

Abstract Submitted
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A Cryogenic Search for the Neutron Electric Dipole Moment at the Spallation Neutron Source¹ ALINA ALEKSANDROVA, Caltech, SNS NEDM COLLABORATION — One of the most interesting puzzles in physics is the baryon asymmetry of the universe (BAU). One requirement to explain the observed BAU is the violation of the combined charge conjugation (C) and parity (P) symmetries. While the Standard Model (SM) of particle physics contains sources of CP violation, it is unable to explain the BAU. In order to help reconcile theory and observation, additional sources of CP violation are needed. One of the most sensitive probes of CP violation is the neutron electric dipole moment (nEDM), for which the current upper limit is $d_n < 3.0 \times 10^{-26}$ e-cm (90% CL). This talk will present the status of a new cryogenic apparatus under construction at the Spallation Neutron Source (SNS) at the Oak Ridge National Laboratory (ORNL) which aims to reduce the current upper limit by two orders of magnitude with a targeted sensitivity of $d_n < 3.0 \times 10^{-28}$ e-cm.

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