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Searches for the Chiral Magnetic Effect in Xe–Xe and Pb–Pb collisions with ALICE

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An important characteristic of the strong interaction that can be explored through heavy-ion collisions is the observation of local parity violation. This phenomenon, which manifests as charge separation along the direction of the magnetic field, is called the Chiral Magnetic Effect (CME). We present results on the centrality dependence of the charge-dependent two- and three-particle correlators in Xe-Xe and Pb-Pb collisions selected using the event shape engineering technique at $\sqrt{s_{NN}} = 5.44$ TeV and 5.02 TeV, respectively. Comparisons with theoretical calculations are used to estimate background effects in the charge dependence of the three-particle correlator, which is often used as evidence for the CME. Furthermore, these measurements, combined with Monte-Carlo Glauber and T_RENTo simulations of the magnetic field, are used to derive an upper limit on the CME contribution.

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