Mechanical Engineering 2026

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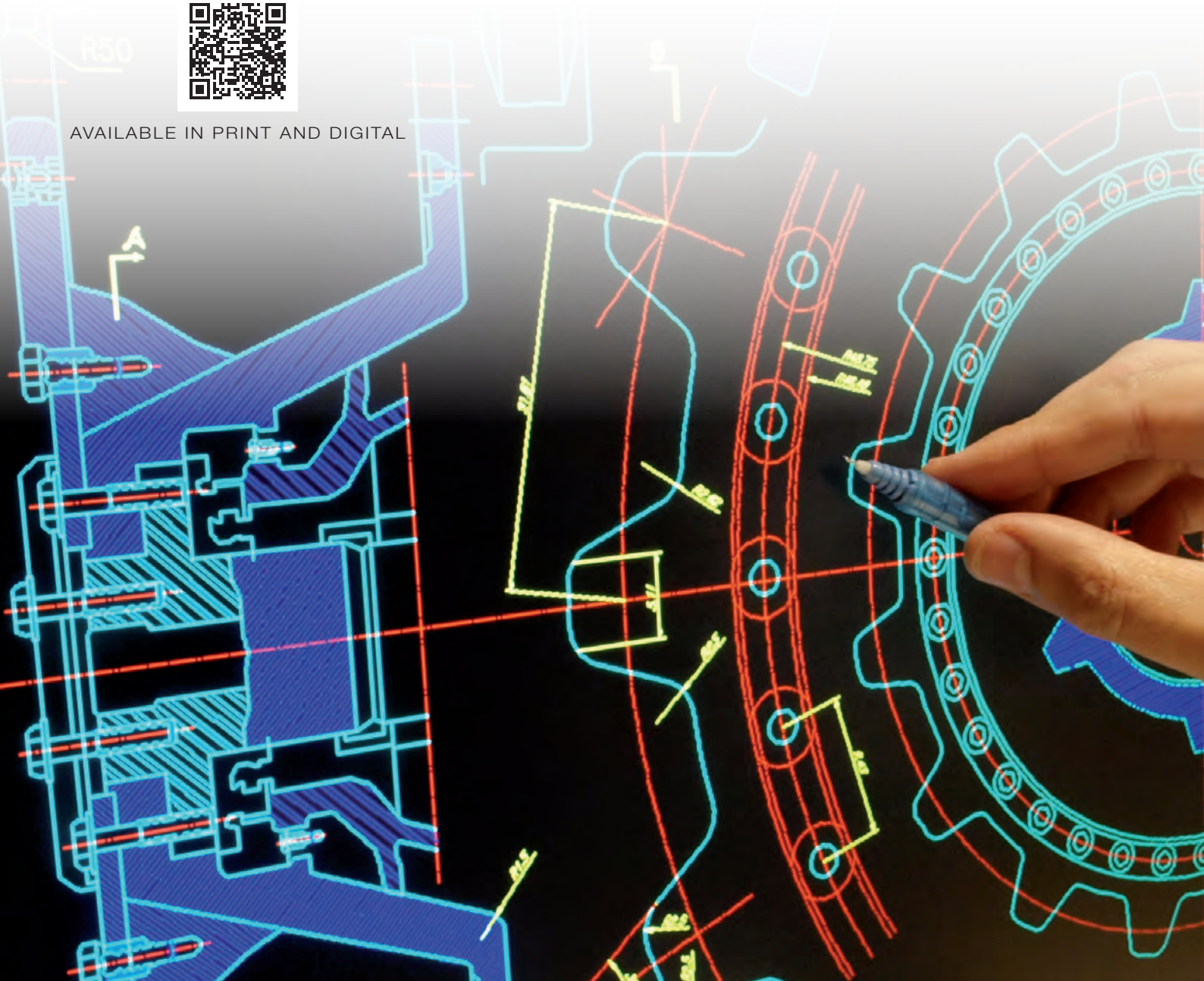

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(University of Maryland, USA)

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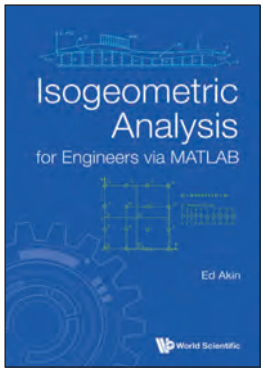

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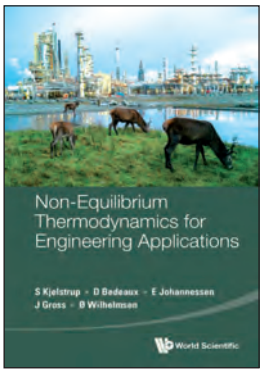

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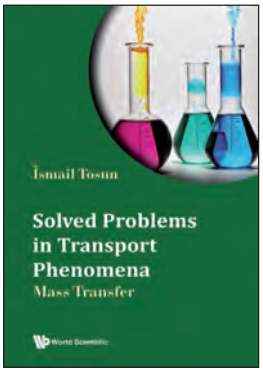

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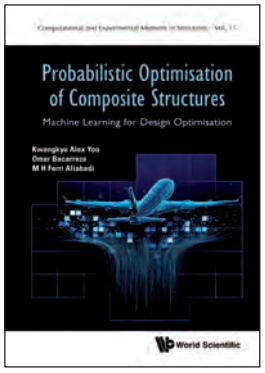

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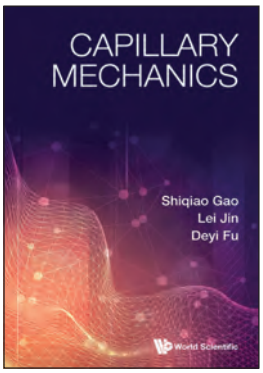

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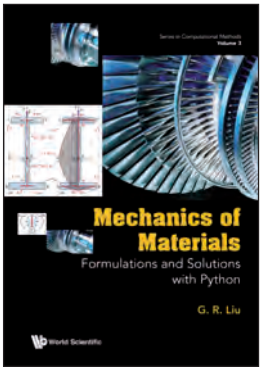

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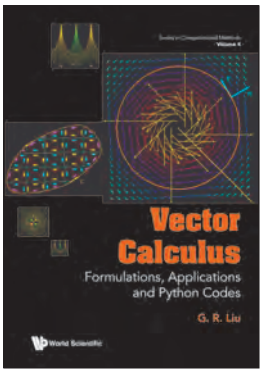

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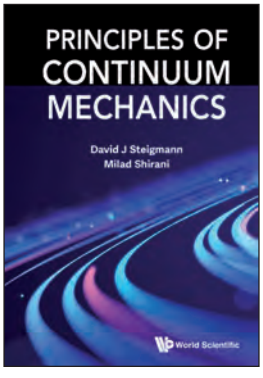

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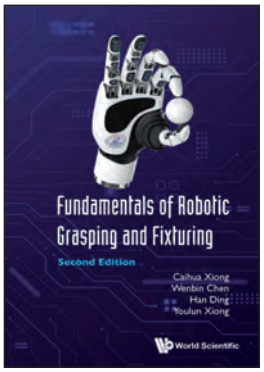

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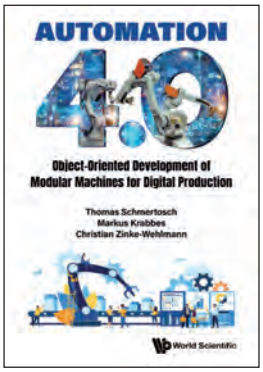

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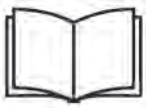

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Mechanical Engineering

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Acoustics

SMART STRUCTURES

From Concepts to Applications

by **Amr M Baz** *(University of Maryland, USA)*

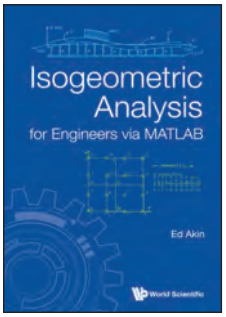
This book presents a comprehensive coverage of smart structures, from the basic concepts to a wide spectrum of critical applications, including piezoelectric-based sensors, actuators, and self-sensing actuators. Throughout the book, attempts have been made to develop electrical analogies of the structural/piezoelectric interactions.

Readership: Researchers, Professors and Lectures in Mechanical Engineering, Civil Engineering UG Elective and Graduate courses.

616pp	**Sep 2024**	
978-1-80061-412-3	**US$168**	**£155**
978-1-80061-413-0(ebook)	**US$269**	**£250**

ISOGEOMETRIC ANALYSIS FOR ENGINEERS VIA MATLAB

by **Ed Akin** *(Rice University, USA)*



This unique compendium approaches the relatively new Isogeometric Analysis (IGA) methods at senior undergraduates level in engineering or applied mathematics. It describes the differences between the well-established Finite Element Analysis (FEA) methods and why they are being replaced, or enhanced, by the latest developments in IGA.

Readership: Researchers, professionals, academics and senior undergraduate students in acoustics, dynamic systems and aerospace engineering.

