

Abstract Submitted
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The NDTGamma experiment: Hadronic Parity Violation in Counting Mode¹ CHRISTOPHER CRAWFORD, University of Kentucky, NDTGAMMA COLLABORATION — The recent NPDGamma and n3He experimental constraints of h_{π}^1 and $h_{\rho-\omega}^0$ are important milestones towards the goal of a complete spin and isospin characterization of the Hadronic Weak Interaction. The remaining experimentally accessible few-body observables pose special challenges—for example, the neutron spin asymmetry $A_{\gamma}^{\vec{n}d}$ of gamma rays in the reaction $\vec{n}+d \rightarrow t+\gamma$ in an experimentally achievable D₂O target would be highly diluted by the low signal-to-background ratio of the suppressed (mb) n-D capture cross section in a traditional current-mode experiment. Given the moderate event rates from this reaction and modern capabilities of high-speed digital pulse-processing electronics, we describe progress towards the possibility of detecting and discriminating on individual gamma-rays from the 6.2 MeV neutron capture photopeak in real time. This will enable the first counting-mode measurement of Hadronic Parity Violation in a few-body system in which quasi exact (3-body) calculations in the DDH potential and chiral EFT are possible.

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