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**Joseph L. Shomberg\*** (jshomber@providence.edu) and **Sergio Frigeri** (sergio.frigeri@unipv.it). *Global Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation*. Preliminary report.

Under consideration is the damped semilinear wave equation

$$u_{tt} + u_t - \Delta u + u + f(u) = 0$$

on a bounded domain  $\Omega$  in  $\mathbb{R}^3$  with a perturbation parameter  $\varepsilon > 0$  occurring in an acoustic boundary condition, limiting ( $\varepsilon = 0$ ) to a Robin boundary condition. With minimal assumptions on the nonlinear term  $f$ , the existence and uniqueness of global weak solutions is shown. Also, the existence of a family of global attractors is shown to exist. After proving a general result concerning the robustness of a one-parameter family of sets, the result is applied to the family of global attractors. Because of the complicated boundary conditions for the perturbed problem, fractional powers of the Laplacian are not well defined; moreover, because of the restrictive growth assumptions on  $f$ , the family of global attractors is obtained from the asymptotic compactness method developed by J. Ball for generalized semiflows. (Received September 13, 2011)