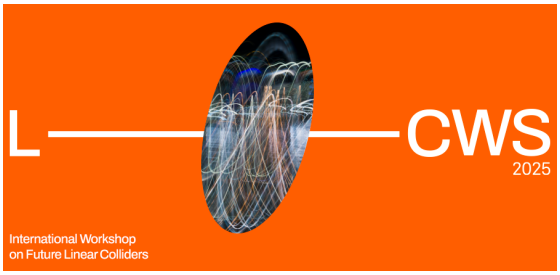

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Refining Two-Loop Corrections to Trilinear Higgs Couplings

Wednesday 22 October 2025 09:55 (15 minutes)

The precise determination of the Higgs self-couplings is an essential task for understanding electroweak symmetry breaking and probing physics beyond the Standard Model (SM). The calculation of two-loop corrections is important to provide a critical test of the perturbative stability, especially in the case of large one-loop corrections that can occur in scenarios with extended scalar sectors. Morever, they need to be taken into account for the future perspective of precisely measuring the Higgs self-couplings. In this talk, we will present our work on the leading two-loop corrections to the trilinear Higgs couplings in the two-Higgs-doublet model (THDM) and other models beyond the SM. We focus in particular on the couplings hhh, hhH , which are the most important for di-Higgs production at future linear colliders o at the (HL-)LHC. In our calculation we adress the renormalization of the alignment limit in the Higgs basis. We give some insights into the technical details of the calculation and discuss the phenomenological impact of our results.

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