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Leptoquark solutions to anomalies.

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The recent discrepancy in the measurement of W boson mass as reported by the CDF collaboration and the longstanding anomalies in muon g-2, $R_{K^{(*)}}$ and $R_{D^{(*)}}$ observables suggest a promising path towards new physics. Leptoquarks (LQs) are known for explaining the anomalies separately in the current literature. However, these anomalies may be intertwined at a fundamental level, and there is a single new-physics explanation. We present a simple model with two TeV-scale scalar LQs, a weak-singlet S_1 and a weak-triplet S_3, and an economic flavor ansatz that can explain all the above anomalies simultaneously without violating experimental observations, including the bounds from the LHC. For our purpose, the LQs can be as light as 1.5 TeV making the model directly testable at the LHC. In addition to this, we discuss their collider phenomenology.

Session

Beyond the Standard Model

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