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Estimation of backgrounds from jets misidentified as tau leptons using the Universal Fake Factor method with the ATLAS detector

Physical processes with one or more τ -lepton in the final state play an important role in several analyses of the ATLAS experiment physics program. The usage of hadronic channels, in which τ -leptons decay into one or more pions, enables to exploit the large statistics associated with hadronic τ -lepton decays, but also requires a precise estimate of a sizable background of hadronic jets mis-reconstructed as fake τ -leptons. This poster will present a new technique developed by the ATLAS Collaboration to estimate the fake τ -lepton background from data - the Universal Fake Factor method. This technique improves on previous methodologies as it enables a more solid validation of the estimated background. Details on how to implement this methodology will be given as well as on its validation with single and di- τ final states. Information on ATLAS physics analyses that successfully exploited this technique will also be given.

Secondary track

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