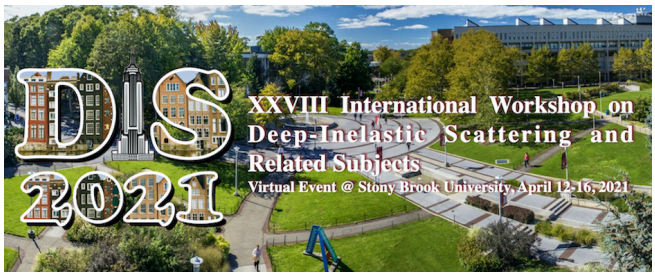

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Measurement of CP structure in Higgs boson decays to a pair of tau leptons at CMS

Tuesday, 13 April 2021 09:43 (15 minutes)

The CMS experiment at LHC has performed the first measurement of the CP structure of the Yukawa coupling between the Higgs boson and tau leptons. The measurement is based on data collected in proton-proton collisions at sqrt(s) = 13 TeV during 2016-18, corresponding to an integrated luminosity of 137 fb^-1. The analysis utilizes the angular correlation between the decay planes of tau leptons produced in Higgs boson decays, where dedicated analysis techniques are used to optimise the reconstruction of tau decay planes. The measured value of CP mixing angle is 4 +/- 17^o, at 68% confidence level. The pure CP-odd hypothesis is excluded by 3.2 standard deviations. The analysis strategies and the results of the measurement are presented.

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