Abstract Submitted for the DNP13 Meeting of The American Physical Society

Detector calibrations and systematic uncertainties of the precision measurement of $\beta - \bar{\nu}_e$ angular correlation coefficient in ⁶He decay RAN HONG, YELENA BAGDASAROVA, Department of Physics and CENPA, University of Washington, KEVIN BAILEY, Physics Division, Argonne National Laboratory, XAVIER FLÉCHARD, Laboratoire de Physique Corpusculaire, CAEN, France, ALEJANDRO GARCIA, Department of Physics and CENPA, University of Washington, ANDREAS KNECHT, CERN, ETIENNE LIENNARD, Laboratoire de Physique Corpusculaire, CAEN, France, PETER MUELLER, Physics Division, Argonne National Laboratory, OSCAR NAVILIAT-CUNCIC, National Superconducting Cyclotron Laboratory, Michigan State University, THOMAS O'CONNOR, Physics Division, Argonne National Laboratory, DEREK STORM, ERIK SWAN-SON, FREDERIK WAUTERS, Department of Physics and CENPA, University of Washington, WILLIAM WILLIAMS, Physics Division, Argonne National Laboratory, DAVID ZUMWALT, Department of Physics and CENPA, University of Washington — Precision measurement of the $\beta - \bar{\nu}_e$ angular correlation coefficient a can be used for searching for tensor-type weak currents. We constructed a system which detects β -particles and recoil ions from the β -decay of magneto-optical-trapped ⁶He atoms in coincidence. The time-of-flight of the ⁶Li ions guided by an electric field onto a Micro Channel Plate detector will be measured and the coefficient a can be extracted. Calibrations of the β and recoil-ion detectors as well as estimations of systematic uncertainties via Monte Carlo simulations will be presented.

> Ran Hong Department of Physics and CENPA, University of Washington

Date submitted: 30 Jun 2013

Electronic form version 1.4