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## Holographic Charge Oscillations

*Tuesday, April 14, 2015 2:50 PM (30 minutes)*

The Reissner-Nordstrom black hole provides the prototypical description of a holographic system at finite density. We study the response of this system to the presence of a local, charged impurity. Below a critical temperature, the induced charge density, which screens the impurity, exhibits oscillations. These oscillations can be traced to the singularities in the density-density correlation function moving in the complex momentum plane. At finite temperature, the oscillations are very similar to the Friedel oscillations seen in Fermi liquids. However, at zero temperature the oscillations in the black hole background remain exponentially damped, while Friedel oscillations relax to a power-law.

**Presenter:** BLAKE, Mike

**Session Classification:** Parallel Session