



# Mathematics

## 2026



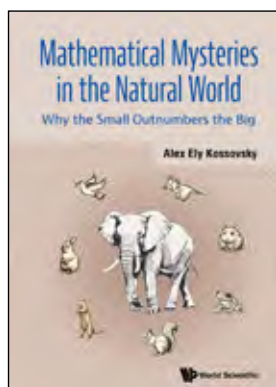
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Mathematics Catalogue 2026

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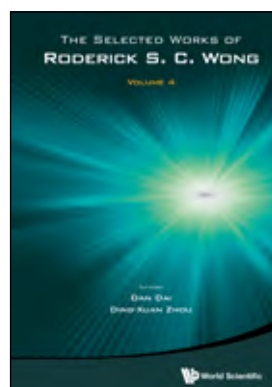
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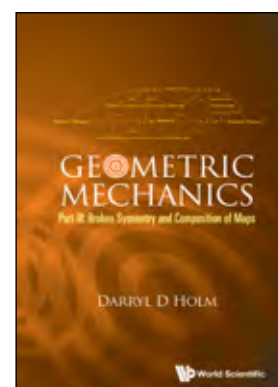
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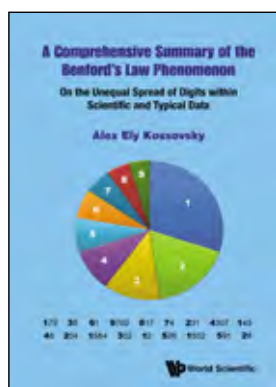
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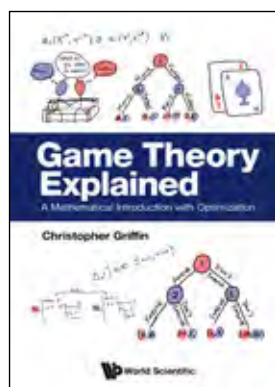
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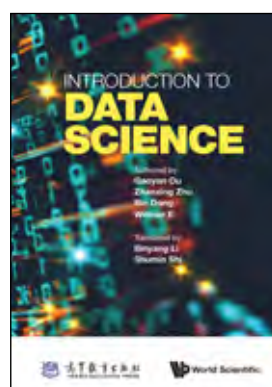
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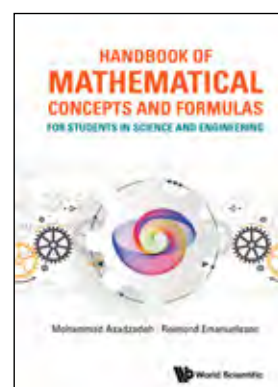
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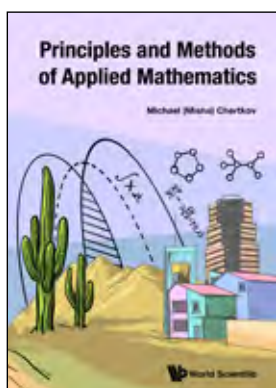
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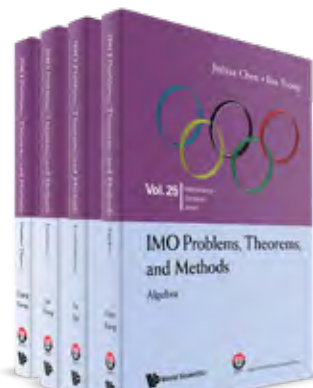
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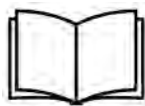
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# Mathematics

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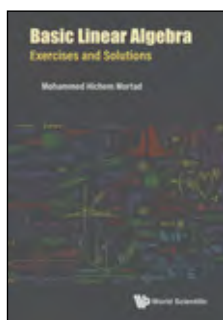


## ALGEBRA AND RELATED TOPICS

### Basic Linear Algebra

Exercises and Solutions  
by **Mohammed Hichem Mortad**  
(University of Oran 1, Algeria)

This book is mainly intended for first-year university students who undertake a basic linear algebra course, as well as instructors. It contains the basic notions of linear algebra through solved exercises as well as a "True or False" section in each chapter. Each chapter also contains an essential background section, which makes the book easier to use.

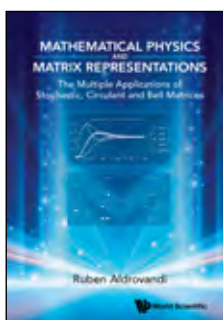


200pp	Sep 2025	
978-981-125-337-9(pbk)	US\$38	£35
978-981-125-267-9	US\$58	£55
978-981-125-268-6(ebook)	US\$98	£90

### Mathematical Physics and Matrix Representations

The Multiple Applications of Stochastic, Circulant and Bell Matrices  
by **Ruben Aldrovandi**

This book expounds three kinds of matrices that are of physical interest, centering on physical examples. Stochastic matrices describe dynamical systems of many different types, involving (or not) phenomena like transience, dissipation, ergodicity, nonequilibrium and hypersensitivity to initial conditions. The main characteristic is growth by agglomeration, as in glass formation. Circulants are the building blocks of elementary Fourier analysis and provide a natural gateway quantum mechanics, noncommutative geometry and random walks, including some phenomenology like diffusion-advection equation and prey-predator chains.

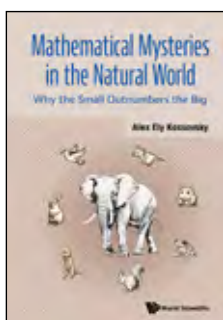


440pp	Aug 2025	
978-981-9813-88-9	US\$158	£145
978-981-9813-89-6(ebook)	US\$253	£230

### Mathematical Mysteries in the Natural World

Why the Small Outnumbers the Big  
by **Alex Ely Kossovsky**

This book explores the universal phenomenon of skewed size distributions, where smaller entities vastly outnumber larger ones, across various domains, including economics, astronomy, biology, and more. Through real-life case studies and mathematical analysis, the book offers insights into why this pattern persists and provides a numerical quantification of the phenomenon.



Readers of all disciplines and levels of expertise will find an easily accessible yet original exploration that concludes with a numerical quantification demonstrating precisely by how much the relatively small is more numerous than the relatively big.

250pp	Aug 2025	
978-981-9803-01-9(pbk)	US\$38	£35
978-981-9801-82-4	US\$68	£65
978-981-9801-83-1(ebook)	US\$109	£100

### Additive and Multiplicative Number Theory

by **Tianxin Cai** (Zhejiang University, China)

Translated by: **Tyler Ross**

Number theory could be divided into additive number theory and multiplicative number theory. In this book we raise the so-called additive and multiplicative equation, it is our new creation, and it is the collection and extension of research results by the author in the past decade. They are related with classical number theory problems. The contents consists of 7 chapters, i.e., New Waring Problem, New Fermat Problem, Euler's Conjecture, Representations of Integers as Sums of Squares, Figurate Primes and F-Perfect Numbers, abcd Equation and New Congruent Numbers, Additive and Multiplicative Congruences and Other Topics.

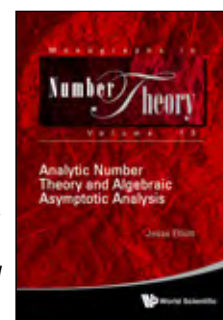
280pp	Sep 2025	
978-981-9806-54-6	US\$98	£90
978-981-9806-55-3(ebook)	US\$157	£145

Monographs in Number Theory

### Analytic Number Theory and Algebraic Asymptotic Analysis

by **Jesse Elliott** (California State University, Channel Islands, USA)

This monograph elucidates and extends many theorems and conjectures in analytic number theory and algebraic asymptotic analysis via the natural notions of degree and *logexponential degree*. The Riemann hypothesis, for example, is equivalent to the statement that the degree of the function  $\pi(x) - \text{li}(x)$  is  $\frac{1}{2}$ , where  $\pi(x)$  is the prime counting function and  $\text{li}(x)$  is the logarithmic integral function. Part 1 of the text is a survey of analytic number theory, Part 2 introduces the notion of logexponential degree and uses it to extend results in algebraic asymptotic analysis, and Part 3 applies the results of Part 2 to the various functions that figure most prominently in analytic number theory.

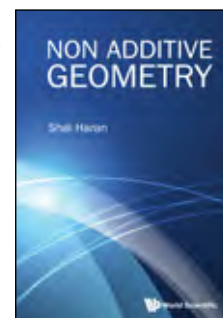


780pp	Jul 2025	
978-981-128-053-5	US\$178	£165
978-981-128-054-2(ebook)	US\$285	£260

### Non Additive Geometry

by **Shai Haran** (Technion – Israel Institute of Technology, Israel)

*Non Additive Geometry* introduces a ground-breaking approach to arithmetic geometry, replacing traditional structure of commutative rings with Props and Bioperads — algebraic systems that can handle matrix multiplication and block direct sums. These structures allow for a deeper exploration of algebraic geometry, where addition no longer holds as a universal operation, particularly at the critical "Real prime."



The book presents an innovative and comprehensive study of this new geometric framework, discussing its implications for arithmetic geometry and its potential applications in physics.

192pp	Jun 2025	
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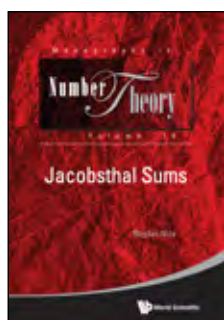


## Monographs in Number Theory

Jacobsthal Sums

by **Bogdan Nica** (*Indiana University Indianapolis, USA*)

The focus of this monograph is on the Jacobsthal sums of the title. These are quadratic character sums with polynomial arguments of a certain simple form. In addition to studying Jacobsthal sums on their own, the monograph explores their role in several topics of number-theoretical interest. A prominent theme is their use in counting solutions to equations over prime fields. Another aim is to construct representations of primes as sums of squares using Jacobsthal sums. Finally, Jacobsthal sums are applied to evaluate other quadratic character sums with polynomial arguments.



<b>184pp</b>	<b>Jun 2025</b>	
<b>978-981-9813-16-2</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-9813-17-9(ebook)</b>	<b>US\$125</b>	<b>£115</b>

## Magic, Mathematics, and Playing Cards

by **Jorge Nuno Silva** (*University of Lisbon, Portugal*), **Pedro J Freitas** (*University of Lisbon, Portugal*), **Alexandre Silva** (*Colégio de S José do Ramalhão Portugal*) & **Tiago Hirth** (*University of Lisbon, Portugal*)

Drawing from their collective experience as math enthusiasts, the authors, who are co-founders of Mathematical Circus, have compiled a collection of mathematical activities centered around a standard deck of cards. This book presents a range of self-working card tricks, each rooted in mathematical principles, explained in a clear and straightforward manner. Designed to be both educational and entertaining, the book makes these mathematical concepts accessible to readers of all backgrounds.

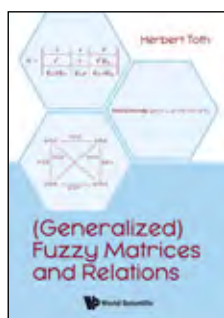


<b>212pp</b>	<b>Jun 2025</b>	
<b>978-981-9808-16-8(pbk)</b>	<b>US\$38</b>	<b>£35</b>
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<b>978-981-9807-43-7(ebook)</b>	<b>US\$125</b>	<b>£115</b>

## (Generalized) Fuzzy Matrices and Relations

by **Herbert Toth**

The book provides an overview of the main concepts and results related to fuzzy matrices and fuzzy relations, using 'fuzzy' in a general sense to mean many-valued. This overview, along with numerous references to original contributions dispersed across various journals, serves as a comprehensive guide for further exploration.



This volume can be viewed in two ways: (i) as a companion to the author's previous work, "Relations: Concrete, Abstract, and Applied" (published by WSPC, 2020), but with a distinct emphasis on many-valued concepts; or (ii) as a standalone volume that can be read independently, which necessarily includes some repetition of material from the earlier book as preliminary or reference content.

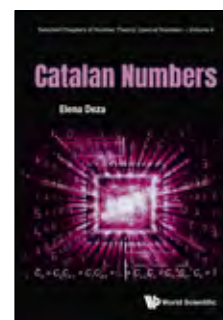
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<b>978-981-129-836-3(ebook)</b>	<b>US\$269</b>	<b>£250</b>

Selected Chapters of Number Theory:  
Special Numbers - Vol 4

## Catalan Numbers

by **Elena Deza** (*Moscow Pedagogical State University, Russia*)

Catalan numbers arise in a variety of combinatorial problems. They have many interesting properties, a rich history, and numerous arithmetic, number-theoretical, analytical, and combinatorial connections, as well as a variety of classical and modern applications. Considering the long list of open problems and questions related to the classical case, its relatives (Bell numbers, Motzkin numbers, Narayana numbers, etc.) and its generalizations, this book provides a broad perspective on the theory of this class of special numbers that will be of interest to professionals, students, and a general audience.



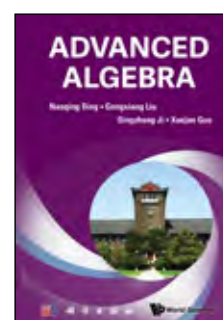
<b>488pp</b>	<b>Jan 2025</b>	
<b>978-981-129-322-1</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-129-323-8(ebook)</b>	<b>US\$237</b>	<b>£220</b>

## Advanced Algebra

by **Nanqing Ding, Gongxiang Liu, Qingzhong Ji & Xuejun Guo** (*Nanjing University, China*)

This book evolved from our lectures in the advanced algebra courses at Nanjing University. It is intended for use by instructors and undergraduate students in a one-year advanced algebra course.

The topics covered in this book consist of integers and polynomials, determinants and matrices, linear systems, linear spaces, linear maps,  $\lambda$ -matrices, quadratic forms, inner product spaces, and bilinear forms.

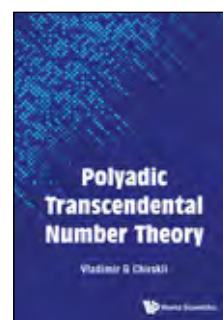


<b>512pp</b>	<b>Nov 2024</b>	
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<b>978-981-129-553-9(ebook)</b>	<b>US\$253</b>	<b>£230</b>

## Polyadic Transcendental Number Theory

by **Vladimir G Chirskii** (*Lomonosov Moscow State University, Russia*)

*Polyadic Transcendental Number Theory* outlines the extension of the Siegel–Shidlovskii method to a new class of  $F$ -series (also called Euler-type series). Analogues of Shidlovskii's famous theorems on  $E$ -functions are obtained. Arithmetic properties of infinite-dimensional vectors are studied, and therefore elements of direct products of rings of integer  $p$ -adic numbers are considered. Hermite–Padé approximations are used to investigate the values of hypergeometric series with algebraic irrational parameters. Moreover, the book describes how to use Hermite–Padé approximations to obtain results on the values of hypergeometric series with certain transcendental (polyadic Liouville) parameters. Based on recent results, this book contains indications of promising areas in a new field of research.



<b>216pp</b>	<b>Sep 2024</b>	
<b>978-1-80061-588-5</b>	<b>US\$88</b>	<b>£80</b>
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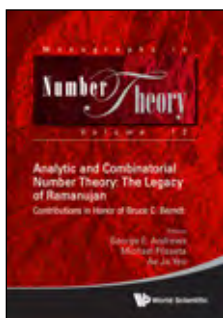
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Monographs in Number Theory - Vol 12  
**Analytic and Combinatorial  
 Number Theory: The Legacy  
 of Ramanujan**

Contributions in Honor of Bruce C Berndt  
 edited by **George E Andrews**  
 (The Pennsylvania State University, USA),  
**Michael Filaseta** (University of  
 South Carolina, USA) & **Ae Ja Yee**  
 (The Pennsylvania State University, USA)



This volume reflects the contributions stemming from the conference *Analytic and Combinatorial Number Theory: The Legacy of Ramanujan* which took place at the University of Illinois at Urbana-Champaign on June 6 – 9, 2019. The conference included 26 plenary talks, 71 contributed talks, and 170 participants. As was the case for the conference, this book is in honor of Bruce C Berndt and in celebration of his mathematics and his 80th birthday.

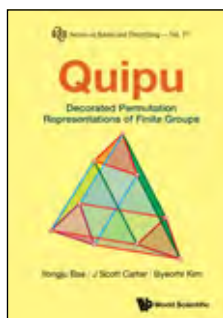
Along with a number of papers previously appearing in Special Issues of the International Journal of Number Theory, the book collects together a few more papers, a biography of Bruce by Atul Dixit and Ae Ja Yee, a preface by George Andrews, a gallery of photos from the conference, a number of speeches from the conference banquet, the conference poster, a list of Bruce's publications at the time this volume was created, and a list of the talks from the conference.

<b>704pp</b>	<b>Sep 2024</b>	
<b>978-981-127-736-8</b>	<b>US\$188</b>	<b>£175</b>
<b>978-981-127-737-5(ebook)</b>	<b>US\$301</b>	<b>£275</b>

Series on Knots and Everything - Vol 77

**Quipu**

Decorated Permutation  
 Representations of Finite Groups  
 by **Yongju Bae** (Kyungpook National  
 University, South Korea), **J Scott Carter**  
 (University of South Alabama, USA) &  
**Byeorhi Kim** (Pohang University of Science  
 and Technology, South Korea)

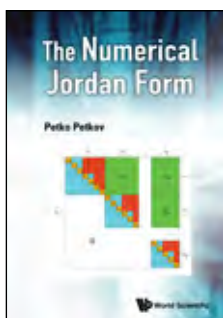


This book studies dihedral groups, dicyclic groups, other finite subgroups of the 3-dimensional sphere, and the 2-fold extensions of the symmetric group on 4 letters from the point of view of decorated string diagrams of permutations. These are our metaphorical quipu. As you might expect, the book is replete with illustrations. In (almost) all cases, explicit diagrams for the elements of the group are given. The exception is the binary icosahedral group in which only the generators and relations are exhibited.

