# Springer Mathematics & Computer Sciences Preview

## Top Frontlist April – June 2011

**Fast Track Titles**
**Business & Management**
**Computer Science**
**Economics**
**Mathematics**
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**SECOND QUARTER 2011**

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# Fast Track Titles

**F. Abergel, B. K. Chakrabarti, A. Chakraborti, M. Mitra,** (Eds.)

## Econophysics of Order-driven Markets

The primary goal of the book is to present the ideas and research findings of active researchers from various communities (physicists, economists, ;;mathematicians, financial engineers) working in the field of "Econophysics", who have undertaken the task of modelling and analyzing order-driven markets. Of primary interest in these studies are the mechanisms leading to the statistical regularities ("stylized facts") of price statistics. Results pertaining to other important issues such as market impact, the profitability of trading strategies, or mathematical models for microstructure effects, are also presented. Several leading researchers in these fields report on their recent work and also review the contemporary literature.

Available

Monograph

2011. XIV, 316 p. 60 illus. (New Economic Windows) Hardcover
► € 99,95 | £90.00
► * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-88-470-1765-8

**E. D. Bloch**, Department of Mathematics, Bard College, Annandale-on-Hudson, NY, USA

## Proofs and Fundamentals
### A First Course in Abstract Mathematics

This book is designed as a "transition" course to introduce undergraduates to the writing of rigorous mathematical proofs, and to such fundamental mathematical ideas as sets, functions, relations, and cardinality. Informal discussion plays a key role.
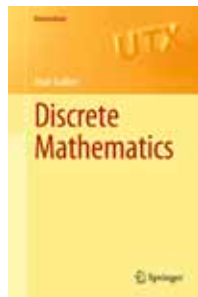
Available

Undergraduate textbook

2nd Edition 2011. XXIV, 359 p. 31 illus. (Undergraduate Texts in Mathematics) Hardcover
► € 59,95 | £53.99
► * € (D) 64,15 | € (A) 65,95 | sFr 86,00
ISBN 978-1-4419-7126-5

**J. Gallier**, University of Pennsylvania, Philadelphia, PA, USA

## Discrete Mathematics

Written for undergraduates, this volume provides an introduction to discrete mathematics. The text begins with a presentation of the rules of logic as used in mathematics, and includes various examples of formal and informal proofs.

Available

Undergraduate textbook

2011. XIII, 465 p. 220 illus., 20 in color. (Universitext) Softcover
► € 59,95 | £39.99
► * € (D) 64,15 | € (A) 65,95 | sFr 86,00
ISBN 978-1-4419-8046-5

**G. Grätzer**, University of Manitoba, Winnipeg, Canada

## Lattice Theory: Foundation

Based on three previous publications on the subject, this updated third edition covers the key concepts and results in the field. The main topics are distributivity, congruences, constructions, modularity and semimodularity, varieties, and free products.
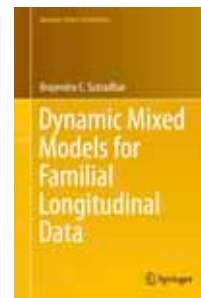
Available

Graduate/Advanced undergraduate textbook

2011. XXIX, 613 p. Softcover
► € 64,95 | £58.99
► * € (D) 69,50 | € (A) 71,45 | sFr 93,50
ISBN 978-3-0348-0017-4

**B. C. Sutradhar**, Memorial University of Newfoundland, St. John's, NL, Canada

## Dynamic Mixed Models for Familial Longitudinal Data

This book provides a theoretical foundation for analysis of discrete data such as count and binary data in the longitudinal setup. It presents differences between the familial and longitudinal correlation models, and illustrations of real life data analysis.

Available

Monograph

2011. XVIII, 488 p. 2 illus. (Springer Series in Statistics) Hardcover
► € 79,95 | £72.00
► * € (D) 85,55 | € (A) 87,95 | sFr 115,00
ISBN 978-1-4419-8341-1

# Business & Management

A. A. Assad, University at Buffalo, State University of New York, NY, USA; S. I. Gass, University of Maryland, MD, USA (Eds.)