476pp	**Jan 2025**	
978-981-128-853-1	**US$138**	**£125**
978-981-128-854-8(ebook)	**US$221**	**£205**

ADVANCES IN UNDERWATER ACOUSTICS, STRUCTURAL ACOUSTICS, AND COMPUTATIONAL METHODOLOGIES

(In 4 Volumes)
Volume 1: Underwater Acoustics
Volume 2: Structural Acoustics
Volume 3: Computational Acoustics
Volume 4: Aeroacoustics

edited by **Sean F Wu** *(Wayne State University, USA)* & **Steffen Marburg** *(Technical University of Munich, Germany)*

This set of volumes encompasses the study of acoustics to diverse environments ranging from underwater and marine environments, to structural and civil engineering, computational models and aerospace engineering. Each volume comprises peer-reviewed publications in the related field of acoustics from the past decade, arranged such as to review the existing literature, examine new methodologies and then explore novel applications of pioneering acoustic principles.

Readership: Practitioners and researchers specializing in the fields of acoustics and various fields of engineering including underwater/marine/ocean engineering, structural/civil engineering, computational modelling or aerospace engineering.

2400pp	**Aug 2025**	
978-981-9809-70-7(Set)	**US$1180**	**£1085**
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Bioengineering

BIOENGINEERING FLUID MECHANICS

by **Tin-Kan Hung** *(University of Pittsburgh, USA)*

- Relates the conventional fluid engineering to the different phenomena in bioengineering system
- Provides a systematic framework for life scientists to comprehend the mechanics of biological flow processes

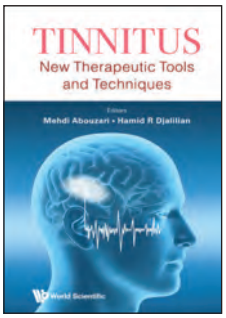
Readership: Researchers, professionals, academics, graduate and advanced undergraduate students in biomedical engineering, engineering mechanics, mechanical & aerospace engineering, chemical engineering and civil & environmental engineering.

200pp	**Feb 2026**	
978-981-4295-15-4	**US$68**	**£65**

TINNITUS

New Therapeutic Tools and Techniques

edited by **Mehdi Abouzari** *(University of California, Irvine, USA)* & **Hamid R Djalilian** *(University of California, Irvine, USA)*



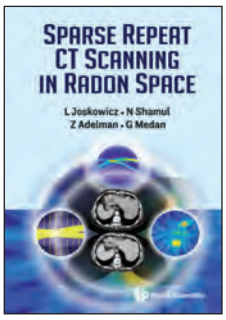
Edited and authored by an eminent group of tinnitus specialists from around the world, this concise volume summarises the new therapeutic approaches to the management of tinnitus, including dietary and lifestyle modifications, cognitive behavioral therapy, self-help and music therapy in tinnitus treatment.

Readership: Biomedical researchers; clinicians (academic and private providers); industry practitioners; undergraduate, graduate and medical students.

350pp	**May 2025**	
978-981-9807-33-8	**US$138**	**£125**
978-981-9807-34-5(ebook)	**US$221**	**£205**

SPARSE REPEAT CT SCANNING IN RADON SPACE

by **L Joskowicz** *(The Hebrew University of Jerusalem, Israel)*, **N Shamul** *(The Hebrew University of Jerusalem, Israel)*, **Z Adelman** *(The Hebrew University of Jerusalem, Israel)* & **G Medan** *(The Hebrew University of Jerusalem, Israel)*



This comprehensive compendium introduces a unique and novel approach to X-ray dose reduction by sparse repeat scanning. Based on sparse sampling in Radon space, the methods obviate the need for image reconstruction and reduce X-ray dose by up to 10 times of the normal dose without compromising the robustness and accuracy of the measurements.

Readership: Researchers, professionals, academics and graduate students in biomedical engineering and machine perception.

180pp	**Jan 2026**	
978-981-127-023-9	**US$78**	**£70**
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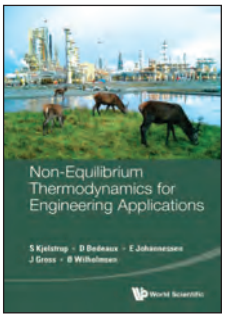
Chemical Engineering

NON-EQUILIBRIUM THERMODYNAMICS FOR ENGINEERING APPLICATIONS



by **S Kjelstrup** *(Norwegian University of Science and Technology, Norway)*, **D Bedeaux** *(Norwegian University of Science and Technology, Norway)*, **E Johannessen** *(Equinor, Norway)*, **J Gross** *(University of tuttgart, Germany)* & **Ø Wilhelmsen** *(Norwegian University of Science and Technology, Norway)*

"'Non-equilibrium Thermodynamics for Engineering Applications' is essential for those seeking to learn the foundational principles of non-equilibrium thermodynamics theory and its applications in optimizing chemical processes. The text builds upon the authors' extensive expertise in this area, accrued through years of teaching at graduate and postgraduate levels and advancing the field of non-equilibrium thermodynamics at their respective academic institutions. This expertise is evident in the writing style, effectively making the concepts engaging and accessible"

Professor Fernando Bresme
Imperial College London

This book presents the theory of non-equilibrium thermodynamics in a pedagogical and practical way that targets engineering applications. In it, tools to take advantage of the second as well as the first law of thermodynamics are provided.

Readership: Undergraduate and graduate students reading university courses containing thermodynamics or energy conversion issues, chemical and mechanical engineering, applied chemistry, and applied physics.

356pp	**Aug 2024**	
978-981-129-458-7	**US$118**	**£110**
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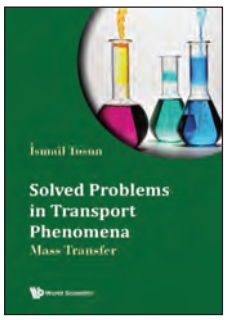

Mass Transfer
by **İsmail Tosun** *(Middle East Technical University, Turkey)*

Transport Phenomena is an umbrella term to describe the fundamental processes of momentum, energy, and mass transfer.

This unique compendium covers mass transfer, explaining clearly the detailed steps of problem-solving, namely formulation, simplification, and mathematical solution. Thus, students are able to grasp the methodology in problem-solving.

Readership: Researchers, professionals, academics and graduate and upper undergraduate students in chemical engineering, environmental engineering, and mechanical engineering.

384pp	**Mar 2025**	
978-981-9800-91-9	**US$138**	**£125**
978-981-9800-92-6(ebook)	**US$221**	**£205**

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by **Eran Sher** *(Technion – Israel Institute of Technology, Israel)*

This book is designed for a one-semester elective course for aerospace engineering and mechanical engineering students focused on propeller-driven propulsion systems for small and micro unmanned aerial vehicles. The material presented is based on basic knowledge in thermodynamics, fluid mechanics, and heat transfer.

Readership: Students opting for a one-semester elective course for aerospace engineering and mechanical engineering students.

210pp	**Oct 2025**	
978-981-129-591-1	**US$98**	**£90**
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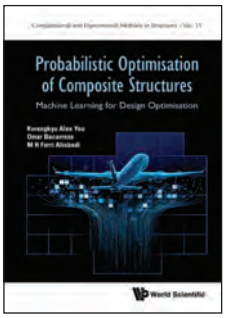


Machine Learning for Design Optimisation
by **Kwangkyu Alex Yoo** *(Imperial College London, UK & Deep.Meta, UK)*, **Omar Bacarreza** *(Imperial College London, UK & ORCA Computing, UK)* & **M H Ferri Aliabadi** *(Imperial College London, UK)*

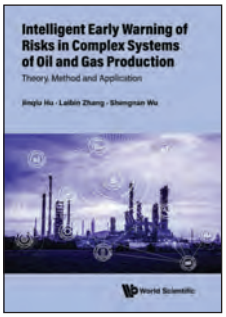
"The authors tackle a key challenge in aerospace engineering: creating lighter, more efficient, and sustainable aircraft without compromising safety. By simplifying the complexities of traditional probabilistic design, they offer a framework that allows early consideration of more variables — essential for addressing large-scale design problems."

Dimitrios Bekas, Airbus Operations GmbH

Readership: This book targets undergraduate and postgraduate students in the fields of aerospace engineering, mechanical engineering, and design engineering. It is also aimed at professional engineers and researchers in the aircraft, motor, civil engineering, wind energy, offshore oil & gas, and naval architecture industries.

208pp	**Apr 2025**	
978-1-80061-684-4	**US$88**	**£80**
978-1-80061-685-1(ebook)	**US$141**	**£130**

INTELLIGENT EARLY WARNING OF RISKS IN COMPLEX SYSTEMS OF OIL AND GAS PRODUCTION



Theory, Method and Application
by **Jinqiu Hu**, **Laibin Zhang** & **Shengnan Wu** *(China University of Petroleum-Beijing, China)*

This book begins with a discussion of the main risk factors and features of oil and gas production systems, and reviews the state-of-art research and practice on the industry's existing early warning systems. Following this, different approaches of intelligent early-warning technology are developed based on various data sources including real-time monitoring of process parameters through shale gas fracturing construction; infrared thermal imaging video surveillance of oil and gas exploration equipment; text records on historical accidents and incidents; and operator eye movement data (for behavioral safety tracking).

