Economic and social development is and will be the main task in the long run in China, and development is the basis and key to solve the problems faced. Although people have been criticising its limitations for reasons of one sort or another, no better alternative index has ever been put forward. GDP is still commonly used all over the world, not only as a fundamental and comprehensive indicator for economic analysis, but also as an important basis for many rules and evaluations. It is impossible to abolish GDP, but it is now the time to bid farewell to its worship.

By saying goodbye to China's GDP worship, the role of GDP may be downplayed and restored to its original position. In modern China, in order to adhere to the essential guideline that development is the absolute principle, it is necessary to steadfastly undertake scientific development, pay more attention to the people, place more emphasis on comprehensive, concerted and sustainable development, give priority to the overall consideration of various aspects of development, and make more efforts to protect and improve people's livelihood and promote social equality and justice.

In light of the spirit of scientific outlook on development, it is imperative to establish new concepts, an evaluation system and an assessment mechanism on economic and social development, especially to accelerate the transformation of the mode of economic development. It will be a profound change covering the entire process and various aspects of economic and social development. It is a requirement of the times, and also a choice to be made at such a new and historical starting point.

Based on the outstanding research findings of many visionaries and the initial practices in some local areas in recent years, this book proposes to switch the focus from GDP alone and establish a new economic and social evaluation system, that is, abandon the GDP-centered evaluation system or GDP worship and adopt a comprehensive evaluation system for economic and social development embodying the scientific outlook on development — the comprehensive development index (CDI).

Authors:
Li Jinzao was born in Hubei Province, China. He graduated from the Graduate School of the Chinese Academy of Social Sciences with a PhD in Economics in 1988. He was a Visiting Scholar at the Australian National University, Macquarie University in Australia, and later University of London in the UK. He is also an Honorary Professor of EDUTUS University in Budapest, Hungary.

Li's previous positions include Mayor of Guilin City, Party Secretary of Guilin City, Standing Vice Governor of Guangxi Zhuang Autonomous Region and Vice Minister of Commerce of China. Currently Chairman of the China National Tourism Administration, he has a series of published works on economics and management. He is also doctoral tutor at the Chinese Academy of Fiscal Sciences, Ministry of Finance, China and the School of Economics and Management, Beihang University, China.
Advance Information

SINGAPORE CHESS
A History, 1945–1990

By Shashi Jayakumar & Olimpiu G Urcan

Description:
This book is the definitive volume on the history of chess in Singapore. Covering 1945–1990, it covers the post-war emergence of a truly “local” chess scene out of the colonial period, then taking the story up to the modern era. Contained within these pages are tributes to the modern founding fathers of Singapore chess. Also chronicled within are the careers of Singapore’s top players and their achievements. This includes fine team performances (belying Singapore’s seeming status in the chess world as a tiny red dot) and spectacular individual successes on the international stage.

In documenting chess development in Singapore for the period in question, this book also provides glimpses of a wider social history. Personal stories (based on fresh interviews) are provided that give a sense of the chessplaying milieu of the time. Stalwarts in the chess scene, featured in this book, went on to be notable figures in the wider social and political landscape.

A selection of 139 annotated games played by top Singapore-based players and Singapore masters between 1949 and 1990 is matched by a rich collection of more than 200 rare illustrations. This volume is a wonderful resource for chess aficionados, interested amateurs, collectors and historians.

Authors:
Shashi Jayakumar is an academic and historian. A former Vice-President of the Singapore Chess Federation, he is a Singapore Candidate Master and a past National Youth chess champion as well as past President of the Oxford University Chess Club.

Olimpiu G Urcan is a Singapore-based historian and author of several scholarly chess biographies, including a biography of E E Colman (1878–1964), an early chess pioneer in pre-1945 Singapore and Malaya.

Pub Date: Aug 2017
Binding: Hardcover
Price: £48
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Price: £27
Page Extent: 280pp
Type: Popular Book
Main Subject: Asian Studies
Sub-subjects: Singapore Collection; Asian History; General Interest
BIC: WDMG1
BISAC: GAM001030; HIS048000; HIS000000
Keywords: Chess Games; Overseas Tournaments; Chess Olympiads
Imprint: World Scientific Publishing Company
Readership: General public who are interested in the history of chess in Singapore
STATE CAPITALISM IN EURASIA

By Martin C Spechler (Indiana University, USA), Joachim Ahrens (PFH Private University of Applied Sciences, Göttingen, Germany) & Herman W Hoen (University of Groningen, The Netherlands)

Description:
This is the first book to specify the type of economic system that has arisen in Central Asia, replacing the simplistic ideas of “petro-state” or “resource dependent.”

The book presents three types of state capitalism now established in the former Soviet Union states of Eurasia — crony, dual-sector, and predatory capitalism. It provides first-hand research based on extensive interviewing in the native languages in five of the six. From the political economic perspective, it surveys the source of resources for these authoritarian regimes, their decision-making, and the disposition of government funds, including corruption.

Authors:
Martin C Spechler is Professor of Economics and faculty affiliate of the Russian and East European Institute, Indiana University. He is a graduate of Harvard College and Harvard University (PhD, Economics) and was elected to Phi Beta Kappa. During the 1970’s and 1980’s, he served as an economic expert for NATO. Since 1997 Spechler has worked in Central Asia as a consultant for the World Bank, Global Development Network, and USAID. Most recently he has been advising the Asian Development Bank’s CAREC project, which promotes free trade and finance of roads, infrastructure, and water projects in this vast region of more than 100 million people. He was among the first group of American experts sent by the State Department to lecture and meet with Russian officials. Prof. Spechler is the author of two books and over one hundred articles and book reviews.

Joachim Ahrens holds a doctoral and a habilitation degree from the University of Goettingen. Following research affiliations at Harvard University, the Hoover Institution/Stanford University, and the University of California/Berkeley, he worked as an economist at the Asian Development Bank in Manila and as a visiting scholar at the East-West Center in Honolulu, HI. In 2003, he accepted a position as Professor of International Political Economy at the European Business School International University, Oestrich-Winkel, Germany. In March 2006, he became Professor of International Economics at PFH Private University of Applied Sciences Goettingen. His research interests center around systemic transition in Eastern Europe and Central Asia, European integration, economic development and integration processes in East Asia as well as the interplay of institutions, governance, and economic development. He published numerous books and articles including Governance and Economic Development and Governance in the 21st Century (both with Edward Elgar) as well as Institutional Reform in Central Asia (with Routledge).

Herman W Hoen is Professor of International Political Economy at the University of Groningen (The Netherlands). His research focusses on the transformation from a centrally-planned to a market economy in Eastern Europe and the successor states of the Soviet Union. He was visiting Professor at the Georg August University in Göttingen (Germany), Bilkent University in Ankara (Turkey), and the Bologna Center of the School of Advanced International Studies, Johns Hopkins University (Italy).
Contents:
• Definition of “State Capitalism” and “Dual Economy” in the Current Authoritarian Systems of the Russian Federation, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan
• Comparative Evaluation of Their Merit Performance Based on Internationally Published Statistics about Their Efficiency, Growth, Equity, and Stability
DIGITAL ENABLEMENT
The Consumerizational and Transformational Effects of Digital Technology

Edited by Shan Ling Pan & M S Sandeep (both of University of New South Wales, Australia)

Description:
This collection of papers from the Digital Enablement Conference 2016 aims to illustrate various aspects of the digital enablement phenomenon. Over the last two decades, advances in digital technology have fundamentally transformed the way we do business, work, and live. As new technologies emerge, they offer new possibilities for addressing increasingly complex economic and social problems.

Digital enablement refers to the consumerizational and transformational roles of digital technology in driving business and social innovation, and has profound, multi-disciplinary implications. Some of these include: Facilitating new business models that transform the way firms transact, market, and engage with customers; providing new means of income generation for disadvantaged groups; and generating new means of social interaction, which empowers employees, customers, small businesses, and entire communities.

This book introduces readers to case studies of digital enablement in business and society. It offers unique insights into the phenomenon from multiple contexts, giving readers a nuanced understanding of the roles digital enablement can play.

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Page Extent: 350pp
Type: Review Volume
Main Subject: Business & Management
Sub-subjects: General Business and Management; Innovation/Technology/Knowledge/Information Management
BIC: TB
BISAC: BUS070030
Keywords: Digital Enablement; ICT; Information Systems; China; Case Study; Qualitative
Readership: Employees, customers, small businesses, academics, students and communities interested in how digital technology can drive business and social innovation
Imprint: World Scientific Publishing Company
Contents:

• Digital Entrepreneurship Ecosystem as a New Form of Organizing: A Case of Zhongguancun (Wenjie Li & Derek Du)
• Mechanism Balancing the Tension between Consistency and Relevance of Brand Ambidexterity by Digital Enablement — A Case Study of HUANYI International Travel Agency (Chunqing Li & Songling Li)
• The Characteristics of Sustainable Supply Chain Innovation: A Case Study of YHD, China (De Gao, Zhiqian Xu, Man Gu & Yilong Z Ruan)
• The Role of Social Media in Social Advocacy (Shamshul Bahri)
• Digital Performance Management Based on the Perspective of Organizational Control: A Case Study of Advantech (Ning Zhou, Xiaoting Han, Tingting Hu, Yin Zhou & Wenjun Jiang)
• Research from the Perspective of Resource Orchestration on How Marginal Enterprises Reconfigure the Digital Ecosystem: A Case of Duch 3D printing in China (Zhengyan Cui & Taohua Ouyang)
• Blockchain brings A New IT Capability: A Case Study of HNA Group (Wencheng Ying & Suling Jia)
• Red Collar Group: Transform towards Smart Manufacturing (Elaine Chen)
• Data Connection: Scene Marketing Creates Demand (Daojun Sun, Yanyan Wang & Chunhu Cui)
• Orchestrating Digital Entrepreneurial Ecosystems (Jiamin Yin & Derek Du)
• Meeting New Friends via Habitual Use of Mobile Instant Messaging (MIM) Apps: System Fit & Cultural Preference (Peter Rachtam)
• Exploring the Development of China’s Mobile Payment from the Perspective of Resource-based Platform Strategies (Jiang Yu, Wenmiao Hu & Yue Zhang)
• Exploring Service Dominant Logic and Business Model for IT firms to Transition to the Cloud Era: A Focus Group Study (Jau-Rong Chen)
• Towards Commercialization of University Research Outcomes: Comparative Theories (Tamrin Amboala, John Lenarcic & Joan Richardson)
• The Role of Disruptive Innovation in Building a Shared Economic Platform: A Case Study of Sheke Net (SKN), China (Haibo Hu, Tao Huang & Yang Cheng)
• A Study of Frugal Innovation of Manufacturing Enterprises in C2B Model: Learning from Chinese Experience (Fuyin Lan, Xuefeng Liu & Xiaoshan Zhang)
• Developing Capabilities for the IT-enabled Organizational Transformation: a Case of Traditional Manufacturing Enterprise in China (Delin Zheng, Taohua Ouyang, Zhengyan Cui & Zhenya Tan)
• Transaction Marketing Orientation VS Relationship Marketing Orientation: Consumer Logic of Enterprises Digital Empowerment (Xiu Dai, Ying Zhou & Jingyuan Geng)
• Exploring the Effects of Scarcity Messages on Online Impulsive Purchase: The Role of Arousal (Liwei Xin, Wu Yi & JP Guo)
• Based on Technology Affordance the Perspective of Manufacturing Enterprise Innovation Ecosystem Evolution: Transformation Path of the Bright Moon Company (Bo Hu, Baozhao Lu & Zhibin Liu)
FUTURE AUTOMATION
Changes to Lives and to Businesses

By Timothy E Carone (University of Notre Dame, USA) & Russell Walker (Northwestern University, USA)

Endorsement:
“Future Automation is a mind-expanding experience ... It helps me envision what’s next for rapidly changing business models and to project the likely impact of autonomous systems on people and society ... Despite complexities addressed, the book is highly readable, as the authors provide compelling graphics and evocative analogies.”

Martin Fiore, Americas Tax Talent Leader, Ernst & Young LLP

Description:
The world overstates the present fear of future risk. Autonomous systems are our future. One day we will wake up to some event that will make it clear that the robots have taken over but just not in the way we always thought. Robots take many forms. A driverless car is a robot. A drone over Afghanistan is a robot. Siri is a robot as are high frequency trading systems. And the autonomous systems that Amazon uses to manage their warehouses and logistics are collections of robots acting in concert. In short, robots, or autonomous systems, are slowly taking over the execution of key processes that run our businesses and our lives. We define an autonomous system to be an integration at the data and process level of three components: sensors or the Internet of Things that collect data; big data that stores and processes data; and artificial intelligence, which takes the information, makes decisions, and acts. On occasions, we add in actuators, which are motors that are responsible for moving or controlling a mechanism or system. Other words for an autonomous system with actuators are “robot,” “driverless car,” and “unmanned drone.”

In this book we show how autonomous systems when coupled with the blockchain and additive manufacturing will substantially change business models and our lives. It is clear that the transition to more autonomous systems operating in our society will come from the ground up and will be used to support processes that do not involve humans and human safety. Mostly this falls into the realm of logistics, farming, and some financial services. It does not fall into the area of healthcare where the adoption of autonomous system will be slower and presumably much more highly regulated. Healthcare though will be the place where the human + autonomous system evolves over time and shows how the weaknesses of machines are solved by the strengths of humans and vice versa. There is one area that can serve as the test bed for autonomous system in other industries. The logistics industry is already highly automated but it can also serve as a test bed for autonomous ports, trucks, planes, and our personal favorite, the Trone, which is a drone that can carry at least as much cargo as a long haul tractor-trailer. Change is coming and it is in many forms and will show up in different places at different times.

Authors:
Timothy E Carone, PhD, is an Associate Teaching Professor at the Mendoza College of Business at the University of Notre Dame. Dr Carone has expertise in autonomous systems, big data, Internet of Things, and artificial intelligence. He has developed and taught undergraduate, graduate, and executive education courses for Mendoza in the areas of Data Mining, Predictive Analytics, Unstructured Data Analytics, and Emerging Issues.

Russell Walker, PhD, is a Clinical Associate Professor at the Kellogg School of Management of Northwestern University. Dr Walker has expertise in Big Data and Analytics, Risk Management, and International Business Strategy. He has developed and taught leading executive programs and MBA classes on Big Data and Analytics, Leadership of Analytical Teams, Strategic Data-Driven Marketing, Enterprise Risk, Operational Risk, and Global Leadership.
Contents:
• Autonomous Systems
• Big Data and Business Analytics
• Artificial Intelligence
• The Internet of Things
• Autonomous Systems Reconsidered
• The Global Food Supply
• Financial Services
• Logistics
• Manufacturing
• Retail
• Health Care
• Recognizing as Presence
HOLISTIC BUSINESS PROCESS MANAGEMENT
Theory and Practice

Edited by Gunyung Lee (Niigata University, Japan), Masanobu Kosuga (Kwansei Gakuin University, Japan) & Yoshiyuki Nagasaka (Kwansei Gakuin University, Japan)

Key Features:
• Discusses a conceptual framework which manages BPM using time drivers such as lead-time and velocity for measuring the performance of BPM
• Introduces the application examples of Japanese and Korean companies
• Proposes a BPM model suitable for SMEs

Description:
Holistic Business Process Management focuses on building business process management (BPM) as a model to address the importance of BPM views, analyze the effectiveness of the approach, and study the research trends in BPM. The book includes case studies of Japanese and Korean companies and BPM models suitable for small and medium-sized enterprises (SMEs) anywhere in the world.

