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Recent developments in the computation of scattering amplitudes beyond one loop

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In this presentation, we review the general features of integrand-reduction techniques with a particular focus on their generalization beyond one loop. We briefly summarize the ongoing efforts in the field, whose ultimate goal is the development of efficient alternative computational techniques for the evaluation of Feynman integrals beyond one loop. Finally, we describe some recent applications of the GoSam 2.0 automated framework, originally designed for one-loop calculations, to processes beyond one loop. In particular, a customized version of GoSam have been recently employed to study the production of a top-antitop pair in association with a vector boson or with the Higgs boson at next-to-next-to-leading logarithmic accuracy. In the context of these calculations, the modified version of GoSam was used to evaluate the NLO hard functions which are needed to carry out the resummation of soft gluon emission effects.

Experimental Collaboration

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