

Abstract Submitted  
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**Minimizing the Residual Field and Field Gradient in a Magnetically Shielded Room for nEDM at LANL**<sup>1</sup> CHAMINDU AMARASINGHE, Valparaiso University — The LANL neutron Electric Dipole Moment (nEDM) experiment is an effort to set a sensitivity limit of  $3.2 \cdot 10^{-27}$  e•cm on the electric dipole moment of the neutron, an order of magnitude smaller than the current upper limit. This measurement uses Ramsey's method of oscillating magnetic fields. The magnetic field and field gradient have to be low enough to avoid the smearing of the Ramsey fringes and increase the neutron dephasing time respectively. The experiment is enclosed in a two layer Mu-metal magnetically shielded room (MSR) to null any external magnetic fields from the environment. The MSR is degaussed to sufficiently reduce its residual magnetic field and field gradient. The MSR is designed for residual fields as low as 30 nT. The experiment further requires a field gradient of 1 nT/m or smaller. Here we report on the degaussing procedure and the resulting improvement in the shielding prowess of the MSR.

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