University of Miami
Department of Mathematics
Seminar

Regularity properties of solutions of PDE and systems

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Abstract

We study regularity properties of solutions of partial differential equations and systems.

First of all, let us consider $\Omega \subset R^n$ a bounded open set with $\partial\Omega$ sufficiently smooth, a function f in the subspace of L^p named Morrey Space, $L^{p,\lambda}(\Omega)$, $1 < p < +\infty$, $0 < \lambda < n$, a_{ij} discontinuous functions and the following ellitpic equation of nondivergence form

$$\mathcal{L}u \equiv \sum_{i,j=1}^{n} a_{ij} u_{x_i x_j} \; = \; f.$$

Then, will be depth regularity properties of the highest order derivatives of the solutions u. Preparatory to the study is the action of some singular integral operators.

Keywords : Second order partial differential equations, Morrey spaces, discontinuous coefficients.

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