Editors:
Gunyung Lee is a Professor in the Faculty of Economics at Niigata University in Japan. He has been majoring in management accounting. He received his PhD from the University of Tsukuba. He is the former president of Japan Society of Organization and Accounting (JSOA). His current research interests mainly focus on the development of cost management model in Business Process Management for small and medium-sized enterprises (SMEs). He has published many articles and books in three languages, English, Japanese and Korean.

Masanobu Kosuga is a Professor of School of Business Administration, Kwansei Gakuin University, Nishinomiya, Japan. He has been majoring in cost and management accounting. He received BA, MBA, and PhD from Kwansei Gakuin University. He is a director of Japan Accounting Association (JAA), a senior director of Japanese Association of Management Accounting (JAMA), and a former president of Japan Cost Accounting Association (JCCA). His current research interests mainly focus on Strategic Management Accounting.

Yoshiyuki Nagasaka is a professor in the Faculty of Business Administration, Konan University. He received his BS, MS and PhD degrees in Engineering from Osaka University in 1981, 1983 and 1992, respectively. In 1974 he joined Komatsu Ltd. as a researcher. From 1987 to 1989, he studied at the University of British Columbia, Canada. From 1994 to 2001, he was an associate professor in the Faculty of Department of Business Administration, Osaka Sangyo University. He moved to Konan University in 2001.
Contents:

- Japan Society of Organization and Accounting (JSOA)
- Editorial Board
- Preface
- About the Editors
- List of Contributors

**Theory and Methodology of BPM:**
- The Conceptual Framework of Business Process Management (Gunyung Lee)
- Process Oriented Activity-based Costing for Business Process Management (Yoshiyuki Nagasaka and Gunyung Lee)
- An application of the Most Effective KPI in Business Management — Development and Application of KPI Pool (Kenji Hirayama and Yoshiyuki Nagasaka)
- Toyota Production System for Business Process Management (Noriyuki Imai)

**Case Studies of BPM in Japanese and Korean Companies:**
- BPM Practices in a Japanese Company: A Case Study of Canon Co. Ltd. (Yoko Asakura)
- BPM Practices in a Korean IT Service Company (Kyoungwan Cha, Seungchan Lee, Suyong Kim and Hyunjong Yoo)

**Action Research of BPM in Japanese Small and Medium-sized Enterprises:**
- Methodology of Business Process Management for SMEs (Gunyung Lee)
- Development of Event Driven Business Process Management (ED-BPM) Tool “SCRUM” (Hiroshi Matsumoto)
LI-S BATTERIES
The Challenges, Chemistry, Materials and Future Perspectives

Edited by Rezan Demir-Cakan (Gebze Technical University, Turkey)

Key Features:
- Provides current knowledge and recent concepts of Li-S batteries and highlights research of top international scientists in the field
- Designed for researchers and practitioners working with Li-S batteries, as well as an academic text for teaching and reading
- Authors are strongly engaged in the progress of Li-S batteries, and concentrate on the fundamental understandings and challenges surrounding their increased adoption

Description:
Lithium-sulfur (Li-S) batteries give us an alternative to the more prevalent lithium-ion (Li-Ion) versions, and are known for their observed high energy densities. Systems using Li-S batteries are in early stages of development and commercialization however could potentially provide higher, safer levels of energy at significantly lower cost.

In this book the history, scientific background, challenges and future perspectives of the lithium-sulfur system are presented by experts in the field. Focus is on past and recent advances of each cell compartment responsible for the performance of the Li-S battery, and includes analysis of characterization tools, new designs and computational modeling. As a comprehensive review of current state-of-play, it is ideal for undergraduates, graduate students, researchers, physicists, chemists and materials scientists interested in energy storage, material science and electrochemistry.
Contents:
• Introduction to Rechargeable Li-S Batteries
• Sulfur Cathode
• The Use of Lithium Poly(Sulfide) Species in Li-S Batteries
• Lithium-Sulfur Battery Electrolytes
• The Lithium Electrode Revisited Through the Prism of Li-S Batteries
• Analytical Techniques for Li-S Batteries
• Other Sulfur Related Rechargeable Batteries: Recent Progress in Li-Se and Na-Se Batteries
• Computational Modeling of Li-S Batteries: Myths, Facts and Controversies
• Conclusion: Challenges and Future Directions
RELIABILITY MODELING WITH COMPUTER AND MAINTENANCE APPLICATIONS

Edited by Syouji Nakamura (Kinjo Gakuin University, Japan), Cun Hua Qian (Nanjing Tech University, China) & Toshio Nakagawa (Aichi Institute of Technology, Japan)

Key Features:
• The readers will learn new topics and techniques, and how to apply reliability and maintenance models to actual ones
• The book will serve as an essential guide to a subject of study for graduate students and researchers and as a useful guide for reliability engineers engaged not only in maintenance work but also in management and computer works

Description:
The development of Reliability and Maintenance theory and applications has become major concerns of engineers and managers engaged in order to design and product systems that are highly reliable. This book aims to cover the ongoing research topics in computer system, reliability analysis, reliability applications and maintenance policies, so as to provide awareness for those who engage systems design, being students, technicians, or research engineers, as a reference guidebook.
Contents:

**Computer System:**
- An Overview of Practical Software Reliability Prediction (Kazuhira Okumoto)
- NHPP-based Software Reliability Assessment using Wavelets (Xiao Xiao and Tadashi Dohi)
- Dependability Analysis Tool Considering the Optimal Data Partitioning in a Mobile Cloud (Yoshinobu Tamura and Shigeru Yamada)
- Interval Estimation of Software Reliability and Shipping Time (Shinji Inouve and Shigeru Yamada)
- Confidence Intervals in Optimal Checkpoint Placement (Shunsuke Tokumoto, Tadashi Dohi, Hiroyuki Okamura and Won Young Yun)

**Reliability Analysis:**
- Importance Measures for a Binary State System (Fumio Ohi)
- Calculation Method for Reliability of Toroidal System (Taishin Nakamura, Hisashi Yamamoto, Takashi Shinzato, Xiao Xiao and Tomooki Akiba)
- Reliability Properties of n-Component Systems with Interdependent Failures (Mitsuhiro Kimura, Shuhei Ota and Shogo Abe)
- Common-cause Failure Analysis in Probabilistic Risk Assessment (Tetsushi Yuge and Shigeru Yanagi)
- Comparison Between Parallel and Standby Redundant Systems (Won Young Yun and Toshio Nakagawa)

**Reliability Applications:**
- System Reliability of an Intermittent Production System (Ping-Chen Chang, Cheng-Fu Huang, Yi-Kuei Lin and Po-Shiang Shih)
- Cumulative Backup Policies for Database Systems (Xufeng Zhao, Syouji Nakamura, Cunhua Qian and Shey-Huei Sheu)
- Reliability Analysis of Distributed Communication Processing for a Cloud System (Mitsutaka Kimura)
- Reliability Consideration of a System in Cloud Computing Environment (Mitsuhiro Imaizui)

**Maintenance Policies:**
- Two-Dimensional Maintenance with Repair Time Threshold and Generalized Age Replacement (Minjae Park, Ki Mun Jung and Dong Ho Park)
- General Inspection Models (Mingchih Chen, Xufeng Zhao and Toshio Nakagawa)
- A Summary of Replacement Policies for Continuous Damage Models (Kodo Ito, Syouji Nakamura and Nakagawa Toshio)
- Extended Policies of Replacement First, Last, Overtime (Satoshi Mizutani and Toshio Nakagawa)
- Optimal Checkpoint Times for Redundant Nodes and Errors (Kenichiro Naruse and Sayori Maeji)
Social media platforms have been ubiquitously used in our daily lives and are steadily transforming the ways people communicate, socialize and conduct business. However, the growing popularity of social media adversely leads to wild spread of unreliable information. This in turn inevitably creates serious pollution problem of the global social media environment, which is harmful against humanity. For example, President Donald Trump used social media strategically to win in the 2016 USA Presidential Election. But it was found that many messages he delivered over social media were unproven, if not untrue. This problem must be prevented at all cost and as soon as possible. Thus, analysis of social media content is a pressing issue. It is a timely and important research subject worldwide. However, the short and informal nature of social media messages renders conventional content analysis, which is based on natural language processing (NLP), ineffective. This volume consists of a collection of highly relevant scientific articles published by the authors in different international conferences and journals, and is divided into three distinct parts: (I) search and filtering; (II) opinion and sentiment analysis; and (III) event detection and summarization. This book presents the latest advances in NLP technologies for social media content analysis, especially content on microblogging platforms such as Twitter and Weibo.
THE ADVENTURES OF A MODERN RENAISSANCE ACADEMIC IN INVESTING AND GAMBLING

By William T Ziemba (University of British Columbia, Canada)

Endorsement:
“Bill’s many interests have taken him through the worlds of academia, investing and gambling. This memoir adds human background to his prolific writings, which range from finance, horse-racing and lotteries, to oriental rugs.”
Edward O Thorp, author of Beat the Dealer and Beat the Market

“For more than 3 decades, a major passion of mine has been to encourage professional school faculty to draw research inspiration from industry. Bill embodies this ideal more completely than anyone I’ve ever known.”
Arthur Geoffrion, James A Collins, Chair in Management Emeritus, UCLA Anderson School

Description:
This book tells the story of how financial markets have evolved over time and became increasingly more complex. The author, a successful and experienced trader, who among other things won the 2015 battle of the quants futures contest held in New York, shares how one can navigate today’s dangerous financial markets and be successful. Readers at all levels will benefit from his analysis and many real life examples and experiences. The coverage is broad and there is considerable discussion on ways to stay out of trouble, protect oneself and grow one’s assets. The author was the first one to do turn of the year January effect trades in the futures markets starting in the beginning of S&P 500 futures trading in 1982. That has been successful and the author explains his ideas and experiences from the beginning in simple markets to the current, very complex markets we have in 2016.

The author discusses the various ways that traders and investors lose money in the financial markets. Many examples are provided, including Long Term Capital Management, ENRON, Amaranth, Neiderhoffers funds and many major companies such as Lehman Brothers, Society Generale, Saloman Brothers. This is invaluable to understanding ways to avoid such losses.

The author discusses great investors and their methods and evaluation and the authors work with several of them. Risk arbitrage and mean reversion strategies are described through actual use. Asset-liability models for pension funds, insurance companies and other financial institutions devised by the author are described. The author uses racetrack bias ideas in behavioral finance in trading index futures and options. Large stock market crashes that can be predicted are discussed with several models of the author and others. Those mini crashes that are plausible but largely unpredictable are described.

Along with ways to deal with them, investment in top quality racehorses, oriental carpets and other interesting investments are covered. The author was instrumental in viewing racing as a stock market. The ideas are used by the top racing syndicates as well as hedge funds.
Contents:

- Review Quotes
- Acknowledgments
- Beginning
- The Early Days in Adams and at the University of Massachusetts in Amherst
- Reminiscences of the Early Days in Berkeley
- The Start of a New Department in Vancouver
- Travels on a Flying Carpet
- The Canadian Sports Pool and a New Name, Dr Z, 1982
- Fortune's Formula: How the Pros Wager
- The Invention of the Place and Show Betting System
- The Turn-of-the-Year 1982/1983
- Testing the Dr Z System with Ed Thorp
- The 2 Minute Sprint
- Susquehanna
- What is Japan Doing Right to Get All that Money? Will they Lose It?
- The Bond–Stock Earnings Yield Crash Prediction Model
- Arbitrage and Risk Arbitrage
- Bill Benter Letter
- Scenario Optimization in Action — The Russell–Yasuda Kasai Financial Planning Model
- Risk Management and Planning in the Vienna Siemens Pension Model, InnoALM
- Evaluating the Greatest Investors
- How to Lose Money in Derivatives and Some Who Did
- Trend Following in the Bahamas
- The Internet Bubble Crash, 2000–2002
- The US Housing Bubble, Credit Crisis, Crash and Recovery 2006 to 2015
- The Flash Crash and High Frequency Trading
- The Greek Crisis and Why It is Important
- Inefficiencies and Anomalies: Other Crashes and How They Fit the Models
- Dealing with Madoff and Other Swindlers
- An Adventure in the Bed and Breakfast Business, British Columbia Real Estate over the Years
- Two Tries in the Horse Ownership Business
- Travels to Universities and Academic and Professional Conferences over the Years
- Epilog
- Bibliography
BUSINESS, GOVERNMENT AND LABOR
Essays on Economic Development in Singapore and Southeast Asia

Edited by Linda Y C Lim (University of Michigan, USA)

Key Features:
• The book is written by an economist employing economic concepts in a style accessible to non-economists, including other social scientists and the general educated reader. Several of the essays have been previously reprinted in textbook readers and were popular inclusions in college course-packs especially for undergraduate courses on globalization
• The book is integrative, integrating what is often treated as different domains of analysis i.e. public policy, private enterprise and labor/workers, showing how each affects the other to give a holistic picture of the economic development process
• The book is dynamic, showing how the development process unfolds in different stages in the same country (Singapore) and region (Southeast Asia), including highlighting the limitations as well as the contributions of globalization and statist policy to economic development at different stages

Description:
Business, Government and Labor in the Economic Development of Singapore and Southeast Asia analyzes the inter-linked and evolving roles of private sector business, government public policy, and labor markets in the economic development of Singapore and its Southeast Asian neighborhood. It does this through 16 essays written by Prof. Linda Y C Lim, an early and long-established scholar of these subjects, and published over a 35-year period. For Singapore, often considered the world’s most successful economy, the essays highlight the determining role of government’s industrial and social policy through to the present day, when the growth model of the past faces many external market and domestic resource constraints. In the rest of Southeast Asia, in contrast, the essays explore how private sector business, dominated by the locally-domiciled ethnic Chinese minority, thrived and drove economic growth in underdeveloped markets with imperfect institutions, and consider if and how this might change with China’s increasing presence in the regional economy. A final set of essays analyzes the forces underlying women’s employment, from labor-intensive Southeast Asian export factories in the 1980s to Singapore’s foreign-labor-dependent economy and its current productivity challenges. Taken together, the essays show how government, business and labor interact in the process of economic development.

