Contribution ID: **125**   Type: **Parallel Talk**

Chebyshev and Backus-Gilbert reconstruction for inclusive semileptonic $B_{(s)}$-meson decays from Lattice QCD

Monday, 31 July 2023 17:00 (20 minutes)

We present a study on the nonperturbative calculation of observables for inclusive semileptonic decays of $B_{(s)}$-mesons using lattice QCD. We focus on the comparison of two different methods to analyse lattice data of Euclidean correlation functions and address inverse problems, specifically Chebyshev and Backus-Gilbert approaches. This type of computation may eventually provide new insight into the long-standing tension between the inclusive and exclusive determinations of the Cabibbo-Kobayashi-Maskawa (CKM) matrix elements $|V_{cb}|$ and $|V_{ub}|$.

We report the results from a pilot lattice computation for the decay $B_s \rightarrow X_c \, l\nu_l$, where the valence quark masses are approximately tuned to their physical values using the relativistic-heavy quark action for the b quark and the domain-wall formalism for the other valence quarks. We address the computation of the total decay rate as well as leptonic and hadronic moments, discussing similarities and differences between the two analysis techniques.

Topical area

Quark and Lepton Flavor Physics

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