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SciTech News

On the Cover

NASA Launches Rocket Into Active Auroras

A test rocket was launched the night of Feb. 17 from the Poker Flat Research Range in Alaska. Test rockets are launched as part of the count-down to test out the radar tracking systems. NASA is launching five sounding rockets from the Poker Range into active auroras to explore the Earth's magnetic environment and its impact on Earth's upper atmosphere and ionosphere. The launch window for the four remaining rockets runs through March 3.

Credit: NASA/Terry Zaperach; https://flic.kr/p/S38siN

Copy Deadline

Issue Number 1 ..... Feb 1
Issue Number 2 ..... May 1
Issue Number 3 ..... Aug 1
Issue Number 4 ..... Nov 1

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From the Editor

Christine Malinowski

Greetings, *SciTech News* readers!

The first issue of the year is always a favorite – full of introductions of incoming officers, gratitude for outgoing volunteers, and a renewed energy for what we can achieve together in the coming year.

This March issue is no exception. I hope you enjoy getting to know your new officers and hearing about what's in store for our (rapidly approaching) Annual Meeting.

As SLA continues to evolve, our Divisions and Sections offer many avenues to get involved (including helping to produce this newsletter, see below for more details on that). Consider a new volunteer post in 2017. As you'll read in many of this issue's columns, our volunteers not only have the opportunity to gain leadership experience but to engage with SLA in a new and often inspiring way.

It's hard to believe that I'm now entering my fourth year working on this newsletter (2014-2015, Assistant Editor; 2016-present, Editor). The experience has allowed me to interact with so many of you, and I look forward to where we can take ourselves in 2017!

Ways to contribute to *SciTech News*:

- **Become the Assistant Editor!** Have experience laying out content in Adobe InDesign or a similar program? Want to help shape and evolve *SciTech News*? This could be the position for you!

- **Give us your updates!** Send us information about your awards, promotions, professional publications and presentations or other recognition. We'll publish your activities in *SciTech News*, bringing news of our members' accomplishments to the wider SLA and library communities.

- **Write an article!** If you have a research project, a new service in your library, a new instructional method, or other information you'd like to share with your colleagues, please consider contributing an article.

If any of these opportunities appeal to you, contact the Editor, Christine Malinowski, cmalinowski@post.harvard.edu with questions and/or content.

News from the Science-Technology Division

Science-Technology Division Susan Wainscott, Chair

The objectives of the Science-Technology Division shall be to draw together those members of the Special Libraries Association having an interest in the role of library and information science as applied to the recording, retrieval and dissemination of knowledge and information in all areas of science and technology, and to promote and improve the communication, dissemination and use of such knowledge for the benefit of libraries and their users.'

As the new Chair of the Science-Technology Division (SciTech), I welcome you to a year of change. Already in 2017 our division has completed a move of our archives to a new location, implemented a new financial tracking software system along with the rest of SLA, and is planning for the 2017 conference with a new sponsorship model in close coordination with headquarters. I changed careers recently to become a librarian, and hope to use skills honed during that transition to help our division navigate a path forward. We also have the benefit of many experienced and skilled volunteer leaders within our division, including our committee chairs and elected board members. Please join me in welcoming our new elected officers, Beth Thomsett-Scott as Chair Elect, and Salek Chand as Treasurer. I am confident that our division will not only maintain our best practices but also enhance benefits to members over the next year.

Our archives have been safely moved to the University of Illinois at Urbana-Champaign campus, arranged by our outgoing Archivist, Roger Beckman. http://scitech.sla.org/about-the-division/archives/ Roger's service to the division and dedication to ensuring the archives were in good hands during the transition is much appreciated. We hope to fill the Archivist position with a colleague who can advise us on best practices for preserving our digital materials. If this sounds like the role for you, please do contact me or any of our board members.

As we navigate the transition to our new financial software system and the new conference sponsorship model, I can report that we are in a financially sound position, but do continue to rely heavily on the dues payments from our members to support our work. If you were unable to renew your SciTech membership in the past, we hope you are able to consider this support in 2017. We also welcome the support and involvement of new division members. There is no better way to influence our professional development webinars, conference programs, and other member benefits than to join and participate in one of our committees.

If you are able to join us in Phoenix this June for the SLA Conference, we have several programs and events planned, with the continued guidance of Conference Planner Beth Thomsett-Scott. We will announce more details on each via the SLA Connect system and the full conference schedule, but do save the date for our Newcomers Dinner on Saturday, June 27th. This dinner is an opportunity to for the division to welcome new members and guide them in how to get the most out of their conference experience. If you'd like to join us, please email our Membership Committee Chair, Bernice Koh at bkoh@cs.ubc.ca to reserve a seat. We will provide a Master Class panel discussion, titled "Interweaving ACRL's Threshold Concepts into an Information Literacy Program" with Lori Townsend, University of New Mexico, moderating and an intermediate level Science and Engineering 101 session with Mary Frances Lembo and James Manasco, titled "Infographics for Publication: Taking Data Viz Further." The division will continue to co-host the All Sciences Poster Session. Also, plan to stop by the SciTech booth in the Expo Hall's Main Street area to learn more about the division, professional development and volunteer opportunities, and to meet fellow SciTech members.

Our Awards Committee, chaired by Janet Hughes, continues to review many excel-

lent nominations for recognition throughout the year. http://scitech.sla.org/about-the-division/awards/ Join us at the All Sciences Poster session in Phoenix for a celebration of these and other high-achieving colleagues.

We are continuing to learn the best ways for our community to use the new communication tool, SLA Connect, to share information with one another, and we encourage all division members and interested parties to use the Science-Technology Division Open Community to share job postings, best practices and other information that may enhance our careers and the profession. Be sure to log in to the SLA Connect system and verify the setting to receive either a Daily Digest with all of the day's posts in one email or Real Time for up to the minute emails as folks post and respond throughout the day and night, as we have division members located and traveling around the globe. If you are not currently a member of the Science-Technology Division, we welcome you to use the Connect system's Join button to request addition to our Open Community, jump into the conversations, and see what we have to offer. Anna Ren continues her excellent work to manage this new discussion list, and also serves as our Secretary. Our new Webmaster, Claudia Guidi, and our Communications Committee, chaired by Sheila Rosenthal, will be updating our division website and determining how to best use the storage within the Connect communities to store some of our active division files and materials.

I invite you to join us as we navigate these changes to improve the experience for our division members and expand our professional skillsets. If any of these activities appeal to you, we welcome your involvement. Please contact me at sue.wainscott@unlv.edu or any board member or committee chair for more information.

Science-Technology Division New Members

Submitted by Bernice Koh, Membership Committee Chair, Science-Technology Division

The Science-Technology Division welcomes its new members from October 28, 2016 - February 2, 2017:

Jennifer Abbott
Golden, CO
USA

Julio Anjos
Alcochete
Portugal

Jacqueline Fitzpatrick
Elmira, NY
USA

Mohit Garg
Amarkantak
India

Lauren Goode
Williamsburg, VA
USA

Vishakha Jain
Delmi
India

Randolf Mariano
Manila
Philippines

Judith Porter
Wellington
New Zealand

Allison Rein
Silver Spring, MD
USA

JayamaduraMohottige ShalaniDilinika
Mihintale
Sri Lanka

Sangeeta Sharma
Delhi
India

Sharon Tahirkheli
Alexandria, VA
USA

Lea Wade
College Park, MD
USA

Anil Zafar
Karachi
Pakistan

News from the Chemistry Division

Chemistry Division — Dawn French, Chair

The Chemistry Division is concerned with chemistry and chemical technology, and the economics, educational advances, and information handling of developments in the field of chemistry and related subjects.

By the time you read this newsletter, SLA 2017 will be right around the corner. The Chemistry Division is busy getting everything ready for it. Thank you to all who've volunteered to be speakers, moderators, planners, feedback providers, etc. We seriously couldn't put the Chemistry Division's conference plans together without your help.

SLA is making exciting changes to the conference offerings and format. The Chemistry Division is also trying some new things. Our Board and Annual Business Meetings usually held at the conference will be held virtually this year before the conference. This will provide more members an opportunity to participate and help cut down on the conference expenses for the Division. The Division will have a kiosk on Main Street of the conference. Stop by the kiosk and bring new and potential members with you.

We will have our traditional events - No-Host Dinner, Academic/Corporate Roundtable, MRM Resources Update Roundtable, and our Vendor Roundtable along with a session devoted to Chemical Patent Searching and a session on Data Management. We also have a Quick Take regarding Journal Collection Assessment. The Division is offering its CE Course - Chemical Information Sources prior to the conference.

Book your flights and hotels early for Phoenix. Hotels in Phoenix are inexpensive compared to other conference cities.

Watch the Chemistry Division's website and SLA Connect site for additional information and for the latest about the conference.

See you in Phoenix!

Sincerely,
Dawn French
Chair, SLA Chemistry Division

DCHE Welcomes New & Returning Members

Submitted by Kevin Manning, DCHE Membership Chair 2017
(Joining dates between November 2016 - February 2017)

The Chemistry Division welcomes two returning members:

David Dunaway
Louisiana State University Libraries

Irene Laursen

News from the Engineering Division

The objectives of the Engineering Division are to provide an association for those having an interest in library and information science as they apply to engineering and the physical sciences and to promote the use of materials and knowledge for the benefit of libraries and other educational organizations.

For this issue of *SciTech News*, there is no specific Chair column for the Engineering Division.

News from the Aerospace Section

Aerospace Section — Barbara Williams, Chair

The Aerospace Section of the Engineering Division encourages communication and cooperation among information professionals concerned with aerospace, aeronautical and related technologies. In addition, it fosters dialog with entities such as NASA, the AIAA and other important sources of technical data and bibliographical services.

Greetings! I am looking forward to serving as the 2017 Aerospace chair for a second time, and working with all of you to keep our section a relevant entity in our professional lives. To that end, I encourage our newer members to consider putting their name forward for Chair-elect this summer when the call goes out. On behalf of the Aerospace section, I extend my heartfelt thanks to Giovanna Badia. Her energy and thoughtful programing for the 2016 conference were inspiring, and I look forward to working with Giovanna in her position as past chair.

Teresa Powell will serve as Chair-Elect of the Aerospace Section of the Engineering Division for 2017. The position is a three-year commitment: Teresa will serve as Chair-Elect in 2017, Section Chair in 2018 and Past-Chair and Chair of the Mandel Nominating Committee in 2019. Teresa Powell is the Manager of the Integrated Defense Systems Research Library at the Raytheon Company. Previously, she was the Archive Services Manager at Rochester Electronics and Library Services Manager at Boeing. She has worked in aerospace and defense libraries since 1997. She lives in Massachusetts and is a member of the New England Chapter of Special Libraries Association (SLA).

