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[311] Combined Constraints on First Generation Leptoquarks

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We present a combined analysis of low energy precision constraints and LHC searches for leptoquarks which couple to first generation fermions. Considering all ten leptoquark representations, we study at the precision frontier the constraints from $K \rightarrow \pi\nu\nu$, $K \rightarrow \pi e^+ e^-$, $K^0 - \bar{K}^0$ and $D^0 - \bar{D}^0$ mixing, as well as from experiments searching for parity violation (APV and QWEAK). We include LHC searches for s -channel single resonant production, pair production and Drell-Yan-like signatures of leptoquarks. Particular emphasis is placed on the recent CMS analysis of lepton flavor universality violation in non-resonant di-lepton pairs. The excess in electron events could be explained by t -channel leptoquark contributions without violating other bounds.

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