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Z' Models for B Anomalies at the LHC

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Abstract: Recently reported R(K) and R(K*) anomalies by the LHCb experiment have prompted investigations for new physics models with flavor changing new extra gauge Boson, Z'. The Z', in these models, only needs to couple with b, mu and s in order to explain the B-anomalies. We investigate these Z's at the LHC utilizing b-fusions (arising from gluon splitting) with leptonic final state in the association of 2b and 1b jets. We find that, utilizing this unique final state, the LHC can probe interesting regions of parameter space of these models which explain the anomalies after satisfying the constraints arising from various flavor constraints and current LHC searches.

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