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Long-range angular correlations on the near and away side in p-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV

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Abstract

Angular correlations between charged trigger and associated particles are measured by the ALICE detector in p-Pb collisions at a nucleon-nucleon centre-of-mass energy of 5.02 TeV for transverse momentum ranges within $0.5 < p_{T,assoc} < p_{T,trig} < 4$ GeV/c. The correlations are measured over two units of pseudorapidity and full azimuthal angle in different intervals of event multiplicity, and expressed as associated yield per trigger particle. Two long-range ridge-like structures, one on the near side and one on the away side, are observed when the per-trigger yield obtained in low-multiplicity events is subtracted from the one in high-multiplicity events. The excess on the near side is qualitatively similar to that recently reported by the CMS Collaboration, while the excess on the away-side is reported for the first time. The two-

ridge structure projected onto azimuthal angle is quantified with the second and third Fourier coefficients as well as by near-side and away-side yields and widths. The yields on the near side and on the away side are equal within the uncertainties for all studied event multiplicity and

p_T bins, and the widths show no significant evolution with event multiplicity or p_T . These findings suggest that the near-side ridge is accompanied by an essentially identical away-side ridge.



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