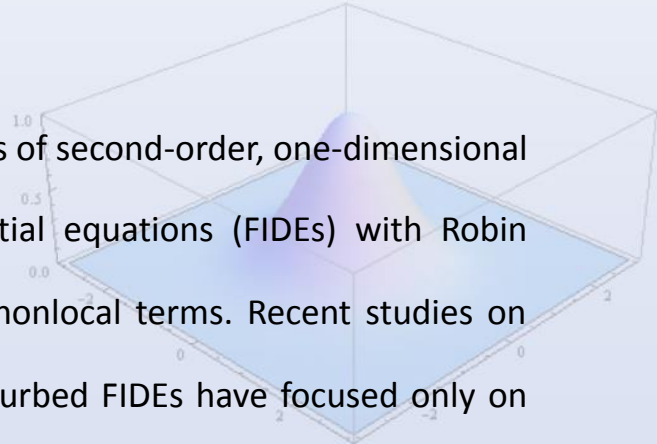复旦大学数学科学学院
数学综合报告会

报告题目：Some Topics on Singularly Perturbed Fredholm Integro-differential Equations

报告人：李俊璋（台湾清华大学）

报告时间：2024 年 9 月 3 日星期二，10：00—11：00

报告地点：光华楼东主楼 1704 室

报告摘要：In this talk, we will introduce a class of second-order, one-dimensional singularly perturbed Fredholm integro-differential equations (FIDEs) with Robin boundary conditions. These equations include nonlocal terms. Recent studies on numerical methods for analyzing singularly perturbed FIDEs have focused only on developing various algorithms. However, their outcomes are limited to specific cases, and the refined nonlocal effects on solutions remain unclear. Our rigorous analysis demonstrates that the nonlocal effect causes the interior and boundary asymptotics to influence each other. Furthermore, we classify various asymptotic behaviors, including uniform boundedness and asymptotic blow-up. This talk is based on a joint work with Xianjin Chen (USTC).

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