

IET Books and eBooks Catalogue 2019



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The IET 2019 Books and eBooks Catalogue lists the new and forthcoming titles available from both our IET and SciTech Publishing imprints, providing you with the opportunity to conveniently browse our range. See page 76 for information on how to order print and eBooks from the IET.

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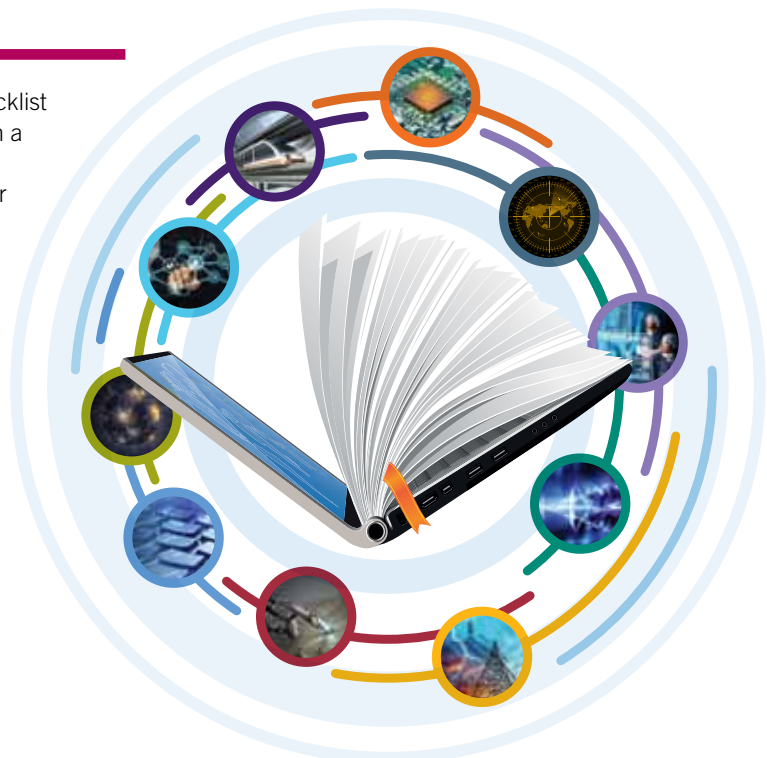
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IET eBooks can be purchased in a variety of collections to suit your library requirements, whether you are looking for access to the entire portfolio or a specific collection tailored by year or subject.

IET eBook Collections	Titles
IET Ultimate eBook Collection (1979-2018)	552
IET 6 Year Collection (2014-2019)	233
IET 5 Year Backlist (2014-2018)	158
IET Frontlist Top-Up (2019)	75

Please note: The number of titles available in the 'IET Frontlist Top Up' (2019) is a preliminary listing. Due to the nature of publishing, the number of titles expected to publish in 2019 may vary. Please contact your local IET representative for further information and pricing.

▶ See page 76 for further purchase information

2019 HIGHLIGHTS



Requirements for Electrical Installations: IET Wiring Regulations

18th Edition,
BS 7671:2018

A major update to the British Standard for electrical installation, the 18th Edition contains new and amended requirements for electrical installations in the UK

▶ See page 67 for details



On-Site Guide to BS 7671:2018

An essential guide to BS 7671, the On-Site Guide provides practical guidance on applying the requirements of the

IET Wiring Regulations.

▶ See page 67 for details



Imaging and Sensing for Unmanned Aerial Vehicles

2 Volume Set

Editors: Vania V. Estrela, Jude Hemanth, Osamu Saotome, Roberto Sabatini & George Nikolakopoulos

Comprising the two volumes *Control and Performance* and *Deployment and Applications*, this set gives a complete overview of the use of computer vision imaging and sensing in unmanned aerial vehicles (UAVs).

▶ See page 11 for details



Guidance Note 3: Inspection & Testing

8th Edition

This fundamental guide to BS 7671 is essential for those involved in the testing & inspection

of electrical installations, or for those studying for related qualifications

▶ See page 68 for details



Code of Practice for Electric Vehicle Charging Equipment Installation

3rd Edition

The 3rd Edition of this definitive guide to installing electric vehicle charging equipment has been updated to align with the requirements of BS 7671:2018

▶ See page 73 for details



Lightning Electromagnetics

2nd Edition:
2 Volume Set

Editors: Vernon Cooray, Farhad Rachidi & Marcos Rubinstein

The completely revised and much-expanded new two volume edition of the classic text on lightning electromagnetics.

▶ See page 24 for details



Nature-Inspired Cyber Security and Resiliency

Fundamentals, Techniques and Applications

Editors: El-Sayed M. El-Alfy, Mohamed Eltoweissy, Errin W. Fulp & Wojciech Mazurczyk

This is a timely review of the fundamentals, the latest developments and the diverse applications of nature-inspired algorithms in cyber security and resiliency.

▶ See page 54 for details



Systems Engineering for Ethical Autonomous Systems

Authors: Anthony Gillespie

Written for researchers and students of systems modelling in academia, industry and the military/defence sector, this is the first book on the emerging topic of ethical engineering for autonomous systems.

▶ See page 51 for details

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www.theiet.org/books

NEW

Big Data-Enabled Internet of Things

Editors: Muhammad Usman Shahid Khan et al.

COMSATS Institute of Information Technology, Pakistan

Written by a team of leading international researchers, this volume presents the state-of-the-art research taking place at the interface of Big Data and the Internet of Things (IoT). With a focus on the analytical techniques needed to handle the huge data-processing requirements, the book discusses Big Data analytics, self-learning algorithms, recommendation systems, indexing techniques, semantic analysis and much more. This volume is an invaluable resource for a wide audience of computing researchers, practitioners, engineers and information technology professionals working in this highly dynamic field.

IET Book Series on Big Data

2019 | 600pp | £140 • \$180

Hardback | PBPC0250 | 978-1-78561-636-5
eBook | PBPC025E | 978-1-78561-637-2



NEW

Big Data Recommender Systems: Recent trends and advances

Editors: Osman Khalid et al.

COMSATS Institute of Information Technology, Pakistan

This timely volume combines experimental and theoretical research on big data recommender systems to help computer scientists develop new concepts and methodologies for complex applications. It includes original scientific contributions in the form of theoretical foundations, comparative analysis, surveys, case studies, techniques and tools. The authors give special attention to key topics such as data filtering and cleaning techniques for recommendations, novelty and diversity, privacy issues, security threats and their mitigation, trust, cold start, sparsity, scalability, application domains, and recommender system evaluations.

IET Book Series on Big Data

2019 | 600pp | £140 • \$180

Hardback | PBPC0190 | 978-1-78561-501-6
eBook | PBPC019E | 978-1-78561-502-3



NEW

Blockchains for Network Security: Principles, technologies, and applications

Editors: Haojun Huang et al.

China University of Geoscience, China

This comprehensive guide to blockchain technologies in networks covers principles, core technologies and innovative applications. It gives unprecedented insights into recent advances and developments in the area, and explains how blockchain technologies make networks more secure and fit-for-purpose. A wide range of topics are covered, touching on many of the areas where this technology is already in use. Applications include cryptographic hash, digital signature and distributed consensus mechanisms, smart contracts, social networks, reputation systems, and security and financial services.

IET Book Series on Big Data

2019 | 350pp | £120 • \$155

Hardback | PBPC0290 | 978-1-78561-873-4
eBook | PBPC029E | 978-1-78561-874-1



NEW

Managing Internet of Things Applications across Edge and Cloud Data Centres

Editors: Rajiv Ranjan et al.

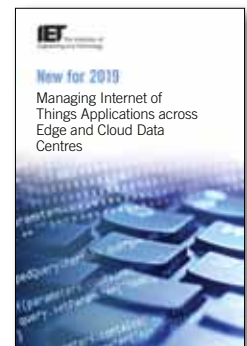
Newcastle University, UK

This guide covers state of the art interdisciplinary research on key disruptive and interrelated technologies such as Big Data, Edge computing, IoT and Cloud computing. The authors address the challenges from a distributed system perspective, with clear contributions in theory and applications. Real-world case studies look at the integration of these technologies in healthcare, disaster management, smart grids, and other areas. The book covers vital topics including devices and sensing; cloud and edge Infrastructure; big data processing; application resource management; and privacy and security.

IET Book Series on Big Data

2019 | 700pp | £145 • \$190

Hardback | PBPC0270 | 978-1-78561-779-9
eBook | PBPC027E | 978-1-78561-780-5



NEW

Many-Core Computing: Hardware and software

Editors: Bashir M. Al-Hashimi & Geoff Merrett

University of Southampton, UK

Covering the thriving field of many-core computing, this book starts by discussing languages, operating systems and compilers, then examines algorithms and methods, before expanding on many aspects of architecture. It features a large section on applications covering autonomous systems, cloud computing, high performance computing and Big Data, as well as future research directions. Each chapter presents background information covering basic principles, and an extensive, up-to-date list of references. Ideal for researchers in electrical and electronic engineering and computer science, as well as graduate students and lecturers in the field.

2019 | 650pp | £140 • \$185

Hardback | PBPC0220 | 978-1-78561-582-5

eBook | PBPC022E | 978-1-78561-583-2



NEW

Security and Privacy for Big Data, Cloud Computing and Applications

Editors: Lizhe Wang et al.

Chinese Academy of Science, Institute of Remote Sensing and Digital Earth, China

This is a comprehensive view on how to advance security in big data, cloud computing and financial technologies. It gives unprecedented insights into recent advances, and explains how to make the technology more secure and fit for purpose. Topics covered include data security and network security; big data security; cloud computing with more secure frameworks; and blockchain technology and security for digital currency. Ideal for researchers and practitioners working in information security and data science, as well as IT professionals in the financial industry.

IET Book Series on Big Data

2019 | 350pp | £120 • \$155

Hardback | PBPC0280 | 978-1-78561-747-8

eBook | PBPC028E | 978-1-78561-748-5



NEW

Visual Technologies for Virtual Reality

Authors: Gauthier Lafruit & Mehrdad Panahpour Tehrani

Université Libre de Bruxelles, Belgium & Nagoya University, Japan

Written for researchers, practitioners and students working in virtual reality (VR), this is a recipe book of 3-DoF, 3-DoF+ and 6-DoF technologies, including pre-and post-processing. Coverage includes virtual reality, holography, light-field editing, 3D representation formats, 3-DoF VR, 3-DoF+ VR, acquisition, compression, view synthesis, rendering, 6-DoF VR and more. Inspired by the MPEG-i and JPEG-PLENO standardisation activities, the book features source code or pseudo-code to cover the core parts of the technologies where possible. Ideal for those with an interest in new immersive media applications.

2019 | 400pp | £125 • \$160

Hardback | PBPC0210 | 978-1-78561-578-8

eBook | PBPC021E | 978-1-78561-579-5



NEW

Big Data and Software Defined Networks

Editor: Javid Taheri

Karlstad University, Sweden

This book provides crucial information on state-of-the-art advancements and architectures of Big Data and Software Defined Networking (SDN), and highlights general open issues in these innovating and growing fields.

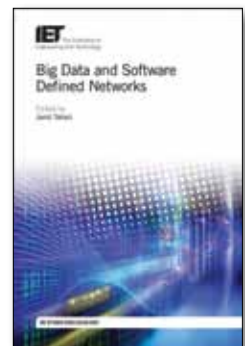
It explains how SDN can help Big Data applications run more efficiently and shows how Big Data analytics can be used to make better resource allocation decisions, and run smoother networks in Cloud data centres. A timely resource for researchers, developers and practitioners developing and implementing cloud-based solutions.

The IET Book Series on Big Data

2018 | 504pp | £110 • \$175

Hardback | PBPC0150 | 978-1-78561-304-3

eBook | PBPC015E | 978-1-78561-305-0



NEW

Data as Infrastructure for Smart Cities

Authors: Larissa Romualdo Suzuki & Anthony C.W. Finkelstein
University College London, UK

The authors present a comprehensive framework of techniques for smart city data infrastructure design. Providing tools to enable processes with innovative use of technology and data, coupled with governance strategies, the book shows how to improve the quality of cross-domain city service management, and the decision making process. The framework has guided the design of several urban platforms in the European Union and the design of the City Data Strategy of the Mayor of London, UK.

The IET Book Series on Big Data

2018 | 300pp | £115 • \$150

Hardback | PBPC0230 | 978-1-78561-599-3
eBook | PBPC023E | 978-1-78561-600-6



NEW

Modeling and Simulation of Complex Networks

Editor: Muaz A. Niazi
COMSATS Institute of Information Technology, Pakistan

The inherent complexity of modern interconnected communication and information network systems creates a need for researchers and engineers to create and develop realistic models to analyze and predict outcomes and scenarios. Covering modeling paradigms and approaches as well as surveys and case studies, this edited book covers important topics and approaches for the Internet of Things (IoT) and Big Data networks from a complex adaptive systems perspective.

The IET Book Series on Big Data

2018 | 500pp | £130 • \$170

Hardback | PBPC0180 | 978-1-78561-355-5
eBook | PBPC018E | 978-1-78561-356-2



NEW

SysML for Systems Engineering: A model-based approach

3rd Edition

Authors: Jon Holt & Simon Perry
Scarecrow Consultants, UK

Now with several new chapters, this third edition of the popular guide to SysML for systems engineering has been fully aligned with the latest version of the standard SysML 1.4. It includes updates on the core modelling notation, standards models, benefits of MBSE, model management, model maturity and value chain modelling. The book also describes how to implement SysML and MBSE in an organisation, and how to model real projects effectively. An extensive case study makes the book invaluable for practising systems engineers.

2018 | 908pp | £145 • \$190

Hardback | PBPC0200 | 978-1-78561-554-2
eBook | PBPC020E | 978-1-78561-555-9



NEW

Ultrascale Computing Systems

Editors: Jesus Carretero et al.
University Carlos III of Madrid, Spain

This title presents important results and methods geared towards achieving sustainable ultrascale computing systems. The book covers state-of-the-art technologies and methodologies to address the huge computer processing requirements of big data and the Internet of Things. Incorporating important results from the COST Action IC 1305 Network for Sustainable Ultrascale Computing (NESUS), this book presents a wide range of emerging programming models that facilitate the task of scaling and extracting performance on continuously evolving platforms, while providing resilience and fault-tolerant mechanisms.

IET Book Series on Big Data

2018 | 400pp | £125 • \$160

Hardback | PBPC0240 | 978-1-78561-833-8
eBook | PBPC024E | 978-1-78561-834-5



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Trusted Platform Modules: Why, when and how to use them	Segall	Hardback	2016	79	130	978-1-84919-893-6	PBPC0130
Foundations for Model-based Systems Engineering: From patterns to models	Holt et al.	Hardback	2016	89	145	978-1-78561-050-9	PBPC0140
Nonlinear Optimization in Electrical Engineering with Applications in MATLAB®	Bakr	Hardback	2013	56	100	978-1-84919-543-0	PBSP0080
VALU, AVX and GPU Acceleration Techniques for Parallel FDTD Methods	Yu, Yang & li	Hardback	2013	75	130	978-1-61353-174-7	SBPC5020
Model-Based Requirements Engineering	Holt, Perry and Bownsword	Paperback	2011	84	150	978-1-84919-487-7	PBPC0090
Modelling Enterprise Architectures	J. Holt & S. Perry	Paperback	2010	71	130	978-1-84919-077-0	PBPC0080
A Guide to MATLAB Object-Oriented Programming	Register	Paperback	2007	75	130	978-1-584889-11-3	SBPC001Z
Intelligent Distributed Video Surveillance Systems	S.A. Velastin & P. Remagnino (eds.)	Hardback	2006	78	140	978-0-86341-504-3	PBPC0050
Trusted Computing	C. Mitchell (ed.)	Hardback	2005	84	150	978-0-86341-525-8	PBPC0060
UML for Systems Engineering: watching the wheels, 2nd edition	J. Holt	Hardback	2004	78	140	978-0-86341-354-4	PBPC0040
Troubled IT Projects: prevention and turnaround	J.M. Smith	Paperback	2001	40	75	978-0-85296-104-9	PBPC0030
Knowledge Discovery and Data Mining	M.A. Bramer (ed.)	Hardback	1999	88	160	978-0-85296-767-6	PBPC0010
Managing Complexity in Software Engineering	R.J. Mitchell (ed.)	Hardback	1990	74	140	978-0-86341-171-7	PBCM0170
Industrial Software Technology	R.J. Mitchell (ed.)	Hardback	1987	80	100	978-0-86341-084-0	PBCM0100
Advances in Command, Control and Communication Systems	C.J. Harris & I. White (eds.)	Hardback	1987	110	190	978-0-86341-094-9	PBCM0110
Semi-custom IC Design and VLSI	P.J. Hicks (ed.)	Hardback	1983	53	100	978-0-86341-011-6	PBCM0010

Books are available in print and online via the IET Digital Library.

IET JOURNALS

IET Computers & Digital Techniques

Editor-in-Chief:
Professor Andy Tyrrell
University of York, UK

IET Computers & Digital Techniques publishes technical papers describing recent research and development work in all aspects of digital system-on-chip design and test of electronic and embedded systems, including the development of design automation tools (methodologies, algorithms and architectures).

www.ietdl.org/IET-CDT



See the **IET Journals 2019** catalogue for our range of journals in the field of computing.

NEW

Data-Driven Filter and Control Design: Methods and applications

Editors: Carlo Novara & Simone Formentin

Politecnico di Torino, Italy & Politecnico di Milano, Italy

Using important examples, the authors showcase the potential of the latest data-based and data-driven methodologies for filter and control design. They discuss the most important classes of dynamic systems, along with the statistical and set membership analysis and design frameworks. The last section of the book focuses on experimental applications, including control of active suspensions, modelling of wing flutters and identification of Li-ion batteries. Written for researchers and practising engineers in systems and control theory, industrial automation and intelligent control.

2019 | 300pp | £115 • \$150

Hardback | PBCE1230 | 978-1-78561-712-6
eBook | PBCE123E | 978-1-78561-713-3



NEW

Data Fusion in Wireless Networks: A Statistical signal processing perspective

Editors: Domenico Ciuonzo & Peirluigi Salvo Rossi

Network Measurement and Monitoring (NM2) s.r.l, Italy & Norwegian University of Science & Technology, Norway

This essential reference describes the advanced tools required to design state-of-the-art inference algorithms for inference in wireless sensor networks. Written for the signal processing, communications, sensors and information fusion research communities, it is the first book of its kind to cover the emerging area of data fusion in wireless sensor networks. Topics include: sensing model uncertainty; reporting channel uncertainty; distributed inference over graphs; and cross-layer issues. A unique resource for professionals working in wireless sensor networks and related areas.

IET International Book Series on Sensors

2019 | 300pp | £115 • \$150

Hardback | PBCE1170 | 978-1-78561-584-9
eBook | PBCE117E | 978-1-78561-585-6



NEW

Energy Harvesting in Wireless Sensor Networks and Internet of Things

Editors: Faisal Karim Shaikh & Sherali Zeadally

Mehran University of Engineering & Technology, Pakistan & University of Kentucky, USA

This title presents a comprehensive taxonomy of energy harvesting sources and techniques that can be used by wireless sensor networks, the Internet of Things (IoT), and cyberphysical systems. It presents sources and techniques, and recently proposed energy harvesting, management and prediction models. The authors also identify the major advances for different architectures that will drive the development of cost-effective, efficient and reliable energy harvesting for emerging systems. The final chapter discusses future challenges and research opportunities. This is a much-needed volume on a dynamic area of research.

IET International Book Series on Sensors

2019 | 300pp | £115 • \$145

Hardback | PBCE1240 | 978-1-78561-736-2
eBook | PBCE124E | 978-1-78561-737-9



NEW

Fault Diagnosis and Fault-tolerant Control of Robotic Systems

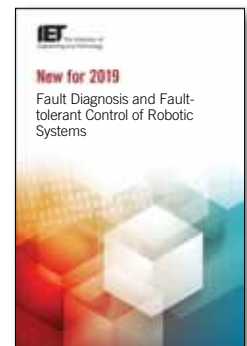
Editors: Andrea Monteriù et al.

Università Politecnica delle Marche, Italy

This is a unified vision of fault diagnosis and fault-tolerant control, which are enabling technologies in the fourth industrial revolution. The book addresses the challenges of improving reliability and safety of modern robotic systems, presents relevant theoretical findings, discusses challenging technologies, and covers applications in various aspects of robotics. It also examines applications in various aspects of robotics. Coverage includes fault detection, fault isolation, fault identification, fault diagnosis, fault-tolerant control and fault prognosis, robotic manipulators and much more. Ideal for researchers, designers and manufacturers in robotics, automation and control engineering.

2019 | 350pp | £120 • \$155

Hardback | PBCE1260 | 978-1-78561-830-7
eBook | PBCE126E | 978-1-78561-831-4



NEW

Ground Penetrating Radar: Improving sensing and imaging through numerical modeling

Authors: Lucas Travassos & Nathan Ida
Universidade Federal de Santa Catarina, Brazil & University of Akron, USA

This book covers modeling and simulation methods as well as the support tools available to improve imaging and sensing for Ground Penetrating Radar (GPR). After an introduction to the basic concepts, the authors present a more detailed discussion, enabling readers to identify and apply the technique that best suits their goals. It is therefore an invaluable resource for professionals working with GPR. An appendix provides the basic concepts for a general mathematical description of the variables of interest and their spatial and temporal variations.

The IET International Book Series on Sensors

2019 | 400pp | £125 • \$160

Hardback | PBCE1150 | 978-1-78561-493-4

eBook | PBCE115E | 978-1-78561-494-1



NEW

Imaging and Sensing for Unmanned Aerial Vehicles Volume 1 - Control and Performance

Editors: Vania V. Estrela et al.
Institution Universidade Federal Fluminense (UFF), Brazil

This comprehensive handbook explains how sensors and computer vision technologies are used in unmanned aerial vehicles (UAVs) to maximise performance. It covers basic aspects, ongoing research, important achievements and challenges. It shows how UAVs interact with the Internet of Things (IoT), how they use cloud computing, meet communications requirements and how they implement hardware/software paradigms for still imagery. Along with the companion volume *Deployment and Applications*, this is an invaluable resource for researchers, scientists and academics in the area.

IET International Book Series on Sensors

2019 | 500pp | £130 • \$170

Hardback | PBCE120A | 978-1-78561-642-6

eBook | PBCE120F | 978-1-78561-643-3



NEW

Imaging and Sensing for Unmanned Aerial Vehicles Volume 2 - Deployment and Applications

Editors: Vania V. Estrela et al.
Institution Universidade Federal Fluminense (UFF), Brazil

The authors introduce procedures, standards and prerequisites for the deployment of computer vision in unmanned aerial vehicles (UAVs) from the application point of view. The book discusses open source software tools, image banks and benchmarks, and looks at applications including surveillance, remote sensing, inspection, maintenance and repair. Along with the companion volume *Control and Performance*, this is an invaluable resource for researchers, scientists and academics in the area.

IET International Book Series on Sensors

2019 | 500pp | £130 • \$170

Hardback | PBCE120B | 978-1-78561-644-0

eBook | PBCE120G | 978-1-78561-645-7



NEW

Imaging and Sensing for Unmanned Aerial Vehicles (2-vol set made up from PBCE120A and PBCE120B)

Editors: Vania V. Estrela et al.
Institution Universidade Federal Fluminense (UFF), Brazil

Comprising the two volumes *Control and Performance* and *Deployment and Applications* this set gives a complete overview of the use of computer vision imaging and sensing in unmanned aerial vehicles (UAVs). Volume 1 explains the use of imaging and sensing for control and optimised performance, while volume 2 looks at deployment and various applications. Together, the books are an essential read for researchers, scientists and academics in UAV research.

IET International Book Series on Sensors

2019 | 500 + 500pp | £200 • \$260

Hardback | PBCE120X | 978-1-78561-679-2



NEW

Modeling, Simulation and Control of Electrical Drives

Editors: M.F. Rahman & Sanjeet Kumar Dwivedi

University of New South Wales, Australia & Curtin University, Australia

This book provides insights into state-of-the-art control techniques for different types of AC machines (i.e. Induction Motors, Permanent Magnet Synchronous Motors and Permanent Magnet Brushless DC Motors), as well as up-to-date references along with a framework of the different types of AC machines modeling and control algorithms using MATLAB®/Simulink®. Ideal for professional engineers and practitioners in AC drives, and as an advanced textbook for Masters and PhD students working in the control of electric drives.

2019 | 350pp | £120 • \$155

Hardback | PBCE1180 | 978-1-78561-587-0

eBook | PBCE118E | 978-1-78561-588-7



NEW

Sensors, Actuators, and Their Interfaces: A multidisciplinary introduction

2nd edition

Author: Nathan Ida

University of Akron, USA

Thoroughly updated, revised and expanded, this anticipated second edition of a popular textbook now includes much more material on chemical sensors and chemical-biological sensors. It focuses on recent developments including Radar and Lidar sensors, lightning detector sensors, gunshot detector sensors and many more. In addition, there is a greater emphasis on energy harvesting and integration of sensors and actuators into smart devices. A wealth of supplementary material is now provided, including a solution manual and PowerPoint slides.

IET International Book Series on Sensors

2019 | 700pp | £145 • \$190

Hardback | PBCE1270 | 978-1-78561-835-2

eBook | PBCE127E | 978-1-78561-836-9



NEW

Sensors in the Age of the Internet of Things: Technologies and applications

Editors: Octavian Adrian Postolache & Edward Sazonov

Instituto de Telecomunicacoes, Lisbon, Portugal & University of Alabama, USA

This book focuses on the technologies constituting the Internet of Things from a sensor perspective, and describes connected sensors for smart cities, buildings, transportation, smart ports, energy infrastructure, smart home sensing, emergency management, personalised healthcare, precision agriculture and other applications. Starting at the level of physical sensing, it covers network architecture, Internet connectivity and communication protocols for IoT and cyber security. It concludes with methodologies for the integration and processing of sensor information with a focus on relevant sensors for IoT applications.

The IET International Series on Sensors

2019 | 300pp | £115 • \$150

Hardback | PBCE1220 | 978-1-78561-634-1

eBook | PBCE122E | 978-1-78561-635-8



NEW

Sensory Systems for Robotic Applications

Editors: Ravinder Dahiya & Gordon Cheng

University of Glasgow, UK & Technische Universität München, Germany

Sensory systems comprising of various sensing modalities are fundamental to robotics – they provide information about the state of the environment and of the robotic system, which forms the basis for control, decision-making, and interaction. This book covers robotic sensory hardware, related electronics and system issues. Topics to be covered include sensors used in robotics, various sensing schemes, sensing technologies and system issues (wiring complexity, conformal electronics, power consumption etc.).

The IET International Series on Sensors

2019 | 504pp | £130 • \$170

Hardback | PBCE0970 | 978-1-84919-948-3

eBook | PBCE097E | 978-1-84919-949-0



NEW

Short-Range Micro-Motion Sensing: Hardware, signal processing, and machine learning

Editors: Changzhan Gu & Jaime Lien
Google Inc., USA

Covering radar sensor hardware, digital signal processing and machine learning, the book provides researchers and practitioners with insights into the latest advancements in the field. Covering radar sensor hardware, digital signal processing and machine learning, the book introduces the topic and also provides researchers and practitioners with insights into the latest advancements in the area. Perfect for professionals working in RF/microwave technologies, radar signal processing, human-computer interaction and machine learning.

IET International Book Series on Sensors

2019 | 600pp | £140 • \$180

Hardback | PBCE1250 | 978-1-78561-760-7

eBook | PBCE125E | 978-1-78561-761-4



NEW

Design of Embedded Robust Control Systems Using MATLAB® / Simulink®

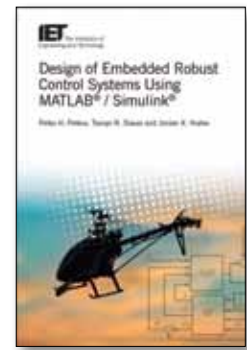
Authors: Petko Hristov Petkov et al.
University of Sofia, Bulgaria

This book presents the theoretical and practical aspects of robust control design and implementation using MATLAB® and Simulink®. Combining knowledge from Control System Design and Computer Engineering, it describes the whole design process cycle from uncertainty plant modelling to the embedding of high-order robust controllers in 32-bit DSP and FPGA. It also shows how robust controllers can be implemented in modern digital devices with higher closed-loop performance. Perfect for professionals interested in the design of robust controllers using MATLAB®.

