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Pion femtoscopy measurements in small systems with ALICE at the LHC

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The size of the particle emitting region at freeze-out obtained with femtoscopy is an important characteristic of heavy-ion collisions. Such a measurement for identical pions (sometimes called "HBT") provides a detailed picture of the system size and its dependence on pair transverse momentum and multiplicity.

The A-A pion femtoscopy results are interpreted in the hydrodynamic framework as a signature of significant collective radial flow. The pp data could not be described in the same framework. It is of great interest how the p-A system would behave as compared to the pp and A-A results. In particular models based on hydrodynamics and calculations involving gluon saturation provide predictions for the system size in p-A collisions. A careful comparison of the radii measured in pp and p-A collisions is needed to verify those predictions.

We present the pion femtoscopy results in p-Pb collisions at the LHC with ALICE. The analysis was performed in three dimensions using both standard Cartesian and Spherical Harmonics representations of the correlation function. The extracted femtoscopic radii are compared to the high multiplicity ALICE pp results as well as to model predictions.

On behalf of collaboration:

ALICE

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