

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

The status of the NPDGamma experiment and the liquid para- H_2 target JIAWEI MEI, Indiana Univeristy, NPDGAMMA COLLABORATION
— The NPD γ experiment proposes to measure the asymmetry of the γ ray direction relative to the neutron spin when polarized neutrons capture on protons. The asymmetry results from the weak parity-violating hadronic interaction. The goal is to measure the asymmetry with 10^{-8} sensitivity. Such a measurement will provide a theoretically clean value of the weak pion-nucleon coupling, resolving a long standing controversy in nuclear physics. Phase one of the experiment completed at the Los Alamos Neutron Science Center (LANSCE) reports a result consistent with zero: -1.1 ± 2.1 (stat) ± 0.2 (sys) $\times 10^{-7}$. The experiment is under construction at Oak Ridge National Laboratory, to be installed at the Fundamental Neutron Physics Beam (FNPB) line at the Spallation Neutron Source (SNS). The liquid hydrogen target currently being modified at the Indiana University Cyclotron Facility (IUCF), will be moved to SNS at the end of this year. The phase 2 data will be taken in 2010. I will give an overview describing the status of the experiment and especially the design and performance of the NPD γ hydrogen target system.

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Date submitted: 22 Oct 2009

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