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Current Status of the UCNtau Experiment[1] ALEXANDER KOMIVES, DePauw University, UCNTAU COLLABORATION — The UCNtau experiment uses a combination of permanent magnets and gravity to contain polarized ultracold neutrons (UCN's) produced at Los Alamos National Lab for measuring the free neutron lifetime. This value is a major input parameter for Big Bang nucleosynthesis predictions and, with neutron decay correlation coefficients, can be used to probe beyond Standard Model physics. Additionally, over the past two years a significant discrepancy between lifetime measurements that count surviving neutrons, like UCNtau, and those that detect decay products has prompted the creation of many exotic and exciting explanations. UCNtau is now collecting data to achieve a total uncertainty around 0.25 seconds. Improvements for this cycle include a non-magnetic buffer volume upstream of the trap, a new dagger in-situ neutron detector, an upgrade to the giant spectrum cleaner that allows for active detection of removed neutrons and a monitor expressly for setting empirical limits on depolarization. These enhancements will be described and an update on the analysis of the blinded data from the 2018 data cycle will be presented.

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