2018 | 536pp | £130 • \$170

Hardback | PBCE1130 | 978-1-78561-330-2

eBook | PBCE113E | 978-1-78561-331-9



NEW

Embedded Mechatronics System Design for Uncertain Environments: Linux-based, Raspian, Arduino and MATLAB® xPC Target Approach

Author: Dr Cheng Siong Chin
Newcastle University, Singapore

Industrial machines, automobiles, airplanes, robots, and machines are among the myriad possible hosts of embedded systems. The author researches robotic vehicles, especially Underwater Robotic Vehicles (URVs) used for a wide range of applications such as exploring oceans, monitoring environments, and supporting operations in extreme environments. This book has been prepared for those who seek to easily develop embedded systems for control purposes of robotic vehicles. The author proposes new solutions for the prototyping, simulation, testing, and design of real-time systems using standard PC hardware.

2018 | 526pp | £130 • \$170

Hardback | PBCE1090 | 978-1-78561-322-7

eBook | PBCE109E | 978-1-78561-323-4



NEW

Integrated Fault Diagnosis and Control Design of Linear Complex Systems

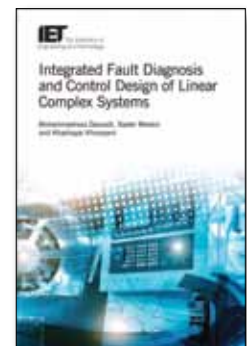
Authors: Mohammadreza Davoodi et al.
University of Georgia, Athens, USA

As control systems around us (e.g. flight controls, power systems, networked systems, etc.) become more complex and are expected to perform tasks in unknown and extreme environments, they may be subject to various types of faults in their sensors, actuators or other components. It is crucial to be able to diagnose the occurrence of faults and to repair them in order to maintain, guarantee, and improve the overall safety, reliability, and performance of the systems. The authors here study and address the design challenges of developing and implementing novel integrated fault diagnosis and control (IFDC) technologies for complex linear systems.

2018 | 248pp | £110 • \$145

Hardback | PBCE121 | 978-1-78561-705-8

eBook | PBCE121EE | 978-1-78561-706-5



NEW

Motion-Induced Eddy Current Techniques for Non-Destructive Testing and Evaluation

Authors: Hartmut Brauer et al.
Technische Universität Ilmenau, Germany

This title deals with non-destructive testing (NDT) and evaluation (NDE) via electromagnetic methods. Focusing on motion-induced eddy current testing techniques used for conductive materials, the book emphasises applications, including defectoscopy of metallic objects, of multi-layer structures and of composite materials, as well as sismometry using LET. Perfect for researchers and advanced students working in non-destructive industrial sensing and testing, developers of NDT/NDE methods, material sensing engineers and material scientists.

The IET International Series on Sensors

2018 | 360pp | £120 • \$155

Hardback | PBCE1060 | 978-1-78561-215-2
eBook | PBCE106E | 978-1-78561-216-9



NEW

Open Resonator Microwave Sensor Systems for Industrial Gauging: A practical design approach

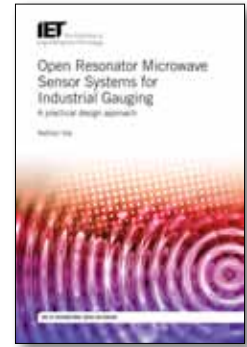
Author: Nathan Ida
University of Akron, USA

This book deals with the sensing of sheet products for a variety of properties including dimensions, moisture, electrical attributes, and curing state, using open microwave resonators. The author introduces the ideas and tools needed, and then presents a coherent, entirely practical approach to the design of open resonator microwave sensors. Ideal for design and production engineers in the rubber, paper, fabrics and wood industries as well as academics in electromagnetics, microwave and sensing specialisations.

The IET International Book Series on Sensors

2018 | 416pp | £125 • \$160

Hardback | PBCE1030 | 978-1-78561-140-7
eBook | PBCE103E | 978-1-78561-141-4



NEW

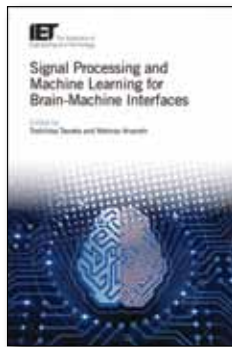
Signal Processing and Machine Learning for Brain-Machine Interfaces

Editors: Toshihisa Tanaka & Mahnaz Arvaneh
Tokyo University of Agriculture and Technology, Japan & University of Sheffield, UK

This book introduces signal processing and machine learning techniques for Brain Machine Interfacing/Brain Computer Interfacing (BMI/BCI), and their practical and future applications in neuroscience, medicine, and rehabilitation. This is an emerging and challenging technology in engineering, computing, machine learning, neuroscience and medicine. The book will be of interest to researchers, engineers and professionals from all of these areas who need to know more about cutting edge technologies in the field.

2018 | 368pp | £120 • \$155

Hardback | PBCE1140 | 978-1-78561-398-28
eBook | PBCE1140 | 978-1-78561-399-9



NEW

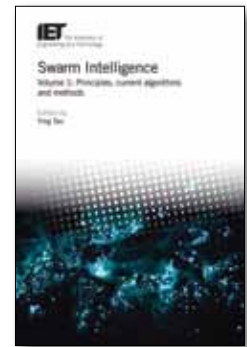
Swarm Intelligence Volume 1: Principles, current algorithms and methods

Editor: Ying Tan
Peking University, China

Covering principles and known approaches through to new research developments, analyses and applications of typical swarm intelligence methods, the aim of this three-volume book set is to provide readers with a full view of the field of swarm intelligence. In Volume 1, the authors introduce the basic principles of well-known swarm intelligence algorithms and efficient improvements (from typical PSO, ACO and swarm intelligence algorithms to swarm robotics methods).

2018 | 648pp | £140 • \$180

Hardback | PBCE119A | 978-1-78561-627-3
eBook | PBCE119F | 978-1-78561-628-0



NEW

Swarm Intelligence

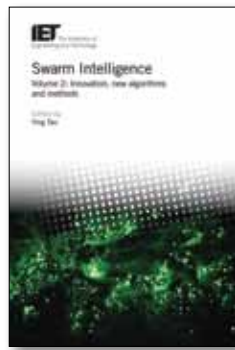
Volume 2: Innovation, new algorithms and methods

Editor: Ying Tan
Peking University, China

Covering principles and known approaches through to new research developments, analyses and applications of typical swarm intelligence methods, the aim of this three-volume book set is to provide readers with a full view of the field of swarm intelligence. In Volume 2, the authors present front-edge research with newly proposed swarm intelligence algorithms and methods. Each chapter comes from a leading scholar in that area, making the book an essential resource for anyone in the field.

2018 | 536pp | £130 • \$170

Hardback | PBCE119B | 978-1-78561-629-7
eBook | PBCE119G | 978-1-78561-630-3



NEW

Swarm Intelligence

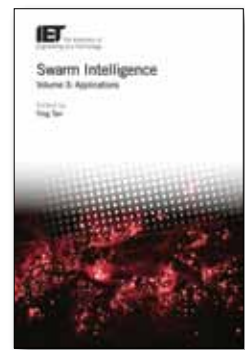
Volume 3: Applications

Editor: Ying Tan
Peking University, China

In this volume, the authors present the latest real-world applications of swarm intelligence algorithms and related evolutionary algorithms. The aim is to show the effectiveness and validation of swarm intelligence, and encourage more researchers and practitioners to use them in their ongoing projects, as well as attract newcomers to this area.

2018 | 880pp | £145 • \$190

Hardback | PBCE119C | 978-1-78561-631-0
eBook | PBCE119H | 978-1-78561-632-7



NEW

Swarm Intelligence

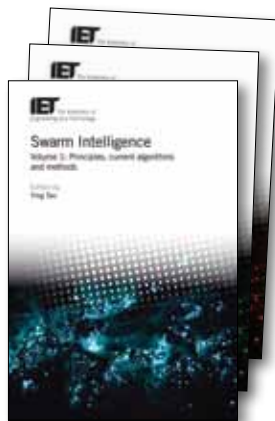
(3-vol set made up from PBCE119A, PBCE119B and PBCE119C)

Editor: Ying Tan
Peking University, China

Covering principles and known approaches through to new research developments, analyses and applications of typical swarm intelligence methods, the aim of this three-volume book set is to provide readers with a full view of the field of swarm intelligence.

2018 | 648 + 880 + 536pp | £300 • \$480

Hardback | PBCE119X | 978-1-78561-633-4



NEW

Wearable Exoskeleton Systems: Design, control and applications

Editors: Shaoping Bai et al.
Aalborg University, Denmark

This book reports the recent advances and technology breakthroughs in exoskeleton developments in the fields of robotics and mechanical design. Topics covered include mechanism design and control involving close human-robot interaction scenarios; human motion intention detection and support; comfort and ergonomics; and safety regulations for various wearable robot applications. The book will be of interest to engineers and researchers in academia as well as manufacturing companies interested in developing new markets in wearable exoskeleton robotics.

2018 | 408pp | £100 • \$160

Hardback | PBCE1080 | 978-1-78561-302-9
eBook | PBCE108E | 978-1-78561-303-6



Control of Mechatronic Systems

Authors: Levent Güvenç et al.
Ohio State University, USA

This comprehensive book introduces advanced students, with only a basic background in control theory, to an array of techniques they can easily implement and use to meet the required performance specifications for their mechatronic applications.

Most of the design approaches presented in the book are coded in MATLAB®, compiled by the authors together in a GUI (Graphical User Interface) under the name COMES (Control of Mechatronic Systems toolbox), available in the user contributed material part of the Mathworks MATLAB® website for free download and use with this book.

2017 | 216pp | £89 • \$145

Hardback | PBCE1040 | 978-1-78561-144-5

eBook | PBCE104E | 978-1-78561-145-2



Flexible Robot Manipulators: Modelling, simulation and control

2nd Edition

Authors: M. O. Tokhi & A. K. M. Azad
University of Sheffield, UK & Northern Illinois University, USA

This book provides an account of the progress being made in the field of modelling and control of lightweight flexible manipulator systems. It covers the main issues in system simulation and modelling, classical and advanced control and soft computing control. For each section it gives an overview of the problem as well as a review of the current thinking. It also looks at algorithm development and evaluation, software development for computer implementation of the algorithm and verification and assessment of the results. References are included for further reading.

2017 | 536pp | £126 • \$200

Hardback | PBCE0860 | 978-1-84919-583-6

eBook | PBCE086E | 978-1-84919-584-3



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The Inverted Pendulum in Control and Robotics: From theory to new innovations

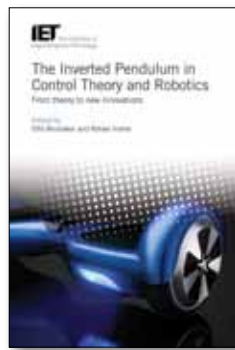
Editors: Olfa Boubaker & Rafael Iriarte
University of Carthage, Tunisia & National Autonomous University of Mexico, Mexico

The inverted pendulum is a classic problem in dynamics and control theory and is widely used as a benchmark for testing control algorithms. This book provides an overall picture of historical and current developments in nonlinear control theory, based on the simple structure and rich nonlinear model of the inverted pendulum model, and also discusses key applications using different experimental models of this system.

2017 | 408pp | £105 • \$170

Hardback | PBCE1110 | 978-1-78561-320-3

eBook | PBCE111E | 978-1-78561-321-0



RFID Protocol Design and Optimization for the Internet of Things

Authors: Alex X. Liu et al.
Michigan State University, USA

RFID systems are a very pervasive and low cost technology used to automatically identify and track tags attached to objects, which contain electronically stored information. RFIDs are used in countless applications such as object tracking, 3D positioning, indoor localization, supply chain management, automotive, inventory control, anti-theft, anti-counterfeit, and access control. In this book, the authors aim to demystify complicated RFID protocols and explains in depth the principles, techniques, and practices in designing and optimizing them.

The IET International Series on Sensors

2017 | 272pp | £105 • \$170

Hardback | PBCE1120 | 978-1-78561-332-6

eBook | PBCE112E | 978-1-78561-333-3



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Cyber-Physical system design with sensor networking technologies	Zeadally/Jabeur	Hardback	2016	89	150	978-1-84919-824-0	PBCE0960
Practical Robotics and Mechatronics: Marine, space and medical applications	Yamamoto	Hardback	2016	100	160	978-1-84919-968-1	PBCE0990
Organic Sensors: Materials and applications	Garcia-Breijo et al. (eds.)	Hardback	2016	110	180	978-1-84919-985-8	PBCE1000
Recent Trends in Sliding Mode Control	Fridman et al. (eds)	Hardback	2016	126	200	978-1-78561-076-9	PBCE1020
Mechatronic Hands: Prosthetic and robotic design	Chappell	Hardback	2016	110	180	978-1-78561-154-4	PBCE1050
Solved Problems in Dynamical Systems and Control	Tenreiro-Machado et al	Hardback	2016	53	85	978-1-78561-174-2	PBCE1070
Control-oriented Modelling and Identification: theory and practice	Lovera	Hardback	2015	87	150	978-1-84919-614-7	PBCE0800
Analysis and Design of Reset Control Systems	Guo, Xie & Wang	Hardback	2015	95	160	978-1-84919-703-8	PBCE0940
Robust and Adaptive Model Predictive Control of Non-linear Systems	Guay	Hardback	2014	87	150	978-1-84919-552-2	PBCE0830
Design and Development of Multi-Lane Smart Electromechanical Actuators	Fawaz Yahya Annaz	E-only	2014	90	160	E-only	E-only
Modelling Control Systems Using IEC 61499	Zoitl and Lewis	Hardback	2014	94	160	978-1-84919-760-1	PBCE0950
Nonlinear and Adaptive Control Systems	Ding	Hardback	2013	81	140	978-1-84919-574-4	PBCE0840
Control-based Operating System Design	Leva, Maggio, Vittorio, Papadopoulos, & Terraneo	Hardback	2013	88	150	978-1-84919-609-3	PBCE0890
Application of Dimensional Analysis in Systems Modelling and Control Design	Balaguer	Hardback	2013	88	150	978-1-84919-621-5	PBCE0900
Handbook of Vehicle Suspension Control Systems	Liu, Gao, Li	Hardback	2013	113	190	978-1-84919-633-8	PBCE0920
Control Theory: A Guided Tour, 3rd edition	James Ron Leigh	Hardback	2012	86	150	978-1-84919-227-9	PBCE0720
Developments in Control Theory towards Glocal Control	H. Fujioka (ed.)	Hardback	2012	118	200	978-1-84919-533-1	PBCE0760
Further Advances in Unmanned Marine Vehicles	Roberts & Sutton	Hardback	2012	124	210	978-1-84919-479-2	PBCE0770
Frequency-Domain Control Design for High Performance Systems	John O'Brien	Hardback	2012	105	180	978-1-84919-481-5	PBCE0780
Optimal Adaptive Control and Differential Games by Reinforcement Learning Principles	Vrabie, Vamvoudakis & Lewis	Hardback	2012	124	210	978-1-84919-489-1	PBCE0810
Distributed Control and Filtering for Industrial Systems	Magdi S. Mahmoud	Hardback	2012	124	210	978-1-84919-607-9	PBCE0880
An Introduction to Fractional Control	Duarte Valério and José Sá da Costa	Hardback	2012	93	160	978-1-84919-545-4	PBCE0910

Books are available in print and online via the IET Digital Library.

NEW

Advanced Numerical Methods for Time-Dependent Electromagnetic Applications

Authors: N. V. Kantartzis et al.
University of Thessaloniki, Greece

With contributions from leading researchers in the area, this book expands on several aspects of computational electromagnetics and advanced numerical techniques with cutting-edge applications, and proposes guidelines for the optimised design of several contemporary structures. As well as standard techniques, the authors cover many other time-domain schemes, including ADI, polynomial chaos, stochastic methods, enhanced curvilinear implementations and novel GPU/CUDA realisations. For researchers in electromagnetics and related areas.

Mario Boella Series on Electromagnetism in Information and Communication

2019 | 450pp | £125 • \$165

Hardback | SBEW5320 | 978-1-78561-396-8

eBook | SBEW532E | 978-1-78561-397-5



NEW

Advances in Mathematical Methods for Electromagnetics

Editors: Kazuya Kobayashi & Paul Denis Smith
Chuo University, Japan & Macquarie University, Australia

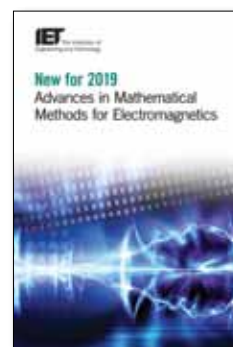
This title covers recent progress in advanced analytical and associated numerical methods applied to problems arising in all areas of electromagnetics. It focuses on applying advanced or novel mathematical techniques to produce analytical solutions or effective analytical-numerical methods for computational electromagnetics addressing more general problems. Each chapter outlines its topic; discusses its scientific context and importance; describes approaches and results; and ends by describing which techniques work best for different problems.

The AGES Series on Computational Electromagnetics and Engineering

2019 | 700pp | £145 • \$190

Hardback | SBEW5280 | 978-1-78561-384-5

eBook | SBEW528E | 978-1-78561-385-2



NEW

Advances in Planar Filters Design

Editor: Jiasheng Hong
Heriot Watt University, Edinburgh, UK

Written by a team of leading experts in the field, this book presents recent advances in the design of RF/microwave planar filters. It covers applications in current and future wireless, microwave, communications and radar systems and looks at topics such as planar millimetre-wave and terahertz filters, microstrip lossy filters, absorptive/reflectionless filters, superconducting filters and planar SIW coaxial resonator filters. This is an ideal resource for research engineers, professionals, specialists, research students and academic working on the topic of RF/microwave filters and related system applications.

2019 | 300pp | £115 • \$150

Hardback | SBEW5350 | 978-1-78561-589-4

eBook | SBEW535E | 978-1-78561-590-0



NEW

Beamforming Techniques in Microwave Power Transmission

Author: Xin Wang & Mingyu Lu
Nanjing University of Aeronautics and Astronautics, China & West Virginia University Institute of Technology USA

Covering recent active research into microwave power transmission over short distances for mobile devices, this title shows how to implement power transmission using beamforming. It gives examples of working microwave power transmission in space, showing how it might be adapted for use in our atmosphere. Coverage includes: beamforming in space solar power applications; beamforming for charging mobile/portable electronic devices wirelessly; and beamforming in fully-enclosed space. An essential read for engineers and researchers working in electromagnetics and wireless power transmission.

2019 | 300pp | £115 • \$150

Hardback | SBEW5390 | 978-1-78561-803-1

eBook | SBEW539E | 978-1-78561-804-8



NEW

Computational Electromagnetics for Modelling of Metamaterials

Authors: Toru Uno et al.

Tokyo University of Agriculture and Technology, Japan

Written for researchers in electromagnetics, antennas and microwaves, this is the first book to explain in detail the major computational techniques for modelling metamaterials used in microwave components. The authors present recent techniques for analysing metamaterial structures, and show how to incorporate computational methods into the design of metamaterial devices. Topics covered include a brief review of electromagnetic theory; fundamentals of metamaterials; the method of moments technique; the finite element method; the finite difference time domain method; and the design and analysis of metamaterial devices.

2019 | 400pp | £125 • \$160

Hardback | SBEW5380 | 978-1-78561-805-5

eBook | SBEW538E | 978-1-78561-806-2



NEW

Leaky Waves in Electromagnetics

Authors: Paolo Burghignoli et al.

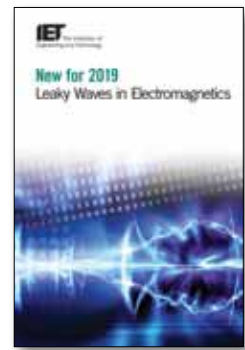
Università "La Sapienza" di Roma, Italy

This is the first book to provide a unified treatment of the theory and the variety of applications of leaky waves. Topics covered include, the theoretical basis of leaky waves in uniform and periodic structures; applications in radiation and antennas; scattering; metal and dielectric waveguides; planar structures and complex media. This is a vital resource for academic and research lab engineers in electromagnetics theory, antennas, applied physics and related systems applications.

2019 | 368pp | £120 • \$155

Hardback | SBEW5220 | 978-1-61353-213-3

eBook | SBEW522E | 978-161353-214-0



NEW

Light Filaments: Structures, challenges and applications

Editors: Jean-Claude Diels et al.

University of New Mexico, USA

This edited volume starts with tutorials about the science of filamentation before presenting in-depth chapters on the latest research, technologies and applications. It covers wide aspects of light filaments considering various mediums of propagation, with structured or single filaments, and filaments of different colours, as well as combined filaments. It also includes a wide range of applications from strong field ionisation and molecular properties to laser development and beam shaping, THz, lasing in air and supercontinuum generation.

2019 | 450pp | £125 • \$165

Hardback | SBEW5270 | 978-1-78561-240-4

eBook | SBEW527E | 978-1-78561-241-1



NEW

Microstrip and Printed Antenna Design 3rd Edition

Author: Randy Bancroft

Randwulf Technologies, USA

Modern products require more and more wireless features, which require more antennas. This in turn requires better design. In this new edition of the popular guide to the area, the author addresses the issue from the perspective of a consulting engineer who works in the field and implements the elegant microstrip antenna designs from the book. The author emphasizes useful and practicable antenna design, covers omnidirectional microstrip antennas and demystifies PIFA design. Ideal for antenna designers working in wireless or space antennas.

2019 | 400pp | £125 • \$160

Hardback | PBTE0830 | 978-1-78561-854-3

eBook | PBTE083E | 978-1-78561-855-0



NEW

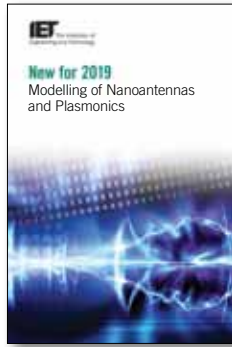
Modelling of Nanoantennas and Plasmonics

Editors: Douglas H. Werner et al.
The Pennsylvania State University, USA

The authors present cutting-edge research in the rapidly growing areas of nanoantennas and plasmonics and their related enabling technologies and applications. Coverage ranges from fundamental theoretical principles and new technological developments, to state-of-the-art device design, as well as examples encompassing a wide range of related sub-areas. The book also covers highly directive nanoantennas, all-dielectric and tunable/reconfigurable devices, metasurface optical components, and several other related topics. Ideal for researchers and engineers working in antennas and propagation as well as nano and optical devices.

2019 | 500pp | £130 • \$170

Hardback | SBEW5400 | 978-1-78561-837-6
eBook | SBEW540E | 978-1-78561-838-3



NEW

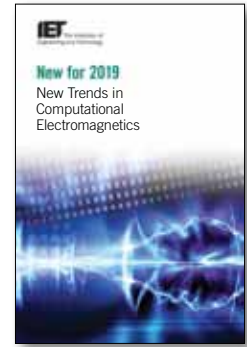
New Trends in Computational Electromagnetics

Editor: Özgür Ergül
Middle East Technical University, Turkey

The authors present a broad overview of the recent efforts in computational electromagnetics to develop and implement more robust, accurate and efficient algorithms. With the recent improvement in available computing power, this is a timely overview of a rapidly developing subject. All the chapters are written by experts in the field, and present the state of the art for each topic. The book discusses open problems and provides real-life simulations, leading readers towards unsolved issues and potential challenges for more accurate and efficient solutions.

2019 | 500pp | £130 • \$170

Hardback | SBEW5330 | 978-1-78561-548-1
eBook | SBEW533E | 978-1-78561-549-8



NEW

Post-processing Techniques in Antenna Measurement

Editors: Manuel Sierra Castañer & Lars J. Foged
Politécnica (Polytechnic) University of Madrid, Spain & Microwave Vision Group (MVG), Italy

This title presents new post-processing techniques for improving the quality of antenna measurement results. Written by a team of authors and editors from academia and industry, the book gives a balanced, global view of the topic and focuses on source reconstruction techniques, modal filtering, phase recovery and the combination of simulations and measurements. It discusses potential problems for the future, as well as possible solutions, making it an essential read for industry professionals and academics interested in the leading-edge thinking in antenna measurement and design.

2019 | 250pp | £110 • \$145

Hardback | SBEW5290 | 978-1-78561-537-5
eBook | SBEW529E | 978-1-78561-538-2



NEW

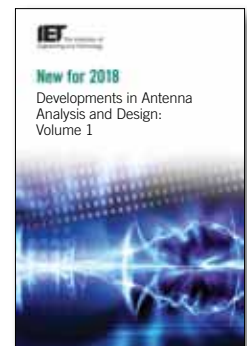
Developments in Antenna Analysis and Design Volume 1

Editor: Raj Mittra
University of Central Florida, USA

This major new work details recent developments in antenna design and modeling techniques for a wide variety of applications. The first volume covers the theory of characteristic modes (TCM) and characteristic bases; wideband antenna element designs; MIMO antennas; antennas for wireless communication; reconfigurable antennas employing microfluidics; flexible and body-worn antennas; and antennas using meta-atoms and artificially-engineered materials, or metamaterials (MTMs).

2018 | 473pp | £125 • \$165

Hardback | SBEW543A | 978-1-78561-888-8
eBook | SBEW5543F | 978-1-78561-889-5



NEW

Developments in Antenna Analysis and Design

Volume 2

Editor: Raj Mittra

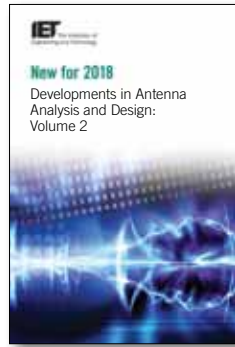
University of Central Florida, USA

This major new work details recent developments in antenna design and modeling techniques for a wide variety of applications. The second volume covers the topics of: graphene-based antennas; millimeter-wave antennas; terahertz antennas; optical antennas; fundamental bounds of antennas; fast and numerically efficient techniques for analyzing antennas; statistical analysis of antennas; ultra-wideband arrays; reflectarrays; and antennas for small satellites, viz., CubeSats.

2018 | 403pp | £125 • \$165

Hardback | SBEW543B | 978-1-78561-890-1

eBook | SBEW5543G | 978-1-78561-891-8



NEW

Developments in Antenna Analysis and Design

(2-vol set made up from SBEW543A and SBEW543B)

Editor: Raj Mittra

University of Central Florida, USA

Presented over two volumes, this major new work details recent developments in antenna design and modeling techniques for a wide variety of applications, chosen because they are contemporary in nature, have been receiving considerable attention in recent years, and are crucial for future developments. It includes topics such as body-worn antennas, that play an important role as sensors for Internet of Things (IoT), and millimeter wave antennas that are vitally important for 5G devices. It also covers a wide frequency range that includes terahertz and optical frequencies. Additionally, it discusses topics such as theoretical bounds of antennas and aspects of statistical analysis that are not readily found in the existing literature.

2018 | 473 + 403pp | £200 • \$260

Hardback | SBEW543X | 978-1-78561-892-5



NEW

Slotted Waveguide Array Antennas

Authors: Sembiam Rengarajan & Lars Josefsson

California State University, USA & Lars Microwave, Sweden

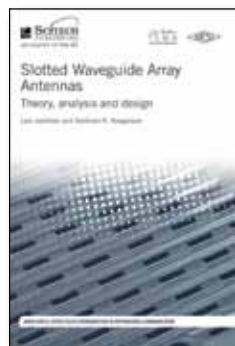
This is the first comprehensive treatment of slotted waveguide array antennas from an engineering perspective. It provides readers with a thorough foundation in applicable theories as well as hands-on instruction for practical analysis and design of important types of waveguide slot arrays. *Slotted Waveguide Array Antennas* goes beyond some of the commonly discussed topics and ventures into areas that include: higher order mode coupling and edge effects; performance optimisation in terms of bandwidth and pattern performance and manufacturing tolerances.

