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A PRIORI MORREY ESTIMATES FOR POISSON EQUATION

Abstract

Let Ω a bounded domain in \mathbb{R}^n with $\partial\Omega \in C^2$ and let u be a solution of the classical Poisson problem in Ω ; i.e.,

$$\begin{cases} -\Delta u = f & \text{in } \Omega, \\ u = 0 & \text{on } \partial\Omega, \end{cases}$$

where $f \in L_{p,\lambda}(\Omega)$, $1 \leq p < \infty$ and $0 \leq \lambda < n$.

The main goal of this paper is to prove the following Morrey a priori estimate

$$\|u\|_{W_{p,\lambda}^2(\Omega)} \leq C \|f\|_{L_{p,\lambda}(\Omega)}.$$