北京理工大學

数学与统计学院学术报告

On the small-time controllability of KdV equations

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摘要：

In this talk, we study the small-time local controllability problem for the KdV system on an interval with a Neumann boundary control. This has been a longstanding open problem since Rosier's pioneer work (1997). Firstly, we will briefly review some developments and challenges in controlling the KdV system on an interval, especially at critical lengths, where the linearized system exhibits an uncontrollable subspace M. I will then present our new results that resolve the remaining open cases, demonstrating that for all critical lengths--except when M is one dimensional--the system is not small-time locally controllable, relying on our newly introduced classification of critical lengths. This talk is based on a recent joint work with Shengquan Xiang.

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