



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 (31)

报告人 / Докладчик / Speaker: 龙海娥 博士

题目 / Название / Title: Stochastic asymptotical regularization for nonlinear ill-posed problems

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地点 / Место / Venue: 主楼 336

摘要 / Аннотация / Abstract:

In this paper, we establish an initial theory regarding the stochastic asymptotical regularization (SAR) for the uncertainty quantification of the stable approximate solution of ill-posed nonlinear-operator equations, which are deterministic models for numerous inverse problems in science and engineering. By combining techniques from classical regularization theory and stochastic analysis, we prove the regularizing properties of SAR with regard to mean-square convergence. The convergence rate results under the canonical sourcewise condition is studied as well. Several numerical examples are demonstrated to show the accuracy and the advantages of SAR: compared with the conventional deterministic regularization approaches for deterministic inverse problems, SAR can (i) provide the uncertainty quantification of solution; and (ii) escape local minimums for nonlinear problems.

龙海娥博士简介:

龙海娥博士现就职于深圳北理莫斯科大学计算数学与控制系，从事博士后研究工作。2021年7月毕业于哈尔滨工业大学获理学博士学位。2020年1月至2021年1月在美国哥伦比亚大学数学系访问。主要研究方向为反问题理论与计算，随机加速算法，生物医学成像等。主要成果发表在 *Inverse Problems* 等国际主流学术期刊。

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