



深圳北理莫斯科大学

УНИВЕРСИТЕТ МГУ-ППИ В ШЭНЬЧЖЭНЕ  
SHENZHEN MSU-BIT UNIVERSITY

# 应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

## 应用数学报告（43）

报告人 / Докладчик / Speaker: Shcheglov 副教授

题目 / Название / Title: Inverse problem for a quasi-linear age-structured population dynamics model

时间 / Время / Time: 12 Jul. 2022, 15:00-17:00

地点 / Место / Venue: 主楼 336

### 摘要 / Аннотация / Abstract:

In a problem modeling the dynamics of an age-structured population, the conditions for the unambiguous recovery of two coefficients in a quasilinear partial differential transport equation of the first order are established. The equation models the maturation of individuals over time. The right-hand side of the equation is negative and defines the process of natural mortality of individuals, depending on age and on the density of individuals of a particular age. The recovery of the values of the model parameters is carried out in the framework of two inverse problems formulated under various additional conditions. The resulting formulas are the basis for the numerical solution of the direct problem by the iterative method and for the numerical solution of the inverse problems, taking into account the illposedness of the inverse problems with approximate values of known functions.

### Shcheglov 副教授简介:

Shcheglov 副教授是莫斯科大学计算数学与控制系数学物理教研室的长聘副教授，国际知名偏微分方程反问题专家，师从 Tikhonov 院士。