

34410a Programming Manual

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Asteraceae Springer

This book brings together a diverse range of international scholars to highlight recent developments in research on collaborative learning. The emphasis is on research that has a strong evidence base for the work that is presented and includes empirical studies, best evidence synthesis of the relevant research, case studies, and theoretical reports. It also highlights how different technologies have been used to facilitate group interaction, dialogue, and learning. There is much to be gained by sharing and learning about what happens in different disciplines and contexts and how different collaborative pedagogies can be implemented when needed to promote understanding and learning. This book will have strong appeal to pre-service and experienced teachers and researchers who are interested in how different collaborative pedagogies can be embedded in course curricula to promote student engagement and learning.

Thermosetting Polymers Springer Science & Business Media

A geopolymer is a solid aluminosilicate material usually formed by alkali hydroxide or alkali silicate activation of a solid precursor such as coal fly ash, calcined clay and/or metallurgical slag.

Today the primary application of geopolymer technology is in the development of reduced-CO₂ construction materials as an alternative to Portland-based cements.

Geopolymers: structure, processing, properties and industrial applications reviews the latest research on and applications of these highly important materials. Part one discusses the synthesis and characterisation of geopolymers with chapters on topics such as fly ash chemistry and inorganic polymer cements, geopolymer precursor design, nanostructure/microstructure of metakaolin and fly ash geopolymers, and geopolymer synthesis kinetics. Part two reviews the manufacture and properties of geopolymers including accelerated ageing of geopolymers, chemical durability, engineering properties of geopolymer concrete, producing fire and heat-resistant geopolymers, utilisation of mining wastes and thermal properties of geopolymers. Part three covers applications of geopolymers with coverage of topics such as commercialisation of geopolymers for construction, as well as applications in waste management. With its distinguished editors and international team of contributors, *Geopolymers: structure, processing, properties and industrial applications* is a standard reference for scientists and engineers in industry and the academic sector, including practitioners in the cement and concrete industry as well as those involved in waste reduction and disposal.

- Discusses the synthesis and characterisation of geopolymers with chapters covering fly ash chemistry and inorganic polymer cements - Assesses the application and

commercialisation of geopolymers with particular focus on applications in waste management - Reviews the latest research on and applications of these highly important materials

Japanese Emblems and Designs John Wiley & Sons

Skin, once thought to be an impenetrable barrier, is an extremely active organ capable of interacting with its environment. Advancements in science combined with the need for diverse drug delivery modalities have introduced a variety of transdermal and intradermal products for existing drugs at a fraction of the cost of new drug development. Interest in drug delivery systems is growing as the delivery of many drugs continues to be a problem due to safety, stability, and compliance issues. This is especially true for the increased number of biologic medicines, which include peptides, proteins, and nucleic acids. Transdermal delivery is an important part of such systems, and the use of physical enhancement methods to penetrate the skin barrier is where the field is headed. This book reviews the strategies available for the delivery of compounds into and through the skin. It also focuses on technological developments in the domain of nanotechnology that can be exploited to enhance the transdermal delivery of drugs.

Nanowire Field-Effect Transistor (FET). "O'Reilly Media, Inc."

Electronically Active Textiles (e-textiles) are a type of textile material that has some form of electronic functionality. This can be achieved by attaching electronics onto the surface of the textile, incorporating electronic components as part of the fabrication of the textile itself, or by integrating electronics into the yarns or fibers that comprises the textile. The addition of electronic components can give textiles a wide range of new functions from lighting or heating to advanced sensing capabilities. As such, e-textiles have provided a platform for developing a range of new novel products in fields, such as healthcare, sports, protection, transport, and communications. The purpose of this volume is to report on the advances in the integration of electronics into textiles, and presents original research in the field of e-textiles as well as a comprehensive review of the evolution of e-Textiles. Topics include the fabrication and illumination of e-textiles and the use of e-textiles for temperature sensing.

