



ID de Contribution: 42

Type: Non spécifié

Strange particles femtoscopy in PbPb collisions at 5.02 TeV with the CMS detector

mardi 5 novembre 2024 09:25 (25 minutes)

Particle correlations have traditionally been used to study collective phenomena in hadronic and heavy ion collisions through azimuthal distributions. In contrast, femtoscopic correlations offer valuable insights into quantum statistical effects and final-state interactions. This talk presents the first results from the CMS experiment on femtoscopic correlations of strange particles (K_S^0 , $\Lambda/\bar{\Lambda}$) in lead-lead (PbPb) collisions at $\sqrt{s_{NN}} = 5.02$ TeV, using Run 2 data. The source size has been determined from $K_S^0 K_S^0$ correlations across various centrality ranges, offering complementary insights compared to those from charge pion and kaon correlations. Additionally, strong interaction scattering parameters, such as scattering length and effective range, have been extracted from $\Lambda\Lambda$ and ΛK_S^0 correlations using the Lednický-Lyuboshitz model and compared with other experimental and theoretical results. This includes the first determination of scattering parameters from $\Lambda\Lambda$ correlations in PbPb collisions at the LHC.

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