<b>456pp</b>	<b>Jul 2024</b>	
<b>978-981-129-275-0</b>	<b>US\$158</b>	<b>£145</b>
<b>978-981-129-276-7(ebook)</b>	<b>US\$253</b>	<b>£230</b>

**The Numerical Jordan Form**

by **Petko Petkov** (Bulgarian Academy of  
 Sciences, Bulgaria)



*The Numerical Jordan Form* is the first book dedicated to exploring the algorithmic and computational methods for determining the Jordan form of a matrix, as well as addressing the numerical difficulties in finding it. Unlike the “pure” Jordan form, the numerical Jordan form preserves its structure under small perturbations of the matrix elements so that its determination presents a well-posed computational problem. If this structure is well conditioned, it can be determined reliably in the presence of uncertainties and rounding errors.

Researchers in the fields of numerical analysis and matrix computations and any scientists who utilise matrices in their work will find this book a useful resource, and it is also a suitable reference book for graduate and advance undergraduate courses in this subject area.

<b>656pp</b>	<b>Jun 2024</b>	
<b>978-981-128-644-5</b>	<b>US\$188</b>	<b>£175</b>
<b>978-981-128-645-2(ebook)</b>	<b>US\$301</b>	<b>£275</b>

Lecture Notes Series, Institute for  
 Mathematical Sciences, National University  
 of Singapore - Vol 43

**On the Langlands Program**

Endoscopy and Beyond  
 edited by **Wee Teck Gan** (National University  
 of Singapore, Singapore), **Dihua Jiang**  
 (The University of Minnesota – Twin Cities,  
 USA), **Lei Zhang** (National University of  
 Singapore, Singapore) & **Chen-Bo Zhu**  
 (National University of Singapore, Singapore)



This is a collection of lecture notes from the minicourses in the December 2018 *Langlands Workshop: Endoscopy and Beyond*. The volume combines seven introductory chapters on trace formulas, local Arthur packets, and beyond endoscopy. It aims to introduce the endoscopy classification via a basic example of the trace formula for  $SL(2)$ , explore the more refined questions on the structure of Arthur packets, and look beyond endoscopy following the suggestions of Langlands, Braverman–Kazhdan, Ngo, and Altuğ.

<b>448pp</b>	<b>May 2024</b>	
<b>978-981-128-581-3</b>	<b>US\$158</b>	<b>£145</b>
<b>978-981-128-582-0(ebook)</b>	<b>US\$253</b>	<b>£230</b>

**Starting Category Theory**

by **Paolo Perrone** (University of Oxford, UK)

*Starting Category Theory* serves as an accessible and comprehensive introduction to the fundamental concepts of category theory. Originally crafted as lecture notes for an undergraduate course, it has been developed to be equally well-suited for individuals pursuing self-study. Most crucially, it deliberately caters to those who are new to category theory, not requiring readers to have a background in pure mathematics, but only a basic understanding of linear algebra.

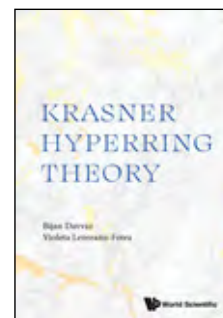


<b>464pp</b>	<b>May 2024</b>	
<b>978-981-128-600-1</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-128-601-8(ebook)</b>	<b>US\$237</b>	<b>£220</b>

**Krasner Hyperring Theory**

by **Bijan Davvaz** (Yazd University, Iran) &  
**Violeta Leoreanu-Fotea** (Alexandru Ioan  
 Cuza University of Iasi, Romania)

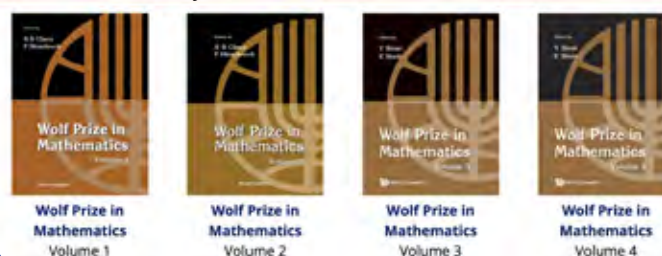
*Krasner Hyperring Theory* presents an elaborate study on hyperstructures, particularly Krasner hyperrings, across 10 chapters with extensive examples. It contains the results of the authors, but also of other researchers in the field, focusing especially on recent research. This book is especially addressed to doctoral students or researchers in the field, as well as to all those interested in this interesting part of algebra, with applications in other fields.



<b>308pp</b>	<b>Mar 2024</b>	
<b>978-981-128-540-0</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-128-541-7(ebook)</b>	<b>US\$173</b>	<b>£160</b>

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## DIFFERENTIAL AND INTEGRAL EQUATIONS

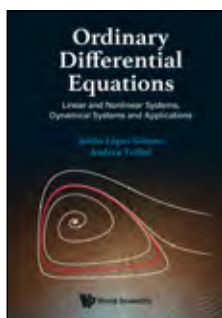
**Ordinary Differential Equations**

Linear and Nonlinear Systems,  
Dynamical Systems and Applications  
by **Julián López-Gómez** (*Universidad Complutense de Madrid, Spain*) &  
**Andrea Tellini** (*Universidad Politécnica de Madrid, Spain*)

The theory of ordinary differential equations is addressed in detail in this textbook, and is split into three sections: linear equations and systems, the general theory of nonlinear systems, and the theory of dynamical systems. These topics can be taken together or studied independently.

This is a self-contained, rigorous treatment of ordinary differential equations that is complemented by a variety of illustrating examples of the theory in practice.

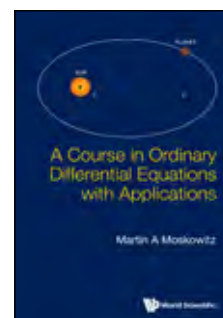
650pp	Nov 2025	
978-981-9812-40-0(pbk)	US\$88	£80
978-981-9811-54-0	US\$178	£165

**A Course in Ordinary Differential Equations with Applications**

by **Martin A Moskowitz**  
(*City University of New York, USA*)

This book was written for advanced undergraduate math or science majors. Its initial purpose was to illustrate the elementary mathematical theory of ordinary differential equations and their diverse and powerful applications. Historically these have been decisive in many physical problems, some of which have philosophically challenged and indeed altered our civilization's concepts.

284pp	Mar 2025	
978-981-9801-71-8	US\$98	£90
978-981-9801-72-5(ebook)	US\$157	£145

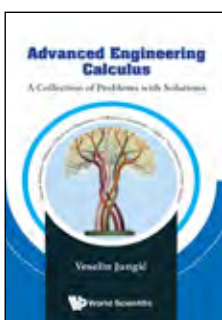
**Advanced Engineering Calculus**

A Collection of Problems with Solutions  
by **Veselin Jungić** (*Simon Fraser University, Canada*)

*Advanced Engineering Calculus* is a content-rich, user-friendly and compact learning and teaching resource. It offers over 440 problems — many with multiple parts — as well as detailed figures to aid readers in visualizing and understanding the topics covered.

Engaging with a wide range of advanced calculus topics and their applications, this book caters to students enrolled in the sciences and applied sciences. Each chapter begins with an accessible summary of the relevant mathematical notions and their properties

330pp	Sep 2025	
978-981-9811-58-8(pbk)	US\$48	£45
978-981-9809-08-0	US\$98	£90
978-981-9809-09-7(ebook)	US\$157	£145

**Modern Topics in Metrical Fixed Point Theory**

by **Mihai Turinici** (*A I Cuza University of Iași, Romania*)

Metrical Fixed Point Theory, originating from the 1922 Banach Fixed Point Theorem, is one of the most dynamic areas within Operator Equations Theory. This book aims to discuss the foundational aspects of this theory, focusing on questions of existence, uniqueness, and approximation in operator equations — whether explicit or implicit, anticipative or non-anticipative — across standard, ordered, and relational metric spaces. Key themes include implicit methods for analyzing metrical contractions, factorial techniques for reducing coincidence point problems to standard fixed point ones, homotopical fixed point results in gauge spaces with ordered metric space parameters, and constant class reduction of PPF-dependent fixed point results.

548pp	Mar 2025	
978-981-9807-26-0	US\$168	£155
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Series on Advances in Mathematics for  
Applied Sciences - Vol 95

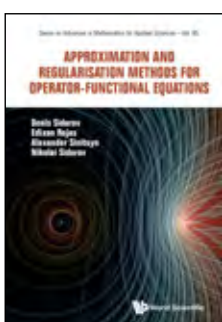
**Approximation and Regularisation Methods for Operator-Functional Equations**

by **Denis Sidorov** (*Russian Academy of Sciences, Russia*), **Edixon Rojas** (*Universidad Nacional de Colombia, Colombia*), **Alexander Sinitsyn** (*Universidad Nacional de Colombia, Colombia*) & **Nikolai Sidorov** (*Irkutsk State University, Russia*)

*"This book offers new ideas, tools, and models that can be used by applied mathematicians and engineers to solve practical problems in electrical engineering. It also demonstrates how theories such as singular integrals, functional equations, stochastic arithmetic, and fixed point theorems can be applied by pure mathematicians and theoretical physicists in the study of linear and nonlinear equations within integral dynamical models."*

**Professor Yang Jiazhong**  
**School of Mathematical Sciences,**  
**Peking University, China**

248pp	Apr 2025	
978-981-9801-68-8	US\$88	£80
978-981-9801-69-5(ebook)	US\$141	£130



Trends in Abstract and Applied Analysis - Vol 13

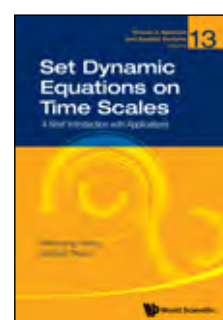
**Set Dynamic Equations on Time Scales**

A Brief Introduction with Applications  
by **Shihuang Hong** (*Hangzhou Dianzi University, China & Kaili University, China*) & **Sanket Tikare** (*Ramniranjan Jhunjhunwala College, India*)

The process of authoring this book is inspired by the recent increased activity of research on dynamic equations on time scales and other closely related areas. This monograph is the first published book that attempts to provide a comprehensive view of the theory and applications of set dynamic equations on time scales. The main focus of the book is the qualitative theory of set dynamic equations and their applications to fuzzy dynamic equations. The key topics include the solvability of set dynamic equations, stability of set dynamic equations, and applications to certain types of fuzzy dynamic equations.

There are five chapters in the book, through which the authors examine a wide scope of the concept of set dynamic equations and their applications. Each chapter focuses on theory and proofs to enrich the reader's understanding of the topic.

268pp	Mar 2025	
978-981-129-640-6	US\$98	£90
978-981-129-641-3(ebook)	US\$157	£145





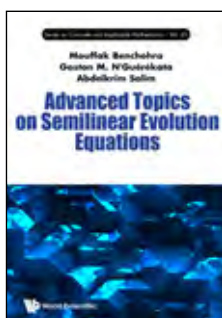
Series on Concrete and Applicable Mathematics - Vol 25

## Advanced Topics on Semilinear Evolution Equations

by **Mouffak Benchohra** (*Djillali Liabès University of Sidi Bel-Abbès, Algeria*), **Gaston M N'Guérékata** (*Morgan State University, USA*) & **Abdelkrim Salim** (*Hassiba Benbouali University of Chlef, Algeria*)

Differential evolution equations serve as mathematical representations that capture the progression or transformation of functions or systems as time passes. This book delves into the study of several classes of equations, aiming to investigate the existence of mild and periodic mild solutions and their properties such as approximate controllability, complete controllability and attractivity, under various conditions. By examining diverse problems involving second-order semilinear evolution equations, differential and integro-differential equations with state-dependent delay, random effects, and functional differential equations with delay and random effects, we hope to contribute to the advancement of mathematical knowledge and provide researchers, academicians, and students with a solid foundation for further exploration in this field.

<b>396pp</b>	<b>Feb 2025</b>	
<b>978-981-9803-18-7</b>	<b>US\$138</b>	<b>£125</b>
<b>978-981-9803-19-4(ebook)</b>	<b>US\$221</b>	<b>£205</b>



Trends in Abstract and Applied Analysis - Vol 12

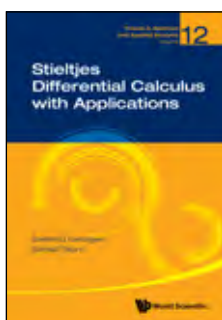
## Stieltjes Differential Calculus with Applications

by **Svetlin G Georgiev** (*Sorbonne University, France*) & **Sanket Tikare** (*Ramniranjan Jhunjhunwala College, India*)

This monograph is the first published book that offers a comprehensive view of the fundamentals of Stieltjes calculus and its applications, making it approachable to newcomers and experts. It aims to provide an integrated approach to the foundations and recent developments in the area of the Stieltjes derivatives and the qualitative theory of the Stieltjes differential equations. Through 10 pedagogically organized chapters, the authors examine a wide scope of the concept of the Stieltjes derivative and its applications. Each chapter focuses on theory, and proofs, and contains sufficient examples to enrich the reader's understanding.

Can be used as a reference book for advanced undergraduate and graduate students, professors, and researchers in the field of differential equations and related areas. It can also be used as a textbook for a "Special Topics" graduate course.

<b>372pp</b>	<b>Jan 2025</b>	
<b>978-981-129-422-8</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-129-423-5(ebook)</b>	<b>US\$205</b>	<b>£190</b>



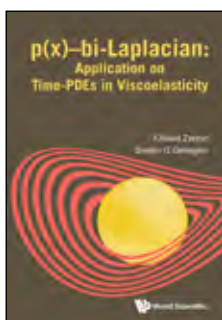
## $p(x)$ – bi-Laplacian: Application on Time-PDEs in Viscoelasticity

by **Khaled Zennir** (*Qassim University, Saudi Arabia*) & **Svetlin G Georgiev** (*Sorbonne University, France*)

The main subject of our book is to use the  $(p, p(x)$  and  $p(x))$ -bi-Laplacian operator in some partial differential systems, where we developed and obtained many results in quantitative and qualitative point of view.

The book is suitable for researchers in PDEs, mathematics, physics, biology, chemistry, and informatics. It can be used for some courses for master degree in mathematics and PhD students. 440pp Aug2024

<b>978-981-129-155-5</b>	<b>US\$158</b>	<b>£145</b>
<b>978-981-129-156-2(ebook)</b>	<b>US\$253</b>	<b>£230</b>



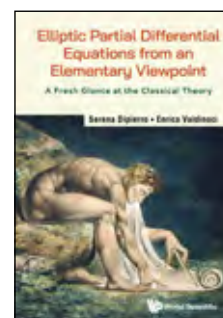
## Elliptic Partial Differential Equations from an Elementary Viewpoint

A Fresh Glance at the Classical Theory by **Serena Dipierro** (*University of Western Australia, Australia*) & **Enrico Valdinoci** (*University of Western Australia, Australia*)

This is a textbook that covers several selected topics in the theory of elliptic partial differential equations which can be used in an advanced undergraduate or graduate course. The book considers many important issues such as existence, regularity, qualitative properties, and all the classical topics useful in the wide world of partial differential equations.

The structure of the book is flexible enough to allow different chapters to be taught independently. The book is friendly, welcoming, and written for a newcomer to the subject. It is essentially self-contained, making it easy to read, and all the concepts are fully explained from scratch, combining intuition and rigor, and therefore it can also be read independently by students, with limited or no supervision.

<b>672pp</b>	<b>Sep 2024</b>	
<b>978-981-129-162-3(pbk)</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-129-079-4</b>	<b>US\$178</b>	<b>£165</b>
<b>978-981-129-080-0(ebook)</b>	<b>US\$285</b>	<b>£260</b>



## Asymptotic Issues for Some Partial Differential Equations

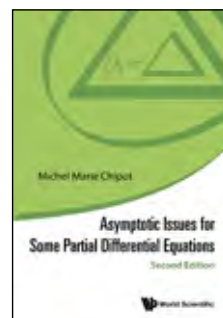
2nd Edition by **Michel Marie Chipot** (*University of Zurich, Switzerland*)

"The monograph is well written and organized and recommended to graduate students and researchers in applied mathematics or engineering."

Zentralblatt MATH

The primary focus of the book is to explore the asymptotic behavior of problems formulated within cylindrical structures. Various physical applications are discussed, with certain topics such as fluid flows in channels being particularly noteworthy. Additionally, the book delves into the relevance of elasticity in the context of cylindrical bodies.

<b>284pp</b>	<b>May 2024</b>	
<b>978-981-129-043-5</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-129-044-2(ebook)</b>	<b>US\$157</b>	<b>£145</b>

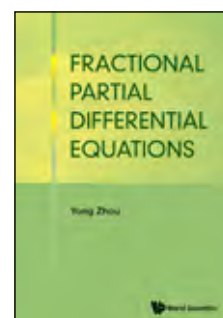


## Fractional Partial Differential Equations

by **Yong Zhou** (*Xiangtan University, China & Macau University of Science and Technology, China*)

This monograph offers a comprehensive exposition of the theory surrounding time-fractional partial differential equations, featuring recent advancements in fundamental techniques and results. The topics covered encompass crucial aspects of the theory, such as well-posedness, regularity, approximation, and optimal control. The book delves into the intricacies of fractional Navier – Stokes equations, fractional Rayleigh – Stokes equations, fractional Fokker – Planck equations, and fractional Schrödinger equations, providing a thorough exploration of these subjects.

<b>320pp</b>	<b>May 2024</b>	
<b>978-981-129-040-4</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-129-041-1(ebook)</b>	<b>US\$205</b>	<b>£190</b>





# MATHEMATICAL ANALYSIS

Fractals and Dynamics in Mathematics, Science, and the Arts: Theory and Applications

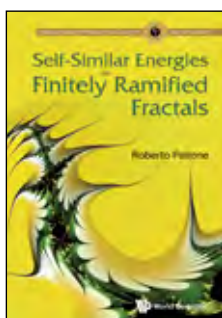
## Self-Similar Energies on Finitely Ramified Fractals

by **Roberto Peirone**  
(University of Rome Tor Vergata, Italy)

Analysis on fractals began to take shape as a mathematical field in the late 1980s. Traditionally, the focus of analysis has been on finitely ramified fractals. To date, a comprehensive theory for infinitely ramified fractals remains elusive.

This monograph outlines the theory of self-similar energies on finitely ramified self-similar fractals. Using these self-similar energies, one can construct Laplacians, harmonic functions, Brownian motion, and differential equations specific to these fractals.

