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First inverse moment of the doubly-heavy baryon distribution amplitude from HQET sum rule

Heavy-quark symmetry (HQS), despite being approximate, allows to relate dynamically many hadron systems.In the HQS-limit doubly-heavy baryons, whose dynamics is determined by a light quark moving in a color field of a static pair of heavy quarks, are similar to heavy mesons with a heavy antiquark being a color source. Non-local interpolation currents are introduced and corresponding matrix elements between the baryon and vacuum state are expressed in terms of light-cone distribution amplitudes. As well known, the first inverse moment of the leading twist B-meson distribution amplitude (DA) is a very important hadronic parameter needed for an accurate theoretical description of B-meson exclusive decays. It is quite natural that a similar moment of doubly-heavy baryons is of importance in exclusive doubly-heavy baryons' decays. We obtain HQET sum rules for the first inverse moment based on the correlation functions containing nonlocal heavy-light operators of doubly-heavy baryons and their local interpolating currents. First estimates of this moment are presented.

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Collaboration / Activity

Theory

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