复旦大学数学科学学院
数学综合报告会

报告题目：Geometric control theory, sub-Riemannian geometry, and their applications

报告人：Professor Yuri L. Sachkov (Russian Academy of Sciences)

时间：2022-03-15 星期二 16:30 – 17:30；2022-03-18 星期五 16:30 – 17:30 ；2022-03-22 星期二 16:30 – 17:30；2022-03-25 星期五 16:30 – 17:30；2022-03-29 星期二 16:30 – 17:30；2022-04-01 星期二 16:30 – 17:30

地点：ZOOM Meeting ID: 878 1712 1063 Passcode: 345958

报告摘要：

The mini-course of 6 lectures will be devoted to introduction to geometric control theory and its applications. It will cover the questions of controllability, optimal control, and sub-Riemannian geometry. Applications will include PDEs, metric geometry on Lie groups, mechanics, robotics, and vision.

The lecture course include the following topics:
1. Examples and statements of control problems
2. Local controllability of nonlinear systems
3. Orbit theorem, Frobenius theorem, Krener's theorem
4. Pontryagin maximum principle
5. Sub-Riemannian geometry on Lie groups
6. Applications of sub-Riemannian geometry to PDEs and metric geometry on Lie groups
7. Applications of geometric control to mechanics, robotics, and vision.

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