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Search for SM Higgs Boson in the H->tautau->mumu decay mode with the CMS experiment at 13TeV

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A search for standard model (SM) Higgs bosons decaying into pairs of tau leptons and then to two muons plus (anti)-neutrinos are presented. The analysis is performed using data collected by the CMS detector in 2016 with 35.9 fb^{-1} of integrated luminosity. This channel has been studied in three event categories with different jet multiplicities focusing on Higgs boson signal events produced via gluon-gluon fusion and vector boson fusion. A multivariate analysis with boosted decision trees (BDT) is used to suppress the large Drell-Yan background. The di-tau mass is reconstructed using a secondary-vertex fit (SVFit) algorithm using a maximum likelihood approach. Experimental limits are presented in all three categories extracted from two-dimensional maximum likelihood fit in the plane of reconstructed di-tau mass and BDT response.

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