## Profiles in Operations Research

### Pioneers and Innovators

This profile of dozens of leading scholars contains detailed biographies of those who have made significant intellectual contributions to the field. It also reviews the ideas of each individual and shows how they aided the development of operations research.

Due March 2011

Monograph

2011. XXIII, 830 p. 80 illus., 66 in color. (International Series in Operations Research & Management Science, Volume 147) Hardcover
► € 79,95 | £72.00
► * € (D) 85,55 | € (A) 87,95 | sFr 124,50
ISBN 978-1-4419-6280-5

J. W. Böse, HPC Hamburg Port Consulting, Hamburg, Germany (Ed.)

## Handbook of Terminal Planning

Setting out the latest theory on container terminal design, this book contains the technical basics needed for strategic planning, especially implementing 'order of magnitude' improvements, and aids CT fundamental dimensioning from a variety of perspectives.

Due March 2011

Contributed volume

2011. XXI, 433 p. 159 illus. (Operations Research Computer Science Interfaces Series, Volume 49) Hardcover
► € 139,95 | £126.00
► * € (D) 149,75 | € (A) 153,94 | sFr 201,00
ISBN 978-1-4419-8407-4

J. Boyer, ILOG Inc., Sunnyvale, CA, USA; H. Mili, UQAM, Montreal, Canada

## Agile Business Rule Development

### Process, Architecture, and JRules Examples

This book presents a step-by-step method for implementing the business rules approach to application development, covering the entire lifecycle from planning through rule discovery and analysis, rule and application design, to implementation and maintenance.

Due March 2011

Professional book

2011. 400 p. Hardcover
► € 49,95 | £44.99
► * € (D) 53,45 | € (A) 54,95 | sFr 72,00
ISBN 978-3-642-19040-7

T. Choi, T. E. Cheng, The Hong Kong Polytechnic University, HongKong, China (Eds.)

## Supply Chain Coordination under Uncertainty

This book offers state-of-the-art findings on both theoretical and applied research on achieving supply chain coordination under uncertainty. It examines supply chain coordination challenges with a focal point on discovering innovative measures.

Due June 2011

Handbook

2011. X, 500 p. 108 illus. (International Handbooks on Information Systems, Volume 0) Hardcover
► € 139,95 | £126.00
► * € (D) 149,75 | € (A) 153,94 | sFr 201,00
ISBN 978-3-642-19256-2

C. Devonshire-Ellis, A. Scott, S. Woollard, Dezan Shira & Associates / Asia Briefing Ltd, Hong Kong (Eds.)

## Human Resources in China

Specifically designed to cover the most important issues involved in managing a Chinese workforce, this guide details Human Resources issues of vital concern to both local managers in China and investors looking to establish a presence on the mainland.
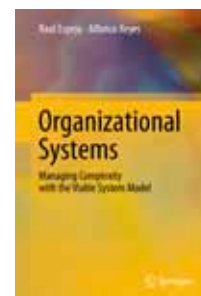
Due April 2011

Contributed volume

3rd Edition. 2011. IV, 130 p. 5 illus. in color. (China Briefing) Softcover
► € 39,95 | £35.99
► * € (D) 42,75 | € (A) 43,95 | sFr 57,50
ISBN 978-3-642-18208-2

R. Espejo, A. Reyes, President of University of Ibague, Colombia

## Organizational Systems

### Managing Complexity with the Viable System Model

This book clarifies the application of cybernetic ideas, particularly those of Beer's Viable System Model, to organizational diagnosis and design. It offers a method to study and design organizations and a methodology to deal with implementation problems.

