Contribution ID: **13** Type: **not specified**

New LCSR B->K Form Factors determination

Thursday 14 November 2024 14:50 (20 minutes)

Deviations from the Standard Model have long been observed in semileptonic B-meson decays, notably $b \to s\ell\ell$ transitions, triggering speculations on potential New Physics effects in this sector. Following recent updates of $R_{K^{(*)}}$ and $BR(B_{(s)} \to)$, and the first measurement of R_ϕ by the LHCb collaboration, the sole remaining significant deviations from the SM in flavour-changing neutral currents B-decays now lie in the branching ratios of decays involving b ⟶ sμμ and in the angular observable P'5.

However, unlike $R_{K^{(*)}}$, R_ϕ, and $BR(B_{(s)} \to)$, predicting $BR(B_s \to M)$ (with $M = K^{(*)}$, , ...) is challenging due to significant non-perturbative QCD effects, which introduce up to 30% theoretical uncertainty—often comparable to experimental errors—hampering the potential of these observables for discovery

We undertake a new calculation of local $B \to K$ form factors using Light-Cone Sum Rules, proposing an alternative method and reassessing the systematic error associated to semi-global quark-hadron duality. These form factor predictions are then used to compute relevant observables and perform fits of NP scenarios.

Primary author: MONCEAUX, Yann (IP2I (Lyon))

Co-authors: CARVUNIS, Alexandre (LAPTh); MAHMOUDI, Nazila (Lyon University)

Presenter: MONCEAUX, Yann (IP2I (Lyon))

Session Classification: BSM

Track Classification: BSM