



Contribution ID: 183

Type: Oral Presentation

Anisotropic flow measured from multi-particle azimuthal correlations for Pb-Pb collisions at 2.76 TeV by ALICE at the LHC

Friday 17 August 2012 17:10 (20 minutes)

The properties of the produced matter in a heavy-ion collision can be experimentally studied by measuring the azimuthal anisotropy in the momentum distribution of the produced particles. Quantified by the anisotropic flow coefficients, v_n , and corresponding symmetry planes, ψ_n , such anisotropy is expected to reflect the shape of the initial energy density of the collision. We report on the measurement of various flow harmonics, v_n , with multi-particle cumulants, and present the results from a study of the inter-correlation among different order symmetry planes ψ_n via multi-particle mixed harmonic correlations. This provides comprehensive experimental information on the fluctuating event-by-event shape of the initial conditions, which is currently among the main sources of large theoretical uncertainties in describing the evolution of the system created in heavy-ion collisions.

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Session Classification: Parallel 7D: Correlations & Fluctuations (Chair B. Wosiek)

Track Classification: Correlations and fluctuations