

Abstract Submitted
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Simulator for the Parity-Violating Deep Inelastic Scattering experiment in the Solenoidal Large Intensity Detector¹ JACK ANDERSON, College of William & Mary, HALL A SOLID COLLABORATION — The Solenoid Large Intensity Detector (SoLID) particle detector is the main detector that will be used for high energy particle experiments in Hall A that will be used with the 12 GeV electron beam at the Jefferson Lab. SoLID geometries were written to be implemented in Geant4 using OpenGL as the visualization tool. This will allow us to test how the calorimeter, a specific yet integral part of the SoLID detector, detects the particles that result from electron beams colliding with targets. The goal is to simulate the approved experiments for the SoLID detector, starting with the Parity-Violating Deep Inelastic Scattering (PVDIS) experiment. This will provide critical information regarding the effectiveness of the calorimeter's design for such experiments. The expectation is that a Shashlik calorimeter will prove effective for the experiments approved for the SoLID detector. The ideal number of layers, or types of material for said layers, is an aspect of the calorimeter that will require testing through the simulations. The geometry files allow an easily-packaged program that can be shared amongst any collaborators interested in the SoLID experiments.

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