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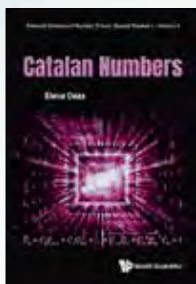
Selected Chapters of Number Theory: Special Numbers - Vol 4

## Catalan Numbers

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

Catalan numbers, named after the French-Belgian mathematician Eugène Charles Catalan (1814 – 1894), 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 useful and of interest to both professionals and a general audience.

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Monographs in Number Theory - Vol 12

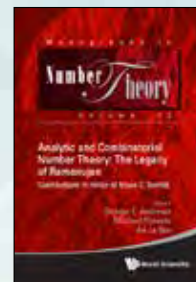
## Analytic and Combinatorial Number Theory: The Legacy of Ramanujan

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.

704pp  
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Series on Knots and Everything - Vol 77

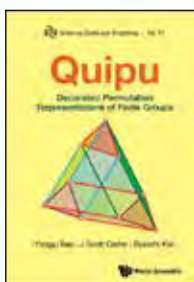
## Quipu

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.

456pp  
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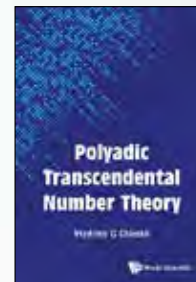


## Polyadic Transcendental Number Theory

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. The methods described will allow readers to obtain many new results.

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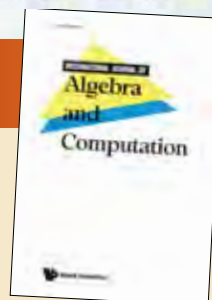
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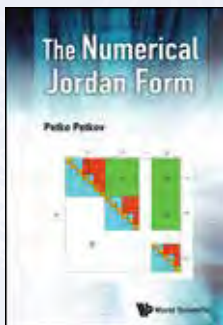


## The Numerical Jordan Form

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.

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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.

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## 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.

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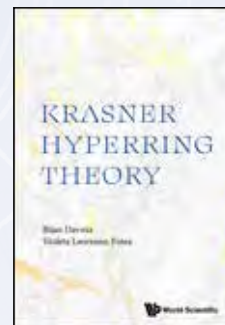


## Krasner Hyperring Theory

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

The theory of algebraic hyperstructures, in particular the theory of Krasner hyperrings, has seen a spectacular development in the last 20 years, which is why a book dedicated to the study of these is so vital. Krasner hyperrings are a generalization of hyperfields, introduced by Krasner in order to study complete valued fields.

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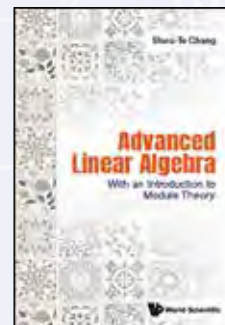
## Advanced Linear Algebra

### With an Introduction to Module Theory

by **Shou-Te Chang** (National Chung Cheng University, Taiwan)

Certain essential concepts in linear algebra cannot be fully explained in a first course. This is due to a lack of algebraic background for most beginning students. On the other hand, these concepts are taken for granted in most of the mathematical courses at graduate school level. This book will provide a gentle guidance for motivated students to fill the gap. It is not easy to find other books fulfilling this purpose.

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Selected Chapters of Number Theory: Special Numbers - Vol 3

## Stirling Numbers

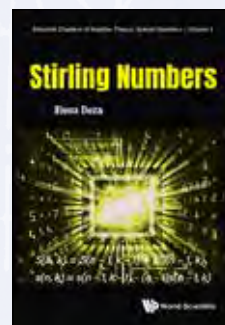
by **Elena Deza** (Moscow Pedagogical State University, Russia)

*"The book Stirling numbers gives a complete description of the Theory of Stirling numbers of the first and of the second kind and lists much of their properties, facts and theorems with full proofs. The book is very interesting and useful for a wide range of readers."*

**Chirskii V G**  
 Full Professor, Lomonosov Moscow State University

Stirling numbers have a rich history; many arithmetic, number-theoretical, analytical and combinatorial connections; numerous classical properties; as well as many modern applications.

468pp Jan 2024  
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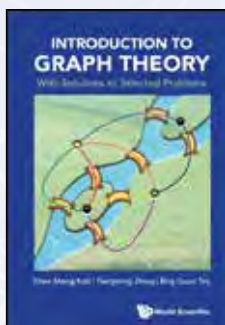
With Solutions to Selected Problems

by **Khee Meng Koh** (National University of Singapore, Singapore), **Fengming Dong** (Nanyang Technological University, Singapore) & **Eng Guan Tay** (Nanyang Technological University, Singapore)

Graph theory is an area in discrete mathematics which studies configurations (called graphs) involving a set of vertices interconnected by edges. This book is intended as a general introduction to graph theory.

