1131-35-169 **Akif Ibragimov*** (akif.ibraguimov@ttu.edu), Lubbock, TX 79366, and **Alexander Grigoryan**, Bielefeld, Germany. *New Proof of Mazya's Criteria for Regularity of Zaremba Problem at Infinity.*

Paper dedicated to the Zaremba type problem in unbounded domain D, containing origin, with respect to operator $L = \nabla \cdot A(x) \cdot \nabla$ (Here $A(x)$ symmetric posittvly defined matrix with measurable coefficients). Main result is criteria of regularity at infinity, which first was proved by Mazya. We consider domain oriented along x_1 axis with "one exit" $x_1 \to +\infty$. Next we assumed that Neumann boundary $\Gamma_N$satisfies isoperimetric condition in each finite layer $\tau_j < x_1 < \tau_{j+1}$ uniformly. Then using methods developed by Landis , we proved criteria of regularity at infinity in term of relative potential of the portion of Dirthlet boundary $H_j = \Gamma_D \cap \{\tau_j < x_1 < \tau_{j+1}\}$. Let relative potential $U_j(x)$ defined as: $LU_j(x) = 0$ in D, $U_j(0) = 0$, $U_j|_{H_j} = 1$, $\frac{\partial U_j}{\partial \nu}|_{\Gamma_N} = 0$. Then for regularity at infinity of the solution of Zaremba's problem it is necessary and sufficient that

$$\lim_{N\to\infty} \lim_{x_1\to\infty} \sum_{j=1}^{N} U_j(x) = \infty.$$

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