<b>420pp</b>	<b>Jul 2025</b>	
<b>978-981-9809-14-1</b>	<b>US\$158</b>	<b>£145</b>
<b>978-981-9809-15-8(ebook)</b>	<b>US\$253</b>	<b>£230</b>

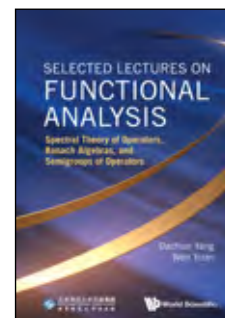


## Selected Lectures on Functional Analysis

Spectral Theory of Operators, Banach Algebras, and Semigroups of Operators  
by **Dachun Yang** (Beijing Normal University, China) & **Wen Yuan** (Beijing Normal University, China)

The main aim of this book is to provide an advanced textbook on functional analysis, focusing on the functional calculus of operators. Based on basic knowledge of functional analysis on metric spaces and linear bounded operators, this book systematically introduces the spectral theory of operators and the theory of operator semigroups, including Banach algebras, spectral theories of both bounded and unbounded linear operators, as well as semigroups of operators.

<b>712pp</b>	<b>Jun 2025</b>	
<b>978-981-9803-51-4</b>	<b>US\$198</b>	<b>£180</b>
<b>978-981-9803-52-1(ebook)</b>	<b>US\$317</b>	<b>£290</b>



## Calculus

A New Approach for Schools that Starts with Simple Algebra

by **R Michael Range** (State University of New York at Albany, USA)

Unlock the mysteries of Calculus with a fresh approach rooted in simplicity and historical insight. This book reintroduces a nearly forgotten idea from René Descartes (1596 – 1650), showing how the fundamental concepts of Calculus can be understood using just basic algebra.

Whether you're a student, educator, or math enthusiast, this book offers a unique pathway to mastering Calculus. By connecting historical context with modern mathematical practice, it provides a richer, more motivating learning experience. For those looking to dive even deeper, the author's 2015 book, *What is Calculus? From Simple Algebra to Deep Analysis*, is the perfect next step.

<b>348pp</b>	<b>Jul 2025</b>	
<b>978-981-9805-44-0(pbk)</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-9801-97-8</b>	<b>US\$118</b>	<b>£110</b>
<b>978-981-9801-98-5(ebook)</b>	<b>US\$189</b>	<b>£175</b>



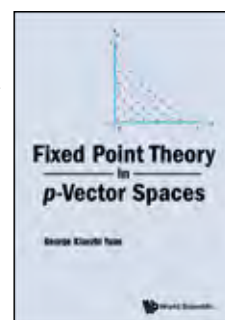
## Fixed Point Theory in $p$ -Vector Spaces

by **George Xianzhi Yuan** (Chongqing University of Technology, China & Sun Yat-sen University, China & Chengdu University, China & Sichuan University, China & East China University of Science and Technology, China)

This monograph provides an updated development of fixed point theory under a unified framework of the "best approximation approach" in  $p$ -vector spaces, a core component of nonlinear analysis in mathematics, where  $p \in (0, 1]$  (the same for  $p$  below unless specified). This book exposes some important contents of the new fixed point theory, with highlights in four parts.

Overall, this book provides an accessible way to establish the new theory in the development of fixed point theorems and results. It is designed to be understandable for senior undergraduate students majoring in mathematics, physical sciences, social sciences, and related fields.

<b>316pp</b>	<b>Jun 2025</b>	
<b>978-981-127-787-0</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-127-788-7(ebook)</b>	<b>US\$173</b>	<b>£160</b>

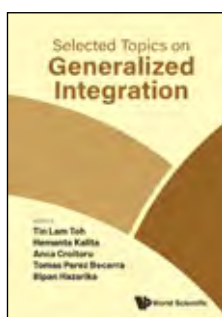


## Selected Topics on Generalized Integration

edited by **Tin Lam Toh** (Nanyang Technological University, Singapore), **Hemanta Kalita** (VIT Bhopal University, India), **Anca Croitoru** (University "Alexandru Ioan Cuza" of Iasi, Romania), **Tomas Perez Becerra** (Universidad Tecnológica de la Mixteca, Mexico) & **Bipan Hazarika** (Gauhati University, India)

This comprehensive volume offers an in-depth exploration of advanced integration theories, extending beyond classical methods to unify and expand the field. Building on the foundational work of Jaroslav Kurzweil and Ralph Henstock, the book delves into the Henstock–Kurzweil and McShane gauge integrals, presenting a more intuitive and versatile alternative to the traditional Lebesgue integral. By bridging gaps in existing literature, the authors provide a rigorous treatment of integration on metric measure spaces, exploring critical concepts such as completeness, compactness, and Cousin's lemma.

<b>316pp</b>	<b>Jun 2025</b>	
<b>978-981-9812-19-6</b>	<b>US\$108</b>	<b>£100</b>
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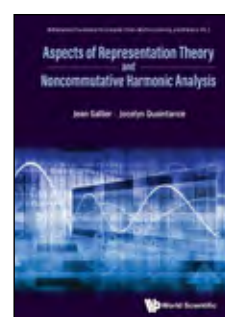
Mathematical Foundations for Computer Vision, Machine Learning, and Robotics - Vol 2

## Aspects of Representation Theory and Noncommutative Harmonic Analysis

by **Jean Gallier** (University of Pennsylvania, USA) & **Jocelyn Quaintance** (University of Pennsylvania, USA)

This book presents the theory of harmonic analysis for noncommutative compact groups. If  $G$  is a commutative locally compact group, there is a well-understood theory of harmonic analysis as discussed in *Aspects of Harmonic Analysis on Locally Compact Abelian Groups*. If  $G$  is not commutative, things are a lot tougher. In the special case of a compact group, there is a deep interplay between analysis and representation theory which was first discovered by Hermann Weyl and refined by Andre Weil. This book presents these seminal results of Weyl and Weil.

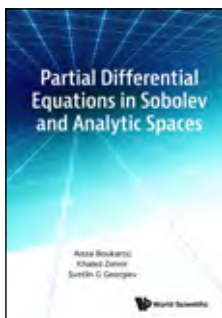
<b>768pp</b>	<b>Feb 2025</b>	
<b>978-981-9810-81-9</b>	<b>US\$168</b>	<b>£155</b>
<b>978-981-9810-82-6(ebook)</b>	<b>US\$269</b>	<b>£250</b>



## Partial Differential Equations in Sobolev and Analytic Spaces

by **Aissa Boukarou** (*University of Science and Technology Houari Boumediene, Algeria*), **Khaled Zennir** (*Qassim University, Saudi Arabia*) & **Svetlin G Georgiev** (*Sorbonne University, France*)

Partial Differential Equations (PDEs) are fundamental in fields such as physics and engineering, underpinning our understanding of sound, heat, diffusion, electrostatics, electrodynamics, thermodynamics, fluid dynamics, elasticity, general relativity, and quantum mechanics. They also arise in areas like differential geometry and the calculus of variations. This book focuses on recent investigations of PDEs in Sobolev and analytic spaces.



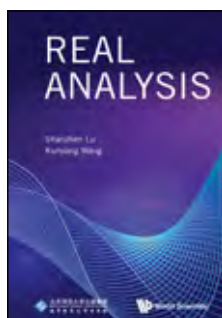
**632pp** **Feb 2025**  
**978-981-129-850-9** **US\$178** **£165**  
**978-981-129-851-6(ebook)** **US\$285** **£260**

## Real Analysis

by **Shanzen Lu** (*Beijing Normal University, China*) & **Kunyang Wang** (*Beijing Normal University, China*)

Translated by: **Moyan Qin, Jiawei Tan, Jiahui Wang, Yuru Li, Xiaoting Qiu, Shenglong Lin & Yuan Zhao**

The theory of Lebesgue integration is a crucial component in the development of modern analysis. This book is an in-depth real analysis textbook, which introduces the basic theory of modern analysis and the basic skills of analysis. Based on the knowledge of real analysis, the theory of interpolation of operators and the Fourier transform theory are further introduced systematically. The main contents include: abstract measures and integrals, measure and topology, Lebesgue integration on  $\mathbb{R}^n$ , the interpolation of operators on  $L^p(\mathbb{R}^n)$ , Hardy-Littlewood maximal function, convolution and the Fourier transform. They play an important role in harmonic analysis, partial differential equations, probability and numerical analysis. This book is moderately difficult and detailed, focusing on the combination of abstract and concrete, and training readers to skillfully use modern analysis.



This textbook is an excellent reference book for readers studying the fields of Harmonic analysis and partial differential equations. It is intended for advanced undergraduate and graduate students in university mathematics, as well as mathematicians and physicists in general.

**212pp** **Feb 2025**  
**978-981-129-738-0** **US\$78** **£70**  
**978-981-129-739-7(ebook)** **US\$125** **£115**

## Complex Analysis

by **Guantie Deng** (*Beijing Normal University, China*)

Emphasizing foundational theories, modern methods, and key ideas in complex analysis, this book also presents some cutting-edge research problems and recent advancements. The topics are thoughtfully selected, and the exposition is clear and rigorous. This book is an excellent resource for graduate students and independent learners alike. It features many new and concise proofs of classical theorems, and offers numerous challenging exercises to deepen understanding.



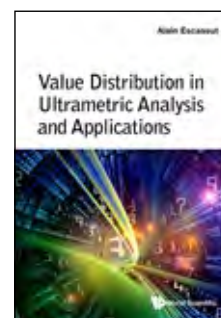
The book is suitable for graduate students in pure mathematics for the course "Complex Analysis", and can be used as a reference book for graduate students in applied mathematics. It can also be used for independent study.

**348pp** **Jan 2025**  
**978-981-129-881-3** **US\$128** **£120**  
**978-981-9800-33-9(ebook)** **US\$205** **£190**

## Value Distribution in Ultrametric Analysis and Applications

by **Alain Escassut** (*Université Clermont Auvergne, France*)

After a construction of the complete ultrametric fields  $K$ , the book presents most of properties of analytic and meromorphic functions in  $K$ : algebras of analytic elements, power series in a disk, order, type and cotype of growth of entire functions, clean functions, question on a relation true for clean functions, and a counter-example on a non-clean function. Transcendence order and transcendence type are examined with specific properties of certain  $p$ -adic numbers.

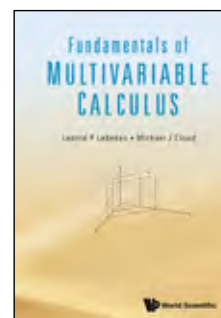


**676pp** **Jan 2025**  
**978-981-129-832-5** **US\$188** **£175**  
**978-981-129-833-2(ebook)** **US\$301** **£275**

## Fundamentals of Multivariable Calculus

by **Leonid P Lebedev** (*Universidad Nacional de Colombia, Colombia*) & **Michael J Cloud** (*Lawrence Technological University, USA*)

This textbook is carefully designed as an early undergraduate introduction to the calculus of several real variables. The balanced coverage is devoted to limits, continuity, partial derivatives, extrema, the nabla operator, multiple integrals, line integrals, surface integrals, and the fundamental theorems of vector calculus.



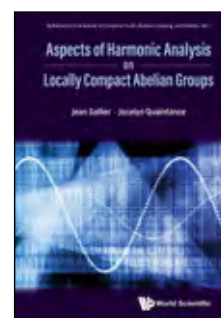
Engaging and accessible with detailed diagrams and copious worked examples, the presentation is well suited to students pursuing applied fields such as engineering. Multiple integration is motivated intuitively through the calculation of mass. The chapter-end problems provide both drill and challenge.

**316pp** **Jan 2025**  
**978-981-9800-01-8** **US\$98** **£90**  
**978-981-9800-02-5(ebook)** **US\$157** **£145**

## Aspects of Harmonic Analysis on Locally Compact Abelian Groups

by **Jean Gallier** (*University of Pennsylvania, USA*) & **Jocelyn Quaintance** (*University of Pennsylvania, USA*)

The Fourier transform is a "tool" used in engineering and computer vision to model periodic phenomena. Starting with the basics of measure theory and integration, this book delves into the harmonic analysis of locally compact abelian groups. It provides an in-depth tour of the beautiful theory of the Fourier transform based on the results of Gelfand, Pontrjagin, and Andre Weil in a manner accessible to an undergraduate student who has taken linear algebra and introductory real analysis.



**760pp** **Jul 2024**  
**978-981-129-171-5** **US\$188** **£175**  
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# NUMERICAL ANALYSIS AND APPROXIMATION

## 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.

Throughout his illustrious career, Professor Wong has consistently made profound and impactful contributions that have significantly advanced the domain of applied mathematics. His exceptional achievements have been widely acknowledged and celebrated through a multitude of prestigious awards and honors. The book, showcasing Professor Wong's research papers, not only reflects his immense expertise and profound insights but also serves as a tribute to his remarkable achievements.

<b>550pp</b>	<b>Oct 2025</b>	
<b>978-981-129-085-5</b>	<b>US\$168</b>	<b>£155</b>
<b>978-981-129-086-2(ebook)</b>	<b>US\$269</b>	<b>£250</b>

Mathematical Olympiad Series

## Mathematical Olympiad in China (2023)

Problems and Solutions

edited by **Bin Xiong** (*East China Normal University, China*)

The authors of this book are esteemed coaches of the China national team, including Xiao Liang, Qu Zhenhua, Xiong Bin, Yu Hongbing, Yao Yijun, Wang Xinmao, Li Ting, Ai Yinghua, Fu Yunhao, Wang Bin, He Yijie, and Zhang Sihui.

The materials of this book come from a book (in Chinese) on *Forward to IMO: A Collection of Mathematical Olympiad Problems (2023)*. It is a collection of problems and solutions of the major mathematical competitions in China. It provides a glimpse of how the China national team is selected and formed.

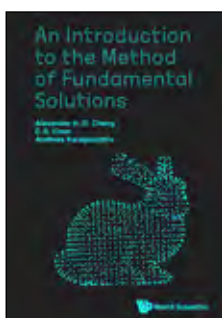
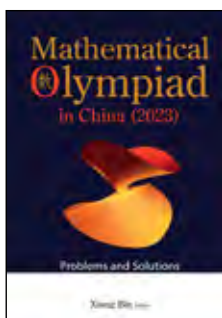
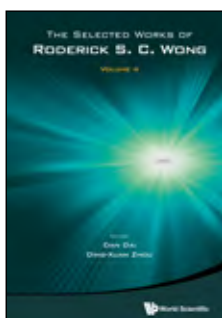
<b>252pp</b>	<b>Jun 2025</b>	
<b>978-981-9809-37-0(pbk)</b>	<b>US\$28</b>	<b>£25</b>
<b>978-981-9808-48-9</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-9808-49-6(ebook)</b>	<b>US\$98</b>	<b>£90</b>

## 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 introduces the Method of Fundamental Solutions (MFS), a boundary meshless collocation method for solving scientific and engineering problems. It covers the theoretical foundations and applications of MFS, including its extension to inhomogeneous boundary value problems, and provides MATLAB codes for implementation.

<b>616pp</b>	<b>Apr 2025</b>	
<b>978-981-129-847-9</b>	<b>US\$178</b>	<b>£165</b>
<b>978-981-129-848-6(ebook)</b>	<b>US\$237</b>	<b>£220</b>



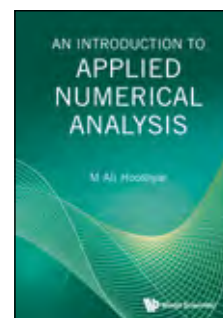
## An Introduction to Applied Numerical Analysis

by **M Ali Hooshyar**(*University of Texas at Dallas, USA*)

This book is based on lecture notes for a numerical analysis course designed mainly for senior undergraduate students majoring in mathematics, engineering, computer science and physical sciences.

This book was crafted in an informal and user-friendly manner to motivate the study of the material being covered. Ample figures and numerical tables are presented to enhance the reader's ease of understanding of the material under consideration.

<b>224pp</b>	<b>Jan 2025</b>	
<b>978-981-129-841-7</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-129-842-4(ebook)</b>	<b>US\$125</b>	<b>£115</b>



Series on Concrete and Applicable Mathematics - Vol 24

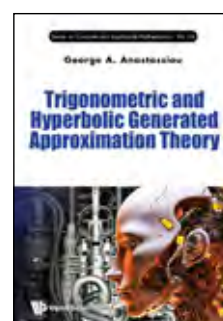
## Trigonometric and Hyperbolic Generated Approximation Theory

by **George A Anastassiou**(*The University of Memphis, USA*)

This monograph is a testimony of the impact over Computational Analysis of some new trigonometric and hyperbolic types of Taylor's formulae with integral remainders producing a rich collection of approximations of a very wide spectrum.

This volume covers perturbed neural network approximations by themselves and with their connections to Brownian motion and stochastic processes, univariate and multivariate analytical inequalities (both ordinary and fractional), Korovkin theory, and approximations by singular integrals (both univariate and multivariate cases). These results are expected to find applications in the many areas of Pure and Applied Mathematics, Computer Science, Engineering, Artificial Intelligence, Machine Learning, Deep Learning, Analytical Inequalities, Approximation Theory, Statistics, Economics, amongst others.

<b>840pp</b>	<b>Jan 2025</b>	
<b>978-981-129-385-6</b>	<b>US\$198</b>	<b>£180</b>
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Series in Computational Methods - Vol 1

## Numbers and Functions

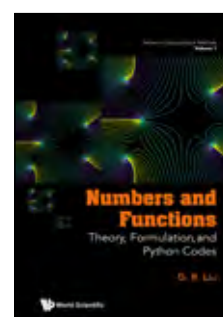
Theory, Formulation, and Python Codes

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

This unique volume covers two fundamental elements of computational methods — numbers and functions. It provides an in-depth discussion of the behaviors of numbers, including both real and complex numbers. The discussion leads to the important closure properties of numbers, ensuring solution consistence and existence, and also possible failure in numerical computations in science and engineering.

This text then introduces types of functions that take numbers as independent variables and produce a single number. Approaches for constructing inverse functions are also provided. Frequently used basis functions are introduced, with detailed studies on their properties and behaviors. Techniques are presented for constructing basis functions and their use in function approximation in computational methods.

