

# $t\bar{t}H(bb)$ in leptonic final state with CMS

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We present a search for the standard model Higgs boson decaying into  $b$  quarks and produced in association with a pair of top quarks in the leptonic final states. This search has been performed on the full 13-TeV dataset of proton-proton collisions collected by the CMS experiment at the LHC in 2016. To separate the  $t\bar{t}H$  signal from the irreducible  $t\bar{t} + b\bar{b}$  background, this analysis takes advantage of several different innovative methods that are a Deep Neural Network (DNN), a Matrix Element Method (MEM), and a Boosted Decision Tree (BDT).

**Author:** RIEGER, Marcel (RWTH Aachen University (DE))

**Presenter:** RIEGER, Marcel (RWTH Aachen University (DE))

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