Cooperative/Collaborative Learning Springer

This book summarizes the key scientific outcomes of the Horizon 2020 research project TULIPP: Towards Ubiquitous Low-power Image Processing Platforms. The main focus lies on the development of high-performance, energy-efficient embedded systems for the growing range of increasingly complex image processing applications. The holistic TULIPP approach is described in the book, which addresses hardware platforms, programming tools and embedded operating systems. Several of the results are available as open-source hardware/software for the community. The results are evaluated with several use cases taken from real-world applications in key domains such as Unmanned Aerial Vehicles (UAVs), robotics, space and medicine.

Discusses the development of high-performance, energy-efficient embedded systems for the growing range of increasingly complex image processing applications; Covers the hardware architecture of embedded image processing systems, novel methods, tools and libraries for programming those systems as well as embedded operating systems to manage those systems; Demonstrates results with several challenging applications, such as medical systems, robotics, drones and automotive.

Handbook of Food Spoilage Yeasts CRC Press

Solid State Drives (SSDs) are gaining momentum in enterprise and client applications, replacing Hard Disk Drives (HDDs) by offering higher performance and lower power. In the enterprise, developers of data center server and storage systems have seen CPU performance growing exponentially for the past two decades, while HDD performance has improved linearly for the same period. Additionally, multi-core CPU designs and virtualization have increased randomness of storage I/Os. These trends have shifted performance bottlenecks to enterprise storage systems. Business critical applications such as online transaction processing, financial data processing and database mining are increasingly limited by storage performance. In client applications, small mobile platforms are leaving little room for batteries while demanding long life out of them. Therefore, reducing both idle and active power consumption has become critical. Additionally, client storage systems are in need of significant performance improvement as well as supporting small robust form factors. Ultimately, client systems are optimizing for best performance/power ratio as well as performance/cost ratio. SSDs promise to address both enterprise and client storage requirements by drastically improving performance while at the same time reducing power. Inside Solid State Drives walks the reader through all the main topics related to SSDs: from NAND Flash to memory controller (hardware and software), from I/O interfaces (PCIe/SAS/SATA) to reliability, from error correction codes (BCH and LDPC) to encryption, from Flash signal processing to hybrid storage. We hope you enjoy this tour inside Solid State Drives.

Environmental Applications of Nanomaterials MDPI

The development of new and effective analytical and numerical models is essential to understanding the performance of a variety of structures. As computational methods continue to advance, so too do their

applications in structural performance modeling and analysis. Modeling and Simulation Techniques in Structural Engineering presents emerging research on computational techniques and applications within the field of structural engineering. This timely publication features practical applications as well as new research insights and is ideally designed for use by engineers, IT professionals, researchers, and graduate-level students.

The Python-Based Laboratory CRC Press

Identify and Solve Key Electric-Power-Quality Problems and Ensure Reliable Power Delivery to All Customers Power Quality in Electrical Systems equips you with the latest engineering techniques for providing power quality to all customers, and includes vital information on manufacturing, data processing, and healthcare facilities. Based on an IEEE Professional Education course, the book is a practice-oriented engineering tutorial for solving key electric-power-quality problems. This skills-building resource is designed to improve job performance by taking you step-by-step through voltage distortion...harmonic current sources...power capacitors...corrections for power-quality problems ...switched-mode power supplies...uninterruptible power supplies...standby power systems...power-quality measurements...and more. Filled with 100 detailed illustrations, Power Quality in Electrical Systems enables you to: Spot and correct key electric-power-quality problems Achieve full compliance with IEEE standards Examine switched-mode power supplies, rectifiers, and other loads that produce interference Catch up on the latest standby power systems Get vital information on power quality for manufacturing, data processing, and healthcare facilities Explore power-quality case studies with problems and worked solutions Inside This Comprehensive Power-Quality Guide • Power-quality standards • Voltage distortion • Harmonics • Harmonic current sources • Power harmonic filters • Switched-mode power supplies • Corrections for power-quality problems • Uninterruptible power supplies • Power-quality events • Standby power systems • Power-quality measurements

Power Quality in Electrical Systems John Wiley & Sons

Presents an introduction to the open-source electronics prototyping platform.

