Contribution ID: **87** Type: **poster**

# Measuring the B(E2) of the $\frac{1}{2}^- \rightarrow \frac{3}{2}^-$ transition in $^7Be$

*Wednesday, 23 May 2018 16:30 (1h 30m)*

Ab-initio methods have been successful in describing the structure of light nuclei using realistic nucleon-nucleon interactions, but more experimental data is needed for light unstable nuclei. Recent no-core configuration interaction calculations have made predictions for the ratio of E2 transition strengths for the first excited state transition in $^7Be$ and $^7Li$. Additional calculations that include clustering effects show a significant difference in the $^7Be$ and $^7Li$ B(E2) value. The E2 transition strength of the $^7Be$ first excited state has never been measured, which provides an interesting opportunity to investigate the accuracy of these calculations. To measure this E2 transition strength, a Coulomb Excitation experiment was performed at the University of Notre Dame. $^7Be$ was produced and separated using TwinSol. A beam of $^7Be$ ions were scattered off a gold target into an s2 silicon detector and the gamma rays from the inelastically scattered ions were detected using six clover Ge detectors. LISE++ and Geant4 simulations were used to correct for considerable beam anisotropies which had previously hindered turning gamma counts into a B(E2) value. The resulting $^7Be$ E2 transition strength and its comparison to the no-core configuration interaction approach will be shown.

This work has been supported by US NSF grant no. PHY 14-19765 and DOE grant number DE-FG02-95ER-40934.

**Primary author:** Mr HENDERSON, Samuel (University of Notre Dame)

**Co-authors:** Dr SIMON, Anna (University of Notre Dame); BARDAYAN, Dan (University of Notre Dame); Mr ALLEN, Jacob (University of Notre Dame); Dr KOLATA, James (University of Notre Dame); Dr RIGGINS, Jay (University of Michigan); Dr CAPRIO, Mark (University of Notre Dam); Mr HALL, Matthew (University of Notre Dame); Mr FASANO, Patrick (University of Notre Dame); Dr O'MALLEY, Patrick (University of Notre Dame); Mr TORRES-ISEA, Ramon (University of Michigan); AHN, Tan (University of Notre Dame); Ms LI, Xuyang (University of Notre Dame)

**Presenter:** Mr HENDERSON, Samuel (University of Notre Dame)

**Session Classification:** Poster Session