

Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

Search for the double electron capture and electron capture/ β^+ decay of ^{120}Te NICHOLAS SCIELZO, Lawrence Livermore National Laboratory, CUORICINO AND CUORE COLLABORATION — Te-120 is a rare, naturally-occurring isotope that can undergo double electron capture and electron capture/ β^+ decay with a Q-value of 1700 ± 10 keV. We have analyzed data from CUORICINO to place the most stringent limits on these decay modes. CUORICINO is an array of 62 bolometers comprised primarily of $^{nat}\text{TeO}_2$ crystals and contains 27 g of ^{120}Te (natural abundance 0.1%). The search for neutrinoless decay modes is currently complicated by a large uncertainty in the decay Q-value. We will present the status of this analysis and prospects for future improvements that will come from data to be collected with the 1-ton TeO_2 bolometer array CUORE and a Q-value measurement with sub-keV precision. Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

Nicholas Scielzo
Lawrence Livermore National Laboratory

Date submitted: 30 Jun 2008

Electronic form version 1.4