

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Measuring D₂O depolarization for NDT γ experiment ZHAOWEN TANG, Indiana University, NDTGAMMA COLLABORATION — Quark-quark weak interactions in the Standard Model induce nucleon-nucleon weak interactions. Although the NN weak amplitudes are typically at the ppm level compared to NN strong amplitudes, they can be isolated using parity violation. The short range of the quark-quark weak interactions relative to the nucleon size, chiral symmetry breaking in QCD, and quark confinement make theoretical calculations in this sector difficult. However at low energy the number of independent amplitudes is finite and theoretical descriptions using meson exchange model and effective field theory exist. The goal of experimental work in this field is to perform sensitive measurements in few-nucleon systems to determine these amplitudes. A measurement of parity violation in the γ asymmetry of polarized n-D capture can determine an interesting linear combination of amplitudes. We will discuss progress toward establishing the feasibility of this experiment and describe a recent measurement at LANSCE of the depolarization of slow neutrons in D₂O, which would be used as a target in an eventual experiment.

Zhaowen Tang
Indiana University

Date submitted: 22 Oct 2009

Electronic form version 1.4