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Systematics of the UCNτ Experiment ROBERT PATTIE, Los Alamos National Lab, UCNτ COLLABORATION — Currently there is an approximately 4σ discrepancy between measurements of the neutron lifetime performed using cold neutron beams and those performed with ultracold neutron (UCN) storage vessels. The UCNτ experiment uses a magneto-gravitational UCN trap to measure the neutron lifetime that eliminates systematics related to the loss of UCN on material trap walls. Careful accounting of all systematic effects in this effort is critical to resolving the discrepancy. Two approaches for determining the lifetime will be utilized to increase the robustness of the result: the lifetime will be determined by counting the surviving neutrons with a UCN counter, and also by UCN activation analysis of a vanadium foil. Both methods will have uncertainties arising from detector stability and efficiency, time dependent backgrounds, UCN depolarization, and normalization measurements. Other sources of systematic bias are also being investigated. The status of determining the systematic corrections and uncertainties of this experiment will be presented.

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