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Drawing on the author’s wide experience, this book gives a comprehensive review of the state of the art in gyrotron technology, covering the theory, design and applications. The book includes an extensive references list which provides an excellent guide to the related literature.

This book constitutes the refereed proceedings of the Third International Conference on Convergent Cognitive Information Technologies, Convergent 2018, held in Moscow, Russia, in December 2018. The 26 revised full papers and 9 short papers were carefully reviewed and selected from 147 submissions. The papers of this volume are organized in topical sections on theoretical questions of computer science, computational mathematics, computer science and cognitive information technologies; cognitive information technologies in control systems; big data and applications; the Internet of Things (IoT): standards, communication and information technologies, network applications; smart cities: standards, cognitive-information technologies and their applications.- cognitive information technologies in the digital economics.- digital transformation of transport.

Nineteen experts from the electronics industry, research institutes and universities have joined forces to prepare this book. It does nothing less than provide a complete overview of the electrophysical fundamentals, the present state of the art and applications, as well as the future prospects of microwave tubes and systems. The book does the same for optoelectronics vacuum devices, electron and ion beam devices, light and X-ray emitters, particle accelerators and vacuum interrupters.

This is the first book of a series that will focus on MMS (Mechanism and Machine Science). This book also presents IFToMM, the International Federation on the Promotion of MMS and its activity. This volume contains contributions by IFToMM officers who are Chairs of member organizations (MOs), permanent commissions (PCs), and technical committees (TCs), who have reported their experiences and views toward the future of IFToMM and MMS. The book is composed of three parts: the first with general considerations by high-standing IFToMM persons, the second chapter with views by the chairs of PCs and TCs as dealing with specific subject areas, and the third one with reports by the chairs of MOs as presenting experiences and challenges in national and territory communities. This book will be of interest to a wide public who wish to know the status and trends in MMS both at international level through IFToMM and in national/local frames through the leading actors of activities. In addition, the book can be considered also a fruitful source to find out “who’s who” in MMS, historical backgrounds and trends in MMS developments, as well as for challenges and problems in future activity by IFToMM community and in MMS at large.

Sixteenth in a series of annual reports comparing business regulation in 190 economies, Doing Business 2019 measures aspects of regulation affecting areas of everyday business activity.

The second edition of this book is a self-contained introduction to computational fluid dynamics (CFD). It covers the fundamentals of the subject and is ideal as a text or a comprehensive reference to CFD theory and practice. New approach takes readers seamlessly from first principles to more advanced and applied topics. Presents the essential components of a simulation system at a level suitable for those coming into contact with CFD for the first time, and is ideal for those who need a comprehensive refresher on the fundamentals of CFD. Enhanced pedagogy features chapter objectives, hands-on practice examples and end of chapter exercises. Extended coverage of finite difference, finite volume and finite element methods. New chapters include an introduction to grid properties and the use of grids in practice. Includes material on 2-D inviscid, potential and Euler flows, 2-D viscous flows and Navier-Stokes flows to enable the reader to develop basic CFD simulations. Includes best practice guidelines for applying existing commercial or shareware CFD tools.

This book describes genomic uracil in evolution, as a DNA constituent in adaptive and innate immune responses and as a mutagenic lesion causing cancer. Genomic uracil is as old as life and may have been a component in self-replicating molecules in the prebiotic era. The first living cells probably contained uracil in DNA, later to be replaced by thymine. The pioneering work of Nobel Laureate, Tomas Lindahl on spontaneous deamination of DNA cytosine to uracil was followed by his discovery of uracil-DNA glycosylase, which initiates repair of genomic uracil in base excision repair (BER). Uracil-DNA glycosylases are found in all forms of life and in DNA viruses, having roles in DNA repair, replication and epigenetics. The surprising discovery of enzymatic DNA cytosine deamination by the AID/APOBEC deaminases subsequently has implicated genomic uracil in the development of human cancer. The aim of the book is to contribute a reference text for graduate students, molecular biologists, immunologists and cancer biologists. Genomic uracil has become a hot research topic of wide interest after the Nobel Prize in Chemistry 2015 was awarded for DNA repair (Paul Modrich, Aziz Sancar and Tomas Lindahl). Furthermore, genomic uracil has received wide interest among both immunologists and cancer biologists due to its unexpected and fundamental role in adaptive immunity. Genomic uracil, thus, is highly relevant to researchers in different areas of research, but to our knowledge there is no published text that treats genomic uracil in an interdisciplinary way. The authors of this book have in the last three decades worked on genomic uracil and its processing and are among the most highly cited authors in the field.

