

Abstract Submitted  
for the DNP11 Meeting of  
The American Physical Society

**Project 8: Toward a radio frequency based measurement of Neutrino Mass** JARED KOFRON, University of Washington, PROJECT 8 COLLABORATION — Efforts to measure the electron neutrino mass require measuring a distortion in the beta decay spectrum produced by the kinematics of the 3 body decay. The Project 8 experiment employs a novel approach to electron energy measurement using radio frequency techniques which promises a unique combination of scalability, superb resolution, and low background. A beta decay electron trapped in a strong magnetic field will emit cyclotron radiation (27 Ghz at B=1T), where the frequency of that cyclotron radiation depends on the total energy of the electron due to relativistic effects. Therefore, observing the emitted radiation provides a non-destructive method for measuring the total electron energy and therefore determining the neutrino mass. A prototype experiment is under construction, and current status and results will be presented. The results of the prototype construction are expected to be of value in estimating the ultimate sensitivity of such a measurement technique.

Jared Kofron  
University of Washington

Date submitted: 01 Jul 2011

Electronic form version 1.4