

Search for light pseudoscalar with overlapping di-tau decays using machine learning at the CMS detector

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Recent LHC searches have probed decays of the $H(125)$ involving new light pseudoscalar bosons (a). For example, a current CMS search probes $H \rightarrow a\bar{a} \rightarrow \mu\mu\tau\tau$ for $m(a) < 21$ GeV. Because of the large mass difference between the H and the light pseudoscalar, the two taus are boosted and collimated. To improve signal acceptance for future studies, we explore the use of machine learning techniques to distinguish between overlapping di-tau decays and light QCD jets. We first investigate kinematic characteristics of hadronic tau decays compared to light QCD jets.

Session

Lightning Round (5+3 min)

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