

Necessary Conditions for the Solvability of Some Partial Differential Inequalities with Transformed Arguments

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Let g be a mapping of R^n onto itself. We consider semilinear elliptic inequalities of the form

$$-\Delta u(x) \geq |u(g(x))|^q \quad (x \in R^n) \quad (1)$$

and some generalizations, including higher order and quasilinear ones, as well as systems of such inequalities and their parabolic counterparts. Using an original modification of the test function method developed in [1], we establish sufficient conditions for nonexistence of nontrivial solutions to the inequalities and systems in question in terms of the mapping g and of the numerical parameters of the problems. Some of these results were published in [2].

References

- [1] E. Mitidieri and S. Pohozaev, A priori estimates and nonexistence of solutions of nonlinear partial differential equations and inequalities, Proceedings of the Steklov Mathematical Institute, **234** (2001) 3-383.
- [2] O. Salieva, On nonexistence of solutions to some nonlinear inequalities with transformed argument, Electronic Journal on Qualitative Theory of Differential Equations, **2017** (2017) 3-13.