

# Top Signature of Flavor Changing Neutral Higgs Interactions with $WW$ at the LHC

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We present a study of flavor changing neutral Higgs (FCNH) interactions in  $pp \rightarrow t\bar{t} \rightarrow tch^0 \rightarrow tcWW^* + X$ , at the Large Hadron Collider(LHC) with collider energy  $\sqrt{s} = 13$  TeV and 14 TeV. A general two Higgs doublet model (2HDM) is chosen to study flavor changing top decays involving the neutral Higgs boson ( $t \rightarrow ch^0$ ) with particular emphasis on the final state of leptons and missing transverse energy  $h^0 \rightarrow WW^* \rightarrow l\nu l\nu$ . Since the LHC produces top quark pairs abundently, we expect this channel to provide a clean FCNH signature between the top and the charm quarks at LHC. We include physics background in the Standard Model with realistic acceptance cuts to the find discoverable regions in the parameter space. Furthermore, we investigate the discovery potential of future hadron colliders with  $\sqrt{s} = 33$  TeV and 100 TeV.

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