

# Single H combinations from CMS

*Tuesday, 8 November 2022 11:30 (15 minutes)*

Recent years have seen an unprecedented development of techniques devoted to identifying jets from the hadronization of heavy flavor quarks. This was made possible by the extensive usage of modern machine learning techniques. In particular, the identification of heavy resonance final states involving a pair of bottom or charm quarks largely benefited from these developments. In addition, boosted topologies have also been explored in the di-tau final state. For this case dedicated tau reconstruction techniques were developed to resolve tau leptons stemming from the decay of a highly boosted Higgs boson. This talk presents a compendium of the most recent CMS analyses searching for Higgs bosons decaying into bottom or charm quark-antiquark pairs, or pairs of tau leptons, in the boosted regime by exploiting the main production modes: gluon-fusion (ggH), associated production (VH), and vector boson fusion (VBF). The techniques employed for flavor tagging will in particular be discussed. The analyses have been carried out exploiting the full Run-2 dataset collected by the CMS experiment at  $\sqrt{s}=13$  TeV.

## Type of talk

Experimental measurements

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