Contribution ID: **1242** Type: **BSM**

≥4mu signal from a vector-like lepton decaying to a muon-philic Z′ boson at the LHC

Tuesday 25 May 2021 15:45 (15 minutes)

We propose a novel possibility to detect a very distinctive signal with more than four muons originating from pair-produced vector-like leptons decaying to a muon-philic Z′ boson. These new particles are good candidates to explain the anomalies in the muon anomalous magnetic moment and the b⟶sℓℓ processes. The doublet (singlet) vector-like leptons lighter than 1.3 (1.0) TeV are excluded by the latest data at the LHC if BR(E⟶Z′μ)=1. We also show that the excess in the signal region with more than five leptons can be explained by this scenario if the vector-like lepton is a weak singlet, with mass about 400 GeV and BR(E⟶Z′μ)=0.25. The future prospects at the HL-LHC are discussed.

Summary

Authors: Dr KAWAMURA, Junichiro (Ohio State University, Keio University); Prof. RABY, Stuart (The Ohio State University)

Presenter: Dr KAWAMURA, Junichiro (Ohio State University, Keio University)

Session Classification: BSM III