1043-35-66   **Lorena Bociu*** (`lvb9b@virginia.edu`), Avery Hall 243, Lincoln, NE 68588, and **Irena Lasiecka**. *Wellposedness of Solutions for the Wave Equation with Supercritical Interior and Boundary Sources and Damping.*

We consider the semilinear wave equation with supercritical sources and nonlinear damping and we are interested in the wellposedness of finite energy solutions. A distinct feature of the model under consideration is the presence of the double interaction of source and damping, both in the interior of the domain and on the boundary. Moreover, the nonlinear boundary sources are driven by Neumann boundary conditions. Since Lopatinski condition fails to hold for $\dim(\Omega) \geq 2$, the analysis of the nonlinearities supported on the boundary, within the framework of weak solutions, is a rather subtle issue and involves strong interaction between the sources and the dampings. Our paper provides positive answers to the questions of local existence and uniqueness of weak solutions and moreover it gives complete and sharp description of parameters corresponding to global existence and blow-up of solutions in finite time. (Received August 15, 2008)