Abstract Submitted
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Search for Lepton-Flavor-Violating Decays of the Higgs Boson AARON LEVINE[1], University of Wisconsin-Madison, COMPAT MUON SOLENOID (CMS) COLLABORATION — The first direct search for lepton-flavor-violating decays of the recently discovered Higgs boson is described. The search is performed in the $H \to \mu\tau_e$ and $H \to \mu\tau_h$ channels where τ_e and τ_h are taus reconstructed in the electronic and hadronic decay channels, respectively. The data sample used in this search was collected in pp collisions at a centre-of-mass energy of $\sqrt{s} = 8$ TeV with the CMS experiment at the CERN LHC and corresponds to an integrated luminosity of 19.7 fb^{-1}. The sensitivity of the search is an order of magnitude better than the existing indirect limits. A slight excess of signal events with a significance of 2.4 standard deviations is observed. The p-value of this excess at $M_H = 125$ GeV is 0.010. Interpreted as a limit this results in a constraint on the branching fraction, $B(H \to \mu\tau) < 1.51\%$ at 95% confidence level. The best fit branching fraction is $B(H \to \mu\tau) = (0.84^{+0.39}_{-0.37})\%$. The limit is subsequently used to constrain the $Y_{\mu\tau}$ Yukawa coupling, $\sqrt{|Y_{\mu\tau}|^2 + |Y_{\tau\mu}|^2} < 3.6 \times 10^{-3}$.

[1]I am presenting this research on behalf of the CMS collaboration.

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