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Physical Review C
Volume 100, Issue 6, 18 December 2019, Article number 064908

Probing the chiral magnetic wave in pPb and PbPb collisions at sNN =5.02 TeV using charge-dependent azimuthal anisotropies (Article) (Open Access)

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Abstract

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Charge-dependent anisotropy Fourier coefficients (vn) of particle azimuthal distributions are measured in pPb and PbPb collisions at sNN=5.02TeV with the CMS detector at the LHC. The normalized difference in the second-order anisotropy coefficients (v2) between positively and negatively charged particles is found to depend linearly on the observed event charge asymmetry with comparable slopes for both pPb and PbPb collisions over a wide range of charged particle multiplicity. In PbPb, the third-order anisotropy coefficient v3 shows a similar linear dependence with the same slope as seen for v2. The observed similarities between the v2 slopes for pPb and PbPb, as well as the similar slopes for v2 and v3 in PbPb, are compatible with expectations based on local charge conservation in the decay of clusters or resonances, and constitute a challenge to the hypothesis that, at LHC energies, the observed charge asymmetry dependence of v2 in heavy ion collisions arises from a chiral magnetic wave.

SciVal Topic Prominence

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Funding text

We congratulate our colleagues in the CERN accelerator departments for the excellent performance of the LHC and thank the technical and administrative staffs at CERN and at other CMS institutes for their contributions to the success of the CMS effort. In addition, we gratefully acknowledge the computing centers and personnel of the Worldwide LHC Computing Grid for delivering so effectively the computing infrastructure essential to our analyses. Finally, we acknowledge the enduring support for the construction and operation of the LHC and the CMS detector provided by the following funding agencies: BMWFW and FWF (Austria); FNRS and FWO (Belgium); CNPq, CAPES, FAPERJ, and FAPESP (Brazil); MES (Bulgaria); CERN; CAS, MoST, and NSFC (China); COLCIENCIAS (Colombia); MSES and CSF (Croatia); RPF (Cyprus); SENESCYT (Ecuador); MoER, ERC IUT, and ERDF (Estonia); Academy of Finland, MEC, and HIP (Finland); CEA and CNRS/IN2P3 (France); BMBF, DFG, and HGF (Germany); GSRT (Greece); OTKA and NIH (Hung... View all

ISSN: 24699985
Source Type: Journal
Original language: English
DOI: 10.1103/PhysRevC.100.064908
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