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Flavor-dependent (L5) MC truth jet energy corrections and flavor uncertainties in Run 2

Jet energy response depends on the jet flavor. Flavor-dependent (L5) jet energy corrections compensate for this factor while the flavor uncertainties estimate the mismodelling of individual flavors and propagate this to specific flavor mixes. We derive the L5 corrections for CMS run II on a dataset simulated with Pythia 8 and estimate the flavor uncertainties by comparing the Pythia 8 and Herwig 7 simulations. The new uncertainties provide enhanced overall results compared to those derived for the CMS run I while for bottom jets the uncertainty increases at large pt. Moreover, a similar framework is used to obtain the flavor/antiflavor uncertainty. This refined approach for flavor/antiflavor uncertainty helps to reduce the b vs bar uncertainty which represents the leading uncertainty source in the measurement of the top-antitop mass difference.

Type of contribution

Talk

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