Measurement of inclusive jet charged-particle fragmentation functions in Pb+Pb collisions at âˆšsNN=2.76 TeV with the ATLAS detector

Aad, G., Abbott, B., Abdallah, J., Khalek, S. A., Aben, R., Abi, B., ... & Barlow, N. (2014). Measurement of inclusive jet charged-particle fragmentation functions in Pb+ Pb collisions at sNN= 2.76 TeV with the ATLAS detector. Physics Letters B, 739, 320-342. <10.1016/j.physletb.2014.10.065>

Abstract:

Measurements of charged-particle fragmentation functions of jets produced in ultra-relativistic nuclear collisions can provide insight into the modification of parton showers in the hot, dense medium created in the collisions. ATLAS has measured jets in sNN−−−−√=2.76 TeV Pb+Pb collisions at the LHC using a data set recorded in 2011 with an integrated luminosity of 0.14 nb−1. Jets were reconstructed using the anti-kt algorithm with distance parameter values R = 0.2, 0.3, and 0.4. Distributions of charged-particle transverse momentum and longitudinal momentum fraction are reported for seven bins in collision centrality for R=0.4 jets with pjetT>100 GeV. Commensurate minimum pT values are used for the other radii. Ratios of fragment distributions in each centrality bin to those measured in the most peripheral bin are presented. These ratios show a reduction of fragment yield in central collisions relative to peripheral collisions at intermediate z values, 0.04≲z≲0.2 and an enhancement in fragment yield for z≲0.04. A smaller, less significant enhancement is observed at large z and large pT in central collisions.

Keywords: -