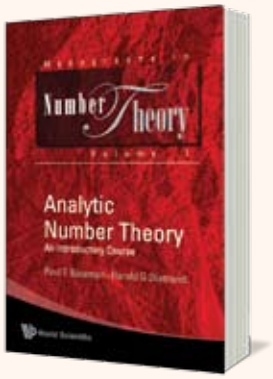
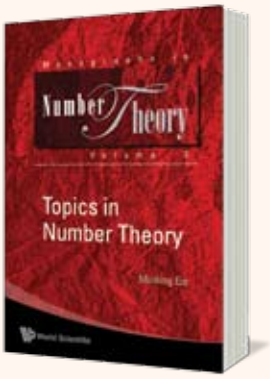
Connecting Great Minds

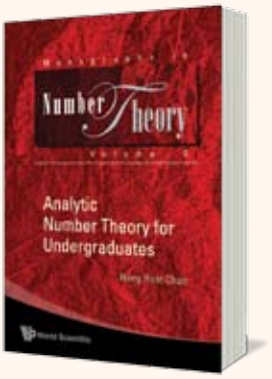
NUMBER THEORY
AND RELATED TITLES



Vol.1



Vol.2



Vol.3

Monographs in Number Theory

ANALYTIC NUMBER THEORY
An Introductory Course
(Reprinted 2009)
by **Paul T Bateman** & **Harold G Diamond**
(Univ. of Illinois at Urbana-Champaign)

"This book also includes a nice introduction to sieve methods ... Overall, this is a nice well-written book with plenty of material for a one-year graduate course. It would also make nice supplementary reading for a student or researcher learning the subject."

MAA Online Book Review

This valuable book focuses on a collection of powerful methods of analysis that yield deep number-theoretical estimates. Particular attention is given to counting functions of prime numbers and multiplicative arithmetic functions. Both real variable ("elementary") and complex variable ("analytic") methods are employed. The reader is assumed to have knowledge of elementary number theory (abstract algebra will also do) and real and complex analysis. Specialized analytic techniques, including transform and Tauberian methods, are developed as needed.

376pp	**Sept 2004**	
978-981-238-938-1	**US$104**	**£68**
978-981-256-080-3(pbk)	**US$58**	**£40**

TOPICS IN NUMBER THEORY
by **Minking Eie**
(National Chung Cheng Univ., Taiwan)

"This book is really quite unusual among works in analytic number theory since it provides a rather quick line of ascent to something not only pretty exotic and exciting but also absent from the usual repertoire of a practitioner of the art ... Topics in Number Theory is a very interesting book indeed."

MAA Online Book Review

Key Features
- First book ever written in English about the theory of modular forms of several variables and the theory of Jacobi forms over Cayley numbers. It provides a deep investigation into the mysteriously exceptional domain of 27 dimensions
- Introduces new methods to evaluate the classical Euler sums as well as multiple zeta values. The Drinfeld integral representations of multiple zeta values are extended to cover more general domains instead of just simplices
- Provides a quick way to approach the theory of modular forms. For example, one can find the dimension of cusp forms through the Selberg trace formula. Also, one can compute the Fourier coefficients of Eisenstein series on the Siegel upper half plane

296pp	**Dec 2008**	
978-981-283-518-5	**US$61**	**£36**

ANALYTIC NUMBER THEORY FOR UNDERGRADUATES
by **Heng Huat Chan**
(National Univ. of Singapore, Singapore)

"This is a true textbook, i.e., a book of texts that the instructor can expand on ... The book is well-produced, pleasing to the eye, and has almost no typographical errors ... I know of nowhere else that so many important results can be found so clearly presented in so small a space ... I hope that it will be adopted, or used as a supplement, by instructors of graduate-level courses."

