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Precise predictions for the trilinear Higgs self-coupling in the Standard Model and beyond

Wednesday 23 August 2023 08:30 (20 minutes)

The investigation of the trilinear self-coupling of the discovered Higgs boson is one of the main goals of particle physics in the near future.

We provide predictions for this coupling, expressed in terms of the coupling modifier κ_{λ} , incorporating oneloop corrections within arbitrary renormalizable QFTs.

The presented framework (implemented in the public code anyH3) allows to apply a wide class of pre- and user-defined renormalization conditions whereas the calculation of all required one-, two- and three-point functions is incorporated in an automated way.

In this talk I motivate precision predictions for κ_{λ} in the context of di-Higgs production and the need for their automation.

The basic ingredients of a generic κ_{λ} calculation at the one-loop order as well as the features of the resulting computer program and applications to specific models are discussed.

Collaboration / Activity

N/A

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