

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Improving Kinematic Resolution in SeaQuest Event Reconstruction Program ISAAC MOONEY, J.G. RUBIN, C.A. AIDALA, Univ of Michigan - Ann Arbor, SEAQUEST COLLABORATION — Fermi National Accelerator Laboratory (FNAL) Experiment-906/SeaQuest uses the Drell-Yan process - specifically dimuon production through quark-antiquark annihilation - to give insight into nucleon structure. The process is induced with a 120 GeV beam of protons from the Main Injector, incident on liquid or solid targets. High-energy muons scatter through a large solid iron focusing magnet (FMAG) and are bent by the magnetic field. They then pass through an air-core analysis magnet (KMAG), and are detected by hodoscopes, proportional chambers and proportional tubes. Track reconstruction software is used to recreate process kinematics and estimate the scattering vertex. The influence of the magnets can be approximated as a bend at a single point along the track trajectory and the track reprocessed, forced to either the center of the target or the most likely origin in FMAG - depending on the estimated scattering vertex position - from that position. To find the best bend plane, the retracked virtual photon invariant mass and Feynman x (x_F) were compared to Monte Carlo, then each residual distribution's width as a function of momentum was minimized. We input the correction into the track reconstruction software for improved invariant mass and x_F resolution.

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Date submitted: 27 Jul 2015

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