

load and emission reduction. Operation under changing load together with keeping emissions at the accurate level requires constantly introducing new solutions and technologies as well as carrying out many research and development activities for optimization of the electricity and heat production process. The edited book is aimed to present new technologies, innovative solutions, measurement techniques, tools and computational methods dedicated to thermal power plants in the light of new trends and challenges.

Approaches in Bioremediation Seven Stories Press

This book contains selected papers presented during the World Renewable Energy Network's 28th anniversary congress at the University of Kingston in London. The forum highlighted the integration of renewables and sustainable buildings as the best means to combat climate change. In-depth chapters written by the world's leading experts highlight the most current research and technological breakthroughs and discuss policy, renewable energy technologies and applications in all sectors - for heating and cooling, agricultural applications, water, desalination, industrial applications and for the transport sectors. Presents cutting-edge research in green building and renewable energy from all over the world; Covers the most up-to-date research developments, government policies, business models, best practices and innovations; Contains case studies and examples to enhance practical application of the technologies.

ENERGY EFFICIENCY AND SUSTAINABLE LIGHTING

CRC Press

Microsupercapacitors systematically guides the reader through the key materials, characterization techniques, performance factors and potential applications and benefits to society of this emerging electrical energy storage solution. The book reviews the technical challenges in scaling down supercapacitors, covering materials, performance, design and applications perspectives. Sections provide a fundamental understanding of microsupercapacitors and compare them to existing energy storage technologies. Final discussions consider the factors that impact performance, potential tactics to improve performance, barriers to implementation, emerging solutions to those barriers, and a future outlook. This book will be of particular interest to materials scientists and engineers working in academia, research and development. Provides a concise introduction of the fundamental science, related technological challenges, and solutions that microsupercapacitors can offer. Compares microsupercapacitors with current technologies. Reviews the applications of new strategies and the challenge of scaling down supercapacitors. Covers the most relevant applications, including energy storage, energy harvesting, sensors and biomedical devices.

APPLYING PARTICLE SWARM OPTIMIZATION

Springer Nature

Photosynthesis has been an important field of research for more than a century, but the present concerns about energy, environment and climate have greatly intensified interest in and research on this topic. Research has progressed rapidly in recent years, and this book is an interesting read for an audience who is concerned with various ways of harnessing solar energy. Our understanding of photosynthesis can now be said to have reached encyclopedic dimensions. There have been, in the past, many good books at various levels. Our book is expected to fulfill the needs of advanced undergraduate and beginning graduate students in branches of biology, biochemistry, biophysics, and bioengineering because photosynthesis is the basis of future advances in producing more food, more biomass, more fuel, and

new chemicals for our expanding global human population. Further, the basics of photosynthesis are and will be used not only for the above, but in artificial photosynthesis, an important emerging field where chemists, researchers and engineers of solar energy systems will play a major role.

Elementary Solid State Physics Trans Tech Publications Ltd
Provides military leaders, civil servants, diplomats, and students with the intellectual basis that they need to begin to prepare for further study of or an assignment in Afghanistan. This book analyzes the land and its people, recaps Afghan history, and assesses the current situation. It also examines the range of choices for future U.S. policy toward Afghanistan.

Materials for Energy Conversion and Storage NDU Press

It has been a little over a century since the inception of interconnected networks and little has changed in the way that they are operated. Demand-supply balance methods, protection schemes, business models for electric power companies, and future development considerations have remained the same until very recently. Distributed generators, storage devices, and electric vehicles have become widespread and disrupted century-old bulk generation - bulk transmission operation. Distribution networks are no longer passive networks and now contribute to power generation. Old billing and energy trading schemes cannot accommodate this change and need revision. Furthermore, bidirectional power flow is an unprecedented phenomenon in distribution networks and traditional protection schemes require a thorough fix for proper operation. This book aims to cover new technologies, methods, and approaches developed to meet the needs of this changing field.