[Proceedings of ASIAN MMS 2016 & CCMMS 2016](#)

[Mechanism and Machine Science](#)

[Federalism, Democratization, and the Rule of Law in Russia](#)

[2014_Structural Welding Code - Aluminum](#)

[Numerical Computation of Internal and External Flows: The Fundamentals of Computational Fluid Dynamics](#)

[Turbulence Modeling for CFD](#)

[Innovation-Based Development of the Mineral Resources Sector: Challenges and Prospects](#)

[ICTR 2020 3rd International Conference on Tourism Research](#)

[Technology Developments: the Role of Mechanism and Machine Science and IFToMM](#)

[Cyber-Physical Systems: Advances in Design & Modelling](#)

[The Role of Higher Education](#)

[And Its Impact on Flying Machines](#)

In various branches of fluid mechanics, our understanding is inhibited by the presence of turbulence. Although many experimental and theoretical studies have significantly helped to increase our physical understanding, a comprehensive and predictive theory of turbulent flows has not yet been established. Therefore, the prediction of turbulent flow relies heavily on simulation strategies. The development of reliable methods for turbulent flow computation will have a significant impact on a variety of technological advancements. These range from aircraft and car design, to turbomachinery, combustors, and process engineering. Moreover, simulation approaches are important in materials – sign, prediction of biologically relevant flows, and also significantly contribute to the understanding of environmental processes including weather and climate forecasting. The material that is compiled in this book presents a coherent account of contemporary computational approaches for turbulent flows. It aims to provide the reader with information about the current state of the art as well as to stimulate directions for future research and development. The book puts particular emphasis on computational methods for incompressible and compressible turbulent flows as well as on methods for analysing and quantifying numerical errors in turbulent flow computations. In addition, it presents turbulence modelling approaches in the context of large eddy simulation, and unfolds the challenges in the field of simulations for multiphase flows and computational fluid dynamics (CFD) of engineering flows in complex geometries. Apart from reviewing main research developments, new material is also included in many of the chapters.

A collection of especially written articles describing the theory and application of nonlinear dynamics to a wide variety of problems encountered in physics and engineering. Each chapter is self-contained and includes an elementary introduction, an exposition of the state of the art, as well as details of recent theoretical, computational and experimental results. Included among the practical systems analysed are: hysteretic circuits, Josephson circuits, magnetic systems, railway dynamics, rotor dynamics and nonlinear dynamics of speech. This book provides important information and ideas for all mathematicians, physicists and engineers whose work in R & D or academia involves the practical consequences of chaotic dynamics.

A comprehensive, hands-on review of the most up-to-date techniques in RF and microwave measurement, including practical advice on deployment challenges.

This book highlights recent findings in industrial, manufacturing and mechanical engineering, and provides an overview of the state of the art in these fields, mainly in Russia and Eastern Europe. A broad range of topics and issues in modern engineering are discussed, including the dynamics of machines and working processes, friction, wear and lubrication in machines, surface transport and technological machines, manufacturing engineering of industrial facilities, materials engineering, metallurgy, control systems and their industrial applications, industrial mechatronics, automation and robotics. The book gathers selected papers presented at the 5th International Conference on Industrial Engineering (ICIE), held in Sochi, Russia in March 2019. The authors are experts in various fields of engineering, and all papers have been carefully reviewed. Given its scope, the book will be of interest to a wide readership, including mechanical and production engineers, lecturers in engineering disciplines, and engineering graduates.

– The data gathered can be used to solve a wide range of problems – for basic science and applied science

Meet the challenge of integrating Building Information Modeling and sustainability with this in-depth guide, which pairs these two revolutionary movements to create environmentally friendly design through a streamlined process. Written by an award-winning team that has gone beyond theory to lead the implementation of Green BIM projects, this comprehensive reference features practical strategies, techniques, and real-world expertise so that you can create sustainable BIM projects, no matter what their scale.

