

# DIFFERENTIAL GEOMETRY/PDE SEMINAR

WEDNESDAY, MAY 26, 2010

PADEL FORD C-36

3:50–5:50PM

The  $k$ -Yamabe problem

**Xu-Jia WANG** (AUSTRALIAN NATIONAL UNIVERSITY)

The  $k$ -Yamabe problem is to determine the existence of conformal metrics on a Riemannian manifold such that the  $k$ -curvature is a prescribed function, where the  $k$ -curvature is the  $k^{\text{th}}$  elementary symmetric polynomial of the eigenvalues of the Schouten tensor. When  $k = 1$ , the  $k$ -curvature is the scalar curvature and the  $k$ -Yamabe problem is the classical Yamabe problem which has been completely resolved by Schoen. The  $k$ -Yamabe problem involves the solvability of the conformal  $k$ -Hessian equation, which is a class of fully nonlinear partial differential equations. In my talk I will review recent development in the investigation of the  $k$ -Yamabe problem.

## THE STABILITY OF GASEOUS STARS

**Dongsheng LI** (XI'AN JIAOTONG U, CHINA)

We will study the motion of a gaseous star under the influence of self-gravitation and a prescribed outer pressure, where the gaseous star is regarded as a barotropic viscous fluid bounded by a free surface and the motion of the fluid is governed by the compressible Navier-Stokes equations. Our main result is that for each small angular momentum of the gaseous star, there exists a stationary solution which is asymptotically stable.

For more information about this seminar, visit the DG/PDE Seminar Web page (from the Math Department home page, [www.math.washington.edu](http://www.math.washington.edu), follow the link **Seminars, Colloquia, and Conferences**).

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