During the 2017 SLA annual conference in Phoenix, Arizona, in June, the Aerospace Section of the Engineering Division will sponsor a session titled, "Unlocking Government Information: Tips for Access to Restricted Databases." The session presenters will explain how institutions with government contracts can legally access NTRS Registered and DTIC Unclassified Limited (UL), two restricted government databases. During the 60-minute session a contrast between the public and restricted versions of the NTRS and DTIC databases will be included. Participants will leave knowing who their regional Government Approving Official is and ways to obtain a DoD required background check called National Agency Check with Inquires. Finally, information will be shared outlining a process for non-citizens studying at U.S. institutions to procure access to restricted databases as well.

The 2017 George Mandel Memorial Award established in 1989 by the Aerospace Section of the Engineering Division in memory of George Mandel, who passed away on July 16, 1989, was awarded to Betty Edwards. Betty is the Library Manager at Draper, a not-for-profit engineering consulting company located in Cambridge, Massachusetts. Her team of six supports the business development and scientific needs of program managers and technical staff. Prior to this, Betty was with Seyfarth Shaw LLP – initially as a law librarian, and then in a firm-wide marketing and business development

Betty Edwards, 2017 George Mandel Memorial Award recipient

role. Ms. Edwards also has experience working with several online providers in sales and training, at Dialog, Primark, and Disclosure. Betty is an active member of SLA at both the local and national level and has held a number of leadership positions. In 2008 Betty Edwards was named an SLA Fellow; join me in congratulating Betty on being selected for the George Mandel Award.

A search for Aerospace section members, under the "sections" heading within SLA's online membership directory, lists 99 members, of which, nine are international memberships. Random fact: our largest concentration of librarians work for Raytheon, did you know that? We can all help increase our membership by reaching out to librarians with reference and collection development responsibilities for aerospace disciplines by inviting them to join our Aerospace section. Looking forward to working with all of the members of the Aerospace section over the next three years.

Message from the Past Chair

by Gabriele Hysong

As past chair of the Aerospace Section, I want to thank all those who assisted me during my term as Chair. Initially I thought that taking up the mantle of Chair would be daunting and time consuming, but I learned otherwise. As a solo librarian I found the time to conduct Chair activities. Serving the Aerospace section is not hard or time consuming, but a way to give back to our organization.

I had a supportive Past Chair, Mary Whittaker, who continually encouraged me and imbued me with her tacit knowledge. I have gained a greater appreciation of all those wonderful leaders throughout SLA and a clearer understanding of how SLA functions. I not only improved my leadership skills in SLA that strengthened my work as a corporate librarian, but I developed truly wonderful new friendships and networks with fellow SLA members.

I know that we are a small group and there has been much contraction in the Aerospace Industry, but we are a passionate bunch!

Thank you, and all the best for 2017.

News from the Architecture, Building Engineering, Construction and Design (ABCD) Section

ABCD Section — Becca Smith, Past Chair

The scope of the Architecture, Building Engineering, Construction and Design Section is to promote the exchange of knowledge and information among individuals and organizations interested in the development, control, and use of information resources in the built environment with a focus on the specifications, codes, and standards used in the design and construction of buildings and structures.

Greeting *SciTech News* readers and ABCD Section members!

How time flies! We have quickly moved from 2016 to 2017 and with that I must bid adieu as section chair and introduce you to our new ABCD chair, Gwen Wang.

Gwen is Research Engineer and Librarian for the Portland Cement Association. Her enthusiasm is infectious and I am confident she will be a fantastic leader for the ABCD Section. Please join me in welcoming her to her new role. I look forward to working with her in my role as past chair this year.

We are still seeking a chair-elect for 2017 to become chair in 2018. This is a great opportunity to support your association and gain leadership experience. Please don't hesitate to contact me with any questions you might have regarding the position at bsmith@wje.com.

Gwen (Guiyun) Wang, new ABCD Section Chair

I am grateful for this experience as ABCD chair. Thank you!

Becca Smith

Sci-Tech Book News Reviews Susan Fingerman, Selector

The abstracts in the following section are selected from protoview.com, a database of scholarly titles and abstracts available for subscription from Ringgold, Inc. For more information, please visit: http://www.ringgold.com/protoview.

HYDROLOGY, OCEANOGRAPHY

GB1001 9781498719681
Geospatial Technology for Water Resource Applications
Edited by Prashant K. Srivastava, Prem Chandra Pandey, Pavan Kumar, Akhilesh Singh Raghubanshi, and Dawei Han
CRC Press, ©2017 309 p. $179.95
Contributors from a wide range of disciplines explain how geographical information systems, remote sensing, and artificial intelligence hybrid approaches can be used in studying and monitoring water resources. Their topics include using a geographical information system to assess hydropower potential within the Upper Indus Basin in Pakistan, predicting flood-vulnerability of areas using satellite remote-sensing images in Japan's Kumamoto City, monitoring soil moisture deficit using satellite data from the Soil Moisture and Ocean Salinity mission: correspondence through rainfall-runoff model, predicting Caspian Sea level fluctuation using artificial intelligence, and soil moisture retrieval from bistatic scatterometer measurement using fuzzy logic system.

TRANSPORTATION AND COMMUNICATIONS

HE147 9781498743532
Modelling Intelligent Multi-Modal Transit Systems
Edited by Agostino Nuzzolo and William H. K. Lam
CRC Press, ©2017 322 p. $169.95
Civil and transportation engineers explore the roles played by intelligent transportation systems and information and communication technology in addressing multi-modal transit problems. Their topics include new applications of intelligent transport systems to real-time transit operations, real-time operations management decision support systems: a conceptual framework, the real-time modeling of normative travel strategies on unreliable dynamic transit networks: a framework analysis, time-dependent shortest hyperpaths for dynamic routing on transit networks, and optimal schedules for multimodal transit services: an activity-based approach.

HE242 9781498721868
Intelligent Transportation Systems: From Good Practices to Standards
Edited by Paolo Pagano
CRC Press, ©2017 195 p. $169.95
Scientists and engineers survey the current status of intelligent transportation systems, which use information and communication technology to make transportation safer and more efficient. Their topics include the development of an intelligent transportation-fifth generation station from the physical to the medium access control layer, data management and data sharing in field operational tests, tolling systems: towards a global set of standards, probe vehicle information systems, and complex infrastructures: the benefits of intelligent transportation system services in seaports.

SCIENCE (GENERAL)

Q327 9781522505655
Pattern Recognition and Classification in Time Series Data
Edited by Eva Volna, Martin Kotyrba, and Michal Janosek (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2017 282 p. $185.00
Editors Volna, Kotyrba, and Janosek present readers with a collection of academic essays and scholarly articles focused on intelligent methods and techniques for recognizing and storing dynamic patterns. The eight selections that make up the main body of the text are devoted to the recognition of patterns with fractal structure in a time series, artificial intelligence algorithms for classification and pattern recognition, modeling and language support for pattern management, and a great many other related subjects. Eva Volna, Martin Kotyrba, and Michal Janosek are all faculty members of the University of Ostrava in the Czech Republic.

MATH, COMPUTERS

QA9 9781614996187
Fuzzy System and Data Mining: Proceedings of the FSDM 2015
Edited by Gang Chen, Feng Liu, and Mohammad Shojafar (Frontiers in Artificial Intelligence and Applications; Volume 281)
IOS Press, ©2016 501 p. $150.00 (pa)
The December 2015 conference in Shanghai generated 67 papers for the proceedings. The topics include the fuzzy comprehensive assessment of risk tolerance of oil and gas pipelines, a grid-connected photovoltaic power station's harmonic current detection based on adaptive neural networks, constructing sparse single-layer feedforward networks with better generalization performance and its application to recognizing hand writing, storage and retrieval strategy of massive remote sensing data based on an embedded database file, and a novel long code series acquisition algorithm for a deep space ranging system.

QA76 9781498734868
Big Data: Storage, Sharing, and Security
Edited by Fei Hu
CRC Press, ©2016 447 p. $139.95
Hu presents readers with a collection of professional, academic, and research perspectives on big data management from an experimental perspective. He has organized the seventeen selections that make up the main body of the text in two parts devoted to storing, sharing, and processing big data in a variety of contexts and big data security, privacy, and accountability in the use of big data . The editor is a faculty member of the University of Alabama, Tuscaloosa.

QA76 9781482260946
Cloud Computing Security: Foundations and Challenges
Edited by John R. Vacca
CRC Press, ©2017 492 p. $129.95
Contributors in information technology and computer science present a professional reference and practitioner's guide to cloud computing security theory, technology, and practice as they relate to established and emerging technologies. They cover risk analysis and the division of responsibility, securing the cloud infrastructure, operating system and network security, meeting compliance requirements, preparing for disaster recovery, and advanced cloud computing security. Among specific topics are infrastructure as a service, cloud security access control: distributed access control, negotiating cloud security requirements with vendors, simplifying secure cloud computing environments with cloud data centers, and side-channel attacks and defenses on cloud traffic.

QA76 9781498746731
Game Audio Programming: Principles and Practices
Edited by Guy Somberg
CRC Press, ©2017 312 p. $69.95
Somberg presents readers with a collection professional and research perspectives on contemporary and emerging techniques, principles, and best practices in the engineering of audio for video games. The editor has organized the seventeen selections that make up the main body of his text in four parts devoted to the fundamentals of audio, middleware in the programming of sound engines, sound designer perspectives on the process, and advanced topics. The editor is a seasoned veteran audio engine programmer with decades of experience working on major titles in the industry.

QA76 9781482249071
Handbook of Big Data
Edited by Peter Bülmann, Petros Drineas, Michael Kane, and Mark van der Laan (Chapman & Hall/CRC Handbooks of Modern Statistical Methods)
CRC Press, ©2016 464 p. $139.95
Computer scientists and statisticians describe some modern approaches to analyzing and understanding the structure of datasets where their size outpaces the computing resources needed to analyze them using traditional approaches. They cover general perspectives on big data, data-centric exploratory methods, efficient algorithms, graph approaches, model fitting and regularization, ensemble methods, causal inference, and targeted learning. Among specific topics are the advent of data science: some considerations on the unreasonable effectiveness of data, high-dimensional computational geometry, learning structured distributions, tutorial for causal inference, and the online estimation of the average treatment effect.

QA76 9781522507598
Handbook of Research on End-To-End Cloud Computing Architecture Design
Edited by Jianwen "Wendy" Chen, Yan Zhang, and Ron Gottschalk (Advances in Systems Analysis, Software Engineering, and High Performance Computing)
Information Science Reference, ©2017 506 p. $325.00
Researchers from universities and corporations

describe major aspects of end-to-end architectural design and implementation of cloud computing. Among their topics are enterprise mobility reference architecture: mobility services overview, virtual machine placement in infrastructure-as-a-service cloud, cloud computing data storage security based on different encryption schemes, the design and implementation of service management in DevOps enabled cloud computing models, and a survey and taxonomy of energy-efficient resource management techniques in platform-as-a-service cloud.