<b>228pp</b>	<b>Jul 2024</b>	
<b>978-981-128-762-6</b>	<b>US\$98</b>	<b>£90</b>
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## OPTIMIZATION AND CONTROL

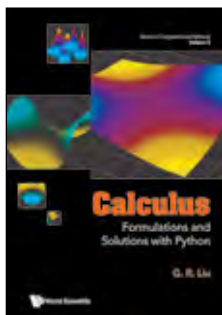
Series in Computational Methods - Vol 2

### Calculus

Formulations and Solutions with Python  
by **G R Liu** (University of Cincinnati, USA)

This comprehensive volume explores differentiation and integration, detailing their theories, concepts, and formulations. The book introduces various techniques for computing these mathematical elements for different types of functions and presents their applications.

Python code is extensively used throughout the book, allowing readers to practice and interact with the concepts in real-time. This hands-on approach helps in comprehending the theory, techniques, and results of computational operations in differentiation and integration. Real-world engineering problems are connected to the theoretical discussions through numerous examples.



392pp	Jun 2025	
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Series on Optimization and its Applications - Vol 6

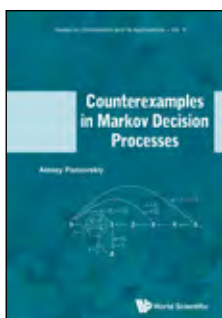
### Counterexamples in Markov Decision Processes

by **Alexey Piunovskiy**  
(University of Liverpool, UK)

*"This remarkable and intriguing book is highly recommended. Some examples are aimed at undergraduate students, whilst others will be of interest to advanced undergraduates, graduates and research students in probability theory, optimal control and applied mathematics, looking for a better understanding of the theory; experts in Markov decision processes, professional or amateur researchers."*

**The European Mathematical Society**

*The book presents many interesting topics and results. This is an important book that will be particularly useful to students and researchers on MDPs. I recommend it to anyone interested in the theory of MDPs."*



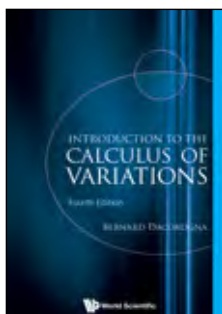
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**Mathematical Association of America online book review**



368pp	Sep 2024	
978-1-80061-537-3(pbk)	US\$68	£65
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**Mathematical Reviews**

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**Mathematics Abstracts**



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This book provides a rigorous and self-contained introduction to linear optimization, covering topics such as linear programming, duality, algorithms, and conic programming. It's suitable for graduate students and professionals in decision making, engineering, and data science.



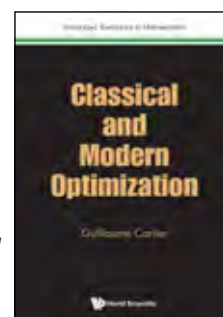
648pp	Feb 2024	
978-981-127-873-0(pbk)	US\$78	£70
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**Robert V Kohn**  
Silver Professor of Mathematics  
Courant Institute of Mathematical Sciences  
New York University

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# MATHEMATICAL PHYSICS AND RELATED TOPICS

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## Complex Systems, Artificial Intelligence, and Emerging Technologies

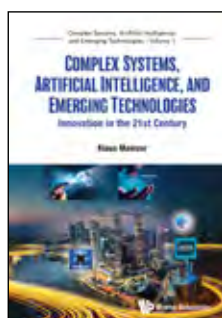
Innovation in the 21st Century

by **Klaus Mainzer** (Technical University of Munich, Germany)

This book is the opening volume of an interdisciplinary series exploring the dynamic intersection of complex systems, artificial intelligence (AI), and emerging technologies. As AI-driven solutions become essential for handling vast and ever-growing data sets, innovation in computing technologies is crucial. At the same time, sustainability and resource limitations must be addressed.

Bringing together classic digitalization, neuromorphic computing, quantum technologies, and the latest breakthroughs in generative AI (e.g., ChatGPT, Deepseek), this book examines the **evolving innovation** portfolio that shapes the future of AI and computing. It highlights the balance between digital and analog technologies, advocating for a **hybrid IT and AI approach** geared toward efficiency and sustainability.

<b>180pp</b>	<b>Dec 2025</b>	
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## Elementary Mechanics

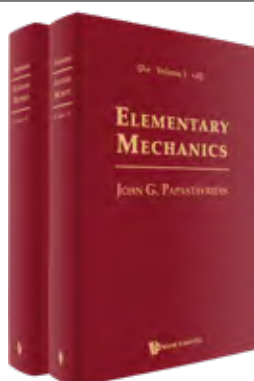
(In 2 Volumes)

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. The title adjective "elementary" simply means no Lagrangean and no Hamiltonian theories and methods. Yet, in spite of its high level, this extensive work of more than 1450 dense pages of text, and more than 350 pages of galleries is eminently readable and inclusive.

<b>1680pp</b>	<b>Dec 2025</b>	
<b>978-981-4603-04-1(Set)</b>	<b>US\$384</b>	<b>£355</b>
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## Elliptic Partial Differential Equations from an Elementary Viewpoint

What the Laplacian Is Good For

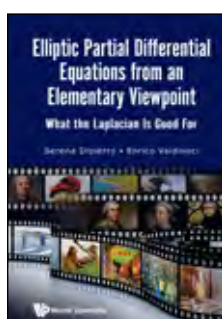
by **Serena Dipierro & Enrico Valdinoci**

(University of Western Australia, Australia)

This book offers a captivating journey through the world of elliptic partial differential equations (PDEs) and their surprising appearances across science, engineering, and even everyday life. Blending mathematical rigor with an accessible and engaging style, it introduces the Laplace operator and elliptic PDEs through diverse real-world phenomena, from physics and biology to artificial intelligence and image processing.

Readers will explore fundamental topics such as diffusion, wave propagation, and fluid dynamics, alongside unexpected applications — including pattern formation in nature, traffic jams, quantum mechanics, and even the mathematics behind fighting pandemics and cancer.

<b>423pp</b>	<b>Oct 2025</b>	
<b>978-981-9813-94-0(pbk)</b>	<b>US\$68</b>	<b>£65</b>
<b>978-981-9813-06-3</b>	<b>US\$148</b>	<b>£135</b>
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## Geometric Mechanics

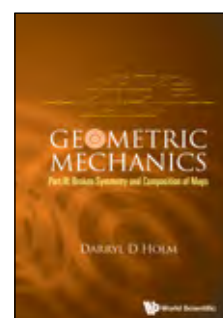
Part III: Broken Symmetry and Composition of Maps

by **Darryl D Holm** (Imperial College London, UK)

*Geometric Mechanics: Part III* is a textbook presented in a lecture notes format, providing precise definitions and practical examples across a series of 31 lectures which have been developed from the author's extensive experience of teaching and research. Geometric mechanics is an incredibly rich field of study: beyond its mathematical depth and beauty, geometric mechanics provides a robust framework for exploring the geometric structures underpinning many dynamical systems crucial to physics.

This textbook is designed to facilitate both course learning and individual study. With focused notes, numerous examples, and nearly 200 exercises, it serves as a valuable resource for postgraduate students, course instructors, and researchers.

<b>300pp</b>	<b>Jul 2025</b>	
<b>978-1-80061-678-3(pbk)</b>	<b>US\$48</b>	<b>£35</b>
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Advanced Textbooks in Mathematics

## Geometry of Mechanics

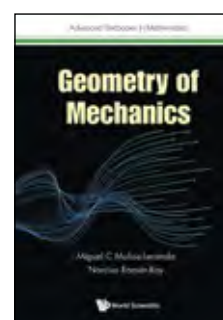
by **Miguel C Muñoz-Lecanda &**

**Narciso Román-Roy** (Universitat Politècnica de Catalunya • BarcelonaTech, Spain)

This book sets out to demonstrate, interpret, and analyse the geometrical structures underlying classical mechanics. Through exploring the applications of these structures in the context of dissipative, autonomous, and nonautonomous conservative dynamical systems, a series of insightful exercises are developed in order to both consolidate and clarify the theoretical concepts introduced.

*Geometry of Mechanics* provides an informative exploration of the classic geometrical structures, including symplectic structure, Lagrangian and Hamiltonian formalisms, and the Riemannian structure of systems. Lesser-known frameworks are also investigated, such as the (Skinner-Rusk) unified Lagrangian-Hamiltonian formalism, the geometric proof of Lee Hwa Chung's invariance theorem, and a new geometric formulation of the Hamilton-Jacobi equation, among others. Although the primary focus of this exposition is upon the regular case, singular systems are also considered and explained where applicable.

<b>260pp</b>	<b>Aug 2025</b>	
<b>978-1-80061-679-0(pbk)</b>	<b>US\$48</b>	<b>£45</b>
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From Moyal Product to

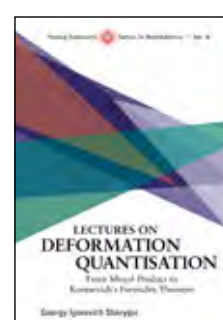
Kontsevich's Formality Theorem

by **Georgiy Igorevich Sharygin**

(Lomonosov Moscow State University, Russia)

This book is based on the course that the author taught in the Fall semester of 2019 at Peking University. The main purpose of that course and of this book is to acquaint the reader with the vast scope of ideas related to the Deformation Quantisation of Poisson manifolds.

<b>452pp</b>	<b>Jun 2025</b>	
<b>978-981-129-780-9</b>	<b>US\$138</b>	<b>£125</b>
<b>978-981-129-781-6(ebook)</b>	<b>US\$221</b>	<b>£205</b>

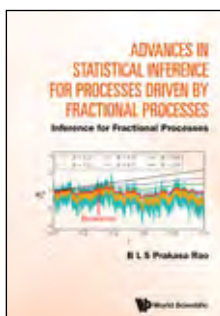


## PROBABILITY AND STATISTICS

### Advances in Statistical Inference for Processes Driven by Fractional Processes

Inference for Fractional Processes  
by **B L S Prakasa Rao** (CR Rao Advanced Institute of Mathematics, India)

One of the important problems in studying stochastic phenomena is to develop stochastic models and understand their implications behind the phenomenon. Long range dependence is an important stochastic phenomena and it needs study of special type of stochastic processes for modelling. My earlier book on *Statistical Inference for Fractional Diffusion Processes* (2010) dealt with several aspects for modelling by fractional Brownian motion. This book will contain my work on parametric and nonparametric inference for processes driven by fractional processes such as fractional Brownian motion, mixed fractional Brownian motion, sub-fractional Brownian motion, alpha-stable noise, fractional Levy process and Gaussian processes.



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978-981-9810-79-6(ebook) US\$269 £250

### R for Healthcare Research

Volume I: Basic Statistical Methods  
by **Jason L Oke** (University of Oxford, UK)  
& **Mei-Man Lee** (University of Bath, UK)

*R for Healthcare Research* is intended to show healthcare professionals, researchers and students of healthcare research how to use the open-source statistical software R. It is intended both for novices and experienced users of R, guiding readers from the fundamentals of installing the software through to a careful and thorough coverage of the most widely used techniques in healthcare research and evidence-based medicine.



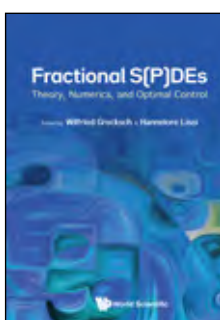
This textbook is structured to provide readers with both a conceptual understanding of the theories, analyses and models found in healthcare research as well as to act as a practical guide for how to programme these concepts in R. Worked examples are consistently provided throughout, and each chapter concludes with exercises to familiarise readers with the topics covered.

350pp Aug 2025  
978-1-80061-731-5(pbk) US\$58 £55  
978-1-80061-718-6 US\$98 £90  
978-1-80061-719-3(ebook) US\$157 £145

### Fractional S(P)DEs

Theory, Numerics, and Optimal Control  
edited by **Wilfried Grecksch** (Martin-Luther-University Halle-Wittenberg, Germany) & **Hannelore Lisei** (Babeş-Bolyai Univ., Romania)

Recent breakthroughs in volatility modelling have brought fractional stochastic calculus to a groundbreaking position. Readers of Fractional S(P)DEs will find a unique and comprehensive overview encompassing the theory and the numerics of both ordinary and partial differential equations (SDEs and SPDEs, respectively), driven by fractional Brownian motion.



Within this book, both differential equations are considered with fractional noise, while also considering fractional derivatives in the case of SPDEs. Three primary aspects are pursued: Theory and numerics for rough SPDEs; Optimal control of both SDEs and SPDEs driven by fractional Brownian motions (and their applications); And numerics for time-fractional SPDEs driven by both Gaussian and non-Gaussian noises.

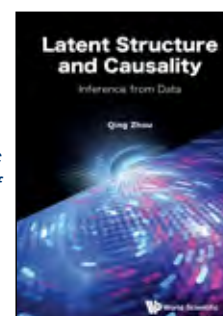
288pp Jul 2025  
978-981-9802-09-8 US\$108 £100  
978-981-9802-10-4(ebook) US\$173 £160

### Latent Structure and Causality

Inference from Data  
by **Qing Zhou** (University of California, Los Angeles, USA)

*"This is a very timely book for a systematic summary of the recent developments of network data analysis, graphical modeling, and causal inference."*

**Faming Liang**  
Distinguished Professor of Statistics  
Purdue University, USA



*"This book covers an important set of topics that have not received as much exposure and would be a good addition to the literature."*

**Vijay Nair**  
Professor Emeritus  
University of Michigan, USA

Inferring latent structure and causality is crucial for understanding underlying patterns and relationships hidden in the data. This book covers selected models for latent structures and causal networks and inference methods for these models.

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978-981-129-069-5(ebook) US\$141 £130

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This book represents an intense and concentrated effort by the author to narrate this digital, numerical, and quantitative story of the Benford's Law phenomenon as briefly and as concisely as possible, while still ensuring a comprehensive coverage of all its aspects, results, causes, explanations, and perspectives. The most recent research results and discoveries in this field are included within this book in such a way as to be comprehensible and engaging to readers of all proficiencies.

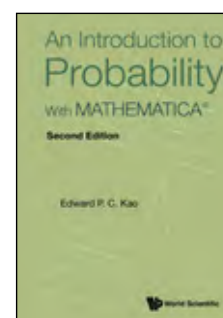


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(University of Houston, USA)

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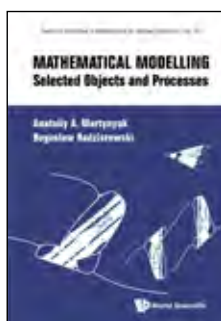
## MATHEMATICAL MODELING AND COMPUTATION

Series on Advances in Mathematics for  
Applied Sciences - Vol 93

### Mathematical Modelling

Selected Objects and Processes

by **Anatoliy A Martynyuk** (*National Academy of Sciences of Ukraine, Ukraine*) &  
**Bogusław Radziszevski** (*Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland & Kielce University of Technology, Poland*)



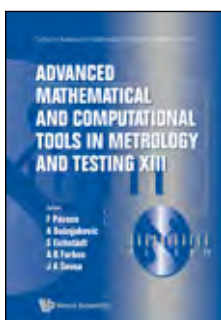
This is the first book on the problems of mathematical modelling that combines a generalised approach to the problem of mathematical modelling processes and phenomena in the real world with developing modelling methods in relation to specific objects and processes. Some of the problems discussed here include the stability and bifurcation of simplified models of supply and demand, and resultants of various approaches, such as standardisation, unification, partial ordering and data packaging.

<b>408pp</b>	<b>May 2025</b>	
<b>978-981-129-065-7</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-129-066-4(ebook)</b>	<b>US\$237</b>	<b>£220</b>

Series on Advances in Mathematics for  
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### Advanced Mathematical and Computational Tools in Metrology and Testing XIII

edited by **F Pavese** (*IMEKO TC21, Italy*),  
**A Bošnjaković** (*Institute of Metrology of Bosnia and Herzegovina, Bosnia and Herzegovina*), **S Eichstädt** (*Physikalisch-Technische Bundesanstalt, Germany*),  
**A B Forbes** (*National Physical Laboratory, UK*)  
& **J A Sousa** (*Instituto Português da Qualidade, Portugal*)



This volume presents recent advances in mathematical and computational tools for metrology and testing, covering topics such as uncertainty quantification, data analysis, machine learning, and digitalization of metrological services. This volume is of interest to all researchers, data scientists, engineers and practitioners who need to characterize the capabilities of measurement systems, evaluate measurement data, quantify uncertainties and make inferences and decisions based on models and data. It will also be of interest to those working in the quality infrastructure concerned with the reliability, transparency, trustworthiness and reproducibility of data, data analytics, machine learning and AI, in engineering, physical, environmental and the life sciences.

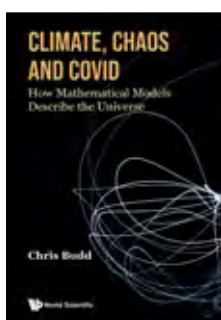
<b>368pp</b>	<b>Jan 2025</b>	
<b>978-981-9800-66-7</b>	<b>US\$138</b>	<b>£125</b>
<b>978-981-9800-67-4(ebook)</b>	<b>US\$221</b>	<b>£205</b>

### Climate, Chaos and COVID

How Mathematical Models Describe the Universe

by **Chris Budd** (*University of Bath, UK*)

*"Both the breadth and depth of Climate, Chaos and COVID are highly impressive ... I strongly recommend Climate, Chaos and COVID to anyone who both loves mathematics and disagrees with G H Hardy's well-known assertion that good math can only be math that has no applications. Budd's book is an elegant illustration that effectively refutes Hardy's claim."*



	<b>SIAM News</b>	
<b>312pp</b>	<b>Apr 2023</b>	
<b>978-1-80061-304-1</b>	<b>US\$78</b>	<b>£70</b>
<b>978-1-80061-305-8(ebook)</b>	<b>US\$125</b>	<b>£115</b>

## MATHEMATICAL FINANCE AND ECONOMICS

### Mathematics of Computational Finance

by **Andrzej Palczewski**  
(*University of Warsaw, Poland*)



The book focuses on numerical methods for derivative pricing with an emphasis on their mathematical foundations. It offers the most frequently explored numerical methods of derivative pricing and covers the material of standard courses in computational finance. The book presents the best-known methods of multinomial trees, Monte Carlo simulations for European, American, and exotic options, and finite difference and finite element methods for PDEs. However, unlike many textbooks on computational finance, it also presents rigorous results on analyzed numerical algorithms with a focus on the mathematical content — including theorems with possibly complete proofs.

