

Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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Event-by-Event measurement of charge separation in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV in ALICE

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The interplay between the magnetic and electric field in heavy-ion collisions at high energy results in the charge separation, the phenomenon is known as Chiral Magnetic Effect (CME). Event-by-event charge separation measurements in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be presented. The sum of positive charge fraction on left side and negative charge fraction on right side of the dumbbell on the azimuthal plane is calculated for each event. This sum is then maximized in each event by sliding the dumbbell of size 60° in steps of one degree over the whole azimuthal plane. We further divide maxima into 10 bins to get CME type enriched sample for each centrality. The charge dependent three-particle gamma correlators, calculated using q-cumulant method, will be presented for different collision centralities as well as for different categories of charge separation. We obtained background estimation using two methods, which are: i) reshuffling the charges of particles in an event and ii) randomising the azimuthal angles of particles in an event. Also, the results will be compared with Pb-Pb collisions at 2.76 TeV using same method.

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