

Abstract Submitted
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Reducing Cosmic Background in the NSCL SuN Detector¹ ANNE KYNER, Roanoke College, ARTEMIS SPYROU, ANNA SIMON, STEPHEN QUINN, NSCL, Michigan State University, MIKAYLA SEEGER, Drake University, SUN TEAM — The Summing NaI(Tl) detector, SuN, was developed by the Nuclear Astrophysics group at NSCL (National Superconducting Cyclotron Laboratory) to explore important reactions in the p-process, a process involved in stellar nucleosynthesis. Using inverse kinematics with the detector allows for the investigation of experiments with radioactive beams. A problem arising from these experiments is that the background rate is high compared to the expected reaction of interest. The high background peak is due to the cosmic rays, high energy muons, that hit the detector. By using two plastic scintillators above and below the SuN detector, cosmic ray background may be reduced. This project was conducted in order to understand one of the two plastic scintillators. Characterizing the detector and coupling it with a CsI crystal aided in understanding the plastic scintillator and the cosmic ray distribution that is detected. By taking background runs and eliminating signals that occurred in both the plastic scintillator and the CsI crystal, a rejection region of over 60% was observed. This background reduction shows how the plastic scintillators can be used in correlation with the SuN detector to reduce the cosmic background and improve results from reaction measurements in inverse kinematics.

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