

Abstract Submitted
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Overview of progress on the UCNtau Experiment NATHAN CALLAHAN, Indiana Univ - Bloomington, UCNTAU COLLABORATION — The UCN τ experiment measures the free neutron lifetime by trapping Ultracold Neutrons (UCN) in a magneto-gravitational trap. Neutrons are confined below by a magnetic field from a permanent magnet Halbach array and above by gravity and undergo β decay. The trap is filled through a removable trap section and the surviving UCN population is measured to extract the trap lifetime. Spectral cleaning of potentially escaping UCN is achieved using a movable plane of polyethylene that up-scatters neutrons to thermal energy and out of the trap. An active *in-situ* detector is used to measure the neutron population. The detector uses ^{10}B coated ZnS:Ag to detect UCN. The goal of the UCN τ experiment is to perform multiple 1s statistical measurements of the trap lifetime. Multiple 1s measurements in a single run cycle will allow UCN τ to study systematic effects including cleaning and phase space evolution. In the 2015-2016 run cycle at the Los Alamos Neutron Science Center, UCN τ commissioned a new active detection scheme, conducted systematic effect studies, and gathered sufficient statistics for a 1s trap lifetime measurement. An overview of updates to the apparatus will be presented in addition to a description of data collected.

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