

Strangeness in Quark Matter 2019



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Lambda-Kaon Femtoscopy in Pb-Pb Collisions at $\sqrt{s_{\text{NN}}} = 2.76$ TeV with ALICE

Thursday 13 June 2019 15:00 (20 minutes)

We present the first determination of the scattering parameters of ΛK pairs (ΛK^+ , ΛK^- , and ΛK_S^0) associated with strong final state interactions. The parameters are extracted from measured femtoscopic ΛK correlation functions in Pb-Pb collisions at $\sqrt{s_{\text{NN}}} = 2.76$ TeV, with the widely used Lednicky and Lyuboshitz model. The THERMINATOR 2 event generator is used to characterize the non-femtoscopic backgrounds, which arise from collective effects and feed-down from resonances. A striking difference between the ΛK^+ and ΛK^- correlation functions is observed for pairs with low relative momenta. As a consequence, the ΛK^+ system exhibits a negative real component of the scattering parameter ($\Re f_0$), while that of the ΛK^- system is positive. These observations might arise from different quark-antiquark interactions between the hadron pairs (ss in ΛK^+ and uu in ΛK^-), or from the different net strangeness in each system ($S = 0$ for ΛK^+ , and $S = -2$ for ΛK^-). To investigate this further, we will present the femtoscopic correlation functions of $\Xi^- K^\pm$ pairs.

Collaboration name

ALICE Collaboration

Track

Strangeness and Light Flavour

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