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Communication, Smart Technologies and Innovation for Society
Co-phase Traction Power Supply with Railway Hybrid Power Quality Conditioner **Recent Advances in Smart Manufacturing and Materials EngOpt 2018 Proceedings of the 6th International Conference on Engineering Optimization** **Smart Polymeric Nano-Constructs in Drug Delivery** **Wireless Communications Networks for the Smart Grid** **CONTROLO'2014 - Proceedings of the 11th Portuguese Conference on Automatic Control** **Reviews of Environmental Contamination and Toxicology** *Narrow and Smart Textiles* *Organic Materials as Smart Nanocarriers for Drug Delivery* **An Introduction to Pollution Science** **Electronic Instrumentation for Distributed Generation and Power Processes Towards Users' Optimal and Pleasurable Experience in Smart Environments** [Department of Defense Dictionary of Military and Associated Terms](#) *Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications* [Communications in Microgrids](#) **Decision Making Under Uncertainty** **Current List of Medical Literature** **Health Effects of Municipal Waste Incineration** [Greenways for America](#) *Intelligent Decision Technologies* **Emerging Trends in Electrical, Communications and Information Technologies** [Modification of Polymers](#) **Environmental Health Perspectives** [The New Jim Crow](#) *Technological Innovation for Resilient Systems* *Advances in Mechanical Engineering and Material Science* **Ecological Networks**

and Greenways **Novel Advancements in Electrical Power Planning and Performance** [Geotechnical Instrumentation for Monitoring Field Performance](#) [Deep Learning and Missing Data in Engineering Systems](#)
Head and Neck Cancer

The book presents the latest developments in narrow fabrics and smart materials from research institutions, machinery building companies and producers of such products, presented during the International Week of Narrow and Smart Textiles in Spring 2018 in Mönchengladbach, Germany. It also demonstrates different applications of braided and woven fabrics. Braided and woven narrow products are produced using completely different techniques, but have a lot of similarities in their applications – they are used as belts, ropes and tubes in areas ranging from medical textiles, cables, technical and home applications to large-scale transport belts and long tubes for transporting oil from the bottom of the ocean. This book offers a brief review of and investigations into the power quality problem in the new technology of co-phase high-speed traction power supplies, which benefits for higher locomotive speed. In addition, it presents detailed design procedures and discusses the chief concerns in connection with a newly proposed solution: compensation in co-phase traction power using a co-phase railway hybrid power quality conditioner (Railway HPQC). Further, it provides essential information on the modeling of power quality in co-phase, high-speed traction power supplies, and on power quality compensation algorithm derivations. Lastly, it delineates the design of railway HPQC and analyzes the effect of different parameters on its performance to accommodate different priorities. All design is supported by simulations and the results of experimental verification. Technologies in today's society are rapidly developing at a pace that is challenging to stay up to date with. As an

increasing number of global regions are implementing smart methods and strategies for sustainable development, they are continually searching for modern advancements within computer science, sensor networks, software engineering, and smart technologies. A compilation of research is needed that displays current applications of computing methodologies in the progression of global cities and how smart technologies are being utilized. *Sensor Network Methodologies for Smart Applications* is a collection of innovative research on the methods of intelligent systems and technologies and their various applications within sustainable development practices. While highlighting topics including machine learning, network security, and optimization algorithms, this book is ideally designed for researchers, scientists, developers, programmers, engineers, educators, policymakers, geographers, planners, and students seeking current research on smart technologies and sensor networks. *Smart Polymeric Nano-Constructs in Drug Delivery: Concept, Design and Therapeutic Applications* provides a thorough discussion of the most state of the art material and polymer exploitations for the delivery of bioactive(s) as well as their current and clinical status. The book enables researchers to prepare a variety of smart drug delivery systems to investigate their properties as well as to discover their uses and applications. The novelty of this approach addresses an existing need of exhaustively understanding the potential of the materials including polymeric drug delivery systems that are smartly designed to deliver bioactive(s) into the body at targeted sites without showing side effects. The book is helpful for those in the health sector, specifically those developing nanomedicine using smart material-based nano-delivery systems. Polymers have unique co-operative properties that are not found with low-molecular-weight compounds along with their appealing physical and chemical properties, constituting the root of their success in drug delivery. *Smart Polymeric Nano-Constructs in Drug Delivery: Concept, Design and Therapeutic Applications* discusses smart and stimuli responsive polymers applicable in drug delivery, followed detailed information about various concepts and designing of polymeric novel drug delivery systems for treatment of various type of diseases,

