

Efficiency calibrations for ATLAS b-jet identification algorithms

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Many analyses in ATLAS rely on the identification of jets containing b-hadrons (b-jets) at high efficiency while rejecting more than 99% of non-b-jets. Identification algorithms, called b-taggers, exploit b-hadron properties such as their long lifetime, their high mass, and high decay multiplicity to achieve this. Recently developed ATLAS b-taggers using neural networks are expected to outperform previous b-taggers by a factor of two in terms of non-b-jet rejection. The performance of these taggers is measured in data, and simulated LHC collision events are corrected to reflect the data performance through calibration scale factors. Due to recent improvements in measurement procedures, the data efficiency precision is at the level of a few percent for b-jet identification efficiency and at the level of 10-20% for light- and charm-jet mistag rates. The methods to calibrate the b-jet identification and the charm- and light-jet mistag efficiencies of the recent b-taggers and the calibration results will be presented in this poster.

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