Readership: This book is intended for graduate-level students and for researchers in safety and reliability since it involves the recent frontiers in safety and reliability engineering. Benefit highly trained safety engineers in the oil and gas sectors, and even more widely in other industrial sectors.

400pp	**Jul 2025**	
978-981-9810-12-3	**US$138**	**£125**
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Mathematics in Engineering

THE SELECTED WORKS OF RODERICK S C WONG

Volume 4
edited by **Dan Dai** *(City University of Hong Kong, Hong Kong)* & **Ding-Xuan Zhou** *(The University of Sydney, Australia)*

This book represents a distinguished collection of research papers authored by the esteemed Professor Roderick Wong, a globally recognized mathematician, and a pioneer in the field of applied mathematics. His brilliant academic journey has spanned across different continents, including North America and Hong Kong.

Readership: Academics, researchers, post-graduate students, undergraduate students, mathematicians, physicists, engineers.

550pp	**Jun 2025**	
978-981-129-085-5	**US$168**	**£155**
978-981-129-086-2(ebook)	**US$269**	**£250**

AN INTRODUCTION TO THE METHOD OF FUNDAMENTAL SOLUTIONS

by **Alexander H-D Cheng** *(University of Mississippi, USA)*, **C S Chen** *(University of Southern Mississippi, USA)* & **Andreas Karageorghis** *(University of Cyprus, Cyprus)*

This book consists of two parts. Part I aims to provide theoretical support for beginners. In the spirit of reproducible research and to facilitate the understanding of the method and its implementation, several MATLAB codes have been included in Part II.

Readership: Numerical modelers, researchers in scientific computing for science and engineering, and numerical methods for partial differential equations. Design engineers, graduate students in applied mathematics and engineering, academic faculty and researchers in numerical methods.

616pp	**Apr 2025**	
978-981-129-847-9	**US$178**	**£165**
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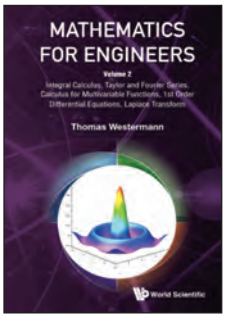
MATHEMATICS FOR ENGINEERS



Volume 2: Integral Calculus, Taylor and Fourier Series, Calculus for Multivariable Functions, 1st Order Differential Equations, Laplace Transform
by **Thomas Westermann** *(University of Applied Sciences Karlsruhe, Germany)*

This second volume in our series is intended primarily as a companion text for the second semester mathematics preliminaries for students and lecturers of electrical engineering and other engineering disciplines.

Readership: Undergraduate students of a technical discipline, students of engineering disciplines, lecturers for basic mathematics.

320pp	**Dec 2024**	
978-981-9800-78-0(pbk)	**US$48**	**£45**
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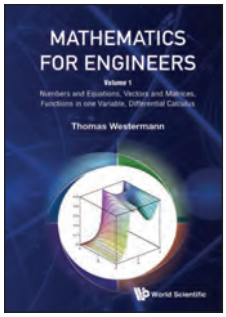
978-981-129-922-3(ebook)	**US$157**	**£145**

MATHEMATICS FOR ENGINEERS



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by **Thomas Westermann** *(University of Applied Sciences Karlsruhe, Germany)*

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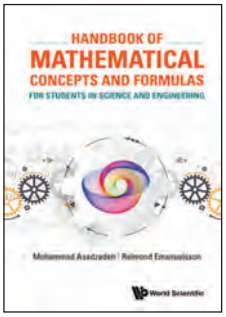
Readership: Undergraduate students of a technical discipline, students of engineering disciplines.

336pp	**Jun 2024**	
978-981-129-278-1(pbk)	**US$58**	**£55**
978-981-129-234-7	**US$128**	**£120**
978-981-129-235-4(ebook)	**US$205**	**£190**

HANDBOOK OF MATHEMATICAL CONCEPTS AND FORMULAS FOR STUDENTS IN SCIENCE AND ENGINEERING



by **Mohammad Asadzadeh** *(Chalmers University of Technology, Sweden)* & **Reimond Emanuelsson** *(Chalmers University of Technology, Sweden)*

This book is a comprehensive collection of the main mathematical concepts, including definitions, theorems, tables, and formulas, that students of science and engineering will encounter in their studies and later careers. *Handbook of Mathematical Concepts and Formulas* introduces the latest mathematics in an easily accessible format. It familiarizes readers with key mathematical and logical reasoning, providing clear routes to approach questions and problems.

Readership: Students in Natural Science and Engineering Programmes at universities, instructors, professionals in industry.

668pp	**Jan 2024**	
978-1-80061-331-7	**US$188**	**£175**
978-1-80061-332-4(ebook)	**US$301**	**£275**

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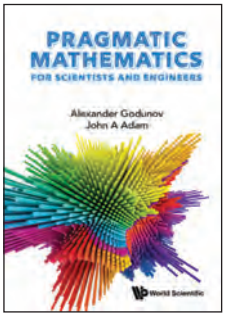


by **Alexander Godunov** & **John A Adam** *(Old Dominion University, USA)*

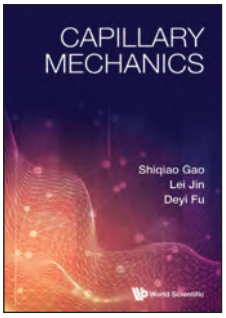
This is a textbook on basic to intermediate mathematics for undergraduate students majoring in the physical sciences and engineering. Many chapters, covering topics like Green's functions, calculus of variations, and functions of a complex variable, are well-suited for graduate classes. Additionally, researchers can benefit from the book as a mathematical refresher for their professional work.

Readership: Advanced undergraduate and graduate students majoring in science and engineering; researchers in science and engineering looking to refresh their mathematical knowledge for practical applications.

484pp	**Sep 2024**	
978-981-129-133-3	**US$158**	**£145**
978-981-129-134-0(ebook)	**US$253**	**£230**

Mechanical Engineering

CAPILLARY MECHANICS



by **Shiqiao Gao** *(Beijing Institute of Technology, China)*, **Lei Jin** *(Beijing Institute of Technology, China)* & **Deyi Fu** *(China Electric Power Research Institute, China)*

This book is a compilation of over a decade's worth of insights from the authors' research group on dynamic risk assessment and intelligent early warning systems. Highly technical approaches are provided to address the engineering requirements for the safe operation of complex systems in oil and gas production.

Readership: Academic researchers, professionals, graduate and post-graduates student working with capillary mechanics on the micro- to nano-scale.

230pp	**Jul 2025**	
978-981-9810-21-5	**US$88**	**£80**
978-981-9810-22-2(ebook)	**US$141**	**£130**

NONLOCAL CONTINUUM DAMAGE AND PLASTICITY

Theory and Computations

by **Rashid K Abu Al-Rub** *(Texas A&M University, USA)*

This book discusses the integral and gradient formulations of nonlocality, computational aspects, and comparison of approaches and emphasizes recent developments in the bridging of material length scales.

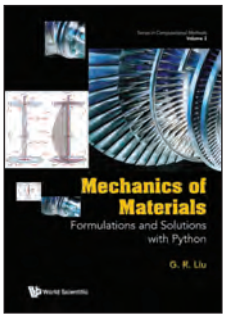
Readership: Researchers in the academic community, national laboratories in materials and solid mechanics, companies in engineering mechanics and materials, and graduate students.

600pp	**Feb 2026**	
978-981-281-397-8	**US$190**	**£175**
978-981-281-398-5(ebook)	**US$304**	**£280**

Series in Computational Methods - Vol 3

MECHANICS OF MATERIALS

Formulations and Solutions with Python



by **G R Liu** *(University of Cincinnati, USA)*

This unique compendium covers the fundamental principles of mechanics of materials, focusing on the mechanical behaviour of structural members under various types of loads, including axial loading, bending, shearing, and torsion. The members can have various shape and constrained in different ways. Concepts of energy and failure criteria are also included.

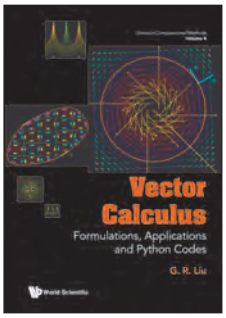
Readership: Researchers, professionals, academics and graduate students in engineering mechanics, mechanical engineering and aerospace engineering.

620pp	**Mar 2025**	
978-981-129-452-5	**US$178**	**£165**
978-981-129-453-2(ebook)	**US$285**	**£260**

Series in Computational Methods - Vol 4

VECTOR CALCULUS

Formulations, Applications and Python Codes



by **G R Liu** *(University of Cincinnati, USA)*

This unique compendium deals with the differentiation and integration of vector functions. It examines critical effects and extracts important features using powerful tools of differentiation and integration. Techniques and codes for computing the divergence, curl, and gradients of a given field function, which reveal the mathematical behavior of the vector field, are discussed. Green's theorem, Stokes's theorem, and Gauss's formula, along with their novel extensions, are presented in detail with applications such as the smoothed gradient method.

