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Junior talk: Predictions for flavorful Z' models from asymptotic safety

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We use the framework of asymptotically safe quantum gravity to derive predictions for New Physics (NP) models with an extra U(1)' symmetry as a solution to the b $\longrightarrow$ s flavor anomalies. We study three different (but similar) models with vector-like (VL) fermions and a scalar whose vev breaks the U(1)' symmetry. The flavor-violating coupling of the new gauge boson Z' with the b and s quarks is generated via the mixing with the VL quarks. The coupling of Z' with muons is obtained either by the mixing with VL leptons, or directly by identifying U(1)' with a $L_\mu - L_\tau$ symmetry.

The presence of an interactive UV fixed point in the system of gauge and Yukawa couplings of our NP models imposes a set of boundary conditions at the Planck scale, which allows one to determine low-energy values of the NP Yukawa vector elements. As a consequence, the allowed NP mass range consistent with the solution to the b-s anomalies can be significantly narrowed down.
We also confront the models with the null results of the LHC searches for VL fermions and the new gauge boson Z'.

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