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Exit from Globalization moves from theory to practice: from questions of where incorrigible knowledge of substantive economic life derives and how that knowledge is put towards making a progressive, redistributive, eco-sustainable future of human flourishing. Westra discards at the outset views that the root of current economic ills is the old devil we know, capitalism. Rather, he maintains the neoliberal decades spawned a "Merchant of Venice" economic excrescence bent upon expropriation and rent seeking which will scrape all the flesh from the bones of humanity if not stopped dead in its tracks. En route to providing a viable design for the human future in line with transformatory demands of socialists and Greens, Westra exorcizes both Soviet demons and ghosts of neoliberal ideologues past which lent support to the position that there is no alternative to "the market". Exit from Globalization shows in a clear and compelling fashion that while debates over the possibility of another, potentially socialist, world swirl around this or that grand society-wide scheme, the fact is that creative future directed thinking has at its disposal several economic principles that transformatory actors may choose from and combine in various ways to remake human economic life. The book concludes with an examination of the various social constituencies currently supporting radical change and explores the narrowing pathways to bring change about.

This book presents the empirical analysis on status of stress among the higher secondary students and factors determining the same and thus offer insight to critically examine the social, familial, and individual factors that pose risks for student development and identify points of intervention. This book will enable school administrators/principals understand student responses towards difficult situations, which can help in making provisions for intervention at necessary point/stage for corrective and remedial measures. It will help educational leaders to provide a school happy learning climate marked by caring and supportive human resources and opportunities for meaningful participation that can promote resilience and counteract the risk factors in a student's life. It will also help to involve family and community members in supporting their personal or academic growth and in fighting unpleasant life experiences, strengthening child-raising skills, mentoring and tutoring students.

This proceedings contains a selection of peer-reviewed papers presented at the IAG Scientific Assembly, Postdam, Germany, 1-6 September, 2013. The scientific sessions were focussed on the definition, implementation and scientific applications of reference frames; gravity field determination and applications; the observation and assessment of earth hazards. It presents a collection of the contributions on the applications of earth rotations dynamics, on observation systems and services as well as on imaging and positioning techniques and its applications.

This book constitutes revised papers from the 12th International Conference on Large-Scale Scientific Computing, LSSC 2019, held in Sozopol, Bulgaria, in June 2019. The 70 papers presented in this volume were carefully reviewed and selected from 81 submissions. The book also contains two invited talks. The papers were organized in topical sections named as follows: control and optimization of dynamical systems; meshfree and particle methods; fractional diffusion problems: numerical methods, algorithms and applications; pore scale flow and transport simulation; tensors based algorithms and structures in optimization and applications; HPC and big data: algorithms and applications; large-scale models: numerical methods, parallel computations and applications; monte carlo algorithms: innovative applications in conjunctions with other methods; application of metaheuristics to large-scale problems; large scale machine learning: multiscale algorithms and performance guarantees; and contributed papers.

Over five hundred years since it was named, utopia remains a vital concept for understanding and challenging the world(s) we inhabit, even in – or rather because of – the condition of 'post-utopianism' that supposedly permeates them. In Rethinking Utopia David M. Bell offers a diagnosis of the present through the lens of utopia and then, by rethinking the concept through engagement with utopian studies, a variety of 'radical' theories and the need for decolonizing praxis, shows how utopianism might work within, against and beyond that which exists in order to provide us with hope for a better future. He proposes paying a 'subversive fidelity' to utopia, in which its three constituent terms: 'good' (eu), 'place' (topos), and 'no' (ou) are rethought to assert the importance of immanent, affective relations. The volume engages with a variety of practices and forms to articulate such a utopianism, including popular education/critical pedagogy; musical improvisation; and utopian literature. The problems as well as the possibilities of this utopianism are explored, although the problems are often revealed to be possibilities, provided they are subject to material challenge. Rethinking Utopia offers a way of thinking about (and perhaps realising) utopia that helps overcome some of the binary oppositions structuring much thinking about the topic. It allows utopia to be thought in terms of place and process; affirmation and negation; and the real and the not-yet. It engages with the spatial and affective turns in the social sciences without ever uncritically being subsumed by them; and seeks to make connections to indigenous cosmologies. It is a cautious, careful, critical work punctuated by both pessimism and hope; and a refusal to accept the finality of this or any world.

