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Direct search for exotic Higgs boson decays to two spin-zero particles in the H $\rightarrow$ 2a $\rightarrow$ 4b channel in pp collisions at $\sqrt{s}$ = 13 TeV with the ATLAS detector MAZIN KHADER, VERENA INGRID MARTINEZ OUTSCHOORN, ROGER CAMINAL ARMADANS, UNIV. ILLINOIS AT URBANA-CHAMPAIGN, ATLAS COLLABORATION — We present a search for a Higgs boson decaying to two spin-zero particles decaying to a pair of b-quarks H $\rightarrow$ 2a $\rightarrow$ 4b. The dataset used in the analysis corresponds to an integrated luminosity of 3.3 fb-1, collected by the ATLAS detector during 2015. The major background comes from top pair production. Various kinematic variables are combined into a multivariate discriminant to distinguish signal from background. The search is performed for the first time in ATLAS.

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