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Angular analysis of $B^+ \to K^{+*}\mu\mu$ decays at LHCb

Flavor-changing neutral current $b \to s$ quark transitions are forbidden in the Standard Model at tree level and occur at the lowest order as so-called box or penguin processes. Angular observables of such transitions probe the underlying Lorentz structure of the Standard Model. These observables are of particular interest and suitable for theory comparison since the predictions are only little affected by form-factor uncertainties.

LHCb reported on several $b \to s$ quark flavor-changing
neutral current transitions including $B^0 \to K^{0*}\mu\mu$
decays with various $K^*(\to K\pi)$ decay modes.
These studies revealed tensions with the Standard Model predictions of
an angular observable (P_5'), hinting to a potential contribution from physics beyond the Standard Model.

We present the very first angular analysis of $B^+ \to K^{+*}\mu\mu$ decays at LHCb. This channel is experimentally extremely challenging due to neutral particles present in the final state. The analysis is however an important complement to the $B^0 \to K^{0*}\mu\mu$ measurements and
will significantly contribute to understanding of the observed tensions.

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