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Λ_b baryon LCDAs in the short-distance expansion

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Light-cone distribution amplitudes (LCDAs) for the Λ_b baryon enter as universal hadronic matrix elements in QCD factorization approaches for energetic decays. Observables (e.g. form factors) can then be expressed as a convolution of the LCDA and a hard scattering kernel to the desired order in the strong coupling. The LCDAs are genuinely non-perturbative quantities that describe the low-energy dynamics of the hadronic bound state, which cannot directly be derived from first principles. In this work, we discuss the "radiative tail"of the 3-particle Λ_b LCDAs which can be computed in HQET perturbation theory by expanding in the light-cone separations between the light and heavy quarks in the baryonic bound state. Our results provide useful constraints on the modelling of Λb LCDAs in terms of a handful of HQET parameters.

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