北京理工大學

数学与统计学院学术报告

Control and Stabilization of a 1-D Heat and Wave Coupled System

报告人： Pierre Lissy
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时间： 2026.6.25. 15：00-16：00

地点： 文萃楼E708

摘要： In this talk, I will discuss a specific one-dimensional coupled heat-wave system, in which a boundary-controlled heat equation acts on a wave equation through a cascade coupling. The goal is to understand the well-posedness, controllability and stabilization properties of this system. I will first explain how the cascade structure is used to establish well-posedness, despite the fact that standard energy estimates are not directly conclusive. I will then present a mixed controllability result, combining exact control of the heat component with approximate control of the wave component, relying in particular on a mixed Douglas-type argument. Finally, I will discuss the feedback stabilization result, where a Sylvester equation and resolvent estimates, in the spirit of Chill et al., lead to a polynomial decay rate. Many of the results and methods can extend to a broader abstract LTI framework. This is a joint work with Lucas Davron and Swann Marx.

报告人简介： Professor Pierre Lissy is a Junior Professor at the CERMICS laboratory, École nationale des ponts et chaussées. His research primarily focuses on the controllability and stabilization of linear and nonlinear partial differential equations and systems. He has published papers in leading journals such as Inventiones Mathematicae, J. Math. Pures Appl., Math. Models Methods Appl. Sci., SIAM J. Control Optim., J. Differential Equations, System and Control Letters, ESAIM: COCV, IEEE Transactions on Automatic Control, among others.

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