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**Search for heavy resonances decaying to a pair of Higgs bosons in the four b quark final state in proton-proton collisions at  $s = 13$  TeV**  
ALICE COCOROS, Johns Hopkins Univ, CMS COLLABORATION — A search for heavy resonances decaying to a pair of standard model Higgs bosons (H) is performed using data from proton-proton collisions at a centre-of-mass energy of 13 TeV, collected by the CMS experiment at the LHC. The final state under consideration consists of both Higgs bosons decaying to b quark-antiquark pairs. For resonance masses above 1 TeV the Higgs bosons are highly Lorentz-boosted and thus each H bb is usually reconstructed as one hadronic jet. The signal is characterized as a peak in the distribution of the invariant mass of such dijet candidates. The background consists mostly of standard model multijet processes. The signal strength for different assumed resonance masses is estimated by a combined likelihood fit of background and signal shapes to the data.

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