

Department of Mathematics and Statistics
Colloquium Lecture Series

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**Control and Inverse Problems for
One Dimensional Systems**

The talk will be devoted to control and inverse problems (dynamical and spectral) for systems on trees and on the half line. In the first part we study the boundary control problems for the wave, heat, and Schrödinger equations on a finite tree. In the second part we consider the in-plane motion of elastic strings on a tree-like network, observed from the ‘leaves.’ We investigate the inverse problem of recovering not only the physical properties, i.e. the ‘optical lengths’ of each string, but also the geometry of the tree. In the third part of the thesis we consider inverse dynamical and spectral problems for the Schrödinger operator on the half line. Using the connection between dynamical (Boundary Control method) and spectral approaches (due to Krein, Gelfand-Levitan, Simon and Remling), we improved the result on the representation of so-called A -amplitude and derive the “local” version of the classical Gelfand–Levitan equations.

Thursday, October 29, 2009

Chapman 106

1:00 – 2:00 pm

Refreshments after the talk in Chapman 101A