

First Joint Meeting Brazil Italy of Mathematics

Special Session: Elliptic PDEs

Rio de Janeiro, August 29 - September 02, 2016

Title: Continuous viscosity solutions for nonlocal Dirichlet problems with coercive gradient terms

Authors: Alexander Quaas

Abstract: In this paper we study existence of solutions of nonlocal Dirichlet problems that include a coercive gradient term, whose scaling strictly dominates the one of the integro-differential operator. For such problems the stronger effect of the gradient term may give rise to solutions not attaining the boundary data or discontinuous solutions on the boundary. Our main result states that under suitable conditions over the right-hand side and boundary data, there is a (unique) Hölder continuous viscosity solution attaining the boundary data in the classical sense. This result is accomplished by the construction of suitable barriers which, as a byproduct, lead to regularity results up to the boundary for the solution.