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Commissioning of the ultracold neutron source at Los Alamos Neutron Science Center

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The spallation-driven solid deuterium-based ultracold neutron (UCN) source at Los Alamos Neutron Science Center (LANSCE) has provided a facility for precision measurements of fundamental symmetries via the decay observables from neutron beta decay for over a decade. In preparation for a new room temperature neutron electric dipole moment (nEDM) search and to increase the statistical sensitivity of all experiments using the source an effort to increase the UCN output was initiated in 2014 and completed in Fall 2017. The upgrade had three main goals: optimized the geometry of the cryogenic source insert, improve the UCN guide system to the experiment hall, and add a second UCN beamline to support a future nEDM experiment. I will present the results of the commissioning of the new UCN source, possible future upgrades, and discuss the implications for the physics program at LANSCE.

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