Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Commissioning of a Gamma Counting Facility in the Kimballton Mine PADRAIC FINNERTY, REYCO HENNING, SEAN MACMULLIN, KEVIN MACON, ALEX LONG, University of North Carolina at Chapel Hill, RICHARD LINDSTROM, NIST, HENNING BACK, North Carolina State University, STEVEN DEREK ROUNDTREE, Virginia Polytechnic Institute and State University — The next generation of low background detectors will explore the frontiers of low energy neutrino physics, neutrinoless double beta decay, and direct dark matter searches. These experiments all require materials with minimal and tightly controlled radioactive contaminants. The KURF (Kimballton Underground Research Facility) is now home to a gamma counting facility, consisting of two HPGe (high purity germanium) detectors specifically designed for low background assay work. We discuss the technical and logistical considerations involved in the commissioning of a low background laboratory deep underground as well as our analysis techniques, including our sensitivity, efficiency, and activity calculations, which involve combining Monte Carlo and experimental data. Present status and sample analysis results will also be presented.

Padraic Finnerty
University of North Carolina at Chapel Hill

Date submitted: 08 Jan 2009 Electronic form version 1.4