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Charged kaon femtoscopy with ALICE at LHC

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Femtoscopy allows for measurements of the space-time characteristics of particle production using correlations resulting from the effects of quantum statistics and final state interactions. We present the results of femtoscopic analyses for charged kaons measured by ALICE in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV. Kaon femtoscopy is a substantial supplement to that of pions because it allows one to distinguish between different model scenarios working equally well for pions.

Particularly, we compare the measured 3D kaon radii with a model where the hydrodynamic phase is followed by a hadronic rescattering phase and a purely hydrodynamical calculation. The latter predicts an approximate m_T scaling of source radii obtained from pion and kaon correlations. This m_T scaling appears broken in our data, which indicates strong rescattering in the hadronic phase at LHC energies.

The decoupling time of the system is also estimated using the three-dimensional femtoscopic analysis for kaons, and compared with such estimates obtained from pions.

Author: MALININA, Ludmila (JINR & SINP MSU)

Presenter: MALININA, Ludmila (JINR & SINP MSU)

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