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The Higgs through the looking glass

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The LHC Run 2 data-taking period marked the first measurement of the CP structure of Higgs Yukawa coupling to tau leptons. This measurement is complementary to the ones performed in Higgs production mechanisms improving the understanding of CP violation in the Higgs sector. The amount of CP-admixture in the Yukawa coupling introduces a correlation between the transverse spin of the two tau leptons, which was investigated by measuring the angle between their decay planes. The measured mixing angle excludes a pure CP-odd hypothesis with a 99.7% confidence level and is consistent with the Standard Model prediction of a pure CP-even coupling.

Authors: GOERLACH, Ulrich (Centre National de la Recherche Scientifique (FR)); CMS

Presenter: CARDINI, Andrea (Deutsches Elektronen-Synchrotron (DE))

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