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**Nicholas J Kass\*** (nkass@huskers.unl.edu) and **Mohammad A Rammaha** (mrammaha1@unl.edu). *Existence of solutions for strongly damped wave equations of the  $p$ -Laplacian type with boundary sources.* Preliminary report.

Results on the existence of suitably defined weak solutions of a damped wave equation

$$u_{tt} - \Delta_p u - \Delta u_t = f(u)$$

in a bounded domain  $\Omega \subset \mathbb{R}^3$  with smooth boundary  $\partial\Omega$  subject to a generalized Robin boundary condition with nonlinear boundary source terms. Here,  $-\Delta_p$  with  $2 < p < 3$  denotes the classical  $p$ -Laplacian. We provide a rigorous proof of the existence of local solutions to this problem given suitable restrictions on the feedback terms using a Galerkin scheme, with particular attention given to the convergence of the nonlinearities arising from the  $p$ -Laplacian. It is shown that these solutions must satisfy an appropriate energy inequality, and from this sufficient conditions for global existence are obtained. (Received September 27, 2017)