



LHC Seminar

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TITLE: **Tau Leptons: A tool for studying SM
and BSM physics at CMS**

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ABSTRACT

Hadronic tau identification and trigger was an essential ingredient to the discovery and characterization of the Higgs boson at the LHC in Run I. Since the early stages of data taking, CMS invested in a number of advancements in the Tau ID and Trigger. In Run II, with the opportunity of the trigger upgrade, significant developments were made in the Level 1 trigger algorithms including deployment of tower level information. Concerning Offline Tau ID, several improvements were made regarding the reconstruction of energetic π^0 s in tau decays and exploiting the lifetime information. In addition, new reconstruction techniques were introduced for identifying boosted tau pairs that are essential for boosted Z and H reconstruction. The excellent performance of the Tau Reconstruction and identification at CMS has enabled many important analyses in Run II including Higgs measurements, searches for Beyond Standard Model particles and precision measurements.