

Abstract Submitted
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Search for an Exotic Decay of the Higgs Boson to a Pair of Light Pseudoscalars in the Final State with Four b Quarks in pp Collisions at 13 TeV YUAN CHEN, BILL GARY, GEORGIA KARAPOSTOLI, OWEN LONG, University of California, Riverside, CMS COLLABORATION — A search for exotic decays of the Higgs boson h to a pair of light pseudoscalars a , where each pseudoscalar decays to a bottom quark-antiquark pair, $h \rightarrow aa \rightarrow b\bar{b}b\bar{b}$, is presented. Such signatures are predicted by many models for physics beyond the standard model, such as next-to-minimal supersymmetry and two-Higgs-doublet models with an additional scalar singlet. This analysis is based on the data set of proton-proton collisions at 13 TeV collected by the CMS experiment at the CERN LHC in 2016, 2017, and 2018, corresponding to an integrated luminosity of 137.1 fb⁻¹. The search is performed in the Higgs boson production channel in which it is produced in association with W or Z boson, utilizing the charged leptons from leptonic decays of the W or Z boson to suppress the standard model background.

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