Contribution ID: **220** Type: **not specified**

Precision Test of the Muon-Higgs Coupling at a High-energy Muon Collider

I will present a sensitivity test of the muon-Yukawa sector at a high-energy muon collider. While in the Standard Model this sector is described by a single parameter, effects of new physics that is not aligned with the Standard Model Yukawa interactions may introduce a more sophisticated parameter dependence, which can be understood either in SMEFT or a HEFT frameworks.
With the accidentally small value of the muon Yukawa coupling and its subtle role in the high-energy production of multiple (vector and Higgs) bosons, I will show that it is possible to measure the muon-Higgs coupling to an accuracy of ten percent for a 10 TeV muon collider and a few percent for a 30 TeV machine by utilizing the three boson production, potentially sensitive to a new physics scale about $\Lambda = 10 \sim 30$ TeV. In addition I will discuss effects of an extended Higgs sector to the same processes in both frameworks.

Summary

Primary author: KREHER, Nils (University of Siegen)

Presenter: KREHER, Nils (University of Siegen)

Session Classification: Parallel Session Thursday

Track Classification: Particle Phenomenology