As a concept, Concurrent Engineering (CE) initiates processes with the goal of improving product quality, production efficiency and overall customer satisfaction. Services are becoming increasingly important to the economy, with more than 60% of the GDP in Japan, the USA, Germany and Russia deriving from service-based activities. The definition of a product has evolved from the manufacturing and supplying of goods only, to providing goods with added value, to eventually promoting a complete service business solution, with support from introduction into service and from operations to decommissioning. This book presents the proceedings of the 20th ISPE International Conference on Concurrent Engineering, held in Melbourne, Australia, in September 2013. The conference had as its theme Product and Service Engineering in a Dynamic World, and the papers explore

research results, new concepts and insights covering a number of topics, including service engineering, cloud computing and digital manufacturing, knowledge-based engineering and sustainability in concurrent engineering.

An effective and cost efficient protection of electronic system against ESD stress pulses specified by IEC 61000-4-2 is paramount for any system design. This pioneering book presents the collective knowledge of system designers and system testing experts and state-of-the-art techniques for achieving efficient system-level ESD protection, with minimum impact on the system performance. All categories of system failures ranging from 'hard' to 'soft' types are considered to review simulation and tool applications that can be used. The principal focus of System Level ESD Co-Design is defining and establishing the importance of co-design efforts from both IC supplier and system builder perspectives. ESD designers often face challenges in meeting customers' system-level ESD requirements and, therefore, a clear understanding of the techniques presented here will facilitate effective simulation approaches leading to better solutions without compromising system performance. With contributions from Robert Ashton, Jeffrey Dunnihoo, Micheal Hopkins, Pratik Maheshwari, David Pomerence, Wolfgang Reinprecht, and Matti Usumaki, readers benefit from hands-on experience and in-depth knowledge in topics ranging from ESD design and the physics of system ESD phenomena to tools and techniques to address soft failures and strategies to design ESD-robust systems that include mobile and automotive applications. The first dedicated resource to system-level ESD co-design, this is an essential reference for industry ESD designers, system builders, IC suppliers and customers and also Original Equipment Manufacturers (OEMs). Key features: Clarifies the concept of system level ESD protection. Introduces a co-design approach for ESD robust systems. Details soft and hard ESD fail mechanisms. Detailed protection strategies for both mobile and automotive applications. Explains simulation tools and methodology for system level ESD co-design and overviews available test methods and standards. Highlights economic benefits of system ESD co-design.

This volume highlights key challenges for fluid-flow prediction in carbonate reservoirs, the approaches currently employed to address these challenges and developments in fundamental science and technology. The papers span methods and case studies that highlight workflows and emerging technologies in the fields of geology, geophysics, petrophysics, reservoir modelling and computer science. Topics include: detailed pore-scale studies that explore fundamental processes and applications of imaging and flow modelling at the pore scale; case studies of diagenetic processes with complementary perspectives from reactive transport modelling; novel methods for rock typing; petrophysical studies that investigate the impact of diagenesis and fault-rock properties on acoustic signatures; mechanical modelling and seismic imaging of faults in carbonate rocks; modelling geological influences on seismic anisotropy; novel approaches to geological modelling; methods to represent key geological details in reservoir simulations and advances in computer visualization, analytics and interactions for geoscience and engineering.

The general theme of MEDICON 2013 is "Research and Development of Technology for Sustainable Healthcare". This decade is being characterized by the appearance and use of emergent technologies under development. This situation has produced a tremendous impact on Medicine and Biology from which it is expected an unparalleled evolution in these disciplines towards novel concept and practices. The consequence will be a significant improvement in health care and well-fare, i.e. the shift from a reactive medicine to a preventive medicine. This shift implies that the citizen will play an important role in the healthcare delivery process, what requires a comprehensive and personalized assistance. In this context, society will meet emerging media, incorporated to all objects, capable of providing a seamless, adaptive, anticipatory, unobtrusive and pervasive assistance. The challenge will be to remove current barriers related to the lack of knowledge required to produce new opportunities for all the society, while new paradigms are created for this inclusive society to be socially and economically sustainable, and respectful with the environment. In this way, these proceedings focus on the convergence of biomedical engineering topics ranging from formalized theory through experimental science and technological development to practical clinical applications.