MAA Online Book Review

Key Features
- A textbook on analytic number theory accessible to undergraduates with basic knowledge of complex analysis and abstract algebra
- Prime Number Theorem and Dirichlet's Theorem on primes in arithmetic progression are carefully discussed in this book
- Ramanujan's proof of Bertrand's postulate using Stirling's formula for the gamma function is given

128pp	**Apr 2009**	
978-981-4271-35-6	**US$58**	**£47**
978-981-4271-36-3(pbk)	**US$30**	**£24**

World Scientific
www.worldscientific.com

ICP Imperial College Press
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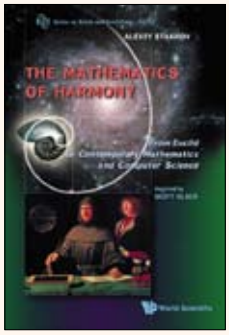
Preferred Publisher of Leading Thinkers

Series on Knots and Everything – Vol. 22

THE MATHEMATICS OF HARMONY

From Euclid to Contemporary Mathematics and Computer Science

by **Alexey Stakhov**
assisted by **Scott Olsen**
(Central Florida Community College, USA)



This volume is a result of the author's four decades of research in the field of Fibonacci numbers and the Golden Section and their applications. It provides a broad introduction to the fascinating and beautiful subject of the "Mathematics of Harmony," a new interdisciplinary direction of modern science. This direction has its origins in "The Elements" of Euclid and has many unexpected applications in contemporary mathematics (a new approach to a history of mathematics, the generalized Fibonacci numbers and the generalized golden proportions, the "golden" algebraic equations, the generalized Binet formulas, Fibonacci and "golden" matrices), theoretical physics (new hyperbolic models of Nature) and computer science (algorithmic measurement theory, number systems with irrational radices, Fibonacci computers, ternary mirror-symmetrical arithmetic, a new theory of coding and cryptography based on the Fibonacci and "golden" matrices).

Readership: Researchers, teachers and students in mathematics (especially those interested in the Golden Section and Fibonacci numbers), theoretical physics and computer science.

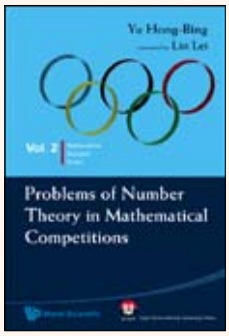
748pp	**Sept 2009**	
978-981-277-582-5	**US$142**	**£107**

Textbook

Mathematical Olympiad Series – Vol. 2

PROBLEMS OF NUMBER THEORY IN MATHEMATICAL COMPETITIONS

by **Yu Hong-Bing** *(Suzhou University, China)*
translated by **Lin Lei** *(East China Normal University, China)*



Number theory is an important research field of mathematics. In mathematical competitions, problems of elementary number theory occur frequently. These problems use little knowledge and have many variations. They are flexible and diverse. In this book, the author introduces some basic concepts and methods in elementary number theory via problems in mathematical competitions. Readers are encouraged to try to solve the problems by themselves before they read the given solutions of examples. Only in this way can they truly appreciate the tricks of problem-solving.

Readership: High-school mathematics students and teachers; coaches of mathematical olympiads, undergraduates and graduates in mathematics, non-experts interested in mathematical competitions.

116pp	**Sept 2009**	
978-981-4271-14-1(pbk)	**US$25**	**£19**

Series on Number Theory and Its Applications – Vol. 2

NUMBER THEORY

Sailing on the Sea of Number Theory
Proceedings of the 4th China-Japan Seminar
Weihai, China 30 August – 3 September 2006

edited by **S Kanemitsu** *(Kinki University, Japan)* & **J-Y Liu** *(Shandong University, China)*

Contents: Convolutions of the von Mangoldt Function and Related Dirichlet Series *(S Egami & K Matsumoto)*; Constructing New Non-Congruent Numbers by Graph Theory *(K Feng & Y Xue)*; Distribution of Units of an Algebraic Number Field Modulo an Ideal *(Y Kitaoka)*; Sign Changes of Fourier Coefficients and Eigenvalues of Cusp Forms *(W Kohnen)*; Shifted Convolution Sums of Fourier Coefficients of Cusp Forms *(Y-K Lau et al.)*; Two Expositions on Arithmetic of Cubics *(K Miyake)*; Distribution of Points on Modular Hyperbolas *(I E Shparlinski)*; A Survey of Problems and Results on Restricted Sumsets *(Z-W Sun)*; A General Modular Relation in Analytic Number Theory *(H Tsukada)*; *L*-Functions of Function Fields *(D Wan)*.

