**A Deuteron Quasielastic Event Simulation for CLAS12**[1] OMAIR
ALAM, GERARD GILFOYLE, University of Richmond — 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 is extracted from the ratio of quasielastic
electron-neutron to electron-proton scattering off a liquid deuterium ($LD_2$) target.
The QUasiElastic Event Generator (queeg) models the internal motion of the nucleons in deuterium. It extends a previous version used at Jefferson Lab.[2] The
program generates events that are used as input to the Geant4 Monte Carlo (gemc);
a program that simulates the particle's interactions with each component of CLAS12
including the target material. The source code for queeg was modified to produce
output in the LUND format, set the position of the center of the $LD_2$ target, and
simulate a realistic deuterium target. The event vertex was randomly distributed
along the beamline in the target region and von Neumann rejection was used to
select random points in the plane transverse to the beamline within a fixed radius
from the beam. An initial study of the impact of the target structure and material
revealed only limited effects.

[1]Supported by the US Department of Energy.
[2]J.D.Lachniet, PhD thesis, Carnegie-Mellon University, 2005.

Omair Alam
University of Richmond

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