

On approximation of solutions of nonlinear regular hypo-elliptic equations on unbounded domains

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Abstract. In the paper it has been proved the existence of solutions of boundary-value problem for nonlinear regular hypo-elliptic equation

$$\sum_{\alpha \in \aleph} (-1)^{|\alpha|} D^\alpha A_\alpha(x, D^{\gamma^1} u, \dots, D^{\gamma^N} u) + \sum_{\alpha \in \aleph^{(l)}} (-1)^{|\alpha|} D^\alpha g_\alpha(x, D^{\beta^1} u, \dots, D^{\beta^M} u) = f,$$

where $x \in \Omega$, A_α and g_α satisfy certain conditions, \aleph - polyhedron of multi-indexes, $\aleph^{(l)} \subset \aleph$. Besides it is proved the approximation theorem for solutions of problems on unbounded Ω by the solutions of problems on bounded $\Omega_R \supset \{\Omega \cap B_R\}$, where B_R - sphere of radius R .

Keywords: hypo-elliptic nonlinear equation, existence of the solution, approximation.