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Structure-dependent electromagnetic finite-volume effects through order $1/L^3$

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The absence of a mass gap in QED requires handling of the zero-momentum modes of photons in finite-volume spacetimes. Once the problematic zero-momentum modes are removed using some prescription, the associated finite-volume effects in an observable typically scale with inverse powers of the spatial extent, $1/L$. In this talk, I discuss the analytical evaluation of these effects through order $1/L^3$ for pseudoscalar masses and leptonic decay amplitudes. The results depend on the internal structure of the interacting mesons, and further on the chosen prescription for the photon zero-momentum modes.

Topical area

Quark and Lepton Flavor Physics

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