Contribution ID: **1395** Type: **BSM**

Explaining $g_\mu - 2$ and $R_{K^{(*)}}$ using the light mediators of $U(1)_{T3R}$

Tuesday 25 May 2021 15:30 (15 minutes)

Scenarios in which right-handed light Standard Model fermions couple to a new gauge group, $U(1)_{T3R}$ can naturally generate a sub-GeV dark matter candidate. But such models necessarily have large couplings to the Standard Model, generally yielding tight experimental constraints. We show that the contributions to $g_\mu - 2$ from the dark photon and dark Higgs largely cancel out in the narrow window where all the experimental constraints are satisfied, leaving a net correction which is consistent with recent measurements from Fermilab.These models inherently violate lepton universality, and UV completions of these models can include quark flavor violation which can explain $R_{K^{(*)}}$ anomalies as observed at the LHCb experiment after satisfying the $B_s \to \mu\mu$ constraint in the allowed parameter space of the model. This scenario can be probed by FASER, SeaQuest, SHiP, LHCb, Belle etc.

Summary

Author: GHOSH, Sumit (Texas A&M University)

Co-authors: DUTTA, Bhaskar (Texas A&M University); HUANG, Peisi (University fo Nebraska); KUMAR, Jason (University of Hawaii)

Presenter: GHOSH, Sumit (Texas A&M University)

Session Classification: Flavor III