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Two-loop QCD amplitudes for Higgs production with a bottom quark pair

Wednesday 1 December 2021 17:20 (20 minutes)

In this talk, I present the computation of the two-loop helicity amplitudes for Higgs boson production in association with a bottom quark pair. I give an overview of the method and describe how computational bottlenecks can be overcome by using finite field reconstruction to obtain analytic expressions from numerical evaluations. I also show how the method of differential equations allows us to express the answers using a basis of special functions whose numerical values can be readily evaluated at any point in phase space. Finally, I discuss the obstacles of loop computations and potential advances in the field.
This talk is based on arXiv:2107.14733

Significance

The results presented here are an important contribution to the library of analytic results for 2->3 scattering amplitudes with 1 external massive particle.

References

This talk is based on arXiv:2107.14733, which builds on previous work of three of the authors in arXiv:2102.02516.

Speaker time zone

Compatible with Europe

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