Editor:
Linda Lim is Professor of Strategy at the Stephen M Ross School of Business at the University of Michigan (U-M), where she served as Director of the now 56-year-old Center for Southeast Asian Studies (CSEAS, 2005–2009), and as Associate Director of the International Institute (2001–2004). At U-M she has also frequently served on the executive committees of CSEAS, the Center for International Business Education and Research, and the Lieberthal–Rogel Center for Chinese Studies, and was on the board of advisors of the Knight-Wallace Journalism Fellows (1996–2015). At Ross, she was faculty advisor of the annual Asia Business Conference for 25 years, and maintains links with a large network of American and Asian U-M alumni. With CSEAS and Singapore’s ISEAS-Yusof Ishak Institute, she organized an Indonesia Forum in Singapore in 2015, and a Myanmar Forum in 2016.
Contents:

- Rapid Growth and Relative Price Stability in a Small Open Economy: The Experience of Singapore (1985)
- Globalizing State, Disappearing Nation: Foreign Participation in Singapore's Economy (2010)
- Singapore's Success: After the Miracle (2014)
- Beyond the ‘Global City’ Paradigm (2015)
- Strengths and Weaknesses of Minority Status for Southeast Asian Chinese (1997)
- Southeast Asian Chinese Business and Regional Economic Development (2013)
- Labor, Productivity and Singapore’s Development Model (2015)
- Poverty, Ideology and Women Export Factory Workers in Asia (1990)
DIMENSIONS OF TRADE POLICY

By Martin Richardson (Australian National University, Australia)

Key Features:
• It addresses matters of contemporary policy significance such as preferential trading areas and the relationships between trade and competition policies
• Covers an eclectic range of topics in international trade policy

Description:
Dimensions of Trade Policy collects the author’s significant works on international trade policy over almost 30 years of publishing. The articles cover an eclectic range of topics but are grouped into three main areas of concentration — local content protection, the economics of preferential trading areas and the relationship between trade and competition policies — and the book also includes some sui generis topics, such as “fair trade” and “buy local” schemes. An introduction ties the chapters together and indicates their relevance to contemporary matters in trade policy.

Author:
Martin Richardson has been at the Australian National University since 2003. Obtaining his PhD in Economics at Princeton University, Martin has taught at Georgetown University in Washington DC and the University of Otago in New Zealand as well as at the ANU. He has published widely in international trade and applied microeconomics and has been an academic visitor at, inter alia, the University of Toronto, the Université de Montréal, the University of Copenhagen Business School, University College Dublin and the University of Tübingen. He has been a Lay Member of the NZ High Court since 2000.
Contents:
• Some Economics of Local Content Requirements
• Local Content Requirements in Broadcasting
• External Trade Policy in Free Trade Areas
• On the Political Economy of Preferential Trading Areas
• On the Harmonization of Trade and Competition Policies
• Trade Policy and Retail Distribution
• Mergers in an Open Economy
• Some Simple Economics of Parallel Imports
• Quality and Congestion in Environmental Goods Consumed Internationally
• Fair Trade
• Governmental ‘Buy Local’ Campaigns
ESSAYS IN INTERNATIONAL MONEY AND FINANCE
Interest Rates, Exchange Rates, Prices and the Supply of Money Within and Across Countries

By James R Lothian (Fordham University, USA)

Key Features:
- This collection of essays is unique in its scope. I know of no books in international finance encompassing publications on this wide range of topics
- The treatment of these topics is also rather unique with its strong focus on long-run equilibrium in both international financial and macroeconomic relations
- The papers dealing with financial globalization, the neutrality of money and, most importantly, with purchasing power parity and real exchange rate behavior, have contributed to changed thinking in economics

Description:
The aim of the book is to make the author’s scholarly research in the areas of international finance and monetary economics easily accessible to other researchers and students. The articles included in the book span a wide range. The topics include the behavior of the three key relations in international finance, purchasing power parity, interest rate parity and real interest rate equality, the relation between money and other key economic variables, financial globalization and the transmission of economic disturbances internationally.

Author:
James R Lothian is a distinguished professor of finance at the Gabelli School of Business and holder of the Toppeta Family Chair in Global Financial Markets. He is director of Fordham’s Frank J Petrielli Center for Research in International Finance. For two and a half decades, he served as editor of the Journal of International Money and Finance.

He holds a doctorate and an MA in economics from the University of Chicago and a BA magna cum laude from the Catholic University of America.

He is co-author of the NBER monograph The International Transmission of Inflation, and has published extensively on domestic and international economic and financial topics in scholarly journals including the American Economic Review, the Journal of Political Economy, the Journal of Money, Credit and Banking, the Journal of Monetary Economics, the Journal of International Money and Finance, Open Economies Review, the Journal of Applied Econometrics, the Journal of Empirical Finance, the Journal of Macroeconomics and the Journal of Financial and Quantitative Analysis, as well as in the financial press.

He is a member of the advisory boards of the Journal of Financial Stability, the Centre for Empirical Finance, Brunel University, London and CREDO (the Catholic Research Economists Discussion Organization). He is a member of the editorial boards of the International Finance Review and the DANUBE Law and Economics Review and serves as external advisor to the Centre for Banking and Finance, Smurfit School of Business, University College, Dublin.

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Imprint: World Scientific Publishing Company
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- Overviews
- Early Articles
- Real Exchange Rates and Purchasing Power Parity
- Uncovered Interest Rate Parity
- Financial Integration and Real Interest Rate Equality
- Money, Income, Prices, Exchange Rates and International Transmission of Disturbances
INTERNATIONAL TRADE THEORY AND COMPETITIVE MODELS
Features, Values, and Criticisms

By Ronald W Jones (University of Rochester, USA)

Key Features:
- A collection of 18 published articles in the field of international trade theory
- Reveals in the simplest way important aspects of traditional international trade theory

Description:
This book is a collection of published articles written by Professor Ronald Jones in the field of international trade theory. The focus of this publication is the use over time of simple models. Several of the classic questions of competitive international trade theory are raised throughout. What explains the pattern of a country's trade with other countries? In particular, if prices change for commodities that are traded in world markets, what are the consequences of such changes on markets that are purely national, and not global? Alternatively, when a country's factor endowments change, what are the consequences for that country's production patterns for goods traded in a world markets? If production technologies improve, what are the consequences for commodity prices and factor returns? In answering these questions, it becomes clear how the models differ from one another, and how, with growth in trade, the selection of models changes. Which model is most appropriate depends on the nature of the changes of economic growth. International trade is best understood through the use of a variety of these simple trade models.

Author:
Ronald W Jones has just finished a 58 year period as Professor at the University of Rochester. His field of research and focus of teaching, both to undergraduate and graduate classes, has been International Trade Theory. He has had a number of visiting appointments, e.g. at Kobe University, the University of Geneva, Monash University (and many others). He is a Fellow of the Econometric Society, the American Academy of Arts and Sciences and the National Academy of Sciences. He was a co-author with Richard Caves (and, for the last 6 editions, Jeffrey Frankel), of the text-book, World Trade and Payments. He has also published around 180 articles and a couple of books. The focus has usually been on General Equilibrium features of international trade models. He has been the recipient of six honorary doctorates.
Contents:

- **An Old Favorite: The Ricardian Model:**
  - Comparative Advantage and the Assignment Problem
  - Technology Choice, Overtaking and Comparative Advantage
  - The Technology Transfer Paradox

- **More GE Models: Heckscher–Ohlin and Specific Factor Models:**
  - The Structure of Simple General Equilibrium Models
  - Protection and Real Wages: The History of an Idea
  - Heckscher–Ohlin Trade Flows: A Re-Appraisal
  - Heckscher–Ohlin and Specific-Factors Trade Models for Finite Changes: How Different Are They?
  - Bubble Diagrams in Trade Theory
  - Trade, Technology, and Income Distribution
  - Factor Bias and Technological Progress
  - Sense and Surprise in Competitive Trade Theory

- **International Factor Flows and Fragmentation of the Production Process:**
  - The Theory of Trade in Middle Products
  - The Role of Services in Production and International Trade: A Theoretical Framework
  - The Role of International Fragmentation in the Development Process
  - International Trade and Agglomeration: An Alternative Framework
  - International Fragmentation and the New Economic Geography

- **Final Thoughts on Competitive Trade Models:**
  - On Blending Competitive Trade Models
  - On the Value of Small-Scale GE Models
Advanced Information

LECTURE NOTES IN PUBLIC BUDGETING AND FINANCIAL MANAGEMENT

By William Duncombe (Syracuse University, USA)

Description:
This lecture notes provides an overview of budgeting and financial management in the public and non-profit sectors. Fundamental concepts and practices of budgeting, financial management and public finance are introduced, with special emphasis on state and local government budgeting and financial management in the United States. The objectives of courses in Public Budgeting and this title are to teach the basic concepts and nomenclature of public finance, to develop an understanding of budget processes as well as the sources and uses of public revenues, and to make relatively simple, but useful computations in an intelligent way. Key course learning outcomes include the abilities to:

- explain and assess key elements of government budgeting processes;
- apply concepts of cost accounting and analysis to understand agency expenditure needs;
- design and produce a flexible budget for a government agency; and
- apply concepts and measures of efficiency, equity, and adequacy to the evaluation of government revenue policies.

There are no indispensable pre-requisites by the reader, and it has been designed for students from a wide variety of backgrounds and undergraduate majors. Although this works well as an introductory text to a broader public administration curriculum, it also can make sense for students to take after some more basic courses in economics, policy analysis, and public organizations. Issues of tax incidence and the effect of taxes on economic efficiency can be covered in greater depth.

Author:
William D Duncombe (Bill) was a professor of public administration in the Maxwell school of Citizenship and Public Affairs at Syracuse University. Bill first came to Maxwell as a graduate student in the mid-1980s. He received his MPA in 1987 and his PhD in public administration in 1989. Bill’s first academic job was teaching public administration at the University of Georgia, but he returned to Maxwell in 1991 and stayed 22 years until his untimely death on May 11, 2013.

Bill was well known for his dedication to his students. In 2006 he received the Excellence in Graduate Education Faculty Recognition Award from Syracuse University, and in 2001 he was the first recipient of the Birkhead-Burkhead Teaching Excellence Award and Professorship given by Maxwell’s Department of Public Administration and International Affairs. His teaching skills were also recognized by the National Association of Schools of Public Affairs and Administration, which gave him the Leslie Whittington Excellence in Teaching Award in 2006.

During his 22 years at Maxwell, Bill taught public budgeting and statistics to hundreds of MPA students, and he introduced education policy into the MPA curriculum. He also mentored dozens of PhD students, many of whom now teach public budgeting and financial management in public administration departments around the country and around the world.
Contents:

• About William (Bill) Duncombe
• Foreword (Jeffrey D Straussman)
• Preface (Robert Bifulco Jr.)
• Introduction to Budgeting and Public Finance
• The Basics of Budget Preparation
• The Use of Cost Accounting to Improve Budgeting
• Getting Control of Your Budget: The Use of Cost Analysis in Budgeting
• Budget Review and Approval
• Federal Budgeting Process
• Budget Execution and Control
• Capital Budgeting and Debt Management
• Revenue Forecasting and Evaluation Criteria
• Consumption Taxes
• Local Property Taxes
• User Fees and Charges
• State Government Lotteries
QUANTUM METHODS IN SOCIAL SCIENCE
A First Course

By Emmanuel Haven (University of Leicester, UK), Andrei Khrennikov (Linnaeus University, Sweden) & Terry Robinson (University of Leicester, UK)

Description:
Shown here is how basic concepts of physics can be used to improve models in finance, economics, psychology and biology. Readers are introduced to how physical theory can inform non-physical phenomena in the social sciences, thereby improving decision making and modelling capabilities in research-based and professional settings.

Consisting of three parts, the first part deals with the application of quantum operator methods to financial transactions and population dynamics. Part two develops physical concepts, working from classical Lagrangian and Hamiltonian mechanics and leading to an introduction of quantum information and its application to decision making. The final part treats classical and quantum probability theory in some detail and deals, at a more advanced level, with the impact of quantum probabilities on common knowledge and common beliefs between agents in systems.

Quantum Methods in Social Science is a high level textbook for advanced undergraduate or graduate students of economics, finance and business, while also being of interest to those with a background in physics.
Contents:

- **Quantum Counting: The Number Operator in a Social Science Context:**
  - Introduction
  - Classical Interlude: Modelling Population Dynamics
  - A Quantum Description of Systems
  - Quantum Counting
  - Quantum Transactions
  - Quantum Migration
  - More Elaborate Systems
  - Epilogue
  - References — Part I

- **The Quantum-Like Paradigm with Simple Applications:**
  - Taking a Step Back
  - Modelling Information with an Operational Formalism
  - Decision Making and Quantum Probability
  - References — Part II

- **The Quantum-Like Paradigm with Advanced Applications:**
  - Basics of Classical Probability
  - Quantum Probability
  - Common Knowledge
  - Quantum(-Like) Formalization of Common Knowledge
  - Examples
  - An Appendix
  - References — Part III
Description:
This book examines the nature of the stock market and its implications for corporate management. It provides an introduction to core issues in finance and differs from traditional textbooks in its recognition that “finance is not physics” — in the sense that how markets behave today is not necessarily how they will behave tomorrow. Nevertheless, a certain level of “physics” can be recognized as underpinning the development of stock market valuations and corporate financial decision-making.

In short, the objective of the text is to instill insight in regards to the functioning of markets and corporate behavior, as opposed to algebraic derivations from unrealistic assumptions. Rather than subscribe unthinkingly to an “efficient market hypothesis”, at each stage of the development of the text’s conceptual framework, we also recognize the reality of market “sentiment” and the fundamental uncertainty that managers face in their decisions.

Based around a teaching programme with worked questions and solutions, Stock Markets and Corporate Finance is the perfect accompaniment for MBA, undergraduate and graduate students looking for a critical textbook on the nature of the financial sector and corporate finance.

