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Wellposedness, control, and observability theories for partial differential equations

Stability of a Degenerately Damped Wave Equation

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Abstract: I will discuss some theoretical and numerical results on the stability properties of a dynamical system modeled by a nonlinear wave equation with a “degenerate” damping. The coefficient of the dissipation term is proportional to the amplitudes, hence its support depends on the geometry of the solution. This feature substantially complicates the stability analysis even in a one-dimensional setting. Helpful insights, however, can be gleaned from numerical simulations.