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$B\pi$ excited-state contamination in B-meson observables

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Multi-particle states with additional pions are expected to result in a non-negligible excited-state contamination in lattice simulations at the physical point. We show that heavy meson chiral perturbation theory (HMChPT) can be employed to calculate the contamination due to two-particle $B\pi$ states in various B-meson observables like the decay constant f_B and the $B^*B\pi$ coupling g_π. We work in the static limit and to next-to-leading order (NLO) in the chiral expansion. The $B\pi$ states are found to typically overestimate the observables at the few percent level depending on the size of two currently unknown NLO low-energy coefficients. A strategy to independently measure one of them with the 3-point function of the light axial vector current will be discussed.

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