Search for the Chiral Magnetic Effect with Forced Match of Multiplicity and Elliptic Flow in Isobar Collisions at STAR

(for the STAR collaboration)

The STAR Collaboration has reported results from a blind analysis of isobar collisions ($^{96}_{44}$Ru + $^{96}_{44}$Ru, $^{96}_{40}$Zr + $^{96}_{40}$Zr) at $\sqrt{s_{\rm NN}}$ = 200 GeV in search of the chiral magnetic effect (CME). Significant differences have been observed in the measured multiplicity (N) and elliptic flow (v_2) between the two isobar systems [1]. In this contribution, we present post-blind analyses of the isobar data with a forced-match technique. We tune the N and v_2 distributions in the two isobar systems to be almost identical with a weighting procedure, and then compare the CME-sensitive observables (the $\Delta\gamma$ correlator and signed Balance Functions [2]) between the two systems with matched N and v_2. We will present the results as a function of centrality, and discuss the implications of these findings.

[1] M. Abdallah *et al.* (STAR Collaboration), Phys. Rev. C **105**, 014901 (2022)
[2] S. Choudhury *et al.*, Chinese Phys. C **46** 014101 (2022)