

Abstract Submitted
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Alignment of the GEM Detectors for MUSE¹ TANVI PATEL, ANGEL CHRISTOPHER, JESMIN NAZEER, MICHAEL KOHL, Hampton University, 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 is used to reconstruct the incoming tracks with high spatial resolution while presenting minimal material for the beam to pass through. This presentation will lay out the procedure of the GEM alignment survey. It will detail how the alignment is inferred from the overdetermined survey data and accounted for in the data analysis. The goal of the alignment procedure is to reduce the systematic uncertainty due to misalignment on tracking and scattering angle determination to be much less than the dominating uncertainties due to multiple scattering.

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