



Contribution ID: 443

Type: **not specified**

## Search for Higgs boson pair production in the decay channel to two bottom quarks and two W bosons using CMS data

*Tuesday 14 May 2024 16:30 (15 minutes)*

The results of a search for Higgs boson pair (HH) production in the decay channel to two bottom quarks and two W bosons using CMS data will be presented. The search is based on proton-proton collision data recorded at  $\sqrt{s} = 13$  TeV center-of-mass energy during the period 2016 to 2018, corresponding to an integrated luminosity of  $138 \text{ fb}^{-1}$  and includes both resonant and non resonant as well as single lepton and double lepton channels. Run2 results show no excess in the resonant channel and in the non-resonant channel the upper limit of the cross section time branching ratio is 14-18 times that predicted by the standard model. In addition to presenting the Run2 results, this talk will also discuss expected improvements to the Run3 analysis, specifically improvements to the Heavy Mass Estimator and inclusion into the single lepton channel.

### Mini Symposia (Invited Talks Only)

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**Session Classification:** Electroweak & Higgs Physics

**Track Classification:** Electroweak & Higgs Physics