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Transverse momentum and pseudorapidity dependence of correlations between different order flow harmonics in Pb–Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV

The new multiparticle observables, which are called "Symmetric 2-harmonic 4-particle cumulants"(SC), were recently reported in [1]. These quantify the correlation between the event-by-event fluctuations of two different flow harmonics. Because the correlation between different order flow harmonics responds differently to the initial conditions or(and) η/s, SC provide a strong constraint on the QGP properties in heavy-ion collisions. Furthermore, the higher order to lower order harmonic correlations can be used to understand the viscous correction to the momentum distribution at freeze-out which is probably the least understood part of hydrodynamic calculations [2, 3]. These results have a great potential to constrain the dominant physics in each stage of heavy-ion collisions. In this poster, SC results of lower order harmonics correlations(v_2-v_3 and v_2-v_4) with transverse and pseudorapidity dependence will be presented. Also the SC analysis will be extended to higher order harmonics(up to v_5), and results will be compared to AMPT and hydrodynamic models.

[1] ALICE arXiv:1604.07663

[2] D. Teaney and L. Yan, Phys. Rev. C 86, 044908 (2012)

[3] H. Niemi,K.J. Eskola,R.Paatelainen Phys. Rev. C 93, 024907 (2016)

Preferred Track

Collective Dynamics

Collaboration

ALICE

Primary author: KIM, Dong Jo (University of Jyvaskyla (FI))

Presenter: KIM, Dong Jo (University of Jyvaskyla (FI))

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