

# XVth Quark Confinement and the Hadron Spectrum



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## Spectator effects in inclusive lifetimes of heavy hadrons

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A dominant source of uncertainty in theoretical determinations of ratios of inclusive lifetimes of heavy hadrons are 'Spectator Effects', wherein the light degrees of freedom participate in the decay process. The heavy-quark-expansion describes these effects as matrix elements of four-quark HQET operators in the heavy hadron states of interest. Using a recently developed position-space scheme to nonperturbatively renormalize these operators in lattice-HQET, we present updates on the spectator effect matrix elements.

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