

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

A Magnetic Cloak for The SNS nEDM Experiment¹ AHMAD SAFTAH, CHRISTOPHER CRAWFORD, University of Kentucky, SNS NEDM COLLABORATION — High precision measurements such as the search for the neutron Electric Dipole Moment (nEDM) require an extremely uniform magnetic field in order to reduce the false nEDM signals. The SNS nEDM experiment will use a superconducting shield to reduce magnetic fluctuations in the measurement. The superconductor is surrounded by a uniform magnetic field for He-3 spin transport and to increase the uniformity of the measurement field. We will present the design for a magnetic cloak, which prevents distortion of the uniform external field by the superconductor. We also present the design of a modified cos-theta coil to test the cloak in a uniform magnetic field.

¹This 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.

Ahmad Saftah
University of Kentucky

Date submitted: 25 Jun 2020

Electronic form version 1.4