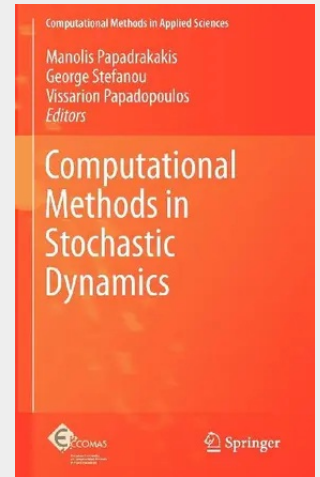


Computational Methods in Stochastic Dynamics

At the dawn of the 21st century, computational stochastic dynamics is an emerging research frontier. This book focuses on advanced computational methods and software tools which can highly assist in tackling complex problems in stochastic dynamic/seismic analysis and design of structures. The book is primarily intended for researchers and post-graduate students in the fields of computational mechanics and stochastic structural dynamics. Nevertheless, practice engineers as well could benefit from it as most code provisions tend to incorporate probabilistic concepts in the analysis and design of structures. The book addresses mathematical and numerical issues in stochastic structural dynamics and connects them to real-world applications. It consists of 16 chapters dealing with recent advances in a wide range of related topics (dynamic response variability and reliability of stochastic systems, risk assessment, stochastic simulation of earthquake ground motions, efficient solvers for the analysis of stochastic systems, dynamic stability, stochastic modelling of heterogeneous materials). Numerical examples demonstrating the significance of the proposed methods are presented in each chapter.

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