<b>370pp</b>	<b>Nov 2025</b>	
<b>978-981-9815-77-7(pbk)</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-9815-11-1</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-9815-12-8(ebook)</b>	<b>US\$205</b>	<b>£190</b>

Advances in Statistics, Probability and  
Actuarial Science - Vol 3

### Risk Sensitive Value Measure Method

A New Method of Project Evaluation  
by **Yoshio Miyahara**  
(*Nagoya City University, Japan*)



This book introduces the Risk Sensitive Value Measure Method for project evaluation, addressing limitations of traditional methods like Net Present Value (NPV). It presents a new approach to evaluating projects with uncertain cash flows and provides practical applications.

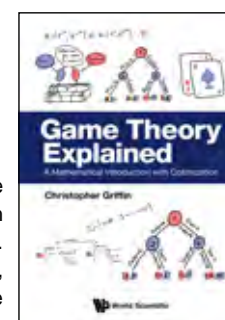
The study is then extended to dynamic value measures, leading to the conclusion that the risk-sensitive value measure is the most robust approach for project evaluation. Practical applications of this method are thoroughly explored, offering valuable insights for tackling real-world project evaluation challenges.

<b>200pp</b>	<b>Oct 2025</b>	
<b>978-981-9808-55-7</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-9808-56-4(ebook)</b>	<b>US\$125</b>	<b>£115</b>

### Game Theory Explained

A Mathematical Introduction with  
Optimization

by **Christopher Griffin**  
(*The Pennsylvania State University, USA*)



This book provides an introduction to the mathematical theory of games using both classical methods and optimization theory. Employing a theorem-proof-example approach, the book emphasizes not only results in game theory, but also how to prove them.

This book is targeted towards advanced undergraduates and beginner graduates in mathematics and graduate students in other STEM disciplines. The book could also be used in an economics class as a secondary text.

<b>308pp</b>	<b>Mar 2025</b>	
<b>978-981-9812-87-5(pbk)</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-129-721-2</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-129-722-9(ebook)</b>	<b>US\$157</b>	<b>£145</b>

## COMPUTER MATHEMATICS AND SCIENCE

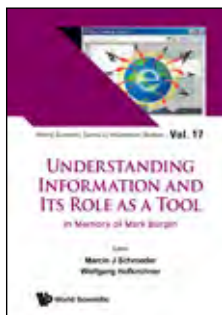
World Scientific Series in  
Information Studies - Vol 17

### Understanding Information and Its Role as a Tool

In Memory of Mark Burgin  
edited by **Marcin J Schroeder**  
(Akita International University, Japan) &  
**Wolfgang Hofkirchner** (TU Wien, Austria  
& The Institute for a Global Sustainable  
Information Society (GSIS), Austria)

This book is a collection of works related to information contributed by multiple authors dedicated to the memory of Mark Burgin who passed away on February 18, 2023. Mark Burgin had a very wide range of research and philosophical interests which has a reflection in the very broad subject range of the contributions to this book honoring his memory as an outstanding member of the academic community. The book was originally planned together with Mark Burgin and only after his passing was transformed by its present editors into his memorial. It was intended as a means to promote and disseminate the results of the ongoing research on information stimulated, initiated, or influenced by the 2021 IS4SI Summit.

<b>608pp</b>	<b>Jun 2025</b>	
<b>978-981-129-491-4</b>	<b>US\$178</b>	<b>£165</b>
<b>978-981-129-492-1(ebook)</b>	<b>US\$285</b>	<b>£260</b>



### Continuous-Time Markov-Modulated Chains in Operations Research

by **Alexander Andronov** (Transport and  
Telecommunication Institute (TSI), Latvia)  
& **Kristina Mahareva** (Transport and  
Telecommunication Institute (TSI), Latvia)

Probabilistic models are widely used for description and an analysis of various processes in system reliability, risk, queuing, data communication, logistic and storage systems. The book contains various applications of the theory of continuous-time Markov-modulated processes in operation research. All analytical results are illustrated by numerical computations. Used algorithms allow overcoming computation difficulties successfully. For example, a calculation of transient probabilities of states for a continuous-time finite Markov chain uses eigenvalues and eigenvectors of the corresponding matrix (generator).

<b>228pp</b>	<b>May 2024</b>	
<b>978-981-128-615-5</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-128-616-2(ebook)</b>	<b>US\$141</b>	<b>£130</b>



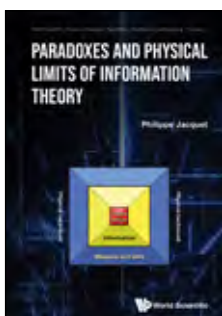
World Scientific Series on Quantum  
Algorithms, Information, and Learning - Vol 1

### Paradoxes and Physical Limits of Information Theory

by **Philippe Jacquet** (The National Institute  
for Research in Digital Science and  
Technology (INRIA), France)

The unique compendium starts with a simplified version of the information theory which allows any beginner in math to embrace the mysterious concept of entropy without hitting hard the wall of probability theory. The volume continues with the full description of the information theory, enlightening source coding in the heart of the theory with data compression and self-prediction to get into the information age. Then it concludes with artificial intelligence and quantum information.

<b>336pp</b>	<b>Apr 2025</b>	
<b>978-981-129-359-7</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-129-360-3(ebook)</b>	<b>US\$173</b>	<b>£160</b>



### Introduction to Data Science

by **Gaoyan Ou** (Beijing Institute of Big Data  
Research, China), **Zhanxing Zhu** (Peking  
University, China), **Bin Dong** (Peking  
University, China) & **Weinan E** (Beijing  
Institute of Big Data Research, China)

Translated by: **Binyang Li, Shumin Shi**

The book systematically introduces the basic contents of data science, including data preprocessing and basic methods of data analysis, handling special problems (e.g. text analysis), deep learning, and distributed systems.

In addition to systematically introducing the basic content of data science from a theoretical point of view, the book also provides a large number of data analysis practice cases.

<b>444pp</b>	<b>Dec 2023</b>	
<b>978-981-126-389-7</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-126-390-3(ebook)</b>	<b>US\$237</b>	<b>£220</b>



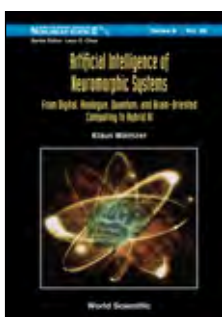
World Scientific Series on Nonlinear Science  
Series A - Vol 99

### Artificial Intelligence of Neuromorphic Systems

From Digital, Analogue, Quantum, and  
Brain-Oriented Computing to Hybrid AI  
by **Klaus Mainzer** (Technical University of  
Munich, Germany)

This book argues for neuromorphic systems as a technology of the future, which are oriented towards the energy efficiency of natural brains. Energy efficiency is a dramatic claim in times of environmental and climate challenges which should consider the sustainability goals of the United Nations (UN). Mathematically, neuromorphic computing is connected to analogue ('real') computing, which theoretically overcomes the limits of digital Turing computability. Therefore, the book also considers material sciences and engineering sciences which start to realize neuromorphic computing in hardware. Other mathematical formalisms such as quantum mechanics also open up new solutions (e.g., quantum computing) beyond the limits of digital Turing computability.

<b>436pp</b>	<b>Jan 2025</b>	
<b>978-981-129-007-7</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-129-008-4(ebook)</b>	<b>US\$237</b>	<b>£220</b>



### Linear Algebra for Data Science

by **Moshe Haviv** (The Chinese University of  
Hong Kong, Shenzhen, China & The Hebrew  
University of Jerusalem, Israel)

This book serves as an introduction to linear algebra for undergraduate students in data science, statistics, computer science, economics, and engineering. The book presents all the essentials in rigorous (proof-based) manner, describes the intuition behind the results, while discussing some applications to data science along the way.

The book comes with two parts, one on vectors, the other on matrices. The former consists of four chapters: vector algebra, linear independence and linear subspaces, orthonormal bases and the Gram-Schmidt process, linear functions. The latter comes with eight chapters: matrices and matrix operations, invertible matrices and matrix inversion, projections and regression, determinants, eigensystems and diagonalizability, symmetric matrices, singular value decomposition, and stochastic matrices.

<b>256pp</b>	<b>Jul 2023</b>	
<b>978-981-127-622-4</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-127-623-1(ebook)</b>	<b>US\$125</b>	<b>£115</b>





## MATHEMATICAL LOGIC AND FOUNDATIONS

Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore - Vol 44

## Higher Recursion Theory and Set Theory

edited by **James Cummings** (Carnegie Mellon University, USA), **Andrew Marks** (University of California, Berkeley, USA), **Yue Yang** (National University of Singapore, Singapore) & **Liang Yu** (Nanjing University, China)



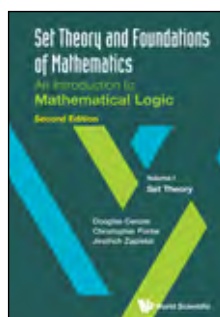
This volume celebrates the research contributions of Professors Theodore A Slaman and W Hugh Woodin, marking their distinguished careers in higher recursion theory and set theory as they approached the milestone of their 65th birthdays in 2019. It originates from the Institute for Mathematical Sciences program, *Higher Recursion Theory and Set Theory*, held at the National University of Singapore (May 20 – June 14, 2019).

412pp	Mar 2025	
978-981-9806-57-7	US\$148	£135
978-981-9806-58-4(ebook)	US\$237	£220

## Set Theory and Foundations of Mathematics: An Introduction to Mathematical Logic

Volume I: Set Theory  
2nd Edition

by **Douglas Cenzer** (University of Florida, USA), **Christopher Porter** (Drake University, USA) & **Jindřich Zapletal** (University of Florida, USA)



*"The book was developed over many years from class notes for a set theory course at the University of Florida, which has been taught to advanced undergraduates as well as beginning graduate students. It gives a solid introduction to axiomatic set theory and presents several interesting applications."*

MathSciNet

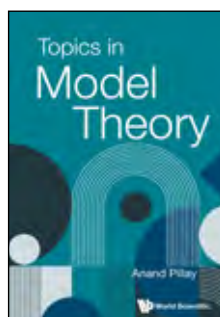
This book presents both axiomatic and descriptive set theory, targeting upper-level undergraduate and beginning graduate students. It aims to equip them for advanced studies in set theory, mathematical logic, and other mathematical fields, including analysis, topology, and algebra.

196pp	Feb 2025	
978-981-129-783-0	US\$68	£65
978-981-129-784-7(ebook)	US\$109	£100

## Topics in Model Theory

by **Anand Pillay** (Univ. of Notre Dame, USA)

This book has two chapters. The first is a modern or contemporary account of stability theory. A focus is on the local (formula-by-formula) theory, treated a little differently from in the author's book *Geometric Stability Theory*. There is also a survey of general and geometric stability theory, as well as applications to combinatorics (stable regularity lemma) using pseudofinite methods.

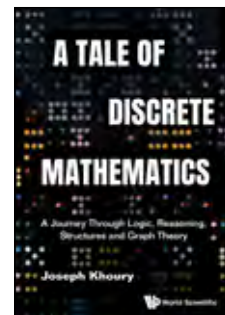


The second is an introduction to "continuous logic" or "continuous model theory," drawing on the main texts and papers, but with an independent point of view. This chapter includes some historical background, including some other formalisms for continuous logic and a discussion of hyperimaginaries in classical first order logic. These chapters are based around notes, written by students, from a couple of advanced graduate courses in the University of Notre Dame, in Autumn 2018, and Spring 2021.

152pp	May 2024	
978-981-124-399-8(pbk)	US\$28	£25
978-981-124-380-6	US\$58	£55
978-981-124-381-3(ebook)	US\$98	£90

## A Tale of Discrete Mathematics

A Journey Through Logic, Reasoning, Structures and Graph Theory  
by **Joseph Khoury** (University of Ottawa, Canada)



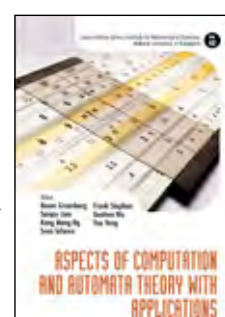
Topics covered in Discrete Mathematics have become essential tools in many areas of studies in recent years. This is primarily due to the revolution in technology, communications, and cyber security. The book treats major themes in a typical introductory modern Discrete Mathematics course: Propositional and predicate logic, proof techniques, set theory (including Boolean algebra, functions and relations), introduction to number theory, combinatorics and graph theory.

820pp	Apr 2024	
978-981-128-578-3	US\$148	£135
978-981-128-579-0(ebook)	US\$237	£220

Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore - Vol 42

## Aspects of Computation and Automata Theory with Applications

edited by **Noam Greenberg** (Victoria University of Wellington, New Zealand), **Sanjay Jain** (National University of Singapore, Singapore), **Keng Meng Ng** (Nanyang Technological University, Singapore), **Sven Schewe** (University of Liverpool, UK), **Frank Stephan** (National University of Singapore, Singapore), **Guohua Wu** (Nanyang Technological University, Singapore) & **Yue Yang** (National University of Singapore)

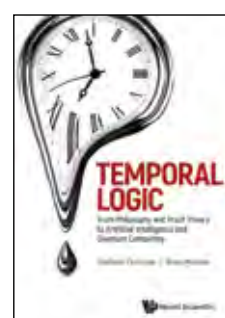


This volume results from two programs that took place at the Institute for Mathematical Sciences at the National University of Singapore: *Aspects of Computation — in Celebration of the Research Work of Professor Rod Downey* (21 August to 15 September 2017) and *Automata Theory and Applications: Games, Learning and Structures* (20 – 24 September 2021).

492pp	Nov 2023	
978-981-127-862-4	US\$158	£145
978-981-127-863-1(ebook)	US\$253	£235

## Temporal Logic

From Philosophy and Proof Theory to Artificial Intelligence and Quantum Computing  
by **Stefania Centrone** (Technical University of Munich, Germany) & **Klaus Mainzer** (Technical University of Munich, Germany)



This book explores temporal logic, tracing its roots from philosophy to modern applications in computer science, artificial intelligence, and quantum computing. It covers various formalisms and proof-theoretic interpretations, highlighting the need for interdisciplinary cooperation to address the complexities of time in technology.

220pp	Jun 2023	
978-981-126-853-3	US\$78	£70
978-981-126-854-0(ebook)	US\$125	£115



## GENERAL PURE AND APPLIED MATHEMATICS

Progress in Data Science - Vol 1

### Equivariant and Coordinate Independent Convolutional Networks

A Gauge Field Theory of Neural Networks  
by **Maurice Weiler** (Massachusetts Institute of Technology, USA), **Patrick Forré** (University of Amsterdam, The Netherlands), **Erik Verlinde** (University of Amsterdam, The Netherlands) & **Max Welling** (University of Amsterdam, The Netherlands)



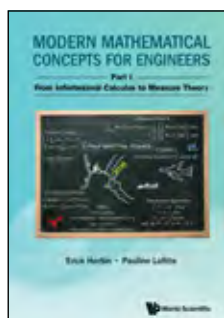
This book presents a gauge field theory of neural networks, focusing on equivariant and coordinate-independent convolutional networks for processing spatial signals like images and tensor fields. It provides a unified mathematical formulation and taxonomy, with applications in medical imaging, satellite imaging, and more.

This monograph is essential reading for anyone interested in signal processing in the presence of symmetries. It is relevant for any applications where patterns appear in various geometric poses, including, for instance, medical and satellite imaging, molecule generation, or climate modeling.

<b>600pp</b>	<b>Dec 2025</b>		
<b>978-981-9806-62-1</b>	<b>US\$178</b>	<b>£165</b>	
<b>978-981-9806-63-8(ebook)</b>	<b>US\$285</b>	<b>£260</b>	

### Modern Mathematical Concepts for Engineers

Part I: From Infinitesimal Calculus to Measure Theory  
by **Erick Herbin** & **Pauline Lafitte** (CentraleSupélec, France & Université Paris-Saclay, France)

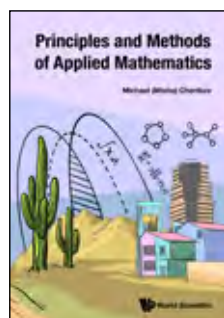


This textbook provides a comprehensive exploration of mathematical modeling, emphasizing the limitations of pointwise analysis and highlighting the great potential of measure theory. Measure theory not only offers better representations of phenomena, such as distributions and continuous probabilities, but also facilitates the analysis of classical partial differential equation problems. Additionally, the book introduces new classes of problems that go beyond traditional pointwise and infinitesimal analysis, integrating random and deterministic aspects into a unified framework.

<b>300pp</b>	<b>Aug 2025</b>		
<b>978-1-80061-733-9(pbk)</b>	<b>US\$58</b>	<b>£55</b>	
<b>978-1-80061-728-5</b>	<b>US\$118</b>	<b>£110</b>	
<b>978-1-80061-729-2(ebook)</b>	<b>US\$189</b>	<b>£175</b>	

### Principles and Methods of Applied Mathematics

by **Michael (Misha) Chertkov** (University of Arizona, USA)



This textbook aims to equip readers with a deep understanding of mathematical techniques essential for modeling, analyzing, and solving real-world problems across diverse disciplines. Written for graduate students and professionals, the book emphasizes practical applications of applied mathematics in the context of modern challenges, especially in the age of artificial intelligence and data-driven sciences. The text is structured around core areas including complex analysis, differential equations, variational calculus, optimal control, stochastic processes, statistical inference and learning.

<b>400pp</b>	<b>Aug 2025</b>		
<b>978-981-9809-28-8(pbk)</b>	<b>US\$78</b>	<b>£70</b>	
<b>978-981-9808-24-3</b>	<b>US\$138</b>	<b>£125</b>	
<b>978-981-9808-25-0(ebook)</b>	<b>US\$221</b>	<b>£205</b>	

### Mathematics for Biosciences

From Theory to Worked Examples and Applications

by **Elspeth F Garman** & **Nicola Laurieri** (University of Oxford, UK)



*Mathematics for Biosciences* is an ideal resource for those students needing a complete course of Mathematics, from basic algebra to advanced calculus and their applications. More than just a compendium of the necessary mathematical tools, the material is developed beyond the level needed to merely 'get by'. It utilises a tried-and-tested pedagogical philosophy that has been carefully developed over 25 years of 'on the job' experience in successfully teaching mathematics to nearly 3, 000 undergraduate students reading Molecular and Cellular Biochemistry at the University of Oxford (UK).

