

Nondeterministic Mechanics

Table of contents: Stochastic methods in nonlinear structural dynamics.- Stochastic models of uncertainties in computational structural dynamics and structural acoustics.- The tale of stochastic linearization techniques: over half a century of progress.- Comprehensive modeling of uncertain systems using fuzzy set theory.- Bounding uncertainty in civil engineering: theoretical background and applications.- Combined methods in nondeterministic mechanics.

In this book the current state of the art of nondeterministic mechanics in its various forms is presented. The topics range from stochastic problems to fuzzy sets; from linear to nonlinear problems; from specific methodologies to combinations of various techniques; from theoretical considerations to practical applications. It is specially designed to illuminate the various aspects of the three methodologies (probabilistic or stochastic modelling, fuzzy sets based analysis, antioptimization of structures) to deal with various uncertainties and deepen the discussion of their pros and cons.

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