

Probing NP in four-fermion interactions with dipole processes

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Four-fermion effective interactions have played a major role in the formulation of the Standard Model (SM) of particle physics. Nowadays, they are of fundamental importance in establishing the viability of extensions of the SM, since this category of operators is sensitive to the flavor structure of New Physics (NP), including new sources of CP violation. Following the renormalization of four-fermion operators, they mix into dipole operators, thus inducing powerful constraints on their effective coupling constants (i.e., their Wilson coefficients). For many four-fermion operators, such mixing is absent at one-loop. Here, I would like to present the calculation of their leading-order two-loop mixing into dipoles, and the resulting phenomenological bounds on generic NP models that generate four-fermion effective interactions at energies much above the ElectroWeak scale.

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