

## Connecting $b \rightarrow s\mu\mu$ anomalies to enhanced rare nonleptonic $B_s$ decays in $Z'$ model

Thursday, 5 July 2018 14:40 (20 minutes)

The anomalies recently observed in  $b \rightarrow s\mu\mu$  data could be early signals of physics beyond the standard model (SM) in  $b \rightarrow s$  transitions. Assuming this to be the case, we consider a scenario in which a  $Z'$  boson is responsible for the anomalies. We further assume that its interactions also affect rare nonleptonic decays of the  $B_{(s)}$  meson which tend to be dominated by electroweak-penguin contributions and are purely isospin-violating. Most of these  $B_{(s)}$  decays are not yet observed, and their rates are expected to be relatively small in the SM. Taking into account various constraints, we find that the  $Z'$  effects can enhance the rates of some of these decays, particularly  $B_{(s)} \rightarrow \eta\pi, \phi\pi$ , by up to an order of magnitude. This  $Z'$  scenario is therefore potentially testable in upcoming experiments at LHCb and Belle II.

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**Session Classification:** Quark and Lepton Flavor Physics