

NONLINEAR DYNAMICS OF ENGINEERING SYSTEMS

Compiled and edited by J.M.T. Thompson and W. Schiehlen

This volume represents a collection of papers from engineering and mechanics which apply the new geometrical phase space techniques of nonlinear dynamics to practical problems of industrial relevance. The models exhibit rich bifurcational and chaotic behaviour. The papers are highly illustrated, with a minimum of mathematical detail, suitable for a general wide readership. Engineering contributions cover the vehicle dynamics of railway bogies and rolling ships; the design of belt conveyors and turbine blades; and the use of chaotic fluid flow to enhance transportation properties. The last three papers address archetypal mechanical oscillators that arise throughout engineering science: two focus on systems with impacts, generated for example by play or backlash, while the final paper presents a practical criterion for chaotic crises in the resonance of typical softening systems.

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