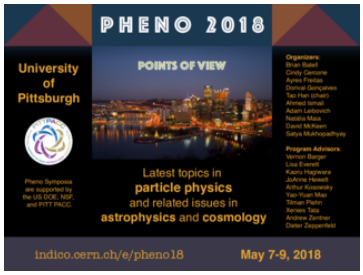

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Scalar leptoquarks in the light of R(D) anomaly and electroweak precision measurements.

Monday 7 May 2018 16:45 (15 minutes)

There has been persistent ($> 3\sigma$) disagreement between the Standard Model prediction and experimental measurements of $R_{D^{(*)}} = \mathcal{B}(B \to D^{(*)}\tau\nu_\tau)/\mathcal{B}(B \to D^{(*)}l\nu_l)(l = e, \mu)$. This anomaly may be addressed by introducing interactions beyond the Standard Model involving new states, such as leptoquarks. In this talk, I look at the constraints on third generation scalar leptoquarks from electroweak precision measurements at LEP and SLC. Among the electroweak observables, the partial decay width of $Z \to \tau\bar{\tau}$ places the strongest constraints. If one assumes Minimal Flavor Violation (MFV) in the quark sector, the leptoquarks masses and couplings required to satisfy the $R_{D^{(*)}}$ anomaly are strongly disfavored by electroweak data. Without MFV, one may still avoid electroweak constraints and address the anomaly.

Summary

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