

LA-UR- 09-04312

Approved for public release;
distribution is unlimited.

Title: Development of the neutron electric dipole moment experiment at the SNS

Author(s): Martin D. Cooper

Intended for: Invited presentation at "Third Joint Meeting of the Nuclear Physics Divisions of the American Physical Society and The Physical Society of Japan," October 13-17, 2009



Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396. By acceptance of this article, the publisher recognizes that the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Development of the neutron electric dipole moment experiment at the SNS, Martin D. Cooper, *Los Alamos National Laboratory*, for the *nEDM Collaboration*. The nEDM Collaboration is preparing an experiment to run at the Spallation Neutron Source (SNS) to search for the neutron electric dipole moment (EDM) experiment with a sensitivity of $<10^{-27} e \cdot cm$ based on the scheme of Golub and Lamoreaux. The collaboration has been pursuing a R&D program to establish the technical feasibility of the design. Many results have been obtained from independent experiments that demonstrate the EDM experiment should work. The data from a number of these preparatory measurements will be presented and discussed in terms of their importance to the final design. The engineering of the project is now ready to produce shop drawings, so a comprehensive picture of the apparatus can be presented.