



## 复旦大学数学科学学院 数学综合报告会

报告题目: **Controllability and Stabilization of KdV**

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摘要: We know that sometimes the controllability of linearized control systems and fixed-point methods could imply the controllability of nonlinear control systems (KdV in noncritical cases, hyperbolic system and Schrödinger equations.

But when the linearized control system becomes uncontrollable, e.g. KdV equation in critical cases, the power series expansion method introduced by Jean-Michel Coron will give controllability of nonlinear control system though its linearized system is not controllable. If control problem is an open problem, then stabilization problem should be a closed problem. It is in general more difficult than control problems, so far few advance has been made. In this talk I will mainly talk about the stabilization of KdV by means of feedback laws. More precisely, we study the exponential stabilization problem for a nonlinear KdV on bounded interval in cases where the linearized control system is not controllable. The system has Dirichlet boundary conditions at the end-points of the interval, a Neumann nonhomogeneous boundary condition at the right end-point which is the control.

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