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Probing New Physics: The Role of Vector-Like Quarks in Rare B-Decays

Wednesday 11 June 2025 11:45 (15 minutes)

We investigate the impact of Vector-Like Quarks (VLQs) on rare B-decay processes. Our approach involves careful examination of VLQ contributions in light of the most recent lower mass limit set by direct search data at LHC. By employing both symbolic and numerical computations, we compare our theoretical produce predictions in agreement with the latest Belle-II results, covering more than 3 sigma deviation from SM expectations. This study aims to shed light on underlying mechanisms that could signal a possible new physics beyond the Standard Model scenario and offer valuable insights for future experimental searches.

Keyword-1

B-decays

Keyword-2

Vector Like Quark Model

Keyword-3

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