Due March 2011

Monograph

2011. 300 p. 150 illus. Hardcover
► € 99,95 | £90.00
► * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-3-642-19108-4

**K. G. Kempf**, Intel Corporation, AZ, USA; **P. Keskinocak**, Georgia Institute of Technology, GA, USA; **R. Uzsoy**, North Carolina State University, Raleigh, NC, USA (Eds.)

## Planning Production and Inventories in the Extended Enterprise

### A State-of-the-Art Handbook, Volume 2

In two volumes, this Handbook examines production planning for the extended enterprise against a backdrop of important gaps between theory and practice. Covers basic principles and problems, the current state of research, current and best practices.

Due March 2011

Handbook

2011. VII, 657 p. 198 illus. (International Series in Operations Research & Management Science, Volume 152) Hardcover
▶ € 169,95 | £153.00
▶ * € (D) 181,85 | € (A) 186,94 | sFr 244,00
ISBN 978-1-4419-8190-5

**G. Müller-Christ**, University of Bremen, Germany

## Sustainable Management

### Coping with the Dilemmas of Resource-Oriented Management

In this well structured book, a resource-oriented perception of sustainable management is presented. The author presents his findings as regards the development of environmental and social responsibility and introduces a theory of management ecology.

Due June 2011

Graduate/Advanced undergraduate textbook

2011. X, 270 p. Hardcover
▶ € 99,95 | £90.00
▶ * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-3-642-19164-0

**S. Nahmias**, Santa Clara University, CA, USA

## Perishable Inventory Systems

Perishable Inventory Systems explores the benefits of a periodic review versus continuous review, and a look at a one-period newsvendor perishable inventory model. Topics include one-for-one policies, models with zero lead time, and optimal policies with positive lead time.

Due June 2011

Monograph

2011. XII, 98 p. 3 illus. (International Series in Operations Research & Management Science, Volume 160) Hardcover
▶ approx. € 89,95 | £79.50
▶ approx. * € (D) 96,25 | € (A) 98,95 | sFr 137,00
ISBN 978-1-4419-7998-8

**D. Ó Conchúir**, Scatterwork, Kesswil, Switzerland

## Overview of the PMBOK® Guide

### Short Cuts for PMP® Certification

Particularly relevant to candidates for the Project Management Institute's certification examinations, the new edition of this guide is an accessible introduction to project management as set out in the fourth edition of the PMI's own handbook on the subject.

Due April 2011

Monograph

2nd Edition. 2011. XVI, 213 p. Hardcover
▶ € 39,95 | £35.99
▶ * € (D) 42,75 | € (A) 43,95 | sFr 57,50
ISBN 978-3-642-19121-3

**G. Saad**, Concordia University, Montreal, Canada (Ed.)

## Evolutionary Psychology in the Business Sciences

This edited book provides chapters at the intersection of the evolutionary behavioral sciences and specific business contexts including in marketing, consumer behavior, advertising, innovation and creativity, intertemporal choice, negotiations, competition and cooperation in organizational settings, sex differences in workplace patterns, executive leadership, business ethics, store design, behavioral decision making, and electronic communication.

Due April 2011

Contributed volume

2011. X, 390 p. Hardcover
▶ € 139,95 | £126.00
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ISBN 978-3-540-92783-9

**H. Plattner**, **A. Zeier**, Hasso Plattner Institute, Potsdam, Germany

## In-Memory Data Management

### An Inflection Point for Enterprise Applications

This book examines in-memory computing. It describes techniques that allow analytical and transactional processing at the speed of thought and enables new ways of doing business.

Due March 2011

Monograph

2011. XVIII, 236 p. 115 illus. Hardcover
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▶ * € (D) 42,75 | € (A) 43,95 | sFr 57,50
ISBN 978-3-642-19362-0

**T. Ritchey**, Ritchey Consulting AB/Swedish Morphological Society, Vällingby, Sweden

## Wicked Problems – Social Messes

### Decision Support Modelling with Morphological Analysis

This book presents the history and theory of General Morphological Analysis (GMA) and describes how it is used to develop interactive, non-quantified inference models. It features case studies that illustrate the application of GMA.

