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SciTech News

The Official Bulletin for the Chemistry, Engineering, and Science-Technology Divisions and the Aerospace Section of the Engineering Division and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association



Volume 70, Number 2 (2016)
ISSN 0036-8059

SciTech News



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On the Cover

“Pollen Party! Pollen, pollen, pollen, pollen, on a *Melissodes desponsa*...a species usually associated with Thistles so this may well be thistle pollen. Note that while bees may carry loads of pollen on their legs...pollen usually gathers loosely all over the bee and this is thought to be the pollen that does much of the pollination on plants. Brianne Du Clos collected this girl in Maine during her studies of blueberry fields and their surroundings.”

Photo and Caption Credit: Dejen Mengis, USGS. Image Public Domain at <https://www.flickr.com/photos/usgeologicalsurvey/24371843892/>

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From the Editor

Christine Malinowski



Welcome to the June issue of *SciTech News*!

Not only is this the conference issue, it also marks my first issue as Editor. I've been the Assistant Editor of *SciTech News* for the past two years and am excited to step into the role vacated by my very capable predecessor, Jeremy Cusker. Jeremy has been a wonderful Editor and collaborator, and I want to take a moment to thank him for his leadership and contributions to this publication. It's not easy wrangling content and ensuring we deliver an on-time and high-quality issue. Jeremy did so consistently. I have some big shoes to fill!

Speaking of filling shoes...**we're still looking for a new Assistant Editor.** This is a position that requires perhaps 10-15 hours of work for each of 4 quarterly issues. If you have an interest in science journalism and the library profession, proficiency with layout software (ideally, Adobe InDesign or equivalent), English language and writing skills, and attention to detail, this could be the perfect way for you to get involved!

A small stipend, payable either as cash or in the form of an SLA annual meeting registration subsidy, is available for the Assistant Editor. The Division of Science and Technology is able to cover the annual costs of an Adobe InDesign Creative Cloud license should an interested individual not have access to one. Access to a computer capable of running InDesign is required.

If you have an interest and the needed experience, please contact me at cmalinowski@post.harvard.edu with a letter and portfolio or links to prior design, layout and/or editing work.

With that bit of housekeeping aside, I'm looking forward to seeing many of you at the Annual Meeting in a few weeks. In this issue, you'll see lots of information on our Divisions' and Sections' sessions. There's a great lineup this year!

Until Philadelphia!
Chris Malinowski, *SciTech News Editor*

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, cma-linowski@post.harvard.edu with questions and/or content.

News from the Science-Technology Division

Science-Technology Division William Jacobs, 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.'



Hello again! I hope you all are doing well.

In my last column, I talked about the sessions we'll be having at the 2016 conference in Philadelphia, but conferences are about more than the programming. I hope you'll be able to attend to take advantage of the opportunities to network with your colleagues, visit the exhibit hall, meet some new friends, and have fun at the receptions. Your two best opportunities for informal interaction with your fellow SciTech members will be at our New Members Breakfast and the All Sciences and Engineering Poster Session. We're collaborating with DENG on both this year to make both events bigger and better than either of us could do on our own. The breakfast is going to be at the conference center this year, and we're hoping to have an equal number of newcomers and old hands for some good discussion of both STEM library careers and making the most of the conference. It's only ten dollars, so I encourage you to sign up on the SLA website for whichever group you belong to.

The poster session will be a great place to not just learn about interesting new research, but find others with shared interests for collaboration. Along with the posters, both SciTech and DENG will be presenting awards and there will be refreshments to whet your appetite for the evening's receptions. The Hilditch Award is presented yearly to provide an opportunity for a librarian outside the United States and Canada to attend the SLA Annual Conference. The Foster Award provides an opportunity for a student enrolled in a graduate level LIS program or an early career librarian from a collaborating SLA Chapter outside of the US and Canada to attend the annual conference. You'll get to meet and hear from the award winners at the poster session, but I'd like to briefly

introduce them now:

The winner of the 2016 Science-Technology and Engineering Divisions Bonnie Hilditch International Librarian Award is Ms. Shazia Arif. Ms. Arif has been employed as a Subject Liaison Librarian at the School of Engineering and Industrial Design at Brunel University London since 2008.

