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Long range azimuthal correlations vs. multiplicity in pp, p-Pb, and Pb-Pb collisions measured with ALICE at the LHC

Tuesday, 19 September 2017 18:00 (20 minutes)

Long range azimuthal correlations are usually regarded as a signature of collectivity, and their discovery in high multiplicity pp collisions has
raised many questions concerning the possible mechanisms behind their creation.
In this talk, we will present the latest results of di-hadron correlations
obtained from pp collisions at $\sqrt{s} = 7$ TeV. We will show per trigger
yields of the near-side with a large $\Delta\eta$ separation as a function of multiplicity, and discuss suitable ways to obtain such yields and their accuracy. We will also show two-particle azimuthal cumulants with a large $\Delta\eta$ separation from pp collisions at $\sqrt{s} = 13$ TeV. The two-particle cumulants evaluate the Fourier components of the long range yields, and their multiplicity dependence can help decipher whether they arise from collective or few particle correlations. We will show four-particle cumulants with varying $\Delta\eta$ separations at the same energy, and discuss how such separations impact the contributions from non-flow for multi-particle measurements. Comparisons to PYTHIA will be made, in order to estimate the non-flow contributions. Finally, we will also compare the same observables measured in p-Pb and Pb-Pb collisions, where the existence of collectivity is much better established.

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