also discussing patents related to the field. The book helps readers to design and develop novel drug delivery systems based on smart materials for the effective delivery of bioactive that take advantage of recent advances in smart polymer-based strategies. It is useful to those in pharmaceutical sciences and related fields in developing new drug delivery systems. Provides comprehensive overview of the potential role of polymeric systems in drug delivery Explores the design, synthesis, and application of different smart material-based delivery systems Includes fundamental and clinical applications This book presents the 57 papers accepted for presentation at the Seventh KES International Conference on Intelligent Decision Technologies (KES-IDT 2015), held in Sorrento, Italy, in June 2015. The conference consists of keynote talks, oral and poster presentations, invited sessions and workshops on the applications and theory of intelligent decision systems and related areas. The conference provides an opportunity for the presentation and discussion of interesting new research results, promoting knowledge transfer and the generation of new ideas. The book will be of interest to all those whose work involves the development and application of intelligent decision systems. The proceeding presents best selected papers presented at 5th International Conference on Smart Computing and Informatics (SCI 2020), held at Department of Computer Science and Engineering, Vasavi College of Engineering, Hyderabad, Telangana, India, during 17 - 18 September 2021. It presents advanced and multi-disciplinary research towards the design of smart computing and informatics. The theme is on a broader front focuses on various innovation paradigms in system knowledge, intelligence and sustainability that may be applied to provide realistic solutions to varied problems in society, environment and industries. The scope is also extended towards the deployment of emerging computational and knowledge transfer approaches, optimizing solutions in various disciplines of science, technology and healthcare. The work is published in two volumes. The goal of the book is to provide basic and advanced knowledge of design, analysis, and circuit implementation for electronic instrumentation and clarify how to get the best out of the analog, digital,

and computer circuitry design steps. The reader will learn the physical fundamentals guiding the electrical and mechanical devices that allow for a modern automation and control system, which are widely comprised of computers, electronic instrumentation, communication loops, smart grids, and digital circuitry. It includes practical and technical data on electronic instrumentation with respect to efficiency, maximum power, and applications. Additionally, the text discusses fuzzy logic and neural networks and how they can be used in practice for electronic instrumentation of distributed generation, smart grids, and power systems. This much-needed book provides an enlightening perspective on the environmental and human health impacts of municipal solid waste (MSW) incineration. Over 100 tables and figures allows speedy access to important data you will refer to again and again. The comprehensive text assesses the human health risks associated with exposure to facility emitted pollutants-especially the highly toxic dioxin. It includes an evaluation of multipathway (inhalation and food chain) exposures. This essential publication also evaluates facility emissions, plausible air concentrations, the potential for deposition of pollutants onto plant, soil, and water surfaces, the movement and accumulation of pollutants through environmental media, and the potential for human exposure. Health Effects of Municipal Waste Incineration is an up-to-date volume which encourages readers to formulate opinions about some of the fundamental issues affecting the management of municipal solid waste. Anyone involved with environmental science, hazardous waste, toxicology, risk analysis and/or environmental engineering will certainly value and utilize this well-written resource. During the last 20 years the Portuguese association of automatic control, Associação Portuguesa de Controlo Automático, with the sponsorship of IFAC have established the CONTROLO conference as a reference international forum where an effective exchange of knowledge and experience amongst researchers active in various theoretical and applied areas of systems and control can take place, always including considerable space for promoting new technical applications and developments, real-world challenges and success stories. In this 11th edition the CONTROLO conference evolved