Providing a clear and systematic description of droplets and spray dynamic models, this book maximises reader insight into the underlying physics of the processes involved, outlines the development of new physical and mathematical models and broadens understanding of interactions between the complex physical processes which take place in sprays. Complementing approaches based on the direct application of computational fluid dynamics (CFD), Droplets and Sprays treats both theoretical and practical aspects of internal combustion engine process such as the direct injection of liquid fuel, subcritical heating and evaporation. Including case studies that illustrate the approaches relevance to automotive applications, it is also anticipated that the described models can find use in other areas such as in medicine and environmental science.

Summary: "This book brings together case study examples in the fields of sustainability, sustainable development, and education for sustainable development"--

Despite of many years of studies, predicting fluid flow, heat, and chemical transport in fractured-porous media remains a challenge for scientists and engineers worldwide. This monograph is the third in a series on the dynamics of fluids and transport in fractured rock published by the American Geophysical Union (Geophysical Monograph Series, Vol. 162, 2005; and Geophysical Monograph, No. 122, 2000). This monograph is dedicated to the late Dr. Paul Witherspoon for his seminal influence on the development of ideas and methodologies and the birth of contemporary fractured rock hydrogeology, including such fundamental and applied problems as environmental remediation; exploitation of oil, gas, and geothermal resources; disposal of spent nuclear fuel; and geotechnical engineering. This monograph addresses fundamental and applied scientific questions and is intended to assist scientists and practitioners bridge gaps in the current scientific knowledge in the areas of theoretical fluids dynamics, field measurements, and experiments for different practical applications. Readers of this book will include researchers, engineers, and professionals within academia, Federal agencies, and industry, as well as graduate/undergraduate students involved in theoretical, experimental, and numerical modeling studies of fluid dynamics and reactive chemical transport in the unsaturated and

saturated zones, including studies pertaining to petroleum and geothermal reservoirs, environmental management and remediation, mining, gas storage, and radioactive waste isolation in underground repositories. Volume highlights include discussions of the following: Fundamentals of using a complex systems approach to describe flow and transport in fractured-porous media. Methods of Field Measurements and Experiments Collective behavior and emergent properties of complex fractured rock systems Connection to the surrounding environment Multi-disciplinary research for different applications

This book is one of the first comprehensive works to fill the knowledge gap resulting from the limited number of empirical studies on interfirm networks. The in-depth empirical research presented here is based on a massive transaction relationship database of approximately 400,000 Japanese firms. This volume, unlike others, focuses on the role of interfirm networks in three different fields: (1) macroeconomic activities, (2) economic geography and firm dynamics, and (3) firm–bank relationships. The database for this work is constructed in collaboration with Japan's largest credit research company, Teikoku Data Bank, and covers a substantial portion of Japanese firms with information on firms' transaction partners, shareholders, financial institutions, and other attributes, including their locations and performance. Networks prevail in many aspects of economic activities and play a major role in explaining a wide variety of economic phenomena from business cycles to knowledge spillovers, which has motivated economists to produce a number of excellent works. In the policy arena, there has been a growing concern on the vulnerabilities of networks based on the casual observation that idiosyncratic shocks on firms can be amplified through inter-firm connections and leads to a systemic crisis. Typical examples are the manufacturing supply-chain networks in the automobile and electronics industries which propagated regionally concentrated shocks (the Great East Japan Earthquake and floods in Thailand in 2011) into global ones. An abundance of theoretical literature on the formation and functions of networks is available already. This book breaks new ground, however, and provides an excellent opportunity for the reader to gain a more integrated understanding of the role of networks in the economy. The Economics of Interfirm Networks will be of special interest to economists and practitioners seeking empirical and quantitative knowledge on interfirm and firm–bank networks.

