a significant isotensor term.

[1] E.A. McCutchan et al., Phys. Rev. Lett. **103,** 192501 (2009)
[2] C.J. Lister et al., Bull. Am. Phys. Soc. **55,** DNP.MG5 (2010)

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