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New Physics in $b \rightarrow s \mu^+ \mu^-$ after the Measurement of R_{K^*}

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The recent measurement of R_{K^*} is yet another hint of new physics (NP), and supports the idea that it is present in $b \rightarrow s \mu^+ \mu^-$ decays. Others have performed model-independent analyses, finding that the NP must obey one of two scenarios: (I) $C_9(\text{NP}) < 0$ or (II) $C_9(\text{NP}) = -C_{10}(\text{NP}) < 0$. We confirm this, and show that more information about the NP can be obtained by combining this result with a model-dependent analysis. The simplest NP models involve the tree-level exchange of a leptoquark (LQ) or a Z' boson. We show that scenario (II) can arise in LQ or Z' models, but scenario (I) is only possible with a Z' . Fits to Z' models must take into account the additional constraints from B_s - B_s mixing and neutrino trident production.

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