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Measurements of generalized jet angularities in pp collisions at $\sqrt{s} = 5.02$ TeV with ALICE

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In recent years jet substructure observables have been used at the LHC as instruments to search for new physics as well as to test perturbative and probe non-perturbative processes in QCD. One such observable, the generalized jet angularity, is of particular interest due its infrared and collinear (IRC) safety and thus calculability from first principles. Its general form has two continuous parameters β and κ , which weight the relative jet constituent angle and p_T , respectively. These can be varied along with the jet radius R to recast the observable while maintaining IRC safety, therefore providing various configurations to systematically constrain theoretical calculations. The high-precision capability of the ALICE tracking system allows a unique opportunity at LHC energies to measure tracks with low p_T , permitting both accessibility to the softer components inside jets as well as measurement of jets with altogether lower p_T . We report the generalized jet angularities in ALICE using pp collisions at $\sqrt{s} = 5.02$ TeV with charged particle tracks. The parameters $\kappa = 1$ and $\beta = 1, 1.5, 2$ are investigated at both large and small values of R . Results are presented and compared to theoretical models. These measurements will provide a baseline for comparison to Pb-Pb collisions, where jets are modified due to the QCD medium.

Collaboration (if applicable)

ALICE

Track

Jets and High Momentum Hadrons

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