Contribution ID: **483** Type: **Talk**

$B^*\pi$ excited-state contamination in B-physics observables

Tuesday 30 July 2024 12:15 (20 minutes)

B decays are important for flavor physics. One of the difficulties of these calculations is to control excited states. A standard approach to overcome this issue is to use smeared interpolators to optimize B-meson ground state overlap. However, the ability of such interpolators to effectively suppress multi-hadronic state contributions remains an open question.
In this context, using Heavy Meson Chiral Perturbation Theory (HMChPT), a recent work emphasized the potentially large $B^*\pi$ excited-state contamination of the $B \to \pi$ vector form factors that could lead to a severe underestimation of $h_\perp$. The findings are expressed in terms of a few low-energy constants (LECs) that are accessible on the lattice.
In this talk, we present a lattice calculation of the relevant LECs for smeared interpolators, in particular for Gaussian smearing. The LECs can be determined well and it turns out that the investigated smearings do not suppress excited states significantly. Still, their knowledge will help to analyse the lattice results at finite Euclidean times.

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Session Classification: Quark and lepton flavour physics

Track Classification: Quark and Lepton Flavour Physics