

Search for lepton flavour violating decays of the Higgs boson with Run II data at CMS

A search for lepton flavour violating (LFV) decays of the Higgs boson to a muon and a tau, and an electron and a tau, will be presented. A dataset of 137fb^{-1} of proton-proton collisions collected by the CMS detector in Run II, at a center-of-mass energy of 13TeV is being used to perform the search. The dominant background contributions for this search are coming from the Drell-Yan process, misidentified leptons, and the top-quark pair-production process. We are using data-driven techniques to estimate the majority of the background. In our previous search using 2016 data, we set the observed (expected) upper limits on the LFV branching fractions of the Higgs boson to be $B(H \text{ to } \mu \tau) < 0.25\%(0.25\%)$ and $B(H \text{ to } e \tau) < 0.61\%(0.37\%)$, at 95% confidence level. With the current search, we anticipate setting the most stringent limits to date on these branching fractions using the full Run II data.

Working group

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