This book presents the proceedings of the International Conference on Cyber-Physical Systems and Control (CPS & C'2019), held in Peter the Great St. Petersburg Polytechnic University, which is celebrating its 120th anniversary in 2019. The CPS & C'2019 was dedicated to the 35th anniversary of the partnership between Peter the Great St. Petersburg Polytechnic University and Leibniz University of Hannover. Cyber-physical systems (CPSs) are a new generation of control systems and techniques that help promote prospective interdisciplinary research. A wide range of theories and methodologies are currently being investigated and developed in this area to tackle various complex and challenging problems. Accordingly, CPSs represent a scientific and engineering discipline that is set to make an impact on future systems of industrial and social scale that are characterized by the deep integration of real-time processing, sensing, and actuation into logical and physical heterogeneous domains. The CPS & C'2019 brought together researchers and practitioners from all over the world and to discuss cross-cutting fundamental scientific and engineering principles that underline the integration of cyber and physical elements across all application fields. The participants represented research institutions and universities from Austria, Belgium, Bulgaria, China, Finland, Germany, the Netherlands, Russia, Syria, Ukraine, the USA, and Vietnam. These proceedings include 75 papers arranged into five sections, namely keynote papers, fundamentals, applications, technologies, and education and social aspects.

[Volume I](#)

[Doing Business 2019](#)

[Aws D1. 2/d1. 2m](#)

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[The Story of a Sand-pile](#)

[Analysis and Design of Marine Structures](#)

[High-Power Microwave and Millimeter Wave Technology](#)

[Kinematics, Geometry, and Synthesis, Second Edition](#)

[Convergent Cognitive Information Technologies](#)

[Gyrotrons](#)

[Turbulent Flow Computation](#)

[Information Technology for Development, Volume 13, Number 2](#)

[ICICT 2019, London, Volume 2](#)

Authoritative, highly readable history of aerodynamics and the major theorists and their contributions.

On the roots of continuum mechanics in differential geometry -- a review.- Cosserat media.- Cosserat-type shells.- Cosserat-type rods.- Micromorphic media.- Electromagnetism and generalized continua.- Computational methods for generalized continua. The need of generalized continua models is coming from practice. Complex material behavior sometimes cannot be presented by the classical Cauchy continua. At present the attention of the scientists in this field is focused on the most recent research items • new models, • application of well-known models to new problems, • micro-macro aspects, • computational effort, and • possibilities to identify the constitutive equations The new research directions are discussed in this volume – from the point of view of modeling and simulation, identification, and numerical methods.

This book examines the nature of the ‘energy curriculum’ in Arctic Higher Education and provides invaluable data and new models to assess levels of Sustainable Development Literacy. Drawing on course mapping conducted in Higher Education institutions across the Arctic, Arruda looks at the nature, structure, and design of the Arctic Higher Education curriculum in order to assess levels of Sustainable Development Literacy and considers the extent to which Arctic Higher Education courses align to UNESCO Education for Sustainable Development (ESD). Using data from four key case studies in Norway, Canada, and the US, and applying a framework drawn from different knowledge systems (Traditional Knowledge and Western educational system), she analyses the different educational approaches and pedagogies used and specifically considers how Higher Education in this region can contribute to the accomplishment of Sustainable Development and the Sustainable Development Goals. The book concludes by proposing new models to assess Higher Education adherence to ESD and outlines how a culturally inclusive curriculum can invite different groups of people to engage in a meaningful Sustainable Development debate, learning experience, and knowledge application. This innovative volume will be of great interest to multicultural students, scholars, and educators of Sustainable Development, climate change, energy, Arctic studies, and global Higher Education across the Arctic and non-Arctic nations.

