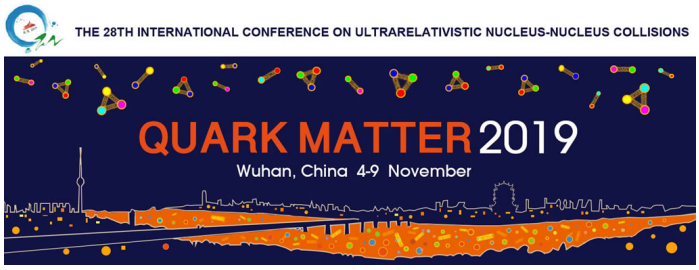

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Multi-harmonic correlations in ALICE

Monday 4 November 2019 17:40 (20 minutes)

Genuine multiparticle azimuthal correlations have been used in anisotropic flow analyses to study the properties of the Quark-Gluon Plasma (QGP) produced in ultrarelativistic nuclear collisions. A recently introduced set of observables, based on the measurements of the correlated fluctuations of two different flow harmonics, has allowed the application of new constraints on the properties of the QGP. These two-harmonic observables have been named the Symmetric Cumulants.

The generalisation of Symmetric Cumulants has been proposed very recently. The new set of observables is sensitive only to the genuine correlations between three or more flow harmonics and has been dubbed higher order Symmetric Cumulants. They provide information which is inaccessible through individual flow harmonics or correlated fluctuations of only two flow harmonics, and in turn yields additional and independent constraints on the properties of the system produced in heavy-ion collisions.

In this poster, we present the first experimental results for these multi-harmonic correlations in the Pb-Pb collisions collected by ALICE. In particular, the centrality dependence of higher order Symmetric Cumulants involving three or more different flow harmonics is presented. The comparison with predictions from state-of-the-art hydrodynamic models is shown as well.

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