'Enticing' Sunday Times 'Powerful' Hannah Fry, author of Hello World 'Engaging' Financial Times 'Brilliant' Robert Peston, ITV Political Editor and author of WTF As technology accelerates, the human mind struggles to keep up - and our companies, workplaces, and democracies get left behind. This is the exponential gap. Now, a leading technologist explains how this exponential gap is rewiring business and society. Exploring corporations and the workplace, diplomacy and big tech, Exponential makes sense of a period of dizzyingly fast change - and reveals how we should respond. ___ 'Valuable and timely . . . The importance of the book lies in its diligent and comprehensive definition of a new phase in human affairs.' Sunday Times 'A sweeping, engaging, nuanced, and ultimately conflicted look at how recent innovations in computing and other emerging technologies have radically transformed human existence . . . Deft and clear-eyed.' Financial Times 'Azhar has a knack for interrogating and inverting conventional thinking . . . A convincing case that something extraordinary is taking place in business and society.' Economist 'Comprehensive but lively . . . An essential addition to the ongoing discourse about where remarkable new technologies can take us, and where we should be aiming to go. Highly recommended!' Reid Hoffman, co-founder of LinkedIn and author of Blitzscaling 'Azhar is unapologetically bullish about the power of technology . . . He speaks powerfully about how we need to shape technology to put it back in the service of society.' Guardian 'Read this book if you are interested in how we can design a more inclusive and sustainable system with a re-direction of technological change at its centre.' Mariana Mazzucato, UCL professor and author of The Value of Everything and Mission Economy 'A powerful argument . . . Azeem Azhar's writing is informative and accessible, and his prescient ideas are only going to become more important as time goes on.' Hannah Fry, BBC Radio 4 presenter and author of Hello World 'Azeem Azhar is one of the best-regarded thought leaders in the industry . . . He has a broad understanding of the ways technology can be used to solve our biggest problems, shape our society, and bridge cultural divides.' Daniel Ek, co-founder and CEO of Spotify 'Azeem Azhar is a globally recognised voice on technology and its impact. He has written a fascinating and important book, required reading for anyone seeking to understand the new economy and the massive global corporations that seek to dominate that economy.' Matthew Taylor, Chief Executive, Royal Society of Arts

"This reference brings together an impressive array of research on the development of Science, Technology, Engineering, and Mathematics curricula at all educational levels"--Provided by publisher.

This volume collects several extended articles from the first workshop on Best Practices in Physics-based Fault Rupture Models for Seismic Hazard Assessment of Nuclear Installations (BestPSHANI). Held in 2015, the workshop was organized by the IAEA to disseminate the use of physics-based fault-rupture models for ground motion prediction in seismic hazard assessments (SHA). The book also presents a number of new contributions on topics ranging from the seismological aspects of earthquake cycle simulations for source scaling evaluation, seismic source characterization, source inversion and physics-based ground motion modeling to engineering applications of simulated ground motion for the analysis of seismic response of structures. Further, it includes papers describing current practices for assessing seismic hazard in terms of nuclear safety in low seismicity areas, and proposals for physics-based hazard assessment for critical structures near large earthquakes. The papers validate and verify the models by comparing synthetic results with observed data and empirical models. The book is a valuable resource for scientists, engineers, students and practitioners involved in all aspects of SHA.

While the great scientists of the past recognized a need for a multidisciplinary approach, today's schools often treat math and science as subjects separate from the rest. This not only creates a disinterest among students, but also a potential learning gap once students reach college and then graduate into the workforce. Cases on Research-Based Teaching Methods in Science Education addresses the problems currently facing science education in the USA and the UK, and suggests a new hands-on approach to learning. This book is an essential reference source

