

The following article serves three purposes: (i) it presents a simple semi-implicit numerical formulation for nonlinear structural dynamics problems, which is computationally inexpensive and simple to use in nonlinear dynamics and chaos simulations; (ii) it serves as an introduction to numerical studies of nonlinear structural dynamics for engineering students; and (iii) it formulates a nonlinear structural dynamical system for studies of nonlinear dynamics and chaos. Numerical formulations along with results are presented for nonlinear oscillators, beams, Föppl–von Kármán plates, and thin shallow shells.