Ms. Arif has presented on numerous occasions and in many venues. She shared results from her dissertation for her MSc in Information Management at the Grampian Information Conference in Aberdeen in 2014, and will present a 40-minute paper on exploring the digital literacies of doctoral students at her institution at the Chartered Institute of Information Professionals (CILIP) Library and Information Literacy Conference (LILAC) in March 2016. She has also been actively serving on advisory boards for ACM and for Alexander Street Press.

The 2016 Diane K Foster award winner is Matthias Ammon. Matthias is a Library Services Administrator in the Department of Engineering at the University of Cambridge, having previously worked in several other libraries across the University and as a school librarian. He is currently studying for an MA in Information and Library Studies via distance learning at Aberystwyth University.

The session will also have some very interesting posters for you to check out. For instance, we'll have:

- "Teaching information literacy through the lens of citation metrics" by Mei Ling Lo
- "Outreach to Physics: Sitting or Roving?" by Joy Painter

- “Real World Objects: adventures in policy and procedure for science and engineering materials” by Jessica Simpson
- “Publishers’ Policies for Data Citation: Do they ease data discovery and use?” by Christine Malinowski and Chris Sherratt

If you can’t make it, I plan on posting as many posters as possible on the SciTech website again this year. I’ll post an announcement on the mailing list when it’s ready.

In other news, SciTech recently hosted a very interesting webinar on interpreting the results of statistical analyses by Dr. Deborah

South Richardson, Prof. of Psychology and Director for faculty development at Augusta University. It was accessible enough for beginners and should be useful for anyone doing research involving the statistical results of a study or survey, or for anyone wanting to improve their ability to help patrons doing that sort of work. If you weren’t one of the fifty-one people who attended, a recording is available at <http://scitech.sla.org/conferences-and-events/prof-devo-events>. It’s well worth a look.

That’s all for now. See you all at the conference!

Science-Technology Division New Members

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

The Science-Technology Division welcomes its new members from December 2015-May 2016:

Arian Abdulla
Tuscaloosa, AL, USA

Matthias Ammon
Cambridge, UK

Michael Alguire
Highland Beach, FL, USA

Shaun Bennett
Raleigh, NC, USA

Tracy Minkus
Vancouver, BC, Canada

Lisa Bosarge
Semmes, AL, USA

Carol DeDiak
Chicago, IL, USA

Georgina Cronin
Cambridge, UK

Ellen Jones
Tucson, AZ, USA

Rebecca Greenstein
Chapel Hill, NC, USA

Mobeena Khan
Watford, UK

Jacquelyn Paulin
Alexandria, VA, USA

Carenanne Torrey
Watertown, MA, USA

Brian Pouliot
Auburn, NH, USA

Nicole Cho
Somerville, MA, USA

Mireille Sers
Sydney, NS, Australia

Kelly Durkin
Los Alamos, NM, USA

Jane Talbot
Rocklin, CA, USA

Kelly Minta
Pasadena, CA, USA

Sean Bryant
Olney, MD, USA

Tony Stankus
Fayetteville, AR, USA

Maura Mullins
Washington, DC, USA

Erin Thomas
Ames, IA, USA

Robin Pertz
Cleveland, OH, USA

Sarah Hammond
York, UK

Stephanie Pierce
Fayetteville, AR, USA

Susan Aber
Emporia, KS, USA

News from the Chemistry Division

Chemistry Division

Lutishoor Salisbury, 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.



The time for our annual conference is fast approaching. This year is the Chemistry Division 50th anniversary. Our committee (Lurray Minkiewicz, Chair, Dawn French, Mindy Peters and Ted Baldwin) have worked diligently to plan an evening of entertainment, fun and fellowship to celebrate this occasion during the conference. We sincerely hope you plan to join us on June 11, 2016; 7:00pm - 9:00pm, Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA.

