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Mixed QED-EW corrections for Higgs production

We propose an alternative approach based on series representation to directly reduce multi-loop multi-scale scattering amplitude into set of freely chosen master integrals. And this approach avoid complicated calculations of inverse matrix and dimension shift for tensor reduction calculation. During this procedure we further utilize the Feynman parametrization to calculate the coefficients of series representation and obtain the form factors. Conventional methodologies are used only for scalar vacuum bubble integrals to finalize the result in series representation form. Finally, we elaborate our approach by presenting the reduction of a typical two-loop amplitude for W boson production.

Author: Prof. LI, Zhao (IHEP-CAS)

Presenter: Prof. LI, Zhao (IHEP-CAS)

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