

Abstract Submitted  
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**Search for isomers in  $^{64}\text{Ge}$**  BEVERLY LAU, Reed College, ANI APRAHAMIAN, ANDREAS WOEHR, University of Notre Dame, TIMO GRIESEL, Johannes Gutenberg-Universität Mainz, PLAMEN BOUTACHKOV, BORIS SKORODUMOV, SERGIO ALMARAZ-CALDERON, MATTHEW QUINN, University of Notre Dame — The  $^{64}\text{Ge}$  nucleus is produced from collisions of 36 MeV  $^{12}\text{C}$  beam on a  $^{54}\text{Fe}$  target at the Institute for Structure & Nuclear Astrophysics (ISNAP) located at the University of Notre Dame. The beam was produced using a tandem Van de Graaff accelerator running a pelletron charging system. Scintillation counters and Germanium detectors were used to detect neutrons in coincidence with gamma rays for clear channel identification. Comparison to existing data may confirm the presence of  $^{64}\text{Ge}$  in the reaction products. Further analysis will be done to determine the existence of isomeric states in  $^{64}\text{Ge}$ . This nucleus is thought to be a “waiting-point” nucleus for the rapid proton capture process (rp-process). The identification of isomers will be used to study the impact of isomers on rp-process nucleosynthesis. There are existing theoretical calculations within the projected shell model that indicate the existence of an isomer in this nucleus at an excitation energy of 900 keV<sup>1</sup>. Isomers were recently discussed in Physics Today<sup>2</sup>. References:

1. Y. Sun. Phys. Rev. C 70 (2004) 051301(R)
2. P. M. Walker and J. J. Carroll. Phys. Today. June 2005.

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