by introducing two strategic partnerships with Spanish and Brazilian associations in automatic control, Comité Español de Automática and Sociedade Brasileira de Automatica, respectively. The papers in this volume focus on the following topics: design optimization and inverse problems, numerical optimization techniques, efficient analysis and reanalysis techniques, sensitivity analysis and industrial applications. The conference EngOpt brings together engineers, applied mathematicians and computer scientists working on research, development and practical application of optimization methods in all engineering disciplines and applied sciences. Deep Learning and Missing Data in Engineering Systems uses deep learning and swarm intelligence methods to cover missing data estimation in engineering systems. The missing data estimation processes proposed in the book can be applied in image recognition and reconstruction. To facilitate the imputation of missing data, several artificial intelligence approaches are presented, including: deep autoencoder neural networks; deep denoising autoencoder networks; the bat algorithm; the cuckoo search algorithm; and the firefly algorithm. The hybrid models proposed are used to estimate the missing data in high-dimensional data settings more accurately. Swarm intelligence algorithms are applied to address critical questions such as model selection and model parameter estimation. The authors address feature extraction for the purpose of reconstructing the input data from reduced dimensions by the use of deep autoencoder neural networks. They illustrate new models diagrammatically, report their findings in tables, so as to put their methods on a sound statistical basis. The methods proposed speed up the process of data estimation while preserving known features of the data matrix. This book is a valuable source of information for researchers and practitioners in data science. Advanced undergraduate and postgraduate students studying topics in computational intelligence and big data, can also use the book as a reference for identifying and introducing new research thrusts in missing data estimation. Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications comprises 411 papers that were presented at SEMC 2019, the Seventh International

Conference on Structural Engineering, Mechanics and Computation, held in Cape Town, South Africa, from 2 to 4 September 2019. The subject matter reflects the broad scope of SEMC conferences, and covers a wide variety of engineering materials (both traditional and innovative) and many types of structures. The many topics featured in these Proceedings can be classified into six broad categories that deal with: (i) the mechanics of materials and fluids (elasticity, plasticity, flow through porous media, fluid dynamics, fracture, fatigue, damage, delamination, corrosion, bond, creep, shrinkage, etc); (ii) the mechanics of structures and systems (structural dynamics, vibration, seismic response, soil-structure interaction, fluid-structure interaction, response to blast and impact, response to fire, structural stability, buckling, collapse behaviour); (iii) the numerical modelling and experimental testing of materials and structures (numerical methods, simulation techniques, multi-scale modelling, computational modelling, laboratory testing, field testing, experimental measurements); (iv) innovations and special structures (nanostructures, adaptive structures, smart structures, composite structures, bio-inspired structures, shell structures, membranes, space structures, lightweight structures, long-span structures, tall buildings, wind turbines, etc); (v) design in traditional engineering materials (steel, concrete, steel-concrete composite, aluminium, masonry, timber, glass); (vi) the process of structural engineering (conceptualisation, planning, analysis, design, optimization, construction, assembly, manufacture, testing, maintenance, monitoring, assessment, repair, strengthening, retrofitting, decommissioning). The SEMC 2019 Proceedings will be of interest to civil, structural, mechanical, marine and aerospace engineers. Researchers, developers, practitioners and academics in these disciplines will find them useful. Two versions of the papers are available. Short versions, intended to be concise but self-contained summaries of the full papers, are in this printed book. The full versions of the papers are in the e-book. The sheer volume of topics which could have been included under our general title prompted us to make some rather arbitrary decisions about content. Modification by irradiation is not included because the activity in this

