

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 42

Type: Oral Presentation

Measurements of v_n at high- p_T and correlation between v_n and mean- p_T in $p+Pb$ collisions with the ATLAS detector

Monday, June 1, 2020 12:20 PM (20 minutes)

This talk presents ATLAS measurements of the azimuthal anisotropy for charged particles in 8.16 TeV $p+Pb$ collisions up to a p_T of 50 GeV. The measurements are performed via the two-particle correlation method and the statistics are enhanced at high- p_T by selecting events triggered by a high- p_T jet. Restrictions on other particles are imposed to suppress the contribution from jets. Measurements of the resulting second- and third-order flow coefficients are presented in intervals of $p+Pb$ event activity classes. The results from jet-triggered events are compared to those from minimum-bias $p+Pb$ events, and the differences between the two event samples are analyzed in terms of the different origin of particles in these events, such as the different fraction of particles that arise from the jet fragmentation process.

In A+A collisions non-zero flow coefficients at high- p_T are understood to arise from the path-length dependent energy loss of jets. Thus, these measurements in $p+Pb$ collisions, can provide information on the origin of these collective phenomena.

To further assess properties of the azimuthal anisotropy in $p+Pb$ collisions, the correlation between the mean transverse momentum and the magnitudes of the flow harmonics is also measured. The measurements are performed in 5.02 TeV $p+Pb$ collisions for several intervals of the charge particle transverse momentum and as a function of the event-multiplicity. The measured correlations are compared to similar measurements in Pb+Pb collisions.

Collaboration (if applicable)

ATLAS

Track

Initial State

Contribution type

Contributed Talk

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Session Classification: Parallel

Track Classification: Initial State