

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Preliminary results of UCN τ ROBERT PATTIE, Los Alamos National Lab, UCNTAU COLLABORATION — There is currently a 4σ discrepancy between measurements of the neutron lifetime performed using cold neutron beams and those performed with ultracold neutron (UCN) storage vessels. The UCN τ experiment uses an asymmetric magneto-gravitational UCN trap with *in situ* counting of surviving neutrons to measure the neutron lifetime. This design eliminates a major systematic of previous bottle experiments related to the loss of UCN on material trap walls and with unloading neutrons from the storage vessel. A new *in situ* detection system was used in the 2015-2016 run that was able to measure the population of surviving UCN at different heights in the trap, providing important information on spectral evolution. Understanding the behavior of quasi-bound UCN in a bottle experiment is essential to achieving a subsecond precision measurement of τ_n . We will present the preliminary results from the 2015-2016 data set and an update on the UCN τ experiment.

Robert Pattie
Los Alamos National Lab

Date submitted: 30 Sep 2016

Electronic form version 1.4