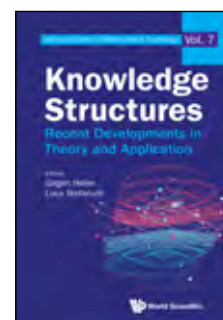
<b>428pp</b>	<b>May 2025</b>		
<b>978-1-80061-608-0(pbk)</b>	<b>US\$58</b>	<b>£55</b>	
<b>978-1-80061-603-5</b>	<b>US\$128</b>	<b>£120</b>	
<b>978-1-80061-604-2(ebook)</b>	<b>US\$205</b>	<b>£190</b>	

Advanced Series on  
Mathematical Psychology - Vol 7

### Knowledge Structures

Recent Developments in Theory and Application

edited by **Jürgen Heller** (University of Tübingen, Germany) & **Luca Stefanutti** (University of Padua, Italy)

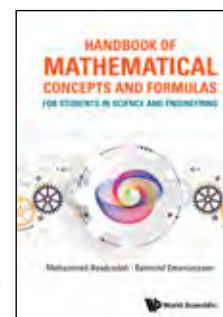


This book provides a state-of-the-art review of Knowledge Structure Theory (KST), covering its foundations, recent developments, and new applications beyond education, including psychological diagnostics and cognitive assessment. It features contributions from leading researchers and an overview of available software for KST applications.

<b>364pp</b>	<b>Sep 2024</b>		
<b>978-981-128-047-4</b>	<b>US\$128</b>	<b>£120</b>	
<b>978-981-128-048-1(ebook)</b>	<b>US\$205</b>	<b>£190</b>	

### 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.

Concepts covered include whole calculus, linear and abstract algebra, as well as analysis, applied math, mathematical statistics, and numerical analysis. The appendices address Mathematica and MATLAB programming, which contain simple programs for educational purposes, alongside more rigorous programs designed to solve problems of more real application.

<b>668pp</b>	<b>Jan 2024</b>		
<b>978-1-80061-331-7</b>	<b>US\$188</b>	<b>£175</b>	
<b>978-1-80061-332-4(ebook)</b>	<b>US\$301</b>	<b>£275</b>	



## GEOMETRY AND TOPOLOGY

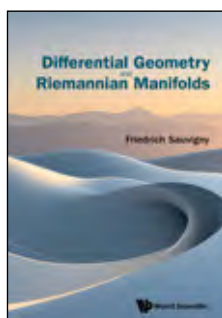
**Differential Geometry and Riemannian Manifolds**

by **Friedrich Sauvigny** (*Brandenburg University of Technology Cottbus – Senftenberg, Germany*)

This textbook focuses on the study of curves and surfaces, applying modern differential equation theory to geometric problems. By introducing isothermal parameters, it simplifies the fundamental equations of surface theory, leading to clear derivations of results like those of H Hopf and S Bernstein for surfaces of constant and vanishing mean curvature.

Deviating from traditional approaches, the book first treats  $n$ -dimensional Riemannian spaces by a corresponding metric, then constructs Riemannian manifolds through transition conditions. The ultimate goal is to prove the Hadamard–Cartan theorem on the diffeomorphic character of the exponential mapping in Riemannian manifolds with nonpositive sectional curvature. By considering curves and surfaces in their optimal parametrization, the resulting ODEs and complex PDEs can be analytically solved, eliminating the need for intricate tensor calculus.

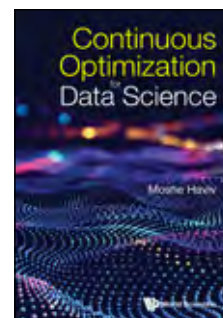
<b>300pp</b>	<b>Dec 2025</b>	
<b>978-981-9816-16-3</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-9816-17-0(ebook)</b>	<b>US\$173</b>	<b>£160</b>

**Continuous Optimization for Data Science**

by **Moshe Haviv** (*The Chinese University of Hong Kong, Shenzhen, China & The Hebrew University of Jerusalem, Israel*)

This book covers continuous optimization techniques for data science, including unconstrained and constrained optimization, and linear programming. It provides applications to various data science topics, such as linear regression, support vector machines, and neural networks.

<b>300pp</b>	<b>Aug 2025</b>	
<b>978-981-9801-50-3(pbk)</b>	<b>US\$68</b>	<b>£65</b>
<b>978-981-129-919-3</b>	<b>US\$118</b>	<b>£110</b>
<b>978-981-129-920-9(ebook)</b>	<b>US\$189</b>	<b>£175</b>

**Homology & Cohomology**

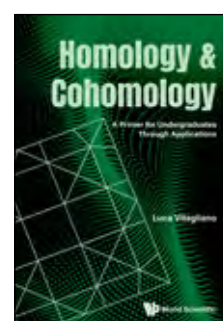
A Primer for Undergraduates Through Applications

by **Luca Vitagliano** (*University of Salerno, Italy*)

The book introduces (co)homology theory and some of its applications in Algebra and Geometry. It is intended for undergraduate Mathematics students, as well as graduate and postgraduate students in other fields, particularly Theoretical Physics, who require a highly compact overview of this vast theory. The book also explores how (co)homology theory naturally arises in seemingly unrelated areas of Mathematics.

The theory is presented from scratch, requiring no prerequisites other than basic linear algebra, point-set topology, and calculus. The presentation is simple, concise, yet rigorous, making it accessible to undergraduate Mathematics and likely Physics students from the third year onward. The book emphasizes the theory's numerous applications across Algebra and Geometry, rather than focusing solely on the theoretical aspects.

<b>272pp</b>	<b>May 2025</b>	
<b>978-981-9807-10-9(pbk)</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-9805-82-2</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-9805-83-9(ebook)</b>	<b>US\$157</b>	<b>£145</b>



Series on Knots and Everything - Vol 79

**High Dimensional Knotting**

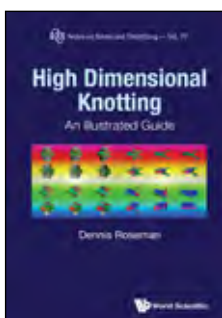
An Illustrated Guide

by **Dennis Roseman** (*University of Iowa, USA*)

Focused on concrete examples and constructions and using extensive computer generated three-dimensional graphics, this book serves as a guide to methods and examples of higher dimensional knotting. The book has modest mathematical requirements, has been written with non-specialists in mind and contains considerable background information.

Knotting whether fanciful or practical has been of interest to many — from sculptors to sailors and in more modern times of interest to mathematicians, biologists and physicists as well. Spaces of dimensions greater than three are also of widespread interest in the arts, sciences and engineering as well as mathematics. Knotting and linking of circles can aid us to understand three dimensionality. So, it is natural to consider knotting in order to understand higher dimensions.

<b>500pp</b>	<b>Nov 2025</b>	
<b>978-981-3237-39-1</b>	<b>US\$178</b>	<b>£165</b>
<b>978-981-3237-40-7(ebook)</b>	<b>US\$285</b>	<b>£260</b>



Problem Solving in Mathematics and Beyond

**Appreciating Geometry Through Extraordinary Relationships**

by **Alfred S Posamentier** (*The City University of New York, USA*)

This book presents 125 unusual geometric relationships, offering clear proofs that will captivate readers of all backgrounds. Geometry is one of the most visually compelling and surprising branches of mathematics, full of unexpected relationships that are easy to see but astonishing to uncover. From the concurrency of triangle lines — medians, altitudes, and bisectors — to the mysterious parallelogram hidden in any quadrilateral, the discoveries explored in this volume reveal the intuitive and exciting nature of geometry.

<b>300pp</b>	<b>Sep 2025</b>	
<b>978-981-9815-78-4(pbk)</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-9815-14-2</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-9815-15-9(ebook)</b>	<b>US\$141</b>	<b>£130</b>

**Computational Formalisms in Euclidean Geometry**

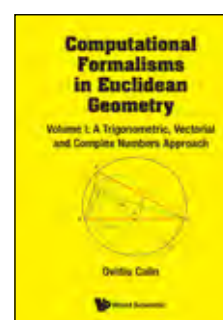
Volume I: A Trigonometric, Vectorial and Complex Numbers Approach

by **Ovidiu Calin**

(*Eastern Michigan University, USA*)

This book explores three computational formalisms for solving geometric problems. Part I introduces a trigonometric-based formalism, enabling calculations of distances, angles, and areas using basic trigonometry. Part II focuses on complex numbers, representing points in the plane to manipulate geometric properties like collinearity and concurrency, making it particularly useful for planar problems and rotations. Part III covers vector formalism, applying linear algebra to both plane and solid geometry. Vectors are effective for solving problems related to perpendicularity, collinearity, and the calculation of distances, areas, and volumes.

<b>668pp</b>	<b>Apr 2025</b>	
<b>978-981-9807-13-0(pbk)</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-9806-16-4</b>	<b>US\$188</b>	<b>£175</b>
<b>978-981-9806-17-1(ebook)</b>	<b>US\$301</b>	<b>£275</b>



Series on Knots and Everything - Vol 78

## Four-Dimensional Paper Constructions After Möbius, Klein and Boy

by **Eiji Ogasa** (*Meiji Gakuin University, Japan*)

Explore four-dimensional paper constructions inspired by the work of great mathematicians like Möbius, Klein, Boy, Hopf, and others. These creations will help you visualize four-dimensional space and beyond, transporting you to higher-dimensional spaces. This book is designed to solidify your foundations in various areas of mathematics and physics, with a particular focus on topology.



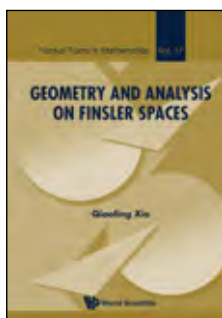
**188pp** **Apr 2025**  
**978-981-9801-79-4** **US\$78** **£70**  
**978-981-9801-80-0(ebook)** **US\$125** **£115**

Nankai Tracts in Mathematics - Vol 17

## Geometry and Analysis on Finsler Spaces

by **Qiaoling Xia** (*Hangzhou Dianzi University, China*)

Finsler geometry is just Riemannian geometry without a quadratic restriction. It has applications in many fields of natural sciences, including physics, psychology, and ecology. The book is intended to provide basic materials on Finsler geometry for readers and to bring them to the frontiers of active research on related topics.



This book is comprised of three parts. In Part I (Chapters 1–4), the author introduces the basics, such as Finsler metrics, the Chern connection, geometric invariant quantities, etc., and gives some rigidity results on Finsler manifolds with certain curvature properties. Part II (Chapters 5–6) covers the theory of geodesics, using which the author establishes some comparison theorems, which are fundamental tools to study global Finsler geometry. In Part III (Chapters 7–9), the author presents recent developments in nonlinear geometric analysis on Finsler spaces, partly based on the author's recent works on Finsler harmonic functions, the eigenvalue problem, and heat flow. The author has made efforts to ensure that the contents are accessible to advanced undergraduates, graduate students, and researchers who are interested in Finsler geometry.

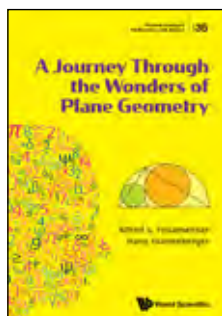
**300pp** **Mar 2025**  
**978-981-129-667-3** **US\$98** **£90**  
**978-981-129-668-0(ebook)** **US\$157** **£145**

Problem Solving in Mathematics and Beyond - Vol 34

## A Journey Through the Wonders of Plane Geometry

by **Alfred S Posamentier** (*City University of New York, USA*) & **Hans Humenberger** (*University of Vienna, Austria*)

Geometry is one of the most beautiful aspects of mathematics. This beauty is because you can “see” geometry at work. Most people are exposed to the very basic elements of geometry throughout their schooling with the most concentrated study in the secondary school curriculum. High schools in the United States offer one year of concentrated study of geometry that shows students how a mathematician functions, since everything that is accepted beyond the basic axioms must be proved. Unfortunately, as the course is only one year long, there is still very much in geometry left unexplored for the general audience. That is the challenge of this book, in which we will present a plethora of amazing geometric relationships.



**456pp** **Mar 2025**  
**978-981-129-284-2** **US\$98** **£90**  
**978-981-129-285-9(ebook)** **US\$157** **£145**

Mathematical Society of Japan Memoirs - Vol 43

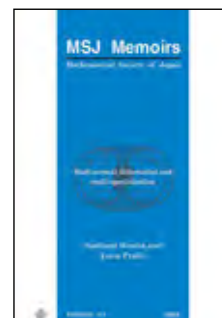
## Multi-Normal Deformation and Multi-Specialization

by **Naofumi Honda & Luca Prelli**

The aim of this work is to give a new description of the geometry appearing in the multi-specialization along a general family of submanifolds (including some important cases as clean intersection or a simultaneously linearizable family of Lagrangian submanifolds in a cotangent bundle) and to extend the multi-specialization, the main ingredient for the functorial study of asymptotics.

In the local model we can construct new sheaves of multi-asymptotically developable functions closely related with asymptotics along a subvariety with a simple singularity such as a cusp.

**121pp** **May 2025**  
**978-4-86497-111-9(pbk)** **US\$24** **£20**



Mathematical Society of Japan Memoirs - Vol 42

## Cone and Contraction Theorem for Projective Morphisms Between Complex Analytic Spaces

by **Osamu Fujino**

The theory of minimal models, which was initiated by Shigefumi Mori around 1980, plays a crucial role in higher-dimensional algebraic geometry. It has been highly desirable to consider appropriate complex analytic generalizations. The main purpose of this book is to give a rigorous foundation of the minimal model program for projective morphisms between complex analytic spaces. More specifically, we establish the cone and contraction theorem for normal pairs in a complex analytic setting. It is a starting point for the minimal model program of complex analytic log canonical pairs. Based on this book, many results for higher-dimensional algebraic varieties have already been generalized for complex analytic spaces. The results obtained in this book are expected to be useful for the study of complex analytic singularities, degenerations of complex projective varieties, and so on.

**94pp** **Feb 2025**  
**978-4-86497-106-5(pbk)** **US\$20** **£20**



Series on Knots and Everything - Vol 76

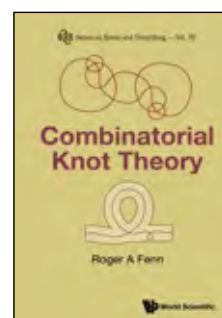
## Combinatorial Knot Theory

by **Roger A Fenn** (*University of Sussex, UK*)

A classic knot is an embedded simple loop in 3-dimensional space. It can be described as a 4-valent planar graph or network in the horizontal plane, with the vertices or crossings corresponding to double points of a projection. At this stage we have the shadow of the knot defined by the projection. We can reconstruct the knot by lifting the crossings into two points in space, one above the other. This information is preserved at the vertices by cutting the arc which appears to go under the over crossing arc. We can then act on this diagram of the knot using the famous Reidemeister moves to mimic the motion of the knot in space. The result is classic combinatorial knot theory. In recent years, many different types of knot theories have been considered where the information stored at the crossings determines how the Reidemeister moves are used, if at all.

In this book, we look at all these new theories systematically in a way which any third-year undergraduate mathematics student would understand. This book can form the basis of an undergraduate course or as an entry point for a postgraduate studying topology.

**208pp** **Jan 2025**  
**978-981-129-272-9** **US\$78** **£70**  
**978-981-129-273-6(ebook)** **US\$125** **£115**





# MATHEMATICS EDUCATION

Mathematical Olympiad Series

## IMO Problems, Theorems, and Methods

(In 4 Volumes)

- Algebra • Combinatorics • Geometry
- Number Theory

by **Jinhua Chen** (East China Normal University, China), **Bin Xiong** (East China Normal University, China), **Tianqi Lin** (Fudan University Affiliated High School, China), **Gengyu Zhang** (East China Normal University, China), **Guangyu Xu** (East China Normal University, China) & **Zhenhua Qu** (East China Normal University, China)

Translated by: **Xinyuan Yang, Zhenhua Qu & Jinhua Chen** (East China Normal University, China)

The problems in the International Mathematical Olympiad (IMO) are not only novel and interesting but also deeply rooted in profound mathematical context. The team at the International Mathematical Olympiad Research Center at East China Normal University has compiled and studied problems from past IMOs, dividing them into four volumes based on the mathematical fields involved: algebra, geometry, number theory, and combinatorics. These volumes are collectively titled "IMO Problems, Theorems, and Methods".

<b>940pp</b>	<b>Jul 2025</b>	
<b>978-981-9809-65-3(Set)(pbk)</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-9809-73-8(Set)</b>	<b>US\$228</b>	<b>£210</b>
<b>978-981-9809-74-5(Set)(ebook)</b>	<b>US\$365</b>	<b>£335</b>

Problem Solving in Mathematics and Beyond - Vol 39

## Fun Math

Problem Solving Beyond the Classroom  
by **Alfred S Posamentier** (The City University of New York, USA)

The first four chapters present novel examples in four integral areas of the mathematics curriculum, namely arithmetic, logic, algebra, and geometry. The last two chapters expose readers to topics in algebra and geometry that have been neglected at the secondary school level. Throughout the book, the focus is on introducing problem-solving techniques that will be useful in everyday life. With over 300 problems and carefully worked solutions, the book aims to foster a greater appreciation for mathematics through an exploration of useful and fascinating topics rarely addressed in the classroom.

