

Beam energy and collision system dependence of charge separation using the $R(\Delta S)$ correlator

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A charge-sensitive correlator $R(\Delta S)$ is used to detect and characterize charge separation associated with the Chiral Magnetic Effect (CME) in heavy-ion collisions. The correlator gives a concave-shaped response relative to the second-order event plane, Ψ_2 , and a null response relative to the third-order plane, Ψ_3 , for CME-driven charge separation- [1].

We will present and discuss $R(\Delta S)$ measurements, relative to Ψ_2 and Ψ_3 , for collisions of Au+Au at $\sqrt{s_{NN}}=200, 39, 27$ and 19.6 GeV, U+U at $\sqrt{s_{NN}}=193$ GeV, and Cu+Au, Cu+Cu, d+Au and p+Au at $\sqrt{s_{NN}}=200$ GeV. Measurements for a broad range of transverse momentum, pseudorapidity, and centrality intervals, will be presented and compared to results from the Anomalous Viscous Fluid Dynamics model [2].

[1] N. Magdy, S. Shi, J. Liao, N. Ajitanand, and R. A. Lacey, arXiv:1710.01717

[2] S. Shi, Y. Jiang, E. Lilleskov and J. Liao, arXiv:1711.02496

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