QA76 9781498740937
Information Theory Tools for Visualization
Min Chen, Miquel Feixas, Ivan Viola, Anton Bardera, Han-Wei Shen, and Mateu Sbert (A K Peters Visualization Series)
CRC Press, ©2017 194 p. $69.95
This work is intended for graduate students and researchers in visualization, graphics, and image processing. It provides an overview of information theory and its applications in visualization in fields such as medicine, genetics, neuroscience, and communication. After an introduction to basic concepts of information theory, chapters then describe methods in information theory, measurements in visualization, and techniques and applications in viewpoint metrics, volume visualization, and flow visualization. The final chapter applies applying information theory to information visualization, exploring topics such as parallel coordinates, graphs, and multivariate data. The book includes color images and illustrations.

QA76 9781482248609
Introduction to Certificateless Cryptography
Hu Xiong, Zhen Qin, and Athanasios V. Vasilakos
CRC Press, ©2017 314 p. $89.95
Xiong, Qin, and Vasilakos assimilate the existing literature to provide a thorough picture of certificateless public key cryptography, a new paradigm developed in 2003 to retain the merits of identification-based public key cryptography and traditional public key infrastructure simultaneously. They cover setting the stage; certificateless public key cryptography without random oracles; certificateless public key cryptography in random oracle models; applications, extensions, and related paradigms; and future directions. The field continues to change, they warn, and their treatment can be no more than a snapshot of the current status.

QA76 9781522509455
Mobile Application Development, Usability, and Security
Edited by Sougata Mukherjea (Advances in Multimedia and Interactive Technologies)
Information Science Reference, ©2017 319 p. $180.00
Contributors from various areas of computer and information science explore mobile application development, mobile security, context-aware applications, mobile analytics, and mobile and cloud. Some chapters are surveys, and others focus on a particular problem and present solutions. Among the topics are mobile application testing, combining static code analysis and machine learning for the automatic detection of security vulnerabilities in mobile apps, trust profiling to enable adapting trust negotiations in mobile devices, a spatio-situation-based access control model for dynamic permission on mobile applications, mobile location tracking: indoor and outdoor location tracking, and mobile application and user analytics.

QA76 9781522509059
Open Source Solutions for Knowledge Management and Technological Ecosystems
Edited by Francisco J. Garcia-Peñalvo and Alicia García-Holgado (Advances in Knowledge Acquisition, Transfer, and Management)
Business Science Reference, ©2017 296 p. $195.00
Computer and information scientists describe open source software for knowledge management, especially within the growing concept of technological ecosystems, which can adapt and improve like natural ecosystems if everyone has access to the code. Their topics include tool interoperability for learning management systems, technological ecosystem maps for information technology governance: application to a higher education institution, the need of the research community: open source solution for researching knowledge management, knowledge structuring for sustainable development and the Hozo Tool, and trying to go open: knowledge management in an academic journal.

QA76 9781466596276
Pervasive Computing: Concepts, Technologies and Applications
Minyi Guo, Jingyu Zhou, Feilong Tang, and Yao Shen
CRC Press, ©2017 192 p. $169.95
Information and computer scientists introduce the concepts, architecture, key techniques, and typical applications of pervasive comput-

ing. They particularly emphasize context awareness, resource management, human-computer interface, pervasive transaction processing, and user preference discovery. Among their topics are middleware, pervasive computing environments, context collection and wireless sensor networks, efficient resource allocation, xMozart: a novel platform for intelligent task migration, context-driven human-computer interface service selection, dynamic transaction management, evaluation, a collaborative filtering-based recommendation, and preference-based top-K recommendation in social networks.

QA76 9781498729437
Practical Cloud Security: A Cross-Industry View
Melvin B. Greer, Jr. and Kevin L. Jackson
CRC Press, ©2017 238 p. $79.95
Greer, who has experience in graph analytics, machine learning, and cognitive computing, and Jackson, a cloud computing specialist, offer a guide to cloud security in different industries. They draw on a survey with chief information security officers (CISOs) in energy/utilities, telecommunications, banking/finance, transportation, healthcare, information technology, food and agriculture, education, manufacturing, and security consulting to describe the role of the CISO and specific practices and behaviors that could strengthen it; various cloud computing technologies; cybersecurity aspects; cloud computing vulnerabilities; cybersecurity threats and application security by industry; and cloud computing and cybersecurity education challenges. A series of companion videos for some chapters is available online.

QA76 9781482237573
Text Mining and Visualization: Case Studies Using Open-Source Tools
Edited by Markus Hofmann and Andrew Chisholm (Chapman & Hall/CRC Data Mining and Knowledge Discovery Series)
CRC Press, ©2016 297 p. $99.95
This volume introduces text mining using 12 case studies of the open-source tools KNIME (Konstanz Information Miner), RapidMiner, Weka, R, and Python. Contributed by information technology specialists from Europe, they illustrate the gathering and processing of text data from books, server-access logs, websites, social media sites, message boards, and other sources, and relate to reviews of drugs and products, mining search logs, online news mining, author attribution, movie reviews, Twitter messages related to stock market behavior, topic modeling, and Stack Overflow.

QA76 9781630811303
Virtualized Software-Defined Networks and Services
Qiang Duan and Mehmet Toy (Artech House Communications and Network Engineering Series)
Artech House, ©2017 313 p. $139.00
Software-defined networks and network virtualization are two independent technologies, say Duan and Toy, but they share key enabling technologies with cloud computing such as resource virtualization and automation in service provisioning, and both facilitate the unification of network and cloud applications as observed in cloud services. They describe software-defined networks and network virtualization based on networking technologies, and how they may be combined in a unified network architecture for facilitating network and cloud service provision.

QA76.575 9781522504986
Intelligent Analysis of Multimedia Information
Edited by Siddhartha Bhattacharyya, Hrishikesh Bhaumik, Sourav De, and Goran Klepac (Advances in Multimedia and Interactive Technologies)
Information Science Reference, ©2017 520 p. $220.00
Researchers in information technology and related disciplines introduce new ways to analyze multimedia information using intelligent approaches. Their topics include theoretical concepts and technical aspects of image segmentation, the retrieval of multimedia information using content-based image retrieval techniques, Indian river watershed image analysis using a hybrid fuzzy-cellular automata approach, detecting gradual transitions in videos: approaches and applications, integrating different analytical concepts on multimedia contents in service of intelligent knowledge extraction, and digital watermarking: the technical art of hiding a message.

QA76.585 9781522506027
Security Management in Mobile Cloud Computing
Edited by Kashif Munir (Advances in Information Security, Privacy, and Ethics)
Information Science Reference, ©2017 247 p. $150.00
Munir presents a collection of academic and professional perspectives on current and emerging trends in the security management of mobile cloud computing devices and networks. The eight selections that make up the main body of the text are devoted to security and privacy is-

sues and solutions in mobile cloud computing, a security model for mobile cloud database as a service, managing risk in cloud computing, and a wide variety of other related subjects. Munir is a faculty member of the University of Hafr Al-Batin in Saudi Arabia.

QA76.592 9781522510161
Managing Security Issues and the Hidden Dangers of Wearable Technologies
Edited by Andrew Marrington, Don Kerr, and John Gammack (Advances in Information Security, Privacy, and Ethics)
Information Science Reference, ©2017 344 p. $200.00
Contributors in computer and information sciences discuss positive and negative aspects of emerging wearable technology both conceptually and empirically, along with the implications for society, commerce, government, and individual citizens. Managing the security, privacy, and socio-ethical issues arising from wearable technologies is not simply a technical task, they say, but requires policies at both the organizational and government levels, and genuine societal reflection and debate on ethical norms and appropriate wearable usage.

QA76.76 9781466686595
Experimental Multimedia Systems for Interactivity and Strategic Innovation
Edited by Ioannis Deliyannis, Petros Kostagiolas, and Christina Banou (Advances in Multimedia and Interactive Technologies)
Information Science Reference, ©2016 378 p. $195.00
Contributors in information science, communication technology, art and art history, and a range of other disciplines explore how new groups of users adapt and alter older communications technologies to meet their own needs. Their topics include bare nothingness: situated subjects in embodied artists' systems, affective audio synthesis for sound experience enhancement, dealing with the uncertainty of satisfaction surveys in organizations that employ interactive multimedia: an analysis of false answers statistical models through a digital music library case study, developing an interactive biology laboratory simulation platform for educational purposes, and evaluating mathematical cognitive functions with the use of electroencephalograph brain imaging.

QA76.9 9781522504894
Collaborative Filtering Using Data Mining and Analysis
Edited by Vishal Bhatnagar (Advances in Data Mining and Database Management)
Information Science Reference, ©2017 195 p. $195.00
Information technology specialists survey recent trends and patterns in data mining tools and techniques in the area of collaborative filtering. Their topics include a modified single-pass clustering algorithm based on median as a threshold similarity value, a classification framework for applying data mining in collaborative filtering, big data mining using collaborative filtering, a data analytics approach to combining user co-rating and social trust for collaborative recommendation, and statistical relational learning for collaborative filtering.

QA76.9 9781498754156
The Human Element of Big Data: Issues, Analytics, and Performance
Edited by Geetam S. Tomar, Narendra S. Chaudhari, Robin Singh Bhadoria, and Ganesh Chandra Deka
CRC Press, ©2017 351 p. $139.95
Scholars of technology discuss issues, challenges, and research trends in big data in regard to human behavior, covering the human element of big data: definition, new trends, and methodologies; algorithms and applications of advancement in big data; future research and scope for the human element of big data; and case studies for the human element of big data: analytics and performance. Among specific topics are an analytical approach for big data in the Internet of Things, big data and its impact on enterprise architecture, clustering algorithms for big data: a survey, paradigm shifts from electronic governance to social media governance, and a big data suite for market prediction and reducing complexity using a Bloom filter.

QA248 9781522509141
Emerging Research on Applied Fuzzy Sets and Intuitionistic Fuzzy Matrices
Edited by Amal Kumar Adak, Debashree Manna, and Manoranjan Bhowmik (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2017 374 p. $205.00
Editors Adak, Manna, and Bhowmik present readers with a collection of academic essays and scholarly articles focused on contemporary and emerging mathematical techniques in the fields of applied fuzzy sets and intuitionistic fuzzy matrices. The editors have organized the selections that make up the main body of his text in parts devoted to fuzzy sets and intuitionistic fuzzy sets, neutrosophic sets and logic, interval-valued

intiutionistic fuzzy partition matrices, and many other related subjects. Amal Kumar Adak and Debashree Manna are both high school instructors in India. Monoranjan Bhomik is a faculty member of Vidyasagar Teacher's Training College in India.

