

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



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Bose-Einstein correlations at LHCb

Monday, 6 November 2023 10:05 (25 minutes)

A study of the Bose-Einstein correlations for same-sign charged pions originating from proton-proton and proton-lead collisions recorded in the LHCb experiment at $\sqrt{s} = 7$ TeV centre-of-mass energy and $\sqrt{s_{NN}} = 5.02$ TeV centre-of-mass energy per nucleon. Both measurements are the first of this type performed in the forward region at LHC energies. The proton-proton (proton-lead) dataset used in the analysis was recorded in 2011 (2013) and corresponds to an integrated luminosity of 1.0 fb^{-1} (1.6 nb^{-1}). Correlation parameters are determined for different regions of charged-particle multiplicity. It is observed that the correlation radius (the intercept parameter) increases (decreases) with the charged-particle multiplicity, which is consistent with observations from other experiments at the LHC in the central rapidity region. The measured correlation radii scale linearly with the cube root of the charged-particle multiplicity. Such a behaviour is compatible with predictions based on the hydrodynamic models. Moreover, hints for a dependence of the correlation radius on pseudorapidity are observed.

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