Due June 2011

Monograph

2011. 90 p. 40 illus. (Risk, Governance and Society, Volume 17) Hardcover
▶ approx. € 89,95 | £81.00
▶ approx. * € (D) 96,25 | € (A) 98,95 | sFr 129,00
ISBN 978-3-642-19652-2

M. Sakawa, I. Nishizaki, Hiroshima University, Higashi-Hiroshima, Japan; H. Katagiri, Osaka University, Higashi-Hiroshima, Japan

## Fuzzy Stochastic Multiobjective Programming

With a stress on interactive decision-making, this work breaks new ground by covering both the random nature of events related to environments, and the fuzziness of human judgements. The text runs from mathematical preliminaries to future research directions.

Available

Monograph

2011. XII, 264 p. 30 illus. (International Series in Operations Research & Management Science, Volume 159) Hardcover
- ▶ € 99,95 | £90.00
- ▶ * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-1-4419-8401-2

W. Vandekerckhove, Ghent University, Belgium; J. Leys, HIVA, KULeuven, Belgium; K. Alm, BI School of Management, Oslo, Norway; B. Scholtens, University of Groningen, The Netherlands; S. Signori, University of Bergamo, Italy; H. Schäfer, University of Stuttgart, Germany (Eds.)

## Responsible Investment in Times of Turmoil

Here is the first examination of Socially Responsible Investing (SRI) since the fall of the recent financial bubble. It asks, Is this an opportunity to enhance SRI because of its strength and superiority, or will it vanish in the next wave of financial myopia?

Due April 2011

Contributed volume

2011. XXIII, 218 p. 5 illus. (Issues in Business Ethics, Volume 31) Hardcover
- ▶ € 99,95 | £90.00
- ▶ * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-90-481-9318-9

L. Zsolnai, University of Budapest, Hungary (Ed.)

## Spirituality and Ethics in Management

This collection of scholarly papers focuses on the role of spirituality and ethics in renewing the contemporary management praxis. The book provides a pluralistic approach to spirituality and management, and advises on improving the ethics of organizations.
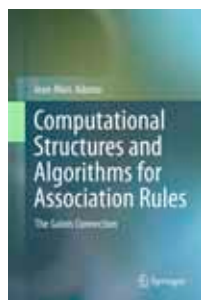
Due May 2011

Contributed volume

2nd Edition. 2011. X, 234 p. 5 illus. in color. (Issues in Business Ethics, Volume 19) Hardcover
- ▶ € 99,95 | £90.00
- ▶ * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-94-007-1152-5

# Computer Science

J. Adamo, Université Lyon 1, Villeurbanne, France

## Computational Structures and Algorithms for Association Rules
### The Galois Connection

This book explores the development of state-of-the-art algorithms for finding association rules. The mathematical construction of each algorithm is examined in detail, as are advanced approaches such as formal concept analysis and Galois connection frameworks.

Due May 2011

Monograph

2011. X, 266 p. Hardcover
- ▶ € 79,95 | £72.00
- ▶ * € (D) 85,55 | € (A) 87,95 | sFr 115,00
ISBN 978-0-85729-472-2

C. C. Aggarwal, IBM T.J. Watson Research Center, Hawthorne, NY, USA (Ed.)

## Social Network Data Analytics

Filling an important niche in the field, this book covers a range of aspects of social network data mining, including Structural Properties of Social Networks, Algorithms for Structural Discovery of Social Networks and Content Analysis in Social Networks.

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Contributed volume

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- ▶ approx. € 119,95 | £106.50
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ISBN 978-1-4419-8461-6

N. Ashish, University of California-Irvine, Irvine, CA, USA; A. P. Sheth, Wright State University, Dayton, OH, USA (Eds.)

