

Abstract Submitted
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Systematic Studies using the UCN τ Magneto-Gravitational Trap

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— The UCN τ Experiment measures the neutron lifetime using Ultracold Neutrons (UCN) stored in a magneto-gravitational trap. The trap employs various techniques to remove neutrons whose energies are too high to be trapped. It has recently been instrumented with a novel *in situ* detector that can be lowered into the trap to measure the neutron population as a function of height within the trap. This has allowed us to perform a series of systematic studies aimed at understanding and quantifying potential systematic effects associated with quasi-bound neutrons and phase space evolution. We have obtained multiple sets of data each having a statistical uncertainty of about 3 sec. We will discuss the results of our studies of cleaning and phase space evolution as well as results from studies of backgrounds and normalization of the initial neutron loading.

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