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Femtoscopic analysis of identical charged kaons in Pb–Pb collisions at 5.02 TeV.

Femtoscopy is an important technique for studying space–time properties of emission source created in heavy-ion collisions such as spatial size, evolution time, collective flow effects, etc. In this contribution, we present the results of a femtoscopic analysis of identical charged-kaon pair correlations in Pb–Pb collisions at $\sqrt{s_{\rm NN}}$ = 5.02˜TeV. The results of the one- and three-dimensional analyses show that the kaon femtoscopic radii get smaller from central to peripheral collisions and decrease with increasing transverse momentum. According to hydrokinetic models, it might be explained by the radial expansion of a particle-emitting source. A comparison between the obtained three-dimensional radii and the integrated hydrokinetic model calculations for two particlization temperatures corresponding to two different equations of state has been performed. The extracted one-dimensional radii presented as a function of collision multiplicity are compared with kaon source sizes obtained for different energy, Pb–Pb at 2.76˜TeV, and collision systems: p–Pb at 5.02˜TeV, and pp at 7˜TeV. The maximal emission times for kaons in a wide centrality range (from 0 to 90\%) are also extracted.

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