

Towards excluding a light Z' explanation of $b \rightarrow s\ell^+\ell^-$

The discrepancies between $b \rightarrow s\ell^+\ell^-$ data and the corresponding Standard Model predictions constitute a very intriguing hint for new physics and many scenarios that can account for these anomalies have been proposed in the literature. However, only a single light new physics explanation, with a mass below the B meson scale, is possible: a light Z' boson.

I will discuss this solution together with the impact on $B \rightarrow K^{(*)} + \text{invisible}$, Drell-Yan searches for muon pairs at LHC and $e^+e^- \rightarrow \mu^+\mu^- + \text{invisible}$. I will point out that the forthcoming improved limits on these processes, including the experimental sensitivities required for a proper treatment of the necessarily sizeable Z' width, can rule out a Z' explanation of $b \rightarrow s\ell^+\ell^-$ data with a mass below ~ 4 GeV.

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