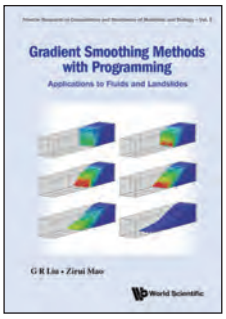
Readership: Researchers, professionals, academics and graduate students in engineering mechanics, mechanical engineering and calculus of variations.

300pp	**Jul 2025**	
978-981-9813-64-3	**US$118**	**£110**
978-981-9813-65-0(ebook)	**US$189**	**£175**

Frontier Research in Computation and Mechanics of Materials and Biology - Vol 5

GRADIENT SMOOTHING METHODS WITH PROGRAMMING

Applications to Fluids and Landslides



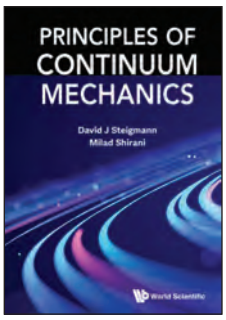
by **G R Liu** *(University of Cincinnati, USA)* & **Zirui Mao** *(Pacific Northwest National Laboratory, USA)*

This unique compendium presents the Gradient Smoothing Methods (GSMs), as a general solver for linear and nonlinear PDEs (Partial Differential Equations) with a focus on fluids and flowing solids.

Readership: Researchers, professionals, academics, and graduate students in engineering mechanics, numerical analysis, environmental engineering and earthquake engineering.

288pp	**Jan 2024**	
978-981-128-000-9	**US$98**	**£90**
978-981-128-001-6(ebook)	**US$157**	**£145**

PRINCIPLES OF CONTINUUM MECHANICS



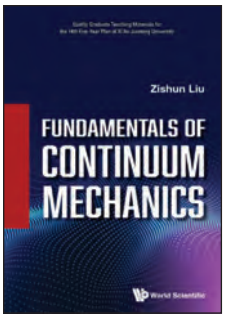
by **David J Steigmann** *(University of California, Berkeley, USA)* & **Milad Shirani** *(University of California, Berkeley, USA)*

This book covers the fundamental aspects of continuum mechanics (tensor methods, kinematics of deformation and motion, forces and balance laws) and includes a modern account of essential aspects of constitutive theory such as frame invariance, material symmetry, constraints, and restrictions imposed by thermodynamics.

Readership: Final year undergraduate and beginning graduate students of engineering and physics, researchers, instructors and practitioners.

336pp	**Mar 2025**	
978-981-9807-54-3(pbk)	**US$48**	**£45**
978-981-9806-85-0	**US$98**	**£90**
978-981-9806-86-7(ebook)	**US$157**	**£145**

FUNDAMENTALS OF CONTINUUM MECHANICS



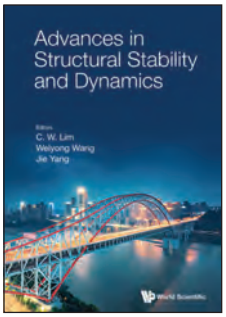
by **Zishun Liu** *(Xi'an Jiaotong University, China)*

This textbook offers a concise yet rigorous treatment of continuum mechanics at the introductory level. It differs from traditional textbooks by combining tensor analysis with mechanical analysis and teaching the former's basics within a single chapter. Readers of this book are not required to have learned tensor analysis in the context of engineering mathematics beforehand.

Readership: Undergraduate and postgraduate students, and professional engineers interested in learning about continuum mechanics, particularly those from non-mechanics-related disciplines.

388pp	**Mar 2024**	
978-981-128-378-9	**US$128**	**£120**
978-981-128-379-6(ebook)	**US$205**	**£190**

ADVANCES IN STRUCTURAL STABILITY AND DYNAMICS



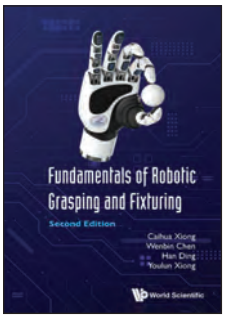
edited by **Chee Wah Lim** *(City University of Hong Kong, Hong Kong)*, **Weiyong Wang** *(Chongqing University, China)* & **Jie Yang** *(RMIT University, Australia)*

Contributed by eminent researchers, this unique volume is a collection of papers in the field of structural engineering with a special focus on stability and dynamics.

Readership: Researchers, professionals, academics and graduate students in mechanical engineering and civil engineering.

700pp	**Aug 2025**	
978-981-98-1476-3	**US$198**	**£180**
978-981-98-1477-0 (ebook)	**US$317**	**£290**

FUNDAMENTALS OF ROBOTIC GRASPING AND FIXTURING



2nd Edition

by **Caihua Xiong** *(Huazhong University of Science & Technology, China)*, **Wenbin Chen** *(Huazhong University of Science & Technology, China)*, **Han Ding** *(Huazhong University of Science & Technology, China)* & **Youlun Xiong** *(Huazhong University of Science & Technology, China)*

This book is uniquely designed for a thorough understanding of the fundamentals of the robotic grasping and fixturing (RGF) from the multifingered robot hand grasp, humanoid robot hand and basic fixture design principle, and evaluating and planning of robotic grasping/fixturing. It also focuses on the modeling and applications of the RGF.

Readership: Researchers, professionals, academics and graduate students in mechanical and electrical and electronic engineering.

280pp	**Jul 2025**	
978-981-9810-27-7	**US$98**	**£90**
978-981-9810-28-4(ebook)	**US$157**	**£145**

FIND THESE BOOKS VALUABLE TO YOUR COMMUNITY? RECOMMEND THEM TO YOUR LIBRARIAN.

PHYSICS-BASED COMPUTATIONAL METHODS FOR NONLINEAR FRAMED STRUCTURES AND PLATES/SHELLS

by **Yeong-Bin Yang** *(Chongqing University, China)*, **Der-Shen Yang** *(Tongji University, China)* & **Shyh-Rong Kuo** *(National Taiwan Ocean University, Taiwan)*

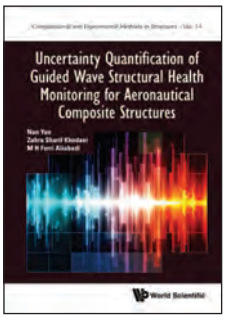
This book is ideal for researchers, practicing engineers, and students aiming for a practical, physically grounded perspective on nonlinear structural analysis, particularly for complex framed structures where traditional FEM approaches fall short.

Readership: Senior undergraduate and graduate students, researchers and practitioners in the fields of structural engineering, mechanics, and civil engineering.

400pp	**Aug 2025**	
978-981-9808-21-2	**US$148**	**£135**
978-981-9808-22-9(ebook)	**US$237**	**£220**

Computational and Experimental Methods in Structures - Vol 14

UNCERTAINTY QUANTIFICATION OF GUIDED WAVE STRUCTURAL HEALTH MONITORING FOR AERONAUTICAL COMPOSITE STRUCTURES



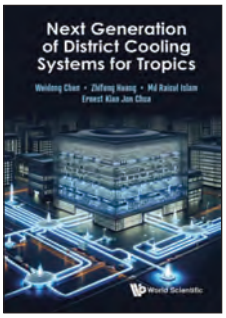
by **Nan Yue** *(Delft University of Technology, The Netherlands)*, **Zahra Sharif Khodaei** *(Imperial College London, UK)* & **M H Ferri Aliabadi** *(Imperial College London, UK)*

This book presents a guided wave-based structural health monitoring (GWSHM) system for aeronautical composite structures. Particular attention is paid to the development of a reliable and reproducible system with the capability to detect and localise barely visible impact damage (BVID) in carbon-fibre-reinforced polymer (CFRP) structures.

Readership: Advanced undergraduate and graduate students, researchers and practitioners in the fields of aerospace engineering, structural health monitoring, and ultrasonics.

204pp	**Mar 2024**	
978-1-80061-469-7	**US$88**	**£80**
978-1-80061-470-3(ebook)	**US$141**	**£130**

NEXT GENERATION OF DISTRICT COOLING SYSTEMS FOR TROPICS



by **Weidong Chen** *(National University of Singapore, Singapore)*, **Zhifeng Huang** *(National University of Singapore, Singapore)*, **Md Raisul Islam** *(National University of Singapore, Singapore)* & **Ernest Kian Jon Chua** *(National University of Singapore, Singapore)*

This compendium provides a comprehensive coverage of the latest development of smart district cooling systems in the world today, starting from smart chiller and pumping control and scheduling strategies to recent Artificial intelligence (AI), Machine learning (ML), and blockchain (BC) developments in the field.

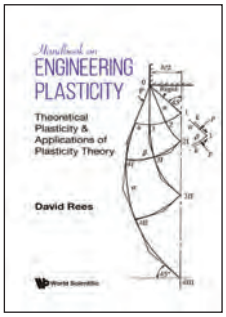
Readership: Researchers, professionals, academics and graduate students in mechanical engineering, systems engineering, energy studies and industrial engineering.