area is being treated elsewhere. We have chosen to emphasize chemical routes to modification and have striven to present as balanced a representation of current activity as time and page count permit. Industrial applications, both real and potential, are included. Where appropriate, we have encouraged the contributors to include review material to help provide the reader with adequate context. The initial chapter is a review from a historical perspective of polymer modification and contains an extensive bibliography. The remainder of the book is divided into four general areas: Reactions and Preparation of Copolymers Reactions and Preparation of Block and Graft Copolymers Modification Through Condensation Reactions Applications The chemical modification of homopolymers such as polyvinylchloride, polyethylene, poly(chloroalkylene sulfides), polysulfones, poly(chloromethylstyrene), polyisobutylene, polysodium acrylate, poly(vinyl alcohol), poly(vinyl chloroformate), sulfonated polystyrene; block and graft copolymers such as poly(styrene-block-ethylene-co-butylene block-styrene), poly(1,4-polybutadiene-block ethylene oxide), star chlorine-telechelic polyisobutylene, poly(isobutylene-co-2,3-dimethyl-1,3-butadiene), poly(styrene-co-N-butylmethacrylate); cellulose, dextran and inulin, is described. This book presents select proceedings of the International Conference on Evolution in Manufacturing (ICEM 2020), and examines a range of areas including internet-of-things for cyber manufacturing, data analytics for manufacturing systems and processes and materials. The topics covered include modeling simulation and decision making in cyber physical systems for supporting engineering and production management, innovative approach in materials development, biomaterial applications, and advancement in manufacturing and material technologies. The book also discusses sustainability in manufacturing and supply chain management including circular economy. The book will be a valuable reference for beginners, researchers, and professionals interested in smart manufacturing in engineering, production management and materials technology. This book gathers high-quality papers presented at International Conference on Science, Technology and Innovation for Society (CITIS 2021), held in Guayaquil, Ecuador, on

May 26–28, 2021. This book will present the recent research trends in the fields of software engineering, big data analysis, cloud computing, data engineering, data management and data mining, machine learning, deep learning, artificial intelligence, smart systems, robotics and automation, mechatronic design, and industrial processes design. An introduction to decision making under uncertainty from a computational perspective, covering both theory and applications ranging from speech recognition to airborne collision avoidance. Many important problems involve decision making under uncertainty—that is, choosing actions based on often imperfect observations, with unknown outcomes. Designers of automated decision support systems must take into account the various sources of uncertainty while balancing the multiple objectives of the system. This book provides an introduction to the challenges of decision making under uncertainty from a computational perspective. It presents both the theory behind decision making models and algorithms and a collection of example applications that range from speech recognition to aircraft collision avoidance. Focusing on two methods for designing decision agents, planning and reinforcement learning, the book covers probabilistic models, introducing Bayesian networks as a graphical model that captures probabilistic relationships between variables; utility theory as a framework for understanding optimal decision making under uncertainty; Markov decision processes as a method for modeling sequential problems; model uncertainty; state uncertainty; and cooperative decision making involving multiple interacting agents. A series of applications shows how the theoretical concepts can be applied to systems for attribute-based person search, speech applications, collision avoidance, and unmanned aircraft persistent surveillance. Decision Making Under Uncertainty unifies research from different communities using consistent notation, and is accessible to students and researchers across engineering disciplines who have some prior exposure to probability theory and calculus. It can be used as a text for advanced undergraduate and graduate students in fields including computer science, aerospace and electrical engineering, and management science. It will also be a valuable professional

