Contribution ID: **24** Type: **not specified**

Neutrino Production and Detection in Muon Collider Acceleration

Sunday 16 November 2025 10:12 (18 minutes)

We study the neutrino flux at the accelerator stages of a future muon collider by simulating a hydrogen gas detector at a fixed location down the beamline. We investigated the event rate and energy spectra of neutrinos produced by the muons decaying in the accelerators. By comparing the resulting neutrino energy scales and interaction rates with those expected from existing neutrino factory concepts, we evaluated the viability of using muon collider accelerators as high-energy neutrino sources.

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Session Classification: Parallel 1: Neutrinos