<b>312pp</b>	<b>Jun 2025</b>	
<b>978-981-129-744-1</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-129-745-8(ebook)</b>	<b>US\$141</b>	<b>£130</b>

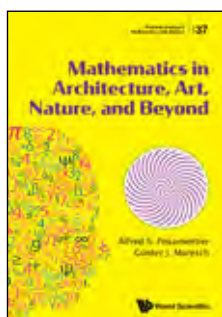
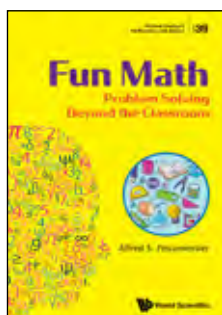
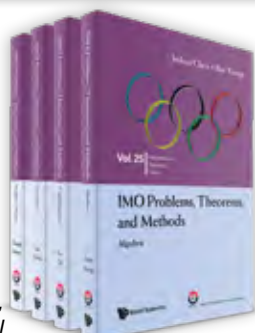
Problem Solving in Mathematics and Beyond - Vol 37

## Mathematics in Architecture, Art, Nature, and Beyond

by **Alfred S Posamentier** (The City University of New York, USA) & **Günter J Maresch** (University of Salzburg, Austria)

There is little opportunity in classrooms today for teachers to explore the amazing applications of mathematics outside the curriculum. This book is intended to show how mathematics manifests itself in areas that most people are unaware of. One can even revel in the history of how our number system evolved and how that has enabled us to define the beauty in mathematics as well as in art, architecture, nature, and beyond.

<b>208pp</b>	<b>Apr 2025</b>	
<b>978-981-129-698-7</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-129-699-4(ebook)</b>	<b>US\$125</b>	<b>£115</b>



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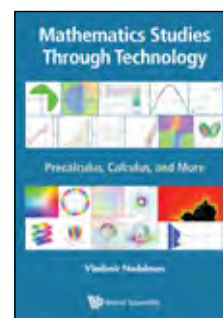
by **Vladimir Nodelman**

(Holon Institute of Technology, Israel)

This book caters to both prospective and current mathematics educators at the school and university levels, along with their students and anyone intrigued by the possibilities of integrating software into mathematics education.

Mathematics, being a unified science, is best comprehended when its cohesive nature is emphasized and demonstrated to students. Educational software assumes a pivotal role in achieving this pedagogical goal.

<b>620pp</b>	<b>Jan 2025</b>	
<b>978-981-129-013-8</b>	<b>US\$158</b>	<b>£145</b>
<b>978-981-129-014-5(ebook)</b>	<b>US\$253</b>	<b>£230</b>



Essential Textbooks in Mathematics

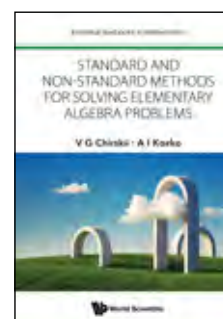
## Standard and Non-Standard Methods for Solving Elementary Algebra Problems

by **V G Chirskii** (Lomonosov Moscow State University, Russia & RANEP, Russia) & **A I Kozko** (Lomonosov Moscow State University, Russia & RANEP, Russia)

Solving elementary algebra lies at the heart of this basic textbook. Some of the topics addressed include inequalities with rational functions, equations and inequalities with modules, exponential, irrational, and logarithmic equations and inequalities, and problems with trigonometric functions. Special attention is paid to methods for solving problems containing parameters.

The book takes care to introduce topics with a description of the basic properties of the functions under study, as well as simple, typical tasks necessary for the initial study of the subject. Each topic concludes with problems for readers to solve, some of which may require serious effort and solutions are provided in all cases. Many of these problems were specifically created for this book and are set at university entrance exam or mathematical Olympiad level.

<b>308pp</b>	<b>Dec 2024</b>	
<b>978-1-80061-586-1(pbk)</b>	<b>US\$58</b>	<b>£55</b>
<b>978-1-80061-571-7</b>	<b>US\$108</b>	<b>£100</b>
<b>978-1-80061-572-4(ebook)</b>	<b>US\$173</b>	<b>£160</b>



## The Relay Race to Infinity

Developments in Mathematics from Euclid to Fermat

by **Derek Holton** (University of Otago, New Zealand & University of Melbourne, Australia) & **John Stillwell** (University of San Francisco, USA)

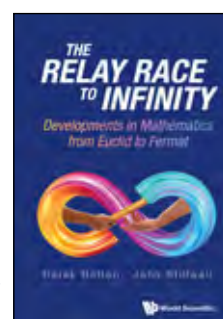
"This book is a valuable source for mathematics teachers and educators on aspects related to the history of mathematics. In addition, it allows aspiring mathematicians to appreciate the process of knowledge creation in Mathematics."

**Berinderjeet Kaur**  
Nanyang Technological University, Singapore

"The authors write in an inviting and conversational style and often pepper the prose with witty asides, making the book an enjoyable read."

**Pee Choon Toh**  
Nanyang Technological University, Singapore

<b>320pp</b>	<b>Oct 2024</b>	
<b>978-981-129-758-8(pbk)</b>	<b>US\$38</b>	<b>£35</b>
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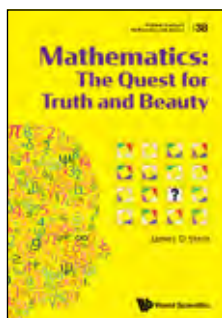
Problem Solving in Mathematics and Beyond  
- Vol 38

### Mathematics: The Quest for Truth and Beauty

by **James D Stein** (California State University Long Beach, USA)

This book tells the stories of some of the great quests of mathematics, such as the centuries-long pursuit for the proof of Fermat's Last Theorem. These quests are searches for difficult-to-discover universal truths, pursued with passion not only by mathematicians and scientists, but by kings, emperors and even Jean-Luc Picard, the captain of *Star Trek's Starship Enterprise*. Some of their exploits are adventures as fascinating as any historical or current-day drama. The truths they have discovered help us understand not only mathematics, but also the Universe — and sometimes, ourselves.

<b>184pp</b>	<b>May 2025</b>		
<b>978-981-9807-50-5(pbk)</b>	<b>US\$28</b>	<b>£25</b>	
<b>978-981-9806-30-0</b>	<b>US\$58</b>	<b>£55</b>	
<b>978-981-9806-31-7(ebook)</b>	<b>US\$98</b>	<b>£90</b>	



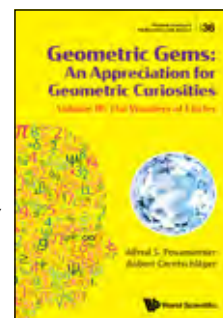
Problem Solving in Mathematics and Beyond  
- Vol 36

### Geometric Gems: An Appreciation for Geometric Curiosities

Volume III: The Wonders of Circles  
by **Alfred S Posamentier** (The City University of New York, USA) & **Robert Geretschlager** (University of Graz, Austria)

Our physical world is embedded in a geometric environment. Plane geometry has many amazing wonders beyond those that are briefly touched on at school. The circle, one of the basic aspects of geometry, has a plethora of unexpected curiosities, which the authors present in an easily understandable fashion requiring nothing more than the very basics of school geometry to appreciate these curiosities and their justifications or proofs.

The book is intended to be widely appreciated by a general readership, whose love for geometry should be greatly enhanced through exploring these many unexpected relationships. *Geometric Gems* is also suitable for mathematics teachers, to enhance the education of their students with these highly motivating circle properties.



### Archimedes' Stomach ... and Other Puzzles You'll Love to Digest

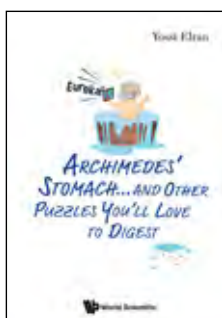
by **Yossi Elran** (Weizmann Institute of Science, Israel)

*"In six far ranging chapters, Elran takes us on a journey from ciphers, to ancient puzzles, through mathematical poetry and art. With secret messages and mystery challenges, there's plenty to keep a curious mind busy, novice and expert alike — at heart this is a book of fun things to think about and do. It is also an accessible, richly detailed, cross-cultural, and up-to-date sourcebook showing off the roots of our subject (and will remain a valued reference in my own library)."*

*In short, a compendium of stimulating mathematical gems for the home or classroom."*

**Chaim Goodman-Strauss**  
Mathematician and mathematical artist

<b>248pp</b>	<b>May 2025</b>		
<b>978-981-126-947-9(pbk)</b>	<b>US\$19.90</b>	<b>£20</b>	
<b>978-981-126-859-5</b>	<b>US\$48</b>	<b>£45</b>	
<b>978-981-126-860-1(ebook)</b>	<b>US\$98</b>	<b>£90</b>	



<b>260pp</b>	<b>Mar 2025</b>		
<b>978-981-129-476-1(pbk)</b>	<b>US\$38</b>	<b>£35</b>	
<b>978-981-129-413-6</b>	<b>US\$78</b>	<b>£70</b>	
<b>978-981-129-414-3(ebook)</b>	<b>US\$125</b>	<b>£115</b>	

Mathematical Olympiad Series - Vol 24

### Leningrad Mathematical Olympiads (1961 – 1991)

by **Dmitri Fomin**

This book covers thirty years of the Leningrad Mathematical Olympiad, which was, ostensibly, the very first formally organized, open, official city-level mathematical contest in the world. The main text contains approximately 1,100 highly original questions for students of grades 5 through 10 (ages 11–12 through 17–18) offered at the two concluding rounds of the Leningrad City Mathematics Olympiads in the years of 1961–1991. Full solutions, hints and answers are provided for all questions with very rare exceptions.



<b>528pp</b>	<b>Mar 2025</b>		
<b>978-981-125-497-0(pbk)</b>	<b>US\$58</b>	<b>£55</b>	
<b>978-981-125-444-4</b>	<b>US\$148</b>	<b>£135</b>	
<b>978-981-125-445-1(ebook)</b>	<b>US\$237</b>	<b>£220</b>	

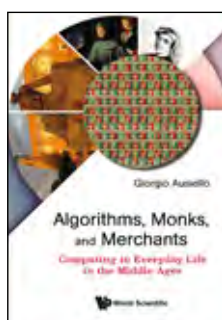
### Algorithms, Monks, and Merchants

Computing in Everyday Life in the Middle Ages

by **Giorgio Ausiello** (Sapienza University of Rome, Italy)

This book explores the tight relationship that existed between application needs and computational problem-solving methods during the Middle Ages, particularly the period between the 9th and 15th centuries. The aim is to show, by means of suitable examples, how in the Middle Ages mathematics and computation were tightly related to the solution of everyday life problems. These ranges from religious problems like computing the date of Easter to land measurement and financial computations, as well as handling various volumes and managing agricultural resources.

<b>200pp</b>	<b>Mar 2025</b>		
<b>978-981-9812-83-7(pbk)</b>	<b>US\$48</b>	<b>£45</b>	
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<b>978-981-129-928-5(ebook)</b>	<b>US\$141</b>	<b>£130</b>	

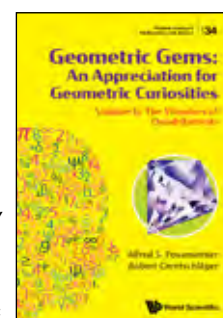


Problem Solving in Mathematics and Beyond  
- Vol 35

### Geometric Gems: An Appreciation for Geometric Curiosities

Volume II: The Wonders of Quadrilaterals  
by **Alfred S Posamentier** (The City University of New York, USA) & **Robert Geretschlager** (University of Graz, Austria)

Our physical world is embedded in a geometric environment. Plane geometry has many amazing wonders beyond those that are briefly touched on at school. The quadrilateral, one of the basic instruments in geometry, has a plethora of unexpected curiosities. The authors present these in an easily understood fashion, requiring nothing more than the very basics of school geometry to appreciate these curiosities and their justifications or proofs.



<b>290pp</b>	<b>Feb 2025</b>		
<b>978-981-129-229-3(pbk)</b>	<b>US\$38</b>	<b>£35</b>	
<b>978-981-129-144-9</b>	<b>US\$88</b>	<b>£80</b>	
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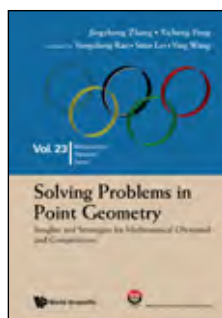


## BESTSELLING MATHEMATICAL OLYMPIAD TITLES

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by **Jingzhong Zhang** (Guangzhou University, China & Chinese Academy of Sciences, China) & **Xicheng Peng** (Central China Normal University, China)Translated by: **Yongsheng Rao, Siran Lei & Ying Wang** (Guangzhou University, China)

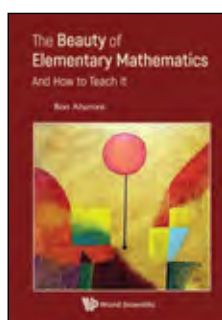
For over two millennia, the complexities of elementary geometry have challenged learners, burdened by the intricacies of auxiliary graphics and cumbersome calculations. Inspired by Leibniz's query, this book introduces a groundbreaking method: point geometry. By operating directly on points, it integrates the strengths of coordinate, vector, and mass point methods, simplifying operations and problem-solving.

Central to this method is the identity approach, which streamlines complex problems into concise equations, unlocking multiple propositions with ease. Through meticulously crafted examples, readers are invited to explore the joy of mathematical thinking.

<b>236pp</b>	<b>Dec 2024</b>	
<b>978-981-129-475-4(pbk)</b>	<b>US\$32</b>	<b>£30</b>
<b>978-981-129-410-5</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-129-411-2(ebook)</b>	<b>US\$98</b>	<b>£90</b>

**The Beauty of Elementary Mathematics**

And How to Teach It

by **Ron Aharoni** (Technion, Israel Institute of Technology, Haifa, Israel)

This book explores the depth and beauty of elementary mathematics, revealing surprising insights and discoveries. As a university professor who taught in an elementary school, Aharoni realized that good teaching requires understanding the fine points of math and conveying their beauty to students. The book covers material from kindergarten to grade 6, including algebra, and discusses teaching and thinking principles. Aharoni argues that sensing beauty and understanding go hand-in-hand, and that teachers and parents who embody these principles can instill a love of mathematics in children.

<b>292pp</b>	<b>Sep 2024</b>	
<b>978-981-127-874-7(pbk)</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-127-815-0</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-127-816-7(ebook)</b>	<b>US\$157</b>	<b>£145</b>

**The Mischief of Math**

Short Stories of Clowns, Contortionists, and Court-Jesters

by **Inavamsi Enaganti** (Param Innovation Centre, India), **Nivedita Ganesh** (New York University, USA) & **Bud Mishra** (New York University, USA)Illustrated by: **Alexander Lu**

Embark on a whimsical odyssey through the realms of ethics in AI bots, logic, game theory, paradoxes, biases, fake data detection, graph theory, and so much more! Within these pages you'll find a collection of fictional short stories that weave together the intriguing, the counterintuitive and the downright quirky with bold characters from every walk of life.

<b>200pp</b>	<b>Jul 2024</b>	
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<b>978-981-128-759-6</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-128-760-2(ebook)</b>	<b>US\$98</b>	<b>£90</b>

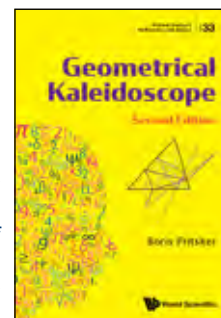
Problem Solving in Mathematics and Beyond - Vol 33

**Geometrical Kaleidoscope**

2nd Edition

by **Boris Pritsker**

"The new edition of this book makes an excellent book even better. The good features of the first edition (clear writing, good selection of topics, solved problems) have been retained, and Pritsker has added a new chapter offering seven different proofs of the Pythagorean theorem, as well as an Index and Appendix (summarizing the major definitions and results). Instructors who teach college courses on advanced Euclidean geometry, or students who want to self-study geometry, will find this book a valuable resource."

**Mark Hunacek****Teaching Professor Emeritus, Iowa State University**

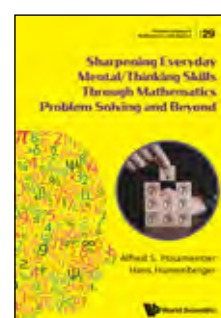
<b>188pp</b>	<b>Apr 2024</b>	
<b>978-981-128-560-8(pbk)</b>	<b>US\$28</b>	<b>£25</b>
<b>978-981-128-527-1</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-128-528-8(ebook)</b>	<b>US\$98</b>	<b>£90</b>

Problem Solving in Mathematics and Beyond - Vol 30

**Sharpening Everyday Mental/Thinking Skills Through Mathematics Problem Solving and Beyond**by **Alfred S Posamentier** (City University of New York, USA) & **Hans Humenberger** (University of Vienna, Austria)

The chapters of the book explore a multitude of topics: unusual arithmetic calculations and shortcuts, entertaining and instructional problem-solving strategies, unusual applications of algebra, and how geometry allows us to better appreciate physical relationships. Only a basic mathematical knowledge is needed to understand these topics and problems; however, the book also demonstrates that, armed with even this level of understanding, our mathematical skills far exceed what we learned at school! The final chapter is the most challenging, and explores a curious problem-solving technique.

<b>340pp</b>	<b>Feb 2024</b>	
<b>978-981-127-639-2(pbk)</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-127-394-0</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-127-395-7(ebook)</b>	<b>US\$173</b>	<b>£160</b>



Mathematical Olympiad Series - Vol 21

**Problem Solving Methods and Strategies in High School Mathematical Competitions**by **Bin Xiong & Yijie He** (East China Normal University, China)Translated by: **Yongming Liu** (East China Normal University, China)

This book not only introduces important methods and strategies for solving problems in mathematics competition, but also discusses the basic principles behind them and the mathematical way of thinking.

It may be used as a valuable textbook for a mathematics competition course or a mathematics education course at undergraduate and graduate level. It can also serve as a reference book for students and teachers in primary and secondary schools.