The book builds on the verity that graph theory even at high school level is a subject that lends itself well to the development of mathematical reasoning and proof.

<b>308pp</b>	<b>Jan 2024</b>	
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**Abstract Algebra**by **Shaoqiang Deng** (Nankai University, China), **Fuhai Zhu** (Nanjing University, China)

This book is translated from the Chinese version published by Science Press, Beijing, China, in 2017. It was written for the Chern class in mathematics of Nankai University and has been used as the textbook for the course *Abstract Algebra* for this class for more than five years. It has also been adapted in abstract algebra courses in several other distinguished universities across China.

The aim of this book is to introduce the fundamental theories of groups, rings, modules, and fields, and help readers set up a solid foundation for algebra theory. The topics of this book are carefully selected and clearly presented. This is an excellent mathematical exposition, well-suited as an advanced undergraduate textbook or for independent study.

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Monographs in Number Theory - Vol 11

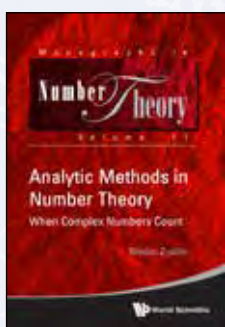
**Analytic Methods in Number Theory**

When Complex Numbers Count

by **Wadim Zudilin** (Radboud University Nijmegen, The Netherlands)

The present book takes a semi-systematic review of analytic achievements in number theory ranging from classical themes about primes, continued fractions, transcendence of  $\pi$  and resolution of Hilbert's seventh problem to some recent developments on the irrationality of the values of Riemann's zeta function, sizes of non-cyclotomic algebraic integers and applications of hypergeometric functions to integer congruences..

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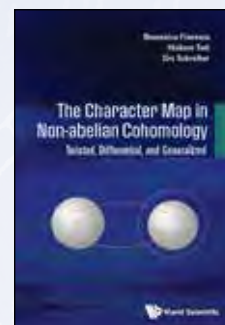
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by **Domenico Fiorenza** (Sapienza Università Roma, Italy), **Hisham Sati** (New York University Abu Dhabi, UAE) & **Urs Schreiber** (New York University Abu Dhabi, UAE)

"This book on nonabelian cohomology in the differentiable setting adds an original and coherent overall viewpoint to the theory of higher stacks that originated in the classical works of Grothendieck and Giraud and has seen a recent expansion in many directions. Viewed here through a lens of higher Lie theory, topics such as higher differential Chern characters constitute important new structures in differential homotopy, cohomology, and the K-theory of motives. Applications to physics are a central motivation for the study of higher Bianchi identities, leading the authors to find natural new differential forms of interest."

**Carlos Simpson**  
Université Côte d'Azur, CNRS, France

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**A Walk Through Combinatorics**An Introduction to Enumeration, Graph Theory, and Selected Other Topics  
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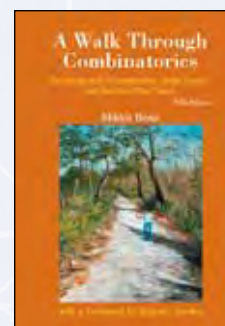
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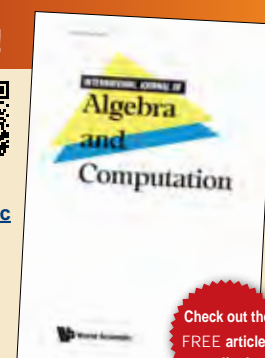
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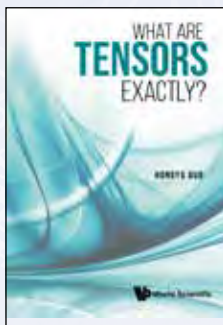


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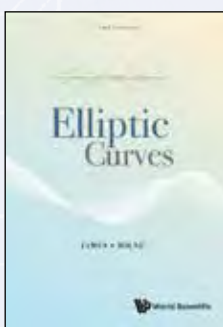
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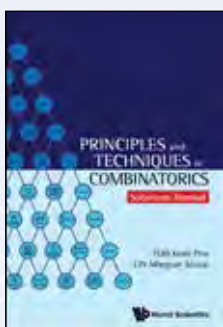
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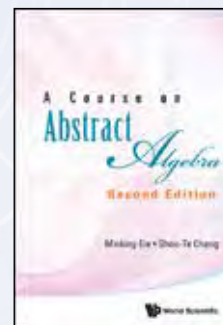
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