Author:
Michael Dempsey joined RMIT University as Professor and Head of the Finance Discipline in early 2013. Prior to this, he was an Associate Professor at Monash University, Australia, before which he was an Associate Professor with Griffith University, Australia, having previously been at Leeds University, UK. He also has many years' experience working for the petroleum exploration industry, in the Middle East, Egypt, Aberdeen and London. He is an active researcher in seeking to understand the interplay between risk and returns as the essential dynamic of market behaviour; the theoretical implications of taxation for stock valuation; and corporate decision-making as socially constructed. His recently published Stock Markets, Investments and Corporate Behavior (published by Imperial College Press/World Scientific, 2016) summarizes his work in these areas. He has published articles that have appeared in leading international journals, including Financial Analysts Journal (2), Journal of Banking and Finance (2), Journal of Business Finance and Accounting (3), European Financial Management (1), Critical Perspectives on Accounting (3), Abacus (3), Journal of Investment Management (2), Accounting and Business Research (3), Australian Journal of Management (2), Journal of Asset Management (1), and Accounting and Finance (1). His teaching expertise includes corporate and investment finance, international finance, derivatives and financial engineering.
Contents:
• Introduction: Stock Markets and Corporate Finance
• A Short History of Stock Markets
• The Time Value of Money
• Market Debt, Interest rates and Valuation
• The Valuation of Equity Shares
• Shareholders’ Required Rate of Return (The Cost of Equity Capital)
• Accounting Statements and Ratio Analysis
• Financial Leverage
• Valuation of Cash Flows
• Currency Exchange Rates
• Hedging Currency Risk: Derivatives
• Investment Decision Making: Theory and Practice
• Equity Value and Personal Taxes
• Financial Leverage (Revisited)
• Valuation of the Firm’s Cash Flows (Revisited)
• Ethical Behavior
Description:
This book collects my scholarly research on the behavior of foreign exchange rates conducted over the past twenty-five years. The collection includes papers that study the behavior of exchange rates from the traditional macroeconomic and newer microstructure perspectives. The former perspective considers the linkages between the macro economy and currency prices in an effort to understand the behavior of exchange rates over quarters, years and decades. By contrast, the microstructure perspective considers how the details of currency trading affect how macroeconomic information becomes embedded in currency prices, a process which drives exchange-rates over intraday horizons. The book also contains papers with a hybrid perspective that consider the details of currency trading and macroeconomic linkages in an effort to understand exchange-rate dynamics across all horizons.
SINGAPORE SCHOOL PRINCIPALS
Leadership Stories

By Zoe Suan Loy Boon (National Institute of Education, NTU, Singapore)

Key Features:
• This book is written from the perspectives of a practitioner researcher. The author has served as a classroom teacher, middle leader and principal in the Singapore education system in addition to being a trainer and people developer in school leadership programmes in the National Institute of Education, NTU
• The life stories of school leaders and retired principals will be informative to serving principals
• The life stories of first time principals and experienced school leaders can be useful for teaching aspiring middle leaders and school principals

Description:
This is a first book project undertaken by the author who has personally walked the journey of a classroom teacher, middle leader and school principal in the Singapore education system. It is a culmination of two research projects undertaken in two phases — the first is derived from the PhD Thesis entitled The Making of School Principals in Singapore and the second is based on interviews with school principals who have retired from the Singapore education system. Both research projects provide invaluable input to describe the four career phases of school leadership, that is, formation, accession, incumbency, and divestiture. This research describes how the formative years of a school principal have tremendous impact on who the principal is, and how the values and beliefs of an aspiring/potential school leader serve to guide him/her in taking on the principalship post.

This well-structured book is both exploratory and descriptive. It provides the necessary background for anyone interested in understanding school leadership as a career. More specifically, it will be of value to educators and stakeholders interested in understanding the nature of school leadership in the Singapore education system.
Contents:
• School Leadership
• Phases of Leadership — Formative, Accession, Incumbency, Divestiture
• Education Policies in Singapore Education System
• Educational Change
• Case Studies — Interviews with First-Time Principals and Retired Principals
COMPUTATIONAL METHODS WITH APPLICATIONS IN BIOINFORMATICS ANALYSIS

Edited by Jeffrey J P Tsai & Ka-Lok Ng (both of Asia University, Taiwan)

Description:
This compendium contains 10 chapters written by world renowned researchers with expertise in semantic computing, genome sequence analysis, biomolecular interaction, time-series microarray analysis, and machine learning algorithms.

The salient feature of this book is that it highlights eight types of computational techniques to tackle different biomedical applications. These techniques include unsupervised learning algorithms, principal component analysis, fuzzy integral, graph-based ensemble clustering method, semantic analysis, interolog approach, molecular simulations and enzyme kinetics.

The unique volume will be a useful reference material and an inspirational read for advanced undergraduate and graduate students, computer scientists, computational biologists, bioinformatics and biomedical professionals.
Contents:

• Unsupervised Clustering of Time Series Gene Expression Data Based on Spectrum Processing and Autoregressive Modeling
• Gene Ontology-Based Analysis of Time Series Gene Expression Data Using Support Vector Machines
• A Comparative Review of Graph-Based Ensemble Clustering as Transformation Methods for Microarray Data Classification
• Semantic Analytics of Biomedical Data
• Investigating Interactions Between Proteins and Nucleic Acids by Computational Approaches
• Bioinformatics Analysis of MicroRNA and Protein-Protein Interaction in Plant Host-Pathogen Interaction System
• Computational Modelling of the Alu-Carrying RNA Network in Th17-Mediated Autoimmune Diseases
• Principal Component Analysis Based Unsupervised Feature Extraction Applied to Bioinformatics Analysis
• Choquet Integral Algorithm for T-Cell Epitope Prediction Using Support Vector Machine
• Unsupervised Clustering Algorithms for Flow/Mass Cytometry Data
IAENG TRANSACTIONS ON ENGINEERING SCIENCES
Special Issue for the International Association of Engineers Conferences 2016
International MultiConference of Engineers and Computer Scientists (IMECS 2016) & World Congress on Engineering (WCE 2016)
Hong Kong & London, UK, 16 – 18 March 2016 & 29 June – 1 July 2016

Edited by Sio-Iong Ao (International Association of Engineers, Hong Kong), Alan Hoi-shou Chan (City University of Hong Kong, Hong Kong) & Hideki Katagiri (Hiroshima University, Japan)

Description:
Two large international conferences on Advances in Engineering Sciences were held in Hong Kong, March 16–18, 2016, under the International MultiConference of Engineers and Computer Scientists (IMECS 2016), and in London, UK, 29 June – 1 July, 2016, under the World Congress on Engineering (WCE 2016) respectively. This volume contains 21 revised and extended research articles written by prominent researchers participating in the conferences. Topics covered include engineering mathematics, computer science, electrical engineering, manufacturing engineering, industrial engineering, and industrial applications. The book offers state-of-the-art advances in engineering sciences and also serves as an excellent reference work for researchers and graduate students working with/on engineering sciences.

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- Computer Science
- Electrical Engineering
- Manufacturing Engineering
- Industrial Engineering
- Industrial Applications
MATERIALS SCIENCE AND ENGINEERING
Proceedings of the 2nd Annual 2016 International Workshop on Materials Science and Engineering (IWMSE 2016)
The 2nd Annual International Workshop on Materials Science and Engineering (IWMSE 2016)
Guangzhou, China, 12 – 14 August 2016

Edited by Roman Szewczyk (Industrial Research Institute for Automation and Measurements, Poland) & Jingyu Yang (Shenyang Aerospace University, China)

Key Features:
• This proceedings collected together R&D funded and undertaken by Chinese researcher in Material Science and Engineering, which provide the outside world a snapshot of Chinese competency in the development in material engineering
• Printed version of about 30 copies will be POD to meet the order from conference participants and authors alike
• Additional copies will be printed for marketing to include in their library package

Description:
The 2nd Annual 2016 International Workshop on Materials Science and Engineering (IWMSE 2016) was held in Guangzhou, Guangdong, China on August 12 – August 14, 2016. The main aim of IWMSE 2016 was to provide a platform for scientists and engineers, to get together to share their research findings, exchange ideas and identify the future directions of R&D in materials science.

In this conference, we have received over 272 high-quality papers, however, only 160 articles are included in the proceedings, covering topics such as ceramics and glasses, amorphous materials, nanomaterials and thin layers, soft magnetic materials, biomaterials, polymers, photovoltaic materials, steels, tool materials, composites, as well as functional and smart materials.
Contents:
• Ceramics, Glasses, Cement and Concrete
• Amorphous Materials, Nanomaterials and Thin Films
• Magnetic Materials
• Biomaterials
• Polymers
• Photovoltaic Materials
• Functional and Smart Materials
• Tool Materials and Special Alloys
• Composites
• Fatigue, Crack & Creep Resistance, Corrosion & Fracture
• Nondestructive Testing and Reliability Assessment
• Resources and Environment
• Simulation and Environment
• Measurements and Characterization
• Other Important Subjects for Material Science & Engineering
THEORY AND APPLICATIONS OF OCEAN SURFACE WAVES
(In 2 Volumes)
3rd Edition

By Chiang C Mei (MIT, USA), Michael Stiassnie (Technion-Israel Institute of Technology, Israel) & Dick K-P Yue (MIT, USA)

Endorsements:
“Overall, the book remains a major resource for graduate students in ocean engineering and applied mathematics. The new material that has been added is certainly appropriate.”

Mathematical Reviews

“Much of the introductory material is well presented, and followed by many specific examples, often with full mathematical detail ... These books can certainly benefit graduate students and researchers, and Part 2 is a worthwhile improvement over the earlier editions.”

Journal of Fluid Mechanics

Description:
This book set is a revised version of the 2005 edition of Theory and Applications of Ocean Surface Waves. It presents theoretical topics on ocean wave dynamics, including basic principles and applications in coastal and offshore engineering as well as coastal oceanography. Advanced analytical and numerical techniques are demonstrated. In this revised version, five chapters on recent developments in linear and nonlinear aspects have been added. The first is on detailed analyses in Wave/Structure Interactions. The second is a new section on Waves through a Marine Forest, a topic motivated by its possible relevance to tsunami reduction. The third is on Long Waves in Shallow Water and the fourth is an update on Broad-Banded Nonlinear Surface Waves in the Open Sea to include new findings in this topic. The fifth is an expanded chapter on Numerical Simulation of Nonlinear Wave Dynamics to include predictions of nonlinear spectral evolution and rogue wave occurrence and dynamics using large-scale phase-resolved simulations. This revised version also includes recent developments in precorrected-FFT accelerated O(N log N) low- and high-order boundary element methods for the computation of fully nonlinear wave-wave and wave-body interactions.

Theory and Applications of Ocean Surface Waves will be invaluable for graduate students and researchers in coastal and ocean engineering, geophysical fluid dynamicists interested in water waves, and theoretical scientists and applied mathematicians wishing to develop new techniques for challenging problems or to apply techniques existing elsewhere.
ENERGY STORAGE

Edited by Gerard M Crawley (Marcus Enterprise LLC, USA)

Key Features:
- This is a comprehensive look at the possible approaches to energy storage which are relevant to various situations including needed storage for renewable resources like solar and wind, plus smoothing demand in electrical energy production as well as applications of energy storage to transportation
- The expertise of the authors of the various chapters ensures that the information is reliable
- The information presented is current and forward looking because the authors are actively involved in the technologies discussed in the various chapters

Description:
The subject of energy storage is extremely important for the increased utilization of renewable energies such as solar and wind energy in times when their sources (e.g. the sun and wind) are unavailable. The ability to store energy can also level out the demand curve for electricity and thus lead to a decrease in the peak requirements of energy production. A storage system for ground transportation is also important as a potential replacement for fossil fuel powered transportation.

Energy Storage offers a comprehensive look at the possible approaches to energy storage, which are relevant to various situations; from smoothing demand in electrical energy production, applications of energy storage, to transportation. The book covers a variety of approaches to the storage of energy. Beginning with a discussion of the critical importance of energy storage, the book discusses various possible storage options including hydro storage, compressed air energy storage, and electrical and chemical storage in batteries, capacitors and fuel cells. There is also a chapter on the mechanical storage of energy with flywheels using advanced materials. The various applications to power production and transportation are also included. The expertise and active involvement of the authors of the various chapters ensures that the information is reliable, current, and forward looking.

Editor:
Gerard “Gary” M Crawley is the President of Marcus Enterprises LLC based in North Carolina. Previously, Professor Crawley served as the Director of the Frontiers Engineering and Science Directorate of Science Foundation Ireland from 2004–2007. Prior to this, Professor Crawley served as the Dean of the College of Science and Mathematics at the University of South Carolina, USA, from 1998–2004. At Michigan State University, USA, he was Dean of the Graduate School from 1994–1998 and earlier Chair of the Department of Physics and Astronomy from 1988–1994. Professor Crawley served two terms at the US National Science Foundation, one as the Director of the Physics Division, 1987–1988, and earlier as a Program Officer in the Nuclear Physics Program. He has also served as the Chair of the Nuclear Physics Division of the American Physical Society in 1991–1992. Dr Crawley was born in Scotland, and obtained but his first degree is from the University of Melbourne in, Australia. He obtained his PhD in Physics from Princeton University in 1965. He is the author of over 150 articles in refereed journals and wrote athe text book Energy published in 1975. He is also the editor of the World Scientific Handbook of Energy published in February 2013.
Contents:

- The Importance of Energy Storage (Anna Stoppato and Alberto Benato)
- Pumped-Storage Hydropower Plants: The New Generation (Giovanna Cavazzini, Juan I Pérez-Díaz, Francisco Blázquez, Carlos Platero, Jesús Fraile-Ardanuy, José A Sánchez and Manuel Chazarra)
- Compressed Air Energy Storage (Jihong Wang, Xing Luo, Christopher Krupke and Mark Dooner)
- Batteries for Energy Storage (Paul A Connor)
- Capacitive Energy Storage (Wentian Gu, Lu Wei and Gleb Yushin)
- Fuel Cells and the Hydrogen Economy (John T S Irvine, Gael P G Corre and Xiaoxiang Xu)
- Flywheel (Donald Bender)
HANDBOOK OF DISASTER RISK REDUCTION & MANAGEMENT

Edited by Christian N Madu (University of Nigeria, Nigeria & Pace University, USA) & Chu-hua Kuei (Pace University, USA)

Key Features:
- The book is comprehensive and covers all the new ideas on managing disasters. It also includes authors from several nations across the globe and covers all the continents. Multiple perspectives and the different viewpoints that influence the management of disasters are captured in this volume. It is one of the few comprehensive volumes in the field.
- It is evidence-based with practice and policy orientation. It is developed for general readership and it takes a multidisciplinary approach to problem solving.
- It is up to date and covers the most recent disaster events around the world and how such events could be effectively managed.

