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Simulation of time dependent magnetic field variations in the SNS nEDM experiment[1] MOJTABA BEHZADIPOUR, University of Kentucky, SNS NEDM COLLABORATION — The Spallation Neutron Source (SNS) neutron electric dipole moment experiment (nEDM) requires precise control of the magnetic field. Time-dependent variations in the magnetic field will be monitored with the polarized ^{3}He co-magnetometer via detection of the precessing ^{3}He magnetization in SQUID pickup loops. The resulting SQUID signal will then be used to correct for these time dependent magnetic field variations that appear in measurements of the neutron and ^{3}He precession frequency difference. We have carried out simulations of the response of the SQUID ^{3}He co-magnetometer to time-dependent variations in the magnetic field and have explored various schemes for corrections to the measured neutron precession frequency due to these time-dependent magnetic field variations. Preliminary results showing the sensitivity of the extracted neutron precession frequency to magnetic field variations will be discussed.

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Mojtaba Behzadipour
University of Kentucky

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