Ticket prices: (SLA member / Student-Retired member / Non-member): \$35 / \$25 / \$45

Register at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

For tickets for guests/spouses or non-conference attendees, please contact Mindy Peters: MPeters@cartech.com

Our complete list of programs are described below:

Friday, June 10, 2016

Course Title: Chemistry for the Non-Chemist Librarian

Description: Improve your knowledge and confidence in the structure and language of chemistry through this hands-on course. Learn basic principles of the five major divisions of chemistry, chemical terminology and drawing, and other intellectual tools that chemists need to do their work. This course has four main sections: 1) introduction to chemistry as a science, 2) strategies for effective communication with chemists, 3) basic chemical concepts and research questions, and 4) ways in which chemists' research needs dictate their information needs.

Instructors: Susan Cardinal (University of Rochester), Judith Currano (University of Pennsylvania)

Time: 8am - 5pm (full day)

Location: University of Pennsylvania

Ticket price (All Groups): \$250

Register / Purchase ticket at <https://www.surveymonkey.com/r/2016-cfncl>

Saturday, June 11, 2016

Course Title: ELNs: Implementing an Institution-wide Solution, and a Hands-on Session Using an Electronic Lab Notebook

Description: Co-sponsored with the SLA Engineering Division. ELNs (electronic lab notebooks) are research management tools gaining greater acceptance in academia and elsewhere due to their decreasing cost. Researchers realize these tools improve the efficiency of their research group by allowing for online communication, the use of templates and widgets, and more. Librarians and information professionals have started introducing and discussing ELNs with their researchers, but are asking many questions. Which one should we choose? Do we need a site license? What other issues are involved? How do you use an ELN? This class will provide some background information on ELNs, but will primarily focus on the issues involved in initiating a program to implement ELNs. Half of the course will be a hands-on session to try out an ELN system, with LabArchives as the example. Attendees should bring their own laptop (PC, Mac).

Time: 8am - 12pm (half day)

Location: Pennsylvania Convention Center
Ticket prices (SLA member / Student-Retired member / Non-member): \$199 / \$99 / \$299

Register/ Purchase ticket at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

Course Title: Chemical Information Sources, Requests, and Reference

Description: This course introduces the types of questions that chemical researchers ask, and the sources that can be used to answer them. Learn an overview of the structure of the chemical literature, types of reference sources in the chemical sciences, unique access points for chemical information, and strategies for an effective search. Informal lectures, interspersed with hands-on reference questions, will compare and describe the major chemical information resources.

Instructors: Judith Currano (University of Pennsylvania), Dawn French (Cristal USA, Inc.)

Time: 1pm - 5pm (half day)

Location: Pennsylvania Convention Center

Ticket prices (SLA member / Student-Retired member / Non-member): \$199 / \$99 / \$299

Register/Purchase ticket at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

DCHE Board Meeting

5:00pm - 7:00pm

Chemistry Division 50th Anniversary Celebration

7:00pm - 9:00pm

Venue: Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA

Chemistry Division is celebrating our 50th anniversary this year. Please join us at the Chemical Heritage Foundation for food and drinks, a tour and an evening of fun and good company.

Ticket prices: (SLA member / Student-Retired member / Non-member): \$35 / \$25 / \$45

Register/Purchase ticket at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

For tickets for guests/spouses or non-conference attendees, please contact Mindy Peters: MPeters@cartech.com

Sunday, June 12, 2016

Using Metrics to Help Faculty and Researchers Showcase their Value (Quick

Take)

1:00pm - 1:20pm

Participants will gain a familiarity with metrics in order to assist faculty and researchers in showcasing their value. Practical examples will be demonstrated on evolving journals and database article-level metrics, as well as, using the Web of Science database to demonstrate how to create a portfolio of scholarly and other metrics for a faculty, department, college or an organization.

Speaker: Luti Salisbury, Distinguished Faculty/Librarian, Head of the Chemistry and Biochemistry Library, University of Arkansas, Fayetteville

Prepare for Your Future! Learn how to Leverage Networks to Advance Your Career (Quick Take)

1:30pm - 1:50pm

The presentation will include an overview of best practices and provide participants with recommendations to increase visibility and build a solid online network to facilitate success. Preparing for promotion, tenure, or continuing appointment is a stressful time in your career. Leveraging the power of academic and professional online networks can showcase an information professional's productivity and demonstrate effectiveness. From blog posts to peer-reviewed journal articles, knowing how to best promote your work will make the process easier.

