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Type: Heavy Ion Physics

Comparison of two approaches to jet reconstruction in proton-lead collisions in ATLAS

Jets are commonly produced in heavy-ion collisions at the LHC energies. Their calibration is essential for precise measurements of various processes, such as top-quark pair production. The poster presents the measurement of jet energy scale and resolution in proton-lead collisions collected at 8.16 TeV in 2016. The method involving the balance between Z boson and jet transverse momenta is used for jet $p_{\rm T} > 20$ GeV and $|\eta| < 2.5$ to estimate jet performance in both data and Monte Carlo simulation. The performance of two jet definitions, referred to as EMPFlow and HIJets, is evaluated, and results are compared, including systematic uncertainties. The results of these studies are a key input to the ongoing analysis of top-quark pair production in p+Pb collisions.

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