Interaction of Radiation with Solids CRC Press

Learn how to develop your own applications to monitor or control instrumentation hardware. Whether you need to acquire data from a device or automate its functions, this practical book shows you how to use Python's rapid development capabilities to build interfaces that include everything from software to wiring. You get step-by-step instructions, clear examples, and hands-on tips for interfacing a PC to a variety of devices. Use the book's hardware survey to identify the interface type for your particular device, and then follow detailed examples to develop an interface with Python

and C. Organized by interface type, data processing activities, and user interface implementations, this book is for anyone who works with instrumentation, robotics, data acquisition, or process control. Understand how to define the scope of an application and determine the algorithms necessary, and why it's important. Learn how to use industry-standard interfaces such as RS-232, RS-485, and GPIB. Create low-level extension modules in C to interface Python with a variety of hardware and test instruments. Explore the console, curses, TkInter, and wxPython for graphical and text-based user interfaces. Use open source software tools and libraries to reduce costs and avoid implementing functionality from scratch.

Real World Instrumentation with Python Timber Press (OR)

The first English-language book which reviews and summarizes worldwide research advances in alkali-activated cements and concrete. Essential topics include: raw materials and their properties for the production of the two new types of binder the hydration and microstructure development of alkali-activated slag cements the mechanical properties and durability of alkali-activated slag cement and concrete other various cementing systems and their applications related standards and specifications. This respected team of authors has produced an important piece of research that will be of great interest to professionals and academics alike, enabling the production of more durable and environmentally sensitive materials.

Polymer-Carbon Nanotube Composites Springer
Finally a book on Wireless Sensor Networks that covers real world applications and contains practical advice! Kuorilehto et al. have written the first practical guide to wireless sensor networks. The authors draw on their experience in the development and field-testing of autonomous wireless sensor networks (WSNs) to offer a comprehensive reference on fundamentals, practical matters, limitations and solutions of this fast moving research area. **Ultra Low Energy Wireless Sensor Networks in Practice: Explains the essential problems and issues in real wireless sensor networks, and analyzes the most promising solutions. Provides a comprehensive guide to applications, functionality, protocols, and algorithms for WSNs. Offers practical experiences from new applications and their field-testing, including several deployed networks. Includes simulations and physical measurements for energy consumption, bit rate, latency, memory, and lifetime. Covers embedded resource-limited operating systems, middleware and application software. Ultra Low Energy Wireless Sensor Networks in Practice will prove essential reading for Research Scientists, advanced students in Networking, Electrical Engineering and Computer Science as well as Product Managers and Design Engineers.**

Inside Solid State Drives (SSDs) World Scientific
This volume contains a complete systematic treatment of the flowering plant order Asterales.

This comprises 12 families with approx. 1,720 genera and about 26,300 species. Identification keys are provided for all genera, and likely phylogenetic relationships are discussed extensively. The wealth of information contained in this volume makes it an indispensable source for all working in the fields of pure and applied plant sciences.

FPGAs for Software Programmers Springer
The Python-Based Laboratory: A Hands-On Guide for Scientists and Engineers provides a learn-by-doing approach to acquiring the Python programming skills needed to implement computer-controlled experimental work. The book leads its readers to mastery of the popular, open-source Python computer language in its role as a powerful laboratory tool by carrying out interesting and relevant projects that explore the acquisition, production, analysis, and presentation of digitized waveforms. Readers, who are assumed to have no prior computer programming or Python background, begin writing meaningful programs in the first few pages. The Python-Based Laboratory can be used as a textbook for science and engineering instructional laboratory students who are being taught up-to-date Python-based experimental skills. The book also works well as a self-study guide for professional laboratory researchers, industrial engineers, hobbyists, and electronics enthusiasts seeking to automate tasks using Python. Topics covered include the control of data acquisition devices (including multifunction data acquisition hardware and IEEE-interfaced stand-alone instruments), data file storage and presentation, digitized data concepts (such as resolution, sampling frequency, and aliasing), and data analysis techniques (curve fitting and fast Fourier transform). As readers work their way through the book, they build several computer-based instruments, including a DC voltmeter, digital oscilloscope, DC voltage source, waveform generator, blinking LED array, digital thermometer, and spectrum analyzer. Each chapter concludes with a Do-It-Yourself project and a Use It! example as well as a healthy selection of homework-style problems, allowing readers to test their understanding and further develop their Python-based experimentation skills.

