

Radiative corrections to neutron beta decay from low-energy effective field theory

We study radiative corrections to neutron beta decay within heavy-baryon chiral perturbation theory. As it was recently shown, a few electromagnetic and electroweak low-energy effective couplings are not known in the literature. We relate these low-energy constants to correlation functions of vector and axial-vector currents. Such relations allow us to demonstrate explicitly scheme and scale dependence of standard treatments of radiative corrections and to provide more robust prediction of leading in the electromagnetic coupling constant corrections.

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