Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Measurement of Neutron Polarization and Transmission for the nEDM@SNS Experiment.[1] KAVISH IMAM, University of Tennessee, Knoxville, NEDM@SNS COLLABORATION — The neutron electric dipole moment experiment at the Spallation Neutron Source (nEDM@SNS) will implement a novel method, which utilizes polarized ultra-cold neutrons (UCN) and polarized ^{3}He in a bath of superfluid ^{4}He, to place a new limit on the nEDM down to 2-3$\times10^{-28}$ ecm. The experiment will employ a cryogenic magnet and magnetic shielding package to provide the required magnetic field environment to achieve the proposed sensitivity. The polarized cold neutron beam will pass through the cryogenic magnet, therefore, any loss of neutron polarization and transmission through the cryogenic magnet must be characterized. This talk will describe the design and implementation of ^{3}He polarimetry setup at the SNS to measure the neutron polarization and transmission losses resulting from passage through the magnetic shielding and cryogenic windows.

[1]This work was supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under contract DE-FG02-03ER41258

Kavish Imam
University of Tennessee, Knoxville

Date submitted: 24 Jun 2020 Electronic form version 1.4