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Systematic investigations of the stable Cd isotopes¹ P.E. GARRETT, K.L. GREEN, University of Guelph, J.L. WOOD, W.D. KULP, Georgia Tech. — The Cd nuclei, especially the stable even-even isotopes have been well studied since they were suggested as paradigms of the vibrational, or $U(5)$, limit of the Interacting Boson Model (IBM). In addition to the normal quadrupole phonon states, in many cases suggested up to the three-phonon quintuplet, more deformed $2p4h$ intruder excitations have been established. Recent investigations with the $(n, n'\gamma)$ reaction [1,2,3,4] have provided a wealth of information on the low-lying levels, including many lifetimes not previously known. Deviations in the transition $B(E2)$ values for low-spin states from those expected for $U(5)$ nuclei are observed to appear systematically across the Cd isotopes. We have performed detailed calculations using the IBM-2, and find that these deviations cannot be explained through considered mixings with the intruder excitations or mixed-symmetry states, indicating that some physics is missing in the description of these levels.

[1] F. Corminboeuf *et al.*, Phys. Rev. C **63**, 014305 (2001).

[2] P.E. Garrett *et al.*, Phys. Rev. C **75**, 014307 (2007).

[3] D. Bandyopadhyay *et al.*, *to be published*.

[4] M. Kadi *et al.*, Phys. Rev. **68**, 031306 (2003).

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