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Flavor Phenomenology with Scalar Leptoquarks

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Even though the LHC searches did not unveil the new physics particles so far, observations made at LHCb and the *B*-factories point towards lepton flavor universality violation in both tree-level and loop-induced *B*-meson semileptonic decays. A minimal solution to this problem is to combine two scalar leptoquarks (LQ) with O(1 TeV) masses. We will show that there are only two such scenarios that are consistent with both low- and high-energy constraints, and they are given by a combination of the scalar $S_3 = (\bar{3}, 3, 1/3)$ with $R_2 = (3, 2, 7/6)$, or with $S_1 = (\bar{3}, 1, 1/3)$. We will discuss the main opportunities to test these two scenarios in current and future experiments. Particular emphasis will be given to Lepton Flavor Violation in low-energy processes.

In-person participation

Yes

Primary authors: BECIREVIC, Damir; SUMENSARI, Olcyr (IJCLab (Orsay)); FAROUGHY, Darius (Physik-Institut, Universitat Zurich); JAFFREDO, Florentin (IJCLab); DORŠNER, Ilja (University of Sarajevo); KOŠNIK, Nejc (Laboratoire de l'accélérateur linéaire); FAJFER, Svjetlana (University of Ljubljana and J. Stefan Institute)

Presenter: SUMENSARI, Olcyr (IJCLab (Orsay))

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