Speaker: Linda Galloway, Collection Development and Analysis Librarian, Librarian for Chemistry and Forensic Sciences, Syracuse University

Best Practices in Data Management and User Engagement

3:30pm - 5:00pm

Researchers on our campuses and organizations have a diverse set of data-intensive research obligations – from data management plans to data discovery platforms and services. Librarians are uniquely qualified to assist by providing services including data curation, visualization, interpretation, discovery, storage and analysis. Helping out with these responsibilities has enabled libraries to move beyond their traditional roles to add value in the services they provide to their users and

to take on a more active role in user engagement.

Rita Vine, Head of Faculty and Student Engagement at the University of Toronto Libraries and co-author of the December 2015 report from the Association of Research Libraries on the Columbia University/Cornell University/University of Toronto Pilot Library Liaison Institute will share insights on how the roles of the library and librarians are shifting to meet researcher's data-intensive obligations and interests. She will highlight how libraries are adapting from purchasing materials for local use to provide advice in new areas like research grant compliance and global collaborations, and how these affect researcher choices surrounding data management, storage, and sharing. Rita will also consider the successes and challenges of assisting and engaging researchers with library-led data initiatives.

The second speaker, Scott Brown, a Cybrarian at Oracle, and owner of Social Information Group, will highlight how to successfully use social media to drive visibility for information services. Scott will describe how to engage constituents with research data tasks, tools, resources and services via social media channels. Scott will help participants understand and effectively use social tools to achieve organizational goals.

The third speaker, Jan Johansson, Information Manager at the Board of Governors of the Federal Reserve System will discuss the latest trends and best practices in maintaining a vibrant and effective data curation and management program. Participants will learn about the latest tools to assist with data collection, representation and management, digital preservation and archiving, data standards and policy.

Monday, June 13, 2016

DCHE Breakfast and Academic / Corporate Roundtable

7:30am - 9:30am

In this session, we will discuss current topics and future trends in the information in-

dustry. Participants will have an opportunity to network with division members from both the academic and corporate world to share information.

Ticket price: \$15.00

Register/ Purchase ticket at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

All Sciences Poster Session & Reception

5:30pm - 7:30pm

Chemistry Division members will have an opportunity to showcase their work in this session.

Tuesday, June 14, 2016

DCHE Business Meeting, Breakfast & Vendor Update

7:30am - 9:30am

This program will begin with a brief business meeting of the Chemistry Division. DCHE board members will report division business and future plans and the Marion E. Sparks Award will be presented to the 2016 winner. The rest of the session will focus on new developments and future trends in the chemical and scientific publishing industry. Participants will learn of the latest developments in chemistry research dissemination from each of the major chemistry and science-related vendors and publishers.

Ticket Price: \$15.00

Register/ Purchase ticket at: <http://www.sla.org/attend/sla-2016-annual-conference/register/>

Value Added Services: Becoming a Strategic Research Partner (Quick Take)

10:00am - 10:20am

Want to become an integral member of your customer's research team? Come and learn strategies and techniques for collaborating with your customers and the skill sets that can get you on the team. Don't just respond to their requests – impress them by anticipating their needs. Learn what it means to become a strategic research partner!

Speaker: Susan Makar, Librarian and Liaison to the Material Measurement Laboratory, National Institute of Standards and Technology

Librarian's Role in Research Assessment and Highlighting Value

11:00am - 12:00pm

With an increased emphasis on all types of institutional and academic assessment, libraries are collaborating with campus partners to help deliver these metrics. Using commercial analytical tools such as Scival and InCites, librarians can assist organizations in identifying research strengths and areas of opportunity, and help visualize institutional and faculty productivity. Using citation databases, librarians help faculty and institutions evaluate research output using citation metrics and analysis and help interpret and utilize altmetric tools. This session will cover real-life examples how libraries have partnered with their institutional assessment offices, academic departments and individuals to assist them in evaluating their research output.

First Speaker: Dr. Danny Kingsley, Head of Scholarly Communication at the University of Cambridge will speak on the challenges of the disciplinary/institutional divide.

