LONGTIME BEHAVIOR OF A VISCOELASTIC TIMOSHENKO BEAM

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Abstract. We consider a Timoshenko model of a viscoelastic beam fixed at the endpoints and subject to nonlinear external forces. The model consists of two coupled second order linear integrodifferential hyperbolic equations that govern the evolution of the lateral displacement u and the total rotation angle ϕ. We prove that these equations generate a dissipative dynamical system, whose trajectories are eventually confined in a uniform absorbing set, the dissipativity being due to the memory mechanism solely. This fact allows us to state the existence of a uniform compact attractor.