Contribution ID: **21** Type: **not specified**

Charming top decays with flavor changing Higgs boson and $\tau\tau$ at LHC

Saturday 12 October 2019 11:30 (20 minutes)

We study the prospect of discovering a rare $t \to ch^0$ decay in the top pair production channel at LHC. We follow a general two Higgs doublet model framework to investigate this signature, with Higgs decaying into $\tau\tau$ and another top decaying hadronically to a b quark and two light jets. We search for the following final states $bjj\ell^+\ell^- + MET$ and $bjj\ell^\pm\tau_h + MET$, where τ_h refers to jets coming from τ decay. We present our Monte Carlo analysis using Delphes. We use boosted decision trees for discrimination at current and Future HL-LHC and HE-LHC.

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Session Classification: LHC