Readership: Graduate students and researchers in mathematics.

268pp	**Jul 2007**	
978-981-270-810-6	**US$90**	**£52**

NEW DEVELOPMENTS IN THE ADDITIVE THEORY OF PRIME NUMBERS

Forthcoming

by **Jianya Liu** & **Tao Zhan** *(Shandong University, China)*

The Waring–Goldbach problem seeks to represent positive integers satisfying necessary congruence conditions by powers of primes. The circle method of Hardy and Littlewood in combination with the estimates of Vinogadov for exponential sums over primes gives an affirmative answer to the general Waring–Goldbach problem. In recent years, new ideas using the circle method, sieves, and exponential sums have been incorporated into the Waring–Goldbach problem, encouraging remarkable advances. The purpose of this book is to introduce some of these new ideas, illustrated by dealing with the Waring–Goldbach problem for lower degrees.

Readership: Researchers and graduate students in number theory.

200pp (approx.)	**Apr 2010**	
978-981-277-592-4	**US$65**	**£35**

Advanced Studies in Pure Mathematics – Vol. 49

PROBABILITY AND NUMBER THEORY — KANAZAWA 2005

edited by **Shigeki Akiyama** *(Niigata University, Japan)*, **Kohji Matsumoto** *(Nagoya University, Japan)*, **Leo Murata** *(Meijigakuin University, Japan)* & **Hiroshi Sugita** *(Osaka University, Japan)*

This volume is the Proceedings of the international conference on Probability and Number Theory held at Kanazawa, Japan, in June 2005, and includes several survey articles on probabilistic number theory, and research papers on various recent topics around the border area between probability theory and number theory. This volume is useful for all researchers and graduate students who are interested in probability theory and number theory.

558pp	**Dec 2007**	
978-4-931469-43-3	**US$90**	**£49**

Series on Number Theory nd Its Applications – Vol. 6

New

NUMBER THEORY

Dreaming in Dreams
Proceedings of the 5th China-Japan Seminar
Higashi-Osaka, Japan 27 – 31 August 2008

edited by **Takashi Aoki**, **Shigeru Kanemitsu** *(Kinki University, Japan)* & **Jianya Liu** *(Shandong University, China)*

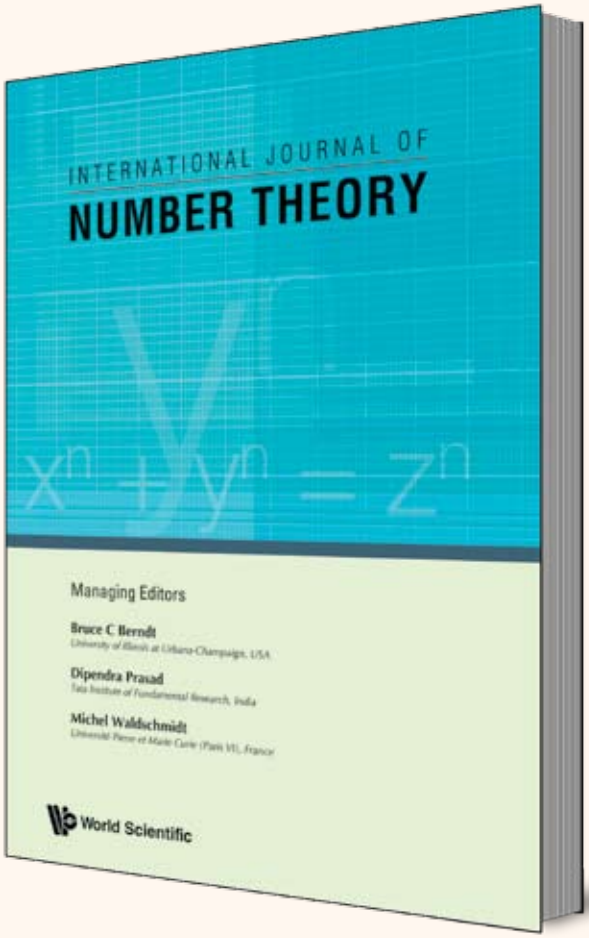
Contents: Recent Progress on the Quantitative Arithmetic of Del Pezzo Surfaces *(T Browning)*; Additive Representation in Thin Sequences, VIII: Diophantine Inequalities in Review *(J Bruedern et al.)*; Some Diophantine Problems Arising from the Isomorphism of Generic Polynomials *(A Hoshi & K Miyake)*; Recent Progress on Dynamics of a Special Arithmetic Function *(C-H Jia)*; A Statistical Relation Between Roots of a Polynomial in Different Local Fields II *(Y Kitaoka)*; Generalized Modular Functions and Their Fourier Coefficients *(W Kohnen)*; Functional Relations for Zeta-Functions of Root Systems *(Y Komori et al.)*; A Quick Introduction to Maass Forms *(J Y Liu)*; The Number of Non-Zero Coefficients of a Polynomial — Solved and Unsolved *(A Schinzel)*; Open Problems on Exponential and Character Sums *(I Shparlinski)*; Bibliography on Determinantal Expressions of Relative Class Numbers of Imaginary Abelian Number Fields *(K Yamamura)*.

