

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Characterization of Dipole and Quadrupole charge separation at 200 GeV; Implications for the CME and the CMW NISEEM ABDELRAHMAN, University of Illinois at Chicago — Characterization of the Chiral Magnetic Effect (CME) and the Chiral Magnetic Wave (CMW) in the quark-gluon plasma (QGP) produced in heavy-ion collisions can provide critical insights into anomalous transport in the QGP and the connections between chiral symmetry restoration, axial anomaly, and gluonic topology. The CME and the CMW lead to dipole and quadrupole charge separation signals respectively in heavy-ion collisions. Consequently, their detection and characterization are keys to understanding the anomalous transport in the QGP. We will present our recent measurements on dipole and quadrupole charge separation measurements, obtained with $R_{\Psi_m}^{(d)}(\Delta S_d)$ correlator [1,2], for d +Au and Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. Results will be also compared to the different background- and CME (CMW)-driven charge separation models.

N. Magdy et al. Phys.Rev.C 97 6, 061901 (2018)

N. Magdy et al. Phys.Lett.B 811, 135986 (2020)

Niseem Abdelrahman
University of Illinois at Chicago

Date submitted: 08 Jan 2021

Electronic form version 1.4