

Abstract Submitted
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Measurement of the $B(E2; 2^+ \rightarrow 1^+)$ of ${}^8\text{Li}$ and comparisons to *ab initio* calculations¹ S. L. HENDERSON, T. AHN, M. A. CAPRIO, P. J. FASANO, P. D. O'MALLEY, A. SIMON, S. AGUILAR, J. J. KOLATA, S. JIN, University of Notre Dame, TWINSOL COLLABORATION COLLABORATION — Precise measurements of electromagnetic transition strengths in light nuclei can provide stringent tests of nuclear *ab initio* calculations. In the $A=7$ isobars, specifically ${}^7\text{Li}$ and ${}^7\text{Be}$, the $B(E2)$ transition strengths have been used to benchmark different *ab initio* calculations [S. L. Henderson *et al.*, Phys. Rev. C **99**, 064320 (2019)]. We will continue testing by extending these measurements into the $A=8$ region and measure the first excited state in ${}^8\text{Li}$, in order to provide additional constraints to these *ab initio* models. These models can give us insight into the structural changes from ${}^7\text{Li}$ to ${}^8\text{Li}$ due to the addition of a neutron. We have performed a Coulomb excitation experiment to measure the $B(E2; 2^+ \rightarrow 1^+)$ transition strength in ${}^8\text{Li}$. The ${}^8\text{Li}$ was produced and separated with TwinSol and the Coulomb excitation cross section was measured using particle-gamma coincidences. The preliminary $B(E2)$ value will be presented and compared to *ab initio* calculations for ${}^8\text{Li}$, highlighting the structural evolution in Li isotopes due to higher neutron excess. The results of this experiment will also provide a test of the accuracy of available *ab initio* calculations in this light mass region.

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