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Performance of Tau Reconstruction and Identification at CMS

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Since the beginning of LHC Run 2, many improvements have been made to the triggering, reconstruction, and identification of hadronic tau decays at CMS. The standard Hadron Plus Strips (HPS) tau reconstruction algorithm now benefits from a dynamic strip reconstruction. The HPS method has been extended to a version intended for highly Lorentz-boosted topologies and a version which is used in High Level Triggers. In addition, multivariate discriminators used for tau identification now combine isolation with tau lifetime variables. The excellent performance of the HPS reconstruction is also retained under HL-LHC conditions, with an increased number of concurrent proton-proton interactions and the upgraded CMS detector. The algorithms and performance of the newly developed tau algorithms and discriminators are presented using 35.9 fb-1 of proton proton data collected with CMS from the 2016 run at the LHC.

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