Description:
Climate change is increasingly of great concern to the world community. The earth has witnessed the buildup of greenhouse gases (GHG) in the atmosphere, changes in biodiversity, and more occurrences of natural disasters. Recently, scientists have begun to shift their emphasis away from curbing carbon dioxide emission to adapting to carbon dioxide emission. The increase in natural disasters around the world is unprecedented in earth's history and these disasters are often associated to climate changes. Many nations along the coastal lines are threatened by massive floods and tsunamis. Earthquakes are increasing in intensity and erosion and droughts are problems in many parts of the developing countries. This book is therefore to investigate ways to prepare and effectively manage these disasters and possibly reduce their impacts. The focus is on mitigation strategies and policies that will help to reduce the impacts of natural disasters. The book takes an in-depth look at climate change and its association to socio-economic development and cultures especially in vulnerable communities; and investigates how communities can develop resilience to disasters. A balanced and a multiple perspective approach to manage the risks associated with natural disasters is offered by engaging authors from the entire globe to proffer solutions.
Contents:

- Introduction to Disaster Risk Reduction and Management
- Reducing Economic Vulnerability to Climate Risk through Community Resilience
- A new Framework to Build Resilience to Disasters
- The System for Crisis Management in Sweden: Collaborative, Conformist, and Contradictory
- Disaster Risk Reduction Capacity Assessment: Conceptualizing a Systematic Capacity (Assessment) Framework for Japan
- Using Systems Thinking to Achieve Sustainability and Disaster Resilience
- Addressing Risks in the Reconstruction and Development of Fragile States: Lessons from Aceh, Haiti and South Sudan
- Critical Infrastructure Protection and Uncertainty Analysis
- Gender Perspectives in Response and Recovery
- Natural Disasters and Supply Chain Disruption Management
- Climate Change Adaptation and Disaster Risk Reduction Integration in Australia: Challenges and Opportunities
- Measuring the Immeasurable: Towards an Integrated Evaluation Framework of Climate Change Adaptation Projects
- Risk Management of Landslides and Flooding — Recommendations and Step Wise Process
- Multi-Risk Assessment and Governance
- Complex Systems Thinking in preparation for Unexpected Risks: Building General Resilience in South Australia
- Modeling Disaster Resilience
- Multi-Scale Seismic Hazard in the Context of the Reduction of Earthquake Disaster Risk: A Case Study on the Earthquake Forecast Practice in China
- Evaluating the Performance of Disaster Risk Management Systems — Is It Possible?
- Priority Assessment of the Hyogo Framework for Action (HFA): A Case Study of Nigeria
- Hyogo Framework for Action: An Analysis Ten Years Later and a Prospective for Future Decades
- Natural Disaster Management in Italy
- Decision Making for Responding to Drought—Ensuring they are Driven by Objective Assessments of Drought
- Exploring the Inadequacy of Pertinent Capacities for Urban Flood Risk Management in the Developing Countries
- Disaster Risk Reduction Policy and Management in Zimbabwe
- Community Disaster Management Plans
- Review of Disaster Risk Reduction and Management in Malawi
- Disasters in Thailand
- Models for Holistic Recovery
- The Role of Women in Disaster Resilience
- Emergency Planning and Disaster Recovery in Hospitality Industry
- Humanitarian Logistics
- Social Marketing and Disaster Preparedness
- Disaster Recovery and Sustainable Community Development
- Healthcare Disaster Risk Reduction and Management
- Strategies for Disaster Risk Reduction and Management: Are Lessons from Past Disasters Actionable?
- Evolving Disaster Relief Supply Chain Quality Management into Nigeria’s Emergency Operations
CONTEMPORARY ISSUES IN MEDIATION
Volume 2

Edited by Joel Lee & Marcus Lim (both of Singapore International Mediation Institute, Singapore)

Key Features:
• Foreword by William Ury, leading international mediator and negotiator, co-author of the seminal title “Getting To Yes” in the dispute resolution industry
• Collection of essays on unique topics in mediation, both theory and practice

Description:
Should mediation be used in all family disputes?
Is the time right for apology legislation in Singapore?
What can mediators learn from improvisation theatre & neuro-linguistic programming?

As the field of mediation continues to grow, so do the issues that face the modern mediator. Contemporary Issues in Mediation-Volume 2 provides a valuable launch-point for readers seeking answers to these questions, collecting the very best entries selected by leaders in the mediation and negotiation field — Prof. Joel Lee (National University of Singapore) and Marcus Lim (Singapore International Mediation Institute). This edition includes three essays on family mediation, and is an especially valuable addition to professionals working with family mediation.
Contents:

- **Essays on Family Mediation:**
  - Scaling Up Safety for the Sake of Self-Determination: Exploring Options to Mediation & Cases of Family Violence in Singapore (*Khoo May Ann*)
  - Mediation of Family Disputes in Singapore Following the Amendments to The Women’s Charter in 2011 (*Too Fang Yi*)
  - Mediation as an Appropriate Form of Dispute Resolution for Family Disputes: The Case for an Interdisciplinary Approach (*Jean Ann Yeoh*)

- **Essays on General Mediation:**
  - Mandatory Mediation in Singapore: Cultural Compatibilities (*Justin Low*)
  - To Mediate or Not to Mediate: An Analysis of When It Would be Reasonable to Reject Mediation (*Wang Chen Yan*)
  - Promoting ASEAN as a Platform for Collaborative Dispute Settlement — Institutionalising Administered Mediation in ASEAN (*Maryam H Rozlan*)
  - Making Mediators Better Performers — Use of Neuro-Linguistic Programming & Improvisation Theatre for Creative Results (*Rumani Kaushal Sheth*)
  - And Never the Twain Shall Meet? An Analysis of the Benefits of Caucus Mediation and Conference Mediation (*Choong Jia Shun*)
  - Examining The Paradox of Power and Neutrality in Mediation (*Seah Ern Xu*)
  - Learning from Hong Kong for a Mediation and an Apology Legislation in Singapore (*Michelle Wong*)
THE GRANT WRITING AND CROWDFUNDING GUIDE FOR YOUNG INVESTIGATORS IN SCIENCE

By Jean-Luc Lebrun & Justin Lebrun (both of Scientific Reach, USA)

Key Features:
- The authors are supplemented by a palette of 8 grant experts whose advice is given in margins
- The book provides a novel way to develop the grant idea in story form: the synopsis, which easily translates into a list of tasks, cost, staff, and equipment
- The book features two chapters you will not see in grant writing books. Grants are rarely looked at as risks. We borrowed from the field of risk management to systematically review the risks to the grantor, the investigator, and the institution (grantee); For each risk identified, we propose ways to manage the risk. We even propose a new way, crowdfunding, to address the risk of having no preliminary work

Description:
The Grant Writing and Crowdfunding Guide for Young Investigators in Science is a guide that prepares young investigators in Science to step up to the challenge of funding their own research. Writing a successful grant demands much more than a first-class inquisitive scientific mind, as young investigators soon discover. The book presents the best strategies they should adopt to prepare themselves prior to taking the grant plunge. It then helps them draft a reasonable budget plan, assemble a winning grant team, write a stellar preproposal, and reassure the funding agencies that the financial risk they take in investing in them will produce great returns. The book also helps them write a grant title, abstract, and a specific aims section that highlight the significance, impact, and innovativeness of their project. It presents specific tools to catch problems early and avoid rejection. To improve the submission, the book presents a new source of funding: crowdfunding. It gives the young investigator a way to collect preliminary results and involve the public in their work.

New investigators are usually lost when attempting to write their first grant application. The book is dedicated to them. It acts as a coach that supplements the work of the mentor. It is meant to be concrete. Although it considers the review practices of two of the largest grant organizations in the world, NIH and NSF, it is sufficiently generic to apply to other science funding agencies.
Contents:

Grant Ecosystem:
- Grant Call — The Matching Game
- The New Investigator — The First Steps
- The Grant Team — Strength in Numbers
- The Confusing Vocabulary of Grants

Grant Parts:
- Title — The Eye Catcher
- Abstract — The Marketing Pitch
- Specific Aims — The Work Plan
- Budget — The Movie Scenario Approach
- Significance — Unearthing the Value

Grant Evaluation:
- Novelty and Innovation — The Perception of Newness
- Behind the Scenes — The Reviewing Process
- Risk Management — The Reality Check
- Not Granted — How to Deal With Rejection

Funding Through Social Media:
- Crowdfunding Science
BIOINFORMATICS
A Practical Handbook of Next Generation Sequencing and Its Applications

Edited by Lloyd Low (Perdana University Centre for Bioinformatics, Malaysia) & Martti Tammi (Sime Darby, Malaysia)

Endorsements:
“The book is a great practical introduction to the bioinformatics analysis of next generation sequencing data, covering all the major areas of analysis, from quality control and alignment to domain-specific analysis such as variant calling and transcriptomics. The book is highly practical with well-chosen and relevant exercises for readers who want to get their feet wet analysing sequencing data. It is excellent resource for conducting practical classes or workshops. The exercises are highly relevant and the book covers major areas for next generation bioinformatics, making it suitable for beginners, but also experienced practitioners looking to try out analyses in a different domain.”

Kenneth Hon Kim BAN, MBBS, PhD
Assistant Professor, Department of Biochemistry, Yong Loo Lin School of Medicine,
NUS Assistant Principal Investigator, Institute of Molecular and Cell Biology, A*STAR

“The language used is relatively easy to understand for non-bioinformaticians. Sufficient simplifications have been successfully done in describing complex concepts while still maintaining clarity. This is the book that I have been looking for. As a molecular geneticist starting to use NGS I find this book informative and practical for priming me with simple bioinformatics knowledge and skills.”

Teguh Haryo Sasongko, MD, PhD
Senior Lecturer, Human Genome Center, School of Medical Sciences, Universiti Sains Malaysia

Key Features:
• This invaluable book provides step-by-step guides to complex topics that make it easy for readers to perform essential analyses from raw sequenced data to answering important biological questions
• It is an excellent hands-on material for teachers who conduct courses in bioinformatics and as a reference material for professionals
• The chapters are written to be standalone recipes making it suitable for readers who wish to self-learn selected topics

Description:
Rapid technological developments have led to increasingly efficient sequencing approaches. Next Generation Sequencing (NGS) is increasingly common and has become cost-effective, generating an explosion of sequenced data that need to be analyzed. The skills required to apply computational analysis to target research on a wide range of applications that include identifying causes of cancer, vaccine design, new antibiotics, drug development, personalized medicine and higher crop yields in agriculture are highly sought after.

This invaluable book provides step-by-step guides to complex topics that make it easy for readers to perform essential analyses from raw sequenced data to answering important biological questions. It is an excellent hands-on material for teachers who conduct courses in bioinformatics and as a reference material for professionals. The chapters are written to be standalone recipes making it suitable for readers who wish to self-learn selected topics. Readers will gain skills necessary to work on sequenced data from NGS platforms and hence making themselves more attractive to employers who need skilled bioinformaticians to handle the deluge of data.
Contents:

• Introduction to Next Generation Sequencing Technologies
• Primer on Linux
• Inspection of Sequence Quality
• Alignment of Sequenced Reads
• Establish a Research Workflow
• Whole Genome and de novo Assembly
• Exome Sequencing
• Transcriptomics
• Metagenomics
• Applications of NGS Data
BIOPHYSICS AND BIOCHEMISTRY OF PROTEIN AGGREGATION
Experimental and Theoretical Studies on Folding, Misfolding, and Self-Assembly of Amyloidogenic Peptides

Edited by Jian-Min Yuan (Drexel University, USA) & Huan-Xiang Zhou (Florida State University, USA)

Key Features:
• Written by practicing experts in the field
• Provides the most up-to-date information of research in the field
• Both experimental and computational perspectives are covered

Description:
This book reviews current research on the important processes involved in neurodegenerative diseases (e.g. Alzheimer’s disease) and the peptides and proteins involved in the amyloidogenic processes. It covers the design and developments of anti-amyloid inhibitors, and gives readers a fundamental understanding of the underlying oligomerization and aggregation processes of these diseases from both computational and experimental points of view.
Contents:

• Preface
• Perplexity of Amyloid β-Protein Oligomer Formation: Relevance to Alzheimer’s Disease (Brigita Urbanc)
• Design and Application of Anti-Amyloid Peptide-Based Inhibitors as a Therapeutic Strategy of Alzheimer’s Disease (Rita P-Y Chen)
• Exploring the Aggregation Mechanism of Intrinsically Disordered Tau Protein (Ruxi Qi, Guanghong Wei, Ruth Nussinov and Buyang Ma)
• Statistical Mechanics and Kinetics of Amyloid Fibrillation (Liu Hong, Chiu Fan Lee and Ya Jing Huang)
• Kinetic Studies of Protein Aggregation with and without the Presence of Crowders (John S Schreck, John Bridstrup and Jian-Min Yuan)
• Folding and Misfolding of Amyloid-β 40 and 42 in Alzheimer’s Disease (Yu-Jen Chang and Yun-Ru Chen)
• Thermodynamics and Kinetics of Protein Folding and Aggregation (Min-Yeh Tsai, Jian-Min Yuan, and Sheng Hsien Lin)
• Single-Molecule Fluorescence Resonance Energy Transfer Studies of β-Amyloid Clusters in Physiological Solutions (Jun Han, Erwen Mei, Mei-Ping Kung, Hank F Kung, Jian-Min Yuan, and Hai-Lung Dai)
HANDBOOK OF MEDICAL STATISTICS

Edited by Ji-Qian Fang (Sun Yat-Sen University, China)

Key Features:
- The content of this handbook covers 26 fields related to medical statistics such as bioinformatics, special statistics, health economics and data mining, so that it plays a role of 26 guide-maps for these fields.
- The authors of each chapter are experienced scholars in their corresponding fields, who have carefully selected the main items and sub-items to form a profile of the field.
- This handbook can be used as supplemental reading material for problem-based Learning (PBL), team-based (TBL) and massive open online courses (MOOC).

Description:
This unique volume focuses on the “tools” of medical statistics. It contains over 500 concepts or methods, all of which are explained very clearly and in detail.

Each chapter focuses on a specific field and its applications. There are about 20 items in each chapter with each item independent of another and explained within one page (plus references). The structure of the book makes it extremely handy for solving targeted problems in this area.

As the goal of the book is to encourage students to learn more combinatorics, every effort has been made to provide them with a not only useful, but also enjoyable and engaging reading.

This handbook plays the role of “tutor” or “advisor” for teaching and further learning. It can also be a useful source for “MOOC-style teaching”.

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Binding: Hardcover
ISBN: 978-981-3148-95-6
Price: £164
Page Extent: 900pp
Type: Handbook
Main Subject: Life Science / Biology
Sub-subjects: Biostatistics; Probability & Statistics; Biomathematics; Mathematical Biology; Numerical Analysis
BIC: MBNS
BISAC: MED090000; MED078000; MED041000
Keywords: Handbook; Medical Statistics; Biostatistics; Biometrics; Health Statistics; Mathematical Statistics; Statistics
Readership: Biostatisticians, applied statisticians, medical researchers and clinicians, bioscience students, biopharmaceutical researchers, public health epidemiologists, biometricians & applied mathematicians
Imprint: World Scientific Publishing Company
Contents:
• Probability and Distribution
• Basic Statistics
• Linear Model and General Linear Model
• Multi-Variate Analysis
• Non-Parametric Statistics
• Survival Analysis
• Spatial Analysis
• Stochastic Processes
• Time Series
• Bayesian Statistics
• Sampling Methods
• Causal Inference
• Statistical Computation
• Data and Data Bank
• Data Mining
• Design of Medical Research
• Clinical Research
• Statistics in Epidemiology
• Evidence-Based Medicine
• QOL and Scales
• Quantitative Pharmacology
• Statistics in Genetics
• Bioinformatics
• Medical Signal and Image
• Health Economics
• Health Management
SELF AND THE PHENOMENON OF LIFE
A Biologist Examines Life from Molecules to Humanity

By Ramon Lim *(University of Iowa, USA)*

**Key Features:**
- It provides a new vista of life
- It connects science to society
- It promotes harmony among people of the world

**Description:**
The book describes a common ground between the biology of life and the humanity of life without compromising either discipline. It attempts to bridge the gap between our “two cultures” — the sciences and the humanities, as advocated by C P Snow fifty years ago. This book connects our meager existence to the entire living world and the universe, physically and spiritually, through the simple perspective of “self,” being defined as a system that seeks its own perpetuation.
Contents:
• Introduction: Why Self?
• An Astronaut’s Dilemma
• Self and the Beginning of Life
• The Microbial Self
• The Plant Self
• The Animal Self: Molecular Recognition
• The Animal Self: Neurobehavioral Correlates
• Self and Conscious Experience
• Self and Emotion
• Self and Memory
• Self and Free Will
• The Expanded Self: Society as Self
• Self from Within: The Introspective Self
• Self, Realities, and the Transcendents
• Epilogue: And the Quest Goes On
SEMICONDUCTOR QUANTUM DOTS AND RODS FOR IN VIVO IMAGING AND CANCER PHOTOTHERAPY

By Maoquan Chu (Tongji University, China)

Key Features:
- A comprehensive discussion on how quantum dots (QDs) and quantum rods (QRs) are applied to cancer therapy and diagnosis
- First book of its kind

Description:
Cancer is fast becoming one of the main causes of death worldwide. Unfortunately many cases are diagnosed at an advanced incurable stage, and these lives are usually lost. Early diagnosis and treatment are very important for increasing disease curability. In recent years, novel techniques for cancer diagnosis and therapy have been developed, and nanobiomedicine appears to show the most promising results.

