RUTGERS
UNIVERSITY | NEWARK

Mathematics Colloquium

Geometry and Planar Flows

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Abstract

I will discuss a remarkable connection between the geometry of the space of Kahler metrics and a flow in the plane coming from fluid mechanics called the Hele-Shaw flow. The geometric problem we will consider is finding geodesics in the space of all Kahler metrics on a given manifold, which is described by solutions to a particular partial differential equation called the Homogeneous Monge-Ampere Equation. We will see that solutions to this equation are in a sense dual to the Hele-Shaw flow, and using this duality we can get new insight both into Kahler geometry and this renowned flow. If time allows I will describe how this picture generalizes to other partial differential equations and planar flows. All of this is joint work with David Witt Nystrom.

Wednesday, 28 March 2018, 4pm

Smith Hall 204

Tea and refreshments will be served at 3:45pm.