

# ZH associated production through gluon fusion in the SM and 2HDM

*Tuesday 31 May 2016 18:50 (20 minutes)*

## Summary

In this talk I will analyze the associated production of Higgs and Z boson via heavy-quark loops at the LHC in the Standard Model and beyond. After briefly talking about the main features of the born 2 to 2 production, I will consider the effects of extra QCD radiation. I will show how merged samples of 0 and 1 jet multiplicities matched to a parton shower can provide a reliable description of differential distributions in ZH production. In addition to the SM case, results in a generic 2HDM will be shown for a set of representative and experimentally viable benchmarks for both the scalar and pseudoscalar cases. I will finally conclude by discussing the interesting features coming from the resonant enhancement and interference patterns between resonant and non-resonant contributions.

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**Session Classification:** EW + Top + Higgs