



# PHYSICS AND ASTRONOMY SEMINAR

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## **“Far-From-Equilibrium Dynamics of a Strongly Coupled Non-Abelian Plasma with Non-Zero Charge Density or External Magnetic Field”**

### Abstract

Using holography, we study the evolution of a spatially homogeneous, far from equilibrium, strongly coupled  $N=4$  supersymmetric Yang-Mills plasma with a non-zero charge density or a background magnetic field. This gauge theory problem corresponds, in the dual gravity description, to an initial value problem in Einstein-Maxwell theory with homogeneous but anisotropic initial conditions. We explore the dependence of the equilibration process on different aspects of the initial departure from equilibrium and, while controlling for these dependencies, examine how the equilibration dynamics are affected by the presence of a non-vanishing charge density or an external magnetic field. The equilibration dynamics are remarkably