reference for researchers in a variety of disciplines. Advanced power electronic converters convert, control and condition electricity. Power converters require control strategies for periodic signal compensation to assure good power quality and stable power system operation. This comprehensive text presents the most recent internal model principle based periodic control technology, which offers the perfect periodic control solution for power electronic conversion. It also provides complete analysis and synthesis methods for periodic control systems, and plenty of practical examples to demonstrate the validity of proposed periodic control technology for power converters. It proposes a unified framework for housing periodic control schemes for power converters, and provides a general proportional-integral-derivative control solution to periodic signal compensation in extensive engineering applications. Periodic Control of Power Electronic Converters is intended for engineers, researchers and students in the field of power electronics who are interested in advanced control of power converters and control specialists who like to explore new applications of control theory. The establishment of ecological networks in Europe and greenways in America has required some of the most advanced applications of the principles of landscape ecology to land use planning. This book provides a thorough overview of recent developments in this emerging field, combining theoretical concepts of landscape ecology with the actual practice of landscape planning and management. In addition to biological and physical considerations important to biodiversity protection and restoration, equal weight is given to cultural and aesthetic issues to illustrate how sympathetic, sustainable land use policies can be implemented. Examples are given for large scale areas (Estonia and Florida) as well as regional areas such as Milano, Chicago and the Argentinian Yungas. This invaluable book will provide a wealth of information for all those concerned with biodiversity conservation through networks and greenways and their relevance to the planning process, whether researcher, land manager or policy maker. Understanding pollution, its behaviour and impact is becoming increasingly important, as new technologies and legislation continually

lower the tolerable levels of pollutants released into the environment. Introduction to Pollution Science draws upon sections of the authors' previous text (Understanding our Environment) and reflects the growing trend of a more sophisticated approach to teaching environmental science at university. This new revised book discusses the basics of environmental pollution drawing upon chemistry, physics and biological sciences. The book, written by leading experts in the field, covers topics including pollution in the atmosphere, the world's waters and soil and land contamination. Subsequent sections discuss methods of investigating the environment, the impact of pollution on human health and ecological systems and institutional mechanisms for pollution management. Each section includes worked examples and questions and is aimed at undergraduates studying environmental science, but will also prove of value to others seeking knowledge of the field. This brief presents a comprehensive review of the network architecture and communication technologies of the smart grid communication network (SGCN). It then studies the strengths, weaknesses and applications of two promising wireless mesh routing protocols that could be used to implement the SGCN. Packet transmission reliability, latency and robustness of these two protocols are evaluated and compared by simulations in various practical SGCN scenarios. Finally, technical challenges and open research opportunities of the SGCN are addressed. Wireless Communications Networks for Smart Grid provides communication network architects and engineers with valuable proven suggestions to successfully implement the SGCN. Advanced-level students studying computer science or electrical engineering will also find the content helpful. Popular Science gives our readers the information and tools to improve their technology and their world. The core belief that Popular Science and our readers share: The future is going to be better, and science and technology are the driving forces that will help make it better. This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique

mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact. Named one of the most important nonfiction books of the 21st century by Entertainment Weekly, Slate, Chronicle of Higher Education, Literary Hub, Book Riot, and Zora A tenth-anniversary edition of the iconic bestseller—"one of the most influential books of the past 20 years," according to the Chronicle of Higher Education—with a new preface by the author "It is in no small part thanks to Alexander's account that civil rights organizations such as Black Lives Matter have focused so much of their energy on the criminal justice system." —Adam Shatz, London Review of Books Seldom does a book have the impact of Michelle Alexander's *The New Jim Crow*. Since it was first published in 2010, it has been cited in judicial decisions and has been adopted in campus-wide and community-wide reads; it helped inspire the creation of the Marshall Project and the new \$100 million Art for Justice Fund; it has been the winner of numerous prizes, including the prestigious NAACP Image Award; and it has spent nearly 250 weeks on the New York Times bestseller list. Most important of all, it has spawned a whole generation of criminal justice reform activists and organizations motivated by Michelle Alexander's unforgettable argument that "we have not ended racial caste in America; we have merely redesigned it." As the Birmingham News proclaimed, it is "undoubtedly the most important book published in this century about the U.S." Now, ten years after it was first published, The New Press is proud to issue a tenth-anniversary edition with a new preface by Michelle Alexander that discusses the impact the book has had and the state of the criminal justice reform movement today. A description of the citizen-led effort to get Americans out of their cars and into the landscape via greenways - linear open spaces that preserve and restore nature in cities, suburbs and rural areas. These can link parks and open spaces and provide corridors for wildlife migration. Smart grid and microgrid technology are

