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Generalized Michel parameters in the presence of massive Dirac and Majorana neutrinos for radiative leptonic decay

Content

We study radiative leptonic decay within a model-independent EFT framework. Starting from the most general four-lepton effective Hamiltonian, written in terms of scalar, vector and tensor Lorentz structures, we review how the usual Michel formalism provides a convenient way to describe possible deviations from the Standard Model interaction. Motivated by the existence of neutrino masses and mixing, we extend this framework by expanding the neutrino fields on the mass basis, allowing for both Dirac and Majorana massive neutrinos. We consider the radiative process, where a photon is emitted from the charged lepton lines (inner bremsstrahlung contribution). This allows us to include massive neutrinos in radiative leptonic decay distributions, which can be organized in terms of generalized Michel parameters, expressed as linear combinations of weighted Wilson coefficients. The aim of this talk is to present the theoretical motivation, the effective framework, and the methodology behind this extension, together with the structure of the resulting radiative decay distribution and its potential relevance for probing heavy Dirac or Majorana neutrino effects in leptonic processes.

Summary

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