250pp (approx.)	**Nov 2009**	
978-981-4289-84-9	**US$85**	**£64**

INTERNATIONAL JOURNAL OF NUMBER THEORY (IJNT)

Print / Online ISSN: 1793-0421 / 1793-7310
http://www.worldscinet.com/ijnt

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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- Zentralblatt MATH
- Mathematical Reviews
- Science Citation Index Expanded (also known as SciSearch®)
- Current Contents®/Physical, Chemical and Earth Sciences
- Journal Citation Reports/Science Edition

Current Issue

Volume: 5, Issue: 7 (November 2009)

- Euclidean Minima and Central Division Algebras
  Eva Bayer-Fluckiger, Jerome Chaubert *(Ecole Polytechnique, France)* and **Jean-Paul** *Cerri (Univ de Bordeaux, France)*
- Cyclic Odd Degree Base Change Lifting for Unitary Groups in Three Variables **Ping-Shun Chan** *(MPI, Germany)* and **Yuval Z. Flicker** *(Ohio State Univ, USA)*
- Gaussian Laws on Drinfeld Modules
  Wentang Kuo and **Yu-Ru Liu** *(University of Waterloo, Canada)*
- And more articles

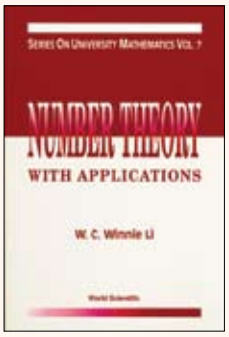
Editorial Board

Bestselling Textbook

Series on University Mathematics – Vol. 7

NUMBER THEORY WITH APPLICATIONS

by **W C Winnie Li**
(Pennsylvania State University)



"... this book is highly recommended to those with an interest in some of the deepest and most beautiful results in modern number theory as well as the applications to the spectral theory of graphs."

Mathematics Abstracts

"This book is an excellent introduction to modern topics in number theory, with the last chapter devoted to applications to communications networks."

Mathematical Reviews

Novel and important applications of number theory to graph theory and vice versa had been made in the past decade. The two main tools used are based on the estimates of character sums and the estimates of the eigenvalues of Hecke operators, both are rooted in the celebrated Weil conjectures settled by Deligne in 1973. The purpose of this book is to give, from scratch, a coherent and comprehensive introduction to the topics in number theory related to the central tools, with the ultimate goal of presenting their applications. This book includes many important subjects in number theory, such as Weil conjectures, Riemann–Roch theorem, L-functions, character sum estimates, modular forms, and representation theory.

