Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Analysis of Current-mode Detectors For Resonance Detection In Neutron Optics Time Reversal Symmetry Experiment[1] GRANT FORBES, University of Kentucky, NOPTREX COLLABORATION — One of the most promising explanations for the observed matter-antimatter asymmetry in our universe is the search for new sources of time-reversal (T) symmetry violation. The current amount of violation seen in the kaon and B-meson systems is not sufficient to describe this asymmetry. The Neutron Optics Time Reversal Experiment Collaboration (NOPTREX) is a null test for T violation in polarized neutron transmission through a polarized ^{139}La target. Due to the high neutron flux needed for this experiment, as well as the ability to effectively subtract background noise, a current-mode neutron detector that can resolve resonances at epithermal energies has been proposed. In order to ascertain if this detector design would meet the requirements for the eventual NOPTREX experiment, prototypical detectors were tested at the NOBORU beam at the Japan Proton Accelerator Research Complex (JPARC) facility. Resonances in In and Ta were measured and the collected data was analyzed. This presentation will describe the analysis process and the efficacy of the detectors will be discussed.

[1]Department of Energy under contract DE-SC0008107, UGRAS Scholarship

Grant Forbes
University of Kentucky

Date submitted: 30 Jun 2017 Electronic form version 1.4