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A model of loop induced Z' coupling explaining $B \to K^{(*)}\ell^+\ell^-$ anomalies and dark matter

Thursday, 22 June 2017 15:00 (15 minutes)

In this talk, we discuss a scenario to generate flavor violating Z' interactions at one loop level, by introducing $U(1)_{\mu-\tau}$(-like) gauge symmetry, extra vectorlike quark doublets Q'_a and singlet scalar χ. Both Q'_a and χ are charged under $U(1)_{\mu-\tau}$ and carry odd dark Z_2 parity. Assuming that χ is the dark matter (DM) of the universe and imposing various constraints from dark matter search, flavor physics and collider search for Q'_a, one can show that radiative corrections to $b \to sZ'^* \to s\ell^+\ell^-$ involving Q'_a and χ can induce $\Delta C_9 \sim -1$ which can resolve the LHCb anomalies related with $B \to K^{(*)}\ell^+\ell^-$. Therefore both DM and B physics anomalies could be accommodated in the model.

Presentation type

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