Contribution ID : **60** Type : **Poster**

Collectivity in Dysprosium

Friday, 21 July 2023 15:20 (15)

As basic building blocks of matter, nuclei show some emergent collective behavior across isotopic and isobaric chains and are known to be deformed in shape in regions of the chart of nuclides away from closed shell. One mode of collective behavior is the existence of vibrational degrees of freedom superimposed on rotational and is one of the open questions in nuclear structure physics today. One method of characterizing these modes of behavior is by the measurements of lifetimes and the use of the resulting reduced transition probabilities, B($E2$) values, a measure of the collectivity connecting states. Although ^{162}Dy has been extensively studied in the past, we have examined ^{162}Dy with the $(n, n'\gamma)$ reaction and neutron energies up to 3.1 MeV to confirm known 0^+ states and provide level lifetimes through DSAM measurements to over fifty levels including both positive and negative parity level lifetimes. We will present the results of these measurements and the implications for collectivity in the rare-earth region.

This material is based upon work supported by the National Science Foundation (NSF) under grant numbers PHY-2011267, PHY-2209178, and PHY-2011890. The enriched isotope used in this research was supplied by the United States Department of Energy Office of Science by the Isotope Program in the Office of Nuclear Physics.

Primary author(s) : LESHER, Shelly (University of Wisconsin, La Crosse (USA))

Presenter(s) : LESHER, Shelly (University of Wisconsin, La Crosse (USA))

Session Classification : Session 16

Track Classification : Experimental Nuclear Structure