



Contribution ID: 204

Type: **not specified**

Predictions for flavorful Z' searches from asymptotic safety

Thursday 29 September 2022 15:30 (15 minutes)

We investigate $b \rightarrow s$ flavor-anomaly solutions with $U(1)'$ extensions in the framework of asymptotically safe quantum gravity. We study three different $U(1)'$ extensions with vector-like fermions and a scalar field whose vev breaks the new $U(1)'$. The universal contribution of quantum gravity to renormalization group equations (RGEs) of all the gauge and the Yukawa couplings, beyond the Planck scale, ensues interdependent boundary conditions between the Standard Model and the New Physics (NP) couplings during the flow of RGEs from an interactive UV fixed point. As a result, precise measurements of low-energy SM couplings fix the exact values of the NP couplings, and accordingly, the NP mass range can be significantly narrowed down. We confront the models parameter space with the various LHC searches for VL fermions and the new gauge boson Z' . We find a viable parameter space with a potential to probe entirely in LHC Run 3.

Summary

Primary authors: CHIKKABALLI RAMALINGEGOWDA, Abhishek (National Centre for Nuclear Research, Warsaw); Dr SESSOLO, Enrico (National Centre for Nuclear Research, Warsaw); Dr KOWALSKA, Kamila (National Centre for Nuclear Research, Warsaw); RIZZO, Daniele (National Center for Nuclear Research (NCBJ), Warsaw, Poland)

Presenter: CHIKKABALLI RAMALINGEGOWDA, Abhishek (National Centre for Nuclear Research, Warsaw)

Session Classification: Parallel Session Thursday

Track Classification: Particle Phenomenology