

Abstract Submitted  
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**Measurement of  $\gamma$ -ray Angular Distribution of  $n+^{131}\text{Xe}$  Reaction in 3.2 eV p-wave Resonance for T-Violation Search Experiment<sup>1</sup>** CLAYTON AUTON, Indiana University, NOPTREX COLLABORATION — The Neutron Optics Time Reversal Experiment (NOPTREX) collaboration plans to conduct a sensitive search for time reversal invariance violation in polarized neutron transmission through polarized nuclei by taking advantage of the large amplification of symmetry-violating effects due to s-wave and p-wave mixing in heavy nuclei. The same mechanism responsible for the observed enhancements of P-violation is theoretically predicted to also enhance T-violation. The spin factor  $\kappa(J)$  sets the relative size and sensitivity of these two effects. The angular distribution of the  $^{131}\text{Xe}(n,\gamma)$  capture reaction as a function incident neutron energy was measured using the ANNRI germanium detector array at J-PARC. From this  $\gamma$ -ray angular distribution one can extract the unmeasured  $\kappa(J)$  needed to gauge the feasibility of a T-violation search in the  $^{131}\text{Xe}$  3.2 eV p-wave resonance. This talk will discuss the ongoing experiment and analysis.

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Clayton Auton  
Indiana University

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