The application of nanotechnology to biology and medicine in cancer diagnosis is termed nanobiomedicine. Nanoparticles 1–100 nm in size usually have unique physical and/or chemical properties, and this has attracted great attention in the cancer research. Preparation and biomedical applications of the nanoparticles are key components in nanobiomedicine. Semiconductor nanocrystals, including quantum dots (QDs) and quantum rods (QRs), have been extensively investigated for drug delivery, biomedical imaging and tumor target therapy.

In Semiconductor Quantum Dots and Rods for In Vivo Imaging and Cancer Phototherapy, the QD and QR optical properties, sentinel lymph node mapping, in vivo tumor target imaging, self-illuminating QDs for in vivo imaging, in vivo cancer photothermal therapy and photodynamic therapy, QD-graphene nanosheet, and QD-magnetic hybrid nanocomposites for bioimaging and cancer therapy are discussed. This book may interest undergraduate and postgraduate students in the field of bioengineering (especially cancer phototherapy) and medical professions alike.
Contents:

- Preface
- Semiconductor Quantum Dots for Sentinel Lymph Node Mapping through *In Vivo* Fluorescent Imaging
- Semiconductor Quantum Dots for *In Vivo* Tumor-targeted Imaging
- Self-illuminating Quantum Dots for *In Vivo* Imaging
- Semiconductor Quantum Rods with Bright Fluorescence and Slow Bleaching Kinetics for Cell Labeling and *In Vivo* Imaging
- Semiconductor Quantum Dots for Photodynamic Cancer Therapy
- Semiconductor Quantum Dots for Photothermal Cancer Therapy
- Semiconductor Quantum Dot-tagged Graphene Nanosheets for Bioimaging and Cancer Bimode Therapy
- Magnetic Quantum Dot Hybrid Nanocomposites for Multimodal Cancer Imaging and Therapy
STRUCTURE AND MECHANISM IN PROTEIN SCIENCE
A Guide to Enzyme Catalysis and Protein Folding
4th Edition

Endorsement:
A treatment of both enzyme catalysis and protein folding would usually be a multi-author text, edited by at least one expert from each field. But Alan Fersht has been a pioneer in both areas, giving this book a unique and coherent perspective.”

Gregory A Petsko, Nature

Key Feature:
• It is a single author text by someone who has direct experience in all of the areas covered

Description:
This book is a guide for advanced undergraduates, postgraduates and researchers to the fundamental principles in studying kinetics and mechanism of processes concerning proteins. It provides a rare broad overview that concentrates on fundamental principles and understanding underlying the physics and chemistry. It is a single author text by someone who has direct experience in all of the areas covered.
Contents:

• Preface
• The Three-Dimensional Structure of Proteins
• Chemical Catalysis
• The Basic Equations of Enzyme Kinetics
• Measurement and Magnitude of Individual
• The pH Dependence of Enzyme Catalysis
• Practical Methods for Kinetics and Equilibria
• Detection of Intermediates in Enzymatic Reactions
• Stereochemistry of Enzymatic Reactions
• Active-Site-Directed and Enzyme-Activated
• Conformational Change, Allosteric Regulation
• Forces Between Molecules, and Binding Energies
• Enzyme-Substrate Complementarity
• Specificity and Editing Mechanisms
• Recombinant DNA Technology
• Protein Engineering
• Case Studies of Enzyme Structure and Mechanism
• Protein Stability
• Kinetics of Protein Folding
• Folding Pathways and Energy Landscapes
• Index
THE WORLD SCIENTIFIC ENCYCLOPEDIA OF NANOMEDICINE AND BIOENGINEERING II
Bioimplants, Regenerative Medicine, and Nano-Cancer Diagnosis and Phototherapy
(A 3-Volume Set)

Editor-in-chief: Donglu Shi (University of Cincinnati, USA)
Edited by Maoquan Chu (Tongji University, China) & Jiang Chang (Chinese Academy of Sciences, China)

Key Features:
• Covers new materials, including biodegradable and highly photothermal types, most suitable for cancer therapy and other medical applications
• Discusses recent stem cell research involving many key areas such as neuron repair
• Focuses on recently developed nano technologies, which enable extremely low levels of viral and cancer cells to be detected. These apparatuses are also portable, making the technologies much more viable clinically and individually

Description:
This two-part multivolume set provides a comprehensive overview of current achievements in biomedical applications of nanotechnology, including stem cell based regenerative medicine, medical imaging, cell targeting, drug delivery, and photothermal/photodynamic cancer therapy. New approaches in early cancer diagnosis and treatment are introduced with extensive experimental results. In particular, some novel materials have been synthesized with new properties that are most effective in cancer therapy. Some of the key issues are also addressed with these recent discoveries such as bio safety and bio degradability, that are essential in the success of nano medicine.

An important aspect of this book set is the introduction of nanotechnology to the medical communities that are searching for new treatments of cancer. It may also break the barriers between the physical and medical sciences so that more MDs will be able to appreciate the new discoveries and establishments in medical diagnosis and therapy that will allow the effective handling of major clinical issues.

This major reference publication will be important as the field of nanomedicine has been rapidly developing with a great deal of new information. It is anticipated that the research will soon advance into the pre-clinical stage. Therefore, this reference set can serve as valuable background information for future clinical studies.

Editor-in-chief:
Dr Donglu Shi is currently the Chair of the Materials Science and Engineering Program at the University of Cincinnati. He has been serving as the Editor-in-Chief of Nano LIFE, and Associate Editor of Materials Science & Engineering: C, and J. of Nanomaterials. He has won the Distinguished Engineering Researcher Award, the SIGMA XI Research Recognition Award, Honor Roll Professor Award, and Neil Wandmecher Teaching Award. Donglu Shi’s main interests include nanostucture design and characterization, nanomedicine, and nano effects on biological processes. The most recent works on nano-biomedicine pioneer some novel approaches in developing multifunctional nano carrier systems for early cancer diagnosis and therapy. Based on new designs of nanostructures, these methods have enabled successful cell targeting for tumor therapy, optical imaging by quantum dots, phototherapy of cancer, and drug/gene delivery by intelligent triggering mechanisms.
Contents:

• Introduction to Nanomaterials
• Nanomaterials Development and Synthesis
• Bio/Physical/Chemical Properties, Structures, and Defects Characterization
• Applications in Biomedicine
• Newly Developed Nanotechnologies and Fundamental New Concepts
• Medical Practical Applications: Early Cancer Diagnosis, Photothermal/Photodynamic Cancer Therapy, Cell Targeting, Intelligent Drug Delivery, and Multi-Modal Medical Imaging
ULSI FRONT-END TECHNOLOGY
Covering from the First Scientific Paper on Semiconductor to State-of-the-Art CMOS FINFET Technology

By W S Lau (formerly Nanyang Technological University, Singapore)

Key Features:
- The book is readable for beginners
- The book is useful for semiconductor technology historians
- The book is useful for practicing engineers

Description:
The main focus of this book is ULSI front-end technology. It covers from the early history of semiconductor science & technology from 1874 to state-of-the-art FINFET technology in 2016. Some ULSI back-end technology is also covered. For example, the science and technology of MIM capacitors for analog CMOS has also been included.

Pub Date: Aug 2017
Binding: Hardcover
Price: £73
Page Extent: 220pp
Type: Monograph (Treat as Textbook)
Main Subject: Materials Science
Sub-subjects: Semiconductors & Related Areas; Electrical & Electronic Engineering; Circuits & Systems
BIC: TJFC
BISAC: TEC008090; TEC008050; TEC008010
Keywords: Semiconductor; Integrated Circuits; CMOS; High Speed; Low Power; Digital; Analog; Mixed-Signal; Planar Technology; FINFET; MIM Capacitor
Readership: The book is useful for researchers in semiconductor technology especially practicing engineers
Imprint: World Scientific Publishing Company
Contents:

- Preface
- Introduction to the History of Semiconductors
- History of MOS Technology
- How to Speed Up CMOS
- Low Power CMOS Engineering
- Analog CMOS Technology
- Index
ALGEBRAIC INEQUALITIES

By Ji Chen (Ningbo University, China) & Chaocheng Ji (Ningbo High School, China)
Translated by Chaocheng Ji (Ningbo High School, China), Huyue Shen (Zhenhai High School, China) & Ruhe Wang (Zhenhai High School, China)

Key Features:
• Algebraic inequalities is one of the hot topics of Mathematic Olympiad
• The authors are expert in this field
• The title provides good reference for readers to learn and discuss further

Description:
The focus of this book is algebraic inequalities. Not only is it the current Mathematical Olympiad hot topic, it is also the basis of geometric inequalities. In addition, the book involves some analysis on inequality.

This book serves as a good reference in the field of algebraic inequalities as faced in problems found in a Mathematical Olympiad.
Contents:
• Inequalities and Equalities
• Transformation
• Homogenizations and Normalizations
• Inequalities of Sequences
• Convex Function and Some Complex Inequalities
• Inequality Skills of Arqady
• Answer Sheet and Hints
METHOD OF LINES ANALYSIS OF TURING MODELS

By W E Schiesser (Lehigh University, USA)

Description:
This book is directed toward the numerical integration (solution) of a system of partial differential equations (PDEs) that describes a combination of chemical reaction and diffusion, that is, reaction-diffusion PDEs. The particular form of the PDEs corresponds to a system discussed by Alan Turing and is therefore termed a Turing model.

Specifically, Turing considered how a reaction-diffusion system can be formulated that does not have the usual smoothing properties of a diffusion (dispersion) system, and can, in fact, develop a spatial variation that might be interpreted as a form of morphogenesis, so he termed the chemicals as morphogens.

Turing alluded to the important impact computers would have in the study of a morphogenic PDE system, but at the time (1952), computers were still not readily available. Therefore, his paper is based on analytical methods. Although computers have since been applied to Turing models, computer-based analysis is still not facilitated by a discussion of numerical algorithms and a readily available system of computer routines.

The intent of this book is to provide a basic discussion of numerical methods and associated computer routines for reaction-diffusion systems of varying form. The presentation has a minimum of formal mathematics. Rather, the presentation is in terms of detailed examples, presented at an introductory level. This format should assist readers who are interested in developing computer-based analysis for reaction-diffusion PDE systems without having to first study numerical methods and computer programming (coding).

The numerical examples are discussed in terms of: (1) numerical integration of the PDEs to demonstrate the spatiotemporal features of the solutions and (2) a numerical eigenvalue analysis that corroborates the observed temporal variation of the solutions. The resulting temporal variation of the 2D and 3D plots demonstrates how the solutions evolve dynamically, including oscillatory long-term behavior.
Contents:

- Partial Differential Equation Models for Morphogenesis
- Introductory Discussion of the Famous Equations by Alan Turing
- Extension of the Turing Analytical Discussion to Computer-Based Analysis
NONABSOLUTE INTEGRATION ON MEASURE SPACES

By Wee Leng Ng (NTU, Singapore)

Key Features:
- To our knowledge there is no book on integration theory whose setting is measure spaces with a topological structure.
- The theory is developed in a progressive and elementary manner in that the fundamental properties are first established before further results are proved. That way, even though the setting is abstract, this book is accessible to any undergraduate who has done an advanced calculus course.
- The key idea behind each original concept is always explained in an intuitive manner before the formal definitions and results are presented in detail.

Description:
This book offers to the reader a self-contained treatment and systematic exposition of the real-valued theory of a nonabsolute integral on measure spaces. It is an introductory textbook to Henstock–Kurzweil type integrals defined on abstract spaces. It contains both classical and original results that are accessible to a large class of readers.

It is widely acknowledged that the biggest difficulty in defining a Henstock–Kurzweil integral beyond Euclidean spaces is the definition of a set of measurable sets which will play the role of “intervals” in the abstract setting. In this book the author shows a creative and innovative way of defining “intervals” in measure spaces, and prove many interesting and important results including the well-known Radon–Nikodym theorem.
Contents:

• **A Nonabsolute Integral on Measure Spaces:**
  • Preliminaries
  • Existence of a Division and the $H$-Integral
  • Fundamental Properties of the $H$-Integral

• **The Absolute $H$-Integral and the McShane-Type Integrals:**
  • The Absolute $H$-Integral and the $M$-Integral
  • The $H$-Integral and the Lebesgue Integral
  • The Davies Integral and the Davies-McShane Integral

• **Further Results of the $H$-Integral:**
  • A Necessary and Sufficient Condition for $H$-Integrability
  • Generalised Absolute Continuity and Equi-integrability
  • The Controlled Convergence Theorem

• **The Radon–Nikodým Theorem for the $H$-integral:**
  • The Main Theorem
  • Descriptive Definition of $H$-integral
  • Henstock Integration in the Euclidean Space

• **Harnack Extension and Convergence Theorems for the $H$-Integral:**
  • The $H$-Integral on Metric Spaces
  • Harnack Extension
  • The Category Argument
  • Another Version of Controlled Convergence Theorem
SIMULATING COPULAS
Stochastic Models, Sampling Algorithms and Applications
2nd Edition

By Jan-Frederik Mai (XAIA Investment AG, Germany) & Matthias Scherer (Technische Universität München, Germany)

Endorsement for the First Edition:
“The book is essentially self-contained, as the reader interested in copulas from the simulation point of view will find all necessary material in it, including an introduction to copulas if he has never been exposed to them. Both the theoretical and practical frameworks emerge quite clearly from the book. In any case, the rich bibliography contains all the references required for further in-depth analyses of specific issues. I think that the authors did a very good job, filling a gap in the statistical literature and providing a contribution that is going to be particularly helpful to statisticians without a specific background in copulas.”

 Mathematical Reviews

Key Features:
• Explicit focus on stochastic representations of copulas in contrast to an analytical perspective
• Easy-to-implement simulation schemes given as pseudo code
• Explicit focus on high-dimensional models
• Focus on applicability of models, e.g. to portfolio credit risk or insurance

Description:
The book provides the background on simulating copulas and multivariate distributions in general. It unifies the scattered literature on the simulation of various families of copulas (elliptical, Archimedean, Marshall-Olkin type, etc.) as well as on different construction principles (factor models, pair-copula construction, etc.). The book is self-contained and unified in presentation and can be used as a textbook for graduate and advanced undergraduate students with a firm background in stochastics. Besides the theoretical foundation, ready-to-implement algorithms and many examples make the book a valuable tool for anyone who is applying the methodology.

