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# Status of Higher Order QCD computations

From a theory side, perturbative QCD calculations, in an expansion in the strong coupling constant, made giant steps in the last two years. In the last year the calculation of the N3LO correction to Higgs boson production in gluon fusion and in vector boson fusion. A large number of two-to-two LHC scattering processes are now known to NNLO in QCD, including most importantly all di-boson production processes, boson plus jet production and top-pair production. NLO QCD calculations are now automated, with several public codes available. The automation of NLO electroweak corrections and of loop-induced processes is also under way.

From an experimental side, the second phase of LHC Run II will be just concluded in December 2016, right before the time of the conference, with probably about 40 fb-1 of data collected by then. One of the main role of these data will be to provide useful information on the still quite poorly explored Higgs sector of the Standard Model.

In this talk I will review the status of high precision QCD calculations, with particular emphasize on the impact of theory uncertainties on measurements of Higgs production cross sections and on the extraction of Higgs couplings at the LHC. I will also discuss the conceptual bottleneck and future challenges facing high-precision QCD in the coming years.

## I intend to submit my contribution for the proceedings

No

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