Mario Boella Series on Electromagnetism in Information and Communication

2018 | c.426pp | £125 • \$160

Hardback | SBEW5170 | 978-1-61353-189-1

eBook | SBEW517E | 978-1-61353-190-7



Adjoint Sensitivity Analysis of High Frequency Structures with MATLAB®

Author: Mohamed Bakr

McMaster University, Canada

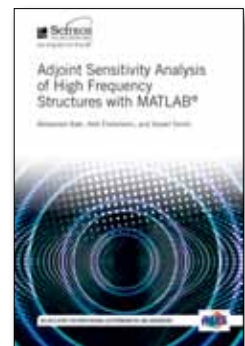
This unique reference is the first to cover the theory of adjoint sensitivity analysis and uses the popular FDTD (finite-difference time-domain) method to show how wideband sensitivities can be efficiently estimated for different types of materials and structures. It includes a variety of MATLAB® examples to help readers absorb the content more easily. Topics covered include a review of FDTD and an introduction to adjoint sensitivity analysis; second-order sensitivity analysis; time-domain responses; and applications to nonlinear and anisotropic materials.

The ACES Series on Computational Electromagnetics and Engineering

2017 | 280pp | £100 • \$160

Hardback | SBEW5250 | 978-1-61353-231-7

eBook | SBEW525E | 978-1-61353-232-4



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Theory and Practice of Modern Antenna Range Measurements	Parini, Gregson, McCormick, van Rensburg	Hardback	2014	131	210	978-1-84919-560-7	PBEW0550
The Wiener-Hopf Method in Electromagnetics	Daniele & Zich	Hardback	2014	54	100	978-1-61353-001-6	SBEW5030
Spectrum and Network Measurements, 2nd edition	Witte	Hardback	2014	66	110	978-1-61353-014-6	SBEW5060
Higher Order Numerical Solution Techniques in Electromagnetics	Graglia & Peterson	Hardback	2014	52	100	978-1-61353-016-0	SBEW5070
EMI Troubleshooting Cookbook for Product Designers	Wyatt & Andre	Spiral bound	2014	66	110	978-1-61353-019-1	SBEW5100
Sevick's Transmission Line Transformers: theory and practice	Sevick & Mack	Hardback	2014	66	120	978-1-89112-197-5	SBEW5130
The Finite-difference Time-Domain for Electromagnetics, 2nd edition	Elsherbeni & Demir	Hardback	2014	93	150	978-1-61353-175-4	SBEW5140
Practical Communication Theory	Adamy	Hardback	2014	48	85	978-1-61353-186-0	SBEW5160
Antenna Analysis and Design using FEKO Electromagnetic Simulation Software	Elsherbeni, Nayeri & Reddy	Paperback	2014	63	120	978-1-61353-205-8	SBEW5210
Circuit Modeling for Electro-Magnetic Compatibility	Darney	Hardback	2013	73	130	978-1-61353-020-7	SBEW5020
Electromagnetic Field Standards and Exposure Systems	Trzaska & Grudzinski	Hardback	2013	75	130	978-1-61353-177-8	SBEW5150
Complex Space Source Theory of Spatially Localized Electromagnetic Waves	Seshadri	Hardback	2013	63	120	978-1-61353-193-8	SBEW5180
EMC Pocket Guide: key EMC facts, equations and data	Wyatt & Jost	Spiral bound	2013	15	35	978-1-61353-191-4	SBEW5190
Propagation of Radiowaves 3rd revised edition	Les Barclay (ed.)	Hardback	2012	128	210	978-1-84919-578-2	PBEW0560
Electromagnetic Measurements in the Near Field, 2nd edition	Bienkowski & Trzaska	Hardback	2012	75	130	978-1-891121-06-7	SBEW0420
Integral Equation Methods for Electromagnetics	Volakis & Sertel	Hardback	2012	111	190	978-1-891121-93-7	SBEW0450
Scattering of Wedges and Cones with Impedance Boundary Conditions	Lyalinov & Zhu	Hardback	2012	59	110	978-1-61353-003-0	SBEW5010
Satellite-to-Ground Radiowave Propagation, 2nd edition	J.E. Allnutt	Hardback	2011	84	150	978-1-84919-150-0	PBEW0540
Designing Electronic Systems for EMC	Duff	Hardback	2011	80	140	978-1-891121-42-5	SBEW0410
Introduction to Adaptive Arrays, 2nd edition	Monzingo et al	Hardback	2011	106	180	978-1-891121-57-9	SBEW0460
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Antennas: Fundamentals, Design, Measurement, 3rd edition	Blake & Long	Hardback	2009	83	140	978-1-891121-78-4	SBEW0401
Microstrip and Printed Antenna Design, 2nd edition	Bancroft	Hardback	2009	83	140	978-1-891121-73-9	SBEW0480
Theory of Edge Diffraction in Electromagnetics	Ufimtsev	Hardback	2009	84	140	978-1-891121-66-1	SBEW0540
Principles of Planar Near-Field Antenna Measurements	S. Gregson, J. McCormick & C. Parini	Paperback	2007	84	150	978-0-86341-736-8	PBEW0530
2008+ Solved Problems in Electromagnetics	Nasar	Paperback	2007	30	55	978-1-891121-46-3	SBEW037z
Thermal Microwave Radiation: Applications for Remote Sensing	C. Matzler (ed.)	Hardback	2006	90	160	978-0-86341-573-9	PBEW0520

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IET JOURNALS

IET Microwaves, Antennas & Propagation

Editor-in-Chief: Professor Stavros Iezekiel
University of Cyprus, Cyprus

IET Microwaves, Antennas & Propagation comprehensively covers microwave and RF circuits, microwave and millimetre wave amplifiers, oscillators, switches, mixers and other components. This journal is essential reading for researchers, professionals and graduates, in the fields of antennas and propagation, and RF/microwave systems.

www.ietdl.org/IET-MAP



NEW

Condition Monitoring of Rotating Electrical Machines

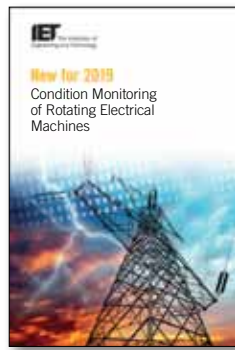
3rd Edition

Authors: Peter Tavner et al.
Durham University, UK

This is the completely revised new edition of the classic text on condition monitoring of rotating electrical machines. Every chapter has been updated and there are now four new chapters, reflecting changes in the areas since the previous edition. Written by a team of world-class experts, the new content mirrors the situation in industry today and the options provided by advanced electronics and computer technology. This is a key reference for academic and professional researchers and engineers in the energy, process engineering and manufacturing industries.

2019 | 370pp | £120 • \$155

Hardback | PBP01450 | 978-1-78561-865-9
eBook | PBP0145E | 978-1-78561-866-6



NEW

Cooling of Rotating Electrical Machines: Fundamentals, modelling, testing and design

Authors: David Staton et al.
Glasgow University, UK

Written by a team of highly renowned experts from academia and industry, this book provides a foundation in heat transfer and ventilation relevant to the thermal design of machines. With a range of practical approaches, as well as design data and case studies, it gives readers a sound insight into the basic phenomena of heat transfer and fluid flow. The application to specific rotating machines are described, and modern computational techniques such as finite element methods are also covered.

2019 | 250pp | £110 • \$145

Hardback | PBP01090 | 978-1-78561-351-7
eBook | PBP0109E | 978-1-78561-352-4



NEW

Electrical Steels: Production, characterisation and applications

Authors: Anthony John Moses et al.
Cardiff University, UK

Completely up to date, this comprehensive, must-read reference covers the production, characterisation and applications of electrical steels. A range of uses are discussed, with renewable power generation covered in particular. The authors present the material in a systematic way, covering production, measurements, standards, uses, and a number of other important aspects, making it essential reading for any engineers and scientists working in the electrical generation and distribution sectors.

2019 | 375pp | £120 • \$155

Hardback | PBP01050 | 978-1-78561-276-3
eBook | PBP0105E | 978-1-78561-277-0



NEW

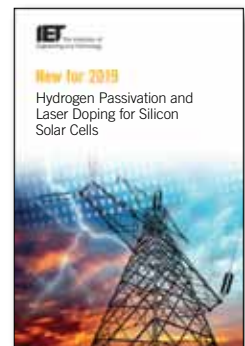
Hydrogen Passivation and Laser Doping for Silicon Solar Cells

Editors: Brett Hallam & Catherine Chan
University of New South Wales, Australia

This is the first reference on laser doping and hydrogen passivation for advanced solar cells. Written by a world-leading research team with strong industry experience, it provides a much-needed examination of light-induced degradation of silicon solar cells and the use of hydrogen passivation to avoid such degradation. The authors address key industry challenges to improve solar cell efficiency, and highlight the importance of defect formation throughout cell fabrication. An invaluable resource for senior engineers and researchers in academia and solar cell manufacturing.

2019 | 250pp | £110 • \$145

Hardback | PBP01340 | 978-1-78561-623-5
eBook | PBP0134E | 978-1-78561-624-2



NEW

Lightning Electromagnetics

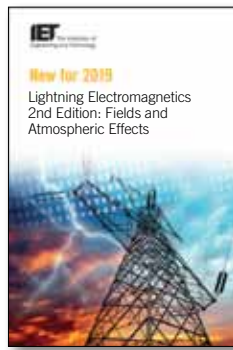
2nd Edition: Fields and Atmospheric Effects

Editors: Vernon Cooray et al.
Uppsala University, Sweden

This is the first volume of the new, much-expanded two-volume edition of the classic text on lightning electromagnetics. Covering fields and atmospheric effects, this volume provides the mathematical tools and computational techniques for understanding the electromagnetic processes occurring around lightning and their interactions with structures, power lines and telecommunication systems. Volume 2 covers modelling and applications.

2019 | 600pp | £140 • \$180

Hardback | PBP0127A | 978-1-78561-539-9
eBook | PBP0127F | 978-1-78561-540-5



NEW

Lightning Electromagnetics

2nd Edition: Modelling and Applications

Editors: Vernon Cooray et al.
Uppsala University, Sweden

This is the second volume of the new, much-expanded two-volume edition of the classic text on lightning electromagnetics. Covering modelling and applications, this volume provides the mathematical tools and computational techniques for modelling the electromagnetic processes occurring around lightning and their interactions with structures, power lines and telecommunication systems. Volume 1 covers fields and atmospheric effects.

2019 | 800pp | £145 • \$190

Hardback | PBP0127B | 978-1-78561-541-2
eBook | PBP0127G | 978-1-78561-542-9



NEW

Lightning Electromagnetics

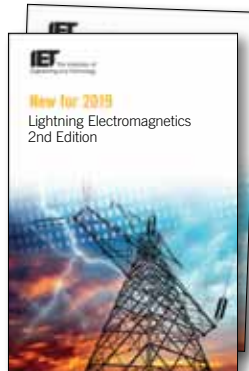
2nd Edition (2-vol set of PBP0127A and PBP0127B)

Editors: Vernon Cooray et al.
Uppsala University, Sweden

This is the completely revised and much-expanded new two-volume edition of the classic text on lightning electromagnetics. Covering principles, modelling, propagation and applications, the authors provide the rules and computations needed to bridge the physical understanding and the high level computational procedures for modelling every electromagnetic process, whether static or dynamic, involved in lightning and its interactions with structures, power lines and telecommunication systems.

2019 | 600+800pp | £200 • \$260

Hardback | PBP0127X | 978-1-78561-543-6



NEW

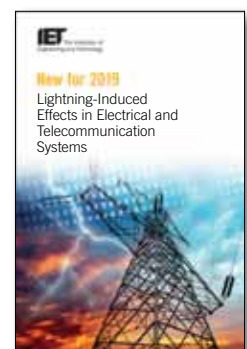
Lightning-Induced Effects in Electrical and Telecommunication Systems

Authors: Yoshihiro Baba & Vladimir A Rakov
Doshisha University, Japan & University of Florida, USA

An introduction to both traditional and state-of-the art finite difference time-domain (FDTD) techniques for computing lightning-induced surges in electrical and telecommunication systems. Covering both power distribution lines and telecommunication lines it describes material that is needed to perform thorough modelling and simulation of lightning induced effects. Contents include calculation of lightning electromagnetic fields; modelling of the lightning return stroke; telegraphers' equations and field-to-conductor electromagnetic coupling models; and more. This is essential reading for electrical engineers and researchers, who are interested in lightning surge protection.

2019 | 280pp | £110 • \$145

Hardback | PBP01140 | 978-1-78561-353-1
eBook | PBP0114E | 978-1-78561-354-8



NEW

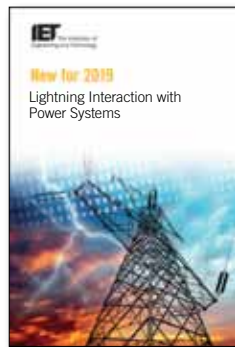
Lightning Interaction with Power Systems

Editor: Alexandre Piantini
University of São Paulo, Brazil

This volume gives complete coverage of the effects of lightning on power system components, including renewable energy power generators, and how to protect them. Ideal as a reference for researchers in the field of lightning and for power transmission and distribution line engineers and designers, it will also be valuable to telecommunication systems engineers. Topics covered include lightning electromagnetic fields and return stroke models; lightning location systems; field-to-transmission line coupling models; grounding and bonding; and more.

2019 | 400pp | £125 • \$160

Hardback | PBP01130 | 978-1-78561-391-3
eBook | PBP0113E | 978-1-78561-392-0



NEW

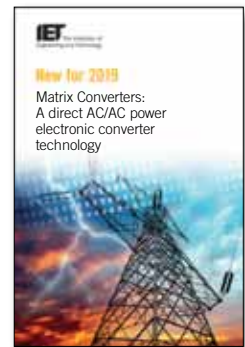
Matrix Converters: A direct AC/AC power electronic converter technology

Editors: Patrick Wheeler et al.
University of Nottingham, UK

From a world-class international team with ties to major industry, this title gives the power electronics community a definitive, systematic reference for matrix power converters. Its comprehensive coverage includes matrix converter principles and design, modulation and control, practical implementation, and applications in aerospace, transportation, renewable energy and elsewhere. The authors also describe new control/modulation methods for matrix converter applications, including SVM, DTC and predictive control. This essential book will have a wide appeal within the rapidly growing power electronics community.

2019 | 250pp | £110 • \$145

Hardback | PBP01350 | 978-1-78561-648-8
eBook | PBP0135E | 978-1-78561-649-5



NEW

Modelling and Simulation of Complex Power Systems

Editors: Antonello Monti & Andrea Benigni
Aachen University, Germany & University of South Carolina, USA

This essential tool for research on modern power systems presents the main concepts of modelling and simulation of power systems and their use for simulation-based design. Written in a systematic, didactic style, and employing examples and case studies, the book explains the key techniques and methods used by software packages. Simulation solvers implemented in C++, MATLAB® and Python are used to explain the structure and development of commercial simulation tools. Ideal for researchers and advanced students involved with power system research.

2019 | 400pp | £125 • \$160

Hardback | PBP01180 | 978-1-78561-404-0
eBook | PBP0118E | 978-1-78561-405-7



NEW

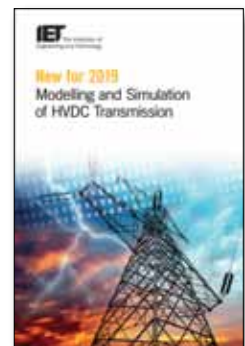
Modelling and Simulation of HVDC Transmission

Editors: Minxiao Han & Aniruddha Gole
Electric Power University, China & University of Manitoba, Canada

This book covers the development, modelling and simulation for high-voltage DC (HVDC) transmission systems. The development of HVDC technologies is introduced briefly before the role of modelling and simulation in the research and development of HVDC systems is discussed. The title covers the electromagnetic transient model, electromechanical transient model and the dynamic average model, with the electromagnetic transient model being emphasised. This book is a great resource for engineers, researchers and advanced students majoring in electric engineering.

2019 | 300pp | £115 • \$145

Hardback | PBP01160 | 978-1-78561-380-7
eBook | PBP0116E | 978-1-78561-381-4



NEW

Modelling and Simulation of Small Scale Hydro Generation Systems

Editors: René Wamkeue & Innocent Kamwa
Université du Québec, Canada

This book provides engineers, researchers and advanced students with the mathematical modelling, control and simulation tools needed for the successful design, long-term management and maintenance of a small scale hydro-power plant (HPP). It also covers the hybrid operation with other small scale renewable power plants as well as the use of a storage system. The book features case studies and test-based design, and all system components are modelled using the well-known state space form technique.

2019 | 400pp | £125 • \$160

Hardback | PBP01220 | 978-1-78561-529-0
eBook | PBP0122E | 978-1-78561-530-6



NEW

Modern Control of Power Electronics Systems

Authors: Pericle Zanchetta et al.
University of Nottingham, UK

This book deals with control and modulation of power converters for electrical drives, distributed generation and active power filtering, giving the theoretical background and hints for practical implementation. It covers an unusually wide range of power electronics applications; includes novel kinds of power converters, like multi-level converters and matrix converters and their specific pulse-width modulation techniques; and covers predictive, repetitive and AI-based control. Essential for academic and industrial researchers in power electronics.

2019 | 368pp | £120 • \$155

Hardback | PBP00710 | 978-1-84919-785-4
eBook | PBP0071E | 978-1-84919-786-1



NEW

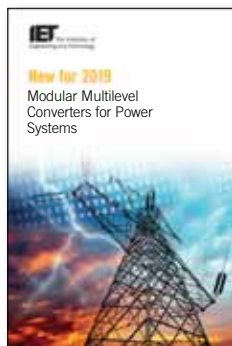
Modular Multilevel Converters for Power Systems

Authors: Eduardo Prieto-Araujo et al.
Universitat Politècnica de Catalunya, Spain

This is a coherent, application-oriented reference to the emerging modular multilevel converter (MMC) technology. The book introduces the technology and explains converter operation for grid-connected applications. It then addresses the operation of the MMC when it is in grid-forming mode, before covering the operation in a potential multi-terminal grid, arising from the proliferation of point-to-point HVDC links. An important source book for researchers involved with power systems and converter technology, as well as practitioners in utilities and renewable energy power plants.

2019 | 480pp | £125 • \$165

Hardback | PBP01400 | 978-1-78561-741-6
eBook | PBP0140E | 978-1-78561-742-3



NEW

Monitoring and Control using Synchrophasors in Power Systems with Renewables

Editors: Innocent Kamwa & Chao Lu
Hydro-Quebec Research Institute, Canada

Written by internationally recognized experts in the area, this is authoritative volume provides an integrated picture of the topic and addresses the emerging concepts, methodologies and applications of wide-area monitoring, control and protection in power systems with large-scale renewables. Alongside engineering aspects, the book also covers cyber security and economic considerations, making it a valuable resource for researchers and advanced students in academia and industry involved with power system control, as well as practitioners in the wind power industry.

2019 | 400pp | £125 • \$160

Hardback | PBP01210 | 978-1-78561-477-4
eBook | PBP0121E | 978-1-78561-478-1



NEW

Performance, Modelling and Reliability of Photovoltaic Systems

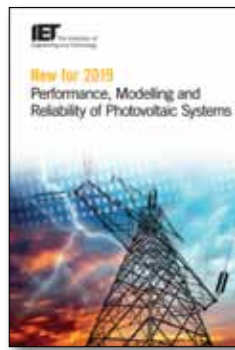
Authors: George E. Georgiou et al.
The University of Cyprus, Cyprus

This guide provides a comprehensive range of topics for monitoring, modelling and assessing the performance of photovoltaic plants, and enabling effective asset management. Using real-world data, the book emphasises practical usability, systematically covering the knowledge needed to perform these tasks, from the basics all the way through to the evaluation of key performance indicators. Source code used to perform data analysis is also included. This book is ideal for anyone working with photovoltaic systems or plants.

2019 | 300pp | £115 • \$150

Hardback | PBP01030 | 978-1-78561-256-5

eBook | PBP0103E | 978-1-78561-257-2



NEW

Power Electronics Packaging Reliability

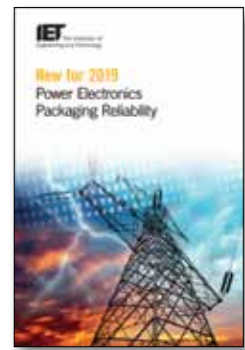
Editor: C. Mark Johnson
The University of Nottingham, UK

In this title, world-leading experts with close industry connections provide up-to-date, comprehensive coverage of the rapidly developing, and increasingly important topic of device degradation of power electronics modules. Building up the material systematically, the book describes the technologies involved in power electronic device manufacturing, with an emphasis on characterising key wear-out mechanisms and technologies. A must-read for all engineers involved with electronics for reliable power systems.

2019 | 400pp | £125 • \$160

Hardback | PBP00990 | 978-1-78561-252-7

eBook | PBP0099E | 978-1-78561-253-4



NEW

Renewable Energy from the Oceans: From wave, tidal and gradient systems to marine-based wind and solar

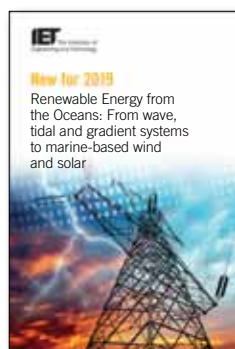
Editors: Tonio Sant & Domenico Coiro
University of Rome 1, Italy

This technology-oriented reference brings together international experts with academic and industry backgrounds to provide a systematic overview of ocean energy technologies. Covering technology, modelling, field experience, installation and grid connection, this is a high level technical overview of ocean renewable energy generation. It examines wave, tidal, current, salinity and thermal energy generation and includes the novel technology of marine solar arrays. The book is written for researchers and engineers involved in mechanical engineering, energy engineering and marine renewable energies.

2019 | 450pp | £125 • \$165

Hardback | PBP01290 | 978-1-78561-766-9

eBook | PBP0129E | 978-1-78561-767-6



NEW

Solar to Hydrogen: Technology and development of solar water splitting

Author: Andrés Gabriel Muñoz
Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH, Germany

In this unique, comprehensive source on artificial leaf technology, the authors introduce the physical, chemical and optical phenomena leading to water splitting in inorganic tandem light-absorbing systems. The book connects different disciplines, and offers a guide for the design of solar power plants and the selection and development of materials. Emerging technologies are outlined and the reader is introduced to interfacial energetics, light harvesting, electrochemical reactivity and hydrodynamics issues. An essential read for anyone working in renewable energies, especially solar energy and fuel cells.

2019 | 300pp | £115 • \$150

Hardback | PBP01360 | 978-1-78561-691-4

eBook | PBP0136E | 978-1-78561-692-1



NEW

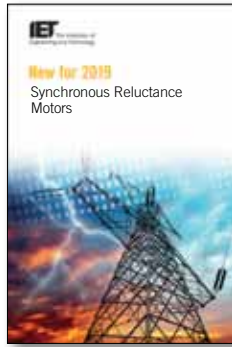
Synchronous Reluctance Motors

Author: Christopher M. Donaghy-Spargo
Durham University, UK

This single volume brings together electromagnetic, mechanical and thermal design issues with motor prototyping, parameter identification and testing, and presents the material in a logical order focusing on understanding and application of ideas. Finite element studies are utilised throughout to explore the design space and generate design rules. The book provides the background and understanding of the core concepts such that readers can engage in advanced research on synchronous motors. Ideal for postgraduate and postdoctoral researchers, university academics and industrial researchers involved in the field.

2019 | 300pp | £115 • \$150

Hardback | PBP01370 | 978-1-78561-685-3
eBook | PBP0137E | 978-1-78561-686-0



NEW

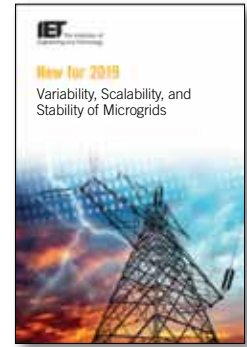
Variability, Scalability, and Stability of Microgrids

Editors: S. M. Mueeen, et al.
Curtin University, Perth, Australia

Here, the authors discuss variability, scalability, and stability of microgrids. They include coverage of virtual plants and storage, providing numerous examples and case studies as well as simulation/experimental results in each chapter. The book covers a broad range of topics such as demand-side energy management, transactive energy, clustered microgrids, virtual power plants and storage, optimizing and sizing of microgrid components. A key reference for engineers, researchers and advanced students in the field of power systems and related power electronics.

2019 | 400pp | £125 • \$160

Hardback | PBP01390 | 978-1-78561-693-8
eBook | PBP0139E | 978-1-78561-694-5



NEW

Wide Bandgap Semiconductors and their Applications in Power Electronics

Editors: Philip A. Mawby & Li Ran
University of Warwick, UK

Written by an international and acclaimed author team, the book covers the progress made in the area of wide bandgap semiconductor (WBG) technologies, including SiC, GaN and other systems. With a strong emphasis on applications in areas such as automotive, aerospace and the whole electrical energy sector, the book delivers a blend of device functionality and capabilities, and technology road maps. Written for researchers and engineers involved in state-of-the-art power electronics and semiconductor science, it will also be useful for advanced students in these areas.

2019 | 300pp | £115 • \$150

Hardback | PBP01380 | 978-1-78561-743-0
eBook | PBP0138E | 978-1-78561-744-7



NEW

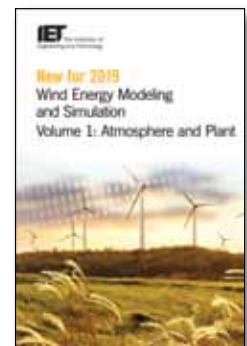
Wind Energy Modeling and Simulation Volume 1: Atmosphere and Plant

Editor: Paul Veers
National Renewable Energy Laboratory, USA

Wind Energy Modeling and Simulation Volume 1: Atmosphere and Plant is the first book in a two-volume set in full colour on wind farm power modeling - key to efficient wind plant design. The set covers every aspect from wind flow over turbine component design to grid integration. With chapters by eminent international experts, the set is an invaluable resource for researchers and experts in academia and industry. Volume 1 covers atmospheric modeling, wind plant output, control, and financial aspects.

2019 | 260pp | £110 • \$145

Hardback | PBP0125A | 978-1-78561-521-4
eBook | PBP0125F | 978-1-78561-522-1



NEW

Wind Energy Modeling and Simulation

Volume 2: Turbine and System

Editor: Paul Veers

National Renewable Energy Laboratory, USA

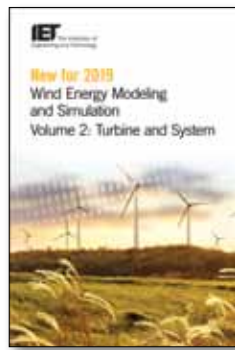
Wind Energy Modeling and Simulation Volume 2: Turbine and System is the second book in a two-volume set in full colour on wind farm power modeling - key to efficient wind plant design.

The set covers every aspect from wind flow over turbine component design to grid integration. With chapters by eminent international experts, the set is an invaluable resource for researchers in academia and industry. Covering dynamics, system design, and grid modeling, volume 2 is also relevant to experts at turbine manufacturers and utilities.

2019 | 430pp | £125 • \$160

Hardback | PBPO125B | 978-1-78561-523-8

eBook | PBPO125G | 978-1-78561-524-5



NEW

Wind Power Modelling

(2-vol set made up from PBPO125A and PBPO125B)

Editor: Paul Veers

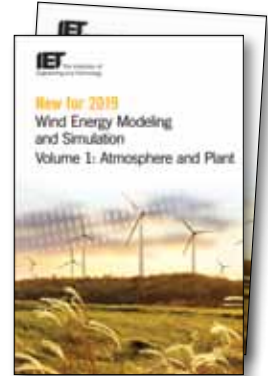
National Renewable Energy Laboratory, USA

Wind Energy Modeling and Simulation is a two-volume set on wind farm power modelling, which is key to efficient wind plant design and wind power growth. The set covers every aspect

from atmospheric dynamics and wind flow over turbine and system design to grid integration. With chapters by eminent international experts, the set is an invaluable resource for researchers in academia and industry, as well as for experts in turbine manufacturers and utilities.

2019 | 690pp | £190 • \$245

Hardback | PBPO125X | 978-1-78561-528-3



NEW

Applications of Fault Diagnosis for Inverter Power Drives

Editor: Antonio Ginart

Sonnen Inc, USA

Power drives are used for induction motor control, uninterruptible power supplies, and in electrical vehicles. The increasing penetration of power drives makes their reliability, robustness, and early diagnosis a central point of attention especially in planning, designing, and financing. This book explores fault diagnosis of inverter drives in order to prevent malfunction and inefficient operation.