## Geospatial Semantics and the Semantic Web
### Foundations, Algorithms, and Applications

Geospatial Semantics and the Semantic Web provides recent research in the theme of geospatial semantics. Each contribution presents new information systems applications that have potential for high impact and commercialization.

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**D. R. Brooks**, Institute for Earth Science Research and Education, Eagleville, PA, USA

## Guide to HTML, JavaScript and PHP

**For Scientists and Engineers**

This book enables readers to quickly develop a working knowledge of HTML, JavaScript and PHP. It provides a hands-on approach to learning and makes extensive use of examples. Includes a glossary as well as a range of programming exercises.
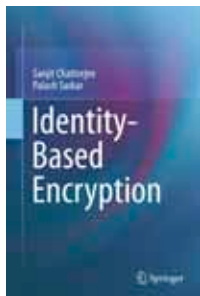
Due April 2011

Undergraduate textbook

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ISBN 978-0-85729-448-7

**S. Chatterjee**, Indian Institute of Science, Bangalore, India; **P. Sarkar**, Indian Statistical Institute, Kolkata, India

## Identity-Based Encryption

This form of public key encryption has been the subject of intense research in recent years. Summarizing the literature on IBE, this volume covers ideas that could spark further research as well as background on subjects such as elliptic curves and pairings.

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Monograph

2011. XV, 180 p. Hardcover
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ISBN 978-1-4419-9382-3

**A. S. Chowdhury**, Jadavpur University, Kolkata, India; **S. M. Bhandarkar**, University of Georgia, Athens, GA, USA

## Computer Vision-Guided Virtual Craniofacial Surgery

**A Graph-Theoretic and Statistical Perspective**

This unique text/reference discusses in depth the two integral components of reconstructive surgery; fracture detection, and reconstruction from broken bone fragments. It incorporates useful algorithms and relevant concepts from graph theory and statistics.
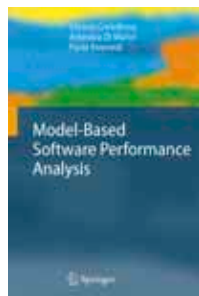
Due March 2011

Monograph

2011. XXIII, 168 p. (Advances in Computer Vision and Pattern Recognition, Volume 0) Hardcover
► € 79,95 | £59.95
► * € (D) 85,55 | € (A) 87,95 | sFr 115,00
ISBN 978-0-85729-295-7

**V. Cortellessa**, **A. Di Marco**, **P. Inverardi**, University of L'Aquila, Italy

## Model-Based Software Performance Analysis

This book details both the basic concepts of software performance analysis and state-of-the-art methodologies. It starts from performance primers and goes through software and performance modeling notations to the latest transformation-based methodologies.

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**SPRINGER REFERENCE**

**J. Domingue**, The Open University, Milton Keynes, UK; **D. Fensel**, STI Innsbruck, Austria; **J. A. Hendler**, Rensselaer Polytechnic Institute, Troy, NY, USA (Eds.)

## Handbook of Semantic Web Technologies

This is the first dedicated reference work in this field, collecting contributions about both the technical foundations of the Semantic Web and their main usage in other scientific fields like life sciences, engineering, business, or education.

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Handbook

2011. 1052 p. (In 2 volumes, not available seperately) Hardcover
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ISBN 978-3-540-92912-3

Also available as

eReference
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**H. Demirkan**, Arizona State University, Tempe, AZ, USA; **J. C. Spohrer**, **V. Krishna**, IBM Almaden Research Center, San Jose, CA, USA (Eds.)

## The Science of Service Systems

This book presents a multidisciplinary and multisectoral perspective on the nature of service systems, on research and practice in service and on the future directions to advance service science. It offers theory-based research with actionable results.

