# Temple University Mathematics Colloquium

**Robert V. Kohn**

Courant Institute, NYU

will speak on

## Parabolic PDE's and Deterministic Games

ABSTRACT: We usually think of parabolic partial differential equations and first-order Hamilton-Jacobi equations as being quite different. Parabolic equations are linked to random walks, and often arise as steepest-descents; Hamilton-Jacobi equations have characteristics, and often arise from optimal control problems.

In truth, these equations are not so different. I will discuss recent work with Sylvia Serfaty, which provides deterministic optimal-control interpretations of many parabolic PDE. In some cases – for example motion by curvature – the optimal control viewpoint is very natural, geometric, and easy to understand. In other cases – for example the linear heat equation – it seems a bit less natural, and therefore even more surprising.

Monday, 17 September 2007
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3-5 pm
Room 617, Wachman Building
Department of Mathematics