

Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

Ultra-Low ^{40}K Background Measurements for SNO+ using AMS

DANIEL ROBERTSON, University of Notre Dame, JOHN BAKER, Idaho National Laboratory, MATTHEW BOWERS, University of Notre Dame, PHILIPPE COLLON, University of Notre Dame, JARET HEISE, Queens University, KARA KEETER, Idaho State University, CHRISTOPHER SCHMITT, University of Notre Dame, EDDIE TATAR, CHARLES TAYLOR, Idaho State University, WENTING LIU, University of Notre Dame, SNO+ COLLABORATION — Whilst striving for better sensitivity, experiments studying rare process such as neutrino and dark matter interactions are forced underground to achieve the ultra-low levels of radioactive background they desire. In conjunction with this, Accelerator Mass Spectrometry (AMS) can be used to achieve the ultra-low sensitivity required for detector material selection. One project interested in such techniques is SNO+, which proposes to modify the existing SNO detector to study low-energy solar neutrinos as well as other neutrino properties via double-beta decay using a liquid scintillator called linear alkylbenzene (LAB). Due to the lower energy threshold of the detector, the present materials need to be re-evaluated for concentrations of ^{40}K . Ultra-pure copper cathodes as well as samples of materials to be used in the detector have been prepared at Idaho State University and Idaho National Laboratory. These materials are being tested for levels of ^{40}K at the Notre Dame AMS facility. Proof of principle and results from the first set of measurements will be discussed. This work is supported in part by NSF grant no. 0653642.

Daniel Robertson
University of Notre Dame

Date submitted: 25 Jul 2008

Electronic form version 1.4