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Contributed volume

2011. XVIII, 358 p. (Service Science: Research and Innovations in the Service Economy) Hardcover
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► * € (D) 85,55 | € (A) 87,95 | sFr 115,00
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**W. Ertel**, Hochschule Ravensburg-Weingarten, Weingarten, Germany

## Introduction to Artificial Intelligence

This accessible textbook supports a foundation or module course on A.I., covering a broad selection of the subdisciplines within this field. It provides study exercises at the end of each chapter, plus examples, definitions, theorems, and illustrations.

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**D. M. Gabbay**, King's College London, Strand, London, United Kingdom; **K. Schlechta**, Université de Provence, Marseille Cedex, France

## Conditionals and Modularity in General Logics

This book covers modularity and independence in classical and nonclassical logic, including many-valued logics and structures, plus neighbourhood semantics and their connection to independence, as well as their common points and differences for various logics.

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ISBN 978-3-642-19067-4

**I. Douglas**, Florida State University, Tallahassee, FL, USA; **Z. Liu**, Dalian Maritime University, China (Eds.)

## Global Usability

The related concepts of usability and user-centered design (UCD) are of prime concern in the design of technology products. This book addresses usability and UCD principles as applied to internationally distributed teams designing products for global markets.
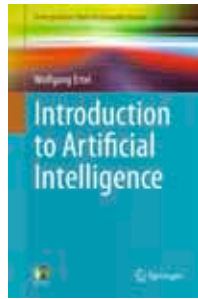
Due April 2011

Contributed volume

2011. VI, 345 p. 69 illus. (Human–Computer Interaction Series) Hardcover
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► * € (D) 106,95 | € (A) 109,95 | sFr 143,50
ISBN 978-0-85729-303-9

**D. Fensel**, **F. M. Facca**, STI Innsbruck, Austria; **E. Simperl**, Karlsruhe Institute of Technology, Germany; **I. Toma**, STI Innsbruck, Austria

## Semantic Web Services

This thorough book on semantically enabled Web service technology includes an overview of significant technological achievements, accompanied by examples from real-world settings, definitions, techniques and potential directions of research and development.

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**S. Groppe**, Universität zu Lübeck, Germany

## Data Management and Query Processing in Semantic Web Databases

Covering a vital aspect of the Semantic Web, itself the subject of virtually exponential increases in research dollars, this volume focuses on high-performance data management and the processing of queries in complex, real-world web applications.

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**C. Harteveld**, Delft University of Technology, Delft, The Netherlands

## Triadic Game Design
### Balancing Reality, Meaning and Play

Author Harteveld describes the fundamental components that make up a serious game. Based on a deep and thorough investigation of each component, and his experience in developing Levee Patroller, he captures the important design principles of a serious game.

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**O. Hazzan**, **T. Lapidot**, Technion - Israel Institute of Technology Haifa, Israel; **N. Ragonis**, Beit Berl College, Israel

## Guide to Teaching Computer Science
### An Activity-Based Approach

This guide presents a conceptual framework and detailed implementation guidelines for general computer science (CS) teaching. It is applicable to all levels of CS education and not limited to any one specific curriculum, programming language or paradigm.

Due April 2011

Graduate/Advanced undergraduate textbook

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ISBN 978-0-85729-442-5

**S. C. Hoi**, Nanyang Technological University, Singapore; **J. Luo**, Kodak Research Laboratories, Rochester, NY, USA; **S. Boll**, University of Oldenburg, Germany; **D. Xu**, Nanyang Technological University, Singapore; **R. Jin**, Michigan State University, East Lansing, MI, USA; **I. King**, The Chinese University of Hong Kong, Shatin, Hong Kong (Eds.)

## Social Media Modeling and Computing

This book explores advances in social media modeling and social media computing research, organized and presented according to current principles and practices. Coverage includes system design, analytic tools, access control for privacy and security and more.

