Contribution ID: **54**   Type: **not specified**

Predictions for flavorful Z' searches from asymptotic safety

Monday 25 July 2022 14:54 (18 minutes)

We investigate b→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.

Author: CHIKKABALLI, Abhishek (National Center for Nuclear Research)

Co-authors: SESSOLO, Enrico Maria (NCBJ, Warsaw);   KOWALSKA, Kamila (National Centre for Nuclear Research);   RIZZO, Daniele (NCBJ)

Presenter: CHIKKABALLI, Abhishek (National Center for Nuclear Research)

Session Classification: Parallel Session B

Track Classification: Particle Physics