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Potential for DIS Measurements and BSM Physics Searches at a TeV Muon-Ion Collider along with Beam Induced Background Studies

The development of a TeV-scale muon-ion collider opens up a new regime for deep inelastic scattering measurements as well as facilitates searches for beyond Standard Model physics. In this talk we report on the kinematics and resolution for DIS processes when a TeV muon beam is collided with a high energy hadron beam, as well as on the expected statistical uncertainties in F2 structure function measurements. We also report on the sensitivity of a muon-ion collider for Z-prime and leptoquark production in models relevant to explain lepton flavor universality violations reported by other experiments. Finally we report on first studies of the impact of beam-induced backgrounds from muon decays on measurements at a future experiment at such a collider.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

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