Crimes Committed by Terrorist Groups Rowman & Littlefield

In the aftermath of 9/11, President George W. Bush promised a grieving nation that the United States would capture or kill Osama Bin Laden, the mastermind behind the deadliest terrorist attack on American soil. Almost a decade later, the Al Qaeda leader is still alive and free, even after an occupation of Afghanistan by U.S. troops of more than eight years. In November 2009, the United States Senate Committee on Foreign Relations, chaired by John F. Kerry, issued a report on what could be characterized as one of the greatest joint military and intelligence failures of recent American history: Bin Laden's escape from his stronghold in the mountains of Tora Bora, and his subsequent flight to a location that remains unknown. Who was responsible for the decision to put too few troops on the ground, and what justification could there have been for such a decision? What alternative plans were available? What can we learn from the flaws of the Afghan occupation? Anyone interested in current affairs - and especially in the beginning of the Global War on Terror - will find this essential reading.

Thermal Power Plants Springer Nature

Freedom in the World contains both comparative ratings and written narratives and is now the standard reference work for measuring the progress and decline in political rights and civil liberties on a global basis.

Innovation in Energy Systems Springer Nature

The Handbook of Clean Energy Systems brings together an international team of experts to present a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems. Consolidating information which is currently scattered across a wide variety of literature sources, the handbook covers a broad range of topics in this interdisciplinary research field including both fossil and renewable energy systems. The development of intelligent energy systems for efficient energy processes and mitigation technologies for the reduction of environmental pollutants is explored in depth, and environmental, social and

economic impacts are also addressed. Topics covered include: Volume 1 - Renewable Energy: Biomass resources and biofuel production; Bioenergy Utilization; Solar Energy; Wind Energy; Geothermal Energy; Tidal Energy. Volume 2 - Clean Energy Conversion Technologies: Steam/Vapor Power Generation; Gas Turbines Power Generation; Reciprocating Engines; Fuel Cells; Cogeneration and Polygeneration. Volume 3 - Mitigation Technologies: Carbon Capture; Negative Emissions System; Carbon Transportation; Carbon Storage; Emission Mitigation Technologies; Efficiency Improvements and Waste Management; Waste to Energy. Volume 4 - Intelligent Energy Systems: Future Electricity Markets; Diagnostic and Control of Energy Systems; New Electric Transmission Systems; Smart Grid and Modern Electrical Systems; Energy Efficiency of Municipal Energy Systems; Energy Efficiency of Industrial Energy Systems; Consumer Behaviors; Load Control and Management; Electric Car and Hybrid Car; Energy Efficiency Improvement. Volume 5 - Energy Storage: Thermal Energy Storage; Chemical Storage; Mechanical Storage; Electrochemical Storage; Integrated Storage Systems. Volume 6 - Sustainability of Energy Systems: Sustainability Indicators, Evaluation Criteria, and Reporting; Regulation and Policy; Finance and Investment; Emission Trading; Modeling and Analysis of Energy Systems; Energy vs. Development; Low Carbon Economy; Energy Efficiencies and Emission Reduction. Key features: Comprising over 3,500 pages in 6 volumes, HCES presents a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems, consolidating a wealth of information which is currently scattered across a wide variety of literature sources. In addition to renewable energy systems, HCES also covers processes for the efficient and clean conversion of traditional fuels such as coal, oil and gas, energy storage systems, mitigation technologies for the reduction of environmental pollutants, and the development of intelligent energy systems. Environmental, social and economic impacts of energy systems are also addressed in depth. Published in full colour throughout. Fully indexed with cross referencing within and between all six volumes. Edited by leading researchers from academia and industry who are internationally renowned and active in their respective fields. Published in print and online. The online version is a single publication (i.e. no updates), available for one-time purchase or through annual subscription.

Freedom in the World 2004 American Univ in Cairo Press
The exploitation of new energy sources is one of the ways of decreasing carbon emissions, optimizing energy infrastructures and realizing sustainable development. New energy materials are important for guiding and supporting the development of new energy sources, and are extensively used in novel energy systems. Volume is indexed by Thomson Reuters CPCI-S (WoS). These proceedings consist of the 69 papers which were submitted to the 2012 International Workshop on Materials for Energy Conversion and Storage which was held on March 23-25 in Shenzhen, China. The goal of this workshop was to provide a forum where researchers, engineers and students could discuss their latest research results and exchange experimental conclusions concerning the latest developments in the field of new energy materials.

