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**Search for New Physics in Channels with Two Higgs Bosons Decaying to b Quarks and Missing Transverse Momentum in Proton-Proton Collisions at 13 TeV**[1] MICHAEL OSHIRO, University of California, Santa Barbara, CMS COLLABORATION — Results are presented from a search for new physics beyond the standard model in proton-proton collisions in final states containing two Higgs bosons, each decaying via Hbb, and large missing transverse momentum. The search uses a data sample accumulated by the CMS experiment at the LHC in 20162018, corresponding to an integrated luminosity of 137 $fb^{-1}$. Two complementary methods are used, providing coverage of different regions of phase space according to whether the two b jets from a Higgs-boson decay are resolved into separate, small-radius jets or instead overlap into a single, large-radius jet. Results are presented and interpreted using simplified models of supersymmetry involving the direct production of electroweak SUSY partners or alternatively the strong production of gluino pairs decaying to a pair of Higgs bosons via cascade processes.

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