236pp	**Jan 2025**	
978-981-128-512-7	**US$88**	**£80**
978-981-128-513-4(ebook)	**US$141**	**£130**

HANDBOOK ON ENGINEERING PLASTICITY

Theoretical Plasticity & Applications of Plasticity Theory

by **David Rees** *(Brunel University of London, UK)*



This book brings together, in sixteen chapters, those elements of the mechanics of plasticity most pertinent to engineers. A textbook style has been adopted in which worked examples and exercises illustrate the application of the theoretical material. The latter is provided with appropriate references to journals and other published sources. An appendix contains worked examples to selected exercises.

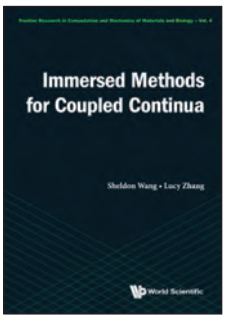
Readership: Undergraduates, postgraduates and practitioners in metal working. Includes applied mathematicians, physicists and materials scientists.

768pp	**Apr 2025**	
978-1-80061-994-4	**US$248**	**£230**
978-1-80061-995-1(ebook)	**US$397**	**£365**

Frontier Research in Computation and Mechanics of Materials and Biology - Vol 6

IMMERSED METHODS FOR COUPLED CONTINUA

by **Sheldon Wang** *(Midwestern State University, USA)* & **Lucy Zhang** *(Rensselaer Polytechnic Institute, USA)*



This compendium provides a broad introduction of original immersed boundary methods and current extension in computational mechanics communities. It highlights a comprehensive review of immersed methods in the context of computational fluid and solid mechanics.

Readership: Researchers, academics, professionals and graduate students in mechanical engineering, numerical analysis & computational maths, nonlinear science, and ocean engineering.

400pp	**Sep 2025**	
978-981-3234-50-5	**US$138**	**£125**
978-981-3234-51-2(ebook)	**US$221**	**£205**

Frontier Research in Computation and Mechanics of Materials and Biology - Vol 7

ACOUSTIC METAMATERIALS AND WAVE CONTROL

by **Xiaoming Zhou** *(Beijing Institute of Technology, China)* & **Gengkai Hu** *(Beijing Institute of Technology, China)*

The book starts with a simple mass-in-mass chain model to illustrate the concept of negative mass due to internal resonance and its impact on wave transmission. The practical transformation theory for controlling acoustic waves is explained. Pentamode acoustic metamaterials and related cloaking design are also included. Finally, the book ends up with the sub-diffraction-limited acoustic imaging based on metamaterials.

This comprehensive title gives a broad overview on different aspects of acoustic metamaterials with a balance of theory and experiment. It is not only a collection of the authors'original works to these interesting topics, but also the main achievements in this field.

Readership: Researchers, academics, professionals and graduate students in mechanical engineering, condensed matter physics, new materials, classical mechanics and applied physics.

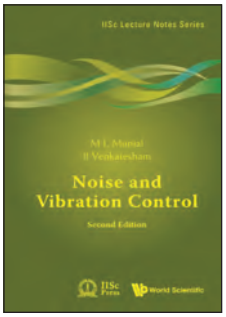
300pp	**Dec 2025**	
978-981-4641-68-5	**US$130**	**£120**
978-981-4641-69-2(ebook)	**US$208**	**£190**

IISc Lecture Notes Series - Vol 8

NOISE AND VIBRATION CONTROL

2nd Edition

by **M L Munjal** *(Indian Institute of Science, India)* & **B Venkatesham** *(Indian Institute of Technology Hyderabad, India)*



Review of the First Edition:

"The exercises in each chapter are self-contained and originate from the theory and practice, so that the readers and especially the designers and researchers in the subject can find many examples of controlled vibrations."

Zentralblatt MATH

Readership: Researchers, professionals, academics, and senior graduate students in mechanical engineering and environmental engineering.

440pp	**Aug 2024**	
978-981-128-314-7	**US$138**	**£125**
978-981-128-315-4(ebook)	**US$221**	**£205**

Unconventional Subsurface Flow and Transport - Vol 2

ART OF SINGLE-WELL PUSH-PULL TEST

by **Quanrong Wang** *(China University of Geosciences, Wuhan, China)*, **Hongbin Zhan** *(Texas A&M University, USA)* & **Wenguang Shi** *(China University of Geosciences, Wuhan, China)*

This book presents the latest achievements of SWPP in the radial dispersion. It provides the latest SWPP models, analytical solutions, numerical solutions and experimental data, and delves into the intricacies of SWPP testing, presenting cutting-edge models, analytical and numerical solutions, and field application.

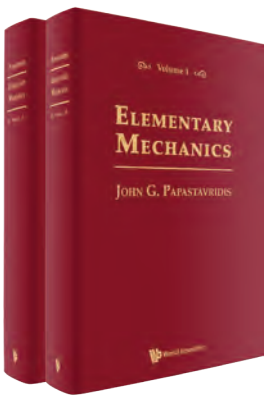
Readership: Graduate students and upper-level undergraduates studying hydrogeology, geothermal energy, environmental science, and related disciplines, and industry professionals — including hydrogeologists, geothermal engineers, environmental consultants, and energy company personnel.

520pp	**Jul 2025**	
978-981-129-558-4	**US$168**	**£155**
978-981-129-559-1(ebook)	**US$269**	**£250**

ELEMENTARY MECHANICS

(In 2 Volumes)

by **John G Papastavridis**
(Georgia Institute of Technology, USA)



This is a comprehensive and state-of-the-art compendium of classical or Newtonian (non relativistic and non quantum) mechanics from an advanced and unified viewpoint, namely, from the continuum, or field, form of the fundamental principles of linear and angular momentum of Euler, Cauchy, Hamel et al.

Readership: Teachers, and Researchers in most areas of engineering (especially aerospace, mechanical, and engineering mechanics), physics, and applied mathematics.

1680pp	**Jul 2025**	
978-981-4603-04-1(Set)	**US$384**	**£355**
978-981-4603-05-8(Set)(ebook)	**US$614**	**£565**

Ocean / Coastal Engineering

Ship and Offshore Structural Mechanics - Vol 1

NONLINEAR FINITE ELEMENT METHODS

Extreme and Accidental Conditions

by **Yong Bai** *(Zhejiang University, China)* & **Jeom Paik** *(University College London, UK)*

By keeping the mathematics simple, this reference volume includes a comprehensive presentation and analysis of algorithms of time-dependent phenomena plus beam, plate, and shell theories. Since the majority of applications of FEM are in the realm of mechanics including solid, fluids, structural and soil, descriptions in this book are focused on the important applications in structural engineering and science.

Readership: Researchers, professionals, academics and graduate students in civil engineering, mechanical engineering and ocean engineering.

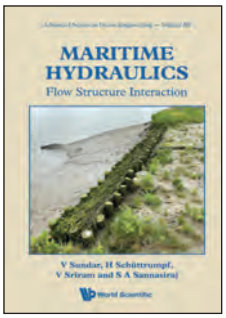
300pp	**Oct 2025**	
978-981-121-904-7	**US$118**	**£110**
978-981-121-905-4(ebook)	**US$189**	**£175**

Advanced Series on Ocean Engineering - Vol 58

MARITIME HYDRAULICS

Flow Structure Interaction

by **V Sundar** *(Indian Institute of Technology Madras, India)*, **H Schüttrumpf** *(RWTH Aachen University, Germany)*, **V Sriram** *(Indian Institute of Technology Madras, India)* & **S A Sannasiraj** *(Indian Institute of Technology Madras, India)*



This unique compendium comprehensively covers several important topics related to the field of maritime hydraulics, particularly the underlying physics in the wave structure interaction with the coastal structures, coastal and inland flooding during extreme events in addition to perineal erosion. These topics are well understood through physical and numerical modelling, in which the scale effects, proving the models and its range of applicability are vividly discussed.

Readership: Researchers, professionals, academics and graduate students in coastal engineering.

488pp	**Oct 2024**	
978-981-129-416-7	**US$148**	**£135**
978-981-129-417-4(ebook)	**US$237**	**£220**

COASTAL MANAGEMENT IN THE FACE OF CLIMATE CHANGE

by **Dominic Reeve** *(University of Plymouth, UK)*

The book is aimed at practicing coastal managers and engineers; to provide some practical guide to using the results of research efforts over the last decade. The material is also suitable for final year undergraduates and MSc students. It brings together in one book material that is currently dispersed across many sources which are not easy for the non-expert to access.

Readership: Graduate students, practitioners, and researchers in coastal engineering, civil engineering, environmental management and planning and environmental engineering.

200pp	**Aug 2026**	
978-1-84816-583-0	**US$106**	**£100**
978-1-84816-584-7(ebook)	**US$170**	**£155**

Thermal Engineering / Packaging and Thermodynamics

FLUID GAUGE THEORY

New Perspectives on Fluid Mechanics from Theoretical Physics

by **Tsutomu (Jixin) Kambe**

This new approach to Fluid Mechanics from the gauge-theoretic viewpoint is based on a new formulation proposed in two original papers — *Fluid Gauge Theory* and *Gauge Symmetries in Physical Fields*.