Due April 2011

Contributed volume

2011. VIII, 276 p. Hardcover
▶ € 79,95 | £72.00
▶ * € (D) 85,55 | € (A) 87,95 | sFr 115,00
ISBN 978-0-85729-435-7

**M. Hua**, Facebook, Inc., Palo Alto, CA, USA; **J. Pei**, Simon Fraser University, Burnaby, BC, Canada

## Ranking Queries on Uncertain Data

With 'uncertain' data present in numerous important applications such as market analysis and environmental surveillance, this text surveys the fundamental principles, key challenges, applications and evaluation algorithms of ranking queries on uncertain data.

Due April 2011

Monograph

2011. XVI, 221 p. (Advances in Database Systems, Volume 42) Hardcover
▶ approx. € 74,95 | £66.99
▶ approx. * € (D) 80,20 | € (A) 82,45 | sFr 105,50
ISBN 978-1-4419-9379-3

**I. Jureta**, University of Namur (FUNDP), Belgium

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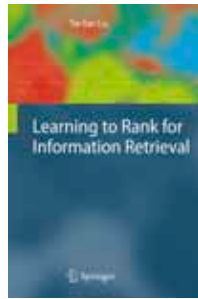
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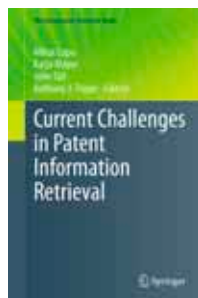
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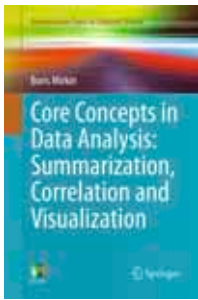
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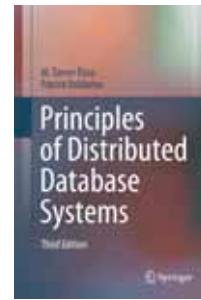
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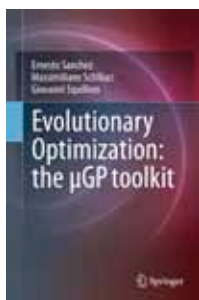ISBN 978-0-387-09766-4

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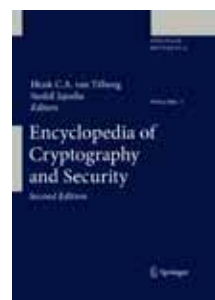
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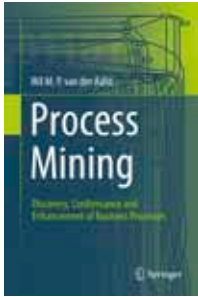ISBN 978-1-4419-5906-5

