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Heavy flavor jet tagging algorithm developments at CMS for HL-LHC

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The rich physics program at the high luminosity LHC (HL-LHC) requires all final state particles to be reconstructed with good accuracy. However, it also poses formidable challenge of dealing with very high pile up. Different identification algorithms need to be upgraded along with the detectors to improve the overall event reconstruction in such a hostile collision environment. The new timing device in the proposed CMS detector at the HL-LHC allows for the construction of timing observables at the track-level as well as at the jet-level. This information when given as inputs to the deep neural networks, have a potential to improve the existing algorithms used for heavy flavor (HF) jet tagging. In this poster, the latest developments on the studies for HF jet tagging performance at the HL-LHC are presented.

Primary author: Mr PFEFFER, Emanuel (KIT - Karlsruhe Institute of Technology (DE))

Co-author: NEUKUM, Max (KIT - Karlsruhe Institute of Technology (DE))

Presenter: Mr PFEFFER, Emanuel (KIT - Karlsruhe Institute of Technology (DE))

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