for policymakers, academicians, researchers, educators, curricula developers, and teachers as they strive to improve education at the elementary, secondary, and collegiate levels. *Becoming Mobius* is about living with uncertainty. Uncertainty is a state of being that many people struggle with both in day-to-day life and in education; being uncertain has almost become a sin. If we are truly to have an education system that 'works', we need to accept that learning and life are not simple, and we need to engage with difficult and complex ideas. Focusing on the process of learning and teaching, Dr Debra Kidd posits the possibility that wondering and wandering teachers might impact greatly on a child's ability to live with and thrive among uncertainties. She asks of us, not only as teachers or researchers, but simply as human beings, what are the things that affect us, and how can we remain attuned to all their possibilities while still functioning? Taking cues from neuroscience, physics, anthropology and philosophy, particularly that of Gilles Deleuze and Felix Guattari, but also Hannah Arendt, Jacques Derrida, Michel Foucault and others, Dr Kidd explores the nature and purpose of education through a series of different lenses. Details, moments, interactions and relationships are put under the microscope and their effects on teaching and learning examined. *Becoming Mobius* started life as Debra Kidd's doctoral thesis and draws on her extensive classroom experience, her own observations and research, and a broad base of educational thought; including the work of Gert Biesta, Masny's Multiple Literacies and more. In *Becoming Mobius* each chapter is presented as a plateau and maps the complexities of teaching and learning. This is a journey through a landscape of education. It is not a straight route. It is not a cop-out. It is a means of living in, with and through complexity and multiplicity. It is an attempt to bring forward a fresh vision of education. This is an honest, challenging and incredibly profound book that makes you stop and think - deeply - about what you do, why you do it and the effect it has. You will never look at teaching in the same light again. For anyone interested in thinking deeply about education.

The Arctic has again become one of the leading issues on the international foreign policy agenda, in a manner unseen since the Cold War. Drawing on the perspectives of geo-politics and international law, this Handbook offers fresh insights and perspectives on the most pressing issues, grouped under the headings of political ascendancy, climate and environmental issues, resources and energy, and the response and policies of affected countries.

The trans-disciplinary thematic areas of oceans management and policy require stocktaking of the state of knowledge on ecosystem services being derived from coastal and marine areas. Recently adopted Sustainable Development Goals (SDGs) especially Goals 14 and 15 explicitly focus on this. This Handbook brings together a carefully chosen set of world-class contributions from ecology, economics, and other development science and attempts to provide policy relevant scientific information on ecosystem services from marine and coastal ecosystems, nuances of economic valuation, relevant legal and sociological response policies for effective management of marine areas for enhanced human well being. The contributors focus on the possible nexus of science-society and science-policy with the objective of informing on decision makers of the governmental agencies, business and industry and civil society in general with respect to sustainable management of Oceans.

This book is a collection of talks presented at the First International African Symposium on Exotic Nuclei (IASEN-2013). The symposium was held at Cape Town, South Africa from 2 - 6 December 2013. The IASEN2013 was dedicated to the problems of producing and investigating nuclei far from the line of stability. The symposium was organized by two scientific centers: iThemba LABS, South Africa and the Joint Institute for Nuclear Research (Dubna). The main goal of the Symposium was to discuss the latest results on the production and study of the properties of the lightest to heaviest nuclei, as well as the plans for future joint investigations in the field of exotic nuclei. The talks were presented by the 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. At the Symposium were 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.

2021-22 UPPCS General Studies & C-SAT Previous Solved Papers

This book is a printed edition of the Special Issue "Sustainable Smart Cities and Smart Villages Research" that was published in *Sustainability*

The power of mapping: principles for visualizing knowledge, illustrated by many stunning large-scale, full-color maps. Maps of physical spaces locate us in the world and help us navigate unfamiliar routes. Maps of topical spaces help us visualize the extent and structure of our collective knowledge; they reveal bursts of activity, pathways of ideas, and borders that beg to be crossed. This book, from the author of *Atlas of Science*, describes the power of topical maps, providing readers with principles for visualizing knowledge and offering as examples forty large-scale and more than 100 small-scale full-color maps. Today, data literacy is becoming as important as language literacy. Well-designed visualizations can rescue us from a sea of data, helping us to make sense of information, connect ideas, and make better decisions in real time. In *Atlas of Knowledge*, leading visualization expert Katy Börner makes the case for a systems science approach to science and technology studies and explains different types and levels of analysis. Drawing on fifteen years of teaching and tool development, she introduces a theoretical framework meant to guide readers through user and task analysis; data preparation, analysis, and visualization; visualization deployment; and the interpretation of science maps. To exemplify the framework, the Atlas features striking and enlightening new maps from the popular "Places & Spaces: Mapping Science" exhibit that range from "Key Events in the Development of the Video Tape Recorder" to "Mobile Landscapes: Location Data from Cell Phones for Urban Analysis" to "Literary Empires: Mapping Temporal and Spatial Settings of Victorian Poetry" to "Seeing Standards: A Visualization of the Metadata Universe." She also discusses the possible effect of science maps on the practice of science.

