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Preliminary Design of the Magnet System for the LANL nEDM Experiment JARED BREWINGTON, University of Kentucky, LANL-NEDM COLLABORATION — Permanent electric dipole moments represent a prospective avenue for the discovery of beyond standard model physics. The advent of experimental techniques using stored ultracold neutrons (UCNs) has placed the neutron electric dipole moment (nEDM) at the forefront of EDM searches. The current experimental upper limit for the nEDM is $d_n < 3 \times 10^{-26}$ e-cm (90% CL). The neutron EDM search to be conducted at Los Alamos National Laboratory (LANL) aims to advance the experimental measurement of the nEDM by an order of magnitude. Achieving the goal sensitivity of 3×10^{-27} e-cm requires a highly uniform B_0 holding field as well as efficient transport of UCN polarization from the neutron source into the storage volume. This talk will discuss the design techniques and preliminary design of the B_0 coil and the spin transport coil system for the LANL-nEDM experiment. This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under Award Number DE-SC0014622, the NSF under Award Number PHY-1828568, and by the LANL LDRD program.

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