growing exponentially as they are adopted throughout the world. These new technologies have revolutionized the way electricity is produced, delivered, and consumed, and offer a plethora of benefits as well as the potential for further growth. It is critical to examine the current stage of smart grid and microgrid development as well as the direction they are headed as they continue to expand in order to ensure that cost-effective, reliable, and efficient systems are put in place. The Research Anthology on Smart Grid and Microgrid Development is an all-encompassing reference source of the latest innovations and trends within smart grid and microgrid development. Detailing benefits, challenges, and opportunities, it is a crucial resource to fully understand the current opportunities that smart grids and microgrids present around the world. Covering a wide range of topics such as traditional grids, future smart grids, electrical distribution systems, and microgrid integration, it is ideal for engineers, policymakers, systems developers, technologists, researchers, government officials, academicians, environmental groups, regulators, utilities specialists, industry professionals, and students. Organic Materials as Smart Nanocarriers for Drug Delivery presents the latest developments in the area of organic frameworks used in pharmaceutical nanotechnology. An up-to-date overview of organic smart nanocarriers is explored, along with the different types of nanocarriers, including polymeric micelles, cyclodextrins, hydrogels, lipid nanoparticles and nanoemulsions. Written by a diverse range of international academics, this book is a valuable reference for researchers in biomaterials, the pharmaceutical industry, and those who want to learn more about the current applications of organic smart nanocarriers. Explores the most recent molecular- and structure-based applications of organic smart nanocarriers in drug delivery Highlights different smart nanocarriers and assesses their intricate organic structural properties for improving drug delivery Assesses how molecular organic frameworks lead to more effective drug delivery systems This book constitutes the refereed proceedings of the 9th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2018, held in Costa de Caparica, Portugal, in May 2018. The 30

revised full papers presented were carefully reviewed and selected from 74 submissions. The papers present selected results produced in engineering doctoral programs and focus on technological innovation for resilient systems. Research results and ongoing work are presented, illustrated and discussed in the following areas: collaborative systems, decision support systems, supervision systems, energy management, smart grids, sensing systems, electrical systems, simulation and analysis, monitoring systems, and energy distribution systems. The first book on the subject written by a practitioner for practitioners. Geotechnical Instrumentation for Monitoring Field Performance Geotechnical Instrumentation for Monitoring Field Performance goes far beyond a mere summary of the technical literature and manufacturers' brochures: it guides readers through the entire geotechnical instrumentation process, showing them when to monitor safety and performance, and how to do it well. This comprehensive guide: * Describes the critical steps of planning monitoring programs using geotechnical instrumentation, including what benefits can be achieved and how construction specifications should be written * Describes and evaluates monitoring methods and recommends instruments for monitoring groundwater pressure, deformations, total stress in soil, stress change in rock, temperature, and load and strain in structural members * Offers detailed practical guidelines on instrument calibrations, installation and maintenance, and on the collection, processing, and interpretation of instrumentation data * Describes the role of geotechnical instrumentation during the construction and operation phases of civil engineering projects, including braced excavations, embankments on soft ground, embankment dams, excavated and natural slopes, underground excavations, driving piles, and drilled shafts * Provides guidelines throughout the book on the best practices Comprehensive, cross-disciplinary coverage of Smart Grid issues from global expert researchers and practitioners. This definitive reference meets the need for a large scale, high quality work reference in Smart Grid engineering which is pivotal in the development of a low-carbon energy infrastructure. Including a total of 83 articles across 3 volumes The

