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From B anomalies to Kaon physics with scalar leptoquarks

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After reviewing combined solutions of flavor anomalies with the singlet and triplet scalar leptoquarks S_1 and S_3, I will present possible connections to Kaon physics observables. By assuming a flavor structure for the leptoquark couplings dictated by a minimally broken $U(2)^5$, we find that bound on $Br(K^+ \to \pi^+ \nu\nu)$ from NA62 puts already some tension in the model, while the present limits on $Br(K_L \to \mu^+\mu^-)$ and $\mu \to e$ conversion in nuclei can be saturated. Relaxing instead the flavor symmetry assumption we study what values for $Br(K^+ \to \pi^+ \nu\nu)$, as well as for $Br(K_L \to \pi^0 \nu\nu)$ and $Br(K_{L,S} \to \mu^+\mu^-)$, are viable compatibly with all other phenomenological constraints.

Primary author: MARZOCCA, David (INFN Trieste)

Co-authors: TRIFINOPOULOS, Sokratis (SISSA);   VENTURINI, Elena

Presenter: MARZOCCA, David (INFN Trieste)

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