

Search for Non-Standard-Model Higgs Boson Decays Using Collimated Muon Pairs at the CMS

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Direct searches for non-SM decays of a Higgs boson provide an alternative and possibly faster path to understanding the nature of newly discovered Higgs-like particle by either confirming or restricting a wide range of scenarios beyond the SM. We present a search for non-SM Higgs boson decays to a pair of new light bosons, each of which subsequently decays into a collimated pair of muons. The search is performed using data collected by the CMS experiment. Results are interpreted in a model independent fashion applicable to a broad class of models predicting same signature. Two benchmark scenarios are also considered: the Supersymmetry with dark sector (dark SUSY) which includes light dark photons and the Next-to-Minimal Supersymmetric Standard Model (NMSSM) which predicts the CP-even Higgs bosons decay to a pair of light CP-odd Higgs bosons.

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