

Abstract Submitted  
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**Los Alamos nEDM Experiment and Demonstration of Ramsey's Method on Stored UCNs at the LANL UCN Source**<sup>1</sup> STEVEN CLAYTON, Los Alamos Natl Lab, TIM CHUPP, University of Michigan, CHRISTOPHER CUDE-WOODS, North Carolina State University, SCOTT CURRIE, TAKEYASU ITO, Los Alamos Natl Lab, CHEN-YU LIU, JOSHUA LONG, Indiana University, STEPHEN MACDONALD, MARK MAKELA, CHRISTOPHER O'SHAUGHNESSY, Los Alamos Natl Lab, BRAD PLASTER, University of Kentucky, JOHN RAMSEY, ANDY SAUNDERS, Los Alamos Natl Lab, LANL NEDM COLLABORATION — The Los Alamos National Laboratory ultracold neutron (UCN) source was recently upgraded for a factor of 5 improvement in stored density, providing the statistical precision needed for a room temperature neutron electric dipole moment measurement with sensitivity  $\approx 3 \times 10^{-27} e\cdot\text{cm}$ , a factor 10 better than the limit set by the Sussex-RAL-ILL experiment. Here, we show results of a demonstration of Ramsey's separated oscillatory fields method on stored UCNs at the LANL UCN source and in a geometry relevant for a nEDM measurement. We argue a world-leading nEDM experiment could be performed at LANL with existing technology and a short lead time, providing a physics result with sensitivity intermediate between the current limit set by Sussex-RAL-ILL, and the anticipated limit from the complex, cryogenic nEDM experiment planned for the next decade at the ORNL Spallation Neutron Source (SNS-nEDM).

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