

Control and Inverse Problems for Networks of Vibrating Strings with Attached Masses

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We consider control and inverse problems for networks of elastic strings with point masses attached at the interior vertices. For tree-like networks, we prove the exact boundary controllability in a sharp time interval with respect to a Sobolev space which regularity increases with the distance from the boundary at each interior vertex. We demonstrate that the densities of the strings, values of the masses and lengths of the edges can be recovered using the dynamical Dirichlet-to-Neumann map associated with the boundary vertices.

The talk is based on joint work with Nina Avdonina (University of Alaska Fairbanks) and Julian Edward (Florida International University)