

PAUL SCHERRER INSTITUT



Particle Theory Seminar

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“Towards reliable predictions for multiparticle processes at
the LHC”

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Abstract:

In the near future the Large Hadron Collider (LHC) will go into operation. In order to exploit its physical potential, appropriate theoretical predictions both for signal and background reactions are required. Many of these processes involve three or more particles in the final state. In this talk I introduce methods for the calculation of next-to-leading-order (NLO) corrections to such processes. Specifically I present the strong and electroweak NLO corrections to Higgs-boson production in vector-boson fusion, which is one of the most important channels for the discovery of the Higgs boson and the measurement of its couplings. In addition I show first results for the strong NLO corrections to the production of a top–anti-top and a bottom–anti-bottom pair, which is a very important background reaction at the LHC.