

Measurements of Higgs boson decaying into tau leptons using 139 fb at the ATLAS experiment

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The most recent results for the cross-section measurements of the Higgs boson decaying into tau leptons at the ATLAS experiment will be presented. These results are setting the base for other searches in the Higgs boson sector in the tau final state aiming to look for physics beyond the Standard Model. The analysis is performed using the 139 fb dataset recorded by the ATLAS experiment at LHC in the period 2015-2018. A description of the analysis strategy concerning the signal categorization as well as the background estimation will be given, followed by an overview and discussion of the main analysis results : the inclusive Higgs boson to tau cross-section, the cross-section measurement for each of the main Higgs boson production mode at the LHC and the measurements within the Simplified Template Cross Section (STXS).

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