

Abstract Submitted  
for the DNP17 Meeting of  
The American Physical Society

**Simulating the Response of a New Beta Delayed Proton Detector<sup>1</sup>**

MICHAEL ROOSA, MOSHE FRIEDMAN, CHRISTOPHER WREDE, Michigan State Univ —

To better understand reactions of astrophysical importance, such as  $^{15}\text{O}(\alpha,\gamma)^{19}\text{Ne}$  and  $^{30}\text{P}(p,\gamma)^{31}\text{S}$ , a new gas filled detector of  $\beta$ -delayed charged particles has been designed and built for use at the National Superconducting Cyclotron Laboratory. The detector has separate drift and proportional amplification regions provided by a flex-board field cage and a Micromegas structure, respectively. We have developed a simulation to model the response of this detector using Magboltz and Garfield++ which calculate the electron transport and amplification through the two regions. The simulation provides information that is useful for understanding the microscopic function of the detector and will help optimize its operation.

<sup>1</sup>This work is supported by the U.S. National Science Foundation under Award Nos. PHY-1102511 and PHY- 1565546 and the U.S. Department of Energy, Office of Science, under Award No. DE-SC0016052

Michael Roosa  
Michigan State Univ

Date submitted: 20 Jul 2017

Electronic form version 1.4