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Higgs to two spin-zero particles with a 4b final state in vector boson fusion plus a photon

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Some supersymmetric extensions to the standard model such as the two-Higgs doublet model (2HDM) predict the decay of the Higgs boson to two pseudoscalar particles ($H \rightarrow aa$), each of which may decay into low- p_T bottom quarks. We conduct a sensitivity study with simulated events for the $H \rightarrow aa \rightarrow 4b$ decay, in which the SM Higgs is produced by Vector Boson Fusion with an associated photon (VBF+photon).

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