



6th Symposium on Analysis and PDEs

Purdue University, June 1–4, 2015

Lyudmila Korobenko, McMaster University

June 3, 12:00–12:25pm

Boundedness and Continuity of Solutions to Infinitely Degenerate Elliptic Equations via Sobolev Inequalities for Associated Metrics.

The talk is concerned with regularity of weak solutions to second order infinitely degenerate elliptic equations. It is known that regularity of weak solutions can be studied by studying properties of certain metric spaces associated to the operator, namely subunit metric spaces. The problem arising in the infinitely degenerate case is that the measures of subunit balls are non doubling. As a consequence many classical tools such as Sobolev-type inequalities become unavailable. We show that in certain cases a weaker version of Sobolev inequality can be established which allows to perform a “standard” Moser iteration scheme to obtain boundedness and continuity of weak solutions.