



CSC Seminar

SPEAKER

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TITLE

Blow-up boundary value problem for nonlinear parabolic equations and elliptic equations with nonstandard growth

ABSTRACT

The purpose of the talk is to present my background and to discuss possible further research. The presentation consists of three parts.

First part is devoted to my PhD thesis results. The blow-up boundary value problem is considered for a double nonlinear parabolic equation. The phenomena of localization is studied and the behavior of the solution is described depending on the singular peaking boundary regime. Also a large solution is investigated for the parabolic equation with absorption potential. The estimates of large solution depending on the asymptotic of the absorption are obtained.

Joint project with Prof. Dr. Andrey Shishkov, RUDN University, Russian Federation.

The second part of the talk relates to the current research. We consider the $p(x)$ -Laplace equation under the precise non-logarithmic Zhikov's conditions. The standard DeGiorgi's method is adapted to obtain Harnack inequality and Hölder continuity for solutions of the mentioned problem.

Joint project with Dr. Igor Skrypnik, Institute of Applied Mathematics and Mechanics, NAS of Ukraine.

The third part relates to the further research. We consider mathematical models for a homogeneous reaction which describes by PDE and plan to study the question of existence of solution, as well as to find the optimal control for the system.

Under discussion with Prof. Dr. Alexander Zuyev, Max Planck Institute for Dynamics of Complex Technical Systems.

Tuesday, August 23, 2022 at 2 pm
seminar room Prigogine