

1077-35-697

Jing Zhang* (jz4f@virginia.edu), Jing Zhang, Department of Mathematics, University of Virginia, Charlottesville, VA 22904, and **Roberto Triggiani**, Roberto Triggiani, Department of Mathematics, University of Virginia, Charlottesville, VA 22904. *Linear and non-linear boundary stabilization in $L_2 \times H^{-1}$ of the system of dynamic elasticity with Dirichlet Boundary dissipation: a direct approach.* Preliminary report.

We consider the multi-dimensional system of dynamic elasticity with suitable (linear or non-linear) dissipation in the Dirichlet boundary conditions. We seek stabilization in the natural/optimal state space $L_2 \times H^{-1}$ by a "direct" approach. Under some geometrical conditions, this result can be obtained by suitable "energy-methods in differential form". To eliminate geometrical conditions, a micro-local analysis/pseudo-differential approach is needed. All this is the counterpart of known results for the wave equation (I.Lasiecka and R.Triggiani, 1986-92). It uses also suitable trace regularity results of the system of dynamic elasticity by MA Horn (1998), which extended corresponding results for second order hyperbolic equations by Lasiecka-Triggiani (1992). (Received September 10, 2011)