With all the environmental concerns and constraints today and stricter future regulations, there is a patent need to replace materials noxious to the environment by environmentally-friendly alternatives. Electrically conductive adhesives (ECAs) are one such example. ECAs offer an excellent alternative to lead-solder interconnects for microelectronic packaging applications. ECAs are used in electronics for laptop computers, camcorders, watch electronics, hard-drive suspensions and a myriad of electronic equipments. Environmentally-friendly ECAs offer many advantages vis-à-vis solder, such as simple and low-temperature processing conditions, better thermo mechanical performance and finer pitch. This book is based on the two Special Issues of the Journal of Adhesion Science and Technology (JAST vol. 22, no. 8-9 and vol. 22, no. 14) dedicated to this topic. The book contains a total of 21 papers (reflecting overviews and original research) and is divided into three parts as follows: Part 1: Introduction and Recent Developments, Part 2: Mechanical, Durability and Reliability Aspects and Part 3: Characterization and Properties.

This book describes new theories and applications of artificial neural networks, with a special focus on addressing problems in neuroscience, biology and biophysics and cognitive research. It covers a wide range of methods and technologies, including deep neural networks, large-scale neural models, brain-computer interface, signal processing methods, as well as models of perception, studies on emotion recognition, self-organization and many more. The book includes both selected and invited papers presented at the XX International Conference on Neuroinformatics, held in Moscow, Russia on October 8-12, 2018.

With its many beautiful colour pictures, this book gives fascinating insights into the unusual forms and behaviour of matter under extremely high pressures and temperatures. These extreme states are generated, among other things, by strong shock, detonation and electric explosion waves, dense laser beams, electron and ion beams, hypersonic entry of spacecraft into dense atmospheres of planets and in many other situations characterized by extremely high pressures and temperatures. Written by one of the world’s foremost experts on the topic, this book will inform and fascinate all scientists dealing with materials properties and physics and also serve as an excellent introduction to plasma-, shock-wave and high-energy-density physics for students and newcomers seeking an overview. This second edition is thoroughly revised and expanded, in particular with new material on high energy-density physics, nuclear explosions and other nuclear transformation processes.

Combining the approaches of three fields of scholarship – political science, law and Russian area- studies – the author explores the foundations and future of the Russian Federation. Russia's political elite have struggled to build an extraordinarily complex federal system, one that incorporates eighty-nine different units and scores of different ethnic groups, which sometimes harbor long histories of resentment against Russian imperial and Soviet legacies. This bookexamines the public debates, official documents and political deals that

built Russia's federal house on very unsteady foundations, often out of the ideological, conceptual and physical rubble of the ancien régime. One of the major goals of this book is, where appropriate, to bring together the insights of comparative law and comparative politics in the study of the development of Russia's attempts to create – as its constitution states in the very first article – a 'Democratic, federal, rule-of-law state'

[International Handbook of Universities 2019](#)

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[High Energy Density Physics](#)

[Selected Papers from the XX International Conference on Neuroinformatics, October 8–12, 2018, Moscow, Russia](#)

[Sustainable Energy Education in the Arctic](#)

[Third International Conference, Convergent 2018, Moscow, Russia, November 29 – December 2, 2018, Revised Selected Papers](#)

[Evolution, Biology, Immunology and Disease](#)

[Fourth International Congress on Information and Communication Technology](#)

[Inverse and Ill-posed Problems](#)

[Successful Sustainable Design with Building Information Modeling](#)

[Bioinformatics of Genome Regulation and Structure](#)

[Proceedings of the 11th Russian-German Raw Materials Conference, November 7–8, 2018, Potsdam, Germany](#)

Written by a leading expert, *Theory of Gearing: Kinematics, Geometry, and Synthesis, Second Edition* is intended for engineers and researchers in the field of gear design, gear production, gear inspection, and application of gears. It focuses on the scientific theory of gearing, in all its aspects, and its application to new gear types and designs. By 1999, Russia's economy was growing at almost 7% per year, and by 2008 reached 11th place in the world GDP rankings. Russia is now the world's second largest producer and exporter of oil, the largest producer and exporter of natural gas, and as a result has the third largest stock of foreign exchange reserves in the world, behind only China and Japan. But while this impressive economic growth has raised the average standard of living and put a number of wealthy Russians on the Forbes billionaires list, it has failed to solve the country's deep economic and social problems inherited from the Soviet times. Russia continues to suffer from a distorted economic structure, with its low labor productivity, heavy reliance on natural resource extraction, low life expectancy, high income inequality, and weak institutions. While a voluminous amount of literature has studied various individual aspects of the Russian economy, in the West there has been no comprehensive and systematic analysis of the socialist legacies, the current state, and future prospects of the Russian economy gathered in one book. The Oxford Handbook of the Russian Economy fills this gap by offering a broad range of topics written by the best Western and Russian scholars of the Russian economy. While the book's focus is the current state of the Russian economy, the first part of the book also addresses the legacy of the Soviet command economy and offers an analysis of institutional aspects of Russia's economic development over the last decade. The second part covers the most important sectors of the economy. The third part examines the economic challenges created by the gigantic magnitude of regional, geographic, ethnic, religious and linguistic diversity of Russia. The fourth part covers various social issues, including health, education, and demographic challenges. It will also examine broad policy challenges, including the tax system, rule of law, as well as corruption and the underground economy. Michael Alexeev and Shlomo Weber provide for the first time in one volume a complete, well-rounded, and essential look at the complex, emerging Russian economy.

