

Abstract Submitted
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Overview of the NPDGamma Experiment J. DAVID BOWMAN, ORNL — The NPDGamma Experiment aims to measure the directional asymmetry of the gamma ray direction and the neutron spin when polarized neutrons capture on protons. The asymmetry results from the weak parity-violating hadronic interaction. The asymmetry is expected to be small $\sim 10^{-7}$, however the measured asymmetry can be expressed in terms of the coupling strengths of the meson-exchange model of the hadronic weak interaction. The measured asymmetry is strongly dominated by pion exchange and the measurement will determine the pion coupling, f . The first phase of the experiment is being tested at Flight Path 12 at the Los Alamos Neutron Scattering Center. The goal of this phase of the experiment is to measure the asymmetry with an accuracy of 10^{-7} . After the first phase is complete, the experiment will be moved to the Fundamental neutron Physics Beam at the Spallation Neutron Source and measure the asymmetry with a combined statistical and systematic uncertainty. All components of the experiment, beam, beam monitors, ^3He spin-filter neutron polarizer, guide field, radio-frequency spin rotator, liquid parahydrogen target, and cesium iodide gamma detector have been tested and installed. I will give an overview describing the functions of these components, their design goals, and their expected and measured performance.

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