

Identical charged kaon femtoscopic correlations in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with Alice at the LHC

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Particle correlations at small relative momenta due to quantum statistics effects and final-state interactions are used to measure the space-time characteristics of particle production on the femtoscopic ($f_{\text{in}}=10^{-15}$ m) level in high-energy collisions. Kaons are a convenient tool to study, in particular, for Bose-Einstein correlations. They are less influenced by resonance decays than pions and therefore more effectively probe directly-produced particles.

In this talk, correlations of two charged identical kaons measured in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV by the ALICE experiment at the LHC are presented. The femtoscopic invariant radii and correlation strengths are extracted from the one-dimensional kaon correlation functions and are compared to those obtained in pp at $\sqrt{s} = 7$ TeV and Pb-Pb at $\sqrt{s_{NN}} = 2.76$ TeV collisions. Kaon femtoscopy in p-Pb is an important supplement to that in pp and Pb-Pb collisions because it allows one to understand the particle production mechanisms at different multiplicities. It also complements the existing pion correlation results. The obtained radii increase at higher multiplicities and decrease with increasing pair transverse momentum. At comparable multiplicity, the radii measured in p-Pb collisions are comparable to those observed in pp collisions and seem to be below those observed in Pb-Pb collisions.

List of tracks

Femtoscopy in A+A, p+p, p+A and e+e- collisions at relativistic, intermediate and low energies

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