Impedance Spectroscopy Mdpi AG
Cellulolytic Enzyme Production and Enzymatic Hydrolysis for Second-Generation Bioethanol Production, by Mingyu Wang, Zhonghai Li, Xu Fang, Lushan Wang und Yinbo Qu
Bioethanol from Lignocellulosic Biomass, by Xin-Qing Zhao, Li-Han Zi, Feng-Wu Bai, Hai-Long Lin, Xiao-Ming Hao, Guo-Jun Yue und Nancy W. Y. Ho
Biodiesel From Conventional Feedstocks, by Wei Du und De-Hua Liu
Establishing Oleaginous Microalgae Research Models for Consolidated Bioprocessing

of Solar Energy, by Dongmei Wang, Yandu Lu, He Huang und Jian Xu Biobutanol, by Hongjun Dong, Wenwen Tao, Zongjie Dai, Liejian Yang, Fuyu Gong, Yanping Zhang und Yin Li Branched-Chain Higher Alcohols, by Bao-Wei Wang, Ai-Qin Shi, Ran Tu, Xue-Li Zhang, Qin-Hong Wang und Feng-Wu Bai Advances in Biogas Technology, by Ai-Jie Wang, Wen-Wei Li und Han-Qing Yu Biohydrogen Production from Anaerobic Fermentation, by Ai-Jie Wang, Guang-Li Cao und Wen-Zong Liu Microbial Fuel Cells in Power Generation and Extended Applications, by Wen-Wei Li and Guo-Ping Sheng Fuels and Chemicals from Hemicellulose Sugars, by Xiao-Jun Ji, He Huang, Zhi-Kui Nie, Liang Qu, Qing Xu and George T. Tsao

Towards Ubiquitous Low-power Image

Processing Platforms John Wiley & Sons

This book makes powerful Field Programmable Gate Array (FPGA) and reconfigurable technology accessible to software engineers by covering different state-of-the-art high-level synthesis approaches (e.g., OpenCL and several C-to-gates compilers). It introduces FPGA technology, its programming model, and how various applications can be implemented on FPGAs without going through low-level hardware design phases. Readers will get a realistic sense for problems that are suited for FPGAs and how to implement them from a software designer's point of view. The authors demonstrate that FPGAs and their programming model reflect the needs of stream processing problems much better than traditional CPU or GPU architectures, making them well-suited for a wide variety of systems, from embedded systems performing sensor processing to large setups for Big Data number crunching. This book serves as an invaluable tool for software designers and FPGA design engineers who are interested in high design productivity through behavioural synthesis, domain-specific compilation, and FPGA overlays. Introduces FPGA technology to software developers by giving an overview of FPGA programming models and design tools, as well as various application examples; Provides a holistic analysis of the topic and enables developers to tackle the architectural needs for Big Data processing with FPGAs; Explains the reasons for the energy efficiency and performance benefits of FPGA processing; Provides a user-oriented approach and a sense for where and how to apply FPGA technology.

Epoxy Polymers Springer Science & Business Media Understanding the properties of polymer carbon nanotube (CNT) composites is the key to these materials finding new applications in a wide range of industries, including but not limited to electronics, aerospace and biomedical/bioengineering. Polymer-carbon nanotube composites provides comprehensive and in-depth

