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The Current Status of the LANL nEDM Experiment[1] MD T HASSAN, Los Alamos National Laboratory, LANL NEDM EXPERIMENT COLLABORATION — The neutron's permanent electric dipole moment (nEDM) measures the separation of charges inside a neutron and violates both parity (P) and time-reversal (T) invariance. T-violation is very small in the standard model, leading to an nEDM of about 10^{-31} e-cm. Yet, T-violation is a key ingredient for the dynamical generation of the cosmic matter-antimatter asymmetry, a major unanswered puzzle in the SM. If physics beyond the standard model (BSM) appears at an energy scale of 1–100 TeV, as widely expected from theoretical considerations, then one quite naturally expects nEDMs within a few orders of magnitude of the current limit of 310^{-26} e-cm (90 C.L.). The recent successful upgrade of the LANL Ultra-Cold Neutron (UCN) source, which more than quadrupled its performance, has created an exciting opportunity to advance the US search for the nEDM. The LANL nEDM experiment, based on the proven Ramsey's separated oscillatory field method at room temperature, aims to perform an nEDM search at a sensitivity of a few times 10^{-27} e-cm. In this talk, the current status of the LANL nEDM experiment, including the details of the engineering design, status of the apparatus fabrication, and commissioning schedule, will be presented.

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