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**Xiang Wan\*** (xiangwan@virginia.edu) and **Irena Lasiecka** (lasiecka@memphis.edu). *Global Wellposedness and Uniform Stability of a Quasilinear Thermo-elastic PDE system*. Preliminary report.

We consider a nonlinear thermoelastic system defined on an open bounded set  $\Omega \in \mathbb{R}^n, n = 2$  or  $3$ :

$$\begin{cases} w_{tt} - \gamma \Delta w_{tt} + \Delta^2 w + \alpha \Delta((\Delta w)^3) = \Delta \theta \\ \theta_t - \Delta \theta = -\Delta w_t \\ \gamma \geq 0 \end{cases} \quad (1)$$

with simply supported boundary conditions imposed on  $\Gamma = \partial\Omega$ . The main goal of this talk is to discuss the wellposedness of suitable solutions to the system defined above.

I will first introduce the background of this model, and then talk about the work on the case  $\gamma = 0$ . Our challenge is to consider the case  $\gamma > 0$ , which is of hyperbolic type-rather than of parabolic type. From a mathematical point of view the most important message is that the *analyticity* and *maximal regularity* of the associated linear system are *gone*. We will show the technique to overcome this difficulty. (Received January 15, 2015)