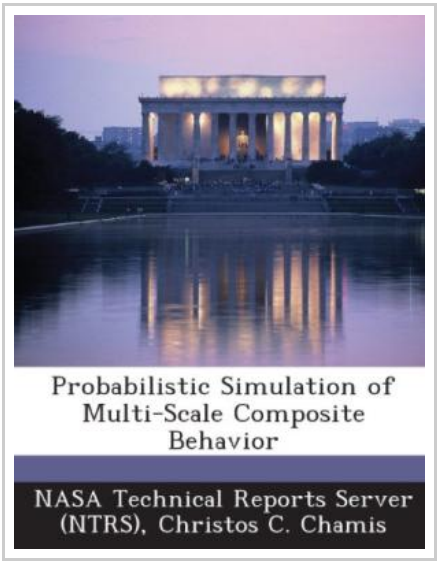

Probabilistic Simulation of Multi-Scale Composite Behavior

By Christos C. Chamis

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.A methodology is developed to computationally assess the non-deterministic composite response at all composite scales (from micro to structural) due to the uncertainties in the constituent (fiber and matrix) properties, in the fabrication process and in structural variables (primitive variables). The methodology is computationally efficient for simulating the probability distributions of composite behavior, such as material properties, laminate and structural responses. Bi-products of the methodology are probabilistic sensitivities of the composite primitive variables. The methodology has been implemented into the computer codes PICAN (Probabilistic Integrated Composite ANalyzer) and IPACS (Integrated Probabilistic Assessment of Composite Structures). The accuracy and efficiency of this methodology are demonstrated by simulating the uncertainties in composite typical laminates and comparing the results with the Monte Carlo simulation method. Available experimental data of composite laminate behavior at all scales fall within the scatters predicted by PICAN. Multi-scaling is extended to simulate probabilistic thermo-mechanical fatigue and to simulate the probabilistic design of a composite redome in order to illustrate its versatility. Results show that probabilistic fatigue can be simulated for different temperature amplitudes and for different cyclic stress magnitudes....

Reviews

This book will never be straightforward to start on reading through but quite enjoyable to learn. Better then never, though i am quite late in start reading this one. Your lifestyle span will probably be convert once you complete reading this publication.

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This publication may be worth purchasing. it was actually writtern quite flawlessly and valuable. I am just happy to tell you that this is actually the very best book i actually have study inside my personal life and can be he best ebook for actually.

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