

Renormalization and unitarity in higher-order Lorentz violating models

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The breakdown of Lorentz symmetry has been pointed out as a candidate to account for quantum gravity effects. The strong suppression at low energies, has lead to consider the interlink between effective field theory and ultra high precision experiments. To begin with, we motivate such violations within effective field theory and describe how these effective terms are implemented. Recently, higher-order operators have attracted a lot of interest, since one can consider higher energies in the search. We explain why and how these terms can lead to issues on unitarity and renormalization. We show the main ingredients in the formulations to deal with these issues.

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