Contribution ID: **16** Type: **not specified**

Chirally-Enhanced Muon g-2 and Its Implications to Higgs-Related Observables

Saturday 30 April 2022 09:45 (15 minutes)

I introduce extensions of the Standard Model and a two-Higgs-doublet model with vectorlike leptons which generate chirally-enhanced contributions to the muon's anomalous magnetic moment, $(g-2)_\mu$. I show an additional $\tan^2\beta$ enhancement in the Higgs sector can generate up to two-orders of magnitude larger contributions to the magnetic moment while satisfying relavant constraints. These enhanced contributions can clearly explain the anomaly within 1σ for new lepton and Higgs masses up to tens of TeV, despite this heavy scale being currently unreachable at the LHC. Finally, I demonstrate a connection between a single parameter and $(g-2)_\mu$, $h \to \mu^+\mu^-$, $\mu^+\mu^- \to hh$ and $\mu^+\mu^- \to hhh$ observables, suggesting that $(g-2)_\mu$ can uniquely determine these Higgs-related processes.

Author: HERMANEK, Keith

Presenter: HERMANEK, Keith

Session Classification: Morning Session