

Inclusive rare Λ_{cb} decays to photon

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I present an analysis of the inclusive $\Lambda_{cb} \rightarrow X_s \gamma$ decay with Λ_{cb} a beauty baryon, in particular Λ_{cb}^0 , employing an expansion in the heavy quark mass at leading order in α_s . For a polarized baryon I show the results for the distribution $d^2\Gamma/dy d\cos(\theta)$, with $y=2 E_\gamma/\sqrt{s}$, E_γ the photon energy and θ the angle between the baryon spin vector and the photon momentum in the Λ_{cb} rest-frame. I discuss the correlation between the baryon spin and the photon polarization, and show how effects of physics beyond the Standard Model can modify the photon polarization asymmetry. I also present a method to treat the singular terms in the photon energy distribution.

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