

Abstract Submitted  
for the DNP08 Meeting of  
The American Physical Society

**Using a Geant4 Simulation to Model E906** MARISSA WALKER, Abilene Christian University, E906 FERMILAB COLLABORATION — The goal of E906 at FNAL is to further explore the anti-quark distribution in the nucleon sea using a 120 GeV proton beam and fixed liquid hydrogen and deuterium targets. The resulting particles pass through a spectrometer of two magnets, three stages of scintillator and wire chambers, and layers of absorber designed to absorb and deflect as much of the background noise as possible, isolating pairs of muons produced by the Drell-Yan process. The design of the first magnet previously involved an open aperture with a number of layers of hadron absorbers inserted. However, in order to reduce cost, the plan is now to have a solid iron magnet. Geant4 based simulations were used to determine if this magnet would be able to especially in minimize background rates adequately. Based on simulation results, the solid iron magnet should be sufficient. Various possibilities for the geometry of this magnet, as well as the layout of the target and absorbers, have been evaluated.

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Date submitted: 04 Aug 2008

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