

WPCF 2023 - XVI Workshop on Particle Correlations and Femtoscopy & IV Resonance Workshop 2023



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Type: **Invited**

Two-particle Bose-Einstein correlations and their Lévy parameters in PbPb collisions at 5.02 TeV

Thursday, 9 November 2023 14:40 (25 minutes)

Two-particle Bose-Einstein momentum correlation functions are studied for charged-hadron pairs in lead-lead collisions at a center-of-mass energy per nucleon pair of $\sqrt{s_{NN}} = 5.02$ TeV. The data sample, containing 4.27×10^9 minimum bias events corresponding to an integrated luminosity of 0.607 nb^{-1} , was collected by the CMS experiment in 2018. The experimental results are discussed in terms of a Lévy-type source distribution. The parameters of this distribution are extracted as functions of particle pair average transverse mass and collision centrality. These parameters include the Lévy index or shape parameter (α), the Lévy scale parameter (R), and the correlation strength parameter (λ). The source shape, characterized by α , is found to be neither Cauchy nor Gaussian, implying the need for a full Lévy analysis. Similarly to what was previously found for systems characterized by Gaussian source radii, a hydrodynamical scaling is observed for the Lévy R parameter. The λ parameter is studied in terms of the core-halo model.

Primary author: CSANAD, Mate (Eotvos Lorand University (ELTE))

Presenter: CSANAD, Mate (Eotvos Lorand University (ELTE))

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