<b>300pp</b>	<b>Mar 2024</b>	
<b>978-981-127-868-6(pbk)</b>	<b>US\$38</b>	<b>£35</b>
<b>978-981-127-742-9</b>	<b>US\$68</b>	<b>£65</b>
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Proceedings					
TITLE	EDITOR	PUB DATE	ISBN13	US\$	£
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PROCEEDINGS OF THE 14TH INTERNATIONAL CONGRESS ON MATHEMATICAL EDUCATION (ICME-14) (IN 2 VOLUMES)	WANG JIANPAN	21-Jun-24	9789811289378	580	535
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MCKAY CORRESPONDENCE, MUTATION AND RELATED TOPICS - PROCEEDINGS OF THE CONFERENCE ON MCKAY CORRESPONDENCE, MUTATION AND RELATED TOPICS	ITO YUKARI ET AL	01-Jun-23	9784864970983	118	110
COMPUTABILITY THEORY AND FOUNDATIONS OF MATHEMATICS - PROCEEDINGS OF THE 9TH INTERNATIONAL CONFERENCE ON COMPUTABILITY THEORY AND FOUNDATIONS OF MATHEMATICS	PENG NINGNING ET AL	20-May-22	9789811259289	98	90
RING THEORY 2019 - PROCEEDINGS OF THE EIGHTH CHINA-JAPAN-KOREA INTERNATIONAL SYMPOSIUM ON RING THEORY	ASASHIBA HIDE TO ET AL	04-Jan-21	9789811230288	118	110
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## MATHEMATICS OPEN (MO)

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ISSN (online): 2811-0072



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## GEOMETRIC MECHANICS (GM)

ISSN (print): 2972-4589

ISSN (online): 2972-4597



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Geometric Mechanics is a field that applies geometric methods in mechanics, dynamics, control, transport, stochastic processes, data science, and learning, using both pure and applied mathematics.

This journal focuses on promoting theoretical advancements in these areas, while also accepting submissions that showcase substantial applications and contributions in computational subjects.

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ISSN (print): 2810-9392

ISSN (online): 2810-9406



<https://www.worldscientific.com/ijdsms>

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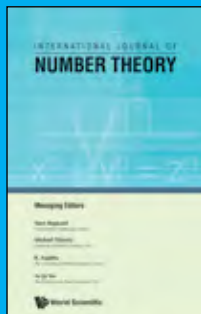
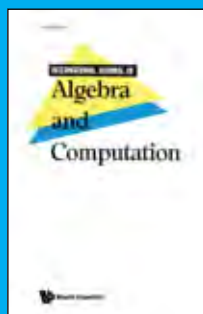
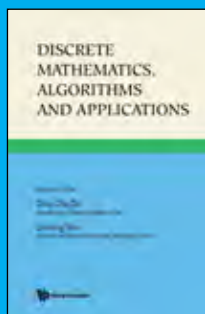
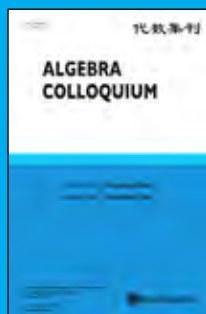
The aim of this new, highly inter-disciplinary journal is to establish a much-needed platform for experimental mathematicians, both pure and applied, physicists and other experts in theoretical STEM fields, as well as data scientists and computer scientists specializing in machine-learning and artificial intelligence.

This platform will publish and promote discussion in the following areas:

Data in pure mathematics, especially those already freely available online: LMFdB, GrDB, GAP, KnotsDB, etc. and in particular in line with MathSage;

- Data in applied mathematics, ranging from mathematical biology to theoretical physics;
- Data Science & Theoretical Physics: especially in relation to the string landscape;
- Machine-Learning & Mathematical Structures: in parallel with XenaProject, Coq and LEAN projects in automated theorem proving;
- Machine-Learning applications to Applied Mathematical sciences;
- New techniques in machine-learning inspired from theoretical physics, especially from quantum field theory and statistical mechanics;
- Interpretability Methods in Machine Learning;
- Conjecturing Formulation

## Algebra and Related Topics



### Algebra Colloquium (AC)

Print / Online ISSN: 1005-3867 / 0219-1733  
<https://www.worldscientific.com/ac>



IMPACT FACTOR  
0.4

This is an international mathematical journal founded at the beginning of 1994. It is edited by the Academy of Mathematics & Systems Science, Chinese Academy of Sciences, jointly with Suzhou University, and published quarterly in English in every March, June, September and December. Algebra Colloquium carries original research articles of high level in the field of pure and applied algebra. This journal aims to reflect the latest developments in algebra and promote international academic exchanges.

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#### Managing Editor

**Zhongming Tang**, *Suzhou University, China*

### Discrete Mathematics, Algorithms and Applications (DMAA)

Print / Online ISSN: 1793-8309 / 1793-8317  
<https://www.worldscientific.com/dmaa>



IMPACT FACTOR  
0.4

The aim of this journal is to advance and promote the theory and applications of discrete mathematics, which is a research area in mathematics with applications in computer science, industrial engineering, bio-informatics, chemistry and communication networks. The journal encourages contributions from the two important parts of discrete mathematics, graph theory and combinatorics. The former includes structural graph theory, extremal graph theory, algebraic graph theory, random graphs and internet graphs. The latter consists of combinatorial design, combinatorial enumeration, coding theory, combinatorial probabilistic method, etc.

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**Jinlong Shu**, *Shanghai Normal University, China*

### International Journal of Algebra and Computation (IJAC)

Print / Online ISSN: 0218-1967 / 1793-6500  
<https://www.worldscientific.com/ijac>



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0.5

This journal publishes high quality original research papers in combinatorial, algorithmic and computational aspects of algebra (including combinatorial and geometric group theory and semigroup theory, algorithmic aspects of universal algebra, computational and algorithmic commutative algebra, probabilistic models related to algebraic structures, random algebraic structures), and gives a preference to papers in the areas of mathematics represented by the editorial board.

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**John Rhodes**, *Univ. of California, Berkeley, USA*

### International Journal of Number Theory (IJNT)

Print / Online ISSN: 1793-0421 / 1793-7310  
<https://www.worldscientific.com/ijnt>



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This journal publishes original research papers and review articles on all areas of Number Theory, including elementary number theory, analytic number theory, algebraic number theory, arithmetic algebraic geometry, geometry of numbers, diophantine equations, diophantine approximation, transcendental number theory, probabilistic number theory, modular forms, multiplicative number theory, additive number theory, partitions, and computational number theory.

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### Journal of Algebra and Its Applications (JAA)

Print / Online ISSN: 0219-4988 / 1793-6829  
<https://www.worldscientific.com/jaa>



IMPACT FACTOR  
0.6

This journal publishes papers both on theoretical and on applied aspects of Algebra. There is special interest in papers that point out innovative links between areas of Algebra and fields of application. As the field of Algebra continues to experience tremendous growth and diversification, we intend to provide the mathematical community with a central source for information on both the theoretical and the applied aspects of the discipline. While the journal will be primarily devoted to the publication of original research, extraordinary expository articles that encourage communication between algebraists and experts on areas of application as well as those presenting the state of the art on a given algebraic sub-discipline will be considered.

#### Executive Editors

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**S R López-Permouth**, *Ohio University, USA*

### Random Matrices: Theory and Applications (RMTA)

Print / Online ISSN: 2010-3263 / 2010-3271  
<https://www.worldscientific.com/rmta>



IMPACT FACTOR  
0.6

This journal publishes high quality papers on all aspects regarding random matrices, both theory and applications. These areas will include, but not be limited to, spectral theory, new ensembles (those not generally considered in classical random matrix theory), and applications to a wide variety of areas, including high dimensional data analysis, wireless communications, finance, and economics. Only papers that contain original, innovative and correct results, which deepen our understanding on the theory of random matrices and its applications, will be considered for publications.

#### Editors-in-Chief

**Zhidong Bai** (Founding Editor), *Northeast Normal University, China*

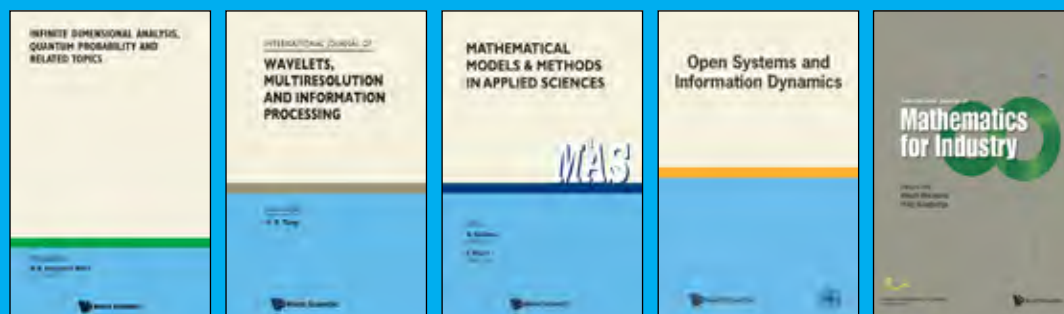
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**Jiang Hu**, *Northeast Normal University, China*

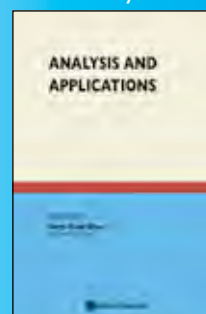
**Wang Zhou**, *National University of Singapore, Singapore*



## Applied Mathematics



## Mathematical Analysis

**Infinite Dimensional Analysis, Quantum Probability and Related Topics (IDAQP)**

Print / Online ISSN: 0219-0257 / 1793-6306

<https://www.worldscientific.com/idaqp>IMPACT FACTOR  
**0.8**

In the past few years the fields of infinite dimensional analysis and quantum probability have undergone increasingly significant developments and have found many new applications, in particular, to classical probability and to different branches of physics. The number of first-class papers in these fields has grown at the same rate. This is currently the only journal which is devoted to these fields.

**Managing Editor****B V Rajarama Bhat**, *R. V. College P.O., India***co-Managing Editor****Un Cig Ji**, *Chungbuk National University, Korea***Open Systems & Information Dynamics (OSID)**

Print / Online ISSN: 1230-1612 / 1793-7191

<https://www.worldscientific.com/osid>IMPACT FACTOR  
**1.6**

The aim of this journal is to promote interdisciplinary research in mathematics, physics, engineering and life sciences centered around the issues of broadly understood information processing, storage and transmission, in both quantum and classical settings. Our special interest lies in the information-theoretic approach to phenomena dealing with dynamics and thermodynamics, control, communication, filtering, memory and cooperative behaviour, etc., in open complex systems.

**Editor-in-Chief****D. Chruściński**, *Nicolaus Copernicus University, Poland***International Journal of Wavelets, Multiresolution and Information Processing (IJWIP)**

Print / Online ISSN: 0219-6913 / 1793-690X

<https://www.worldscientific.com/ijwip>IMPACT FACTOR  
**0.8**

This journal considers the current state-of-the-art theories of wavelet analysis, multiresolution and information processing as well as their applications. This journal aims at publishing papers in both the theories and applications, concentrating on the practical applications of the wavelets, multiresolution and information processing to all areas in science and engineering.

**Editor-in-Chief****Yuan Y Tang**, *University of Macau, China***Managing Editor****Luoqing Li**, *Hubei University, China***International Journal of Mathematics for Industry (IJMI)**

Print / Online ISSN: 2661-3352 / 2661-3344

<https://www.worldscientific.com/ijmi>IMPACT FACTOR  
**0.4**

This journal is dedicated to enhancing the interaction between mathematics and industrial applications as a two-way process. It publishes original research articles that illustrate how, through the utilization of mathematical results, questions about industrial problems including various scientific questions potentially connected to industrial problems are answered to yield new insight for both industry and mathematics.

**Editors-in-Chief****Masato Wakayama**, *Kyushu University, Japan***Philip Broadbridge**, *La Trobe, Australia***Mathematical Models and Methods in Applied Sciences (M³AS)**

Print / Online ISSN: 0218-2025 / 1793-6314

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**3.0**

The purpose of this journal is to provide a medium of exchange for scientists engaged in applied sciences (physics, mathematical physics, natural, and technological sciences) where there exists a non-trivial interplay between mathematics, mathematical modelling of real systems and mathematical and computer methods oriented towards the qualitative and quantitative analysis of real physical systems.

**Editors****Nicola Bellomo**, *Politecnico di Torino, Italy***Franco Brezzi**, *IMATI - CNR, Italy***Analysis and Applications (AA)**

Print / Online ISSN: 0219-5305 / 1793-6861

<https://www.worldscientific.com/aa>IMPACT FACTOR  
**2.4**

This journal publishes high quality mathematical papers that treat those parts of analysis which have direct or potential applications to the physical and biological sciences and engineering. Some of the topics from analysis include approximation theory, asymptotic analysis, calculus of variations, integral equations, integral transforms, ordinary and partial differential equations, delay differential equations, and perturbation methods. The primary aim of the journal is to encourage the development of new techniques and results in applied analysis.

**Editor-in-Chief****Ding-Xuan Zhou**, *The University of Sydney, Australia***Honorary Editors-in-Chief****Philippe G Ciarlet**, *City University of Hong Kong, Hong Kong***Roderick S C Wong**, *City University of Hong Kong, Hong Kong***SUBMIT YOUR PAPER TO THESE JOURNALS.****SUBSCRIBE OR RECOMMEND THESE JOURNALS TO YOUR LIBRARIAN!**

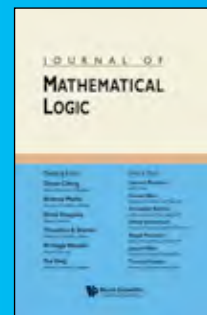
General Mathematics



Mathematical Biology



Mathematical Logic and Foundations



## Asian-European Journal of Mathematics (AEJM)

Print / Online ISSN: 1793-5571 / 1793-7183  
<https://www.worldscientific.com/aejm>



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0.5

This is an international journal which is devoted to original research in the field of pure and applied mathematics. The aim of the journal is to provide a medium by which new ideas can be discussed among researchers from diverse fields in mathematics. It publishes high quality research papers in the fields of contemporary pure and applied mathematics with a broad range of topics.

### Chief Editor

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### Managing Editors

Jörg Koppitz, Universität Potsdam, Germany

Xianning Liu, Southwest University, China

## Bulletin of Mathematical Sciences (BMS)

Print / Online ISSN: 1664-3607 / 1664-3615  
<https://www.worldscientific.com/bms>



IMPACT FACTOR  
2.5



This peer-reviewed journal will publish original research work of highest quality and of broad interest in all branches of mathematical sciences. It publishes well-written expository articles of exceptional value giving the latest state of the art on a specific topic, and short articles containing significant results of wider interest. It is launched by King Abdulaziz University, Jeddah, Saudi Arabia.

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Vicentiu Radulescu, AGH University of Krakow, Poland

### Managing Editor

Bashir Ahmad, King Abdulaziz University, Jeddah, Saudi Arabia

## International Journal of Mathematics (IJM)

Print / Online ISSN: 0129-167X / 1793-6519  
<https://www.worldscientific.com/ijm>



IMPACT FACTOR  
07

The International Journal of Mathematics publishes original research papers of high quality in all topics of pure mathematics. The journal has been published monthly. The first issue appeared in March 1990.

### Founding Advisor

Late Prof. S S Chern, Chern Institute of Mathematics, Nankai University, China

### Chair

Yasuyuki Kawahigashi, University of Tokyo, Japan

## Communications in Contemporary Mathematics (CCM)

Print / Online ISSN: 0219-1997 / 1793-6683  
<https://www.worldscientific.com/ccm>



IMPACT FACTOR  
1.2

With traditional boundaries between various specialized fields of mathematics becoming less and less visible, *Communications in Contemporary Mathematics* (CCM) presents the forefront of research in the fields of: Algebra, Analysis, Applied Mathematics, Dynamical Systems, Geometry, Mathematical Physics, Number Theory, Partial Differential Equations and Topology, among others. It provides a forum to stimulate interactions between different areas. Both original research papers and expository articles will be published.

### Editor-in-Chief

Yi-Zhi Huang, Rutgers University, USA

## International Journal of Biomathematics (IJB)

Print / Online ISSN: 1793-5245 / 1793-7159  
<https://www.worldscientific.com/ijb>



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2.0

The goal of this journal is to present the latest achievements in biomathematics, facilitate international academic exchanges and promote the development of biomathematics. Its research fields include mathematical ecology, infectious disease dynamical system, biostatistics and bioinformatics.

### Editor-in-Chief

Lansun Chen, Academy of Mathematics and Systems Science Chinese Academy of Sciences, China

## Journal of Mathematical Logic (JML)

Print / Online ISSN: 0219-0613 / 1793-6691  
<https://www.worldscientific.com/jml>



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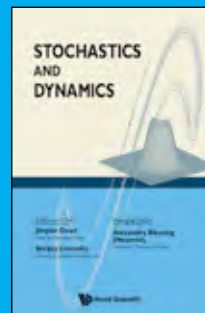
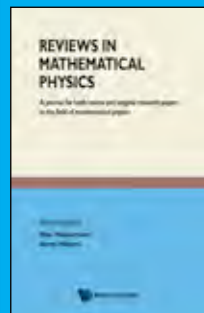
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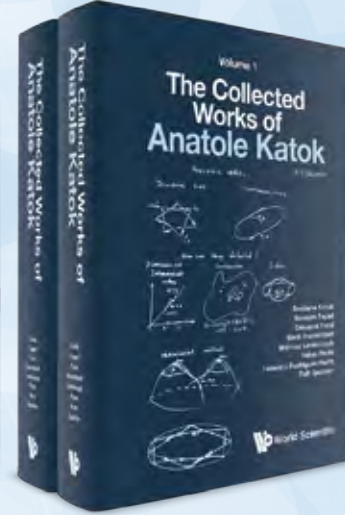
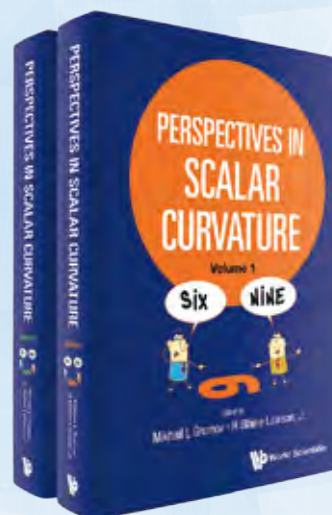
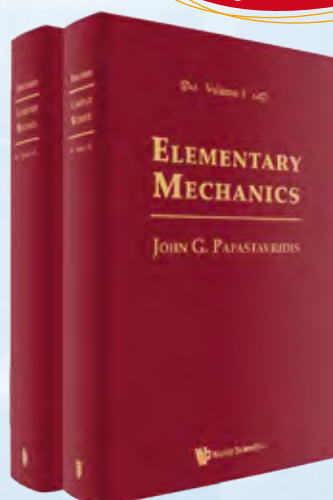
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