Authors:
Jan-Frederik Mai studied Mathematics and Economics in Ulm and pure Mathematics in Syracuse. He wrote his dissertation on Marshall-Olkin distributions with application to credit risk at Technische Universität München. He is currently working for the asset manager XAIA Investment AG as a financial engineer.

Matthias Scherer graduated from Ulm University in Mathematics and Economics. He also holds a Master’s degree in Mathematics from Syracuse University. He wrote his dissertation on multivariate structural default models at Ulm University. He is Professor for Financial Mathematics at Technische Universität München. His research focus lies on multivariate stochastic models with applications to derivative pricing and risk management.

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Binding: Hardcover
Price: £98
Binding: Softcover
Price: £56
Page Extent: 350pp
Type: Monograph (Treat as Textbook)
Main Subject: Mathematics
Sub-subjects: Probability Theory/Stochastic Processes; Computational Economics/Finance
BIC: PBWL
BISAC: MAT029040; BUS061000; BUS027000
Keywords: Copula; Simulation; Monte Carlo; Random Vector; Dependence Model
Readership: Advanced undergraduate and graduate students in probability calculus and stochastics, practitioners who implement models in the financial industry and scientists
Imprint: World Scientific Publishing Company
Contents:
• General Introduction to Copulas
• Univariate Sampling Schemes
• Introduction to Monte Carlo Techniques
• Elliptical Copulas
• Archimedean Copulas
• Marshall-Olkin Copulas
• Extreme-Value Copulas
• Copulas Associated with Exogenous Shock Models
• Pair-Copula Construction
• Applications
SPECTRAL GEOMETRY OF THE LAPLACIAN
Spectral Analysis and Differential Geometry of the Laplacian

By Hajime Urakawa (Tohoku University, Japan)

Key Features:
• Is the first book on the spectrum of the Laplacian
• It is self-contained
• The first and second chapters are good guide to differential geometry for undergraduate students

Description:
The totality of the eigenvalues of the Laplacian of a compact Riemannian manifold is called the spectrum. We describe how the spectrum determines a Riemannian manifold. The continuity of the eigenvalue of the Laplacian, Cheeger and Yau’s estimate of the first eigenvalue, the Lichnerowicz–Obata’s theorem on the first eigenvalue, the Cheng’s estimates of the kth eigenvalues, and Payne–Pólya–Weinberger’s inequality of the Dirichlet eigenvalue of the Laplacian are also described. Then, the theorem of Colin de Verdier, that is, the spectrum determines the totality of all the lengths of closed geodesics is described. We give the V Guillemin and D Kazhdan’s theorem which determines the Riemannian manifold of negative curvature.
Contents:

• Fundamentals of Riemannian Geometry
• The Space of Riemannian Metrics and Continuity of the Eigenvalues
• Cheeger and Yau’s Estimate of the First Eigenvalue
• Cheng’s Estimate of the kth Eigenvalue, and Lichnerowicz and Obata’s Theorem
• Payne–Pólya–Weinberger Type Estimate of the Dirichlet Eigenvalue
• The Heat Equation and the Totality of All Closed Geodesics
• Negative Curvature Manifolds and the Spectral Rigidity Theorem
SOLVING PROBLEMS IN GEOMETRY
Insights and Strategies

By Kim Hoo Hang (NTU, Singapore) & Haibin Wang (NUS High School of Mathematics and Science, Singapore)

Key Features:
• There are currently very few books on the teaching of geometry in a systematic manner
• This book not only gives the solutions to geometrical problems, but also insights on how to search for clues and develop a strategy in tackling them. A large number of problems used in competitions are illustrated as examples
• The authors are active and experienced in the training of the national team for the International Mathematical Olympiad competitions

Description:
This new volume of the Mathematical Olympiad Series focuses on the topic of geometry. Basic and advanced theorems commonly seen in Mathematical Olympiad are introduced and illustrated with plenty of examples. Special techniques in solving various types of geometrical problems are also introduced, while the authors elaborate extensively on how to acquire an insight and develop strategies in tackling difficult geometrical problems.

This book is suitable for any reader with elementary geometrical knowledge at the lower secondary level. Each chapter includes sufficient scaffolding and is comprehensive enough for the purpose of self-study. Readers who complete the chapters on the basic theorems and techniques would acquire a good foundation in geometry and may attempt to solve many geometrical problems in various mathematical competitions. Meanwhile, experienced contestants in Mathematical Olympiad competitions will find a large collection of problems pitched at competitions at the international level, with opportunities to practise and sharpen their problem-solving skills in geometry.

Pub Date: Aug 2017
Binding: Hardcover
Price: £48
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Price: £28
Page Extent: 350pp
Type: Textbook
Main Subject: Mathematics
Sub-subjects: Geometry (Convex and Discrete Geometry) and Topology; Mathematics Education
BIC: PBM
BISAC: MAT012000; MAT038000; MAT026000
Keywords: Problem-solving; Mathematical Olympiad; Geometry
Readership: Students, educators and general public interested in geometry and topology
Imprint: World Scientific Publishing Company
Series: Mathematical Olympiad Series - Volume 10
Contents:

• Congruent Triangles
• Right-Angle Triangles
• Quadrilaterals
• Circumcenter
• Angle Bisector
• Incenter and Excenter
• Similar Triangles
• Area of Triangles
• Intercept Theorem
• Pythagoras’ Theorem
• Ceva’s Theorem
• Centroid and Orthocenter
• Menelaus’ Theorem
• Circles and Angles
• Simson’s Line
• Nine-point Circle
• Intercept Chord Theorem
• Tangent-Secant Theorem
• Radical Axes
• Commonly-Used Facts
• Geometry Problems in Competitions (Searching for Clues and Insights; Developing Strategies)
WEIGHTED INEQUALITIES OF HARDY TYPE
2nd Edition

By Alois Kufner (Academy of Sciences, Czech Republic), Lars-Erik Persson Lee (Luleå University of Technology, Sweden & UiT, The Arctic University of Norway, Norway) & Natasha Samko (Luleå University of Technology, Sweden)

Endorsements for the First Edition:
“... The basic ideas are very well explained, the exposition is clear and the authors give complete proofs of most of the results they present.”

Mathematical Reviews

“This book is very readable. There are informative endnotes in each chapter which give the history of and sometimes the connections to other theorems. The proofs are well planned and executed ... I recommend this book to anyone interested in this kind of inequality or its applications.”

SIAM Review

“This book is an excellent survey of the theory of weighted integral inequalities of Hardy type ... warmly recommended to researchers dealing with inequalities and related areas of mathematics.”

Acta Scientiarum Mathematicarum

“The basic ideas are very well written, the exposition is clear and the authors give complete proofs of most of the results they present.”

Zentralblatt MATH

Key Features:
• The book can serve as a reference and a source of inspiration for researchers working in these and related areas, but could also be used for advanced graduate courses
• A new chapter has been added
• All the other chapters have been updated

Description:
Inequalities play an important role in almost all branches of mathematics as well as in other areas of science and engineering. This book surveys the present state of the theory of weighted integral inequalities of Hardy type, including modifications concerning Hardy–Steklov operators, and some basic results about Hardy type inequalities and their limit (Carleman–Knopp type) inequalities. It also describes some rather new areas such as higher order and fractional order Hardy type inequalities and integral inequalities on the cone of monotone functions, together with some applications and open problems.

In this second edition, all chapters in the first edition have been updated with new information. Moreover, a new chapter contains new and complementary information concerning: (a) a convexity approach to prove and explain Hardy type inequalities; (b) sharp constants; (c) scales of inequalities to characterize Hardy type inequalities; (d) Hardy type inequalities in other function spaces with special emphasize on Morrey and Hölder type spaces; and (e) a number of new open questions.

World Scientific
Connecting Great Minds
Contents:
- Hardy’s Inequality and Related Topics in Various Function Spaces
- Some Weighted Norm Inequalities
- The Hardy–Steklov Operator
- Higher Order Hardy Inequalities
- Fractional Order Hardy Inequalities
- Integral Operators on the Cone of Monotone Functions
- A Convexity Approach
- Scales of Characterizing Conditions
**EVIDENCE-BASED CLINICAL CHINESE MEDICINE**

**Volume 4: Adult Asthma**

By Charlie Changli Xue (RMIT University, Australia) & Chuanjian Lu (Guangdong Provincial Hospital of Chinese Medicine, China)

**Description:**
*Evidence-based Clinical Chinese Medicine: Adult Asthma* provides a “whole evidence” analysis of the Chinese medicine management of adult asthma. Evidence from the classical Chinese medicine literature, contemporary clinical literature, the outcomes of clinical trials and experimental studies are reviewed, analysed and synthesised. The data from all these sources are condensed to provide evidence-based statements which will inform clinical practice and guide future research.

This book has been designed to be an easy reference at the point of care. During a patient consultation, Chinese medicine practitioners can refer to this book for guidance on which Chinese herbal medicine formulas, specific herbs, or acupuncture points, can best treat their patient, and be confident there is evidence which supports its use.

Currently, Chinese medicine practitioners who develop a special interest in a particular health condition such as adult asthma have to consult a variety of sources to further their knowledge. Typically, they use the contemporary clinical literature to understand the theory, aetiology, pathogenesis and obtain expert opinions on the Chinese medicine management of adult asthma. They search the electronic literature to identify systematic reviews of clinical trials, if any exist, to obtain assessments of the current state of the clinical evidence for particular interventions. If they have the skills and resources, they may search the classical Chinese medicine literature for an historical perspective on treatments that have stood the test of time.

This book provides all of this information for practitioners in one handy, easy to use reference. This allows practitioners to focus on their job of providing high quality health care, with the knowledge it is based on the best available evidence.
Contents:

• Evidence-Based Chinese Medicine
• Classical Chinese Medicine Literature for Asthma
• Contemporary Clinical Management of Adult Asthma with Chinese Medicine
• Assessment of the Clinical Trial Evidence for Chinese Herbal Medicine, Acupuncture Therapies, Other Chinese Medicine Therapies and Combinations of Chinese Medicine Therapies for Adult Asthma
MODERN THORACIC ONCOLOGY

Edited by Robert Brian Cameron (UCLA & VA West Los Angeles Medical Center, USA), Olga Olevsky (UCLA, USA) & Diana Gage (VA West Los Angeles Medical Center, USA)

Key Feature:
• Only focused textbook in thoracic oncology covering all chest malignancies

Description:
Medicine has become highly specialized so that thoracic oncology is not a subspecialty of medical oncology and thoracic surgery. The field of thoracic oncology is a specialized area within oncology which is rapidly evolving making it difficult to keep comprehensive textbooks up to date. This thoracic oncology textbook has recruited international experts to write concise focused sections about their area of specialization.

Comprehensive discussions about the basics of thoracic oncology and each specific tumor are discussed in detail in terms of biology, presentation, staging, pathology, treatment including surgery, radiation, chemotherapy as well as targeted/gene therapies and their complications.

This is the only concise comprehensive textbook on the subject that includes all chest malignancies.
Contents:

• General Principles of Thoracic Oncology:
  • The Embryology and Anatomy of the Chest
  • Imaging of the Thorax
  • Medical Evaluation of Thoracic Oncology Patients
  • Principles of Thoracic Surgical Oncology
  • Principles of Radiation Oncology
  • Principles of Medical Oncology
  • Principles of Supportive and Palliative Care
  • Principles of Other Thoracic Therapeutic Modalities

• Trachea and Lung Neoplasms:
  • Trachea Neoplasms
  • Large Cell (Non-Small Cell) Lung Neoplasms
  • Small Cell Lung Neoplasms
  • Other Lung Neoplasms

• Esophageal Neoplasms:
  • Squamous Cell Carcinoma of the Esophagus
  • Adenocarcinoma of the Esophagus
  • Unusual Esophageal Neoplasms

• Pleural Neoplasms:
  • Malignant Pleural Mesothelioma
  • Solitary Fibrous and Other Rare Neoplasms

• Mediastinal Neoplasms:
  • Thymic Neoplasms
  • Germ Cell Neoplasms
  • Neurogenic Neoplasms
  • Cardiac Neoplasms

• Chest Wall and Diaphragmatic Neoplasms:
  • Bony and Soft Tissue Sarcomas
  • Diaphragm Neoplasms

• Metastatic Neoplasms of the Chest:
  • Treatment of Thoracic Metastases by Surgery
  • Treatment of Thoracic Metastases by Radiation
2D INORGANIC MATERIALS BEYOND GRAPHENE

Edited by C N R Rao (Jawaharlal Nehru Centre for Advanced Scientific Research, India & Indian Institute of Science, India) & U V Waghmare (Jawaharlal Nehru Centre for Advanced Scientific Research, India)

Description:
Two-dimensional materials have had widespread applications in nanoelectronics, catalysis, gas capture, water purification, energy storage and conversion. Initially based around graphene, research has since moved on to looking at alternatives, including transitions metal dichalcogenides, layered topological insulators, metallic mono-chalcogenides, borocarbonitrides and phosphorene.

This book provides a review of research in the field of these materials, including investigation into their defects, analysis on hybrid structures focusing on their properties and synthesis, and characterization and applications of 2D materials beyond graphene. It is designed to be a single-point reference for students, teachers and researchers of chemistry and its related subjects, particularly in the field of nanomaterials.
Contents:

- Transition Metal Dichalcogenides and Other Layered Materials (C N R Rao)
- Topological Valleytronics (M Ezawa)
- 2D, Layered Materials as Catalysts for Oxygen Reduction Reaction (S Sampath)
- Phosphorene (A Paul and U V Waghmare)
- 2D van der Waals Hybrid: Structures, Properties and Devices (A Ghosh)
- Thermoelectric Energy Conversion in Layered Metal Chalcogenides (K Biswas)
- Plasma Chemical and Physical Vapor Deposition Methods and Diagnostics for 2D Materials (T S Fisher)
- Metal Contacts to MOS2 (M Deshmukh)
- Strain Dependent Properties of 2D MX2 (M=Mo and W; X=S, Se and Te) (A Singh)
- Point Defects, Grain Boundaries and Planar Faults in 2D h-BN and TMX2: Theory and Simulations (A Singh and U V Waghmare)
COLLECTIVE CLASSICAL AND QUANTUM FIELDS
In Plasmas, Superconductors, Superfluid $^3$He, and Liquid Crystals

By Hagen Kleinert (Freie Universität Berlin, Germany)

Description:
This is an introductory book dealing with collective phenomena in many-body systems. A gas of bosons or fermions can show oscillations of density in various ways. These are described by different combinations of field variables. Especially delicate is the competition of these variables. In superfluid $^3$He, for example, the atoms can be attracted to each other by molecular forces, whereas they are repelled from each other at short distance due to a hardcore repulsion. The attraction gives rise to Cooper pairs, and the repulsion is overcome by paramagnon oscillations. The combination is what finally led to the discovery of superfluidity in $^3$He. In general, the competition between various channels can most efficiently be studied by means of a classical version of the Hubbard-Stratonovich transformation.