QA278 9781522517764
Intelligent Multidimensional Data Clustering and Analysis
Edited by Siddhartha Bhattacharyya, Sourav De, Indrajit Pan, and Paramartha Dutta (Advances in Data Mining and Database Management)
Information Science Reference, ©2017 450 p. $210.00
Computer and information scientists and practitioners in application fields explore various aspects of multidimensional data clustering and analysis for graduate students and researchers who deal with advanced statistics. Their topics include a physical design strategy for datasets with multiple dimensions, dealing with higher dimensionality and outliers in content-based image retrieval, an adaptive edge detection method towards feature extraction from diverse medical imaging technologies, implementing a digital image watermarking framework using saliency and phase congruence, and the hybridization of intelligent techniques in bioinformatics.

QA278 9781482225662
Mixture Model-Based Classification
Paul D. McNicholas
CRC Press, ©2017 212 p. $89.95
This book details mixture model-based approaches to the clustering and classification of unlabelled observations. Chapters discuss Gaussian mixtures, mixtures of factor analyzers and their extensions, variable selection, and high-dimensional applications, as well as mixtures of distributions that parameterize concentration; mixtures of skewed distributions; mixtures of distributions that parameterize skewness and concentration, or tail weight; and mixtures of multiple scaled distributions. They also cover methods for clustering and classification of longitudinal data, cluster-weighted models, averaging mixture models, the definition of a cluster, and the existence of a best clustering and classification method.

QA297 9781498758925
Iterative Methods Without Inversion
Anatoly Galperin (Monographs and Research Notes in Mathematics)
CRC Press, ©2017 230 p. $129.95
Galperin presents readers with a comprehensive guide to the iterative methods for solving operator equations in both Banach and Hilbert spaces. The author covers the tools necessary for solving operator equations, Ulm's method, Ulm's method without derivatives, Broyden's method, optimal secant updates of low rank, optimal secant–type methods, majorant generators and their convergence domains, and a wide variety of other related subjects. The author is an instructor with Ben Gurion University in Israel and with Israel Aircraft Industries.

QA372 9781498746441
Delay Differential Evolutions Subjected to Nonlocal Initial Conditions
Edited by Monica-Dana Burlica, Mihai Necula, Daniela Rosu, and Ioan I. Vrabie (Monographs and Research Notes in Mathematics)
CRC Press, ©2016 361 p. $99.95
Mathematicians present some very recent results referring to the existence, boundedness, regularity, and asymptotic behavior of global solutions for differential equations and inclusions, with or without delay, subjected to nonlocal implicit initial conditions. All the chapters in the main body of the book contain several illustrative examples of semi-linear or fully nonlinear ordinary and partial differential equations subjected to various local or nonlocal initial conditions, each one being important on its own, and thus offering a good insight into the possibilities of the abstract developed theory.

QA402 9781498723619
Big Data of Complex Networks
Edited by Matthias Dehmer, Frank Emmert-Streib, Stefan Pickl, and Andreas Holzinger (Chapman & Hall/CRC Big Data Series)
CRC Press, ©2017 319 p. $149.95
Mathematicians describe and demonstrate existing and emerging approaches to handling methods from big data to analyze networks. They have developed the underlying mathematical methods with the aid of graph theory,big data, general computer science, data analysis, machine learning, and statistical techniques. The material is for researchers and graduate and advanced undergraduate students in such fields as mathematics, computer science, physics, bioinformatics, and systems biology. Among the topics are distributed or network-based big data, big data visualization for large complex networks, finding small dominating sets in large-scale networks, large random matrices and big data analytics, and challenges of computational network analysis with R.

QA402 9781498753760
Zeroing Dynamics, Gradient Dynamics, and

Newton Iterations
Yunong Zhan, Lin Xiao, Zhengli Xiao, and Mingxhi Mao
CRC Press, ©2016 309 p. $149.95
Conceived during classroom teaching as well as research discussion in the laboratory and at international scientific meetings, this book on neural networks and neural dynamics aims to cover each central topic in enough detail to make the material clear and coherent. The book targets graduate students as well as academic and industrial researchers studying the developing fields of neural networks, neural dynamics, computer mathematics, numerical algorithms, time-varying computation and optimization, stimulation and modeling, analog and digital hardware, and fractals. It provides a comprehensive view of the combined research of these fields in addition to its accomplishments, potentials, and perspectives. Eighteen chapters are divided into seven parts: time-varying root finding; nonlinear equation solving; matrix inversion; matrix square root finding; time-varying quadratic optimization; time-varying inequality solving; application to fractals.

QA614 9781498744218
Fractals: Applications in Biological Signalling and Image Processing
Dinesh K. Kumar, Sridhar P. Arjunan, and Behzad Aliahmad (A Science Publishers Book)
CRC Press, ©2017 174 p. $139.95
Kumar, Arjunan, and Aliahmad present readers with a comprehensive examination of fractal properties of the signals and images of a living organism, arguing that biological systems are healthy when there is variability to them. The authors cover physiology, anatomy, and fractal properties; fractal dimension of biosignals; fractal analysis of the electrocardiogram; fractals analysis of surface electromyogram; and a wide variety of other related subjects. Dinesh K. Kumar, Sridhar P. Arjunan, and Behzad Aliahmad are faculty members of RMIT University in Melbourne, Australia.

ASTRONOMY

QB4 9781583818909
Calibration and Standardization of Missions and Large Surveys in Astronomy and Astrophysics: Proceedings of a Conference Held at Fermi National Accelerator Laboratory
Edited by Susana Deustua, Sahar Allam, Douglas Tucker, and J. Allyn Smith (Astronomical Society of the Pacific Conference Series; Volume 503)
Astronomical Society of the Pacific, ©2016
289 p. $88.00
Editors Deustua, Allam, Tucker, and Smith offer a collection of scholarly contributions to the study of the science of calibration and its applications in astronomy and astrophysics. Topics covered include the flux calibration of Gaia, assessing the photometric calibration of the ASAS survey, cloud computing with context cameras, and a wide variety of other related subjects. Susana Deustua is with the Space Telescope Science Institute of Maryland. Sahar Allam and Douglas Tucker are both with the Fermi National Accelerator Laboratory in Illinois. J. Allyn Smith is a faculty member of Austin Peay State University in Tennessee.

QB26 9789004281745
Essays on Medieval Computational Astronomy
José Chabás and Bernard R. Goldstein (Time, Astronomy, and Calendars: Texts and Studies; Volume 5)
BRILL, ©2015 413 p. $162.00
Chabás and Goldstein present students, academics, researchers, and professionals working in a variety of contexts with a comprehensive examination of Middle Age and Early Modern astronomical tables. The authors have organized the twelve chapters that make up the main body of their text in four parts devoted to conjunctions and oppositions, planetary motions, sets of tables, and other tables. José Chabás is a faculty member of the Universitat Popeu Fabra, Spain. Bernard R. Goldstein is a retired faculty member of the University of Pittsburgh.

QB476 9781466570429
Terahertz Astronomy
Christopher K. Walker
CRC Press, ©2016 335 p. $129.95
This book for astronomy and astrophysics researchers offers information for designing and using astronomical instrumentation for observing terahertz (THz) frequencies. The first four chapters detail THz light in astrophysical sources: the interstellar medium at THz frequencies, THz radiative transfer, THz continuum emission, and a simple radiative transfer model. The next five chapters describe methods for collecting and detecting THz light, such as THz optical systems, coherent and incoherent detection systems, THz observing techniques, and THz interferometry. The book includes worked examples, exercises, and appendices of equations, along with b&w and color photos, images, and illustrations.

PHYSICS

QC151 9789814730570
Uncertainty Quantification in Computational Science: Theory and Application in Fluids and Structural Mechanics
Edited by Sunetra Sarkar and Jeroen A. S. Witteveen
World Scientific, ©2017 182 p. $98.00
Editors Sarkar and Witteveen present readers with a collection of academic and research perspectives on the emerging field of uncertainty quantification in fluid engineering and coupled structural-fluids systems. The selections that make up the main body of the text are devoted to uncertainty quantification as applied to the aeroacoustics of wall-bounded flows, the efficient uncertainty analysis of radiative heating for planetary entry, metastable conditions in cavitating flows, and other related subjects. Sunetra Sarkar is a faculty member of the Indian Institute of Technology Madras. Jeroen A. S. Witteveen is a faculty member of the Center for Mathematics and Computer Science in The Netherlands.

QC173 9789813140141
Exactly Solvable Models in Many-Body Theory
N. H. March and G. G. N. Angilella
World Scientific, ©2016 330 p. $118.00
March and Angilella review several theoretical models, most exactly solvable, for selected systems in condensed states of matter--including solid, liquid, and disordered states--and for systems of few or many bodies with boson, fermion, or anyon statistics. They devote some attention to models for quantum liquids, including superconductors and superfluids, and briefly review open problems in relativistic fields and quantum gravity. For most of the exactly solvable models, they consider their numerical approximation as well, and of course their relevance for experiments.

QC173 9781614996934
Quantum Matter at Ultralow Temperatures: Proceedings of the International School of Physics
Edited by M. Inguscio, W. Ketterle, and S. Stringari (International School of Physics " Enrico Fermi"; Course 191)
IOS Press, ©2017 570 p. $221.00
The 12 lectures identify new directions in the field of ultracold physics, such as quantum gases with long range interactions, either due to strong magnetic dipole forces, due to Rydberg excitations, or, for polar molecules due to electric dipole interactions; quantum gases in lower dimensions; quantum gases with disorder; atoms in optical lattices, now with single-site optical resolution; systems with non-trivial topological properties such as spin-orbit coupling or in artificial gauge fields; quantum impurity problems (Bose and Fermi polarions); and quantum magnetism.

QC174 9781482237634
Optical Multi-Bound Solitons
Le Nguyen Binh (Optics and Photonics; 13)
CRC Press, ©2016 547 p. $139.93
Bihn deals with nonlinear systems in terms of fundamental principles and associated phenomena as well as their applications in signal processing in contemporary optical systems for communications and laser systems, with a touch of mathematical representations of nonlinear equations to provide some insight into the nonlinear dynamics at different phases of solitons. His topics include generations of solitons in optical fiber ring resonators, multi-bound solitons under carrier phase modulation, bound-soliton bispectra and nonlinear photonic signal processing, and multirate multiplication soliton fiber ring and nonlinear loop laser.