2018 | 326pp | £115 • \$150

Hardback | PBPO1200 | 978-1-78561-410-1

eBook | PBPO120E | 978-1-78561-411-8



NEW

Bifacial Photovoltaics: Technology, applications and economics

Editors: Radovan Kopecek & Joris Libal

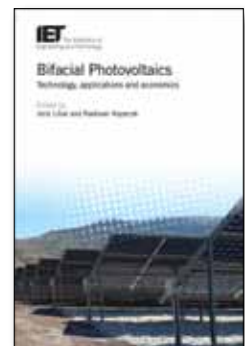
ISC Konstanz, Germany

Bifacial photovoltaic (PV) modules are able to utilize light from both sides and can therefore significantly increase the electric yield of PV power plants, thus reducing the cost and improving profitability. Bifacial PV technology has a huge potential to reach a major market share, in particular when considering utility scale PV plants. This book provides an overview of the history, status and future of bifacial PV technology with a focus on crystalline silicon technology, covering the areas of cells, modules, and systems. In addition, topics like energy yield simulations and bankability are addressed.

2018 | 344pp | £115 • \$150

Hardback | PBPO1070 | 978-1-78561-274-9

eBook | PBPO107E | 978-1-78561-275-6



NEW

Characterization of Wide Bandgap Power Semiconductor Devices

Authors: Fei (Fred) Wang et al.

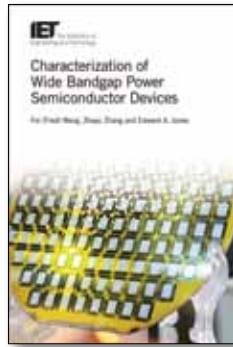
The University of Tennessee, Knoxville, USA

The emergence of wide bandgap (WBG) semiconductor devices, including silicon carbide and gallium nitride, promises higher efficiency, smaller size, lighter weight, and longer lifetime than the established silicon-based devices. However, WBG devices pose new challenges for converter design, in particular due to their fast switching speed and need for protection. This book explores methods for the characterization of this important class of power devices.

2018 | 376pp | £120 • \$155

Hardback | PBP01280 | 978-1-78561-491-0

eBook | PBP0128E | 978-1-78561-492-7



NEW

DC Distribution Systems and Microgrids

Editors: Tomislav Dragičević et al.

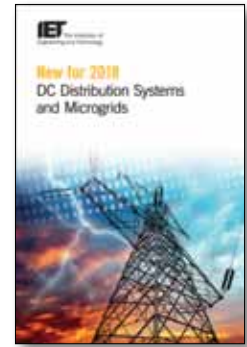
Aalborg University, Denmark

This volume from an international, world-class team is an up-to-date account of control and architectural design of DC distribution systems and microgrids. Ideal for engineers, academics and research students, it covers DC architecture and control, protection, microgrid standards, microgrid-based residential buildings and electric-vehicle charging technology. Practical details are given for real-world systems. It covers coordinated control design for intelligent real-time control of DC distribution systems, and explains stabilisation concepts.

2018 | 478pp | £125 • \$160

Hardback | PBP01150 | 978-1-78561-382-1

eBook | PBP0115E | 978-1-78561-383-8



NEW

Diagnosis and Fault Tolerance of Electrical Machines and Power Electronics

Editor: Antonio J. Marques Cardoso

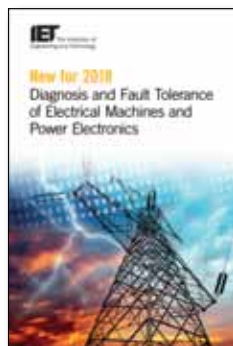
University of Beira Interior, Portugal

Up-to-date and system-oriented, this is a comprehensive, unified guide to possible faults in electromechatronic systems. It encompasses techniques for fault analysis, diagnostics, condition monitoring methods, reconfiguration, remedial operating strategies and fault tolerance in electrical machines, power electronics and key types of drives. It also covers remnant life estimation. A vital resource for researchers and professionals specialising in the design, development and application of electrical machines and power electronics.

2018 | 392pp | £120 • \$155

Hardback | PBP01260 | 978-1-78561-531-3

eBook | PBP0126E | 978-1-78561-532-0



NEW

Energy Storage at Different Voltage Levels: Technology, integration, and market aspects

Editors: Ahmed Faheem Zobaa et al.

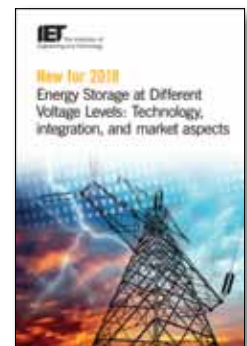
Brunel University, UK

This comprehensive work addresses current and future roles of energy storage, prospects and challenges in the generation, transmission, distribution and customer levels of the grid. An international team of experts disclose scenarios for future storage technologies and electric vehicles. They demonstrate the risks and mitigation solutions for integration problems while illustrating the importance of energy storage in building sustainable modern power system grids. Economic and management aspects are also addressed using case studies.

2018 | 348pp | £115 • \$150

Hardback | PBP01110 | 978-1-78561-349-4

eBook | PBP0111E | 978-1-78561-350-0



NEW

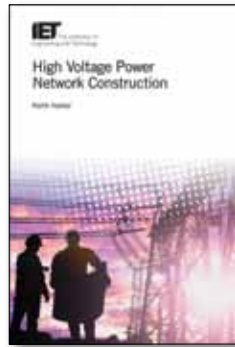
High Voltage Power Network Construction

Author: Keith Harker
Consultant

This book is an up-to-date and comprehensive guide for engineers and researchers in high-voltage network construction. The book is structured around three parts: the specification and implementation of a technical solution; the execution of quality management system procedural arrangements; and assurance that all duty holders have the requisite competencies. The book discusses financial aspects; engineering contracts; project management; and health, safety and environmental practice. Interfaces with thermal and renewable power generation are also covered.

2018 | 768pp | £130 • \$210

Hardback | PBP01100 | 978-1-78561-423-1
eBook | PBP0110E | 978-1-78561-424-8



NEW

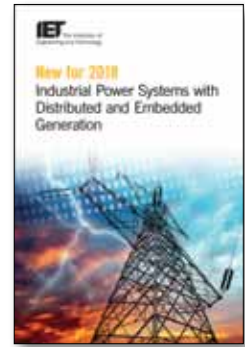
Industrial Power Systems with Distributed and Embedded Generation

Author: Radian Belu
University of Alaska, USA

This book describes the supporting technologies that can turn conventional passive electricity delivery networks into the active networks of the future, with a focus on electricity utilization in the industrial environment. It examines the integration of the new, dispersed sources with the legacy systems of centralised generation, as well as how the new technologies can operate effectively in isolated systems. Industrial power distribution, lighting, motor control and protection are discussed in detail.

2018 | 632pp | £140 • \$180

Hardback | PBP00960 | 978-1-78561-152-0
eBook | PBP0096E | 978-1-78561-153-7



NEW

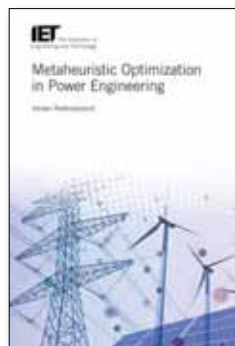
Metaheuristic Optimization in Power Engineering

Author: Jordan Radosavljević
University of Priština, Serbia

This comprehensive reference demonstrates the application of selected metaheuristic optimization methods to solving problems in power engineering, and gives an overview of metaheuristic methodology. The first part of this book gives a brief description of selected metaheuristic optimization methods, while the second part covers applications of the methods to power system problems. Each chapter contains a comprehensive review of recent literature. Ideal for researchers in power system analysis and power system optimization.

2018 | 536pp | £135 • \$175

Hardback | PBP01310 | 978-1-78561-546-7
eBook | PBP0131E | 978-1-78561-547-4



NEW

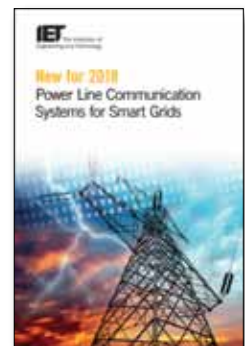
Power Line Communication Systems for Smart Grids

Editors: Ivan Roberto Santana Casella & Alagan Anpalagan
Universidade Federal do ABC, Brazil & Ryerson University, Canada

Power Line Communication (PLC) is a well-established technology that allows the transmission of data through electrical wires. This could be a key enabler of the Smart Grid. This book presents a comprehensive introduction to the principles involved in the use of narrowband and broadband PLC technologies in the Smart Grid, and to using these technologies to improve energy monitoring, control and management, particularly with intermittent renewable energies. It conveys the main standards and several related state-of-the-art works.

2018 | 456pp | £125 • \$165

Hardback | PBP01320 | 978-1-78561-550-4
eBook | PBP0132E | 978-1-78561-551-1



NEW

Power Market Transformation: Reducing emissions and empowering consumers

Author: Barrie Murray
Electricity Market Services Ltd., UK

This book provides an analysis of the changes in the electricity market and quantifies their impact. It reviews strategic decisions in the management of changes in the sector and aims to identify the best way to meet the triple objectives of security, affordability and sustainability with low emissions. Economic issues are explained for the benefit of readers without economics backgrounds, making this ideal for engineers, academics, the power and utilities industries, and readers who want a better understanding of their sector's market.

2018 | 416pp | £100 • \$160

Hardback | PBP01240 | 978-1-78561-481-1
eBook | PBP0124E | 978-1-78561-482-8



NEW

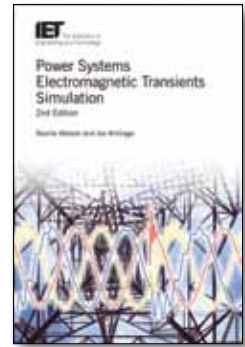
Power Systems Electromagnetic Transients Simulation 2nd Edition

Author: Neville R. Watson
University of Canterbury, New Zealand

This new edition of the classic on electromagnetic transient (EMT) simulation gives an up-to-date overview of the area. Thoroughly revised, with entirely new chapters, it covers new topics including: simulation of very large networks; modelling of power electronic devices; integration of renewable energy sources; and real-time simulation of complex systems. Extensive appendices with additional explanations and modelling code samples are also included. Ideal for academics, postgraduates and professionals working in power system transients.

2018 | 552pp | £135 • \$175

Hardback | PBP01230 | 978-1-78561-499-6
eBook | PBP0123E | 978-1-78561-500-9



NEW

Power Transformer Condition Monitoring and Diagnosis

Editor: Ahmed Abu-Siada
Curtin University, Australia

Power transformers are a key asset for electricity utilities around the globe. However aging populations of large power transformers require reliable monitoring systems and diagnostics to extend the asset's lifetime and minimise the possibility of catastrophic failure. This book describes all current power transformer condition monitoring techniques from principles to practice.

2018 | 328pp | £115 • \$150

Hardback | PBP01040 | 978-1-78561-254-1
eBook | PBP0104E | 978-1-78561-255-8



NEW

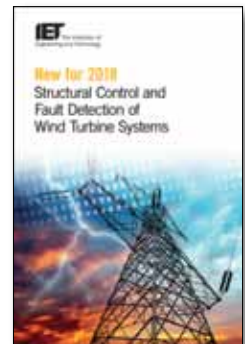
Structural Control and Fault Detection of Wind Turbine Systems

Editor: Hamid Reza Karimi
Politecnico di Milano, Italy

Edited by an internationally renowned expert, this is an integrated, theoretically thorough treatment of structural control and monitoring of wind turbines, covering all aspects of wind turbine systems of different sizes. It provides a systematic and comprehensive treatment of the design, construction and monitoring of wind turbine systems and covers integrated modelling, safety, control and supervision infrastructure. Ideal for researchers and engineers in mechatronics, control and mechanical engineering, particularly in wind energy.

2018 | 304pp | £115 • \$150

Hardback | PBP01170 | 978-1-78561-394-4
eBook | PBP0117E | 978-1-78561-395-1



NEW

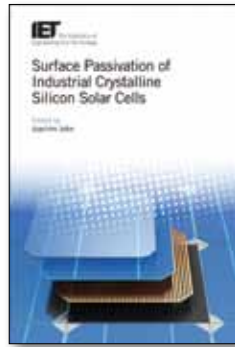
Surface Passivation of Industrial Crystalline Silicon Solar Cells

Editor: Joachim John
IMEC, Belgium

Surface passivation of solar cells is a technology for preventing electrons and ions, that have been generated by photons and are supposed to form the photovoltaic current, from recombining prematurely with one another. It thus increases the cell's energy conversion efficiencies and reduces the cost per kWh generated by a PV system. This timely overview of solar cell surface passivation is a key read for researchers working with solar cells, as well as solar cell manufacturers.

2018 | 304pp | £115 • \$150

Hardback | PBP01060 | 978-1-78561-246-6
eBook | PBP0106E | 978-1-78561-247-3



NEW

Thermal Power Plant Control and Instrumentation: The control of boilers and HRSGs

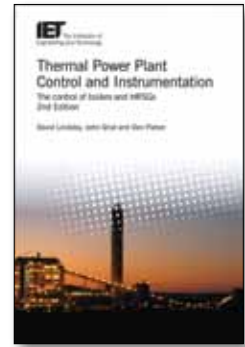
2nd edition

Authors: David M. Lindsley et al.
Kingston University, UK

This thoroughly revised and updated new edition of a classic book describes the systems and equipment used for measuring and controlling boilers and heat-recovery steam-generators employed in land and marine power plant and in process industries. This new edition features 50% new or updated content, including biomass firing, plant automation and increased flexibility. It continues to serve as a vital practitioner's guide to the design, installation, operation and maintenance of these systems, as well as an essential resource for researchers.

2018 | 352pp | £120 • \$155

Hardback | PBP01190 | 978-1-78561-419-4
eBook | PBP0119E | 978-1-78561-420-0



NEW

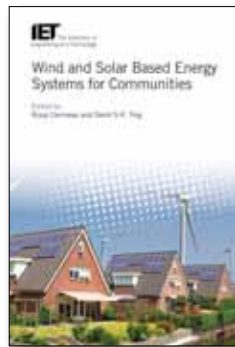
Wind and Solar Based Energy Systems for Communities

Editors: Rupp Carriveau & David S-K. Ting
University of Windsor, Canada

The editors bring together topics on the emerging area of community energy technology, covering key areas from generation through to considerations for the entire system, with an emphasis on the popular energy sources of wind power and solar power. For solar power, it discusses community photovoltaics, solar thermal, and desalination. The book also covers storage, Power-to-Gas, microgrids, energy conservation and financing. The work is therefore invaluable for researchers and engineers involved with community-level energy systems.

2018 | 328pp | £100 • \$160

Hardback | PBP01300 | 978-1-78561-544-3
eBook | PBP0130E | 978-1-78561-545-0



NEW

Wireless Power Transfer: Theory, technology, and applications

Editor: Naoki Shinohara
Kyoto University, Japan

The comprehensive book written for engineering academics and research students covers the very latest in theory and technology for Wireless Power Transfer (WPT), including both coupling and radiative WPT. The technology is already seeing widespread use, e.g. for charging phones, and systems for charging electric vehicles are already under development. Edited by a highly respected authority with an extensive research background in the field, the title discusses theory, technologies, and current and future applications.

2018 | 296pp | £115 • \$150

Hardback | PBP01120 | 978-1-78561-346-3
eBook | PBP0112E | 978-1-78561-347-0



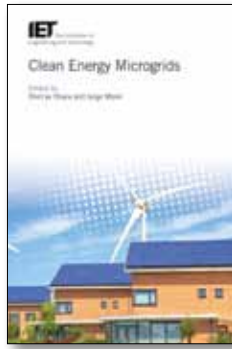
Clean Energy Microgrids

Editors: Shin'ya Obara & Jorge Morel
Kitami Institute of Technology, Japan

Microgrids – connecting entities smaller than cities, such as smaller villages or university campuses – are gaining importance. This book describes the latest technology in microgrids and economic, environmental and policy aspects of their implementation, including microgrids for cold regions, and future trends. Topics covered include an overview of clean energy systems; storage systems for microgrids; microgrid reliability and electricity quality and communication network security and privacy. International case studies are included.

2017 | 376pp | £126 • \$200

Hardback | PBP00900 | 978-1-78561-097-4
eBook | PBP0090E | 978-1-78561-098-1



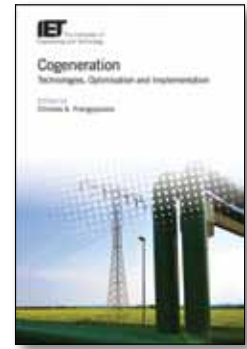
Cogeneration: Technologies, optimisation and implementation

Editor: Christos A. Frangopoulos
National Technical University of Athens, Greece

This book provides an integrated treatment of cogeneration – the simultaneous production of two or more useful forms of energy from the same primary energy source – including a tour of the available technologies and their features, how these systems can be analysed and optimised (with the formal application of mathematical optimisation at three levels - synthesis, design specifications and operation), and implementation issues such as economic, financial, environmental, and legal/regulation aspects. It includes case studies of cogeneration projects implemented in various sectors.

2017 | 360pp | £105 • \$170

Hardback | PBP00870 | 978-1-78561-055-4
eBook | PBP0087E | 978-1-78561-056-1



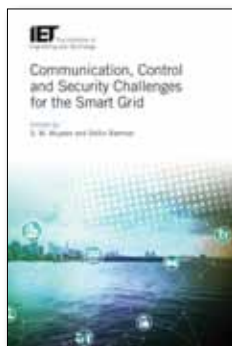
Communication, Control and Security Challenges for the Smart Grid

Editors: S. M. Mueyen & Saifur Rahman
The Petroleum Institute, UAE & VT Advanced Research Institute, USA

This book focuses specifically on security and control aspects of the smart grid. It covers various related topics including smart grid architecture; communications and networking features; measuring and sensing devices; and smart transmission and distribution. Particular emphasis is placed on security, reliability, and stability features. Different control aspects of smart grid are also covered. Each chapter includes examples, case studies, simulations and experimental results, making this a practical and essential resource for professional researchers and advanced students alike.

2017 | 576pp | £126 • \$200

Hardback | PBP00950 | 978-1-78561-142-1
eBook | PBP0095E | 978-1-78561-143-8



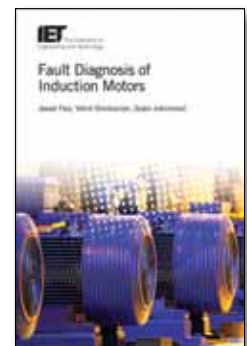
Fault Diagnosis of Induction Motors

Authors: Jawad Faiz et al.
University of Tehran, Iran

This book is a comprehensive, structural approach to fault diagnosis strategy, which will allow readers to select the right diagnosis strategy. The most important previously published works are reviewed, and potentials and limits of each approach are deeply discussed. The different fault types, signal processing techniques, and loss characterisation are also addressed in the book. This is essential reading for work with induction motors for transportation and energy.

2017 | 536pp | £126 • \$200

Hardback | PBP01080 | 978-1-78561-328-9
eBook | PBP0108E | 978-1-78561-329-6



Fuzzy Logic Control in Energy Systems with MATLAB®

Author: İsmail Hakkı Altas
Karadeniz Technical University, Turkey

This book is about fuzzy logic control and its applications in managing, controlling and operating electrical energy systems. It aims to convey an understanding of design approaches to fuzzy logic controllers in MATLAB® and MATLAB/Simulink® environments. This book will enable readers to develop their own fuzzy processor library and fuzzy logic toolbox for the particular problems they study. This is an essential text for researchers and practising engineers working in power engineering and advanced students in the topic.

2017 | 520pp | £116 • \$185

Hardback | PBP00910 | 978-1-78561-107-0
eBook | PBP0091E | 978-1-78561-108-7



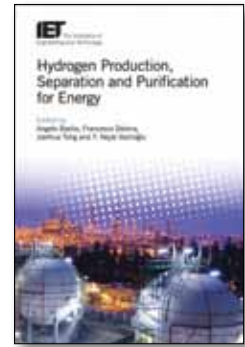
Hydrogen Production, Separation and Purification for Energy

Editors: Angelo Basile et al.
ITM-CNR, Italy

Hydrogen production is set to play an increasing role in a modern, clean energy system. It can be produced from clean energy, such as excess solar or wind energy, serving as a storage medium to help mitigate the intermittency of renewables. However, the ways to produce hydrogen to sufficient purity standards need to be developed further and made more efficient and cost effective. This book describes and discusses the current techniques and challenges for producing hydrogen. Researchers, advanced students and practising engineers will find this book of interest.

2017 | 488pp | £110 • \$175

Hardback | PBP00890 | 978-1-78561-100-1
eBook | PBP0089E | 978-1-78561-101-8



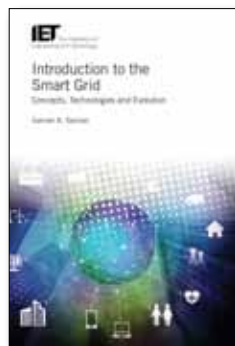
Introduction to the Smart Grid: Concepts, technologies and evolution

Author: Salman K. Salman
The Robert Gordon University, UK

The concept, evolution and technologies of the Smart Grid are discussed and explained in this comprehensive introduction to the subject. It identifies and discusses the tools required to ensure the interoperability among various digitally-based components of the Smart Grid. Additionally it covers the input of user groups and collaborative efforts within the power industry towards developments of interoperability standards. This book highlights and discusses the necessary tools, drivers and key technologies related to the Smart Grid with examples from ongoing projects.

2017 | 304pp | £105 • \$170

Hardback | PBP00940 | 978-1-78561-119-3
eBook | PBP0094E | 978-1-78561-120-9



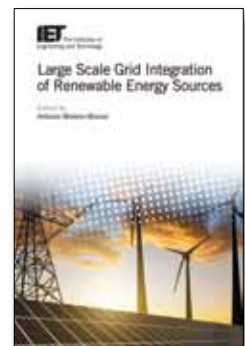
Large Scale Grid Integration of Renewable Energy Sources

Editor: Antonio Moreno-Munoz
University of Córdoba, Spain

This work presents comprehensive coverage of the means to integrate renewable power, namely wind and solar power. It looks at new approaches to meet the challenges, such as increasing interconnection capacity among geographical areas, hybridisation of different distributed energy resources and building up Demand Response capabilities. This book presents an overview of the steps on the way toward 100% clean power, covering approaches like micro-storage and demand response, prosumers and energy communities and including distribution systems and microgrids.

2017 | 336pp | £105 • \$170

Hardback | PBP00980 | 978-1-78561-162-9
eBook | PBP0098E | 978-1-78561-163-6



Modeling and Dynamic Behaviour of Hydropower Plants

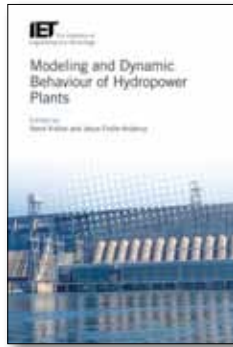
Editors: Nand Kishor & Jesus Fraile-Ardanuy

Motilal Nehru National Institute of Technology (MNNIT) Allahabad, India & Technical University of Madrid, Spain

Hydropower helps stabilise fluctuations between demand and supply; with the increase in shares of wind and photovoltaic energy, this role will become more important. This book presents a systematic approach to mathematical modeling of different configurations of hydropower plants, their simulation studies, and performance of controlled systems. It offers a focused critical insight into new trends for hydropower operation and control and addresses the fundamentals and latest concepts, providing the most appropriate solutions for cost-effective and reliable operation.

2017 | 280pp | £126 • \$200

Hardback | PBP01000 | 978-1-78561-195-7
eBook | PBP0100E | 978-1-78561-196-4



Power Quality in Future Electrical Power Systems

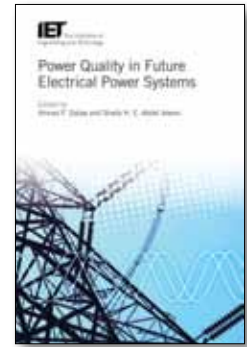
Editors: Ahmed Faheem Zobaa & Shady H. E. Abdel Aleem

Brunel University, UK & Higher Institute of Engineering, Egypt

This book highlights the recent developments in power systems that have led to new challenges in the power quality domain, such as large-scale renewable energy-based generation technologies. It also looks at the challenge of the advance of nonlinear loads, including the associated harmonic distortion and low voltage quality with additional transmission and distribution loss concerns. It highlights the problems, causes and effects, and presents the recent facilities of power conditioners that can effectively solve the problem.

2017 | 440pp | £126 • \$200

Hardback | PBP00920 | 978-1-78561-123-0
eBook | PBP0092E | 978-1-78561-124-7



Synchronized Phasor Measurements for Smart Grids

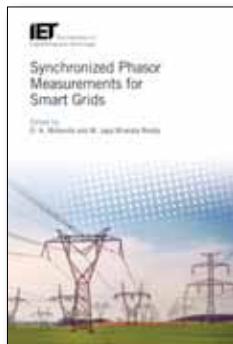
Editors: M. Jaya Bharata Reddy & D. K. Mohanta

NIT, India & BIT, India

The use of advanced technologies such as Phasor Measurement Units (PMUs) have made it possible to transform the power grid to an intelligent Smart Grid with real-time control and monitoring of the system. This book explores the application of PMUs in power systems, covering topics such as PMUs for improving power system performance; wide area measurement based power network protection; PMUs applications for load estimation and stability; state estimation in the presence of synchronized measurements; and PMUs based wide-area security assessment.

2017 | 368pp | £116 • \$185

Hardback | PBP00970 | 978-1-78561-011-0
eBook | PBP0097E | 978-1-78561-012-7



Wave and Tidal Generation Devices: Reliability and availability

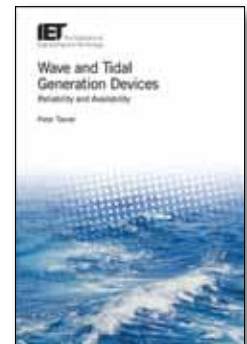
Author: Peter Tavner

Durham University, UK

There are many wave and tidal devices under development but very few are actually in revenue-earning production. However, the engineering problems are gradually being solved and there is an appetite to invest in these technologies for harsher environments. *Wave and Tidal Generation Devices* combines the lessons from the wind industry to show engineers, students and researchers the main reliability and availability issues facing the growing ocean energy industry. This is essential reading for wave and tidal engineers and researchers and advanced students of renewable energy. It will also be invaluable to those working with wave and tidal devices.

