Contribution ID: **49** Type: **not specified**

Measurement of long-range azimuthal anisotropies in pp and p+Pb collisions with the ATLAS detector

Saturday 17 September 2016 17:10 (20 minutes)

ATLAS measurements of correlations between particle pairs in relative azimuthal angle (Δϕ) and pseudorapidity separation (Δη), in pp collisions at √s=2.76, 5.02 and 13˜TeV, and in p+Pb collisions at √sNN=5.02˜TeV are presented. Prior measurements have shown that in pp collisions with a large multiplicity of produced particles, a long-range structure,commonly called the “ridge”, develops along Δη at Δϕ~0. However, due to the presence of the large away-side jet, the full Δϕ dependence of the long-range correlation could not be studied previously. In this analysis, a template fitting procedure is implemented to determine the contributions from dijets to the correlations, using low-multiplicity events, and extract the genuine long-range correlation. The Fourier harmonics of the genuine long-range correlation for orders n=2−4 are extracted, and their dependence on pT, event-multiplicity and collision energy are studied. It is shown that the second Fourier coefficient, v2,2, dominates the long range correlation, with small but significant contributions from v3,3 and v4,4. The v2,2 is shown to factorize into the product of single-particle anisotropies v2. A large v2 is shown to be present even in events with a small multiplicity of produced particles, implying that the long-range correlations are not unique to rare high multiplicity events, but are present even in low multiplicity pp collisions. Comparisons to the vn,n and vn obtained when applying the template fitting procedure to p+Pb collisions are also presented. These measurements can help determine if the long range correlations in pp and p+Pb collisions arise from similar mechanisms or not.

Summary

Primary author: MOHAPATRA, Soumya (Columbia University (US))

Presenter: MOHAPATRA, Soumya (Columbia University (US))

Session Classification: Saturday afternoon