THE ROAD TO ZERO

BoD - Books on Demand

NEW YORK TIMES BESTSELLER • "Comprehensive, enlightening, and terrifyingly timely."—The New York Times Book Review (Editors' Choice) WINNER OF THE GOLDSMITH BOOK PRIZE • SHORTLISTED FOR THE LIONEL GELBER PRIZE • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The Washington Post • Time •

Foreign Affairs • WBUR • Paste Donald Trump's presidency has raised a question that many of us never thought we'd be asking: Is our democracy in danger? Harvard professors Steven Levitsky and Daniel Ziblatt have spent more than twenty years studying the breakdown of democracies in Europe and Latin America, and they believe the answer is yes. Democracy no longer ends with a bang—in a revolution or military coup—but with a whimper: the slow, steady weakening of critical institutions, such as the judiciary and the press, and the gradual erosion of long-standing political norms. The good news is that there are several exit ramps on the road to authoritarianism. The bad news is that, by electing Trump, we have already passed the first one. Drawing on decades of research and a wide range of historical and global examples, from 1930s Europe to contemporary Hungary, Turkey, and Venezuela, to the American South during Jim Crow, Levitsky and Ziblatt show how democracies die—and how ours can be saved. Praise for *How Democracies Die* "What we desperately need is a sober, dispassionate look at the current state of affairs. Steven Levitsky and Daniel Ziblatt, two of the most respected scholars in the field of democracy studies, offer just that."—The Washington Post "Where Levitsky and Ziblatt make their mark is in weaving together political science and historical analysis of both domestic and international democratic crises; in doing so, they expand the conversation beyond Trump and before him, to other countries and to the deep structure of American democracy and politics."—Ezra Klein, Vox "If you only read one book for the rest of the year, read *How Democracies Die*. . . . This is not a book for just Democrats or Republicans. It is a book for all Americans. It is nonpartisan. It is fact based. It is deeply rooted in history. . . . The best commentary on our politics, no contest."—Michael Morrell, former Acting Director of the Central Intelligence Agency (via Twitter) "A smart and deeply informed book about the ways in which democracy is being undermined in dozens of countries around the world, and in ways that are perfectly legal."—Fareed Zakaria, CNN

Handbook of Clean Energy Systems, 6 Volume Set Pearson Education India

A comprehensive and dedicated guide to automotive production lines, *The Automotive Body Manufacturing Systems and Processes* addresses automotive body processes from the stamping operations through the final assembly activities. To begin, it discusses current metal forming practices, including stamping engineering, die development, and dimensional validation, and new innovations in metal forming, such as folding based forming, super-plastic, and hydro forming technologies. The first section also explains details of automotive spot welding (welding lobes), arc welding, and adhesive bonding, in addition to flexible fixturing systems and welding robotic cells. Guiding readers through each stage in the process of automotive painting, including the calculations needed to compute the number of applicators and paint consumption based on vehicle dimensions and demand, along with the final assembly and automotive mechanical fastening strategies, the book's systematic coverage is unique. The second module of the book focuses on the layout strategies of the automotive production line. A discussion of automotive aggregate planning and master production scheduling ensures that the reader is familiar with operational aspects. The book also reviews the energy emissions and expenditures of automotive production processes and proposes new technical solutions to reduce environmental impact. Provides extensive technical coverage of automotive production processes, discussing flexible stamping, welding and painting lines Gives complete information on automotive production costing as well as the supplier selection process Covers systems from the operational perspective, describing the

aggregate and master production planning Details technical aspects of flexible automotive manufacturing lines Methodically discusses the layout and location strategies of automotive manufacturing systems to encompass the structural elements Features topic-related questions with answers on a companion website

Nano- and Biocatalysts for Biodiesel Production Springer Nature

This book covers advancements of power electronic converters and their control techniques for grid integration of large-scale renewable energy sources and electrical vehicles. Major emphasis are on transformer-less direct grid integration, bidirectional power transfer, compensation of grid power quality issues, DC system protection and grounding, interaction in mixed AC/DC system, AC and DC system stability, magnetic design for high-frequency high power density systems with advanced soft magnetic materials, modelling and simulation of mixed AC/DC system, switching strategies for enhanced efficiency, and protection and reliability for sustainable grid integration. This book is an invaluable resource for professionals active in the field of renewable energy and power conversion.