2017 | 304pp | £95 • \$160

Hardback | PBRN0180 | 978-1-84919-734-2
eBook | PBRN018E | 978-1-84919-735-9



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Control Circuits in Power Electronics: Practical issues in design and implementation	Castilla (ed.)	Hardback	2016	100	160	978-1-84919-822-6	PBP00720
Wide Area Monitoring, Protection and Control Systems: The enabler for smarter grids	Vaccaro and Zobaa (eds)	Hardback	2016	89	145	978-1-84919-830-1	PBP00730
Power Distribution Automation	Das (ed.)	Hardback	2016	95	155	978-1-84919-828-8	PBP00750
Cyber-Physical-Social Systems and Constructs in Electric Power Engineering	Suryanarayanan et al. (eds)	Hardback	2016	116	190	978-1-84919-936-0	PBP00810
Periodic Control of Power Electronic Converters	Zhou et al.	Hardback	2016	95	155	978-1-84919-932-2	PBP00820
Advances in Power System Modelling, Control and Stability Analysis	Milano (ed.)	Hardback	2016	110	180	978-1-78561-001-1	PBP00860
Smarter Energy: From smart metering to the smart grid	Sun et al. (eds)	Hardback	2016	126	200	978-1-78561-104-9	PBP00880
Cogeneration and District Energy Systems: Modelling, analysis and optimization	Rosen & Koohi-Fayegh	Hardback	2016	116	185	978-1-78561-126-1	PBP00930
Methane and Hydrogen for Energy Storage	Carriveau and Ting (eds)	Hardback	2016	95	155	978-1-78561-193-3	PBP01010
Power Electronic Converters and Systems: Frontiers and Applications	Trzynadlowski	Hardback	2015	126	200	978-1-84919-826-4	PBP00740
Power System Stability: Modelling, analysis and control	Sallam and Malik	Hardback	2015	110	185	978-1-84919-944-5	PBP00760
Wide Area Monitoring of Interconnected Power Systems	Messina	Hardback	2015	95	155	978-1-84919-853-0	PBP00770
Numerical Analysis of Power System Transients and Dynamics	Ametani (ed.)	Hardback	2015	95	155	978-1-84919-849-3	PBP00780
Vehicle-to-Grid: Linking electric vehicles to the smart grid	Lu and Hossain (eds)	Hardback	2015	84	135	978-1-84919-855-4	PBP00790
Reliability of Power Electronic Converter Systems	Chung et al. (eds)	Hardback	2015	126	200	978-1-84919-901-8	PBP00800
The Lightning Flash, 2nd edition	Cooray	Hardback	2014	143	245	978-1-84919-691-8	PBP00690
Economic Evaluation of Projects in the Electricity Supply Industry, 3rd edition	Khatib	Hardback	2014	101	170	978-1-84919-747-2	PBP00700
Wind Power Integration: Connection and system operational aspects, 2nd edition	Fox, Flynn & Bryans	Hardback	2014	89	150	978-1-84919-493-8	PBRN0140
High Voltage Engineering and Testing, 3rd edition	Ryan	Hardback	2013	150	255	978-1-84919-263-7	PBP00660
Multicore Simulation of Power System Transients	Fabian M Uriarte (ed)	Hardback	2013	94	160	978-1-84919-572-0	PBP00670
Distribution System Analysis and Automation	Gers	Hardback	2013	81	140	978-1-84919-659-8	PBP00680
Modelling Distributed Energy Resources in Energy Service Networks	Acha	Hardback	2013	94	160	978-1-84919-559-1	PBRN0160
Electrical Design for Ocean Wave and Tidal Energy Systems	Alcorn & O'Sullivan	Hardback	2013	113	190	978-1-84919-561-4	PBRN0170
Lightning Electromagnetics	Vernon Cooray	Hardback	2012	158	265	978-1-84919-215-6	PBP00620
Offshore Wind Turbines: Reliability, availability and maintenance	Peter Tavner	Hardback	2012	93	160	978-1-84919-229-3	PBRN0130
Ultracapacitor Applications	J.M. Miller & P. Mitchell	Paperback	2011	84	150	978-1-84919-071-8	PBP00590
Energy Storage for Power Systems, 2nd edition	Andrei Ter-Gazarian	Paperback	2011	110	190	978-1-84919-219-4	PBP00630
Protection of Electricity Distribution Networks, 3rd edition	Juan Gers	Paperback	2011	84	150	978-1-84919-223-1	PBP00650
Scenarios for a Future Electricity Supply: Cost-Optimized Variations on Supplying Europe and its Neighbours with Electricity from Renewable Energies	G. Czisch	Hardback	2011	124	190	978-1-84919-156-2	PBRN0100

Books are available in print and online via the IET Digital Library.

IET JOURNALS

High Voltage

Editors-in-Chief: Masoud Farzaneh and Zhicheng Guan

Université du Québec à Chicoutimi, Canada and Tsinghua University, PR China

High Voltage aims to attract original research papers and review articles. The scope encompasses high-voltage power engineering and high voltage applications, including experimental, computational (simulation and modelling) and theoretical studies. It is a fully open access journal co-published with CEPRI (the China Electric Power Research Institute) and supported by Tsinghua University.

www.ietdl.org/HVE



NEW

EEG Signal Processing: Feature extraction, selection and classification methods

Editor: Wai Yie LEONG
Taylor's University, Malaysia

This book presents state of the art aspects of EEG signal processing methods used for feature extraction, feature selection and feature classification to discriminate among several mental tasks. It emphasizes advanced strategies, case studies, clinical practices and applications such as EEG for meditation, auditory selective attention, sleep apnoea; person authentication; handedness detection, Parkinson's disease, motor imagery, smart air travel support and brain signal classification.

2019 | 350pp | £120 • \$155

Hardback | PBHE0160 | 978-1-78561-370-8
eBook | PBHE016E | 978-1-78561-371-5



NEW

Handbook of Cybersecurity for e-Health

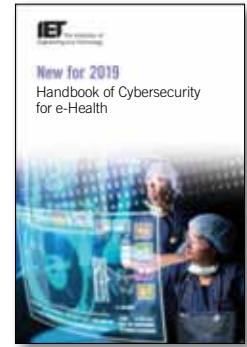
Editors: Bill Buchanan & Chaloner Chute
Edinburgh Napier University, UK

In this title, a team of top experts address cyber security for e-Health technologies and systems. It examines the need for better security and privacy infrastructure, outlining methods and policies for working with sensitive data. The authors focus on the latest methods and visionary work within health and social care for cyber security, making it vital reading for professionals and researchers in healthcare technologies and security, professionals in public health and law, healthcare policy developers and government decision makers.

IET Book Series on e-Health Technologies

2019 | 500pp | £130 • \$170

Hardback | PBHE0180 | 978-1-78561-764-5
eBook | PBHE018E | 978-1-78561-765-2



NEW

Neurotechnology: Methods, advances and applications

Editors: Victor Hugo C. de Albuquerque et al.
University of Fortaleza, Brazil

This one-stop reference on neurotechnology (the integration of technology and neuroscience) covers everything from tools and methods to advances, applications and future directions. The authors present fast, accurate and reliable tools and methods to help professionals make better decisions, reduce subjective errors, and develop better diagnoses. Topics covered include neuroengineering; neurorehabilitation; neurorobotics, neurophotronics; image analysis and processing for neuroscience, virtual and augmented reality in neuroscience; and much more. Ideal for researchers and practitioners in neurotechnology and allied fields.

IET Book Series on e-Health Technologies

2019 | 350pp | £120 • \$155

Hardback | PBHE0190 | 978-1-78561-813-0
eBook | PBHE019E | 978-1-78561-814-7



NEW

Patient-centered Healthcare Technology: The way to better health

Editors: Leonard Goldschmidt & Rona Margaret Relova
Stanford University, USA & Stanford University, USA

The authors explore the rapidly growing area of healthcare research around the introduction of ICT and robotics technologies. The book discusses innovations designed to make individuals more proactive to promote better healthcare and looks at ways to improve systematic access to care, and to produce better monitoring/detecting of physiological metrics. Topics covered include multimedia patient education and video games for health, telemedicine, web-based databases, and user interfaces for remote professionals and patients, advances in computerized medical records and much more.

IET Book Series on e-Health Technologies

2019 | 250pp | £110 • \$145

Hardback | PBHE0170 | 978-1-78561-565-8
eBook | PBHE017E | 978-1-78561-566-5



NEW

Security and Privacy of Electronic Healthcare Records: Concepts, Paradigms and Solutions

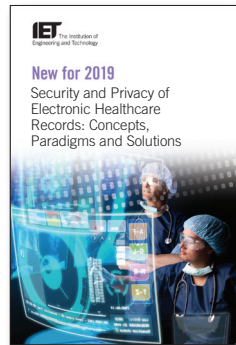
Editors: Sudeep Tanwar et al,
Nirma University, India

Gathering international contributions, this book is the first “how-to” guide addressing privacy and security for Electronic Health Records (EHRs): Who can access EHR information? How can users and healthcare staff view EHR information and make sure it is correct? How is the information protected from loss, theft and hacking? What should users and healthcare staff do if they think the information has been compromised? The team of authors present a detailed framework for security and privacy in EHRs, as well as comparative case studies for privacy preservation, scalability, and healthcare legislation.

IET Book Series on e-Health Technologies

2019 | 450pp | £125 • \$160

Hardback | PBHE0200 | 978-1-78561-898-7
eBook | PBHE020E | 978-1-78561-899-4



NEW

Wearable Technologies and Wireless Body Sensor Networks for Healthcare

Editors: Fernando José Velez & Fardin Derogarian Miyandoab
Universidade da Beira Interior, Portugal

This book is dedicated to the use of sensor devices, smart textiles and other wearable technologies applied to smart sensing in healthcare. The book includes discussions on activity recognition, RF propagation and channel measurement. They also cover modelling, medium access and control sub-layer protocols, cognitive radio, textile materials and security aspects. Energy harvesting within wearable solutions is also considered. Ideal for researchers and advanced students working in wearable technologies and wireless body sensor networks, especially those with a focus on healthcare applications.

IET Book Series on e-Health Technologies

2019 | 460pp | £125 • \$165

Hardback | PBHE0110 | 978-1-78561-217-6
eBook | PBHE011E | 978-1-78561-218-3



NEW

Engineering High Quality Medical Software: Regulations, standards, methodologies and tools for certification

Author: Antonio Coronato
National Research Council of Italy, Italy

This one-stop reference focuses on high-confidence medical software in the growing field of e-health, telecare services and health technology. It covers the development of methodologies and engineering tasks together with standards and regulations for medical software. Key topics covered include configuration, design, verification and validation, risk management, testing and maintenance. This book is written for research-focused engineers, scientists and practitioners who focus on healthcare software and e-health platforms and technologies.

The IET Book Series on e-Health Technologies

2018 | 296pp | £100 • \$160

Hardback | PBHE0120 | 978-1-78561-248-0
eBook | PBHE012E | 978-1-78561-249-7



NEW

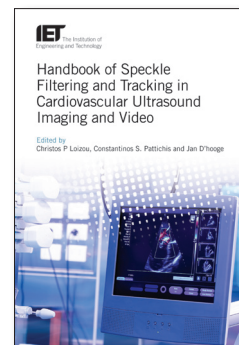
Handbook of Speckle Filtering and Tracking in Cardiovascular Ultrasound Imaging and Video

Editors: Christos P. Loizou et al.
Cyprus University of Technology, Cyprus

This is the first book to combine speckle imaging and video filtering and tracking, and their applications and to provide different levels of material to researchers interested in developing imaging and video systems with better quality by limiting the corruption of speckle noise in their systems. Topics covered include: Physics of speckle noise; Despeckle filtering (linear, nonlinear, and wavelet); Speckle Tracking; Block Matching; Strain Calculation and Analysis; Segmentation; and Texture Analysis.

2018 | 704pp | £130 • \$210

Hardback | PBHE0130 | 978-1-78561-290-9
eBook | PBHE013E | 978-1-78561-291-6



NEW

Semiconductor Lasers and Diode-based Light Sources for Biophotonics

Editors: Peter E. Andersen & Paul Michael Petersen

Technical University of Denmark, Denmark

From a team of international experts in the field, this reference takes readers from the fundamentals to the technologies and applications of bio-optics and biophotonics. It covers recent advances in semiconductor materials, visible and NIR lasers, LEDs, blue lasers, quantum cascade lasers, SDLs and their photochemical applications, near-IR imaging, Raman spectroscopy, and optical coherence tomography. Ideal for researchers and practitioners in medical optics, medical imaging, biophotonics, applied optics, and semiconductor and laser science.

2018 | 600pp | £140 • \$180

Hardback | PBHE0070 | 978-1-78561-272-5

eBook | PBHE007E | 978-1-78561-273-2



NEW

Value-based Learning Healthcare Systems: Integrative modeling and simulation

Authors: Bernard P. Zeigler et al.

University of Arizona, USA

This book presents an innovative, unique and holistic approach to modeling and simulation approaches in healthcare management. From system architecture to modeling methodology, this book shows how to improve patient health and costs of care via the design and implementation of an efficient infrastructure. The framework, algorithms and methods are evaluated in real community environments. Researchers and professionals in health informatics, technology and policy will find this book invaluable.

The IET Book Series on e-Health Technologies

2018 | 408pp | £125 • \$165

Hardback | PBHE0150 | 978-1-78561-326-5

eBook | PBHE015E | 978-1-78561-327-2



Enhanced Living Environments: From models to technologies

Editors: Rossitza Ivanova Goleva et al.

Technical University of Sofia, Bulgaria

This book presents state-of-the-art technological solutions and supporting systems such as resource and data management, fault tolerance, security, monitoring and control. The book's editors are part of The Enhanced Living Environments (ELE) project, which promotes the provision of infrastructures and services for autonomous living via the seamless integration of ICT within homes and residences. The book offers a coherent and realistic image of architectures, techniques, protocols, and cloud-based solutions related to ELE and to Ambient Assisted Living (AAL).

The IET Book Series on e-Health Technologies

2017 | 408pp | £105 • \$170

Hardback | PBHE0100 | 978-1-78561-211-4

eBook | PBHE010E | 978-1-78561-212-1



Human Monitoring, Smart Health and Assisted Living: Techniques and technologies

Editors: Sauro Longhi et al.

Università Politecnica delle Marche, Italy

This book explores the use of techniques and technologies within ICT for the improvement of human quality of life - encompassing patient monitoring, data analysis and assistive services. Also discussed are the future challenges to develop effective and efficient healthcare and assistive systems for our current and future society. The book offers an interdisciplinary approach to the study of human monitoring, smart health and assisted living, under a unifying point of view to improve Quality of Life Technology (QoLT).

The IET Book Series on e-Health Technologies

2017 | 240pp | £95 • \$155

Hardback | PBHE0090 | 978-1-78561-150-6

eBook | PBHE009E | 978-1-78561-151-3



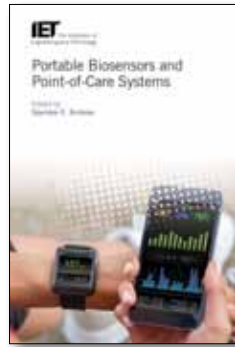
Portable Biosensors and Point-of-Care Systems

Editor: Spyridon E. Kintzios
Agricultural University of Athens, Greece

With views from international experts providing a variety of perspectives, this book describes the principles, design and applications of a new generation of analytical and diagnostic biomedical devices, characterised by their very small size, ease of use, multi-analytical capabilities and speed to provide handheld and mobile point-of-care (POC) diagnostics. It covers topics such as the history, development, latest research and applications of portable biosensors, ranging from the support of primary healthcare to food and environmental safety screening.

2017 | 384pp | £131 • \$210

Hardback | PBHE0030 | 978-1-84919-962-9
eBook | PBHE003E | 978-1-84919-963-6



Soft Robots for Healthcare Applications: Design, modelling and control

Authors: Shane Xie et al.
The University of Auckland, New Zealand

This book presents a systematic investigation of the design, modelling and control of soft robots operated by pneumatic muscle actuators (PMAs). It includes a thorough review of the research in the field, and new insights into emerging technologies and developments for use in soft robots for healthcare. It also demonstrates applications of mechatronics to provide better clinical rehabilitation services. This book will provide biomedical engineering and robotics professionals and students with the fundamental mechatronics engineering knowledge to analyse and design new soft devices.

2017 | 240pp | £95 • \$155

Hardback | PBHE0140 | 978-1-78561-311-1
eBook | PBHE014E | 978-1-78561-312-8



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Nanobiosensors for Personalized and Onsite Biomedical Diagnosis	Chandra (ed.)	Hardback	2016	110	185	978-1-84919-950-6	PBHE0010
Machine Learning for Healthcare Technologies	Clifton (ed.)	Hardback	2016	100	160	978-1-84919-978-0	PBHE0020
Biomedical Nanomaterials: From design to implementation	Webster and Yazici (eds)	Hardback	2016	110	180	978-1-84919-964-3	PBHE0040
Active and Assisted Living: Technologies and applications	Florez-Revuelta and Chaaraoui (eds)	Hardback	2016	116	180	978-1-84919-987-2	PBHE0060

Books are available in print and online via the IET Digital Library.

IET JOURNALS

Healthcare Technology Letters

Editor-in-Chief
Professor Christopher James, University of Warwick, UK

Healthcare Technology Letters is an Open Access express journal for the rapid publication of authoritative, peer-reviewed research articles on the latest biomedical engineering and technology developments.

www.ietdl.org/HTL



NEW

Advances in High-Power Fiber and Diode Laser Engineering

Editor: Ivan Divliansky
University of Central Florida, USA

Written by a team of authors with experience in academia and industry, and brought together by an expert editor with a dual background in electrical engineering and materials science, this book is written for engineers in laser systems development at the laboratory or commercial scale. The book covers fibre and diode laser systems from academic and industrial perspectives, discusses the latest trends in high-power fibre laser development and applications, offers an overview of developments in diode laser systems, and addresses advanced applications of high-power lasers.

2019 | 350pp | £120 • \$155

Hardback | PBCS0540 | 978-1-78561-751-5
eBook | PBCS054E | 978-1-78561-752-2



NEW

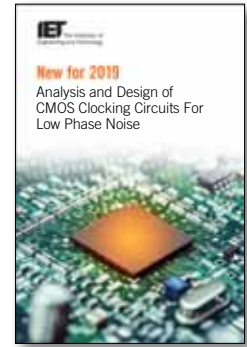
Analysis and Design of CMOS Clocking Circuits for Low Phase Noise

Authors: Woorham Bae & Deog-Kyoon-Jeong
University of California at Berkeley, USA & Seoul National University, South Korea

From the principles of clocking circuits through to state-of-the-art techniques for phased noise and jitter mitigation, this book offers systematic and comprehensive coverage of its topic. By bridging the gap between established circuit design theory and the cutting edge of research, *Analysis and Design of CMOS Clocking Circuits for Low Phase Noise* offers useful guidance for newcomers to the field, and presents established researchers with the opportunity to broaden and update their knowledge. Numerous practical design examples are included to aid readers' understanding of phase-locked-loop/delay-locked-loop dynamics.

2019 | 300pp | £115 • \$150

Hardback | PBCS0590 | 978-1-78561-801-7
eBook | PBCS059E | 978-1-78561-802-4



NEW

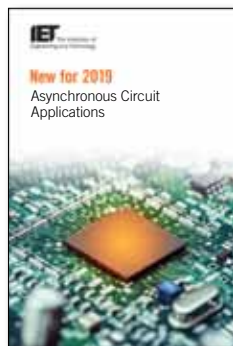
Asynchronous Circuit Applications

Editors: Jia Di & Scott Smith
University of Arkansas, USA & North Dakota State University, USA

Taking an application-focused approach, the book helps to bridge the gap between laboratory and commercial scale research and development of asynchronous circuits. Each application is accompanied by the corresponding circuit design theory, sample circuit implementations, results and analysis. The book is ideal for academic researchers and students looking to broaden their thinking in asynchronous applications and design methodologies, and for engineers looking for practical guidance when considering the incorporation of asynchronous circuits into commercial applications.

2019 | 350pp | £120 • \$155

Hardback | PBCS0610 | 978-1-78561-817-8
eBook | PBCS061E | 978-1-78561-818-5



NEW

Characterisation and Control of Defects in Semiconductors

Editor: Filip Tuomisto
Aalto University, Finland

An up-to-date review of the experimental and theoretical methods used for studying defects in semiconductors, this book focuses on recent developments driven by the requirements of new materials, including nitrides, oxide semiconductors and 2-D semiconductors. Written by an international team, and edited by a highly regarded researcher in the field, the book provides thorough coverage of a variety of characterisation techniques and suggests methods for controlling the defects and hence the properties of semiconductors.

2019 | 500pp | £130 • \$170

Hardback | PBCS0450 | 978-1-78561-655-6
eBook | PBCS045E | 978-1-78561-656-3



NEW

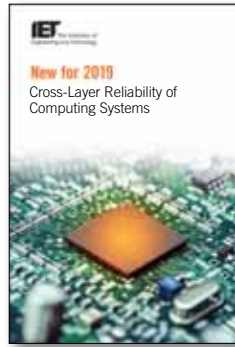
Cross-Layer Reliability of Computing Systems

Editors: Giorgio Di Natale et al.
University of Montpellier, France

This book presents state-of-the-art solutions for increasing the resilience of computing systems. Coverage includes recently developed techniques for the evaluation of system reliability including stochastic methods such as Markov chains and Bayesian networks. In addition, the book offers a practical slant, helping readers to save significant design effort and resources, and potentially reduce the time-to-market of new systems. Written for researchers and postgraduate students working in the fields of electronics engineering and computing, particularly those with an interest in the computer system dependability.

2019 | 300pp | £115 • \$150

Hardback | PBCS0570 | 978-1-78561-797-3
eBook | PBCS057E | 978-1-78561-798-0



NEW

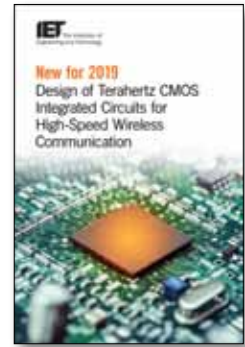
Design of Terahertz CMOS Integrated Circuits for High-Speed Wireless Communication

Authors: Minoru Fujishima & Shuhei Amakawa
Hiroshima University, Japan

The book is the first to describe recent research on terahertz CMOS design for high-speed wireless communication in the post-5G world. The topics covered include fundamental technologies for terahertz CMOS design; theory and practical examples of building blocks; transceiver architectures; considerations for 300GHz-band communications; and future prospects. Written by leading names in the field, this is a vital resource for researchers and professional circuit designers working in RFIC and CMOS design for telecommunications.

2019 | 250pp | £110 • \$145

Hardback | PBCS0350 | 978-1-78561-387-6
eBook | PBCS035E | 978-1-78561-388-3



NEW

Digitally Enhanced Mixed Signal Systems

Editors: Chadi Jabbour et al.
University of Bordeaux, France

Edited by three leading names in the field, this book discusses how digitally enhanced analogue and mixed signal techniques can be used to address challenges of shrinking CMOS technology. The book introduces the main trends in current digitally enhanced systems, and gives a discussion of the impact of shrinking technology, as well as an overview of the principles of non-linear models. The book then discusses pre-distortion and post-distortion techniques, analogue-to-digital and digital-to-analogue converters, I/Q mismatches in direct conversion transceivers, and clock generation.

2019 | 300pp | £115 • \$150

Hardback | PBCS0400 | 978-1-78561-609-9
eBook | PBCS040E | 978-1-78561-610-5



NEW

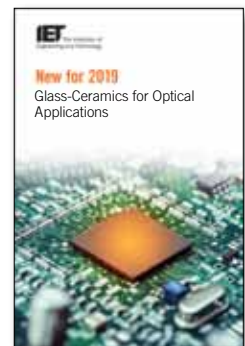
Glass-Ceramics for Optical Applications

Authors: Michael Shepilov et al.
NITIOM Vavilov State Optical Institute, Russia

Written by a team of authors who are recognised experts, this is the first book to bring together thorough and systematically organised information on glass ceramics for optical applications. The authors take a practical approach to the topic, with a focus on applied materials science that links the relevant properties of glass ceramics to their applications. Essential reading for specialists in crystal chemistry, materials science, optical materials, glasses and ceramics, optics of turbid media, laser physics and optical materials technology.

2019 | 400pp | £125 • \$160

Hardback | PBCS0440 | 978-1-78561-646-4
eBook | PBCS044E | 978-1-78561-647-1



NEW

Gyrators, Simulated Inductors and Related Immittances: Realizations and applications

Authors: Raj Senani et al.

Netaji Subhas Institute of Technology, India

Provides comprehensive coverage of all major gyrator circuits, simulated inductors and related synthetic impedances. The book offers a thorough review of research in this field, and includes an exceptionally wide range and number of circuit examples. Written by two experts known internationally for their contributions to analogue circuit design, this title covers a broad variety of active devices ranging from bipolar and MOS transistors to the ubiquitous IC op-amps and operational transconductance amplifiers, plus other modern electronic circuits.

2019 | 500pp | £130 • \$170

Hardback | PBCS0480 | 978-1-78561-670-9

eBook | PBCS048E | 978-1-78561-671-6



NEW

Handbook of Terahertz Optical Properties of Materials

Editor: Mira Naftaly

The National Physical Laboratory (NPL), UK

This is the first systematic compilation of data and theory for THz optical properties of materials. The book gives an overview of THz measurement techniques and instrumentation platforms, before reviewing the theory of THz transmission in materials and of THz optical properties. Different classes of materials are then considered, alongside their optical properties and relevant published data (e.g. absorption coefficients and refractive indices). THz optical properties for different materials are presented in a consistent format, making it easy to interpret or translate into alternative units.

2019 | 350pp | £120 • \$155

Hardback | PBCS0360 | 978-1-78561-533-7

eBook | PBCS036E | 978-1-78561-534-4



NEW

Hardware Architectures for Deep Learning

Editors: Masoud Daneshlab & Mehdi Modarressi

Mälardalen University, Sweden & University of Tehran, Iran

Coordinated by two expert editors, and written by an international team of authors with a wide range of expertise, this timely book is the first to address the hot topic of deep learning in neural networks. It presents and discusses innovations in the design, modelling, implementation, and optimisation of hardware platforms for neural networks. This is a key resource that provides an overview of the field, from principles to applications, for researchers, postgraduate students and engineers who work on learning-based technology.

2019 | 300pp | £115 • \$145

Hardback | PBCS0550 | 978-1-78561-768-3

eBook | PBCS055E | 978-1-78561-769-0



NEW

High Quality Liquid Crystal Displays and Smart Devices: Trends, challenges and solutions

Editors: Shoichi Ishihara et al.

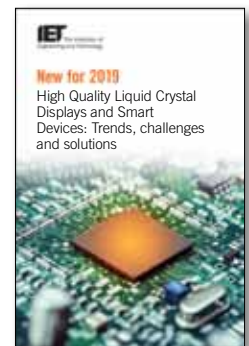
Osaka Institute of Technology, Japan

This volume examines the latest LCD technologies, and related challenges and opportunities, from a wide range of academic and industrial perspectives. There is a particular focus on display quality such as image sticking, contrast ratio and colour hue that has not been dealt with thoroughly elsewhere. The thorough, systematic approach makes it accessible for newcomers to the field, while the depth of coverage makes it suitable for established academics and professionals looking to update their knowledge.

2019 | 450pp | £125 • \$165

Hardback | PBCS0370 | 978-1-78561-607-5

eBook | PBCS037E | 978-1-78561-608-2



NEW

Integrated Optics

Editors: Giancarlo Righini & Maurizio Ferrari

Enrico Fermi Center & IFAC CNR, Italy

In this comprehensive overview of integrated optics, the authors present up-to-date coverage of trends and developments, from modelling to fabrication, materials to integration platforms, and characterization techniques to applications. Fibre optics are explored in detail, and set in a broad context that addresses a range of current and potential future research and development trends. Introductory chapters are written for newcomers, but the depth and breadth of material included means that early-career and senior researchers will also find much of value here.

2019 | 600pp | £140 • \$180

Hardback | PBCS0560 | 978-1-78561-781-2

eBook | PBCS056E | 978-1-78561-782-9



NEW

Magneto-Rheological Materials and their Applications

Editors: Seung-Bok Choi & Weihua Li
Inha University, South Korea & University of Wollongong, Australia

This title addresses the hot topic of magneto-rheological (MR) materials in the field of smart materials research. The book introduces three MR materials: magneto-rheological fluids, magneto-rheological elastomers and a newly developed magneto-rheological plastomer, and explores their material properties, related modelling techniques and applications. The book offers insights into the relationships between the properties and characterisation of MR materials and their current and future applications, making it valuable reading for researchers, engineers and graduate students who work in the field of smart materials and structures.

2019 | 350pp | £120 • \$155

Hardback | PBCS0580 | 978-1-78561-770-6

eBook | PBCS058E | 978-1-78561-771-3



NEW

Modelling Methodologies in Analogue Integrated Circuit Design

Editors: Günhan Dündar & Mustafa Berke Yelten

Bogazici University, Turkey & Istanbul Technical University, Turkey

Written by an international team of authors, and coordinated by two expert editors with a wide range of experience in industry and academia, this title presents a holistic approach to modelling for analogue and heterogeneous systems for designers working towards improving efficiency, reducing design times, and addressing the challenges of representing aging, variability and blocks at the nanometre scale. Academics, professionals and graduate students specialising in circuits and systems, electron devices and solid-state circuits will find this book extremely useful.

