

Abstract Submitted
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Effect of Cluster Particle Correlation on Local Parity Violation Observables FUQIANG WANG, Purdue University — It has been suggested that metastable domains may form in chiral symmetry restored quark gluon plasma where the parity and time-reversal symmetries are locally violated. Such violation would lead to back-to-back opposite-charge massless quark pairs by the chiral magnetic effect along the system's orbital angular momentum. This may lead to observable consequences of final state particle correlations. The recent measurements of particle azimuth correlator by the STAR experiment are consistent with some of the expectations from local parity violation [1]. However, the correlator observable is parity-even and is subject to background correlations, some of which are discussed in Ref. [1]. In this talk, we will investigate effects of particle correlations due to clusters on the azimuth correlator. We use two-particle angular correlation measurements as input. We found that the correlator measurements by STAR can be accounted for by cluster particle correlations together with cluster anisotropies in medium-central to central Au+Au collisions. Our results suggest that local strong parity violation may not be required to explain the correlator data.

[1] B.I. Abelev et al. (STAR Collaboration), arXiv:0909.1717, arXiv:0909.1739.

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