

Abstract Submitted
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Alignment of the GEM Based Beam Tracking Telescope for MUSE¹ TANVI PATEL, MICHAEL KOHL, Hampton Univ, MUSE COLLABORATION — The Muon Scattering Experiment (MUSE) at Paul Scherrer Institute (PSI) is designed to measure the proton charge radius with simultaneous elastic scattering of electrons and muons of either charge polarity. For an accurate determination of the lepton scattering angle, event-by-event beam particle tracking is required to reconstruct the incoming particle track. A telescope of Gas Electron Multipliers (GEM), exposed to a high flux of beam particles are used to reconstruct the incoming tracks with high spatial resolution while representing minimal material for the beam to pass through. This presentation lays out the idea of how the GEMs were surveyed and how the alignment is inferred from the survey data and accounted for in the data analysis. The goal of the alignment procedure is to limit the errors from any misalignments on tracking and scattering angle determination to be much less than the dominating uncertainties due to multiple scattering.

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