A gas of electrons is controlled by the interplay of plasma oscillations and pair formation. In a system of rod- or disc-like molecules, liquid crystals are observed with directional orientations that behave in unusual five-fold or seven-fold symmetry patterns. The existence of such a symmetry was postulated in 1975 by the author and K Maki. An aluminium material of this type was later manufactured by Dan Shechtman which won him the 2014 Nobel prize. The last chapter presents some solvable models, one of which was the first to illustrate the existence of broken supersymmetry in nuclei.
Contents:

- Functional Integral Techniques
- Plasma Oscillations
- Superconductors
- Superfluid $^3$He
- Liquid Crystals
- Collective Quantum Fields in Exactly Solvable Field Theoretic Models
EXOTIC NUCLEI
EXON-2016
Proceedings of the International Symposium on Exotic Nuclei
International Symposium on Exotic Nuclei EXON-2016
Kazan, Russia, 4 – 10 September 2016

Edited by Yu E Penionzhkevich & Yu G Sobolev (both of Joint Institute for Nuclear Research, Russia)

Description:
The symposium was held at Kazan, Russia from 4 – 10 September 2016. EXON-2016 was dedicated to the problems of producing and investigating nuclei far from the line of stability.

The main goal of the symposium was to discuss the latest results on the production and study of the properties of the lightest to the heaviest nuclei, as well as the plans for future joint investigations in the field of exotic nuclei. The talks were presented by leading scientists in the field. Among the topics of the symposium were the following: production and study of properties of nuclei in extreme states, strongly deformed nuclei, highly excited and nuclei far from the line of stability as well as nuclei having large angular momenta. New results of the investigations are presented in this book. In particular, the latest results on the synthesis of new superheavy elements are also presented. There were also talks devoted to existing detecting devices and accelerators of exotic nuclei as well as to the future projects for the creation of similar set-ups.
Contents:

- **Light Exotic Nuclei and Nuclear Structure:**
  - Delayed Multi-Neutron Emission in Very Neutron-Rich Nuclei (I N Borzov)
  - Do the Dilute States Exist in 160? (A N Danilov, A S Demyanova, A A Ogloblin, S A Goncharov & T L Belyaeva)

- **Superheavy Elements. Synthesis and Properties:**
  - Some Results on the Structure of Superheavy Nuclei (R V Jolos, G G Adamian, N V Antonenko, A N Bezbakh, V G Kartavenko, L A Malov, V O Nesterenko, N Yu Shirikova & A V Sushkov)
  - The Prompt Neutron Characteristics in the Spontaneous Fission of Superheavy Nuclei (V A Rubchenya)

- **Nuclear Reactions, Fission and Decay. Rare Processes:**
  - Evidences of True Ternary and Quaternary Fission of Low Excited Actinides (D V Kamanin, A A Alexandrov, I A Alexandrova, E A Kuznetsova, A O Strekalovsky, O V Strekalovsky, V E Zhuchko, Yu V Pyatkov, N Mkaza & V Malaza)
  - New Results in Study of Shape Isomer States in Fission Fragments (Yu V Pyatkov, D V Kamanin, A A Alexandrov, I A Alexandrova, Z I Goryainova, E A Kuznetsova, A O Strekalovsky, O V Strekalovsky, V E Zhuchko, N Mkaza & V Malaza)

- **Scientific Projects & Experimental Facilities:**
  - The ALTO Facility and its Recent Highlights with ISOL Beams (F Ibrahim, D Verney, M Cheikh Mhamed, C Delafosse, S Essabaa, S Franchoo, A Gottardo, C Lau, R Li, B Roussière, A Said, S Tusseau-Nenez, D Testov, Yu Penionzhkevich, V Smirnov & E Sokol)

- and other papers
INTRODUCTION TO GENERAL RELATIVITY
Solutions to Problems

By John Dirk Walecka (College of William and Mary, USA)

Key Features:
- Text Introduction to General Relativity assumes only a working knowledge of classical lagrangian mechanics
- Presentation then self-contained
- Mathematics and physics developed within the framework of a concrete physical problem
- Covers most of the important applications of general relativity
- Final special topics section takes reader up to a few areas of current research
- Strong emphasis on physical interpretation of all results
- An extensive set of accessible problems enhances and extends the coverage
- As a learning and teaching tool, the current book provides solutions to those problems

Description:
It is important for every physicist today to have a working knowledge of Einstein’s theory of general relativity. Introduction to General Relativity published in 2007 was aimed at first-year graduate students, or advanced undergraduates, in physics. Only a basic understanding of classical lagrangian mechanics is assumed; beyond that, the reader should find the material to be self-contained.

The mechanics problem of a point mass constrained to move without friction on a two-dimensional surface of arbitrary shape serves as a paradigm for the development of the mathematics and physics of general relativity. Special relativity is reviewed. The basic principles of general relativity are then presented, and the most important applications are discussed. The final special topics section takes the reader up to a few areas of current research. An extensive set of accessible problems enhances and extends the coverage.

As a learning and teaching tool, this current book provides solutions to those problems. This text and solutions manual are meant to provide an introduction to the subject. It is hoped that these books will allow the reader to approach the more advanced texts and monographs, as well as the continual influx of fascinating new experimental results, with a deeper understanding and sense of appreciation.
Contents:

• Preface
• Introduction
• Particle on a Two-Dimensional Surface
• Curvilinear Coordinate Systems
• Particle on a Two-Dimensional Surface—Revisited
• Some Tensor Analysis
• Special Relativity
• General Relativity
• Precession of Perihelion
• Gravitational Redshift
• Neutron Stars
• Cosmology
• Gravitational Radiation
• Special Topics
• Appendices:
  • Reduction of $g^{\mu \nu} \delta R_{\mu \nu}$ to Covariant Divergences
  • Robertson-Walker Metric with $k \neq 0$
• Bibliography
• Index
INTRODUCTION TO THE THEORY OF THE EARLY UNIVERSE
Hot Big Bang Theory
2nd Edition

By Valery A Rubakov (Russian Academy of Sciences, Russia & Moscow State University, Russia) & Dmitry S Gorbunov (Russian Academy of Sciences, Russia)

Reviews of the First Edition:
"... is an excellent addition to the field of theoretical cosmology that goes a long way towards filling the need for a fully modern pedagogical text ... Both volumes contain notably insightful treatments of many topics and there is a large variety of problems for the student distributed throughout the text, in addition to extensive appendices on background material ... for those wanting a modern successor to The Early Universe by Edward Kolb and Michael Turner or John Peacock’s Cosmological Physics, either for study of an unfamiliar topic or to recommend to PhD students to prepare them for research the two volumes are a fine choice and an excellent alternative to Steven Weinberg’s more formal Cosmology.”

CERN COURIER

Key Features:
• The book reflects the deep connection between particle physics and cosmology
• The book is a unique combination of basic and advanced material useful to both students and researchers
• The authors are renowned researchers and academics in the communities of particle physicists and cosmologists

Description:
This book is written from the viewpoint that a deep connection exists between cosmology and particle physics. It presents the results and ideas on both the homogeneous and isotropic Universe at the hot stage of its evolution and in later stages. The main chapters describe in a systematic and pedagogical way established facts and concepts on the early and the present Universe. The comprehensive treatment, hence, serves as a modern introduction to this rapidly developing field of science. To help in reading the chapters without having to constantly consult other texts, essential materials from General Relativity and the theory of elementary particles are collected in the appendices. Various hypotheses dealing with unsolved problems of cosmology, and often alternative to each other, are discussed at a more advanced level. These concern dark matter, dark energy, matter–antimatter asymmetry, etc.

Particle physics and cosmology underwent rapid development between the first and the second editions of this book. In the second edition, many chapters and sections have been revised, and numerical values of particle physics and cosmological parameters have been updated.
Contents:
• Cosmology: A Preview
• Homogeneous Isotropic Universe
• Dynamics of Cosmological Expansion
• ΛCDM: Cosmological Model with Dark Matter and Dark Energy
• Thermodynamics in Expanding Universe
• Recombination
• Relic Neutrinos
• Big Bang Nucleosynthesis
• Dark Matter
• Phase Transitions in the Early Universe
• Generation of Baryon Asymmetry
• Topological Defects and Solitons in the Universe
• Color Pages
• Appendices:
  • Elements of General Relativity
  • Standard Model of Particle Physics
  • Neutrino Oscillations
  • Quantum Field Theory at Finite Temperature
LASERS FOR SCIENTISTS AND ENGINEERS

By Wilmer Anderson & John Boffard (both of University of Wisconsin-Madison, USA)

Description:
Since the invention of the laser, the variety of lasers and their uses have grown at a phenomenal rate. Scientists and engineers have at their disposal an enormous array of sophisticated laser equipments with the possibility of carrying out experiments that were inconceivable only a few decades ago. Lasers for Scientists and Engineers is a grand and glorious book that discusses the principles of laser operation and the details of how selected lasers operate.

This book is short and easy to read, enabling the reader to thoroughly grasp the subject, with discussions that begin at an elementary level and lead to a complete understanding of lasers. This book is suitable for a one semester college course for upper-level undergraduate or first year graduate level students in physics, chemistry, biology, astronomy, and the various fields of engineering. The background needed for this book would be junior level courses in optics and modern physics including elementary quantum mechanics.
Contents:
• Introduction to Lasers
• Stimulated Emission
• Criterion for Laser Action
• Line Shapes
• Saturation
• Three Level Lasers
• Four Level Lasers
• Optical Cavities
• Diode Lasers
• Solid State Lasers
• The Helium-Neon Laser
• Gas Lasers
• Tunable Lasers
• Nonlinear Optics
• Quantum Optics
NEWTON AND MODERN PHYSICS

By Peter Rowlands (University of Liverpool, UK)

Description:
This book looks at how Newton’s theories can be linked to modern day problems and solutions in physics. Newton created an abstract system of theorizing which has been applied to all aspects of the physical world, however he had difficulties in persuading his contemporaries of its unique merits. A detailed study of Newton’s writings, published and unpublished, suggests that he had an almost archetypally powerful mode of thinking guaranteed to produce ‘correct’ results even in areas of physics where systematic study only began long after his time. *Newton and Modern Physics* investigates this phenomena, looking at examples of where Newton’s principles have relevance to modern day thinking — the study of Newton’s work in both seventeenth century and present-day contexts helps to enhance our understanding of both.

This unique book is published as the first of a three-part set for Newtonian scholars, historians of science, philosophers of science and others interested in Newtonian physics.

All Titles:
1. Newton and Modern Physics
2. Newton and the Great World System
3. Newton: Innovation and Controversy

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Binding: Softcover
Price: £40
Page Extent: 300pp
Type: Popular Book
Main Subject: Physics
Sub-subjects: General Physics (Popular Reading); History of Science; Popular Science
BIC: PD
BISAC: SCI055000; SCI034000; SCI000000
Keywords: Newton; Newtonian Physics; Velocity of Light; Quantum Theory; Wave-Particle; Mass-Energy
Readership: Newtonian scholars, historians of science, philosophers of science and others interested in Newtonian physics
Imprint: World Scientific Europe
Contents:
• Aspects of the Newtonian Methodology
• Newton the Man
• Waves
• The Velocity of Light
• Mass-Energy
• Quantum Theory
• The Electric Force
• Wave-Particle Duality and the Unified Field
QUANTUM OPTICS FOR EXPERIMENTALISTS

By Zheyu Jeff Ou (Indiana University - Purdue University Indianapolis, USA)

Description:
This book on quantum optics is from the point of view of an experimentalist. It approaches the theory of quantum optics with the language of optical modes of classical wave theory, with which experimentalists are most familiar. This approach makes the transition easy from classical optics to quantum optics. The emphasis on the multimode description of an optical system is more realistic than in most quantum optics textbooks. After the theoretical part, the book goes directly to the two most basic experimental techniques in quantum optics and establishes the connection between the experiments and the theory. The applications include some key quantum optics experiments, and a few more current interests that deal with quantum correlation and entanglement, quantum noise in phase measurement and amplification, and quantum state measurement.
Contents:

- **Theoretical Foundations of Quantum Optics:**
  - Historical Development of Quantum Optics and A Brief Introduction
  - Mode Theory of Optical Fields and Their Quantization
  - Quantum States of Single-Mode Fields
  - Quantum States of Multi-Mode Fields
  - Theory of Photo-Detection and Quantum Theory of Coherence
  - Generation and Transformation of Quantum States

- **Experimental Techniques in Quantum Optics and Their Applications:**
  - Experimental Techniques Quantum Optics I: Photon Counting Technique
  - Applications of Photon Counting Techniques: Multi-Photon Interference and Entanglement
  - Experimental Techniques of Quantum Optics II: Detection of Continuous Photo-Currents
  - Applications of Homodyne Detection Technique: Quantum Measurement of Continuous Variables
  - Quantum Noise in Phase Measurement

- Appendix A: A Derivation of an Explicit Expression for $\hat{U}$ of a Lossless Beam Splitter
TURBULENT TRANSPORT IN MAGNETIZED PLASMAS
2nd Edition

By Wendell Horton (University of Texas at Austin, USA)

Key Feature:
• It describes theory, experiments and simulations in a unified and up-to-date presentation

Description:
For a few seconds with large machines, scientists and engineers have now created the fusion power of the stars in the laboratory and at the same time find the rich range of complex turbulent electromagnetic waves that transport the plasma confinement systems. The turbulent transport mechanisms created in the laboratory are explained in detail in the second edition of “Turbulent Transport in Magnetized Plasmas” by Professor Horton.

The principles and properties of the major plasma confinement machines are explored with basic physics to the extent currently understood. For the observational laws that are not understood — the empirical confinement laws — offering challenges to the next generation of plasma students and researchers — are explained in detail. An example, is the confinement regime — called the “I-mode” — currently a hot topic — is explored.

Numerous important problems and puzzles for the next generation of plasma scientists are explained. There is growing demand for new simulation codes utilizing the massively parallel computers with MPI and GPU methods. When the 20 billion dollar ITER machine is tested in the 2020ies, new theories and faster/smarter computer simulations running in near real-time control systems will be used to control the burning hydrogen plasmas.

Author:
Professor Wendell Horton’s research at the University of Texas at Austin is devoted to the problems associated with achieving thermonuclear fusion. During 1970–1980, the author made numerous trips to Soviet Union and in 1980–1990, he was the leader of a US-Japan International Exchange program. In the 1990s, he worked in space physics as an Adjunct Professor at Rice University adding to his experience with plasma transport by turbulence in the solar wind driven plasma trapped by the Earth’s magnetic field. The author has published more than 300 peer-reviewed articles and received numerous grants for performing original research in plasma turbulent transport and the analysis of data from tokamaks. He has recently received an award from the Institute for Advance Research in Marseille France for 2012–2013.
Contents:

• Derivations and Worked Problems for the Waves
• Instabilities and 3D Turbulence in Laboratory and Space Plasmas
• Diagnostics and Comparison of Laboratory Experiments in Producing Hot, Collisionless Plasmas for Fusion and Space Physics Studies