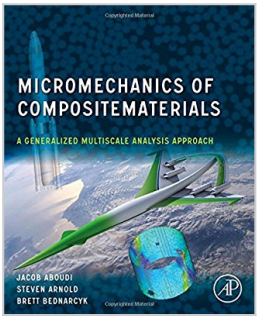

Micromechanics of Composite Materials: A Generalized Multiscale Analysis Approach

By Jacob Aboudi, Steven M. Arnold, Brett A. Bednarcyk

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With composites under increasing use in industry to replace traditional materials in components and structures, the modeling of composite performance, damage and failure has never been more important.

Micromechanics of Composite Materials: A Generalized Multiscale Analysis Approach brings together comprehensive background information on the multiscale nature of the composite, constituent material behaviour, damage models and key techniques for multiscale modelling, as well as presenting the findings and methods, developed over a lifetime's research, of three leading experts in the field.

The unified approach presented in the book for conducting multiscale analysis and design of conventional and smart composite materials is also applicable for structures with complete linear and nonlinear material behavior, with numerous applications provided to illustrate use.

Modeling composite behaviour is a key challenge in research and industry; when done efficiently and reliably it can save money, decrease time to market with new innovations and prevent component failure. This book provides the tools and knowledge from leading micromechanics research, allowing researchers and senior engineers within academia and industry with to improve results and streamline development workflows.

- Brings together for the first time the findings of a lifetime's research in micromechanics by recognized leaders in the field
- Provides a comprehensive overview of all micromechanics formulations in use today and a unified approach that works for the multiscale analysis and design of multi-phased composite materials, considering both small strain and large strain formulations
- Combines otherwise disparate theory, code and techniques in a step-by-step manner for efficient and reliable modeling of composites

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From the Back Cover

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Jacob Aboudi is a Professor Emeritus at the School of Mechanical Engineering, Tel Aviv University, Israel. He was formerly Head of the university's Department of Solid Mechanics, Materials and Structures, and Dean of their Faculty of Engineering. He has held visiting appointments at the University of Strathclyde, Northwestern University, Virginia Tech., and the University of Virginia and has over 40 years of research experience. He has written over 250 journal articles and two prior books.

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and is the primary developer of NASA’s MAC/GMC software.

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