应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（44）

报告人 / Докладчик / Speaker: 龚荣芳 教授

题目 / Название / Title: Study of bioluminescence tomography based on a new time-dependent coupled diffusion equation

时间 / Время / Time：17 Jul. 2022, 14:00-17:00

地点 / Место / Venue: 主楼 336

摘要 / Аннотация / Abstract:

In this talk, we consider inverse source problems arising in bioluminescence tomography (BLT). Mathematically, BLT is an under-determined inverse source problem which leads to no solution uniqueness. Particularly, one cannot distinguish between a strong source over a small region and a weak source over a large region. Therefore, it is particularly important to know the support Ω_s of the underlining light source p_* so that its strength could be reconstructed accurately. In the literature, Ω_s is assumed to be given. Practically, we only get an approximation Ω_a of it, known from some a priori information. The accuracy of Ω_a affects largely the one in approximate solutions of p_*. Therefore, in this talk, a new time-dependent coupled model is proposed motivated by the solution uniqueness. Some theoretical and numerical results are reported for the verification of the new model and methods.

龚荣芳教授简介：

龚荣芳教授，南京航空航天大学理学院，教授，博士生导师。研究方向为医学成像、图像处理、参数识别和最优控制等数学物理反问题的正则化理论与数值方法。先后主持完成国家自然科学基金、国家博士后基金、江苏省自然科学基金等 7 项，当前主持国家自然科学基金面上项目 1 项，参与国家自然科学基金面上项目 1 项。在 Numerische Mathematik、Inverse Problems、Inverse problems and Imaging、Communications in Computational Physics 等期刊上发表 SCI 论文近 30 篇。

访问学者以及需要做报告的学者请联系 张晔 教授 / Всем желающим выступить с докладами на семинаре просьба обращаться к Чжану Е ye.zhang@smbu.edu.cn