2019 | 400pp | £125 • \$160

Hardback | PBCS0510 | 978-1-78561-695-2

eBook | PBCS051E | 978-1-78561-696-9



NEW

Photonic Integrated Circuits: Integration platforms, building blocks and design rules

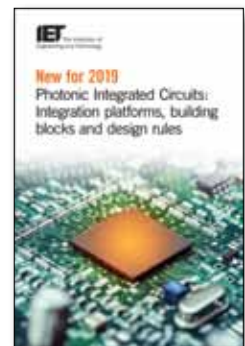
Authors: Martijn Heck et al.
Aarhus University, Denmark

This book provides an engineering approach to photonic integration technologies from fundamental concepts to integration strategies, combining different components in a single chip and assembly issues. It covers all three main platforms: PLC/silica/doped glass, silicon-on-insulator and indium phosphide. Selected real-world examples provide engineers with a feel for the technology's potential. It is ideal for photonics researchers in industry and academia as well as postgraduate students in electrical engineering, photonics and telecommunications.

2019 | 344pp | £115 • \$150

Hardback | PBCS0310 | 978-1-78561-074-5

eBook | PBCS031E | 978-1-78561-075-2



NEW

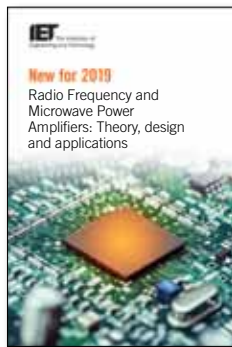
Radio Frequency and Microwave Power Amplifiers: Theory, design and applications

Editor: Andrei Grebennikov
Sumitomo Electric Europe, UK

Produced by an eminent group of experts with a range of industry and academic research experience, this title provides comprehensive, state-of-the-art coverage of RF and microwave power amplifier design. With in-depth descriptions of current and potential future approaches, the authors go from the fundamental principles to the cutting edge, ensuring that the book is suitable for both newcomers and those looking to update their knowledge. Ideal for researchers and practitioners engaged in RF and microwave amplifier design, or systems incorporating RF and microwave amplifiers.

2019 | 750pp | £145 • \$190

Hardback | PBCS0420 | 978-1-78561-619-8
eBook | PBCS042E | 978-1-78561-620-4



NEW

RF/Microwave Module Level Design and Integration

Author: Mohammad J. Almkawi
University of Toledo, USA

Describes the design and development of modern multi-chip RFIC modules. The book starts with a comprehensive introduction to the basic elements of RFIC modules, followed by an examination of system-level concepts and measures that can be applied to real-world designs. With a strong emphasis on design and integration, the book also gives practical solutions to commonly encountered challenges in RF multi-chip modules, including system integration, network loss-reduction, electromagnetic compatibility, crosstalk reduction, computer-aided design and methodologies, and system-level performance via common RF measurements.

2019 | 250pp | £110 • \$145

Hardback | PBCS0340 | 978-1-78561-359-3
eBook | PBCS034E | 978-1-78561-360-9



NEW

Semiconductor Packaging Technologies for Advanced System-in-Package Applications

Editor: Andrew Longford
PandA Europe, UK

This is a comprehensive reference for system designers working on chip design and package design technologies. Covering current and probable future trends in research and development, the book gives practical recommendations for achieving viable, cost-effective and fit-for-service applications with system-in-package solutions. It looks at the way chip packaging has developed and continues to develop from the initial single transistor and diode package capability, through to up-to-date complex system-in-package technologies that incorporate multichip modules, hybrid assembly processes, flip chip, and laminate chip-in-board technologies.

2019 | 300pp | £115 • \$150

Hardback | PBCS0520 | 978-1-78561-739-3
eBook | PBCS052E | 978-1-78561-740-9



NEW

Simulation Software Tools for Electrical Systems

Authors: Ashok Kumar & Indra Gandhi
PSG College of Technology, India

Provides systematic coverage of the software tools available to simulate switches, circuits, controllers, instruments and automated systems. Written by two experts with experience in academia and industry, the book begins with an overview of the available simulation tools, their role and importance in circuit development, and an introduction to MATLAB®/Simulink®. The authors address a range of tools and circuit and system elements, and present a hybrid optimization tool called HOMER for developing instrumentation and controllers for power systems.

2019 | 500pp | £130 • \$170

Hardback | PBCS0460 | 978-1-78561-666-2
eBook | PBCS046E | 978-1-78561-667-9



NEW

Understandable Electric Circuits: Key Concepts

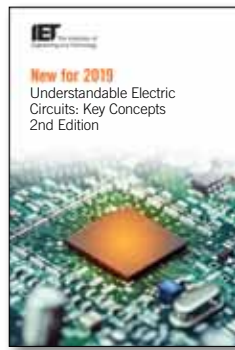
2nd Edition

Author: Meizhong Wang
College of New Caledonia, Canada

This book offers a thorough reference guide to the theory, elements and design of basic electronic circuits, providing a solid foundation for those who plan to move into the field of electronics engineering, and essential information for anyone who uses electronic circuitry in their profession or research. This fully revised, expanded and updated new edition contains new chapters as well as additional new content that builds on existing coverage from the successful first edition.

2019 | 400pp | £125 • \$160

Hardback | PBCS0470 | 978-1-78561-697-6
eBook | PBCS047E | 978-1-78561-698-3



NEW

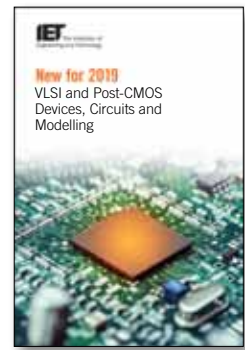
VLSI and Post-CMOS Devices, Circuits and Modelling

Editors: Rajeevan Chandel & Rohit Dhiman
National Institute of Technology (NIT)
Hamirpur, India

This invaluable book describes the latest techniques for designing robust VLSI devices and circuits in CMOS and post-CMOS technologies. Crucial system design issues are discussed, including signal integrity, power dissipation, interconnect packaging, timing and synchronization. The book discusses the dominant role of scaled devices for nanotechnology design, then addresses issues in on-chip interconnects, data signalling, power management and VLSI architectures. Specific design constraints and methodologies unique to ultra-low power design are explored, along with the design, modelling and characterisation of 3D nanoscale circuits.

2019 | 300pp | £115 • \$150

Hardback | PBCS0620 | 978-1-78561-819-2
eBook | PBCS062E | 978-1-78561-820-8



NEW

VLSI Architectures for Future Video Coding

Editor: Maurizio Martina
Politecnico di Torino, Italy

This book examines future video coding from the perspective of hardware implementation and architecture design. The book identifies challenges in deploying VLSI architectures for video coding and postulates potential solutions with reference to recent research. It also includes an overview of the designs, techniques and paradigms likely to be exploited in the design of VLSI architectures for future video-coding systems. This is an important resource for academics and industry professionals working on VLSI implementation of video codecs, algorithms and high-level systems for video compression.

2019 | 300pp | £115 • \$145

Hardback | PBCS0530 | 978-1-78561-710-2
eBook | PBCS053E | 978-1-78561-711-9



NEW

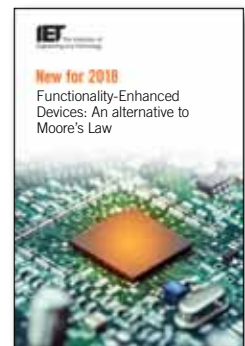
Functionality-Enhanced Devices: An alternative to Moore's Law

Editor: Pierre-Emmanuel Gaillardon
University of Utah, USA

Functionality-enhanced devices are Multiple-Independent-Gate-Field-Effect-Transistors, and other related nanoscale devices, whose polarity is electrostatically controllable. The functionality enhancement of these devices increases computational performance (function) per unit area and leads to circuits with better density, performance and energy efficiency. The book provides thorough and systematic coverage of enhanced-functionality devices and their use in proof-of-concept circuits and architectures, and points the way towards a potential alternative route to the growing difficulty of downscaling conventional transistors according to Moore's Law.

2018 | 320pp | £115 • \$150

Hardback | PBCS0390 | 978-1-78561-558-0
eBook | PBCS039E | 978-1-78561-559-7



NEW

IP Core Protection and Hardware-Assisted Security for Consumer Electronics

Authors: Anirban Sengupta & Saraju Mohanty

Indian Institute of Technology, India & University of North Texas, USA

This book addresses hardware protection (especially DSP cores) in consumer electronics, plus the potential security threats from intervention in the consumer electronics design supply chain, and how such threats can be circumvented. Supply chain security solutions covered include hardware watermarking, hardware fingerprinting, symmetrical IP core protection, hardware metering, computational forensic engineering for IP core protection and various forms of hardware obfuscation.

2018 | 300pp | £115 • \$150

Hardback | PBCS0600 | 978-1-78561-799-7

eBook | PBCS060E | 978-1-78561-800-0



NEW

Negative Group Delay Devices: From concepts to applications

Editor: Blaise Ravelo

The Research Institute for Embedded Electronic Systems at the École Supérieure d'Ingénieurs en Génie Electrique (ESIGELEC-IRSEEM), France

Negative Group Delay is an interesting and much-discussed phenomenon, which has some existing and many potential real-world applications in the form of novel design features for electronic, radio-frequency, microwave and optoelectronic devices and systems. The aim of the book is to advance understanding of NGD and its applications. Recent results and outcomes for the different methodologies used to elaborate the NGD function are shared in each chapter, and approaches relevant to various devices are described.

2018 | 300pp | £115 • \$150

Hardback | PBCS0430 | 978-1-78561-640-2

eBook | PBCS043E | 978-1-78561-641-9



NEW

System Design with Memristor Technologies

Authors: Lauren Guckert & Earl E. Swartzlander

The University of Texas, Austin, USA

This book from two internationally acknowledged experts in the field covers recent developments in memristor fabrication, modelling, and applications, and explores research in the design and implementation of arithmetic units using memristors. The book's practical approach helps bridge the gap between laboratory-scale memristor development and potential applications in future computing. To make the material easier to understand and use, details of each design, simulation result and analysis are presented in terms of complexity, delay and power.

2018 | 368pp | £120 • \$155

Hardback | PBCS0380 | 978-1-78561-561-0

eBook | PBCS038E | 978-1-78561-562-7



IET JOURNALS

IET Nanodielectrics

Editors-in-Chief: George Chen and Zhi-Min Dang

University of Southampton, UK and Tsinghua University, China

New open access journal, IET Nanodielectrics

The IET is pleased to announce the launch of a new, fully Gold Open Access journal. *IET Nanodielectrics* aims to attract original research papers and surveys relating to the effects of nanoscale structure on the electrical polarization of insulating materials.

www.ietdl.org/NDE



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Optical MEMS for Chemical Analysis and Biomedicine	Jiang (ed.)	Hardback	2016	105	170	978-1-84919-897-4	PBCS0250
High Speed Data Converters	Ali	Hardback	2016	116	185	978-1-84919-938-4	PBCS0260
Nano-Scaled Semiconductor Devices: Physics, modelling, characterisation, and societal impact	Gutierrez-D	Hardback	2016	126	200	978-1-84919-930-8	PBCS0270
Nano-CMOS and Post-CMOS Electronics: Devices and modelling (Vol.1)	Mohanty (ed.)	Hardback	2016	100	160	978-1-84919-997-1	PBCS0290
Nano-CMOS and Post-CMOS Electronics: Circuits and design (Vol.2)	Mohanty (ed.)	Hardback	2016	100	160	978-1-84919-999-5	PBCS0300
Oscillator Circuits: Frontiers in design, analysis and applications	Nishio (ed.)	Hardback	2016	116	185	978-1-78561-057-8	PBCS0320
Heat Management in Integrated Circuits: On-chip and system-level monitoring and cooling	Ogrenci-Memik	Hardback	2015	110	185	978-1-84919-934-6	PBCS0280
Fundamentals of Electromagnetic Levitation: Engineering sustainability through efficiency	Alan J. Sangster	Hardback	2012	93	160	978-1-84919-663-5	PBCS0240
Electrical Resistivity Handbook, 2nd edition	G. Dyos	Hardback	2012	133	225	978-1-84919-149-4	PBED0130
Introduction to Biomechanics	Brooker	Hardback	2012	106	180	978-1-891121-27-2	SBCS0030
Coaxial Electrical Circuits for Interference-Free Measurements	S.A. Awan, B. Kibble & J. Schurr	Paperback	2011	78	140	978-1-84919-069-5	PBEL0130
Nanotechnologies	M. Wautelet et al.	Paperback	2009	71	130	978-0-86341-941-6	PBCS0220
Test and Diagnosis of Analogue, Mixed-Signal and RF Integrated Circuits: the system on chip approach	Y. Sun (ed.)	Paperback	2008	84	150	978-0-86341-745-0	PBCS0190
Electrical Craft Principles, Volume 1, 5th edition	J. Whitfield	Paperback	2008	34	75	978-0-86341-932-4	PBNS0330
Electrical Craft Principles, Volume 2, 5th edition	J. Whitfield	Paperback	2008	34	75	978-0-86341-933-1	PBNS0340
Technology Computer Aided Design for Si, SiGe and GaAs Integrated Circuits	C.K. Maiti & G.A. Armstrong	Paperback	2007	84	150	978-0-86341-743-6	PBCS0210

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NEW

Autonomous Underwater Vehicles: Design and practice

Editor: Dr. Frank Ehlers

Bundeswehr Technical Center for Ships and Naval Weapons, Germany

Written by a team of top-class international contributors, the book gives a state-of-the-art overview of the hot topic of autonomous underwater vehicle (AUV) design and practice. It covers a wide range of AUV application areas such as education and research, biological and oceanographic studies, surveillance purposes, military and security applications and industrial underwater applications. Ideal for maritime engineers and navigation researchers and professionals, the book will also be of great interest to workers in any of the applications.

2019 | 650pp | £140 • \$185

Hardback | SBRA5250 | 978-1-78561-703-4

eBook | SBRA525E | 978-1-78561-704-1



NEW

Maritime Surveillance with Synthetic Aperture Radar

Editors: Gerardo Di Martino & Antonio Iodice

University of Naples Federico II, Italy

This book covers all the main issues regarding the use of synthetic aperture radar (SAR) for maritime surveillance applications. It describes full maritime surveillance applications of acquisition modes, sensors and constellations of sensors, providing background information and explaining basic concepts where needed. Details of the latest advances are also included. With a full reference list for further reading, this is a comprehensive source of material on the subject, written for SAR system engineers, private and public corporations, oceanographers, and remote sensing researchers and end users.

2019 | 300pp | £115 • \$150

Hardback | SBRA5210 | 978-1-78561-601-3

eBook | SBRA521E | 978-1-78561-602-0



NEW

Multidimensional Radar Imaging

Editor: Marco Martorella

University of Pisa, Italy

Based on a NATO task force report, this title covers advanced research on multidimensional radar that has only recently been declassified. The book examines this increasingly important area of radar technology that allows high quality 3D images of remote areas to be monitored for the first time. The book covers topics such as 3D ISAR Imaging; STAP-ISAR; Multi-frequency Passive ISAR; Radar Tomography, and looks in depth at a number of key applications. An essential read for radar researchers and practitioners.

2019 | 500pp | £130 • \$170

Hardback | SBRA5270 | 978-1-78561-807-9

eBook | SBRA527E | 978-1-78561-808-6



NEW

Photonics for Radar Networks and Electronic Warfare Systems

Editors: Antonella Bogoni & Francesco Laghezza

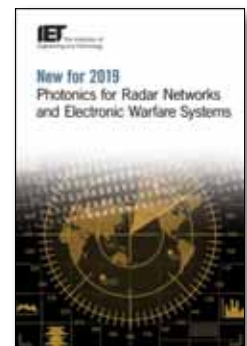
National Inter-university Consortium for Telecommunications, Italy

This is the first book to describe the potential for microwave photonics in radar and electronic warfare systems. It covers basic concepts and functions (RF transport in optical fibre, photonics-based RF signal generation/upconversion and analogue-to-digital conversion/downconversion, optical beam forming and optical RF filtering). It compares performance with conventional systems, describes their impact on digital signal processing, and explores integration issues. This book is essential reading for designers and researchers of radar and electronic warfare systems.

2019 | 250pp | £110 • \$145

Hardback | SBRA5160 | 978-1-78561-376-0

eBook | SBRA516E | 978-1-78561-377-7



NEW

Shadowing Function from Randomly Rough Surfaces

Authors: Christophe Bourlier & Hongkun Li

National Center for Scientific Research (CNRS), France & Ohio State University, USA

This title presents an overview of theory and recent advances concerning the shadowing function, an important element in the simulation and calculation of electromagnetic waves scattering at randomly rough surfaces. The authors address derivation of the shadowing function, helping researchers to understand the theoretical aspects of the problem, while applications of the shadowing function are discussed to show how it is applied to real problems. Ideal for graduate students and researchers working on high frequency scattering, infrared radiation, reflectivity and ray-tracing techniques from rough surfaces.

2019 | 250pp | £110 • \$145

Hardback | SBRA5190 | 978-1-78561-535-1
eBook | SBRA519E | 978-1-78561-536-8



NEW

Staring Radar

Authors: Gordon Oswald & Chris Baker
Aveillant Ltd, Cambridge, UK

In this book, the authors provide an inclusive and expansive vision of how radar will serve our increasingly efficiency- and security-conscious world. They do this by employing the model of holographic and ubiquitous radar (HUR) in which staring arrays are used such that the whole of a surveillance volume is continuously interrogated, with complex, ubiquitous signal data stored and analysed. This is essential reading for radar academics, military capability managers, senior industry engineers and engineering managers.

2019 | 350pp | £120 • \$155

Hardback | SBRA5180 | 978-1-78561-389-0
eBook | SBRA518E | 978-1-78561-390-6



NEW

Systems Engineering for Ethical Autonomous Systems

Author: Tony Gillespie
University College London, UK

Written for researchers and students of systems modelling in academia, industry and the military/defence sector, this is the first book on the emerging topic of ethical engineering for autonomous systems. It presents proven system engineering techniques, showing how generic engineering requirements can be derived from ethical/legal considerations and then turned into systems requirements. The book then shows how these requirements can be used as a basis for system procurement, engineering design and system testing.

2019 | 400pp | £115 • \$150

Hardback | SBRA5170 | 978-1-78561-372-2
eBook | SBRA517E | 978-1-78561-373-9



NEW

Theory and Practice of Modern Antenna Range Measurements

2nd Edition

Authors: Stuart Gregson et al.
Queen Mary University of London, UK

This comprehensive introduction gives detailed descriptions of different antenna measurement techniques, such as direct far-field measurement, CATR (Compact Antenna Test Ranges) and body-centric measurements, and outlines developments of standard planar, cylindrical and spherical near-field approaches. Using illustrative examples, the authors cover the most recent advances in the areas such as aperture diagnostics and phase-less antenna metrology. This second edition is expanded to include radome measurements; transforms from non-canonical surfaces; and electromagnetic modelling of antenna measurement ranges.

2019 | 1000pp | £145 • \$190

Hardback | SBRA5230 | 978-1-78561-701-0
eBook | SBRA523E | 978-1-78561-702-7



NEW

Radar and Communication Spectrum Sharing

Editors: Shannon D. Blunt & Erik S. Perrins
University of Kansas, USA

This book addresses solutions to the growing conflict over the use of the radio-frequency spectrum by different systems such as radar and consumer use for wireless communications, with an emphasis on identifying the technology gaps for practical realization of spectrum sharing and the regulatory and measurement compliance aspects of this problem.

2018 | 856pp | £145 • \$190

Hardback | SBRA5150 | 978-1-78561-357-9
eBook | SBRA515E | 978-1-78561-358-6



NEW

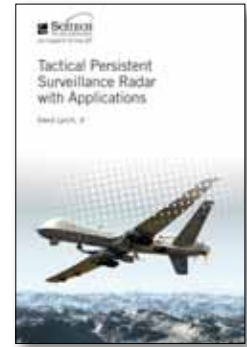
Tactical Persistent Surveillance Radar with Applications

Author: David Lynch, Jr.
DL Sciences, Inc., Henderson, Nevada, USA

This book introduces technologists to the essential elements of persistent surveillance of tactical targets from both a hardware and software point of view, using simple Mathcad, Excel and Basic examples with real data. It is based on the type of surveillance done by drones like Scan Eagle, Predator, Reaper, Global Hawk, and manned aircraft like U-2, ASTOR, and JSTARS as well as spacecraft. The general topic is cellphone and datalink intercept, ground moving target radar, synthetic aperture radar, navigation, tracking, electronic scanning and cueing electro-optical sensors for activity based surveillance.

2018 | 496pp | £110 • \$160

Hardback | SBRA5240 | 978-1-78561-650-1
eBook | SBRA524E | 978-1-78561-651-8



Biologically-Inspired Radar and Sonar: Lessons from nature

Editors: Alessio Balleri, Hugh Griffiths and Chris Baker
Cranfield University, UK

Nature presents fascinating examples of active sensing, which is used in nature to carry out many different tasks such as navigation, collision avoidance and selection, identification and attack of prey. This book describes how these sophisticated natural sensing techniques can be applied to radar and sonar systems to improve their performance. With contributions from an international team of leading researchers, this is essential reading for radar and sonar practitioners in academia and research at governmental and industrial organisations.

2017 | 272pp | £105 • \$170

Hardback | SBRA5140 | 978-1-61353-235-5
eBook | SBRA514E | 978-1-61353-236-2



The Impact of Cognition on Radar Technology

Editors: Alfonso Farina, Antonio De Maio and Simon Haykin

Director of the Analysis of Integrated Systems Group, SELEX-Sistemi Integrati, Rome, Italy

This book tackles the application of cognitive concepts to phased array radar systems for improved surveillance. It balances practical aspects with a rigorous mathematical approach and features many numerical study cases. The book also examines discoveries outside the radar community, such as breakthroughs in neuroscience. A list of common symbols, extensive cross-referencing and comprehensive references significantly enhance the book, making it invaluable as a reference for practitioners, academics and students in the area.

2017 | 312pp | £105 • \$170

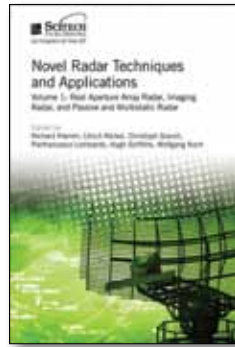
Hardback | SBRA5200 | 978-1-78561-580-1
eBook | SBRA520E | 978-1-78561-581-8



Novel Radar Techniques and Applications

Volume 1: Real aperture array radar, imaging radar, and passive and multistatic radar

Editors: Richard Klemm, et al.
Fraunhofer Institute, Germany



Novel Radar Techniques and Applications presents the state-of-the-art in advanced radar, with an emphasis on ongoing novel research and development and contributions from an international team of leading radar experts. Each section gives an overview of the latest research and perspectives of the future, and includes a number of chapters dedicated to specific techniques in conjunction with existing operational, experimental or conceptual applications. Volume 1 covers: Real aperture array radar and imaging radar (SAR, ISAR).

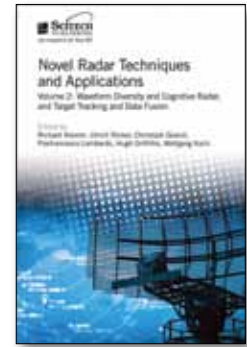
2017 | 952pp | £137 • \$210

Hardback | SBRA512A | 978-1-61353-225-6
eBook | SBRA512F | 978-1-61353-227-0

Novel Radar Techniques and Applications

Volume 2: Waveform diversity and cognitive radar, and target tracking and data fusion

Editors: Richard Klemm, et al.
Fraunhofer Institute, Germany



Novel Radar Techniques and Applications presents the state-of-the-art in advanced radar, with an emphasis on ongoing novel research and development and contributions from an international team of leading radar experts. Each section gives an overview of the latest research and perspectives of the future, and includes a number of chapters dedicated to specific techniques in conjunction with existing operational, experimental or conceptual applications. Volume 2 covers: Passive and multistatic radar; waveform diversity and cognitive radar; and target tracking and data fusion.

2017 | 552pp | £137 • \$210

Hardback | SBRA512B | 978-1-61353-226-3
eBook | SBRA512G | 978-1-61353-228-7

Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Scattering of Electromagnetic Waves by Obstacles	Kristensson	Hardback	2016	100	160	978-1-61353-221-8	SBEW5240
Radio Frequency Interference (RFI) Pocket Guide	Wyatt and Gruber	Spiral	2015	16	30	978-1-61353-219-5	SBEW5230
Modern Radar Detection Theory	Antonio De Maio & Maria Sabrina Greco	Hardback	2015	89	150	978-1-61353-199-0	SBRA5090
Digital Techniques for Wideband Receivers, 3rd edition	James Tsui and Chi-Hao Chen	Hardback	2015	89	150	978-1-61353-217-1	SBRA5110
Introduction to Airborne Radar, 3rd edn	Griffiths, Baker & Adamy	Hardback	2014	130	210	978-1-61353-022-1	SBRA5050
Radar Micro-Doppler Signatures: processing and applications	Chen, Tahmouh & Miceli	Hardback	2014	107	180	978-1-84919-716-8	PBRA0340
ISAR Imaging Algorithms with MATLAB	Chen & Martorella	Hardback	2014	95	160	978-1-61353-013-9	SBRA5040
Test & Evaluation of Avionics & Weapon Systems, 2nd edition	McShea	Hardback	2014	131	210	978-1-61353-176-1	SBRA5070
Sea Clutter: Scattering, the K Distribution and Radar Performance, 2nd edition	Ward, Tough, Watts	Hardback	2013	106	180	978-1-84919-589-8	PBRA0250
Radar Techniques Using Array Antennas, 2nd edn	Wirth	Hardback	2013	113	190	978-1-84919-698-7	PBRA0260
Radar Automatic target recognition (ATR) and Non-cooperative Target Recognition (NCTR)	Blacknell & Griffiths	Hardback	2013	113	190	978-1-84919-685-7	PBRA0330
Principles of Modern Radar: radar applications	Melvin & Scheer	Hardback	2013	119	190	978-1-89112-154-8	SBRA5030
Angle of Arrival Estimation using Radar Interferometry	Holder	Hardback	2013	100	160	978-1-61353-184-6	SBRA5080
Waveform Design and Diversity for Advanced Radar Systems	Fulvio Gini, Antonio De Maio, Lee K. Patton	Hardback	2012	109	190	978-1-84919-265-1	PBRA0220
Tracking Filter Engineering	Norman Morrison	Hardback	2012	121	210	978-1-84919-554-6	PBRA0230
Principles of Modern Radar: advanced techniques	Melvin & Scheer	Hardback	2012	118	200	978-1-891121-53-1	SBRA0200
Pulse Doppler Radar	Alabaster	Hardback	2012	109	190	978-1-891121-98-2	SBRA0240
Radar Essentials: a concise handbook for radar design and performance	Curry	Spiral bound	2012	33	65	978-1-61353-007-8	SBRA0290
Electronic Warfare Pocket Guide	Adamy	Spiral bound	2011	16	35	978-1-891121-61-6	SBRA0060
Foliage Penetration Radar: detection & characterisation of objects under trees	Davis	Hardback	2011	96	160	978-1-891121-00-5	SBRA0070

Books are available in print and online via the IET Digital Library.

NEW

Authentication Technologies for Cloud Technology, IoT, and Big Data

Editors: Yasser M. Alginahi & Muhammad N. Kabir

Taibah University, Saudi Arabia & University Pahang Malaysia, Malaysia

This book covers state-of-art global research on authentication technologies for security and privacy in information systems, including applications, research challenges and future research directions. Topics include information security, data authentication algorithms, cryptography, digital watermarking, biometric authentication and data authentication. Essential for scientists, engineers and professionals involved in all aspects of authentication and information technology and systems security.

2019 | 500pp | £130 • \$170

Hardback | PBSE0090 | 978-1-78561-556-6
eBook | PBSE009E | 978-1-78561-557-3



NEW

Nature-Inspired Cyber Security and Resiliency: Fundamentals, techniques and applications

Editors: El-Sayed M. El-Alfy et al.

King Fahd University of Petroleum and Minerals, Saudi Arabia

This is a timely review of the fundamentals, the latest developments and the diverse applications of nature-inspired algorithms in cyber security and resiliency. Based on concepts from natural processes, phenomena and organisms, it presents novel methodologies to cope with cyber security challenges. Coverage includes intrusion and malware detection, intelligent threat detection and traffic analysis, evolutionary and self-healing security systems, nature-inspired data protection, cooperative and self-configurable cyber defence, and more.

