


复旦大学数学科学学院

数学综合报告会

午间学术报告会（一百二十七）

报告题目：**The steady Navier--Stokes equations in 2d exterior domain: longstanding problems and new perspectives**

报告人：mikhail korob 教授

（复旦大学数学科学学院）

报告时间：2020-12-18 星期五 12:00-13:00

报告地点：光华东主楼 2201

摘要：

We study the exterior problem for stationary Navier-Stokes equations in two dimensions describing a viscous incompressible fluid flowing past an obstacle. We consider the classical questions about the existence of solutions, their asymptotic properties, etc., as well as recent results obtained in our joint papers with K.˜Pileckas and R.˜Russo, --- in particular, the nontriviality
of Leray solutions, boundedness and uniform convergence of arbitrary D-solutions (i.e., solutions
with finite Dirichlet integral), etc.
In the last part of the talk we discuss the very recent result obtained in our joint paper with Xiao Ren (任潇, Fudan University). Namely, it is shown that, at small Reynolds numbers, the classical solutions constructed by Finn and Smith are unique in the class of D-solutions. No additional symmetry or decay assumptions are required. This result answers a long-standing open problem. In the proofs, we developed the ideas of the classical Ch.˜Amick paper (Acta Math. 1988).

非线性数学模型与方法教育部重点实验室
中法应用数学国际联合实验室
上海市现代应用数学重点实验室
复旦大学数学研究所