



北京理工大学

数学与统计学院学术报告

Simultaneous Controllability of Multispeed Wave Systems

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时间： 2026.6.25. 16: 00-17: 00

地点： 文萃楼E708

摘要： In this talk, I will present results on the simultaneous controllability of wave systems driven by a common internal control. Using the Hilbert uniqueness method, the controllability problem is reduced to an observability inequality for the adjoint system. The first part of the talk focuses on finite-codimensional exact controllability, obtained through microlocal methods. I will then discuss the low-frequency obstruction: full exact controllability requires a unique continuation property for eigenfunctions, which may fail for smooth metrics. Finally, in the constant-coefficient setting, I will explain the equivalence between exact controllability and the Kalman rank condition, including the case of multiple controls.

报告人简介： 牛景瑞，哈尔滨工业大学数学研究院副教授，研究方向为偏微分方程的控制理论、色散方程（如薛定谔方程、波方程）的能控性与能观性，以及微局部分析/半经典分析方法的应用，博士毕业于巴黎萨克雷大学，学术成果发表于 *J. Math. Pures Appl.*、*Indiana University Math J.*、*SIAM J. Control Optim.*、*Journal of the London Mathematical Society*、*J. Differential Equations* 等国际权威期刊。