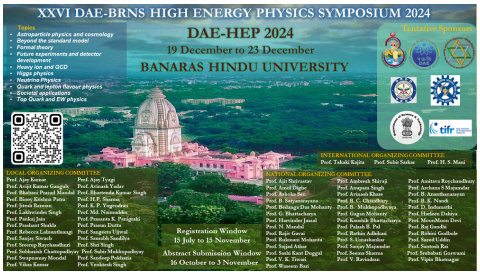

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Search for Higgs boson decays to 2 light pseudo-scalars in the 4b final state using Run-2 data in CMS

A search is presented of SM Higgs boson decaying to 2 light pseudo-scalars “a”each of which decays to a bottom anti-bottom ($b\bar{b}$) pair. The search is performed in the pseudo-scalar “a”mass range of 10 –50 GeV and uses data collected by the CMS experiment at center-of-mass energy ($\sqrt{s}$) equals to 13 TeV corresponding to an integrated luminosity of 59.83fbˆ(-1) in 2018. The large mass of Higgs (125 GeV) boosts all the four b-quarks in a single fat jet which gives us a handle to reduce the large quark/gluon mediated jet background. We will overview the search strategy, channels and background estimation techniques used in this search including state of the art machine learning techniques like GNNs to enhance signal over background discrimination.

Field of contribution

Experiment

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