

Search for Chiral Magnetic Effect with Identified Particles in Au+Au Collisions at $\sqrt{s_{NN}} = 39$ GeV from RHIC/STAR

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Abstract

Chirality imbalance could occur in local domains inside the hot nuclear matter formed in high-energy heavy-ion collisions. In the presence of a strong magnetic field, this chirality imbalance will induce an electric charge separation along the magnetic field direction, owing to the chiral magnetic effect (CME) [1]. Previous azimuthal-angle correlation measurements [2] with unidentified charged particles have manifested charge separation signals consistent with the predictions of the CME. But the magnitudes of the background contributions have not been understood.

In this poster, we present the correlation results with identified particles (protons and pions) using STAR data of 39 GeV Au+Au collisions. The results will be compared with those from Au+Au at $\sqrt{s_{NN}} = 200$ GeV, as well as the published results of unidentified particles at $\sqrt{s_{NN}} = 39$ GeV.

References

- [1]D. Kharzeev, Phys. Lett. B **633** (2006) 260.
- [2]L. Adamczyk et al., Phys. Rev. Lett. **113** (2014) 052302.