

Abstract Submitted
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Centrality dependence of number and transverse momentum correlations in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV MONIKA SHARMA¹, Wayne State University, STAR COLLABORATION — Recent measurements at RHIC have revealed a ridge-like structure in the triggered and untriggered two-particle correlations in Au+Au collisions. A significant interest lies in studying diverse correlation functions which provide better understanding and sensitivity to various reaction mechanisms. In this work we present charged dependent measurements of two-particle number density, $R_2(\Delta\eta, \Delta\phi)$ correlation function, transverse momentum $R_2^{\Delta p_{T1} \Delta p_{T2}}(\Delta\eta, \Delta\phi)$ correlation function and a hybrid observable $C(\Delta\eta, \Delta\phi)$, designed to provide new and additional insight in the collision dynamics of Au + Au interactions. These observables are constructed as a function of collision centrality for particles in the range $|\eta| < 1.0$ and $0.2 < p_T < 2.0$ GeV/c. The three observables exhibit striking similarities with the emergence of a near-side ridge for unlike sign correlations ($R_{2+,-}$, $R_{2,+}^{\Delta p_{T1} \Delta p_{T2}}$ and $C_{+,-}$) and substantial deformation of the away-side correlation strength, while modulated ridge-like structure is observed for like-sign correlations in $R_{2-,-}$ (+, +) and $C_{-,-}$ (+, +) .

¹for the STAR Collaboration

Monika Sharma for the STAR Collaboration
Wayne State University

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