G. Di Fazio, D.K. Palagachev

Oblique derivative problem for elliptic equations in non-divergence form with VMO coefficients

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Abstract: A priori estimates and strong solvability results in Sobolev space $W^{2,p}(\Omega)$, $1 < p < \infty$ are proved for the regular oblique derivative problem

$$\left\{ \sum_{i,j=1}^{n} a^{ij}(x) \frac{\partial^2 u}{\partial x_i \partial x_j} = f(x) a.e. \Omega \frac{\partial u}{\partial \ell} + \sigma(x) u = \varphi(x) on \partial\Omega \right.$$

when the principal coefficients a^{ij} are $VMO \cap L^{\infty}$ functions.

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