

Phenomenology 2021 Symposium



Contribution ID: 1339

Type: BSM

Searching for New Physics at Muon Colliders

Wednesday 26 May 2021 15:15 (15 minutes)

A high energy muon collider can provide new and complementary discovery potential to the LHC or future hadron colliders. Leptoquarks are a motivated class of exotic new physics models, with distinct production channels at hadron and lepton machines. We study a vector leptoquark model at a muon collider with $\sqrt{s}=3,14$ TeV within a set of both UV and phenomenologically motivated flavor scenarios. We compute which production mechanism has the greatest reach for various values of the leptoquark mass and the coupling between leptoquark and Standard Model fermions. We find that we can probe leptoquark masses up to an order of magnitude beyond $s\sqrt{}$ with perturbative couplings. Additionally, we can also probe regions of parameter space unavailable to flavor experiments. In particular, all of the parameter space of interest to explain recent low-energy anomalies in B meson decays would be covered even by a $\sqrt{s}=3$ TeV collider.

Summary

Primary author: CESAROTTI, Cari (Harvard University)

Co-authors: HOMILLER, Samuel (YITP, Stony Brook); ASADI, Pouya (Massachusetts Institute of Technology); CAPDEVILLA, Rodolfo (University of Notre Dame)

Presenter: CESAROTTI, Cari (Harvard University)

Session Classification: BSM V