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Searches for lepton-flavour-violating decays of the Higgs boson into e-tau and mu-tau in sqrt(s)=13 TeV pp collisions with the ATLAS detector

This talk presents the results of a direct search for lepton-flavour-violating decays of the Higgs boson into e tau and mu tau final states with the ATLAS detector at the LHC with Run 2 data. Both leptonically and hadronically decaying tau leptons are included and two different background estimation techniques are employed: a MC-template method, based on data-corrected simulation samples, and a data-driven method, based on exploiting the symmetry between electrons and muons in the Standard Model backgrounds. Observed (Expected) upper limits are set on the branching ratios at 95% confidence level, B(H-> e tau)<0.20% (0.12%) and B(H-> mu tau)<0.18% (0.09%), and a best-fit branching ratio difference, B(H-> mu tau) - B(H-> e tau), of 0.25 +- 0.10 is found in the channel where the tau-lepton decays to leptons, compatible with a value of zero within 2.5 sigma.

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