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## Search for Higgs boson pair-production in the $bb\tau^+\tau^-$ decay channel with the ATLAS detector

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In this talk we present a search for resonant and non-resonant Higgs boson pair-production decaying to  $bb\tau^+\tau^-$ , considering the semi-leptonic and fully hadronic final states of the  $\tau$ -leptons. The analysis uses  $36.1 \text{ fb}^{-1}$  of data collected by the ATLAS experiment at the LHC in 2015 and 2016 at a centre-of-mass energy of  $\sqrt{s} = 13 \text{ TeV}$ . The inclusion of the fully hadronic decay channel in this analysis further improves the sensitivity of the  $hh \rightarrow bb\tau^+\tau^-$  decay in contrast with Run-1 results. Results for non-resonant Higgs pair-production are compared to Standard Model predictions. The data are also analyzed to probe resonant Higgs pair production, constraining a model with an extended Higgs sector based on two doublets and a Randall-Sundrum bulk graviton model.

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