

Abstract Submitted  
for the DNP16 Meeting of  
The American Physical Society

**Optimization of Magnet Strength for Event Reconstruction and Analysis at FNAL SeaQuest**<sup>1</sup> PAUL CARSTENS, Abilene Christian University, SEAQUEST COLLABORATION — The Fermilab E906/SeaQuest experiment primarily means to study the nucleon sea and its antiquark distribution. This experiment collides a 120 GeV proton beam with one of several fixed targets. E906/SeaQuest probes the quark sea with the Drell-Yan process in which a quark from the beam annihilates an antiquark from the target producing a virtual photon that decays into a pair of muons. Two magnets focus the muons through four detector stations in the spectrometer. The first is a solid iron magnet, which also serves as the beam dump and absorber. The second, an open aperture magnet, is the momentum analyzing magnet and is positioned between the first two detector stations. A tracking program reconstructs the trajectories of the particles in the detector to discern their kinematics. In order to correctly analyze data, the magnetic field strength must be accurately known since it affects the momentum of particles passing through the field. This poster focuses on how the magnet's effect on the transverse momentum of the muons affects kinematic reconstruction of both simulated and real events.

<sup>1</sup>This research was supported by US DOE MENP Grant DE-FG02-03ER41243 be added to my submission.

Paul Carstens  
Abilene Christian University

Date submitted: 26 Jul 2016

Electronic form version 1.4