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Tau identification in CMS during LHC Run 2

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The LHC Run 2 data-taking period was characterized by an increase in instantaneous luminosity and center-of-mass energy. Several techniques have been deployed in the CMS experiment to reconstruct and identify tau leptons in this environment. The DeepTau identification algorithm is used to identify hadronically decaying tau leptons from quark and gluon induced jets, electrons, and muons. Compared to previously used MVA identification algorithms, the use of deep-learning techniques brought a noticeable improvement in the tau identification and rejection of contaminating sources. Low transverse momentum topologies were addressed separately with a dedicated identification algorithm, while machine learning techniques were implemented to improve the identification of the tau hadronic decay channels. These algorithms have been already used for several published physics analyses in CMS. The algorithms are presented together with their measured performances.

What is your topic?

Hadronic decays

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