Santiago, Chile, 10/2010

The system of elastic waves with time-dependent damping coefficient in unbounded domains

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In this work we study polynomial decay rate of the total energy of solutions for the system of elastic waves in $\mathbb{R}^n$ with a nonlinear absorption term and time-dependent potential type of damping. We consider the critical potential for initial data with compact support. An application for the Euler-Poisson-Darboux type dissipation $V(t,x)$ is obtained and in this case the compactness of the support on the initial data is not necessary. We also discuss about the energy concentration area for the linear system of elastic waves in an exterior domain with critical e noncritical potential type of damping. The potentials can be time-dependent.

Work joint with Ryo Ikehata, Hiroshima University.

References

[1] R. C. Charão and R. Ikehata, *Decay of solutions for a semilinear system of elastic waves in an exterior domain with damping near infinity*, Nonlinear Analysis 67 (2007), 398-429.

[2] G. Todorova and B. Yordanov, *Critical exponent for a nonlinear wave equation with damping*, J. Diff. Eqns 174 (2001), 464-489.

[3] G. Todorova and B. Yordanov, *Nonlinear dissipative wave equations with potential*, AMS Contemporary Math. 426 (2007), 317-337.