

## Higgs boson as a gluon trigger: the study of QCD in high pile-up environments

In the forthcoming high-luminosity phase of the LHC many of the most interesting measurements for precision QCD studies are hampered by large pile-up conditions, especially at not very high transverse momenta. However, with the recently discovered Higgs boson, which couples in the heavy top limit directly to gluons, we have access to a novel production process to probe QCD by a colour-singlet current. In this study we compare observables in Higgs boson and Drell- Yan production and investigate whether measuring ratios or subtractions can yield results that are stable in high pile-up environments, and yet sensitive to (small- $p_T$ ) QCD physics in gluon fusion processes. We present results of Monte Carlo event generator calculations for a few specific examples.

**Primary author:** Dr VAN HAEVERMAET, Hans (DESY)

**Presenter:** Dr VAN HAEVERMAET, Hans (DESY)

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