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GEANT4 Simulation of Empty Target for the NPDGamma Experiment[1] ANDREW MCNAMARA, University of Kentucky, NPDGAMMA COLLABORATION — The NPDGamma experiment was designed to detect a very small parity violating asymmetry ($\sim 10^{-}8$) in the n + p $\rightarrow$ d + γ reaction. Background rates will be modeled to determine the dilution of the asymmetry. To validate these models, data were taken with the detector array fitted with a mock-up version of the liquid hydrogen target in the neutron beam. Rates were measured from four targets: empty, water, and two concentrations of MgCl, which has a large parity violating asymmetry. A comparison of these results with a Geant4 simulation of this simple target will be used to tune the simulation of the real hydrogen target.

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