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New physics interpretations of $R(D^{(*)})$ anomaly and their exciting predictions

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Measurements of the branching ratios of $B \rightarrow D^{(*)}\tau\nu/B \rightarrow D^{(*)}\ell\nu$ by the BaBar, Belle, and LHCb collaborations consistently point towards an abundance of taus compared to channels with light leptons at the 3-4 sigma level. This $R(D^{(*)})$ anomaly could imply TeV scale new physics. In this contribution, I will first review several new physics interpretations of the $R(D^{(*)})$ anomaly. Then, I will present some exciting new physics predictions; Λ_b semi-leptonic decays, Υ leptonic decays, and neutron electric dipole moment. It will be shown that these measurements (with polarization observables in $B \rightarrow D^{(*)}\tau\nu$) could confirm the new physics contribution to $R(D^{(*)})$ and distinguish the models of several new physics scenarios.

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