Contribution ID: **65** Type: **not specified**

Probing New Physics with $\mu^+\mu^- \to bs$ at a Muon Collider

Monday 8 May 2023 14:30 (15 minutes)

We show that bottom-strange production at a high energy muon collider, $\mu^+\mu^- \to bs$, is a sensitive probe of new physics. We consider the full set of four fermion contact interactions that contribute to this process at dimension 6, and discuss the complementarity of a muon collider and rare B meson decays that probe the new physics.
If a signal were to be found at a muon collider, the forward-backward asymmetry of the b-jet provides diagnostics about the underlying chirality structure of the new physics.
In the absence of a signal at a center of mass energy of 10˜TeV, $\mu^+\mu^- \to bs$ can indirectly probe new physics scales as large as 86˜TeV. We also discuss the impact that beam polarization has on the muon collider sensitivity.

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Session Classification: BSM II

Track Classification: BSM