QC174 9780198566748
Path integrals in quantum mechanics.
Zinn-Justin, Jean.
Oxford University Press, ©2005 318 p. $89.50
Zinn-Justin (Dapnia, CEA/Saclay and mathematics, U. of Paris VII) describes this alternate point of view that has proven very useful in quantum field theory and its applications from particle physics to phase transitions or properties of quantum gases. He begins by introducing, in the case of ordinary integrals, concepts and methods that can be generalized to path integrals, including offering a section on gaussian integrals and complex matrices. He then describes path integrals within quantum mechanics, and follows with chapters on partition function and spectrum, classical and quantum statistical physics, path integrals and quantization, path integrals and holomorphic formalism, path integrals and formions, semi-classical approximation of barrier penetration, quantum evolution and scattering matrix, and path integrals in phase space. In an appendix he provides basic information on quantum mechanics, including Hilbert space and operators, quantum evolution, symmetries and the density matrix, and Schrödinger equations.

QC174 9781470428570
Shock Formation in Small-Data Solutions to 3D Quasilinear Wave Equations
Jared Speck (Mathematical Surveys and Monographs; Volume 214)
American Mathematical Society, ©2016 515 p. $110.00
Classical solutions to quasilinear hyperbolic partial differential equations generated by smooth initial conditions can develop singularities in finite time, says Speck, and he looks here at the best known type of such singularities, shocks. He focuses primarily on scalar quasilinear wave equations because they arise in many important mathematical, physical, and geometric contexts; because advanced machinery tailed to them has been developed in recent decades; and because their characteristic hypersurfaces are relatively simple and can be analyzed using tools and concepts from the well-developed theory of Lorentzian geometry.

QC174 9789814613255
Topological Insulators: The Physics of Spin Helicity in Quantum Transport
Grigory Tkachov
Pan Stanford Publishing, ©2016 169 p. $149.95
This volume describes the protected Dirac-like states in topological insulators and their representative transport properties. It discusses the topological origin of the edge and surface states in two and three-dimensional systems, theoretical models of the topological states, key properties like Dirac-like spectrum and spin helicity, and representative transport phenomena, including the quantum spin-Hall effect, nonlocal edge transport, backscattering of helical edge and surface states, weak antilocalization, unconventional triplet p-wave superconductivity, topological bound states, and emergent Majorana fermions in Josesphson junctions, as well as superconducting Klein tunneling. Distributed by CRC Press.

QC176 9789814678353
Hydrogen-Bonded Capsules: Molecular Behavior in Small Spaces
Julius Rebek, Jr.
World Scientific, ©2016 219 p. $98.00
Rebek recounts how he and other organic physical chemists developed hydrogen-bonded capsules to identify ions during 20 years of research. He presents the story chronologically, emphasizing how they developed methods and interpreted data at the time. His topics are spherical and similar capsules, calixarene capsules, the cylindrical capsule, hexameric capsules from resorcinarenes and pyrogallolarenes, the stereochemistry of confined molecules, chiral capsules, expanded and contracted capsules, and reactions inside capsules.

QC176 9781482251456
Processes of Formation of Micro-and Nanodispersed Systems
A.A. Bochkarev and V.I. Polyakova
CRC Press, ©2016 462 p. $179.95
Authors A. A. Bochkarev and V. I. Polyakova present readers with a comprehensive examination of the physical processes and phenomena that lead to the formation of disperse materials. The authors also cover the properties of a wide variety of disperse materials yielded from various processes, the evolution of the structure of vacuum condensates, the formation of columnar structures in co-condensation as a way of producing nano sized composites, the capture of microparticles from gas flows by condensation processes, and a great many other related subjects over the text's twelve chapters.

QC431 9783110290332
Nanodispersions
Tharwat F. Tadros (De Gruyter Textbook)
De Gruyter, ©2016 283 p. $98.00 (pa)
Nanodispersions cover the range 10-200 nanometers in diameter, says Tadros, so fall within the colloid range (one nanometer to one micrometer), making it possible to apply general theories of colloid stability to them. He discusses the fundamental principles of preparing nanodispersions and their stabilization, and various practical applications in fields such as pharmaceuticals, cosmetics, agrochemicals, and petroleum. Formulation scientists, chemical engineers, and researchers might find the material useful.

QC446 9781498724159
Second Order Non-Linear Optics of Silicon and Silicon Nanostructures
O. A. Aktsipetrov, I. M. Baranova, and K. N. Evtyukhov
CRC Press, ©2016 581 p. $159.95
The nonlinear optical phenomena at interfaces and in thin-film structures of the micrometer and nanometer range containing several interphase boundaries greatly differ from the processes occurring in the bulk of the contacting media, say Aktsipetrov, Baranova, and Evtuykhov, and are therefore interesting from the point of view of fundamental science, in particular the rapidly developing field of surface physics. Moreover, the semiconductor thin-film structure and the interphase boundary, mainly those based on silicon, play a huge role in modern microelectronics, so

the possibility of using non-linear optical methods for research is of great practical importance. They discuss some physical properties of silicon, basic theoretical concepts of generating a reflected second harmonic, phenomenological theory of generating a second harmonic reflected from a silicon surface, experimental results of studying reflected harmonics in silicon, generating second harmonics in silicon nanostructures, and photo-induced electronic processes in silicon and their impact on the generation of reflected second harmonics.

QC454 9789813200609
Laser Spectroscopy: Proceedings of the XXII International Conference
Edited by Kai Dieckmann
World Scientific, ©2017 97 p. $110.00 (pa)
Drawn from the proceedings of the XXII International Conference on Laser Spectroscopy (ICOL2015), held in Singapore in June and July of 2015, the eight papers in this volume discuss quantum walks with neutral atoms in state-dependent optical lattices; the role of muonic atoms in nuclear structure; the development and optimization of Doppler broadening thermometry using acetylene as a molecular target; antiferromagnetism with ultracold atoms; the generation and transfer of stable optical frequencies in optical clocks with trapped ions; precision measurement of the Newtonian gravitational constant by atom interferometry; optical sideband cooling in a Penning trap; and Bose-Einstein condensation of photons vs. Lasing and Hanbury Brown-Twiss measurements with a condensate of light. Contributors are physicists from Europe and the US.

QC476 9781498707749
Upconverting Nanomaterials: Perspectives, Synthesis, and Applications
Edited by Claudia Altavilla (Nanomaterials and Their Applications; 6)
CRC Press, ©2017 369 p. $199.95
In this book, editor Claudia Altavilla presents readers with a collection of research and academic perspectives on the synthesis and potential applications for upconverting nanomaterials in a variety of industrial contexts. The editor has organized the eleven selections that make up the main body of his text in two parts devoted to sytheses, mechanism, and functionalization; and applications and potential applications for upconverting nanomaterials. The editor is a faculty member of the IPCB CNR Institute for Polymers, Composites, and Biomaterials in Italy.

QC611 9781498775106
Critical Currents and Superconductivity: Ferromagnetism Coexistence in High-T<suc> oxides
Samir Khene
CRC Press, ©2016 149 p. $149.95
After gathering key data for the superconducting state and the fundamental properties of conventional superconductors, Khene recaps the basic theories of superconductivity. Then he discusses the differences introduced by the structural anisotropy on the Ginzburg-Landow approach and the Lawrence-Doniach model. To conclude, he addresses the dynamic of vortices and the coexistence of ferromagnetism and superconductivity in high-Tc oxides, and outlines the pinning phenomena of vortices in these materials, particularly the pinning of vortices by the spins.

QC611 9781482254358
Heteroepitaxy of Semiconductors: Theory, Growth, and Characterization, 2nd Edition
John E. Ayers, Tedi Kujofsa, Paul Rago, and Johanna E. Raphael
CRC Press, ©2017 643 p. $259.95
Ayers, Kujofsa, Rago, and Raphael present readers with the second edition of their comprehensive guide to the theory, growth, and characterization of heteroepitaxy as it has been applied in devices used for solid-state lighting, green energy applications, displays, communications, digital computing, and other contexts. The authors cover the properties of semiconductors, heteroepitaxial growth, surface and chemical considerations in heteroepitaxy, and other subjects. John E. Ayers, Tedi Kujofsa, Paul Rago, and Johanna E. Raphael are all faculty members of the University of Connecticut, Storrs.

QC611 9789814713191
Magneto Thermoelectric Power in Heavily Doped Quantized Structures
Kamakhya Prasad Ghatak (Series on the Foundations of Natural Science and Technology; Volume 7)
World Scientific, ©2016 758 p. $128.00
Bypassing the density of states technique used in previous studies of magneto thermoelectric power, Ghatak offers a more fundamental account, because the Boltzmann transport equation, which controls the study of the charge transport properties of the semiconductor devices, can be solved if and only if the E-k dispersion relation is known, which the density of states approach cannot provide. He covers magneto thermoelectric power in heavily doped quantum confined nonparabolic semiconductors, and in heavily doped

quantum confined superlattices, and a few related applications.

QC689 9781498725545
Fiber Lasers: Basics, Technology, and Applications
Liang Dong and Bryce Samson
CRC Press, ©2017 324 p. $199.95
After reviewing the basic physics of optical fibers, the technical handbook introduces fiber lasers made from a series of specially designed optical fibers spliced together with a series of fiber-based components, and describes fabrication techniques, fiber efficiency and beam quality measurements, fiber Bragg gratings, and erbium-doped fiber amplifiers. The breadth of the adoption of fiber laser technology is covered in detail from high-power continuous wave lasers to nanosecond and ultra-fast lasers. The closing chapters briefly survey industrial, medical, and military applications.

QC689 9781466561915
Semiconductor Laser Theory
Prasanta Kumar Basu, Bratati Mukhopadhyay, and Rikmantra Basu
CRC Press, ©2016 527 p. $99.95
Authors Basu, Mukhopadhyay, and Basu present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of contemporary research in semiconductor laser theory. The fifteen chapters that make up the main body of the text are devoted to an introduction to semiconductor lasers, basic theory, heterojunctions and quantum structures, band structures, and a wide variety of other related subjects. Prasanta Kumar Basu and Bratati Mukhopadhyay are faculty members of the University of Calcutta, India. Rikmantra Basu is a faculty member of the National Institute of Technology Delhi, India.

QC903 9781440839986
Managing the Climate Crisis: Assessing Our Risks, Options, and Prospects
Robert O. Schneider
Praeger, ©2016 247 p. $60.00
In this book, author Robert O. Schneider presents readers with an analysis of climate change using a risk management approach to sort out this rather complex set of issues. In seven chapters, the author attempts to cover the current state of affairs, the science of climate change, the ongoing social and political discussion surrounding the issues, our risks and vulnerabilities, the mitigation of climate change and our potential to adapt to it, our policy options, and likely outcomes. The author is a faculty member of University of North Carolina–Pembroke.

QC973 9781439869581
Weather Radar Polarimetry
Guifu Zhang
CRC Press, ©2017 304 p. $139.95
After decades of research and development, a new set of radar measurements has joined reflectivity and Doppler to study weather: polarimetric radar data, says Zhang, and the national NEXRAD (WSR-88D) network has been upgraded with dual-polarization capability. The technology is available but its operational usage remains in its infancy, and he sets out the basics for meteorology students, scholars, and scientists so they can begin developing a body of actual experience using it to observe, quantify, and forecast weather.

