1014-35-1583 **Keith Agre*** (kmagre@stcloudstate.edu), Department of Mathematics, St. Cloud State University, 720 Fourth Avenue South, St. Cloud, MN 56301-4498, and **Mohammad A. Rammaha**. *Systems of Nonlinear Wave Equations With Damping and Source Terms.* Preliminary report.

In this article we focus on the initial-boundary value problem consisting of a system of nonlinear wave equations of the form

$$u_{tt} - \Delta u + |u_t|^{m-1}u_t = \frac{\partial F}{\partial u}(u,v),$$
$$v_{tt} - \Delta v + |v_t|^{r-1}v_t = \frac{\partial F}{\partial v}(u,v),$$

with initial and Dirichlet boundary conditions, where

$$F(u,v) = \alpha|u+v|^{p+1} + \beta|uv|^{\frac{p+1}{2}}$$

and $\Omega \subset \mathbb{R}^n$ $(n = 1, 2, 3)$ is a bounded domain. Under some conditions on m, r, Ω, and p, we obtain several results on the local existence, global existence, uniqueness, and blow-up of weak solutions. (Received September 28, 2005)