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New results from the UCNτ experiment

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A precise determination of the neutron lifetime τ_n, when combined with other neutron β-decay observables, provides a stringent test of the standard model. The UCNτ experiment at the Los Alamos Neutron Science Center (LANSCE) uses a magneto-gravitational neutron trap to confine ultracold neutrons (UCN) without loss due to material interactions prevalent in previous UCN bottle experiments. The experiment uses a novel *in situ* detector to count UCN at different locations within the trap. These features allowed us to perform the first measurement of τ_n with systematic corrections no larger than the associated uncertainties. Since reporting this measurement in 2018, we have acquired enough data to achieve ~ 0.3 s statistical uncertainty. Further, we implemented a UCN buffer volume between the LANSCE UCN source and the apparatus, allowing us to better normalize the number of neutrons loaded into the trap. I will discuss the improved UCNτ experiment and present new results from data acquired in 2017 and 2018.