



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 (21)

报告人 / Докладчик / Speaker:

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题目 / Название / Title:

On the stochastic asymptotical regularization of linear inverse problems

时间 / Время / Time: 22 Oct. 2021, 20:00-21:30

地点 / Место / Venue: 腾讯会议

<https://meeting.tencent.com/dm/L98ACin7E4Qj>

摘要 / Аннотация / Abstract:

In this talk, we introduce the Stochastic Asymptotical Regularization (SAR) method for the stable approximate solution of ill-posed linear operator equations, which are models for numerous inverse problems in science and engineering. We prove the regularizing properties of SAR in the sense of mean square convergence. We also show that SAR is an optimal-order regularization method for linear ill-posed problems provided that a parameter is chosen accordingly to the smoothness of the solution. This result is proven for both a priori and a posteriori stopping rules under general range type source conditions. Furthermore, some converse results of SAR are verified. A damped symplectic iterative regularizing algorithm is developed for the realization of SAR. Several numerical examples are given to show the accuracy and the acceleration effect of SAR. A comparison with other state-of-the-art methods are provided as well.