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Analysis of the first data from the UCNτ experiment DANIEL SALVAT, Indiana University, UCNτ COLLABORATION — The UCNτ experiment is designed to measure the lifetime of the free neutron using a 670 liter permanent magnet trap which stores ultracold neutrons (UCN). Here we summarize the results of the first experimental campaign at the Los Alamos Neutron Science Center. We present a determination of the storage time of the apparatus by filling the trap with UCN and emptying the surviving UCN into a counter, including the analysis methods and background subtraction techniques. We show preliminary measurements of the UCN up-scattering rates from a low density polyethylene sheet which is designed to remove marginally trapped UCN. We have also tested a new method of counting the surviving UCN by activating a vanadium foil within the trap and measuring the activation with a plastic scintillator and NaI γ-ray detector. Initial results of the vanadium activation measurements are presented, and future improvements to increase the signal-to-noise of this measurement technique are discussed.

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