

# CMS Draft Analysis Note

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## Search for a heavy Higgs boson decaying into a pair of top quarks in the semileptonic final state with the 2016 pp dataset

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### Abstract

A search for a heavy Higgs boson decaying into a pair of top quarks is performed in the semileptonic final state using about  $36 \text{ fb}^{-1}$  of pp collision data collected in 2016. Masses ranging from 400 to 750 GeV are probed, and two pure  $\mathcal{CP}$  states are considered. The interference with the QCD  $t\bar{t}$  production is found to play an important role, and it is taken into account explicitly. Upper limits on couplings of the hypothesized particle to top quarks are reported.

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