



Contribution ID: 514

Type: **not specified**

## Talk: Electroweak Precision with Muon Collider Neutrinos

*Thursday, July 10, 2025 3:15 PM (45 minutes)*

Presenter: Adrian Thompson

Abstract: The standard candles of electroweak observables can be studied through the lens of neutrino-electron scattering as a purely weak process. We project the sensitivity of a neutrino detector situated around 100 meters away in the plane of a high energy muon storage ring or muon collider with , 1.5, and 5 TeV muon beam energies, providing a highly energetic and highly intense source of electron and muon (anti)neutrinos. We find world-leading sensitivity to the weak couplings at the sub-percent level is possible, with sensitivity to the Standard Model prediction for the neutrino charge radius. Finally, we show that sensitivity to the momentum transfer dependence of at the level, within a single dataset and configuration of the proposed experiment, is possible.

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