CHEMISTRY

QD79 9781498705882
Planar Chromatography: Mass Spectrometry
Edited by Teresa Kowalska, Mieczyslaw Sajewicz, and Joseph Sherma (Chromatographic Science Series; Volume 110)
CRC Press, ©2016 380 p. $149.95
Chemists, biochemists, and related scientists describe a relatively new approach to chemical analysis in general and to separation science in particular. It combines thin-layer chromatography, among the simplest, most cost-effective, yet well-performing technique for determining complex mixtures of compounds, with mass spectrometry, a sophisticated and relatively expensive spectrometric technique that enables the rapid identification of separated chemical species. They cover materials, instrumentation and techniques and practical applications.

QD79 9781910242858
Superhydrophobic Polymer Surfaces: Preparation, Properties and Applications
Iskender Yilgör, Emel Yilgör, and Cagla Kosak Söz
Smithers Rapra, ©2016 258 p. $130.00
Yilgör, Yilgör, and Söz summarize recent developments in the preparation, characterization, and potential applications of super-hydrophobic polymer surfaces. They also discuss characteristics of naturally super-hydrophilic and super-oleophobic surfaces and surfaces with tunable wettability, They especially emphasize the theoretical foundations and models proposed in describing the wetting behavior of rough surfaces. Among the

current and potential applications they describe are self-cleaning surfaces, anti-fouling and foul-release coatings, anti-reflective coatings with improved solar cell efficiency, biocompatible surfaces, super-hydrophobic coatings for oil-water separation, and water-harvesting surfaces.

QD96 9781849733830
Modern NMR Approaches to the Structure Elucidation of Natural Products; Volume 1: Instrumentation and Software
Edited by Antony J. Williams, Gary E. Martin, and David Rovnyak
Royal Society of Chemistry, ©2016 329 p. $224.00
Chemists describe how the imaging technology nuclear magnetic resonance (NMR), which was developed for use in medicine, is being used to discover the structure of natural materials in hopes of using them in commercial products. This first volume covers hardware and data processing and informatics. Among the topics are small volume NMR: microprobes and cryoprobes, applying non-uniform sampling for sensitivity enhancement of small-molecule heteronuclear correlation NMR spectra, applying computer-assisted structure elucidation methods and NMR prediction to natural materials, multi-dimensional spin correlations by covariance NMR, and prospects and challenges in identifying molecular structure by atomic force microscopy. Distributed in the US by Ingram Publisher Services.

QD115 9781849738316
Electrochemical Strategies in Detection Science
Edited by Damien W. M. Arrigan (RSC Detection Science Series; 6)
Royal Society of Chemistry, ©2016 400 p. $300.00
Chemists discuss recent developments in electrochemical methods and materials that may bring new strategies to bear on chemical and biochemical detection problems. They survey contemporary research and development in electrochemical detection based on new and revitalized methods, new materials with enhanced properties, and new devices that achieve better electro-analytical signal generation. Among the topics are developing biosensors based on microelectrodes for biomedical analysis, fundamentals of scanning electrochemical microscopy and applications in the life sciences, nanoelectrodes in electrochemical analysis, carbon nanomaterials in electrochemical detection, and electrochemical detection using ionic liquids. Distributed in the US by Ingram Publisher Services.

QD181 9781482241969
Arsenic Toxicity: Prevention and Treatment
Edited by Narayan Chakrabarty
CRC Press, ©2016 508 p. $149.95
Chemists look at arsenic toxicity, propagation, and proliferation; remediation; treatment; and remediation of arsenic by nutraceuticals and functional food. Among their topics are arsenic poisoning and its health effects, the geochemistry of arsenic and toxic response, applying biological treatment methods to remediate arsenic toxicity from groundwaters, remediation in food, the phytotoxicity and phytoremediationk of arsenic in the soil-plant system, clinical features and diagnostics of chronic arsenicosis, and the influence of nutraceuticals in combating arsenic toxicity.

QD281 9781498730532
Hydrogenation With Low-Cost Transition Metals
Edited by Jacinto Sa and Anna Srebowata
CRC Press, ©2016 203 p. $169.95
Sa and Srebowata present and substantially contribute to this industry and research reference on heterogeneous hydrogenation using economical metal catalysts, written at a level to be accessible to undergraduates. The first chapter discusses the place and history of heterogeneous hydrogenation in the fine chemicals industry, including partial hydrogenations, selectivity, types of unsaturated bonds, mechanisms and geometry of the reaction. Four in-depth chapters then discuss the metals nickel, copper, iron, and silver as the basis for hydrogenation catalysts. Each chapter addresses the moieties most successfully targeted and preparations of catalysts such as nanoparticles and films, and includes a bank of data regarding catalyst morphology, reaction geometry, thermodynamics, and efficiency.

QD331 9781118752012
Arene Chemistry: Reaction Mechanisms and Methods for Aromatic Compounds
Edited by Jacques Mortier
Wiley, ©2016 959 p. $195.00
Chemists from around the world offer 32 chapters detailing the reaction mechanisms and main methods used for preparing arenes, or aromatic compounds, and their transformations. Organized by reaction classes, chapters address electrophilic aromatic substitution, nucleophilic aromatic substitution, aryne chemistry, reduction, oxidation, dearomatization reactions, aromatic rearrangement reactions, transition metal-mediated coupling, C-H bond functionalization, directed metalation and photochemical reactions,

and biotransformations.

QD381 9781771881005
Micro- and Nanostructured Polymer Systems: From Synthesis to Applications
Edited by Sabu Thomas, Robert A. Shanks, and Jithin Joy
Apple Academic Press, ©2016 330 p. $169.95
Chemists and chemical engineers describe recent advances in the development and characterization of multi-component polymer blends and composites, paying special attention to biologically based polymer blends and composites. Among their topics are enhancing the performance of polymeric materials through nanotechnology, edible nanocomposite films based on hydroxypropyl methyl cellulose reinforced with bacterial cellulose nanocrystals, synthesizing and characterizing silver nanoparticle sols in the presence of different polymeric stabilizers, the radiation protection properties of natural rubber composites, and a comparative study of metchromasy induced by thiazine dyes. Distributed by CRC Press, A Taylor & Francis Group member.

QD382 9781498779647
Multi Frequency EPR Spectroscopy of Conjugated Polymers and Their Nanocomposites
Victor I. Krinichnyi
CRC Press, ©2017 292 p. $179.95
Krinichnyi presents readers with a comprehensive guide to the main experimental and methodological approaches to studying various organic condensed systems. The book covers the theoretical backgrounds of paramagnetic resonance and spin transfer in conjugated polymers; instrumentation and experimental setup; magnetic, relaxation, and dynamic parameters of charge carriers in conjugated polymers; charge transfer by spin carriers in polymer:fullerene nanocomposites; and a wide variety of other related subjects. The author is a faculty member of the Institute of Chemical Physics in Chernogolovka, Russia.

QD400 9781849739702
Pillararenes
Edited by Tomoki Ogoshi (Monographs in Supramolecular Chemistry; Number 18)
Royal Society of Chemistry, ©2016 315 p. $245.00
This volume describes the fundamental properties of pillararenes and their application for supramolecular materials. It covers the historical background of macrocyclic compounds, then the fundamental properties, characteristic features, and advantages of pillararenes, such as their high yield synthesis and highly symmetrical structures, versatile functionality, conformation, planar chirality, host-guest properties, and assembled structures, and applications to supramolecular polymers, interlocked molecules, supramolecular assemblies, hybrid materials, and biomedical applications, as well as pillararene-related macrocyclic compounds. Contributors are scientists from Asia and the US. Distributed in the US by Ingram Publisher Services.

QD502 9789814613514
Nanofibers of Conjugated Polymers
A. Sezai Sarac
Pan Stanford Publishing, ©2016 284 p. $149.95
Conjugated polymer composites as a nanofiber mat with different electric properties can be used in electronics, in sensors, in batteries, as electrical stimulation to enhance the nerve regeneration process, and for constructing scaffolds for engineering nerve tissue, says Sarac. He explains how to use electrospinning to produce the nanofibers of such material, and reviews recent research into the properties and applications of conjugated polymer nanofibers. Among his topics are polymerization techniques, impedance spectroscopy and spectroscopy on polymeric nanofibers, and the electrochemical capacitive behavior of nanostructured conjugated polymers. Distributed by CRC Press.

QD505 9781498726542
Enantioselection in Asymmetric Catalysis (CD-ROM included)
Ilya D. Gridnev and Pavel A. Dub
CRC Press, ©2017 234 p. $189.95
This book/CD-ROM explains the mechanism of enantioselection in asymmetric catalytic reaction. The book's three chapters focus on three types of reactions: transition metal-catalyzed hydrogenation; other enantioselective reactions catalyzed by transition metals; and mechanisms of enantioselection in organocatalytic reactions. The book contains color and b&w diagrams, images, and illustrations. The companion CD-ROM contains 3D structures of transition states.

TECHNOLOGY (GENERAL)

T10 9781498705776
Engineering Speaking by Design: Delivering Technical Presentations With Real Impact
Edward J. Rothwell and Michael J. Cloud
CRC Press, ©2016 152 p. $49.95 (pa)
Authors Rothwell and Cloud present students, academics, and professionals working in a wide variety of contexts with an examination of con-

temporary best practices in delivering technical presentations. The authors have organized the main body of their text in seven chapters devoted to becoming a presenter, engineering a presentation, designing a presentation, building a presentation, and a wide variety of other related subjects. Edward J. Rothwell is a faculty member of Michigan State University. Michael J. Cloud is a faculty member of Lawrence Technological University, Michigan.

T57 9781522510086

Handbook of Research on Fuzzy and Rough Set Theory in Organizational Decision Making

Edited by Arun Kumar Sangaiah, Xiao-Zhi Gao, and Ajith Abraham (Advances in Business Strategy and Competitive Advantage)

Business Science Reference, ©2017 473 p. $275.00

Computer scientists, electronic engineers, information scientists, and business scholars summarize constituent paradigms underlying fuzzy and rough sets and evolutionary computational intelligence methods, and show how to apply them in business decision making. Their topics include solving a basic inventory model in fuzzy and interval environments: a fuzzy and interval differential equation approach, a fuzzy dynamic programming problem for single additive constraint with additively separable return by means of trapezoidal membership functions, the genetic-based estimation of biomass using a geographical information system: study area Vellore, parameter reduction in soft set models and applications in decision making, and investment climate factors with reference to firm performance in Bangladesh: a prospective cohort study.

