

# Measurement of the Higgs CP in its decay to tau leptons (CMS)

*Friday, 31 July 2020 13:30 (3 minutes)*

In this presentation, we review a measurement of the CP quantum number of the Higgs boson in its decay to tau leptons via an analysis of the angular correlation between the tau decay planes. The theory behind this analysis and an explanation of some of the methods used for this measurement can be found in [1] and [2].

The analysis targets the full Run 2 data set of proton-proton collisions at a centre-of-mass energy of 13 TeV, amounting to  $137.1 \text{ fb}^{-1}$ . The analysis aims to include the majority of the hadronic and semileptonic decay modes. Different analysis techniques are deployed to reconstruct the tau decay planes and to optimise the significance of the measurement. Machine learning techniques are used to improve the separation between different tau decay modes and between signal and background.

[1] Z.Phys. C64 (1994) 21-30, arXiv:hep-ph/9404280

[2] Phys. Rev. D 92, 096012 (2015), arXiv:1510.03850

## Secondary track (number)

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