

Abstract Submitted  
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**Neutron-induced background studies for CUORE** M.J. DOLINSKI, P.E. GARRETT<sup>1</sup>, E.B. NORMAN, W. YOUNES, Lawrence Livermore National Laboratory, M. DEVLIN, N. FOTIADES, R.O. NELSON, Los Alamos National Laboratory — CUORE (Cryogenic Underground Observatory for Rare Events) is a bolometric next generation neutrinoless double beta decay experiment. It will be sited at the Laboratori Nazionali del Gran Sasso (LNGS) in Italy, with a rock overburden of  $\sim 3300$  m.w.e. In order for CUORE to reach its projected five year half-life sensitivity of  $2.1 \times 10^{26}$  yr, the background in the region of interest must be lower than 0.01 counts/keV/kg/yr. One potential source of background is inelastic scattering of neutrons on the naturally abundant isotopes of Te, which make up 80% of the TeO<sub>2</sub> bolometers' absorber mass. Using the GEANIE HPGe detector array at Los Alamos Neutron Science Center (LANSCE), we have measured the gamma production cross-sections for neutron interactions on an unenriched Te target. These cross-sections will allow us to evaluate the expected neutron-induced background for CUORE. This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

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