Drawing from the experience at her university, she will elaborate on ways their Research office and the University Library are collaborating on ways to integrate different systems within the University to help compliance requirements with the aim of achieving the goal of 'submit once, use many times'. She will discuss how the Library is forging new relationships – and successful engagement with the academic community that requires demonstrating value of their services.

The second speaker, Elizabeth Ten Have, the Director of Library Academic Partnerships at Drexel University Libraries will speak on: Expanding our reach: Libraries support of research activities at Drexel University.

Her presentation will describe how Drexel University Libraries has broadened its programmatic activities to support its current

strategic initiative of "Research Innovation" and how the efforts have contributed to raising the Libraries profile on campus. She will highlight their use and impact of both free (e.g. ORCID, SciENCv) and proprietary tools (e.g. LibGuides, InCites) through a collaboration of the liaison librarians.

The third speaker, Christopher Belter, Informationist, National Institute of Health Library will speak on: Partnering with stakeholders to assess research impact at the National Institutes of Health.

Through a series of case studies, his presentation will highlight and assess the methods and tools used by the NIH Library in partnership with evaluators to assess the research directions, collaboration structures, and citation impacts of NIH Institutes, research initiatives, and grant portfolios.

The Science of Food and Biocultural Evolution: Implications for the Future of Food

2:00pm - 3:30pm

Learn about the science of food and biocultural evolution from Dr. Solomon H. Katz, director of the Krogman Center for Childhood Growth and Development at the University of Pennsylvania and a leading expert on the anthropology of food. Dr. Katz will share his research on the evolutionary history of several cuisine traditions that, until contemporary times, provided sufficiently balanced diets to support the success of many different food traditions as well as how over time dietary imbalances have been created impacting and challenging the health and welfare of populations throughout the world. This session will be of interest to biomedical and health science information professionals, particularly those who work closely with healthcare professionals and researchers, to gain a better understanding of current research in this area, but also to a broad audience who is interested in the many roles cuisine traditions play in our everyday life.

DCHE Welcomes New Members

Submitted by Kevin Manning, DCHE Membership Chair 2016

(Joining dates between March 2016 - April 2016)

Susan Alden
Simmons College

Dr. Allison Langham
University of Wisconsin

Karen Vagts
Tufts University

News from the Engineering Division

Engineering Division

Giovanna Badia, Chair

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.



The SLA 2016 conference in Philadelphia is only a few short weeks away. We have a variety of sessions and activities planned to suit many different needs, whether you would like to network, take a continuing education course while playing around with electronic lab notebooks, learn about different engineering resources, exchange teaching strategies, and/or discuss our changing roles.

I would like to thank a few individuals for organizing this year's programming. They are: *Niamh Tumelty* (2016 Conference Program Planner), *Becca Smith* (ABCD Section Chair), *Gabriele Hysong* (Aerospace Section Chair), *Daureen Nesdill* (Professional Development Chair), and *Zac Painter* (Fundraising Chair).

For your convenience, you will find below the descriptions of the upcoming sessions and activities that will be occurring in Philly. Room numbers will be available on the SLA online planner (see <http://sla16.mapyourshow.com/>).

NETWORKING & FUN: Eat and be merry

50 years of the Engineering Division! (ticketed event)

Sat. June 11 | 7:00 PM - 9:00 PM

Join us as we celebrate 50 years of the Engineering Division! First formed in 1942 as the Engineering-Aeronautics Section of the Science-Technology Division, the section quickly grew and strengthened until it became a division in its own right. The Engineering Division was launched at the SLA Conference in Minneapolis in 1966.

On Saturday 11th June 2016, members and friends will gather to celebrate the many achievements of the Engineering Division over its 50-year history. This is a ticketed

event, so make sure to reserve your place using the conference-booking site.

Presented by: Engineering Division

Cost: \$35 Member | \$45 Non-Member | \$25 Student

Sponsors: Association for Computing Machinery (ACM), American Institute of Aeronautics and Astronautics (AIAA), ASME

Engineering Division Board Meeting

Sat. June 11 | 5:00 PM - 6:00 PM

Engineering Division elected officers and committee chairs report on their areas of responsibility and discuss business. Everyone is welcome to attend to discover what we've been doing and how you can get involved.