2019 | 400pp | £125 • \$160

Hardback | PBSE0100 | 978-1-78561-638-9
eBook | PBSE010E | 978-1-78561-639-6



NEW

Security, Privacy and Trust in the Internet of Things

Authors: Hannan Xiao & Ying Zhang

University of Hertfordshire, UK & Teledyne TSS Ltd., UK

This book provides a thorough, coherent explanation of security, privacy and trust issues for the Internet of Things (IoT). The authors go from the underpinning principles to the collective and different approaches, and cover applications, architectures and protocols. Each chapter features recommended reading, key terms, review questions and exercises, making it suitable for self-teaching as well as for courses. Perfect for engineering researchers, engineers, students and lecturers with an interest in internet security, privacy and trust.

2019 | 500pp | £130 • \$170

Hardback | PBSE0060 | 978-1-78561-203-9
eBook | PBSE006E | 978-1-78561-204-6



NEW

The User Experience of Biometrics: Practical considerations for the deployment of biometric systems

Editors: Kat Krol & Martina Angela Sasse

Google UK Ltd, UK & University College London, UK

This new volume in the IET Book Series on Advances in Biometrics explores the user experience of biometric technologies which are becoming more widespread in both government-mandated systems and consumer products. Coverage includes usability, as well as other important aspects such as perceptions, acceptance, trust and the practices users develop when incorporating these technologies into their everyday lives. This book is a valuable resource for biometrics researchers and practitioners, application designers, R&D and technical consultants, decision-makers on biometrics implementation.

IET Book Series on Advances in Biometrics

2019 | 350pp | £120 • \$155

Hardback | PBSE0110 | 978-1-78561-879-6
eBook | PBSE011E | 978-1-78561-880-2



NEW

Voice Biometrics: Technology, trust and security

Editors: Carmen Garcia-Mateo & Gérard Chollet

University of Vigo, Spain & Intelligent Voice Ltd, UK

This new addition to our IET Book Series on Advances in Biometrics combines both academic research and industry expertise. This edited book presents the state of art on voice biometrics research and technologies including implementation and deployment challenges in terms of interoperability, scalability and performance. Topics covered include Machine Learning Paradigms for Voice Biometrics; Audio-visual Identity Verification; Vulnerability Issues; Evaluation; Standards; Perspective from the industry; Privacy and Data Protection Issues; Speaker De-Identification; integration with other Biometrics Modalities; applications and future challenges and perspectives.

IET Book Series on Advances in Biometrics

2019 | 300pp | £115 • \$150

Hardback | PBSE0120 | 978-1-78561-900-7

eBook | PBSE012E | 978-1-78561-901-4



NEW

Hand-Based Biometrics: Methods and technology

Editor: Martin Drahanský

Brno University of Technology, Czech Republic

This book describes the complete biometrics of the hand, drawing on the latest research of its identifiable characteristics into one unique volume. It includes material on inner and outer hand physiology and diseases; fingerprint recognition and processing; palmprint recognition using 3D features; synthetic fingerprints; palmvein biometrics; finger veins recognition; 3D hand shape recognition; and anti-spoofing methods. Essential reading for researchers, engineers, practitioners, academics, product managers and government agencies in the security, biometrics and image processing fields.

The IET Book Series on Advances in Biometrics

2018 | 448pp | £125 • \$160

Hardback | PBSE0080 | 978-1-78561-224-4

eBook | PBSE008E | 978-1-78561-225-1



NEW

Information Security: Foundations, technologies and applications

Editors: Ali Ismail Awad & Michael Fairhurst

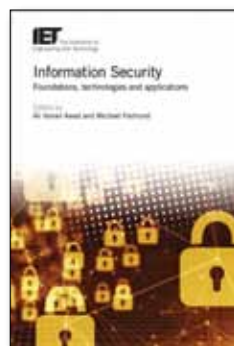
Luleå University of Technology, Sweden & University of Kent, UK

This book outlines key emerging trends in information security in terms of foundations, technologies and applications. Studies covering information security and real-time challenges are combined with survey material which emphasizes the applications of information security in different domains. This book covers information security foundations such as information security in developing countries, biometrics, cybersecurity, and big data security. It features applications to hardware and embedded systems security, computer forensics, the Internet of Things security, and network security.

2018 | 416pp | £125 • \$160

Hardback | PBSE0010 | 978-1-84919-974-2

eBook | PBSE001E | 978-1-84919-976-6



Data Security in Cloud Computing

Editors: Vimal Kumar et al.

University of Waikato, New Zealand

This edited book covers a wide range of issues on data security in cloud computing. Many organisations have already embraced the idea of a centralised cloud, due to its benefits of economy, reliability and scalability.

These benefits, however, are traded with the loss of control, since data is stored, computed upon and accessed on the cloud, which gives rise to a number of challenging data security issues. This one-stop reference is organised into six sections, covering all major aspects of securing data in cloud computing and data security challenges in emerging technologies such as the Internet of Things (IoT) and Bring Your Own Device (BYOD) technologies.

2017 | 328pp | £105 • \$170

Hardback | PBSE0070 | 978-1-78561-220-6

eBook | PBSE007E | 978-1-78561-221-3



Iris and Periocular Biometric Recognition

Editors: Christian Rathgeb & Christoph Busch

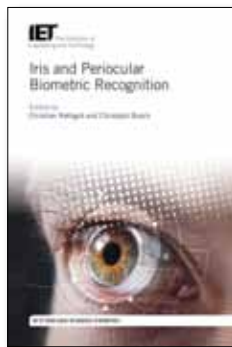
Darmstadt University, Germany
& Gjøvik University College, Norway

This book covers iris and periocular recognition, a prominent field in Biometrics Recognition and Identity Science in the areas of security, computing and communications research and technologies. Selected topics cover a wide spectrum of current research focusing on periocular recognition to augment the biometric performance of the iris in unconstrained environments, paving the way for multi-spectral biometric recognition on mobile devices. This text is divided into three parts to cover the most recent research and future directions as well as security related topics.

The IET Book Series on Advances in Biometrics

2017 | 496pp | £126 • \$200

Hardback | PBSE0050 | 978-1-78561-168-1
eBook | PBSE005E | 978-1-78561-169-8



Mobile Biometrics

Editors: Guodong Guo & Harry Wechsler

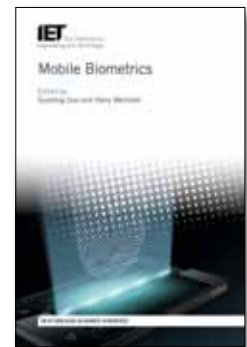
West Virginia University, USA & George Mason University, USA

Mobile biometrics aims to achieve conventional functionality and robustness while also supporting portability and mobility, bringing greater convenience and opportunity for deployment in a wide range of operational environments. Achieving these aims brings new challenges, such as issues around algorithm complexity, device memory limitations and security. This book, the first substantial survey of its kind, aims to bring together high quality research addressing the new challenges of mobile biometrics.

The IET Book Series on Advances in Biometrics

2017 | 488pp | £116 • \$185

Hardback | PBSE0030 | 978-1-78561-095-0
eBook | PBSE003E | 978-1-78561-096-7



User-Centric Privacy and Security in Biometrics

Editor: Claus Viehauer

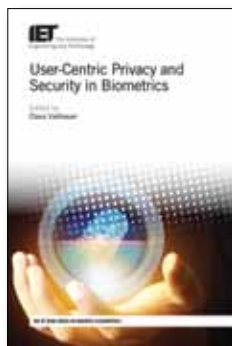
Brandenburg University, Germany

Biometrics is a growing field of influence and significance in the security, communications, networking and computing fields. This book covers the major and critical system security challenges, developments, techniques and applications for biometric systems (confidentiality, authenticity, integrity, privacy, reliability, convenience, usability). It includes state-of-the-art contributions from international experts in the field which survey and evaluate how biometric techniques can enhance and increase the reliability of security strategies in a variety of applications.

The IET Book Series on Advances in Biometrics

2017 | 432pp | £126 • \$200

Hardback | PBSE0040 | 978-1-78561-207-7
eBook | PBSE004E | 978-1-78561-208-4



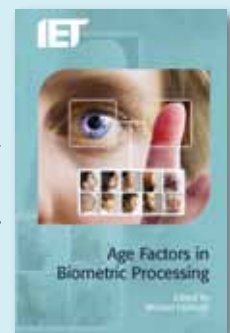
IET BOOKS

Age Factors in Biometric Processing

Editor: Professor Michael Fairhurst
University of Kent, UK

As biometric-based identification and identity authentication becomes increasingly widespread in their deployment, it becomes important to consider issues relating to reliability, usability and inclusion.

This book provides an overview of this topic for the rapidly expanding community of stakeholders in biometrics-based identification solutions in academia, industry and government.



www.theiet.org/books-security

NEW

Applications of Machine Learning in Wireless Communications

Editors: Ruisi He & Zhiguo Ding
Beijing Jiaotong University, China & The University of Manchester, UK

This detailed and comprehensive reference considers how to combine the disciplines of wireless communications and machine learning. To achieve this, the authors present current and future developments and trends as well as effective applications of machine learning and AI in wireless communications where data mining and data analysis technologies can be used effectively to solve wireless system evaluation and design challenges. Coverage includes channel modelling, signal estimation and detection, energy efficiency, cognitive radios, wireless sensor networks, vehicular communications and wireless multimedia communications.

2019 | 350pp | £120 • \$155

Hardback | PBTE0810 | 978-1-78561-657-0
eBook | PBTE081E | 978-1-78561-658-7



NEW

Low Electromagnetic Emission Wireless Network Technologies

Editors: Muhammad Ali Imran et al.
University of Glasgow, UK

This book focuses on the recent work on EM emissions for future generations of mobile and wireless communications. It provides a comprehensive source of knowledge for a wide audience including academics, researchers, telecom engineers, industrial actors, and policy makers such as 5G stakeholders, regulators and research agencies. With the 5G network still in its developmental stage, this is a timely publication highlighting the novel work done to reduce EM emissions in future mobile and wireless communication systems and to develop smart integrated technical solutions.

2019 | 350pp | £120 • \$155

Hardback | PBTE0840 | 978-1-78561-848-2
eBook | PBTE084E | 978-1-78561-849-9



NEW

Digital Television Systems Volume 1: Fundamentals and broadcast systems

Editors: Stefan Mozar & Konstantin Glasman
University of Technology, China & St Petersburg University of Film and Television, Russia

From a team of editors with substantial teaching experience and strong industry backgrounds, this is the first book in a multi-volume reference on digital television systems. This initial volume conveys everything from the fundamentals of Digital Television Systems through to broadcast systems, including error correction and compression of signals, cable and satellite transmission. This book is perfect for engineers working in broadcast media.

2019 | 350pp | £120 • \$155

Hardback | PBTE0750 | 978-1-78561-250-3
eBook | PBTE075E | 978-1-78561-251-0



NEW

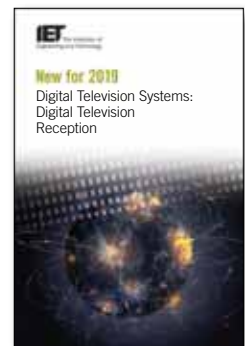
Digital Television Systems Volume 2: Digital Television Reception

Editors: Stefan Mozar & Konstantin Glasman
University of Technology, China & St Petersburg University of Film and Television, Russia

Covering digital television (DTV) reception, this is volume two in the definitive multivolume set on DTV systems. Topics covered here include: DTV receivers; RF Circuits; video decompression; decoding and error correction for digital signals; audio signal processing; speaker technology; display technology; video amplifiers; data reception; control systems and human interface; interface technology; smart televisions; 3D/stereoscopic television; power supplies; standards and future perspectives.

2019 | 350pp | £120 • \$155

Hardback | PBTE0850 | 978-1-78561-850-5
eBook | PBTE085E | 978-1-78561-851-2



NEW

Principles and Applications of Free Space Optical Communications

Editors: Arun K. Majumdar et al.
Colorado State University-Pueblo, USA

Developed by an international team of experts, this volume covers free space optical (FSO) communication technologies for realising high speed large-capacity terrestrial and aerospace communications. Topics covered include: FSP communication over strong atmospheric turbulence channels; spectral analysis and mitigation of beam wandering using optical spatial filtering; atmospheric turbulence and pointing error models for FSO Communication; diversity and relay-assisted FSO transmission schemes; and more. An ideal book for researchers and professionals in academia and industry working in communications, particularly optical communications and FSO technologies.

2019 | 500pp | £130 • \$170

Hardback | PBTE0780 | 978-1-78561-415-6
eBook | PBTE078E | 978-1-78561-416-3



NEW

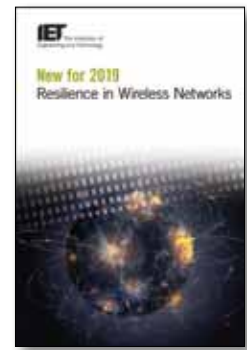
Resilience in Wireless Networks

Author: Prashant Krishnamurthy
University of Pittsburgh, USA

The book presents a unified view of current research on resilience in wireless networks. The first title to cover network resilience at the advanced level, it covers both network infrastructure and ad hoc topologies, and illustrates the latest issues, challenges, and solution approaches. It provides practical examples of real-life attacks and diagnostic tools to improve future network resilience, making it an ideal reference for researchers and professionals in IT security and resilience.

2019 | 288pp | £110 • \$145

Hardback | PBTE0620 | 978-1-84919-790-8
eBook | PBTE062E | 978-1-84919-791-5



NEW

Network Design, Modelling and Performance Evaluation

Author: Quoc-Tuan Vien
Middlesex University, UK

Designed for ICT professionals involved in the planning, design, development, testing and operation of computer network services, this book will help readers evaluate a network situation and identify the most important aspects that need to be monitored and analysed. The author provides a detailed step by step design approach from the analysis of the initial network requirements to architecture design, modelling, simulation and evaluation, with a special focus on statistical and queuing models. Practice exercises are given for selected chapters, and case studies will take the reader through the whole network design process.

2018 | 354pp | £130 • \$170

Hardback | PBTE0770 | 978-1-78561-336-4
eBook | PBTE077E | 978-1-78561-337-1



NEW

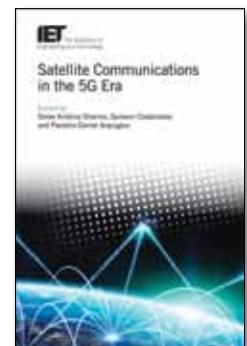
Satellite Communications in the 5G Era

Editors: Shree Krishna Sharma et al.
University of Western Ontario, Canada

This title covers state-of-the-art research, challenges and future perspectives in the field of satellite communications. It starts with integrated/hybrid satellite-terrestrial networks, and covers applications in areas such as transport, energy, health, environment, manufacturing, food production and disaster support. It then focuses on emerging technologies for next-generation systems and covers a selection of hot topics. It is ideal for telecommunications engineers and researchers who require a structured guide to the latest advances in the area.

2018 | 580pp | £135 • \$175

Hardback | PBTE0790 | 978-1-78561-427-9
eBook | PBTE079E | 978-1-78561-428-6



5G Wireless Technologies

Editor: Angeliki Alexiou
University of Piraeus, Greece

The IoT is empowered by revolutionary 5G radio network technologies with a focus on application-driven connectivity and transparency deployed over various technologies, infrastructures, users and devices. This emerging future will be empowered by revolutionary 5G radio network technologies with a focus on application-driven connectivity, transparently deployed over various technologies, infrastructures, users and devices to give a vision of 'the internet of everything'. This book presents a roadmap of 5G, presenting advanced radio technologies, innovative resource management approaches and novel architectures.

2017 | 416pp | £105 • \$170

Hardback | PBTE0690 | 978-1-78561-061-5
eBook | PBTE069E | 978-1-78561-062-2



Access, Fronthaul and Backhaul Networks for 5G & Beyond

Editors: Muhammad Ali Imran, et al.
University of Glasgow, UK

This title covers a growing and thriving topic among the wireless, mobile, networking and computing communications community. A one-stop reference for state-of-the-art access, backhaul and fronthaul technologies for 5G and beyond, it also serves as a unique platform for both academic and industrial stakeholders to report and present innovation, covering a wide spectrum of underlying themes from the recent thrust in edge caching for backhaul relaxation to millimetre-wave based fronthauling for virtualised radio access.

2017 | 584pp | £116 • \$185

Hardback | PBTE0740 | 978-1-78561-213-8
eBook | PBTE074E | 978-1-78561-214-5



Cloud and Fog Computing in 5G Mobile Networks: Emerging advances and applications

Editors: Evangelos Markakis et al.
Technological Educational Institute of Crete, Greece

Cloud computing, a key trend in networking, shows that availability and fault tolerance issues can directly impact on millions of end-users. Now diffused among end-users devices in mobile and wired networks, the cloud is becoming the "fog". This book elaborates on a new paradigm by presenting frameworks and schemes that use end-user or near-user edge devices to carry out storage, communication, computation and control in the network. Topics covered include network storage, the Internet of Things and heterogeneous 5G mobile services.

2017 | 440pp | £95 • \$155

Hardback | PBTE0700 | 978-1-78561-083-7
eBook | PBTE070E | 978-1-78561-084-4



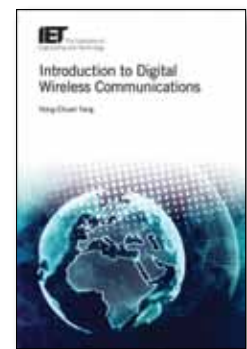
Introduction to Digital Wireless Communications

Author: Hong-Chuan Yang
University of Victoria, Canada

This book provides an introduction to advanced wireless transmission technologies in current and future wireless communication systems. It will help students and engineers with basic communication knowledge to quickly understand the principles and trade-offs involved in these digital wireless transmission technologies, start performing academic research in the field, and carry out product development. The material is presented without assuming an extensive background knowledge of digital communications. It also includes carefully designed problem-solving examples.

2017 | 288pp | £79 • \$130

Hardback | PBTE0720 | 978-1-78561-160-5
eBook | PBTE072E | 978-1-78561-161-2



Network as a Service for Next Generation Internet

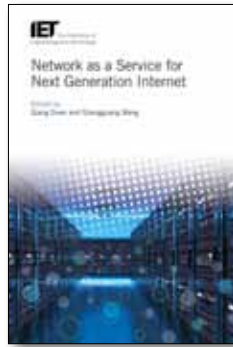
Editors: Qiang Duan & Shanguang Wang

Pennsylvania State University, USA & Beijing University, China

Flexible and effective service provisioning for supporting diverse applications is a key requirement for the next generation Internet. However, the current Internet lacks sufficient capability for meeting this requirement. Network-as-a-Service (NaaS) offers a promising approach to separating network architecture and infrastructure to make this possible and has been widely adopted in Cloud computing. This book provides a comprehensive survey of NaaS technologies, trends, applications and future directions for network service provisioning.

2017 | 440pp | £105 • \$170

Hardback | PBTE0730 | 978-1-78561-176-6
eBook | PBTE073E | 978-1-78561-177-3



Transceiver and System Design for Digital Communications

5th Edition

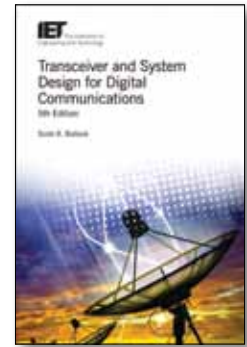
Author: Scott R. Bullock

Besser Associates, USA

With 20% new material, this is the thoroughly revised, updated and expanded new edition of the classic text on transceiver and system design for digital communications. Topics covered include cognitive systems; radar communication; volume search, acquisition and track; optimal waveform CP-PSK; AGC design methods; jammers; GPS; interferometry; error correction and detection; and transceiver design and RF components.

2017 | 552pp | £126 • \$200

Hardback | PBTE0800 | 978-1-78561-495-8
eBook | PBTE080E | 978-1-78561-496-5



Trusted Communications with Physical Layer Security for 5G and Beyond

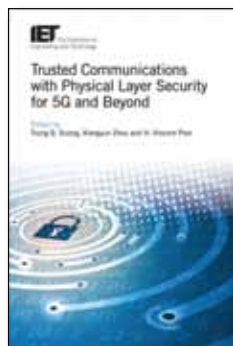
Editors: Trung Q. Duong et al.

Queen's University Belfast, UK

This book provides readers with comprehensive insights into the theory, models and techniques of Physical Layer Security and its applications in 5G and other emerging wireless networks. It covers recent advances in wireless communication and PHY security for 5G networks and beyond, including IoT, cognitive radio networks, massive MIMO, device-to-device communications, mm-wave communications, and energy harvesting communications. The potential of Physical Layer Security with a view to designing more secure communications in advanced networks of the future is also explored.

2017 | 576pp | £95 • \$155

Hardback | PBTE0760 | 978-1-78561-235-0
eBook | PBTE076E | 978-1-78561-236-7



Understanding Telecommunications Networks

2nd Edition

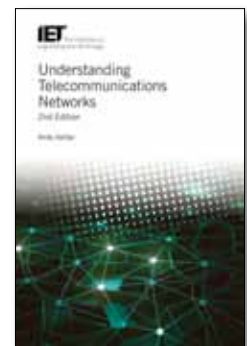
Author: Andy Valdar

University College London, UK

This fully revised, updated and expanded second edition incorporates updates on key and new areas of technology, which have developed since the original book was published in 2006. It provides a comprehensive explanation of how various systems and technologies link together to construct networks and provide services.

2017 | 416pp | £53 • \$85

Hardback | PBTE0710 | 978-1-78561-164-3
eBook | PBTE071E | 978-1-78561-165-0



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Advances in Body-Centric Wireless Communication: Applications and state-of-the-art	Abbasi et al. (eds)	Hardback	2016	100	160	978-1-84919-989-6	PBTE0650
Managing the Internet of Things: Architectures, theories and applications	Huang and Hua (eds)	Hardback	2016	100	155	978-1-78561-028-8	PBTE0670
Advanced Relay Technologies in Next Generation Wireless Communications	Krikidis and Zheng (eds)	Hardback	2016	110	180	978-1-78561-003-5	PBTE0680
Cognitive radio engineering	Bostian	Hardback	2016	79	130	978-1-61353-211-9	SBTE5020
Understanding Telecommunications Business	Valdar & Morfett	Hardback	2015	50	85	978-1-84919-745-8	PBTE0600
Digital Communications: principles and systems	Otung	Paperback	2014	54	100	978-1-84919-611-6	PBTE0580
Transceiver and System Design for Digital Communications 4th edition	Bullock	Hardback	2014	89	160	978-1-61353-203-4	SBCS5040
Dynamic Ad Hoc Networks	Rashvand & Chao	Hardback	2013	106	180	978-1-84919-647-5	PBTE0590
Key Enablers for User-Centric Advertising Across Next Generation Networks	J. Simoes	Hardback	2012	86	150	978-1-84919-618-5	PBTE0560
Wireless Receiver Design for Digital Communications, 2nd edition	McClaning	Hardback	2012	116	190	978-1-891121-80-7	SBTE0090
Standard Codecs: Image compression to advanced video coding, 3rd edition	M. Ghanbari	Hardback	2011	84	150	978-0-86341-964-5	PBTE0540
Video Compression Systems: From first principles to concatenated codecs	A. Bock	Paperback	2009	55	100	978-0-86341-963-8	PBTE0530
Transceiver and System Design for Digital Communications, 3rd edition	Bullock	Hardback	2009	91	150	978-1-891121-72-2	SBTE0080
Introduction to Broadband Communication Systems	Akujuobi & Sadiku	Hardback	2008	89	150	978-1-42006-149-9	SBTE5010
Understanding Telecommunications Networks	A. Valdar	Paperback	2006	49	85	978-0-86341-362-9	PBTE0520
Telecommunications Performance Engineering	R. Ackerley (ed.)	Hardback	2004	90	160	978-0-86341-341-4	PBBT0070
Location and Personalisation: Delivering Online and Mobility Services	D. Ralph & S. Searby (eds.)	Hardback	2004	86	150	978-0-86341-338-4	PBBT0080
Mobile and Wireless Communications: Key Technologies and Future Applications	P. Smyth (ed.)	Hardback	2004	90	160	978-0-86341-368-1	PBBT0090
Local Access Network Technologies	P. France (ed.)	Hardback	2004	98	170	978-0-85296-176-6	PBTE0470

Books are available in print and online via the IET Digital Library.

IET JOURNALS

**IET
Communications**

Editor-in-Chief: Professor Xuemin (Sherman) Shen
University of Waterloo, Canada



IET Communications covers the fundamental and generic research into technologies to harness signals for better performing communication systems using various wired and/or wireless media. This journal is particularly interested in research papers reporting novel solutions to the dominating problems of noise, interference, timing and errors for the reduction of systems deficiencies such as the wastage of spectra, energy and bandwidth.

www.ietdl.org/IET-COM

Other suitable journals:

IET Networks; IET Signal Processing; IET Cyber-physical Systems: Theory and Applications



See the **IET Journals 2019** catalogue for our range of journals in the field of telecommunications.

NEW

Collection and Delivery of Traffic and Travel Information

Editors: Nicholas Simmons & Alan Stevens
University of Southampton, UK

This is the first comprehensive reference on traffic and travel information (TTI) and technology. With contributions from numerous industry experts, the book looks at the development of the area, conveying technologies as well as roles of government and companies. The scope of the book includes: context of travel needs; data availability; infrastructure ownership; technology for TTI collection and collation; technology for mapping; geo-location and referencing; roles of government and commercial mapping companies; technology and standards for TTI communications; and European and international standards, and more.

2019 | 300pp | £115 • \$150

Hardback | PBTR0180 | 978-1-78561-772-0

eBook | PBTR018E | 978-1-78561-773-7



NEW

Computational Traffic Flow Modelling and Control

Author: Apostolos Kotsialos
Durham University, UK

In this book, the author conveys a key way to address increased urban road congestion, with traffic flow modelling, using microscopic and macroscopic approaches. Using code samples in C, the book guides readers through examples and modelling problems, and explains how to use the traffic simulators that are freely available. The book also looks ahead, to potential future issues, making it a book that professional engineers and researchers, computer scientists and applied mathematicians in intelligent transport systems will use for years to come.

2019 | 400pp | £125 • \$160

Hardback | PBTR0030 | 978-1-78561-166-7

eBook | PBTR003E | 978-1-78561-167-4



NEW

Cybersecurity in Transport Systems

Editor: Martin Hawley
Winsland Consulting, UK

This much-needed reference focuses on the management of cyber security in transport systems. It equips the reader with an understanding of what management actions need to be taken and what sort of technologies are suitable to deploy in defending against cyberattacks. It supplies insights across naval, aerial and ground-based transport, and includes real-life advice from practitioners. The authors also address advances and themes in current research. A vital resource for cyber security practitioners in transport-related organisations and academics working on intelligent transport systems.

2019 | 350pp | £120 • \$155

Hardback | PBTR0150 | 978-1-78561-668-6

eBook | PBTR015E | 978-1-78561-669-3



NEW

Human Centered Design of Automated Driving Systems

Editors: Motoyuki Akamatsu et al.
Automotive Human Factors Research Center, Japan

This book a much-needed reference to the area of human-centred design for automated driving systems. It starts with a historical review of 'automation and society', then describes the 'user' in the context of automated systems. Interaction and cooperation between the driver and the system is then considered before an examination of communication between the system and other vehicles and pedestrians. Acceptance evaluation is also covered. The book finishes with a look at the generalization of automated systems.

2019 | 300pp | £115 • \$150

PBTR0140 | 978-1-78561-677-8

eBook | PBTR014E | 978-1-78561-678-5



NEW

ICT for Electric Vehicle Integration with the Smart Grid

Editors: Nand Kishor & Jesus Fraile-Ardanuy

Motilal Nehru National Institute of Technology, India & Universidad Politecnica de Madrid, Madrid, Spain

In this book, the authors provide a basis for full integration of electric vehicles into the smart grid, through the extensive use of ICT tools. They look at transport and energy system modelling, simulation and optimisation processes; vehicle on-line optimal control, estimation and prediction; energy system strategic planning; and supporting services such as those related to smart charging. Providing case studies and examples throughout, the book includes coverage of smart homes and ancillary services, and considers the complete energy balance.

