

## ***GEOMETRIC ANALYSIS SEMINAR***

**Speaker: Mihaela Ignatova**

**Temple University**

**Date:** Thursday, March 7, 2024

**Time:** 11:00 AM

**Location:** 258 Hurley Bldg

**Zoom URL:** NA



***Lecture Title:***

**Long Time Behavior of Electroconvection Models**

***Abstract***

We present two electroconvection models describing the interaction between a surface charge density and a fluid in a two-dimensional situation. We compare these models with the surface quasi-geostrophic equation in bounded domains and recall some recent results. For the first model, we describe global existence results in bounded domains and show that the long-time asymptotic state of the system is finite dimensional, if body forces are applied to the fluid, and a singleton solution in the absence of fluid body forces. In the whole space, in the absence of forcing, we obtain optimal decay rates. For the more challenging second model, corresponding to electroconvection through porous media, we prove global existence for subcritical cases and for small data in the critical case.