APR14-2014-000178

Abstract for an Invited Paper
for the APR14 Meeting of
the American Physical Society

The beta-decay of ^{6}He: a sensitive window to search for physics beyond the standard model[1]

OSCAR NAVILIAT-CUNCIC, National Superconducting Cyclotron Laboratory and Department of Physics and Astronomy - Michigan State University

The simplicity of the Gamow-Teller beta-decay of the ^{6}He nucleus has attracted considerable experimental and theoretical attention in the past few years. Precision correlation measurements in this allowed transition have motivated the production of high intensity and high purity sources and beams at several facilities. The main purpose of such measurements is to search for new physics contributing to the weak interaction that would manifest itself through phenomenological tensor couplings. New measurement techniques, including the detection of recoiling ions from decays in ion and atom traps, have been developed in order to make the most efficient use of the available intensities and to reduce instrumental systematic effects. This talk will first present the result of a measurement of the beta-neutrino angular correlation in the decay of ^{6}He which has been carried out by trapping ions in a Paul trap. The talk will then describe current efforts of second generation experiments aiming at new levels of sensitivity in the search for phenomenological exotic tensor couplings in ^{6}He decay.

[1]Work supported in part by the U.S. National Science Foundation under grant number PHY-11-02511.