

Positivity bounds on aQGC

Searching for anomalous quartic gauge boson couplings (aQGCs) is one of the main tasks in multi-boson final state measurements. The current interpretation of these couplings are based on a dim-8 SMEFT operators, which are subject to the so called positivity bounds, i.e. certain linear combinations of these coefficients need to be positive, for the SMEFT to admit a UV completion that satisfies the fundamental principles of quantum field theory. Since the ultimate goal of SMEFT is to bridge between measurements and concrete UV models, these bounds need to be understood to allow a meaningful SMEFT interpretation for future aQGC results. In a previous work, we have derived a set of bounds by using elastic scattering of vector bosons in the mass eigenstates, which already restricts the aQGC parameter space to 2.1% of the total. Recently we have developed a new approach that allows for even stronger bounds to be derived. I will briefly introduce this approach and show some preliminary results for the transversal QGC couplings.

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