

1124-35-356

Daniel Toundykov* (dtoundykov@unl.edu) and **Jean-Paul Zolésio**. *Control by moving boundary.*

We consider a wave equation on a domain whose shape evolves according to a prescribed space- and time-dependent velocity field. On the moving boundary the solution is subject to zero Dirichlet conditions. First, we show that if the domain keeps expanding at a small “subsonic” speed bounded away from zero, then the associated finite energy decays uniformly at a rate arbitrarily close to exponential. The scenario when the domain remains bounded and undergoes phases of expansion and contraction is investigated numerically with an “adaptive” boundary movement control. The simulations indicate potential for strong stability of regular solutions by means of very small fluctuations in the domain shape only. (Received September 13, 2016)