Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Simulating the Scintillating Cosmic Ray Eliminating ENsemble (SuNSCREEN) for reducing cosmic background in experiments relevant for the p-process EMILY KLOPFER, ARTEMIS SPYROU, ANNA SIMON, STEPHEN QUINN, ALEXANDER DOMBOS, NSCL, Micigan State University, PAUL DEYOUNG, JACLYN BRETT, Hope College — Naturally occurring, proton rich isotopes that cannot be produced in the s- or r- neutron capture processes are called p-nuclei. Their nucleosynthesis proceeds by the p-process; a process that is still not well understood. This process may be studied by measuring (p,γ) and (α,γ) reactions using the Summing NaI(TI) detector (SuN) created at NSCL. The SuN detector uses a summing technique where all the gamma rays emitted from a single compound nucleus are summed into one peak that can then be analyzed. One problem with this method is the background created by cosmic rays at high-energy regions of the gamma spectrum. To counteract this drawback a veto detector, SuNSCREEN (Scintillating Cosmic Ray Eliminating Ensemble), is being developed to reduce this cosmic ray background. The present work was centered on producing a simulation of SuNSCREEN and cosmic rays utilizing GEANT4 software and the comparison of these simulations to experimental data.

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Date submitted: 31 Jul 2013 Electronic form version 1.4