coverage of the preparation, characterisation, properties and applications of these technologically interesting new materials. Part one covers the preparation and processing of composites of thermoplastics with CNTs, with chapters covering in-situ polymerization, melt processing and CNT surface treatment, as well as elastomer and thermoset CNT composites. Part two concentrates on properties and characterization, including chapters on the quantification of CNT dispersion using microscopy techniques, and on topics as diverse as thermal degradation of polymer/CNT composites, the use of rheology, Raman spectroscopy and multi-scale modelling to study polymer/CNT composites, and CNT toxicity. In part three, the applications of polymer/CNT composites are reviewed, with chapters on specific applications such as in fibres and cables, bioengineering applications and conductive polymer CNT composites for sensing. With its distinguished editors and international team of contributors, Polymer-carbon nanotube composites is an essential reference for scientists, engineers and designers in high-tech industry and academia with an interest in polymer nanotechnology and nanocomposites. - Provides comprehensive and in-depth coverage of the preparation, characterisation and properties of these technologically interesting new materials - Reviews the preparation and processing of composites of thermoplastics with CNTs, covering in-situ polymerization, melt processing and CNT surface treatment - Explores applications of polymer/CNT composites such as in fibres and cables, bioengineering applications and conductive polymer CNT composites for sensing

Hybrid Simulation Models of Production Networks

Springer

With contributions from an internationally-renowned group of experts, this book uses a multidisciplinary approach to review recent developments in the field of smart sensor systems, covering important system and design aspects. It examines topics over the whole range of sensor technology from the theory and constraints of basic elements, physics and electronics, up to the level of application-orientated issues. Developed as a complementary volume to 'Smart Sensor Systems' (Wiley 2008), which introduces the basics of smart sensor systems, this volume focuses on emerging sensing technologies and applications, including: State-of-the-art techniques for designing smart sensors and smart sensor systems, including measurement techniques at system level, such as dynamic error correction, calibration, self-calibration and trimming. Circuit design for sensor systems, such as the design of precision instrumentation amplifiers. Impedance sensors, and the associated measurement techniques and electronics, that measure electrical characteristics to derive physical and biomedical parameters, such as blood viscosity or growth of micro-organisms. Complete sensor systems-on-a-chip, such as CMOS optical imagers and microarrays for DNA detection, and the associated circuit and micro-fabrication techniques. Vibratory gyroscopes and the associated electronics, employing mechanical and electrical signal amplification to enable low-power angular-rate sensing. Implantable smart sensors for neural interfacing in bio-medical applications. Smart combinations of energy harvesters and energy-storage devices for autonomous wireless sensors. Smart Sensor Systems: Emerging Technologies and Applications will greatly

benefit final-year undergraduate and postgraduate students in the areas of electrical, mechanical and chemical engineering, and physics. Professional engineers and researchers in the microelectronics industry, including microsystem developers, will also find this a thorough and useful volume.

Advanced Interfacing Techniques for Sensors

Elsevier

In a remote laboratory, the user performs a real experiment without being in front of the equipment, performing remote experiments mediated by the Internet. Remote Laboratories: Empowering STEM Education with Technology is the first book to cover this radical redistribution of experimentation capacity as a whole. This book also covers using remote experiments in the classroom, the advantages of remote experimentation, the challenges faced, and opportunities for innovation when using a remote lab. The book characterizes and explains remote experiments and connects them with the curricula of subjects and prospects for teaching/learning scenarios. It further provides evidence for the positive effect of remote experimentation in the student learning process. This coverage is supplemented by an exhaustive list of remote experiments conducted around the world.

Smart Sensor Systems Elsevier

Impedance Spectroscopy is a powerful measurement method used in many application fields such as electrochemistry, material science, biology and medicine, semiconductor industry and sensors. Using the complex impedance at various frequencies increases the informational basis that can be gained during a measurement. It helps to separate different effects that contribute to a measurement and, together with advanced mathematical methods, non-accessible quantities can be calculated. This book covers new advances in the field of impedance spectroscopy including fundamentals, methods and applications. It releases scientific contributions from the International Workshop on Impedance Spectroscopy (IWIS) as extended chapters including detailed information about recent scientific research results. The book includes typically subsections on:
Fundamental of Impedance Spectroscopy
Bio impedance Techniques and Applications
Impedance Spectroscopy for Energy Storage Systems
Sensors Based on Impedance Spectroscopy
Measurement systems
Excitation Signals
Modeling
Parameter extraction