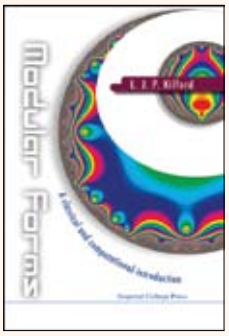
244pp **Feb 1996**
978-981-02-2226-0 **US$56** **£45**

Bestselling Textbook

MODULAR FORMS

A Classical and Computational Introduction

by **L J P Kilford** *(University of Bristol, UK)*



Key Features

- Covers the computational side together with the theory
- Includes a wide variety of exercises, from short to research-project length
- Contains historical asides and references to modular forms in mathematical culture, to help ground the subject and motivate student interest

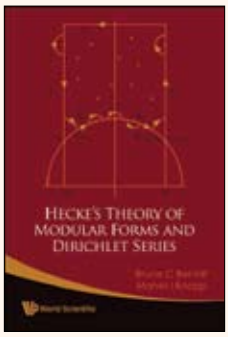
Contents: Historical Overview; Introduction to Modular Forms; Results on Finite-Dimensionality; The Arithmetic of Modular Forms; Applications of Modular Forms; Modular Forms in Characteristic *p*; Computing with Modular Forms; ***Appendices:*** MAGMA Code for Classical Modular Forms; SAGE Code for Classical Modular Forms; Hints and Answers to Selected Exercises.

236pp **Aug 2008**
978-1-84816-213-6 **US$57** **£33**

Bestselling Textbook

HECKE'S THEORY OF MODULAR FORMS AND DIRICHLET SERIES

by **Bruce C Berndt** *(University of Illinois at Urbana-Champaign, USA)* & **Marvin I Knopp** *(Temple University, USA)*



Key Features

- Provides the most detailed description of the Hecke theory available in English
- Includes an extensive bibliography with many references to current research on the Hecke correspondence and related topics
- Useful for introductory graduate courses on modular forms

Contents: The Main Correspondence Theorem; A Fundamental Region; The Case $\lambda > 2$; The Case $\lambda < 2$; The Case $\lambda = 2$; Bochner's Generalization of the Main Correspondence Theorem of Hecke and Related Results; Identities Equivalent to the Functional Equation and to the Modular Relation.

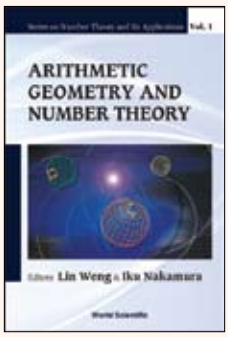
152pp **Jan 2008**
978-981-270-635-5 **US$52** **£30**

Bestseller

Series on Number Theory and Its Applications – Vol. 1

ARITHMETIC GEOMETRY AND NUMBER THEORY

edited by **Lin Weng** *(Kyushu University, Japan)* & **Iku Nakamura** *(Hokkaido University, Japan)*



Key Features

- Our work and invaluable notes show an excellent way in helping the reader understand the original (fundamental and notably hard) Langlands' theory of the Eisenstein series. It is well known that Langlands' theory is fundamental to automorphic forms, number theory, etc, say via Langlands Program and trace formula that is really the core of the current number theory
- We have a program paper called Geometric Arithmetic. Mathematicians and students will immediately find this a brand new concept to them — it is not Arithmetic Geometry but Geometric Arithmetic. In other words, instead of emphasizing Geometry, we aim at Arithmetic

Contents: On Local γ-Factors *(D H Jiang)*; Deligne Pairings over Moduli Spaces of Punctured Riemann Surfaces *(K Obitsu et al.)*; Vector Bundles on Curves over X_p *(A Werner)*; Absolute CM-periods — Complex and *p*-Adic *(H Yoshida)*; Special Zeta Values in Positive Characteristic *(J Yu)*; Automorphic Forms, Eisenstein Series and Spectral Decompositions *(L Weng)*; Geometric Arithmetic: A Program *(L Weng)*.

412pp **Jun 2006**
978-981-256-814-4 **US$76** **£45**

Printed in November 2009 SP/CC/11/09/02/AZ