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## Bottom-quark Fusion Processes at the LHC for Probing $Z'$ Models and B-meson Decay Anomalies

*Thursday 26 July 2018 15:50 (20 minutes)*

Anomalies in B-meson decays reported by the LHCb experiment could be explained by introducing a heavy neutral gauge boson  $Z'$  that dominantly couples to third generation quarks and second generation leptons. While the sensitivities of inclusive searches for such models are strong in heavy  $Z'$  regions ( $>500$  GeV), the low-mass region sensitivity is degraded by large SM background (mostly Drell-Yan process).

A  $Z'$  boson production, decaying to two muons, through bottom-quark fusion processes is studied. We assume an associated production with jets, at least one of them bottom-tagged. This complementary search is shown to improve sensitivities for low  $Z'$  mass regions beyond the inclusive analyses.

Reference: <https://arxiv.org/abs/1707.07016>, to appear in PRD

### Parallel Session

Alternatives to Supersymmetry

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