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Addressing the $R(D)$ and $R(D^*)$ anomalies within a charged scalar boson scenario

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The experimental measurements collected by the BABAR, Belle and LHCb experiments on the $R(D)$ and $R(D^*)$ observables indicate the existence of disagreement with respect to the Standard Model (SM) predictions. This discrepancy has been referred to as the “ $R(D)$ and $R(D^*)$ anomalies”, and consequently, a large number of studies considering the effects of new physics (NP) beyond MS have been discussed in the literature. In this talk, we will present a review of the current state (experimental and theoretical), and a possible scenario to address the $R(D)$ and $R(D^*)$ anomalies through a charged scalar boson will be discussed. We will show the recent results of the phenomenological study to the parameter space allowed by these NP models. We will discuss the implications of parametric space that would be obtained from the projections of the Belle II experiment.

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