2019 | 500pp | £130 • \$170

Hardback | PBTR0160 | 978-1-78561-762-1

eBook | PBTR016E | 978-1-78561-763-8



NEW

Navigation and Control of Autonomous Marine Vehicles

Editors: Sanjay Sharma & Bidyadhar Subudhi

Plymouth University UK & National Institute of Technology Rourkela, India

Covers the current state of research on the navigation, modelling and control of marine autonomous vehicles. The book examines all related aspects, including collision avoidance, communication, and applications. Specific topics include: modelling and control of autonomous vehicles; advanced geophysical based underwater navigation; collision avoidance of maritime vessels; autonomous underwater vehicles for marine archaeology; system modelling, identification and experimental evaluation of an autonomous surface craft; formation control of autonomous marine vehicles; sliding mode control for path planning guidance of marine vehicles; and more.

2019 | 300pp | £115 • \$150

Hardback | PBTR0110 | 978-1-78561-338-8

eBook | PBTR011E | 978-1-78561-339-5



NEW

Shared Mobility and Automated Vehicles

Editors: Ata M. Khan & Susan Alison Shaheen

Carleton University, Canada

This is a unique resource describing how best to shape shared vehicle systems of the future. It discusses key facets of shared mobility, and looks at shared vehicle systems as well as shared automated vehicle systems. Following an introductory chapter, the book discusses a wide array of topics, including: policy and regulatory frameworks; planning; design; technology; demand and supply models; algorithms; operations; management; economic factors; business models; and environmental factors. Socio-technical factors are covered in an integrated manner, and there is an emphasis on electrification.

2019 | 350pp | £120 • \$155

Hardback | PBTR0200 | 978-1-78561-862-8

eBook | PBTR020E | 978-1-78561-863-5



NEW

Autonomous Decentralized Systems and their Applications in Transport and Infrastructure

Editors: Kinji Mori & Takashi Kunifujii

Waseda University, Japan & East Japan Railway Company, Japan

This work describes the concept, architecture and technologies of Autonomous Decentralized Systems (ADS) and their applications in transport and other systems, particularly intelligent railway transport. ADS is explained first using the example of the Japanese railway transport system; applications in other countries follow. The goal is to describe the technologies, applications and businesses on the basis of a consistent concept for achieving intelligent transport. Other ADS based technologies, such as for air traffic and robotic transport are also covered.

2018 | 376pp | £120 • \$155

Hardback | PBTR0090 | 978-1-78561-281-7

eBook | PBTR009E | 978-1-78561-282-4



NEW

EMC and Functional Safety of Automotive Electronics

Author: Kai Borgeest
Aschaffenburg University of Applied Sciences, Germany

This systematic treatment of electromagnetic compatibility (EMC) for the automotive sector introduces automotive experts to EMC and EMC experts to automotive electronics.

The book enables readers to avoid expensive EMC problems, to test for EMC compliance of cars and their components, and to fix existing EMC issues. It also deals with the legal frameworks around the topic. In addition, the book explicitly covers electric vehicle technology and infrastructure. Ideal for researchers, advanced students and engineers in automotive electronics.

2018 | c.264pp | £110 • \$145

Hardback | PBTR0120 | 978-1-78561-408-8
eBook | PBTR012E | 978-1-78561-409-5



NEW

Road Pricing: Technologies, economics and acceptability

Editor: John Walker

This book outlines some of the economic theory behind road pricing schemes, indicates the different kinds of schemes that are possible, describes the electronic technology being used, shows that it is available and already in operational use in many countries, addresses how public acceptability can be achieved, and demonstrates that people will accept road pricing if they understand the reasons for using it, and above all, if they have experienced it in use and understand how it will affect them personally.

2018 | 648pp | £130 • \$210

Hardback | PBTR0080 | 978-1-78561-205-3
eBook | PBTR008E | 978-1-78561-206-0



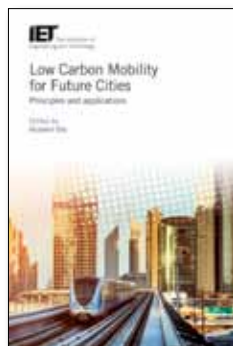
Low Carbon Mobility for Future Cities: Principles and applications

Editor: Hussein Dia
Swinburne University of Technology, Australia

Taking the global view of the interactions between land use and transport this book brings together leading experts in the areas of urban planning, transport planning and strategy, traffic management and transport technology to present a cohesive work on the policy principles and practical applications to drive urban mobility services in tomorrow's smart cities. Containing practical policy instruments and proven use cases, this book combines academic rigor with practical tools to benefit practitioners and city leaders.

2017 | 376pp | £110 • \$180

Hardback | PBTR0060 | 978-1-78561-197-1
eBook | PBTR006E | 978-1-78561-198-8



Sliding Mode Control of Vehicle Dynamics

Editor: Antonella Ferrara
University of Pavia, Italy

This book is a comprehensive work on vehicle dynamics control through sliding mode control. This edited volume covers the control of longitudinal, lateral and vertical dynamics of four-wheeled vehicles, both of conventional (i.e. combustion driven) type as well as fully-electric. In addition, one chapter is devoted to motorcycles, and one to the roll-over control in heavy vehicles. The topic is important not only for general safety of vehicular traffic, but also for future automated driving. This book is a must-read for both researchers and industry engineers in this field.

2017 | 312pp | £105 • \$170

Hardback | PBTR0050 | 978-1-78561-209-1
eBook | PBTR005E | 978-1-78561-210-7



Other available titles:

Title	Author(s)/Editor(s)	Format	Pub date	Price (£)	Price (\$)	ISBN	Product Code
Energy Systems for Electric and Hybrid Vehicles	Chau (ed.)	Hardback	2016	116	185	978-1-78561-008-0	PBTR0020
Evaluation of Intelligent Road Transport Systems: Methods and results	Lu (ed.)	Hardback	2016	110	180	978-1-78561-172-8	PBTR0070
Clean Mobility and Intelligent Transport Systems	Fiorini and Lin (eds)	Hardback	2015	95	155	978-1-84919-895-0	PBTR0010

Books are available in print and online via the IET Digital Library.



See the **IET Journals 2019** catalogue for our range of journals in the field of transportation.

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- User support documents
- Product videos and training webinars
- Open access support
- Promotional resources including posters and web banners
- Catalogues and collections

Find out more:

www.theiet.org/librarians



New Edition of British Standard for electrical installation

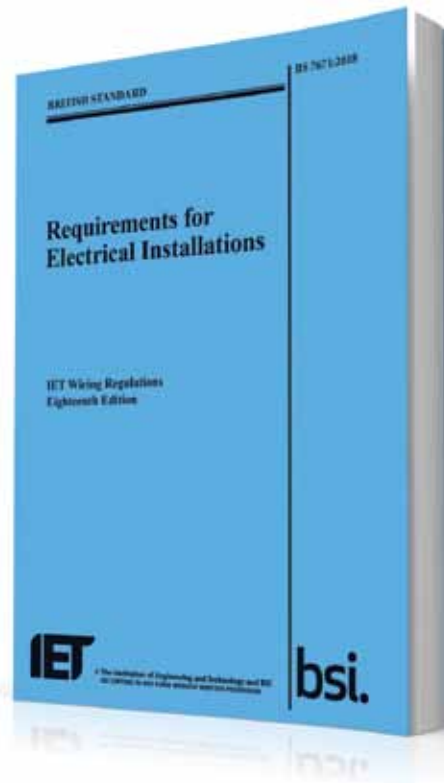
The 18th Edition of the IET Wiring Regulations (Requirements for Electrical Installations BS 7671:2018) contains many new and updated requirements for electrical installations. From January 2019, all new and amended installations need to comply with BS 7671:2018.

Changes within the 18th Edition include information on Arc Fault Detection Devices (AFDDs), Surge Protection and the use of PME supplies for electric vehicle charging.

This is an essential publication for all involved in electrical installation, from designers and specifiers, to electrical contractors and those involved in testing and inspection.

The IET also publishes expert guidance on key areas of BS 7671. The following titles are just a selection of the guidance available and have all been updated to BS 7671:2018.

▶ See page 67 for details



On-Site Guide to BS 7671:2018

This handy A5-sized guide provides practical information on applying the requirements of BS 7671, providing essential information in a convenient, easy-to-use format.

▶ See page 67 for details



Guidance Note 3: Inspection & Testing 8th Edition

One of the most popular guidance publications for BS 7671, this guide provides fundamental information for those involved in the inspection and testing of electrical installations. It is also used by those studying for inspection and testing qualifications.

▶ See page 68 for details

Code of Practice for Electric Vehicle Charging Equipment Installation

3rd Edition

This Code of Practice contains government-recommended guidance on the requirements for electric vehicle charging equipment. Fully updated to BS 7671:2018, the 3rd Edition contains two new sections on vehicles as energy storage and integration with smart metering and control, automation and monitoring systems.

▶ See page 73 for details



BS 7671 (the IET Wiring Regulations) sets the standards for electrical installation in the UK and many other countries. The IET co-publishes BS 7671 with the British Standards Institution (BSI) and is the authority on electrical installation.

The 18th Edition of the IET Wiring Regulations (BS 7671:2018) comes into effect on 1st January 2019. All new and amended electrical installations will need to comply with BS 7671:2018 from this point.

Vast changes were included in BS 7671:2018 and all IET guidance publications have been updated in line with the new Edition. The IET publishes the only guidance to be peer-reviewed and approved by industry.

eBook versions of BS 7671 and guidance are available on subscription via VitalSource Bookshelf. Please contact digitalwiringregs@theiet.org for more information on packages and ordering.



Requirements for Electrical Installations: IET Wiring Regulations

18th Edition
BS 7671:2018

- the 18th Edition is a major update to this title, with changes included throughout the book
- vital for all involved in the electrical industry, including designers, installers, and those involved in testing and inspection of electrical installations

2018 | 560pp | £95 • \$120

Paperback | PWR1800B
978-1-78561-170-4

VS eBook | PWR1800V
978-1-78561-448-4



On-Site Guide to BS 7671:2018

- an essential guide to BS 7671
- incorporates the extensive changes in BS 7671:2018, making this a vital guide for keeping up to date
- enables the competent electrician to deal with installations (up to 100 A, 3-phase) providing essential information in a convenient, easy-to-use format

2018 | 220pp | £30 • \$38

Paperback | PWG0180B
978-1-78561-442-2

VS eBook | PWG0180V
978-1-78561-444-6



Guidance Note 1: Selection & Erection

8th Edition

- a fundamental guide for specifiers, installers and those inspecting and testing installations
- contains clear guidance on how to apply the relevant sections of BS 7671
- fully updated to BS 7671:2018

2018 | 244pp | £38 • \$48

Paperback | PWG1180B
978-1-78561-445-3

VS eBook | PWG1180V
978-1-78561-447-7



Guidance Note 2: Isolation & Switching

8th Edition

- provides clear guidance on what can be a confusing aspect of BS 7671
- ideal for those working in specification, testing and inspection and for consulting engineers, as well as electrical installers
- fully updated to BS 7671:2018

2018 | 96pp | £32 • \$40

Paperback | PWG2180B
978-1-78561-449-1

VS eBook | PWG2180V
978-1-78561-451-4



Guidance Note 3: Inspection & Testing

8th Edition

- a fundamental guidance book for all those involved with the testing and inspection of electrical installations
- also contains essential guidance for those studying for inspection and testing qualifications
- fully updated to BS 7671:2018

2018 | 160pp | £35 • \$44

■ Paperback | PWG3180B
978-1-78561-452-1

VS eBook | PWG3180V
978-1-78561-454-5



Guidance Note 4: Protection Against Fire

8th Edition

- a vital guide to an important safety aspect of working with electricity
- aimed at everyone involved with fire safety in electrical installations, including consulting engineers, electrical installers, inspectors and technicians
- fully updated to BS 7671:2018

2018 | 120pp | £32 • \$40

■ Paperback | PWG4180B
978-1-78561-455-2

VS eBook | PWG4180V
978-1-78561-457-6



Guidance Note 5: Protection Against Electric Shock

8th Edition

- a core element of safety for specifiers, designers, contractors and inspectors
- provides clear guidance on how to apply the safety requirements of BS 7671 concerning electric shock
- fully updated to BS 7671:2018

2018 | 152pp | £32 • \$40

■ Paperback | PWG5180B
978-1-78561-458-3

VS eBook | PWG5180V
978-1-78561-460-6



Guidance Note 6: Protection Against Overcurrent

8th Edition

- a key guide to this important area of BS 7671
- for all involved with specifying, designing, installing or verifying electrical installations
- fully updated to BS 7671:2018

2018 | 124pp | £32 • \$40

■ Paperback | PWG6180B
978-1-78561-461-3

VS eBook | PWG6180V
978-1-78561-463-7



Guidance Note 7: Special Locations

6th Edition

- provides a comprehensive guide to the various special locations and installations for which additional measures are required to comply with BS 7671
- designed for anyone working in special locations where guidance may vary, including consulting engineers, electricians, electrical installers, inspectors and technicians
- fully updated to BS 7671:2018

2018 | 208pp | £32 • \$40

■ Paperback | PWG7180B
978-1-78561-464-4

VS eBook | PWG7180V
978-1-78561-466-8



Guidance Note 8: Earthing and Bonding

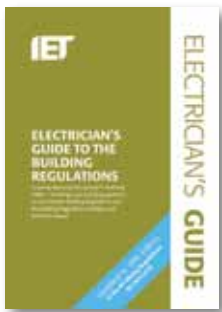
4th Edition

- includes information from BS 7430 Code of Practice for Earthing
- key guidance for all involved with specifying, designing, installing or verifying electrical installations
- fully updated to BS 7671:2018

2018 | 208pp | £32 • \$40

■ Paperback | PWG8180B
978-1-78561-413-2

VS eBook | PWG8180V
978-1-78561-467-5



Electrician's Guide to the Building Regulations

5th Edition

- includes the latest guidance on third-party certification schemes
- covers relevant parts of the Building Regulations, including Fire Safety, Ventilation and Conservation of Energy
- fully updated to BS 7671:2018

2018 | 284pp | £27 • \$34

Paperback | PWGP180B
978-1-78561-468-2

VS eBook | PWGP180V
978-1-78561-470-5



Electrical Installation Design Guide

4th Edition

- provides step-by-step guidance on the design of electrical installations
- useful for apprentices and trainees carrying out the calculations necessary for a basic installation
- fully updated to BS 7671:2018

2018 | 224pp | £40 • \$50

Paperback | PWGC180B
978-1-78561-471-2

VS eBook | PWGC180V
978-1-78561-473-6

NEW



Practitioner's Guide to Temporary Power Systems

- accessible, concise and relevant information pertinent to the electrical safety of events for those working under pressure and to tight timescales.
- the guide assists the reader in complying with BS 7671 and BS 7909, and in turn the Electricity at Work Regulations 1989; Construction, Design and Management; and Management of Health and Safety at Work Regulations 1999.
- perfect for self-employed technicians, and employers such as broadcast or rental organisations.

2019 | 200pp | £29

Paperback | PWTG180B
978-1-78561-434-7

VS eBook | PWTG180V
978-1-78561-434-7

NEW



Electrician's Guide to Fire Detection and Alarm Systems

3rd Edition

- advice on managing the requirements of both BS 7671 and BS 5839 for electrical installations
- ideal guide for those involved in the design and installation of fire detection systems as part of an electrical installation
- fully updated to the latest versions of BS 5839-1 and BS 5839-6

2019 | 160pp | £27 • \$34

Paperback | PWR25130
978-1-78561-674-7

VS eBook | PWR2513V
978-1-78561-676-1



Electrician's Guide to Emergency Lighting

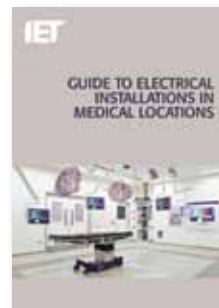
3rd Edition

- provides guidance on how to manage the requirements of both BS 7671 and BS 5266
- for designers and installers working on electrical installations involving emergency lighting
- fully updated to BS 5266-1:2016

2018 | 110pp | £27 • \$34

Paperback | PWR25020
978-1-78561-613-6

VS eBook | PWR2502V
978-1-78561-615-0



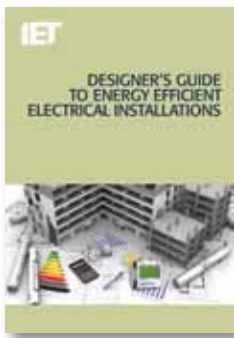
Guide to Electrical Installations in Medical Locations

- for designers, installers and maintainers of electrical installations in medical locations
- definitive guidance on earthing and bonding arrangements in medical locations

2017 | 180pp | £45 • \$72

Paperback | PWR11711
978-1-84919-767-0

VS eBook | PWR1171V
978-1-78561-661-7



Designer's Guide to Energy Efficient Electrical Installations

- explains the areas incorporated into Appendix 17 (Energy Efficiency) of BS 7671:2018
- prepares users for meeting the new challenges and opportunities presented by Energy Efficiency
- explains the responsibilities of designers and clients in ensuring an energy efficient electrical design

2016 | 72pp | £30 • \$45.34

■ Paperback | PWGE173B
978-1-78561-181-0

VS eBook | PWGE173V
978-1-78561-183-4



Code of Practice for In-service Inspection and Testing of Electrical Equipment

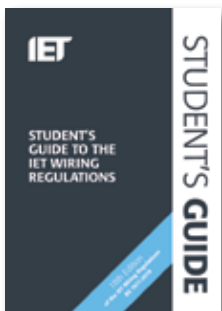
- the book takes account of the PAT aspects of Professor Löfstedt's report and the HSE view that promotes a proportionate risk-based approach when assessing the safety of electrical equipment and appliances.
- this approach will help users, those responsible for the equipment and testers of the equipment to maintain safety.
- HSE encourages the adoption of this approach.

2012 | 152pp | £55 • \$91

■ Paperback | PWR02340
978-1-84919-626-0

VS eBook | PWR02340V
978-1-84919-627-7

STUDENT GUIDES



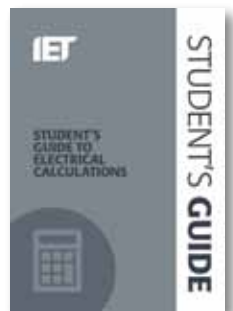
Student's Guide to the IET Wiring Regulations

- integrates with current qualifications being delivered
- using diagrams and examples, provides students with guidance to navigate their way through the information available in BS 7671 while studying electrical courses
- provides the information that students will need throughout their studies and into their careers, including information about the various Acts and Regulations that may have implications on electrical installations

2018 | 280pp | £20 • \$25

■ Wiro-bound | PWGS180B
978-1-78561-474-3

VS eBook | PWGS180V
978-1-78561-476-7



Student's Guide to Electrical Calculations

- provides fundamental guidance on the importance of carrying out accurate electrical calculations when designing and testing electrical installations
- easy to understand step-by-step diagrams and instructions to improve knowledge and understanding of calculations that form an integral part of level 2 and 3 electrical qualifications
- provides essential information for anyone working in the electrical industry, from apprentice to designer

2018 | 200pp | £15 • \$22.67

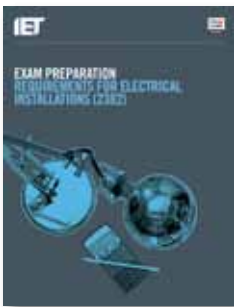
■ Paperback | PWSC173B
978-1-78561-244-2

VS eBook | PWSC173V
978-1-78561-738-6



The IET works with City & Guilds to provide expert exam preparation materials to complement key electrical courses. All of the below publications have been written by the IET and approved by City & Guilds to help learners to prepare for their exams.

NEW



Exam Preparation Requirements for Electrical Installations (2382)

- the 2381 qualification ensures learners are up to date with the latest BS 7671 requirements
- this course is updated to BS 7671:2018
- includes practice examinations with fully worked and 'model' answers

2019 | 130pp | £20 • \$28

Paperback | PWR5140B
978-1-78561-575-7



Exam Preparation Electrical Installations (2391)

- the 2391 qualification is for the inspection and testing of electrical installations
- helps students prepare for examinations
- includes practice examinations with fully worked and 'model' answers

2018 | 130pp | £20 • \$28

Paperback | PWR5110B
978-1-78561-569-6



Exam Preparation Electrotechnical Apprenticeship Qualification (5357)

- the 5357 qualification is for apprentices wishing to commence a career in the electrotechnical industry
- this book helps students prepare for examinations
- includes practice examinations with fully worked and 'model' answers

2018 | 198pp | £20 • \$28

Paperback | PWR5100B
978-1-78561-567-2

Model Form of Contract

for the design, supply and installation of electrical, electronic and mechanical plant

The IET's Model Form of Contract (more commonly known as MF/1) is a key industry template for the supply and installation of electrical, electronic, or mechanical plant.

Used by the engineering community for over 100 years, this highly regarded and well-developed form can be customised for a specific purpose and has been adapted to be applicable internationally.

This standard form of contract is recommended for use by contracts officers in private and public sector organisations, mechanical and electrical engineers, facilities managers, lawyers and in-house legal representatives.

Model Form of Contract

For the design, supply and installation of electrical, electronic and mechanical plant, MF/1 (Revision 6)

- accommodates the views of purchasers, engineers and the manufacturing industry, resulting in a fair balance between contractor and purchaser
- provides flexibility for the parties by providing 'Special Conditions' for particular requirements
- reflects accepted best practice and standards such as ICC terms



2014 | 96pp | £70 • \$116

Paperback | PMPA1080 | 978-1-84919-804-2

Commentary to MF/1 Revision 6

- this updated commentary helps users work with this 100-page Model Form of Contract in practical situations
- helps to interpret the clauses and the various schedules, explaining why they form part of the contract and indicating where they may be of particular value to those relying on the contract
- contains expanded coverage on parts of the contract likely to be most controversial and most likely to be an area of dispute



2017 | 48pp | £48 • \$68

Paperback | PMPA108C | 978-1-78561-425-5

There are four primary publications within the IET/IMEchE's Model Forms of Electromechanical Contract series. Please visit www.theiet.org/model-forms for details.

INTERACTIVE PDF VERSION

This editable version of MF/1 (Revision 6) saves buying a new form for each project. The PDF allows unlimited usage and is simple to edit. You can complete the form entirely on-screen, select pre-filled options, save the document electronically and circulate it easily.

Learn more and order at www.theiet.org/mf1-pdf

ADDITIONAL MODEL FORMS TITLES

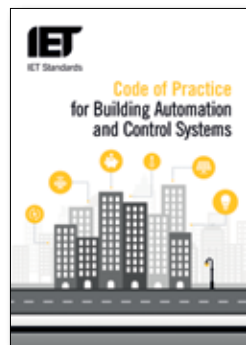
Title	Price (£)	Price (\$)	ISBN	Product Code
MF/1 (Revision 6) PDF version	420	N/A	978-1-78561-022-6	PMPA108D
MF/1 (Revision 6) eBook version	70	116	978-1-84919-805-9	PMPA108E
MF/2 (Revision 1) Model Form of General Conditions of Contract	60	96	978-0-85296-858-1	PMOTR009
Commentary on MF/2 (Revision 1)	45	72	978-0-85296-758-4	PMPA1020
MF/3 (Revision 1) Model Form of General Conditions of Contract	35	56	978-0-85296-202-2	PMPA1040

IET Standards works with industry-leading bodies and experts to achieve consensus on good practice in both emerging and established fields of engineering and technology. The end results form a range of Codes of Practice and guidance materials for professional engineers and technicians.

eBook versions of many of these titles are available via VitalSource Bookshelf.
Please contact digitalwiringregs@theiet.org for more information.

Code of Practice for Building Automation and Control Systems

- provides a practical way for electrical contractors to engage with clients in the field of building controls, backed by an established Standard
- the publication is well-timed to make the most of legislation on energy efficiency in buildings
- published by the IET and based on a BSI Standard, it provides reassurance that the information is accurate, usable and reliable



2019 | 90pp | £65 • \$107

▶ **Paperback** | PSBC001P | 978-1-78561-563-4
▶ **VS eBook** | PSBC001V | 978-1-78561-895-6

Guide to Smart Homes for Electrical Installers

- this Guide will clarify the implementation of smart home solutions and will provide good-practice guidance in line with current regulations.
- provides content developed by a committee of experts ensuring industry-robust, trusted information
- focuses on progressive technology solutions, providing a practical basis for the high-level work taking place in this industry

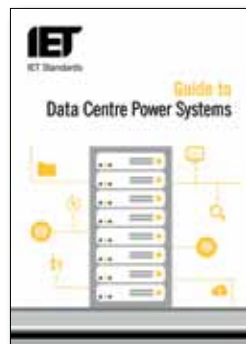


2019 | 100pp | £50 • \$83

▶ **Paperback** | PSSH101P | 978-1-78561-654-9
▶ **VS eBook** | PSSH101V | 978-1-78561-894-9

Guide to Data Centre Power Systems

- a unique and comprehensive review of power systems that can be applied to all types of data centres
- impartial independent guidance free from commercial agendas
- a go-to guide for all those involved in the specification, design, commissioning, operation and maintenance of data centre power systems



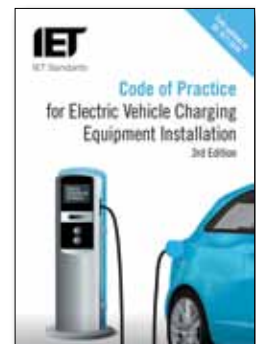
2019 | 150pp | £65 • \$107

▶ **Paperback** | PSDA101P | 978-1-78561-828-4
▶ **VS eBook** | PSDA101V | 978-1-78561-893-2

Code of Practice for Electric Vehicle Charging Equipment Installation

3rd Edition

- reviews and brings this standard in line with BS 7671:2018
- a definitive guide to safely installing electric vehicle charging equipment
- endorsed by government, contractors, automotive industry, network operators and manufacturers

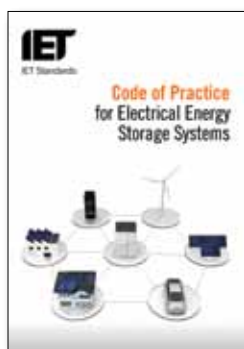


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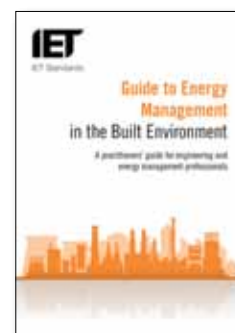
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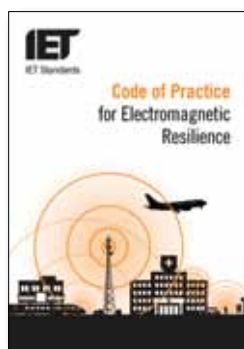
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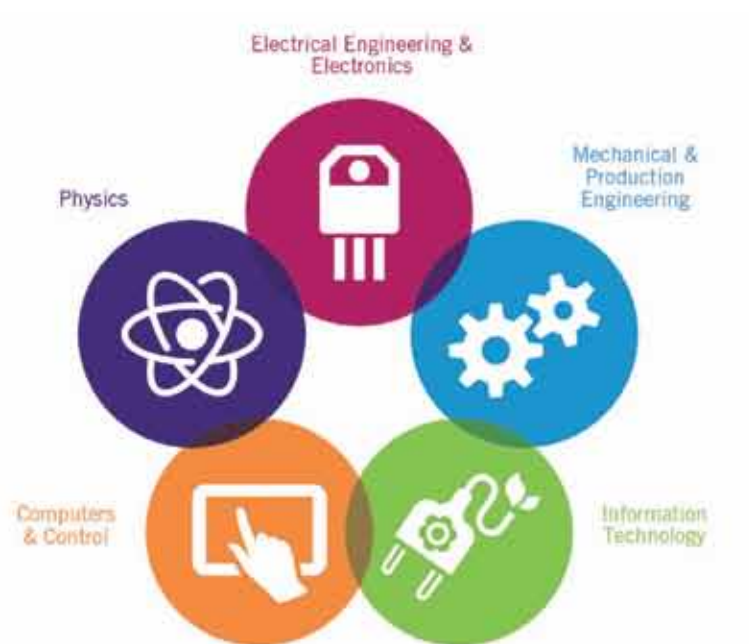


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