Texas Tech University. Applied Mathematics Seminar.

On stabilization of solutions to nonlinear parabolic equations of the p-Laplace type

Mikhail Surnachev

Institute of Applied Mathematics, Russian Academy of Science

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ABSTRACT.
In this talk I am going to present our joint results with Prof. Vasily Zhikov (Vladimir State University) on stabilization of solutions to nonlinear parabolic equations of the p-Laplace type. The first result is stabilization in the $L^2(\mathbb{R}^n)$ norm of solutions with $L^2(\mathbb{R}^n)$ initial data. The second result, which is the central part of this talk, is a criterion of the uniform stabilization of bounded solutions. This criterion generalizes a widely known criterion for linear parabolic equations proved independently by V. Zhikov and S. Kamin in 1976. The statement of the criterion is very simple: "A bounded solution converges uniformly (w.r.t. the space variables) to zero as time goes to infinity if and only if the initial data has zero uniform mean."