72nd Midwest PDE Seminar

Purdue University, November 16–17, 2013

Robert Jerrard, *University of Toronto* Sun, Nov 17, 9:00–9:50, MATH 175

Existence and uniqueness of minimizers of general least gradient problems

Abstract. Motivated by problems arising in conductivity imaging, we prove existence, uniqueness, and comparison theorems for minimizers of the Dirichlet problem for the functional

$$I[u] := \int_\Omega a(x)|Du|dx,$$

as well as more general minimization problems of the same type. In particular, we find geometric conditions on the domain Ω and regularity hypotheses on the coefficient function a that are sufficient to guarantee uniqueness of minimizers, and we construct examples to show that these conditions are sharp in a certain sense. This is joint work with Amir Moradifam and Adrian Nachman.