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Analysis of local and non-local amplitudes in the B0 ⟶ K0*μ+μ−

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The B0 ⟶ K0*μ+μ− decay occurs via the rare flavor-changing neutral current (FCNC) transition b ⟶ sl+l−, making it a sensitive probe for New Physics (NP) since FCNC is forbidden at tree level in the Standard Model (SM). Virtual NP contributions can significantly influence this decay, and previous LHCb measurements have shown notable discrepancies with SM predictions at a 3σ level. Interpreting these anomalies is challenging due to uncertainties in non-local SM contributions, such as charm-loops, which can mimic NP effects. This presentation covers results from a data-driven approach aimed at determining the size of charm-loops and other non-local contributions to the B0 ⟶ K0*μ+μ− amplitude. This is the first measurement to parameterise the full di-muon invariant mass spectrum, using an integrated luminosity of 8.4 1/fb collected by the LHCb experiment.

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