Innovation-Based Development of the Mineral Resources Sector: Challenges and Prospects contains the contributions presented at the XI Russian-German Raw Materials Conference (Potsdam, Germany, 7-8 November 2018). The Russian-German Raw Materials Conference is held within the framework of the "Permanent Russian-German Forum on the Issues of the Use of Raw Materials", which has as goals to develop new approaches to effectively use energy, mineral and renewable natural resources and to initiate cooperation in the field of sustainability and environmental protection. The contributions cover current trends in the development of raw materials markets and the world economy, the state of the environment and new technologies applied in the sector, effectively responding to modern challenges. The 63 accepted papers are grouped into four main sections: • Mineral exploration and mining • Mining services • Processing of raw materials • Other Innovation-Based Development of the Mineral Resources Sector: Challenges and Prospects will be of interest to academics and researchers involved in the mineral resources sector, but also to professionals in the public, foreign trade and education fields, and representatives of major corporations and professional associations.

These proceedings collect the latest research results in mechanism and machine science, intended to reinforce and improve the role of mechanical systems in a variety of applications in daily life and industry. Gathering more than 120 academic papers, it addresses topics including: Computational kinematics, Machine elements, Actuators, Gearing and transmissions, Linkages and cams, Mechanism design, Dynamics of machinery, Tribology, Vehicle mechanisms, dynamics and design, Reliability, Experimental methods in mechanisms, Robotics and mechatronics, Biomechanics, Micro/nano mechanisms and machines, Medical/welfare devices, Nature and machines, Design methodology, Reconfigurable mechanisms and reconfigurable manipulators, and Origami mechanisms. This is the fourth installment in the IFToMM Asian conference series on Mechanism and Machine Science (ASIAN MMS 2016). The ASIAN MMS conference initiative was launched to provide a forum mainly for the Asian community working in Mechanism and Machine Science, in order to facilitate collaboration and improve the visibility of activities in the field. The series started in 2010 and the previous ASIAN MMS events were successfully held in Taipei, China (2010), Tokyo, Japan (2012), and Tianjin, China (2014). ASIAN MMS 2016 was held in Guangzhou, China, from 15 to 17 December 2016, and was organized by the South China University under the patronage of the IFToMM and the Chinese Mechanical Engineering Society (CMES). The aim of the Conference was to bring together researchers, industry professionals and students from the broad range of disciplines connected to Mechanism Science in a collegial and stimulating environment. The ASIAN MMS 2016 Conference provided a platform allowing scientists to exchange notes on their scientific achievements and establish new national and international collaborations concerning the mechanism science field and its applications, mainly but not exclusively in Asian contexts.

Novel Magnetic Nanostructures: Unique Properties and Applications reviews the synthesis, design, characterization and unique properties of emerging nanostructured magnetic materials. It discusses the most promising and relevant applications, including data storage, spintronics and biomedical applications. Properties investigated include electronic, self-assembling, multifunctional, and magnetic properties, along with magnetic phenomena. Structures range from magnetic nanoclusters, nanoparticles, and nanowires, to multilayers and self-assembling nanosystems. This book provides a better understanding of the static and dynamic magnetism in new nanostructures for important applications. Provides an overview of the latest research on novel magnetic nanostructures, including molecular nanomagnets, metallacrown magnetic nanostructures, magnetic dendrimers, self-assembling magnetic structures, multifunctional nanostructures, and much more Reviews the synthesis, design, characterization and detection of useful properties in new magnetic nanostructures Highlights the most relevant applications, including spintronic, data storage and biomedical applications

