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Type: LHC experiments

Measurement of track reconstruction efficiency at LHCb

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The precise evaluation of the tracking efficiencies is a crucial element for many physics analysis, especially those aiming at measuring production cross sections or branching fractions. In the LHCb experiment, several data-driven approaches have been conceived and continuously improved in order to provide a precise evaluation of the tracking efficiencies. They are mostly based on clean samples of muons, but the recent hints of lepton universality violation required the development of robust data-driven techniques specifically dedicated to electrons, in order to reduce the systematic uncertainties. In addition, special data streams have been recently put in place to collect and save the calibration samples selected in the LHCb software trigger for both muons and electrons, ensuring a prompt access right after the data has been collected.

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