Metal-Organic Framework Materials Springer Nature

This book offers readers an overview of some of the most recent advances in the field of advanced materials used for gamma and X-ray imaging. Coverage includes both technology and applications, with an in-depth review of the research topics from leading specialists in the field. Emphasis is on high-Z materials like CdTe, CZT and GaAs, as well as perovskite crystals, since they offer the best implementation possibilities for direct conversion X-ray detectors. Authors discuss material challenges, detector operation physics and technology and readout integrated circuits required to detect signals processes by high-Z sensors.

Sustainable Hydrogen Production Springer Science & Business Media

Applied EnergyCRC Press

Electrode Materials for Energy Storage and Conversion John Wiley & Sons

Bioremediation refers to the clean-up of pollution in soil, groundwater, surface water, and air using typically microbiological processes. It uses naturally occurring bacteria and fungi or plants to degrade, transform or detoxify hazardous substances to human health or the environment. For bioremediation to be effective, microorganisms must enzymatically attack the pollutants and convert them to harmless products. As bioremediation can be effective only where environmental conditions permit microbial growth and action, its application often involves the management of ecological factors to allow microbial growth and degradation to continue at a faster rate. Like other technologies, bioremediation has its limitations. Some contaminants, such as chlorinated organic or high aromatic hydrocarbons, are resistant to microbial attack. They are

degraded either gradually or not at all, hence, it is not easy to envisage the rates of clean-up for bioremediation implementation. Bioremediation represents a field of great expansion due to the important development of new technologies. Among them, several decades on metagenomics expansion has led to the detection of autochthonous microbiota that plays a key role during transformation. Transcriptomic guides us to know the expression of key genes and proteomics allow the characterization of proteins that conduct specific reactions. In this book we show specific technologies applied in bioremediation of main interest for research in the field, with special attention on fungi, which have been poorly studied microorganisms. Finally, new approaches in the field, such as CRISPR-CAS9, are also discussed. Lastly, it introduces management strategies, such as bioremediation application for managing affected environment and bioremediation approaches. Examples of successful bioremediation applications are illustrated in radionuclide entrapment and retardation, soil stabilization and remediation of polycyclic aromatic hydrocarbons, phenols, plastics or fluorinated compounds. Other emerging bioremediation methods include electro bioremediation, microbe-availed phytoremediation, genetic recombinant technologies in enhancing plants in accumulation of inorganic metals, and metalloids as well as degradation of organic pollutants, protein-metabolic engineering to increase bioremediation efficiency, including nanotechnology applications are also discussed.

Emerging Power Converters for Renewable Energy and Electric Vehicles Springer

The lighting of both exteriors and interiors is a field within electrical and lighting engineering, where important technological changes have been taking place oriented towards environmental sustainability and energy efficiency. LED technology has been gradually gaining ground in the world of lighting over other technologies due to its high lighting and energy efficiency and savings. However, some problems related to overheating or associated regulation are emerging. This has prompted the search for new, more efficient, and sustainable forms of lighting. This book presents successful cases related to energy efficiency and lighting that may be of great interest to those trying to enter the world of scientific research.

Hybrid Electric Vehicles Haan Publishing

This book focuses on sustainability concepts in architecture and urban design, environmental issues, and natural resources. Today it has become essential to reduce carbon emissions, protect habitats, and preserve the delicate ecosystems of our planet. Accordingly, sustainable development has to be improved by decreasing the consumption of non-renewable resources, in order to help nature replenish itself. Further, it highlights the efforts that have been made by architects, environmentalists, engineers, students, planners and everyone in between in order to improve sustainability in various developing communities and countries.

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