

WPCF 2023 - XVI Workshop on Particle Correlations and Femtoscopy & IV Resonance Workshop 2023



Contribution ID: 72

Type: **Invited**

Event-by-event Hadron Yield Fluctuations in Pb —Pb Collisions at $\sqrt{s_{NN}} = 2.76$ TeV with ALICE

Friday, 10 November 2023 14:30 (25 minutes)

We discuss measurements of event-by-event relative hadron yield fluctuations with the v_{dyn} observable in Pb —Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV. Fluctuation measurements presented include the relative yield of charged hadrons, the relative yield of identified pions (π) vs. kaons (K), π vs. protons (p), K vs. p, as well as the more recent measurements of fluctuations of K^+ vs. K^- yields and charged kaons (K^\pm) vs. neutral kaons (K_0 s) yields. Measured values of v_{dyn} as well as values of v_{dyn} scaled by the produced particle multiplicity are reported as a function of Pb —Pb collision centrality. Measured and scaled data are compared to predictions from various models, including the HIJING and AMPT models. It is found that while most relative yield fluctuations considered exhibit an approximate scaling with inverse multiplicity, which is qualitatively reproduced by HIJING and AMPT, the relative yields of π vs. p and K^\pm vs. K_0 s fluctuations show strong departure from simple scaling behavior. The former exhibits a change of sign from peripheral to central collisions whereas the latter exhibits strongly enhanced scaled values in central collisions. The K^\pm vs. K_0 s anomalous behavior is discussed in light of recent theoretical considerations, including the possibility of strange Disoriented Chiral Condensates (DCC) and Disoriented Isospin Condensate (DIC).

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Session Classification: Day 5 - Afternoon