With a common platform in electromagnetism and theory of gravitation in theoretical physics, the material in the book is unique.

- Useful for researchers and postgraduate students not only in the field of fluid mechanics, but also turbulence, mechanical engineering, physics, geophysics, or space physics, and also to general readers interested in science
- Provides a key to resolving the historical riddle of the dust striation pattern observed in the Kundt's experiment of resonance tube of acoustics in 1866, more than 150 years ago; Computer experiments are currently carried out to study the Kundt's experiment of acoustic resonance

Readership: Graduate students and researchers in the field of fluid mechanics, mechanical engineering, physics, geophysics or space physics.

180pp	**Jan 2027**	
978-981-126-122-0	**US$78**	**£70**
978-981-126-123-7(ebook)	**US$125**	**£115**

THERMAL ENGINEERING

A Unified Approach

by **Abdulmajeed Mohamad** *(University of Calgary, Canada)* & **Shanmugam Dhinakaran** *(Indian Institute of Technology, India)*

This unique compendium explores its foundational concepts to advanced applications in modern technology. The book provides an integrated treatment of key topics, including the thermophysical properties of materials, the behavior of pure substances, and the fundamentals of energy transfer. Each chapter takes the reader from basic principles such as force, work, and energy, through to the complexities of entropy, energy balance equations, and their applications in real-world systems.

Readership: Researchers, professionals, academics and graduate students in mechanical engineering, aerospace engineering, and chemical engineering.

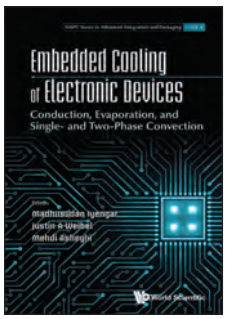
350pp	**Sep 2025**	
978-981-9806-82-9	**US$138**	**£125**
978-981-9806-83-6(ebook)	**US$221**	**£205**

WSPC Series in Advanced Integration and Packaging - Vol 8

EMBEDDED COOLING OF ELECTRONIC DEVICES

Conduction, Evaporation, and Single- and Two-Phase Convection

edited by **Madhusudan Iyengar** *(Google Plaforms, USA)*, **Justin A Weibel** *(Purdue University, USA)* & **Mehdi Asheghi** *(Stanford University, USA)*

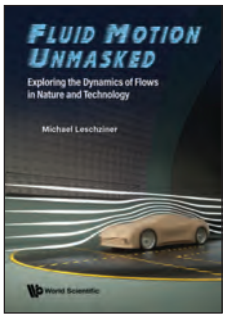


This book is a comprehensive guide on emerging cooling technologies for processors in microelectronics. It covers various topics such as chip-embedded two-phase cooling, monolithic microfluidic cooling, numerical modeling, and advances in materials engineering for conduction-limited direct contact cooling, with a goal to remedy high heat flux issues.

Readership: Electrical, packaging and thermal engineers, as well as Mechanical Engineering and Electronic Engineering MS and PhD students interested to understand and collaboratively tackle the complex and multidisciplinary field of microelectronics device (embedded) cooling.

480pp	**Feb 2024**	
978-981-127-793-1	**US$148**	**£135**
978-981-127-937-9(ebook)	**US$237**	**£220**

FLUID MOTION UNMASKED



Exploring the Dynamics of Flows in Nature and Technology
by **Michael Leschziner**
(Imperial College London, UK)

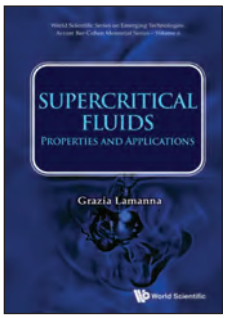
This book provides an engaging and descriptive introduction to the expansive world of fluid flows in nature and engineering, exploring their critical role in our lives. The diverse mechanisms behind observable phenomena and the properties of fluid flows are illuminated and linked to engineering applications, providing a solid foundation for a deeper appreciation of fluid dynamics. While the science underpinning these phenomena is inherently mathematical, this book

Readership: The book is geared towards prospective and early-stage undergraduate science and engineering students, particularly in aerospace, mechanical and civil engineering courses. The book will also appeal to scientifically curious non-specialists with an interest in engineering and fluid dynamics.

250pp	**Sep 2025**	
978-1-80061-774-2(pbk)	**US$48**	**£45**
978-1-80061-758-2	**US$88**	**£80**
978-1-80061-759-9(ebook)	**US$141**	**£130**

World Scientific Series on Emerging Technologies: Avram Bar-Cohen Memorial Series - Vol 6

SUPERCRITICAL FLUIDS



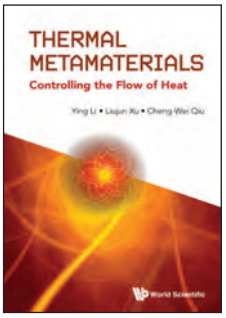
Properties and Applications
by **Grazia Lamanna** *(University of Stuttgart, Germany)*

This unique compendium revises the most recent thermodynamic theories of supercritical fluids, focusing on the dynamic crossover and the role of thermodynamic properties in controlling this crossover.

Readership: Researchers, professionals, academics, undergraduate and graduate students in aerospace engineering, applied physics and chemical engineering.

348pp	**Oct 2024**	
978-981-127-075-8	**US$138**	**£125**
978-981-127-076-5(ebook)	**US$221**	**£205**

THERMAL METAMATERIALS



Controlling the Flow of Heat
by **Ying Li** *(Zhejiang University, China)*, **Liujun Xu** *(Graduate School of China Academy of Engineering Physics, China)* & **Cheng-Wei Qiu** *(National University of Singapore, Singapore)*

"The authors have played indispensable roles in highlighting the field's importance through their contributions to thermal metamaterials. This book provides a comprehensive and insightful overview of landmark contributions and is suitable for both experts and novices."

Jiping Huang
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Readership: This book is suitable for undergraduate and graduate students in physics, materials science, mechanical engineering, and other majors related to thermal science and heat transfer. It can also serve as a reference for interested researchers and faculty.

320pp	**Mar 2025**	
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WSPC Series in Advanced Integration and Packaging

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by **Christopher Bailey** *(Arizona State University, USA)*, **Stoyan Stoyanov** *(University of Greenwich, UK)* & **Hua Lu** *(University of Greenwich, UK)*

The aim of this book is to provide readers with an in-depth understanding of current state-of-the-art in the use of co-design and modeling tools to predict reliability and robustness of advanced packaging and integration technologies for both micro and power electronic systems. Authored by world leading experts in the field the of multiphysics/multi-domain modeling, the book starts with an overview of advanced packaging and integration technologies which details the manufacturing and reliability challenges that need to be addressed in the development of, for example, 3D-IC, novel bumping technologies such a copper column, lead-free solders and nano-sintering, and packaging technologies such as wafer level packaging. The book then progresses to discuss state-of-the-art modeling tools and techniques and the evolving progression towards co-design, and multi-domain analysis to ensure reliability and robustness. .

Readership: Graduate students, researchers professionals, and electrical and mechanical engineers.

300pp	**Dec 2026**	
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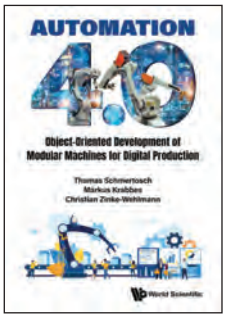

Object-Oriented Development of Modular Machines for Digital Production
by **Thomas Schmertosch** *(Leipzig University of Applied Sciences, Germany)*, **Markus Krabbes** *(Merseburg University of Applied Sciences, Germany)* & **Christian Zinke-Wehlmann** *(Institute for Applied Informatics at the Leipzig University, Germany)*

Automation 4.0 shows readers how the requirements of Industry 4.0 may be projected onto known design principles. The resulting functions are illustrated using real-life examples from industry to create a roadmap for drawing up a specification sheet for the design of a versatile processing machine. Numerous practical examples illustrate the modular, function- and object-oriented design of individual machines and systems as a solution for increasing efficiency throughout their entire life cycle.

Readership: Students of automation technology, mechatronics and industrial engineering with a focus on electrical engineering/ automation as well as for development and design engineers in those fields.

352pp	**Mar 2025**	
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Series in Electrical and Computer Engineering - Vol 8

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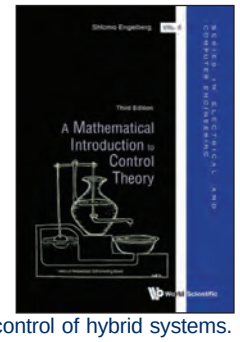

by **Shlomo Engelberg**
(Jerusalem College of Technology, Israel)

Review of the 2nd Edition:
"The book is an excellent introduction to classical control theory, based on frequency domain approach, modern control theory based on time domain approach, and nonlinear control and control of hybrid systems. The use of MATLAB will be beneficial to the students, undergraduate and graduate level. The readers are expected to know complex variable theory, differential equations and elementary modern algebra for using this book. It will serve elements of control theory, to both mathematicians and engineers, in a very systematic, rigorous manner." Zentralblatt MATH

Readership: Professionals, academics, researchers and graduate students.

