

Abstract Submitted
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NOPTREX, An Experiment to Search for T Violation in Polarized Neutron Optics : Resonance Measurements in ^{131}Xe JONATHAN CUROLE¹, Department of Physics, Indiana University, DR. WILLIAM SNOW, Professor at Indiana University, NOPTREX COLLABORATION — Sensitive experimental searches for new sources of time reversal violation can uncover new phenomena beyond the Standard Model of particle physics and may be important for our understanding of the baryon asymmetry of the universe. We describe the concept behind an experimental search for a P-odd and T-odd term in the polarized neutron-polarized nucleus forward scattering amplitude ² planned by the NOPTREX collaboration which takes advantage of the approximate 10^5 — 10^6 amplification of P-odd amplitudes in certain epithermal p-wave n-A resonances in nuclei such as ^{139}La ³. This talk will discuss the preparation and design of an experiment to measure the spin-coupling ratio κ in ^{131}Xe at the ANNRI beamline at the Japan Proton Accelerator Complex (J-PARC) and the design of a low-noise current-mode neutron detector with near-unit efficiency and fast time response to resolve the resonance shapes.

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²V.P. Gudkov, Physics Reports **212** , 77-105 (1992).

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