



Contribution ID: 341

Type: Poster

Search for the lepton-flavor violating decay of the Higgs boson and additional Higgs bosons in the $e\mu$ final state at $\sqrt{s} = 13$ TeV within CMS

This poster presents a search for lepton-flavor violating decays of the Higgs boson to an electron-muon pair using data from proton-proton collisions at $\sqrt{s} = 13$ TeV collected by the CMS experiment at the LHC. The dataset corresponds to an integrated luminosity of 138 fb⁻¹. No significant excess of events is observed for the 125 GeV Higgs, leading to the most stringent upper limits so far on the branching fraction $B(H \rightarrow e\mu)$ at 95% confidence level, with an observed (expected) limit of 4.4 (4.7) $\times 10^{-5}$. Upper limits on the cross-section of $pp \rightarrow X \rightarrow e\mu$ are set on the mass-range of X of 110-160 GeV. Here, an excess of events is observed at an electron-muon invariant mass of approximately 146 GeV with a local (global) significance of 3.8 (2.8) standard deviations. These results provide valuable insights into lepton-flavor violating Higgs decays and contribute to our understanding of the Higgs sector and potential new physics beyond the Standard Model.

Collaboration / Activity

CMS

Primary author: LEYVA PERNIA, Daina (CMS (CMS Fachgruppe HIGGS))**Presenter:** LEYVA PERNIA, Daina (CMS (CMS Fachgruppe HIGGS))**Session Classification:** Poster session**Track Classification:** Searches for New Physics