The Oliver Club

www.math.cornell.edu/~oliver/

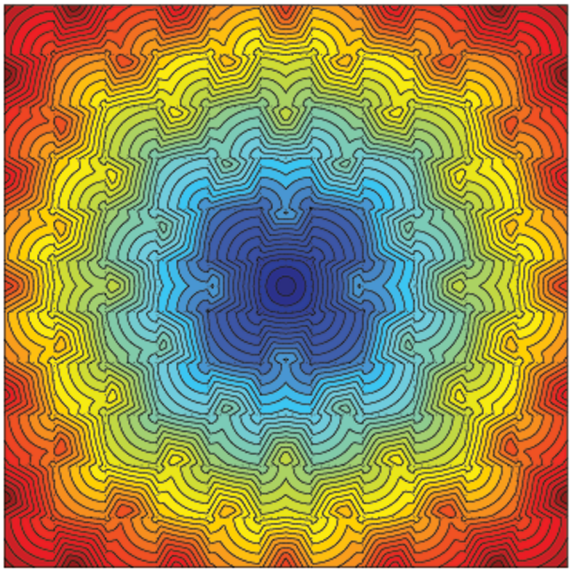
Alexander Vladimirsky, Cornell University

Optimal Choices, Conflicting Goals, and Uncertain Horizons

Equations describing optimal behavior have an illustrious history (from Euler and Lagrange, to Hamilton and Jacobi, to Pontryagin and Bellman). Such equations arise naturally in a wide range of applications, yet the issues of their well-posedness were not fully resolved until the 1980s, and efficient numerical methods for many classes of them remain a challenge to this day.

After reviewing the classical formulation, I will describe two recent projects in which additional problem features lead to unusual solution properties.

The first of these (joint with J. Andrews, CAM) is concerned with optimal deterministic control of randomly-terminated processes, leading to static PDEs with "free boundaries." The second (joint with A. Kumar, TAM) deals with multiple and conflicting criteria for optimality, leading to higher-dimensional PDEs with discontinuous solutions.



Thursday, October 22, 2009
at 4:25 PM in 406 Malott Hall

Refreshments will be served at 3:55 PM in the Mathematics Department lounge (532 Malott Hall).