Quark Matter 2018



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Femtoscopy with identified charged pions in p+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector

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Hanbury Brown and Twiss (HBT) radii are measured as a function of centrality, transverse momentum, rapidity, and azimuthal angle with respect to the second-order event plane in central p+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector at the LHC. A total integrated luminosity of 28 nb⁻¹ is sampled. The radii are presented as a function of the local density dN/dy^{*} and the rapidity-dependence is shown to depend directly on the density. The radii and their relative azimuthal modulation are presented as a function of the magnitude of the flow vector $|q_2|$ measured in the ATLAS calorimeters in the lead-going direction, with pseudorapidity $\eta < -2.5$. Modulations of the transverse HBT radii are observed with the same orientation as in ion–ion collisions, in which they are attributed to hydrodynamic evolution from an elliptic initial geometry. This modulation is consistent with a hydrodynamic evolution of a short-lived medium.

Content type

Experiment

Collaboration

ATLAS

Centralised submission by Collaboration

Presenter name already specified

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