Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

TRIMS: Validating T_2 Molecular Effects for Neutrino Mass Experiments[1] YING-TING LIN, Univ of Washington, TRIMS COLLABORATION — The Tritium Recoil-Ion Mass Spectrometer (TRIMS) experiment examines the branching ratio of the molecular tritium (T_2) beta decay to the bound state ($^3HeT^+$). Measuring this branching ratio helps to validate the current molecular final-state theory applied in neutrino mass experiments such as KATRIN and Project 8. TRIMS consists of a magnet-guided time-of-flight mass spectrometer with a detector located on each end. By measuring the kinetic energy and time-of-flight difference of the ions and beta particles reaching the detectors, we will be able to distinguish molecular ions from atomic ones and hence derive the ratio in question. We will give an update on the apparatus, simulation software, and analysis tools, including efforts to improve the resolution of our detectors and to characterize the stability and uniformity of our field sources. We will also share our commissioning results and prospects for physics data.

[1]The TRIMS experiment is supported by U.S. Department of Energy Office of Science, Office of Nuclear Physics, Award Number DE-FG02-97ER41020.

Ying-Ting Lin
Univ of Washington

Date submitted: 29 Jun 2017 Electronic form version 1.4