Smart Grid Handbook is organized into 6 sections: Vision and Drivers, Transmission, Distribution, Smart Meters and Customers, Information and Communications Technology, and Socio-Economic Issues. Key features: Written by a team representing smart grid R&D, technology deployment, standards, industry practice, and socio-economic aspects. Vision and Drivers covers the vision, definitions, evolution, and global development of the smart grid as well as new technologies and standards. The Transmission section discusses industry practice, operational experience, standards, cyber security, and grid codes. The Distribution section introduces distribution systems and the system configurations in different countries and different load areas served by the grid. The Smart Meters and Customers section assesses how smart meters enable the customers to interact with the power grid. Socio-economic issues and information and communications technology requirements are covered in dedicated articles. The Smart Grid Handbook will meet the need for a high quality reference work to support advanced study and research in the field of electrical power generation, transmission and distribution. It will be an essential reference for regulators and government officials, testing laboratories and certification organizations, and engineers and researchers in Smart Grid-related industries. International concern in scientific, industrial, and governmental communities over traces of xenobiotics in foods and in both abiotic and biotic environments has justified the present triumvirate of specialized publications in this field: comprehensive reviews, rapidly published research papers and progress reports, and archival documentations. These three international publications are integrated and scheduled to provide the coherency essential for non-duplicative and current progress in a field as dynamic and complex as environmental contamination and toxicology. This series is reserved exclusively for the diversified literature on "toxic" chemicals in our food, our feeds, our homes, recreational and working surroundings, our domestic animals, our wildlife and ourselves. Tremendous efforts worldwide have been mobilized to evaluate the nature, presence, magnitude, fate, and toxicology of the chemicals loosed upon the earth.

Among the sequelae of this broad new emphasis is an undeniable need for an articulated set of authoritative publications, where one can find the latest important world literature produced by these emerging areas of science together with documentation of pertinent ancillary legislation. Research directors and legislative or administrative advisers do not have the time to scan the escalating number of technical publications that may contain articles important to current responsibility. Rather, these individuals need the background provided by detailed reviews and the assurance that the latest information is made available to them, all with minimal literature searching. This book includes the original, peer-reviewed research from the 2nd International Conference on Emerging Trends in Electrical, Communication and Information Technologies (ICECIT 2015), held in December, 2015 at Srinivasa Ramanujan Institute of Technology, Ananthapuramu, Andhra Pradesh, India. It covers the latest research trends or developments in areas of Electrical Engineering, Electronic and Communication Engineering, and Computer Science and Information. Modification of Polymer Properties provides, for the first time, in one title, the latest information on gradient IPNs and gradient copolymers. The book covers the broad range of polymer modification routes in a fresh, current view representing a timely addition to the technical literature of this important area. Historically, blends, copolymers, or filled polymers have been developed to meet specific properties, or to optimize the cost/properties relationship. Using the gradient structure approach with conventional radical polymerization, it has been shown that it is possible to optimize properties if appropriate gradients in the composition of copolymer chains are obtained. An overview of the gradient structure approach for designing polymers has not appeared in the recent literature and this title covers the different methods used to modify properties, offering the whole range of ways to modify polymers in just one volume and making this an attractive option for a wide audience of practitioners. The approach for each chapter is to explain the fundamental principles of preparation, cover properties modification, describe future research and applications as examples of materials that may be prepared for specific

applications, or that are already in use, in present day applications. The book is for readers that have a basic background in polymer science, as well as those interested in the different ways to combine or modify polymer properties. Provides an integrated view on how to modify polymer properties Presents the entire panorama of polymer properties modification in one reference, covering the essential information in each topic Includes the optimization of properties using gradients in polymers composition or structure This book presents select proceedings of the 1st International Conference on Advances in Mechanical Engineering and Material Science (ICAMEMS 2022). It discusses about the diverse technological advancements, innovations, and achievements in the areas of mechanical engineering and material science. It also covers the developments and challenges in the field of machine design, manufacturing, thermal and fluid engineering. Important topics covered in the conference include advanced manufacturing processes, machining, product design and development, mechatronics and robotics, non-conventional energy resources, green energy and energy harvesting, tribology, materials and characterization. The book also discusses advanced research areas in material science such as smart materials, bio-materials and advanced energy materials. Given the contents, the book will be a valuable reference for students, researchers and industrialists interested in advanced research areas of mechanical engineering and material science. As the demand for efficient energy sources continues to grow, electrical systems are becoming more essential to meet these increased needs. Electrical generation and transmission plans must remain cost-effective, reliable, and flexible for further future expansion. As these systems are being utilized more frequently, it becomes imperative to find ways of optimizing their overall function. Novel Advancements in Electrical Power Planning and Performance is an essential reference source that provides vital research on the specific challenges, issues, strategies, and solutions that are associated with electrical transmission and distribution systems and features emergent methods and research in the systemic and strategic planning of energy usage. Featuring research on topics such as