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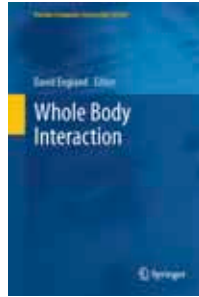
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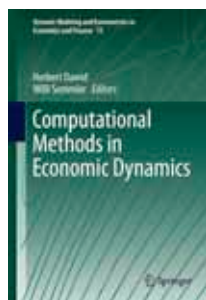
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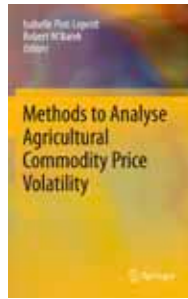
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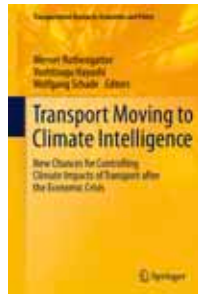
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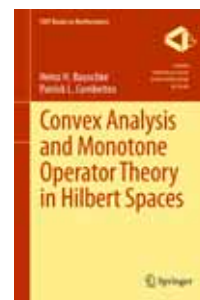
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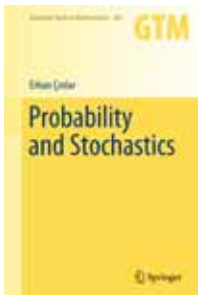
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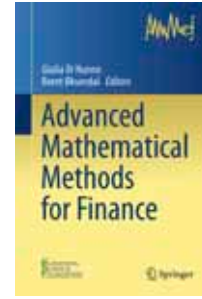
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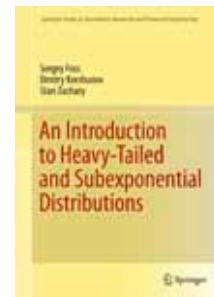
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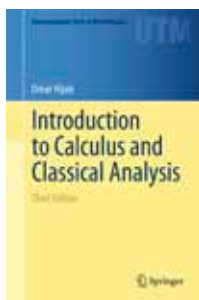
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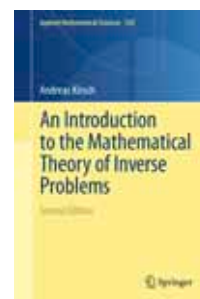
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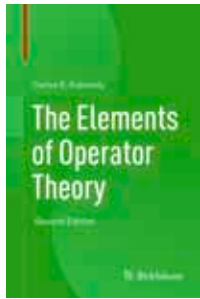
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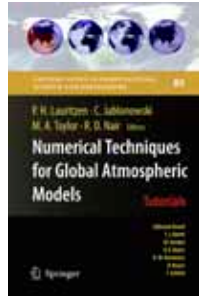
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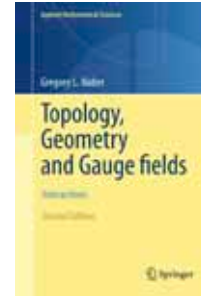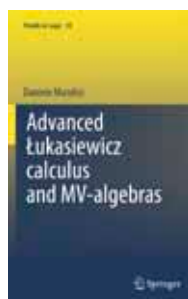
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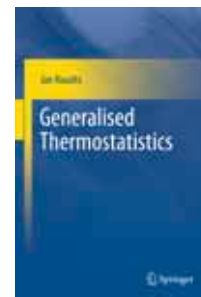
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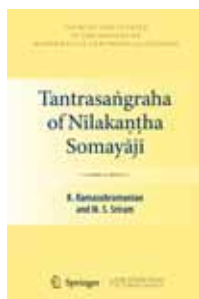
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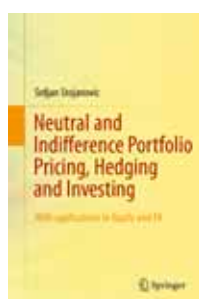
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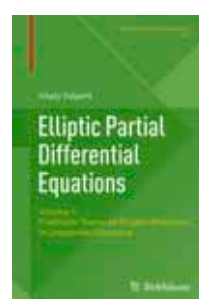
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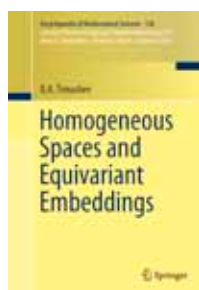
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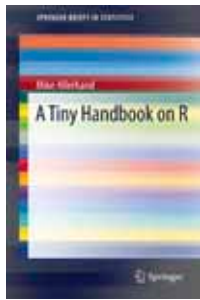### Architecture and Mathematics

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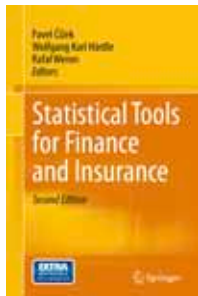
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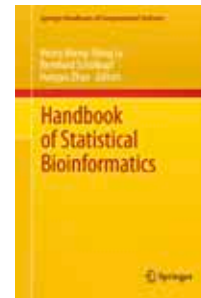
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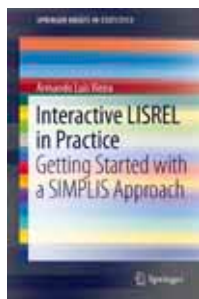
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