西北大学
NORTHWEST UNIVERSITY

Finite energy Navier-Stokes flows with unbounded gradients induced by localized flux in the half-space

报告人：赖柏顺 教授（湖南师范大学）

报告时间：2021 年 9 月 22 日下午 16:00-17:00

地点：线上线下同步(东学楼 0227)　(腾讯会议 ID: 920 885 565)

链接： https://meeting.tencent.com/dm/thukUCa6gTn5

报告摘要：For the Stokes system in the half space, Kang [Math.~Ann.~2005] showed that a solution Generated by a compactly supported, H\"older continuous boundary flux may have unbounded normal derivatives near the boundary. In this paper we first prove explicit global pointwise estimates of the above solution, showing in particular that it has finite global energy and its derivatives blow up everywhere on the boundary away from the flux. We then use the above solution as a profile to construct solutions of the Navier-Stokes equations which also have finite global energy and unbounded normal derivatives due to the flux. Our main tool is the pointwise estimates of the Green tensor of the Stokes system proved by us in arXiv:2011.00134. We also examine the Stokes flows generated by dipole bumps boundary flux, and identify the regions where the normal derivatives of the solutions tend to positive or negative infinity near the boundary. This is a joint work with Kyungkeun Kang, Chen-Chih Lai and Tai-Peng Tsai.

报告人简介：

赖柏顺， 1981 年 1 月生，现为湖南师范大学“潇湘学者”特聘教授，博士生导师；曾在美国肯塔基大学、普渡大学、加拿大英属哥伦比亚大学访学，在北京应用物理与计算数学研究所做客座教授。其研究领域主要为不可压缩 Navier-Stokes 方程的数学理论，在 Advances in Mathematics, Trans. Amer. Math. Soc., SIAM J. Math. Anal 等重要的国际数学期刊发表一系列论文；主持国家自然科学基金面上项目、青年基金各一项。

欢迎各位老师和同学参加！

西北大学数学学院

2021 年 9 月 20 日