Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Lifetime Measurements of Levels in ^{160}Gd CLARK CASARELLA, ANI APRAHAMIAN, University of Notre Dame, Notre Dame, IN 46556, BEN CRIDER, University of Kentucky, Lexington, KY 40508, SHELLY LESHER, IAN MARSH, University of Wisconsin-La Crosse, WI 54601, ERIN PETERS, FRANCISCO PRADOS-ESTEVEZ, University of Kentucky, Lexington, KY 40508, MALLORY SMITH, University of Notre Dame, Notre Dame, IN 46556, JEFFREY VANHOY, United States Naval Academy, Annapolis, MD 21402, STEVEN YATES, University of Kentucky, Lexington, KY 40508 — The rare earth region of nuclei has been well established as a region of deformation for decades. However, the nature of vibrations built on a deformed ground state remain far from understood and present an oustanding challenge to nuclear structure physics. Studies of ^{158}Gd has shown a preponderance of excited 0^+ states with varying degrees of collectivity. We have measured level lifetimes, reduced transition probabilities and angular distributions of gamma-rays excited by inelastic neutron scattering and the use of the Doppler Shift Attenuation Method (DSAM) at the University of Kentucky 7 MV Van de Graaff Accelerator Facility. Low lying excited states of ^{160}Gd were populated up to an excitation energy of E $<$ 2 MeV. We will present and discuss the measured level lifetimes of ^{160}Gd and their implied degrees of collectivity. This work was supported by the NSF under contract numbers PHY-1068192, PHY-12-05412, and PHY-0956310.

Clark Casarella
University of Notre Dame, Notre Dame, IN 46556

Date submitted: 01 Jul 2013 Electronic form version 1.4