

Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Magnetic field in expanding quark-gluon plasma¹ EVAN STEWART, KIRILL TUCHIN, Iowa State University — Intense electromagnetic fields are created in the quark-gluon plasma by the external ultra-relativistic valence charges. The time-evolution and the strength of this field are strongly affected by the electrical conductivity of the plasma. Yet, it has recently been observed that the effect of the magnetic field on the plasma flow is small. We compute the effect of plasma flow on magnetic field and demonstrate that it is less than 10%. These observations indicate that the plasma hydrodynamics and the dynamics of electromagnetic field decouple. Thus, it is a very good approximation, on the one hand, to study QGP in the background electromagnetic field generated by external sources and, on the other hand, to investigate the dynamics of magnetic field in the background plasma. We also argue that the wake induced by the magnetic field in plasma is negligible.

¹US Department of Energy Grant No. DE-FG02-87ER40371

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Date submitted: 11 Jul 2019

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