This book contains revised papers from the 17th International Conference on Enterprise Information Systems, ICEIS 2015, held in Barcelona, Spain, in April 2015. The 31 papers presented in this volume were carefully reviewed and selected from a total of 327 submissions. The book also contains one full-paper invited talk. The selected papers reflect state-of-the-art research that is oriented toward real-world applications and highlight the benefits of information systems and technology for industry and services. They are organized in topical sections on databases and information systems integration, artificial intelligence and decision support systems, information systems analysis and specification, software agents and Internet computing, human-computer interaction, and enterprise architecture.

How math helps us solve the universe's deepest mysteries One of the great insights of science is that the universe has an underlying order. The supreme goal of physicists is to understand this order through laws that describe the behavior of the most basic particles and the forces between them. For centuries, we have searched for these laws by studying the results of experiments. Since the 1970s, however, experiments at the world's most powerful atom-smashers have offered few new clues. So some of the world's leading physicists have looked to a different source of insight: modern mathematics. These physicists are sometimes accused of doing 'fairy-tale physics', unrelated to the real world. But in *The Universe Speaks in Numbers*, award-winning science writer and biographer Fermelo argues that the

physics they are doing is based squarely on the well-established principles of quantum theory and relativity, and part of a tradition dating back to Isaac Newton. With unprecedented access to some of the world's greatest scientific minds, Farmelo offers a vivid, behind-the-scenes account of the blossoming relationship between mathematics and physics and the research that could revolutionize our understanding of reality. A masterful account of some of the most groundbreaking ideas in physics in the past four decades. The Universe Speaks in Numbers is essential reading for anyone interested in the quest to discover the fundamental laws of nature.

Marine Bioenergy: Trends and Developments features the latest findings of leading scientists from around the world. Addressing the key aspects of marine bioenergy, this state-of-the-art text: Offers an introduction to marine bioenergy Explores marine algae as a source of bioenergy Describes biotechnological techniques for biofuel production Explains the production of bioenergy, including bioethanol, biomethane, biomethanol, biohydrogen, and biodiesel Covers bioelectricity and marine microbial fuel cell (MFC) production from marine algae and microbes Discusses marine waste for bioenergy Considers commercialization and the global market Marine Bioenergy: Trends and Developments provides a valuable springboard for marine bioenergy research and development, making the book a must-have reference for scientists, engineers, and students.

In this forward-looking book, the authors consider how the United Nations Security Council could assist in addressing the global security challenges brought about by climate change. Contributing authors contemplate how the UNSC could prepare for this role; progressing the debate from whether and why the council should act on climate insecurity, to how? Scholars, activists, and policy makers will find this book a fertile source of innovative thinking and an invaluable basis on which to develop policy.

This book presents an analysis of the dynamics and the complexity of new product development projects which are organized according to the concept of concurrent engineering. The approach of the authors includes both a theoretical and an empirical treatment of the topic, based on the theory of design structure matrices. Readers will discover diverse perspectives and mathematical models, as well as an extensive discussion of two case studies.

This book deals with novel advanced engine combustion technologies having potential of high fuel conversion efficiency along with ultralow NO_x and particulate matter (PM) emissions. It offers insight into advanced combustion modes for efficient utilization of gasoline like fuels. Fundamentals of various advanced low temperature combustion (LTC) systems such as HCCI, PCCI, PPC and RCCI engines and their fuel quality requirements are also discussed. Detailed performance, combustion and emissions characteristics of futuristic engine technologies such as PPC and RCCI employing conventional as well as alternative fuels are analyzed and discussed. Special emphasis is placed on soot particle number emission characterization, high load limiting constraints, and fuel effects on combustion characteristics in LTC engines. For closed loop combustion control of LTC engines, sensors, actuators and control strategies are also discussed. The book should prove useful to a broad audience, including graduate students, researchers, and professionals Offers novel technologies for improved and efficient utilization of gasoline like fuels; Deals with most advanced and futuristic engine combustion modes such as PPC and RCCI; Comprehensible presentation of the performance, combustion and emissions characteristics of low temperature combustion (LTC) engines; Deals with closed loop combustion control of advanced LTC engines; State-of-the-art technology book that concisely summarizes the recent advancements in LTC technology. .

