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Section:

10. Partial Differential Equations

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On Properties of Positive Solutions of Elliptic Equations

We consider the qualitative properties of positive solutions of elliptic equations of the form:

$$\sum_{\alpha,\beta} D^{\alpha}(a_{\alpha\beta}(x)D^{\beta}u) = 0 \tag{1}$$

$$D^{\alpha} = \frac{\partial^{|\alpha|}}{\partial x_1^{\alpha_1}...\partial x_n^{\alpha_n}}, \quad |\, \alpha \,| \leq l, \quad |\, \beta \,| \leq 2m - l$$

where $x \in \Omega$, Ω is a smooth bounded domain of R^n, $0 < l < 2m$, $a_{\alpha\beta}(x)$ are continuos functions. The main result is following: any positive weak solution of (1) belongs to $L_p(\Omega)$ with arbitrary p, $p < \frac{n}{n-1}$. We use the methods of the papier [1].

References. 1. V. A. Kondratiev and S. D. Eidelman. Positive solutions of linear partial differential equations, Trudy Mosk. matem. obshch. 31(1974), 85-146.