The second volume of this book includes selected high-quality research papers presented at the Fourth International Congress on Information and Communication Technology, which was held at Brunel University, London, on February 27–28, 2019. It discusses emerging topics pertaining to information and communication technology (ICT) for managerial applications, e-governance, e-agriculture, e-education and computing technologies, the Internet of Things (IoT), and e-mining. Written by respected experts and researchers actively working in ICT, the book offers a valuable resource, especially for researchers who are newcomers to the field.

This book presents new findings on cyber-physical systems design and modelling approaches based on AI and data-driven techniques, identifying the key industrial challenges and the main features of design and modelling processes. To enhance the efficiency of the design process, it proposes new approaches based on the concept of digital twins. Further, it substantiates the scientific, practical, and methodological approaches to modelling and simulating of cyber-physical systems. Exploring digital twins of cyber-physical systems as well as of production systems, it proposes combining both mathematical models and data processing techniques as advanced methods for cyber-physical system design and modelling. Moreover, it presents the implementation of the developed prototypes, including testing in real industries, which have collected and analyzed big data and proved their effectiveness. The book is intended for practitioners, enterprise representatives, scientists, and Ph.D. and master's students interested in the research and applications of cyber-physical systems in different domains.

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[Green BIM](#)

[State-of-the-Art of High Power Gyro-Devices and Free Electron Masers. Update 2016 \(KIT Scientific Reports : 7735\)](#)

This book discusses the past, present, and future of migration in the Arctic. It addresses many of the critical dynamics of immigration and migration, and emerging challenges that now confront the region. What can be learned from the past? What are the challenges and solutions of tomorrow? Migration in the Arctic is a fascinating and topical – but less studied – phenomenon that influences various societal levels, such as education. The book introduces research on economic, social, and educational perspectives of migration in the region. It provides analysis of minorities immigrating to the North without neglecting the viewpoint of indigenous people of the Arctic. Contributors comprise researchers from various Arctic countries. Multidisciplinary research provides a unique viewpoint to the theme. The book is suitable for researchers and teachers of higher education as well as anyone interested in Arctic studies and (im)migration.

'Analysis and Design of Marine Structures' explores recent developments in methods and modelling procedures for structural assessment of marine structures: – Methods and tools for establishing loads and load effects; – Methods and tools for strength assessment; – Materials and fabrication of structures; – Methods and tools for structural design and optimisation; – Structural reliability, safety and environment protection. The book is a valuable reference source for academics, engineers and professionals involved in marine structures and design of ship and offshore structures.

The text demonstrates the methods for proving the existence (if at all) and finding of inverse and ill-posed problems solutions in linear algebra, integral and operator equations, integral geometry, spectral inverse problems, and inverse scattering problems. It is given comprehensive background material for linear ill-posed problems and for coefficient inverse problems for hyperbolic, parabolic, and elliptic equations. A lot of examples for inverse problems from physics, geophysics, biology, medicine, and other areas of application of mathematics are included.

First published in 1959 by the International Association of Universities (IAU), the International Handbook of Universities provides detailed information on Education Systems and higher education institutions that offer at least a four-year degree or a four-year professional diploma. For Education Systems: Description of the higher education system of each country Stages of studies as well as information on distance education Admission criteria, including information for foreign students Quality assurance and recognition systems Contact details for national bodies For Institutions: Contact details: name, address, telephone, fax, website Historical background, special facilities and publications Degrees and diplomas offered at each level of study Key personnel, including principal academic and administrative officers Description of facilities, schools and departments Valuable information on academic year, admission requirements, academic staff and student numbers

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[Components and Devices](#)

[Advances in Neural Computation, Machine Learning, and Cognitive Research II](#)

[The Oxford Handbook of the Russian Economy](#)

[Proceedings of the 5th International Conference on Industrial Engineering \(ICIE 2019\)](#)

[Generalized Continua – from the Theory to Engineering Applications](#)

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