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Measurements of charge-dependent correlations with CMS

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Charge-dependent azimuthal anisotropy Fourier coefficients are measured with two- and three-particle correlations in pPb and PbPb collisions. The difference between positively and negatively charged particles for the second-order two-particle ($v_2\{2\}$) and three-particle ($v_2\{3\}$) coefficients for both pPb and PbPb, and third order two-particle coefficient ($v_3\{2\}$) for PbPb, are presented. The observed results are challenging the hypothesis that attributes charge-dependent azimuthal correlations in heavy ion collisions to the chiral magnetic effect. In addition, the two-particle electric charge balance function is used as a probe to study the charge creation mechanism in high energy heavy ion collisions, for the first time in CMS. The balance function is constructed using like and unlike charged-particle pairs. The width of the balance function, both in relative pseudo-rapidity and relative-azimuthal angle, increases from more central collisions to peripheral ones. Narrowing and widening of these widths indicate late and early hadronization, respectively.

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