Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Characterization of High Purity Germanium Detector efficiency using GEANT4 MARK ALMANZA, THOMAS O'DONNELL, CHRIS WOLLBRINK, Virginia Tech — We report on the performance of a high-purity germanium detector recently deployed at the second level of the Kimballton Underground Research Facility for low background counting. In particular we will describe a GEANT4-based simulation developed to estimate the efficiency of the detector for user-configurable sample geometries and gamma-ray energies. The sensitivity to common isotopes of interest including 238U, 232Th and 40K will be presented. This facility will benefit materials screening efforts to select components for use in future rare event experiments such as those searching for neutrinoless double-beta decay and dark matter.

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Date submitted: 31 Jul 2017 Electronic form version 1.4