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Search for the standard model Higgs Boson decaying to two muons MOHAMMAD ALHUSSEINI, The University of Iowa, CMS COLLABORATION — In the standard model of particle physics, the fermion masses arise from a Yukawa coupling to the Higgs field. The existence of the Higgs field was confirmed by the discovery of the Higgs boson by the CMS and ATLAS experiments, its mass was measured and found to be approximately 125 GeV. Previous measurements at CMS and ATLAS established that the Higgs boson couples to third generation fermions (bottom and top quarks, tau leptons). The study of the Higgs boson decaying to muons extends the investigation to its couplings to second generation fermions. A search for the standard model Higgs boson decaying into a pair of muons is presented. This search uses proton-proton collision data at sqrt(s) = 13 TeV recorded by the CMS experiment at the CERN LHC in 2016, 2017, and 2018, corresponding to an integrated luminosity of 137.1 fb-1.

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