

Abstract Submitted
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Hadronic and partonic mechanisms for a reaction plane charge asymmetry¹ BERNDT MUELLER, Duke University, MASAYUKI ASAKAWA, Osaka University, ABHIJIT MAJUMDER, The Ohio State University — We discuss several mechanisms for the creation of a charge asymmetry with respect to the reaction plane among hadrons emitted in relativistic heavy-ion collisions. We show that such mechanisms exist in both, the hadron gas and the quark-gluon plasma phase. All such mechanisms have in common that they require the presence of a strong magnetic field (the “chiral magnetic effect”), but they do not involve P or PC symmetry violations. We analyze how a transient local electric current generated by the chiral magnetic effect can dynamically evolve into a charge asymmetry of the final-state hadron distribution in momentum space. We estimate the magnitude of the event-by-event fluctuations of the final-state charge asymmetry due to the partonic and hadronic mechanisms.

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