Abstract Submitted
for the APR18 Meeting of
The American Physical Society

The Measurement and Mitigation of Residual Beam Polarization for the Nab Experiment CHELSEA HENDRUS, Univ of Michigan - Ann Arbor, NAB COLLABORATION — The Nab Experiment at the Fundamental Physics Beamline (FnPB) at the Spallation Neutron Source (SNS) aims to precisely measure the electron-neutrino correlation parameter a, and the Fierz interference term b, associated with the beta decay of free neutrons. This measurement provides a cross-check and independent measurement of λ, the ratio of vector to axial-vector coupling constants in the Standard Model. A potential source of systematic error in this experiment stems from unwanted residual polarization in the incident neutron beam. The experimental approach to understanding this effect involves measuring this small polarization of the FnPB beam using a polarized ^{3}He spin filter, and mitigating the measured polarization using newly designed Adiabatic Fast Passage (AFP) neutron spin flipper.

Chelsea Hendrus
Univ of Michigan - Ann Arbor

Date submitted: 12 Jan 2018 Electronic form version 1.4