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Higher order QCD corrections and effective operators in Higgs boson pair production

Wednesday, 1 December 2021 18:00 (20 minutes)

We present results for Higgs boson pair production in gluon fusion including both, NLO (2-loop) QCD corrections with full top quark mass dependence as well as anomalous couplings related to operators describing effects of physics beyond the Standard Model.
The latter can be realized in non-linear (HEFT) or linear (SMEFT) Effective Field Theory frameworks.
We show results for both and discuss the impact of different approximations within the SMEFT description.

Significance

Among the main goals of Run 3 and the High Luminosity phase of the LHC is a more precise measurement of the trilinear Higgs coupling. Higgs boson pair production is the most important process to analyze towards this aim. Other potentially anomalous couplings need to be taken into account as well to derive reliable bounds on the Higgs boson self coupling.

References

https://arxiv.org/abs/2006.16877,
J.Phys.Conf.Ser. 1525 (2020) 1, 012009 (ACAT 2019)

Speaker time zone

Compatible with Europe

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