

Abstract Submitted  
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**Neutron-induced backgrounds in Cu and Ge** D.V. PEREPELITSA, LANL & MIT, V.E. GUISEPPE, S.R. ELLIOTT, R.O. NELSON, N. FOTIADES, M. DEVLIN, R.C. HAIGHT, LANL, D.-M. MEI, Z. YIN, U. South Dakota — Measurements of  $(n, n'\gamma)$  reactions in Cu and Ge are important for understanding neutron-induced background for some underground double beta decay experiments. Neutron-induced gammas are a contribution to background for the next generation of double beta decay experiments, which are designed to reach the sensitivity of the atmospheric neutrino mass scale (45 meV). Measuring and understanding the high-energy neutron excitations of the shielding and detector materials for neutrinoless double beta decay experiments are crucial for interpreting results and establishing shielding requirements. Locating some specific excited state transitions in various materials represents a significant nuclear structure contribution. Partial  $\gamma$ -ray cross sections were measured using the GEANIE spectrometer surrounding Cu and Ge (enriched in  $^{76}\text{Ge}$ ) targets in a broad-spectrum neutron beam at LANSCE. The cross sections provide useful data for benchmarking Monte Carlo simulation of background events.

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