ЮЖНЫЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ
Региональный математический центр
SOUTHERN FEDERAL UNIVERSITY
Regional Mathematical Center
https://rmc.sfedu.ru/, Rostov-on-Don, Russia

International scientific online seminar on
Analysis, Differential Equations and Mathematical Physics

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

17th September 2020, 6 pm (UTC+3)

Control and inverse problems for Krein's string

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We consider the problem of boundary control for a vibrating string with N interior point masses. We assume the control is at the left end, and the string is fixed at the right end. Singularities in waves are "smoothed" out to one order as they cross a point mass. We characterize the reachable set for L^2 controls. The control problem is reduced to a moment problem, which is then solved using the theory of exponential divided differences in tandem with unique shape and velocity controllability results. Based on the controllability result we solve the dynamical inverse problem, i.e. recover unknown parameters of the system from the Dirichlet-to-Neumann map given at a boundary point.

*Seminar website: https://rmc.sfedu.ru/seminar. The seminar uses Microsoft Teams online platform.
To join the seminar, please send a request to pichugina@sfedu.ru (Olga Pichugina, scientific secretary).

The seminar is organized by the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the special Interest ISAAC-OTHA group in Operator Theory and Harmonic Analysis.

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