T58 9781466688339

Handbook of Research on Innovations in Information Retrieval, Analysis, and Management

Edited by Jorge Tiago Martins and Andreea Molnar (Advances in Knowledge Acquisition, Transfer, and Management)

Information Science Reference, ©2016 580 p. $325.00

International contributors in information systems, computer engineering, and information management report on the latest developments in management of information. Major themes discussed include developments in information retrieval, information analysis, the reciprocal relationship between information systems and organizations, effective information management practices, how society is being shaped by information systems, and knowledge management as a way to generate value. Some specific topics include measuring the success of Wikipedia and open content, prediction of international stock markets based on hybrid intelligent systems, a wheelchair controlled by hand-gesture recognition, and a customer experience management system at a university. The book includes b&w charts, graphs, and process and hierarchy diagrams. The book's audience includes researchers, developers, managers, strategic planners, and advanced students in information management and information science.

T58 9781630810870

Information Fusion and Analytics for Big Data and IoT

Éloi Bossé and Basel Solaiman (Artech House Intelligence and Information Operations Series)

Artech House, ©2016 250 p. $179.00

In this book, authors Bossé and Solaiman present readers with a guide to the employment of fusion of information and analytics technology (FIAT) to address information overload and complexity in both military and civilian complex systems and networks caused by big data and the Internet of Things (IoT). The authors cover cyber physical and social systems, situation awareness and decision support, information and uncertainty, information characteristics and representations, and a wide variety of other related subjects. Éloi Bossé is a faculty member of the Ecole Nationale Supérieure des Télécommunications de Bretagne, France. Basel Solaiman is a retired researcher from Defence Research and Development Canada Valcartier.

T59 9781498734738

Cyber Security for Industrial Control Systems: From the Viewpoint of Close-Loop

Edited by Peng Cheng, Heng Zhang, and Jiming Chen

CRC Press, ©2016 315 p. $179.95

Computer scientists and electrical engineers offer a technical guide to secure defending theories and technologies, novel design, secure architecture, and applications in cybersecurity for industrial control systems. In sections on secure state estimation, resilient control theory, and security issues in application fields, they consider such topics as secure state estimation against stealthy attack, optimal denial-of-service attack policy against wireless industrial control systems, behavior rule specification-based false data injection detection technique for the smart grid, resilient distributed control in cyber-physical energy systems, and distributed resilient control of

operator-vehicle networks under cyber attacks.

ENGINEERING (GENERAL, CIVIL)

TA168 9781482256550
Event-Based Control and Signal Processing
Edited by Marek Miskowicz (Embedded Systems)
CRC Press, ©2016 558 p. $169.95
Researchers help flesh out the theory underlying event-based control and event-based signal processing as an alternative to the conventional periodic sampling and sampled-data theory. Among their topics are comparing event-triggered and time-triggered real-time systems, self-triggered and team-triggered control of networked cyber-physical systems, time-periodic state estimation with event-based measurement updates, concepts for hardware-efficient implementation of continuous-time digital signal processing, and reconstructing varying bandwidth signals from event-triggered samples.

TA168 9781118893647
Model-Based System Architecture
Tim Weilkiens, Jesko G. Lamm, Stephan Roth, and Markus Walker (Wiley Series in Systems Engineering and Management)
Wiley, ©2016 373 p. $135.00
Addressing system architects and their managers, the book combines the emerging discipline of systems architecture with model-based approaches. They consider functional architectures and the functional architecture for systems method by Lamm and Weilkiens to derive the architecture from common use case analysis; the integration of the concept of layered architectures from the software discipline in the context of system architectures; the modeling of system variants; and the whole picture of different architecture kinds like functional, logical, and product architectures and their relationships. The appendix summarizes the history of the V-model and recent thinking about it.

TA170 9781771882941
Eco-Friendly Nano-Hybrid Materials for Advanced Engineering Applications
Edited by S. Ananda Kumar
Apple Academic Press, ©2017 413 p. $169.95
Chemists, chemical engineers, and researchers in other physical and medical sciences summarize the fundamentals and established techniques of synthesizing and processing environmentally friendly nano-hybrid materials. In addition to advanced engineering, they survey applications in therapy and aesthetics, harvesting energy and purifying drinking water, and bioceramics. Their topics include the role of environmentally friendly adsorbents in the defluoridation of water, silicate ceramics and its composites for hard tissue applications, binding interactions and morphology studies of nanoparticles treated with 3-aminopropyltriethoxysilane, and cyanate esters based organic-inorganic hybrid nanocomposites for low-K dielectric applications. Distributed by CRC Press, A Taylor & Francis Group member.

TA340 9780873899246
Practical Design of Experiments (DOE): A Guide for Optimizing Designs and Processes
Mark Allen Durivage
ASQ Quality Press, ©2016 185 p. $70.00
In this book, author Mark Allen Durivage presents readers with a guide for quality technicians and engineers looking to optimize designs and processes to drive the practicality of experiments. The author covers statistical tools and techniques, ANOVA, experiments with two factors, experiments with three factors, experiments with qualitative responses, Taguchi experiments, mixture designs, screenings and other designs, procedural considerations, and many other related subjects over the book's eleven chapters and eleven appendices. Durivage is Managing Principle Consultant of Quality Systems Compliance LLC in Michigan.

TA354 9789813109346
World Scientific Handbook of Experimental Results on High Speed Penetration Into Metals, Concrete and Soils
Gabi Ben-Dor, Anatoly Dubinsky, and Tov Elperin
World Scientific, ©2017 605 p. $198.00
This reference compiles data from 14,000 experiments on high-velocity penetration into metals, concrete and reinforced concrete, and geological media which were published during the last 70 years. The approach systematizes experimental data on basic integral parameters which characterize the initial and the final states of the striker and of the shield without analyzing penetration process. The first subsection of each chapter provides tables to facilitate search for experimental data that satisfy specific requirements.

TA357 9781498760904
Convective Flow and Heat Transfer From Wavy Surfaces: Viscous Fluids, Porous Media, and Nanofluids
Aroon Shenoy, Mikhail Sheremet, and Ioan Pop
CRC Press, ©2017 306 p. $189.95
Wavy surfaces are widely used to facilitate flow and heat transfer, but Shenoy, Sheremet, and

Pop pull the information into a single reference for the first time. They offer a comprehensive treatise on flow and heat transfer from a wavy surface and in cavities having wavy walls. Among their topics are governing equations, steady natural and mixed convection flow in viscous fluids over a wavy vertical wall, forced convective flow in a wavy horizontal channel, natural convection flow saturated with nanoparticles in wavy-walled cavities and in wavy-walled porous cavities.

TA418 9789814463782
Nanomaterials in Energy and Environmental Applications
Edited by Junhui He
Pan Stanford Publishing, ©2016 531 p. $199.95
Specialists in nanomaterials, energy, and environmental sciences review the technical literature on the design and fabrication of nanostructured materials and their energy and the environmental applications. Their topics include multifunctional coatings for solar energy applications, glass-based proton exchange membranes for fuel cell applications, positron-positronium annihilation studies of nanomaterials related to energy and the environment, roles of reduced graphene oxide in improving photocatalytic hydrogen generation performance over metal sulphide nanocomposites, utilizing biological polysaccharides as environmentally friendly structural materials, nanostructured copper oxide for sensing hydrogen cyanide gas, and nanomaterials and health. Distributed by CRC Press.

TA418 9781771881432
Nanostructured Polymer Blends and Composites in Textiles
Edited by Mihai Ciocoiu and Seghir Maamir
Apple Academic Press, ©2016 426 p. $179.95
Engineers and physicists working in Russia, Armenia, and Iran provide 11 chapters on the properties and behavior of nanostructured polymer blends and composites used in textile design, engineering, and materials science. They outline procedures for nanomaterial selection and design, discussing textile history and types; modern applications of nanotechnology in textiles, from healthcare to environmental protection; nanofiber membranes; nanotextiles and tissue engineering; heat and moisture transfer in clothing systems; the electrospinning of nanofibers and porosity; the synthesis of nanocomposites; polymerization techniques; particulate-filled polymer nanocomposites and their reinforcement; and electrospun nanofiber mats. Distributed by CRC Press, a Taylor & Francis Group.

TA418 9789813143913
Static and Dynamic Problems of Nanobeams and Nanoplates
Snehashish Chakraverty and Laxmi Behera
World Scientific, ©2017 195 p. $88.00
Chakraverty and Behera present readers with a comprehensive examination of various static and dynamic problems of nanobeams and nanoplates, including bending, buckling, and vibration. The authors cover Euler-Bernoulli and Timoshenko's beam theories; numerical methods of analysis; bending, buckling and vibration of nanobeams; vibration of nanobeams with complicating effects, and a wide variety of other related subjects over the course of ten chapters. Snehashish Chakraverty and Laxmi Behera are faculty members of the National Institute of Technology in Rourkela, India.

TA643 9781522505884
Modeling and Simulation Techniques in Structural Engineering
Edited by Pijush Samui, Subrata Chakraborty, and Dookie Kim (Advances in Civil and Industrial Engineering)
Engineering Science Reference, ©2017 523 p. $220.00
Samui, Chakraborty, and Kim present developments in advanced computational techniques and new research areas in the diverse field of structural engineering. The chapters are written by more than fifteen experts who aim to promote the impetus for application of new modeling techniques for assessing performance of structure. A sampling of topics covered includes dynamic analysis of offshore wind turbine structures, agent based modelling of smart structures, finite analysis of pipe bends under external loads, and fuzzy structural analysis using surrogate models.

TA749 9781482257564
Ground Improvement by Deep Vibratory Methods, 2nd Edition
Klaus Kirsch and Fabian Kirsch
CRC Press, ©2017 234 p. $159.95
Deep vibration continues to be the most used in situ dynamic ground improvement method today, say the Kirschs, representing well over 10% of all special foundation work. They update and correct their reference for civil engineers and others concerned with soil conditions in terms of construction. They cover an overview of deep soil improvement by vibratory methods, a history of vibratory deep compaction, vibro compaction of granular soils, improvement of fine-grained and cohesive soils by vibro replacement stone columns, method variation and related processes,

environmental considerations, and contractual matters.

TA1630 9781608078769
Activity-Based Intelligence: Principles and Applications
Patrick Biltgen and Stephen Ryan (The Artech House Electronic Warfare Library)
Artech House, ©2016 451 p. $189.00
Biltgen and Ryan offer a future-oriented book on a new activity-based approach to intelligence, made possible by the proliferation of data in the new digital age and made attractive by the elusiveness of modern intelligence targets such as underground terrorists. The book is directed at an audience of entry-level intelligence professionals, researchers, and intelligence engineers. The first few chapters cover the history and evolution of ABI and introduce the "four pillars" of georeference to discover, data neutrality, sequence neutrality, and integration-before-exploitation. The book then delves into how ABI approaches information differently, defining some of the basic activities that can by analyzed and exploring how workflow and data collection are altered in this paradigm, including the mindset shift from targeted to incidental collection. Several chapters discuss the modern technologies used for collection of data and especially for information analysis, including AI assists and other forms of computational modeling and pattern recognition. The last third of the book explores examples of ABI applications in a variety of contexts.

