

Abstract Submitted
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Dual Target Design for CLAS12¹ OMAIR ALAM, GERARD GILFOYLE, University of Richmond, STEVE CHRISTO, Jefferson Lab — An experiment to measure the neutron magnetic form factor (G_n^M) is planned for the new CLAS12 detector in Hall B at Jefferson Lab. This form factor will be extracted from the ratio of the quasielastic electron-neutron to electron-proton scattering off a liquid deuterium (LD_2) target. A collinear liquid hydrogen (LH_2) target will be used to measure efficiencies at the same time as production data is collected from the LD_2 target. To test target designs we have simulated CLAS12 and the target geometry. Electron-nucleon events are produced first with the QUasiElastic Event Generator (QUEEG) which models the internal motion of the nucleons in deuterium.² The results are used as input to the CLAS12 Monte Carlo code gemc; a Geant4-based program that simulates the particles interactions with each component of CLAS12 including the target material. The dual target geometry has been added to gemc including support structures and cryogenic transport systems. A Perl script was written to define the target materials and geometries. The output of the script is a set of database entries read by gemc at runtime. An initial study of the impact of this dual-target structure revealed limited effects on the electron momentum and angular resolutions.

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²G.P. Gilfoyle and O. Alam et. al. CLAS-NOTE 2014-007, Jefferson Lab., 2014.

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