1067-35-1041   **Mohammad A. Rammaha*** (`mrammaha1@math.unl.edu`), Department of Mathematics, Lincoln, NE 68588-0130, and **Yanqiu Guo** (`s-yguo2@math.unl.edu`), Department of Mathematics, Lincoln, NE 68588-0130. *Global Well-posedness for Systems of Nonlinear Wave Equations with Supercritical Boundary and Interior Sources.*

In this talk, I will give detailed analysis of the global well-posedness of the following system of wave equations:

$$\begin{cases} u_{tt} - \Delta u + g_1(u_t) = f_1(u,v) & \text{in } \Omega \times (0,\infty) \\ v_{tt} - \Delta v + g_2(v_t) = f_2(u,v) & \text{in } \Omega \times (0,\infty) \end{cases}$$

with with Robin and Dirichlét boundary conditions on u and v, respectively. Complimenting the existing results in the literature where the exponents of sources are at most critical, here, the sources $f_1(u,v)$, $f_2(u,v)$ and $h(\gamma u)$ are allowed to have supercritical exponents. The terms $g_1(u_t)$ and $g_2(v_t)$ represent interior damping while $g(\gamma u_t)$ represents a boundary damping. Under some restrictions on the parameters in the system and with careful analysis involving the theory of monotone operators, we obtain several results on the existence of local solutions, global solutions, and uniqueness. In addition, we prove that weak solutions to the system blow up in finite time whenever the initial energy is negative and the exponent of each source term is more dominant than the exponents of the corresponding damping term. (Received September 17, 2010)

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