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Fundamentals, Challenges and Perspectives

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No other books in the field of tribo-electrostatics have so comprehensively cover the basic knowledge and recent development on the subject, and should be benefit to graduate students in physical and engineering sciences. Such a text-book could also be of use to the engineers that need a better understanding of the physics behind the various useful or hazardous aspects of tribo-electrostatics, as well as to those who teach physics at high-school or university college level

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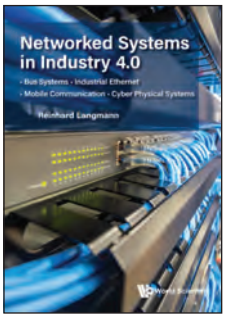

Bus Systems •Industrial Ethernet •Mobile Communication •Cyber Physical Systems

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This textbook conveys the basic knowledge required for the successful use of intelligent networked production systems. It is aimed at students from the fields of mechanical engineering, electrical engineering as well as process and environmental engineering, and is also suitable for practitioners who are involved in the automation of production. The basics of networked systems are illustrated using numerous application cases. More than 80 exercises provide the opportunity to test and deepen the knowledge acquired. The solutions to all the exercises, as well as additional supplementary material are also available.

Readership: Graduate and undergraduate students from the fields of mechanical engineering, electrical engineering as well as process and environmental engineering.

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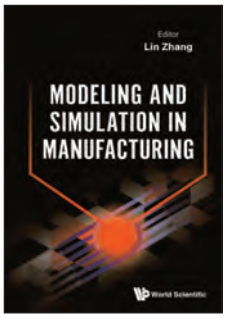

edited by **Lin Zhang** *(Beihang University (BUAA), China)*

The manufacturing industry is an important field of application for modeling and simulation (M&S) technology. M&S technology provides an effective, safe, and economical way for manufacturing practitioners to analyze and understand complex situations in manufacturing. This enables them to optimize production processes, reduce dependence on physical experiments, improve product quality, reduce production costs, and quickly respond to market changes. After more than 70 years of development, M&S technology has been successfully applied to all phases of the manufacturing lifecycle.

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The various practices from inventive design methodologies, deterministic and stochastic numerical methods, and the use of CAE simulation techniques, are mapped to the DFSS procedure. Many case studies are used to illustrate how tools are used in DFSS processes. Written by DFSS practitioners and technologists, this book is intended for any engineer to use as a reference in executing DFSS projects.

Readership: Graduate students, engineers and industrialists interested in the Design for Six Sigma methodology.

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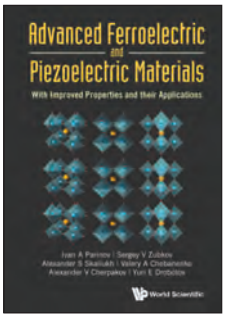

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by **Ivan A Parinov** *(Southern Federal University, Russia)*, **Sergey V Zubkov** *(Southern Federal University, Russia)*, **Alexander S Skaliukh** *(Southern Federal University, Russia)*, **Valery A Chebanenko** *(Southern Scientific Center of the Russian Academy of Sciences, Russia)*, **Alexander V Cherpakov** *(Southern Federal University, Russia)* & **Yuri E Drobotov** *(Southern Federal University, Russia)*

Discover the latest advances in ferroelectric and piezoelectric material sciences with this comprehensive monograph, divided into six chapters, each offering unique insights into the field.

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312pp	**Apr 2024**	
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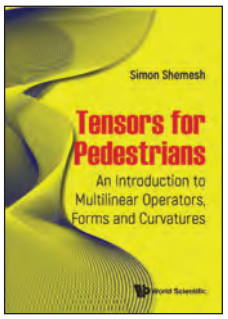
TENSORS FOR PEDESTRIANS



An Introduction to Multilinear Operators, Forms and Curvatures

by **Simon Shemesh** *(Israel Aerospace Industries, Israel)*

Tensor for Pedestrians is an accessible aid for physics and engineering undergraduates who seek a deeper understanding of tensors at an intuitive level. The book is intended as a self-study introduction to differential geometry, curvature, and Cartan moving frames. The subjects treated are planned to transit the student from the standard vector calculus taught in introductory courses towards modern differential geometry with its various applications. Presentation of the material is leisurely paced — as befits pedestrian learners. Chapters are self contained and equations in the text are fully explained without obscure and annoying gaps. The book is richly supplemented by many examples and detailed problems and solutions at the end of each chapter. All in all, the book will enable a beginner or an intermediate learner to explore and appreciate the beauty of the fundamental concepts presented..

Readership: Undergraduates of mathematics and engineering disciplines. Also physics undergraduates, especially those interested in particle physics and quantum fields, continuum physics, astrophysics and other disciplines of physics requiring differential geometry.

500pp	**Jun 2025**	
978-981-9811-62-5	**US$148**	**£135**
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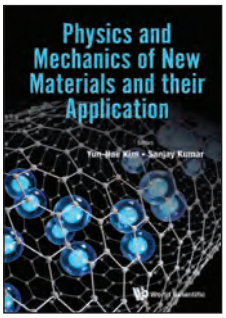

edited by **Yun-Hae Kim** *(National Korea Maritime and Ocean University, Korea)* & **Sanjay Kumar** *(National Korea Maritime and Ocean University, Korea)*

This book explores new materials, composites, and devices, examining the physics and mechanics behind them, as well as processing techniques and applications. The research presented in this book aims to enhance material characteristics through chemical, physical, and mechanical studies.

Readership: Researchers, academics, and graduate students in materials science and related fields. Also, industry professionals in manufacturing and engineering sectors would benefit from this book.

256pp	**Jan 2025**	
978-981-9807-71-0	**US$88**	**£80**
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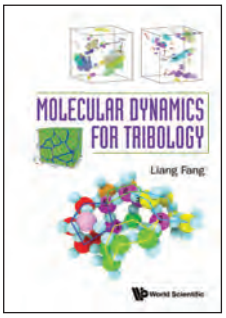

by **Liang Fang** *(Xiamen University Tan Kah Kee College, China)*

This comprehensive book employs molecular dynamics simulation methods to systematically discuss nanoscale friction and wear issues in the fields of micro-equipment and micro-manufacturing. It utilizes the LAMMPS large-scale parallel software for simulation calculations, and discusses dislocation theory, phase transformation theory, and phase field methods.

Readership: Researchers, professionals, academics and graduate students in tribology, mechanical engineering, computational nanoscience and MEMS/NEMS.

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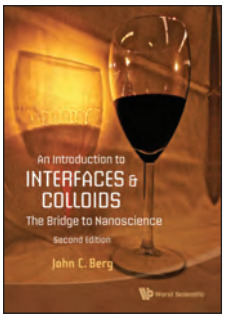

The Bridge to Nanoscience
2nd Edition
by **John C Berg** *(University of Washington, USA)*

Reviews of the First Edition:

"Born of decades of diverse experience performing research and teaching in the field of surface and colloid science, Prof. Berg's new textbook is a must buy for students just entering the field, as well as for experts. I find myself frequently referring to the book as a reference when writing grants. Prof. Berg's organization of the subject matter, combined with his exquisitely clear descriptions that provide a molecular level understanding of phenomena, have set a new standard for textbooks in the field."

Journal of Colloid and Interface Science

Readership: Senior undergraduate and graduate students in chemistry, physics, materials science, chemical engineering, civil engineering, mechanical engineering and related fields.

884pp	**May 2024**	
978-981-128-640-7(pbk)	**US$78**	**£70**
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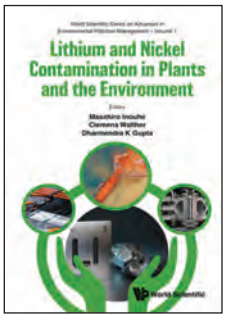

edited by **Masahiro Inouhe** *(Ehime University, Japan)*, **Clemens Walther** *(Gottfried Wilhelm Leibniz University Hannover, Germany)* & **Dharmendra K Gupta** *(Ministry of Environment, Forest and Climate Change, India)*

This edited volume brings together a diverse group of environmental science, sustainability and health researchers to address the challenges posed by global mass poisoning caused by lithium and nickel contamination of soil and plants. The book sheds light on this global environmental issue and proposes solutions to contamination through multi-disciplinary approaches and case studies from different parts of the world.

Readership: Teachers, and advanced undergraduate and graduate students in related fields, especially those specializing in the remediation of heavy metals and metalloids.

312pp	**Mar 2024**	
978-981-128-311-6	**US$128**	**£120**
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THERMOSETS

Structure, Property, Process, Performance
by **Jeffrey T Gotro** *(InnoCentrix, LLC, USA)* & **R Bruce Prime**

The motivation for this book will be to provide a comprehensive roadmap focusing on the structure/property/process/ performance relationships in thermoset polymers. Our book will focus on providing the reader with an appropriate introduction to the most common thermoset chemistries with the main focus on providing a detailed description of the curing process, and most importantly, comprehensive discussion of thermoset cure characterization using a multitude of methods.

