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pt-Angular power spectrum in ALICE events

Thursday 15 June 2017 14:00 (20 minutes)

We study the particles emitted in the fireball following a Relativistic Heavy Ion Collision with the traditional angular analysis employed in cosmology and earth sciences, producing Mollweide plots of the p_t distribution of a few actual, publically released ALICE-collaboration events and calculating their angular power spectrum. With the limited statistics at hand, we do not find evidence for acoustic peaks but a decrease of C_l that is reminiscent of viscous attenuation, but subject to a strong effect from the rapidity acceptance which probably dominates (so we also subtract the m=0 component). As an exercise, we still extract a characteristic Silk damping length (proportional to the square root of the viscosity over entropy density ratio). The absence of acoustic-like peaks is also compatible with a crossover from the QGP to the hadron gas (because a surface tension at domain boundaries would effect a restoring force that could have driven acoustic oscillations). Presently an unexpected depression appears in the l=6 multipole strength, which should be revisited by the ALICE collaboration with full statistics to confirm or discard it.

List of tracks

Fluctuation in initial conditions, collective flow and correlations

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