应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（74）

报告人 / Докладчик / Speaker: 李文彬 副教授(哈尔滨工业大学(深圳))

题目 / Название / Title: Data-driven studies for the inverse problems of potential field data

时间 / Время / Time：02 Dec. 2022, 15:00-17:00

地点 / Место / Venue: 主楼 336

摘要 / Аннотация / Abstract:
We will present our recent developments in the inverse problems of potential-field data. The following contents will be included in this talk.
(1) Kantorovich-Rubinstein (K-R) metric based level-set method for inverting modulus of gravity-force data. The usage of modulus data satisfies the non-negativity requirement of distribution for the K-R metric naturally. Moreover, the K-R metric based approach can tolerate high level noises, which improves the stability of the inversion algorithm. (2) A stochastic gradient descent approach with partitioned-truncated singular value decomposition for large-scale inverse problems of magnetic modulus data. This work aims to develop efficient computational methods for massive datasets in nonlinear magnetic inverse problem which were infeasible to process due to the restriction of computational resource. (3) Deep leaning based approaches and possible generations to the inverse problem of deep neural network.

李文彬副教授简介：

李文彬，哈尔滨工业大学(深圳)副教授。2014 年在香港科技大学取得博士学位，2014-2017 年在密歇根州立大学从事博士后研究工作。主要研究方向为反问题计算及成像应用，包括高频波计算及相应的走时反演，势场数据反问题的界面反演，以及数据驱动的反问题计算方法。