Readership: Scientists, chemists, material scientists, chemical engineers, process engineers, and mechanical engineers involved in the formulation, processing, and end-use of thermosets. Also, a textbook for graduate level course in a polymer science curriculum.

600pp	**Apr 2026**	
978-981-9812-84-4	**US$198**	**£180**
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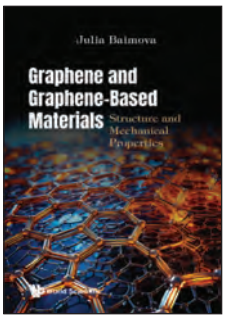
GRAPHENE AND GRAPHENE-BASED MATERIALS



Structure and Mechanical Properties
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"The mechanical properties of graphene are lucidly dealt with. Computational properties and molecular dynamics aspects are thoroughly discussed. This is a good book."

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Readership: Researchers, engineers and students working on graphene (and related structures) and mechanics of materials.

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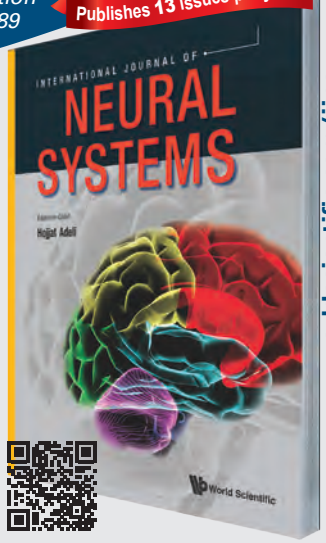

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Editor-In-Chief:
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Igor Aleksander, Imperial College of London, Nature

Hojjat Adeli received his Ph.D. from Stanford University in 1976 at the age of 26. He is an Academy Professor at The Ohio State University where he held the Abba G. Lichtenstein Professorship for ten years. He has authored over 650 research and scientific publications in various fields of computer science, engineering, applied mathematics, and medicine, including 16 ground-breaking high-technology books, and holds a United States patent in the area of design optimization. He is the recipient of 76 awards and honors including eught Honorary Doctorates and several Honorary Professorships at European and Asian Universities. In 1998 he received the *Distinguished Scholar Award*, The Ohio State University's highest research award "*in recognition of extraordinary accomplishment in research and scholarship*".

INTERNATIONAL JOURNAL OF MODELING, SIMULATION, AND SCIENTIFIC COMPUTING (IJMSSC)

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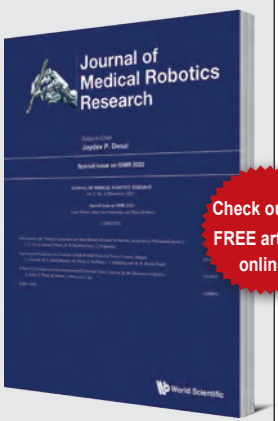

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Medical robotics has been progressively revolutionizing treatment for at least the past two decades. The *Journal of Medical Robotics Research (JMRR)* invites fundamental contributions to all areas of medical robotics including clinical evaluation studies. The journal is primarily aimed towards bringing the scientific and technological developments as well as clinical evaluation studies in the area of medical robotics to a wider robotics and clinical audience.

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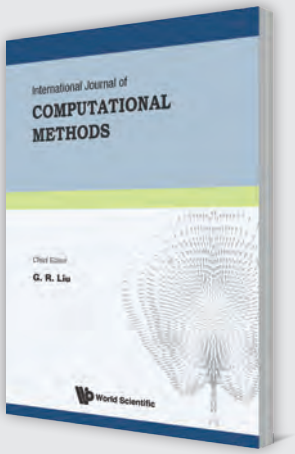

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The purpose of this journal is to provide a unique forum for the fast publication and rapid dissemination of original research results and innovative ideas on the state-of-the-art on computational methods. The methods should be innovative and of high scholarly, academic and practical value.

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UNMANNED SYSTEMS (US)

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Unmanned Systems (US) aims to cover all subjects related to the development of automatic machine systems, which include advanced technologies in unmanned hardware platforms (aerial, ground, underwater and unconventional platforms), unmanned software systems, energy systems, modeling and control, communications systems, computer vision systems, sensing and information processing, navigation and path planning, computing, information fusion, multi-agent systems, mission management, machine intelligence, artificial intelligence, and innovative application case studies.

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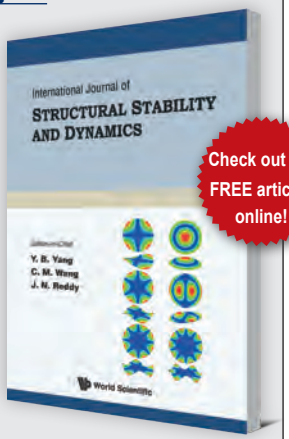

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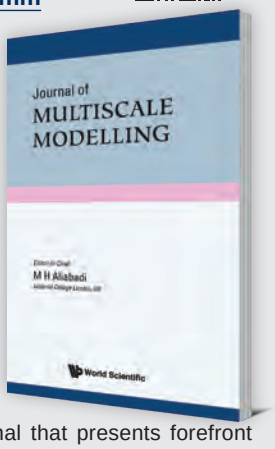

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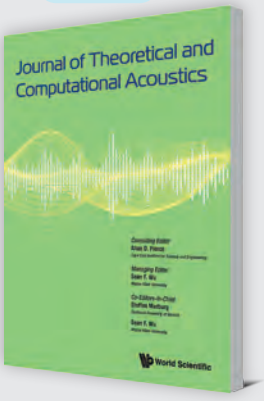

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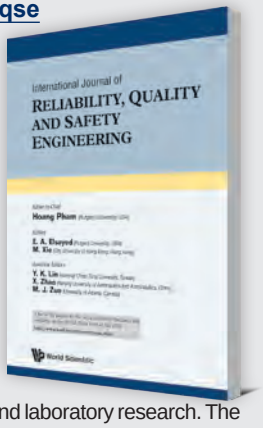

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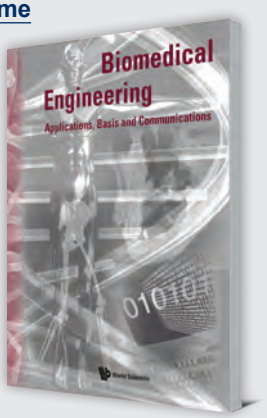

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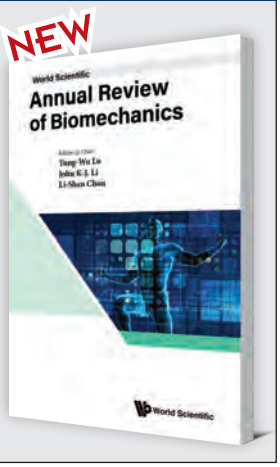

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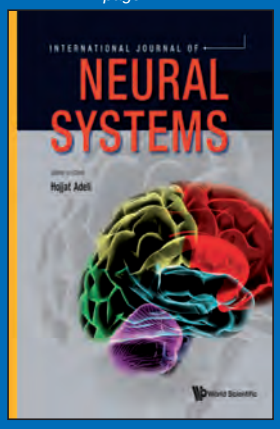

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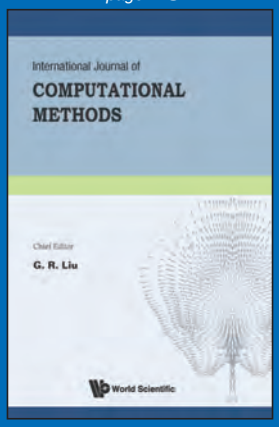

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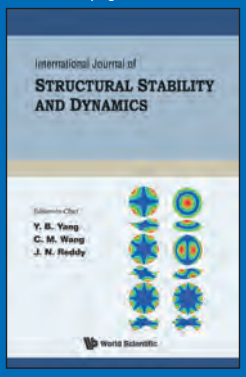

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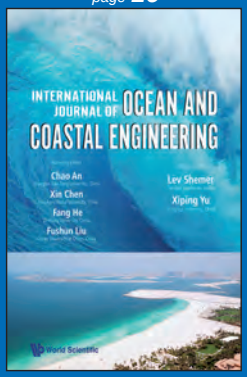

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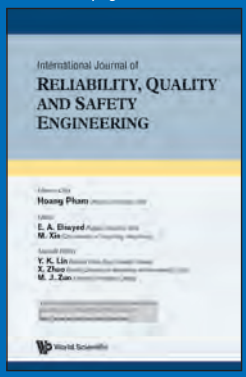

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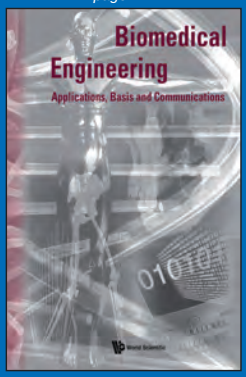

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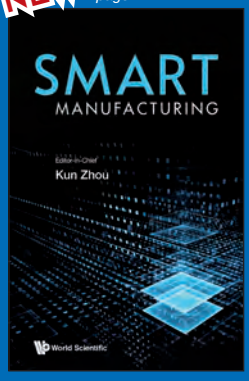

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