probabilistic modeling, voltage stability, and radial distribution, this book is ideally designed for electrical engineers, practitioners, power plant managers, investors, industry professionals, researchers, academicians, and students seeking coverage on the methods and profitability of electrical expansion planning. Includes section, "Recent book acquisitions" (varies: Recent United States publications) formerly published separately by the U.S. Army Medical Library. The Paris Agreement on Climate Change adopted on December 12, 2015 is a voluntary effort to reduce greenhouse gas emissions. In order to reach the goals of this agreement, there is a need to generate electricity without greenhouse gas emissions and to electrify transportation. An infrastructure of SPCSs can help accomplish both of these transitions. Globally, expenditures associated with the generation, transmission, and use of electricity are more than one trillion dollars per year. Annual transportation expenditures are also more than one trillion dollars per year. Almost everyone will be impacted by these changes in transportation, solar power generation, and smart grid developments. The benefits of reducing greenhouse gas emissions will differ with location, but all will be impacted. This book is about the benefits associated with adding solar panels to parking lots to generate electricity, reduce greenhouse gas emissions, and provide shade and shelter from rain and snow. The electricity can flow into the power grid or be used to charge electric vehicles (EVs). Solar powered charging stations (SPCSs) are already in many parking lots in many countries of the world. The prices of solar panels have decreased recently, and about 30% of the new U.S. electrical generating capacity in 2015 was from solar energy. More than one million EVs are in service in 2016, and there are significant benefits associated with a convenient charging infrastructure of SPCSs to support transportation with electric vehicles. Solar Powered Charging Infrastructure for Electric Vehicles: A Sustainable Development aims to share information on pathways from our present situation to a world with a more sustainable transportation system with EVs, SPCSs, a modernized smart power grid with energy storage, reduced greenhouse gas emissions, and better urban air quality.

Covering 200 million parking spaces with solar panels can generate about 1/4 of the electricity that was generated in 2014 in the United States. Millions of EVs with 20 to 50 kWh of battery storage can help with the transition to wind and solar power generation through owners responding to time-of-use prices. Written for all audiences, high school and college teachers and students, those in industry and government, and those involved in community issues will benefit by learning more about the topics addressed in the book. Those working with electrical power and transportation, who will be in the middle of the transition, will want to learn about all of the challenges and developments that are addressed here. This book presents some latest treatments of several specific, but fundamental problems about the data communication and control of smart microgrids. It provides readers some valuable insights into advanced control and communication of microgrids. With the help of mathematical tools, graduate students will benefit with a deep understanding of microgrids and explore some new research directions. In the meantime, this book gives various pictures and flowcharts to show how to address some challenges in microgrids. In addition, it provides solutions to several specific technical problems, which might be helpful as references for the R&D staff about power systems in utilities and industry. Specifically, the book introduces the applications of advanced control methods such as sliding mode control and model predictive control for microgrids. After getting in-depth understanding of these advanced control methods, the readers are able to design their own improved controllers for not only microgrids, but also for other real-world power plants. Besides, the readers will also learn how to design distributed transaction mechanisms for power market based on the cutting edge blockchain technology.

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