TA1634 9781522506324
Developing and Applying Optoelectronics in Machine Vision
Edited by Oleg Sergiyenko and Julio C. Rodriguez-Quiñonez (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2017 340 p. $205.00
Sergiyenko and Rodriguez-Quiñonez present this research compilation on optoelectronic devices for visual sensing in computerized systems. The introduction gives an overview of the history and current state of the art in imaging and machine vision applications. The first paper describes the approach of optoelectronic sensor fusion to reduce errors in machine vision as a basis for systems to be paired with AI exhibiting nonlinear behavior. Several chapters discuss some of the underlying hardware including CMOS image sensors, printed circuit boards (PCBs) and their quality control, and laser scanners as optical devices. The second half the volume describes new advances in applications such as face recognition, landslide monitoring, 3D imaging sytems for agriculture research, and microorganism and heavy metal detection in soils, as well as a chapter on statistical properties of optical signals and improvement of signal-to-noise ratio.

HYDRAULIC ENGINEERING

TC413 9781498726665
Hydrologic Remote Sensing: Capacity Building for Sustainability and Resilience
Edited by Yang Hong, Yu Zhang, and Sadiq Ibrahim Khan
CRC Press, ©2017 395 p. $159.95
Environmental scientists and engineers review multiple satellite remote sensing observations for the water cycle in emerging regions and over the globe, the applications of satellite remote sensing in hydrological modeling and data assimilation, and the hydrologic capacity building from NASA and the HyDROS Group at the University of Oklahoma during he past decade. Among their topics are evapotranspiration mapping utilizing remote sensing data, assimilating remotely sensed streamflow data to improve flood forecasting in ungauged river basins in Africa, the multiscale evaluation and applications of current global satellite-based precipitation products over the Yangtze River Basin, satellite remote sensing drought monitoring and predictions over the the globe, and cloud-based cyber-information for disaster monitoring and mitigation.

MECHANICAL ENGINEERING & MACHINERY

TJ163 9789813146549
Dynamics of Mechatronic Systems: Modeling, Simulation, Control, Optimization and Experimental Investigations
Jan Awrejcewicz, Donat Lewandowski, and Pawel Olejnik
World Scientific, ©2017 342 p. $118.00
Awrejcewicz, Lewandowski, and Olejnik write for practicing engineers who want to augment their academic knowledge with competence related to the ability of solving various problems of mechatronic systems extended on the essential physical and numerical modeling as well as control and optimization of dynamical systems. Among their topics are magnetic and electromagnetic phenomena, modeling mechanical fluid systems, Maxwell's equations, tracking control of an electromechanical systems, and control of a multibody system's response to a suddenly applied force.

TJ170 9781522516392
Mathematical Concepts and Applications in Mechanical Engineering and Mechatronics
Edited by Mangey Ram and J. Paulo Davim (Advances in Mechatronics and Mechanical Engineering)
Information Science Reference, ©2017 494 p. $215.00
Mechanical and other engineers describe how mathematical concepts are applied in mechanical engineering and mechatronics. Their topics include the design optimization of a wind turbine using artificial intelligence, the reliability analysis of engineering systems: an accelerated life testing for boiler tubes, the electrical impedance modeling of the electrochemical spark micromachining process, the development of a material constitutive model and simulation technique to predict nonlinearities in piezoelectric materials under weak electric fields, and a stochastic approach to uncertainty control in multiphysics systems: modeling carbon balance and analyzing greenhouse gas emissions using satellite tools.

TJ211 9781498767040
Nonlinear Control of Robots and Unmanned Aerial Vehicles: An Integrated Approach
Ranjan Vepa
CRC Press, ©2017 544 p. $179.95
Vepa focuses on control and regulation methods that rely on techniques related feedback linearization, rather than the more commonly known methods that rely on Jacobian linearization. The underpinning themes that serve as a foundation for both robot dynamics and unmanned aerial vehicles include Lagrangian dynamics, feedback linearization, and Lyapunov-based methods of both stabilization and control. The book addresses the increasing appearance of both robot manipulators and unmanned aerial vehicles with operating regimes that involve large magnitudes of state and control variables in environments that are not generally very noisy.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK5103 9781522517122
Interference Mitigation and Energy Management in 5G Heterogeneous Cellular Networks
Edited by Chungang Yang and Jiandong Li (Advances in Wireless Technologies and Telecommunication)
Information Science Reference, ©2017 361 p. $195.00
Editors Yang and Li present readers with a collection of academic articles, scholarly essays, and research contributions that examine interference mitigation and energy management in 5G cellular networks of various types. The editors have organized the twelve selections that make up the main body of the text in three sections focused on energy-efficient communications and energy management techniques, enhanced interference management technology with featured characteristics, novel mathematical frameworks for interference and energy management. Chungang Yang and Jiandong Li are faculty members of Xidian University in China.

TK5103 9781482246940
Noises in Optical Communications and Photonic Systems
Le Nguyen Binh (Optics and Phototonics; 14)
CRC Press, ©2017 449 p. $189.95
This book discusses noise generation processes in optical communications and photonic systems. It provides the principles of digital communications in the context of optical and photonic transmission technology and the principles of noise generated in electronic, optical, and photonic processes, including the sensitivity and quantum limits of such modulated light wave systems, as well as presenting the noise effect on optical transmission of various modulation formats over optically amplified fiber links and identifying the roles of the generated noises in photonic amplification processes. It describes generic models of noises of electronic, optical, and photonic types; the capacity limit of noisy optical transmission systems with impairments due to linear and nonlinear distortions and electronic noises; the noise processes in noncoherent and coherent reception systems; techniques in the optical domain to suppress the electronic noises in coherent reception; digital signal processing techniques for coherent detections and digital processes to overcome practical difficulties in non-digital signal processing coherent communications; concepts and techniques in optical modulation; noises in optical transmission systems under the modulation of the amplitude and phases of light waves; and a multi-Tbps optical transmission platform for the ultimate ultrahigh-capacity information networks.

TK7872 9781498738446
Mobile Crowdsensing
Cristian Borcea, Manoop Talasila, and Reza Curtmola
CRC Press, ©2017 165 p. $119.95
Borcea, Talasila, and Curtmola present readers

with a comprehensive examination of mobile crowdsensing and its potential to allow large scale, cost effective sensing of the physical world using existing and emerging technology. The authors cover the evolution of sensing, bridging the sensing gap with mobile crowdsensing, static wireless sensing networks, the potential for mobile sensing, crowdsourcing, crowdsourcing platforms, collective sensing, and a wide variety of other related subjects. Cristian Borcea, Manoop Talasila, and Reza Curtmola are faculty members of the New Jersey Institute of Technology.

TK7888 9781630811013
Microwave Material Applications: Device Miniaturization and Integration
David B. Cruickshank (Artech House Microwave Library)
Artech House, ©2017 220 p. $169.00
Cruickshank provides a link between developments in the radio frequency engineering world--where miniaturization and integration are moving towards a fifth generation--and in the materials world--where new and existing materials and processes are proving potential opportunities to expand on the radio frequency changes. He covers new magnetic materials and their expanding applications, the miniaturization of ferrite devices using high dielectric constant ferrite, dielectrics, further miniaturization with combinations of bismuth garnets and dielectrics, absorbers, dielectric and magnetic integration, antennas, filters, tunable devices, subsystem integration, and new manufacturing techniques for dielectric and magnetic materials used in microwaves devices.

MILITARY & NAVAL SCIENCE

U163 9781522519386
Threat Mitigation and Detection of Cyber Warfare and Terrorism Activities
Edited by Maximiliano E. Korstanje (Advances in Information Security, Privacy, and Ethics)
Information Science Reference, ©2017 314 p. $190.00
Technology, political science, and other researchers from Europe, South Africa, Argentina, and the US provide 11 chapters that explore threat mitigation and detection of cyberwarfare and cyberterrorism activities. They discuss cyber security, including the prevention of parameter tapping in web applications, cyber security centers for threat detection and mitigation, and methods and tools of big data analysis for terrorism behavior in conflict areas; security and cyber risk, including cyber-attacks against the transportation industry, the culture of fear in English-speaking countries, e-participation in government by citizens, and the discourse of The Matrix; and cyberterrorism and civil riots, including the effects of cyberterrorism on society, cyber disobedience, Twitter use in student protests, and the lesser-evil doctrine and the roots of terror.

NOT FOUND

UG1242 9781498715423
Theory, Design, and Applications of Unmanned Aerial Vehicles
A. R. Jha
CRC Press, ©2017 294 p. $89.95
This text outlines the theory, design, and applications of unmanned aerial vehicles, including commercial and military applications, propulsion systems and electrical sources, and survivability. Chapters also detail basics like definitions, attributes, manned vs. unmanned vehicles, design considerations, life cycle costs, architecture, components, payload, communications, data links, and ground control stations, as well as types and civilian roles, sensors and characteristics, alternative power, conceptual design, human-machine interface, sense and avoid systems, civil airspace issues and integration efforts, navigation system and flight control system requirements, autonomous control, swarming, and future capabilities.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z678 9788170008088
A Textbook on Quality Management in Libraries
Sneha Tripathi and Aditya Tripathi (Quality Assurance in Libraries Series; 1)
Ess Ess Publications, ©2016 149 p. $35.00
In a textbook for a course on library science at the graduate or undergraduate level, the authors explain how library professionals can apply the theories and practices of quality and total quality management. They cover different approaches to total quality management; total quality management in libraries; introduction to ISO-9000; quality systems--model for quality assurance in design, development, production, installation, and service; ISO 9000 implementation in libraries. Distributed in the US by ISBS.

Z679 9781440840586
Creating the High-Functioning Library Space: Expert Advice From Librarians, Architects, and Designers
Edited by Marta Mestrovic Deyrup
Libraries Unlimited, ©2017 158 p. $70.00 (pa)
Deyrup gathers scholarly essays concerning modern library use and design written primarily by architects and designers, as well as librarians. The text tackles at every turn the challenge of making a library functional in the digital age. Topics range from designing a new library from the ground up to lighting options to protecting collections and more. Of note is a chapter presenting a short history of library design in this country. Illustrations are included along with handy charts and graphs.

Z683 9781440850134
Financial Management of Libraries and Information Centers
Robert H. Burger
Libraries Unlimited, ©2017 370 p. $85.00 (pa)
This textbook explains the financial management of libraries and information centers, for library students, librarians, and others. It covers financial statements, budgeting, revenue sources, various types of expenditures, cost accounting, and marketing and ethics.

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