



Contribution ID: 103

Type: Poster

## Probing the Higgs Potential with $HH \rightarrow b\bar{b}\tau\tau$ : Higgs boson pair production in the $HH \rightarrow b\bar{b}\tau\tau$ channel using 13 TeV pp collision data from the ATLAS detector

Double-Higgs (HH) production in the LHC is one of the main sought-after measurements, as it is a direct probe of the Higgs self-coupling originating from the Higgs potential. I propose a poster presenting the search for HH production in the bottom-quark and tau-lepton pairs decay channel. I focus on the full run-2 analysis, covering the strategy employed to distinguish this complex final state from the Standard Model background processes. I also present the final results in terms of cross-section limits for gluon-fusion and vector-boson fusion production, and constraints on the Higgs self-coupling parameter ( $k_\lambda$ ) from a combination of double Higgs analyses.

### Collaboration / Activity

ATLAS

**Primary authors:** KARKOUT, Osama; KARKOUT, Osama (Nikhef)

**Presenters:** KARKOUT, Osama; KARKOUT, Osama (Nikhef)

**Session Classification:** Poster session

**Track Classification:** Higgs Physics