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Method Study of Azimuthal Correlators in Search ofthe Chiral Magnetic Effect in Heavy-ion Collisions NANXI YAO, University of California, Los Angeles — In high-energy heavy-ion collisions, the chiral magnetic effect (CME) has been theorized, where quark domains with chirality imbalance can interact with the strong magnetic field generated by spectator protons, inducing a charge transport across the reaction plane ($\Psi_{\rm RP}$). Several experimental observables have been proposed in search of the CME, such as the $\Delta\gamma_{112}$ correlator[1], and the $R_{\Psi_{\rm RP}}$ correlator[2]. We have employed a multiphase transport (AMPT) model and the anomalous-viscous fluid dynamics (AVFD) model to study the relationship between $\Delta\gamma_{112}$ and $R_{\Psi_{\rm RP}}$. These two methods are found to be equivalent to each other: they are subject to the same amount of background contributions and reveal the same amount of the CME signals. With the AVFD calculations, we have verified that the CME signal and the background can linearly add up in the azimuthal correlators. When we deploy the event-shape engineering technique, the background in $\Delta\gamma_{112}$ is suppressed by a factor of 10. [1]S. Voloshin, Phys. Rev. C, 057901 (2004). [2]N. Magdy, S. Shi, J. Liao, N. Ajitanand, and R. A. Lacey, Phys. Rev. C, 061901 (2018).

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