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The boosted X->bb tagger calibration using Z->bb events collected with the ATLAS detector

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Many analyses in the ATLAS physics program are dependent on the identification of jets containing b-hadrons (b-tagging). The corresponding algorithms are referred to as b-taggers. The baseline b-taggers are optimized for jets containing one b-hadron. A new double b-tagging algorithm, the X->bb tagger, provides better identification efficiency to reconstruct boosted resonant particles decaying into a pair of b-quarks. In the boosted regime, it is a challenging task because of high collimation of the two b-hadrons. This neural network based X->bb tagger uses the kinematic information of the large radius (R=1.0) jet and the flavour information of associated track-jets. The performance of this tagger was evaluated using Monte Carlo simulation, therefore it could vary in collision data. Thus this poster presents the in situ tagging efficiency calibration using Z->bb events with a recoiling photon or jet for this boosted X->bb tagger. The efficiency data to simulation scale factor is derived using the Run 2 pp collision data collected by ATLAS experiment at sqrt{s} = 13 TeV, with the integrated luminosity of 139 fb^-1.

In-person participation

No

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