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Search for Local Parity Violation in Au+Au collisions at 62.4 GeV at STAR[1] MIDHAT FAROOQ, UCLA, STAR COLLABORATION — Parity-odd domains are predicted to lead to charge separation of quarks along the orbital momentum of the system created in non-central relativistic heavy ion collisions [1]. A signal consistent with several of the theoretical expectations has been reported by STAR [2]. The measurement is based on a three particle azimuthal correlator, a $P-$even observable, but sensitive to the charge separation effect. However, the limited statistics of the published results for 62.4 GeV prevented us from a detailed comparison of data between 200 GeV and 62.4 GeV, especially for the more peripheral collisions. In RHIC run2010, high statistics of Au+Au collisions have been taken by STAR, and that enables us to carry out the beam-energy scan of the signal and to revisit 62.4 GeV with much better precision. In this work, we present the measurement of three particle correlator as a function of centrality for Au+Au collisions at 62.4 GeV, and we discuss the energy dependence of the results from 62.4 GeV to 200 GeV.

[1] D. Kharzeev, Phys. Lett. B 633, 260 (2006).
[2] B. I. Abelev et al., Phys. Rev. C81 (2010) 54908.

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