

# Charming Top Decays with Flavor Changing Neutral Higgs Interactions at Hadron Colliders

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We investigate the prospects for discovering a top quark decaying into one light Higgs boson along with a charm quark in top quark pair production at the CERN Large Hadron Collider (LHC) and future hadron colliders.

A general two Higgs doublet model is adopted to study the signature of flavor changing neutral Higgs (FCNH) interactions with  $t \rightarrow c\phi^0$ , followed by  $\phi^0 \rightarrow b\bar{b}, ZZ^*$ , and  $WW^*$ ,

where  $\phi^0$  could be CP-even ( $h^0$ ) or CP-odd ( $A^0$ ).

We study the discovery potential for the FCNH signal and physics background from dominant processes with realistic acceptance cuts and tagging efficiencies.

Promising results are found for the LHC running at 13 or 14 TeV collision energies as well as future pp colliders at 28 TeV, 33 TeV, or 100 TeV.

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