Surveys key advances in commercial satellite communications and what might be the implications and/or opportunities for end-users and service providers in utilizing the latest fast-evolving innovations in this field This book explores the evolving technical options and opportunities of satellite networks. Designed to be a self-contained reference, the book includes background technical material in an introductory chapter that will serve as a primer to satellite communications. The text discusses advances in modulation techniques, such as DBV-S2 extensions (DVS-S2X); spotbeam-based geosynchronous and medium earth orbit High Throughput Satellite (HTS) technologies and Internet applications; enhanced mobility services with aeronautical and maritime applications; Machine to Machine (M2M) satellite applications; emerging ultra HD technologies; and electric propulsion. The author surveys the latest innovations and service strategies and the resulting implications, which involves: Discussing advances in modulation techniques and HTS spotbeam technologies Surveying emerging high speed aeronautical mobility services and maritime and other terrestrial mobility services Assessing M2M (machine-to-machine) applications, emerging Ultra HD video technologies and new space technology Satellite communication is an integral part of the larger fields of commercial, television/media, government, and military communications, because of its multicast/broadcast capabilities, mobility, reliability, and global reach. High Throughput Satellites) are expected to revolutionize the field during this decade, providing very high speed, yet cost-effective, Internet access and connectivity anywhere in the world, in rural areas, in the air, and at sea. M2M connectivity, enabled by satellite communications, connects trucks on transcontinental trips, aircraft in real-time-telemetry aggregation, and mercantile ships. A comprehensive analysis of the new advances in satellite communications, Innovations in Satellite Communications Technology is a reference for telecommunications and satellite providers and end-users, technology investors, logistic professionals, and more.

This book addresses groundwater governance, a subject internationally recognized as crucial and topical for enhancing and safeguarding the benefits of groundwater and groundwater-dependent ecosystems to humanity, while ensuring water and food security under global change. The multiple and complex dimensions of groundwater governance are captured in 28 chapters, written by a team of leading experts from different parts of the world and with a variety of relevant professional backgrounds. The book aims to describe the state-of-the-art and latest developments regarding each of the themes addressed, paying attention to the wide variation of conditions observed around the globe. The book consists of four parts. The first part sets the stage by defining groundwater governance, exploring its emergence and evolution, framing it through a socio-ecological lens and describing groundwater policy and planning approaches. The second part discusses selected key aspects of groundwater governance. The third part zooms in on the increasingly important linkages between groundwater and other resources or sectors, and between local groundwater systems and phenomena or actions at the international or even global level. The fourth part, finally, presents a number of interesting case studies that illustrate contemporary practice in groundwater governance. In one volume, this highly accessible text not only familiarizes water professionals, decision-makers and local stakeholders with groundwater governance, but also provides them with ideas and inspiration for improving groundwater governance in their own environment. At a time when even the foundations and pre-eminence of the Western order are called into question by both the weaknesses of the transatlantic partnership and the spectacular rise of the Asia-Pacific region, suggesting a switch to a post-Atlantic order, the contributors to this volume provide specific answers to present-day interrogations pertaining to various processes of transformation. This book offers multidisciplinary perspectives on political, economic, social, technological and cultural dimensions of change, and proposes various possible responses to current global and regional challenges.

This book explores sustainability engineering through the lens of the manufacturing and chemical process industries to elucidate the safe and economic implementation of process designs used to transform raw materials into useful finished products. The author applies the tenets of sustainability science to develop an engineering methodology that supports the perpetual availability of raw materials through recycling/reuse/repurposing, incorporates inexhaustible supplies, such as solar energy and municipal waste, and encompasses the husbandry of these resources in a manner that minimizes negative environmental impacts. Anyone involved in the design or manufacture of chemicals, or the upgrade of existing manufacturing processes, will benefit from this book's suggestions for identifying improvement options, while adding the pivotal aspect of sustainability to the usual cost and safety equation optimization elements.

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