Presented by: Engineering Division, Engineering Division - Aerospace Section, Engineering Division - Architecture Building Engineering Construction & Design Section

Explore Hershey's Chocolate World & the Town of Hershey (ticketed event)

Wed. June 15 | 7:30 AM - 4:00 PM

Join the Engineering Division on a sweet adventure to Hershey's Chocolate World, where we will tour the factory, watch Hershey's product characters come to life, create our own candy bars, and taste different types of Hershey chocolates. After Hershey's Chocolate World, we will take a historical sightseeing trolley tour of the town of Hershey.

Presented by: Engineering Division

Cost: \$30 Member | \$40 Non-Member | \$20 Student

Sponsor: Basch Subscriptions, Inc.

Science and Engineering Newcomers'

Breakfast (ticketed event)

Mon. June 13 | 7:30 AM - 9:30 AM

Are you a science/engineering librarian attending SLA for the first time? Or maybe a more established member of the Division? Come along and meet other members of the Engineering and Science-Technology Divisions, get/share some conference tips and ask any questions you have. This is a ticketed event, so make sure to reserve your place using the conference-booking site.

Presented by: Engineering Division, Science-Technology Division

Cost: \$10 Member | \$15 Non-Member | \$10 Student

Sponsor: IEEE Xplore Digital Library, Morgan & Claypool Publishers

OUR DIFFERENT ROLES: Changing with the times

Integrating Information into the Engineering Design Process

Tue. June 14 | 7:30 AM - 9:30 AM

Novice engineers, including students, frequently spend too little time understanding the problem in their design projects and jump to solutions without considering alternatives. This leads to inefficient use of time and suboptimal results in the final design. Librarians can help design teams be more effective by facilitating appropriate information gathering, evaluation, and communication at each stage of the engineering design process. This hands-on, interactive session will introduce an award-winning conceptual model for integrating information into the engineering design process that will enable librarians to support engineers and teach students to generate more innovative, practical, and appropriate solutions to their engineering design problems. We encourage both corporate and academic engineering librarians to attend and share their experiences working with their core users.

Presented by: Engineering Division - Architecture Building Engineering Construction & Design Section

Sponsor: Elsevier

MASTER CLASS: Stop Press: Libraries'

Role in the Future of Publishing

Mon. June 13 | 12:00 PM - 1:30 PM

Libraries are moving from curators of bought content to providing access to research or industry outputs. This activity can range from the relatively informal process of dissemination through a repository to acting as publishers - through the hosting of research journals, bibliographies and newsletters to the provision of editorial services and advice. This 90-minute Master Class will look at different models of publishing in the library environment with several examples of publishing activity in different libraries. The session will start with a strategic overview of the need for libraries to actively engage in the dissemination of information created by their organisations. The discussion will cover the staffing implications, including how to recruit and train for the required skills sets. Attendees will work through some of the issues that need to be considered if a library is interested in publishing, including some of the legal implications and the different software and technical platforms available. Ideas will be workshopped about ways to engage the institutional community and encourage uptake of services on offer. The class aims to provide practical information to allow attendees to make decisions about what services are achievable to offer their clients, both from a technical and a staffing perspective. Attendees who are currently publishing are actively encouraged to participate in the discussion.

Presented by: Engineering Division

Sponsor: Elsevier

Your Teaching Toolkit

Mon. June 13 | 4:00 PM - 5:00 PM

Whether it's one-to-one sessions with colleagues or clients, small-group workshops or large-scale lectures with hundreds of attendees, many library and information professionals are involved in teaching or training as part of the day job. TeachMeets have become hugely popular as a forum for peer learning across the UK, Ireland and other parts of Europe. Now for the first time TeachMeet comes to SLA! Come along to this unconference-style session and share your

teaching tips and tricks, what's worked well and what to avoid. It doesn't matter if you're new to teaching or have decades of experience under your belt, everyone is encouraged to join in with short (2-5 minutes max) informal talks in front of a welcoming audience. The talks will be followed by an opportunity to network with other participants and find out more about what they've done. Sign up in advance at <http://bit.ly/1mfDr9P> or just come along on the day. There will be no PowerPoint presentations, and although you can bring other props to support your presentation, the most important thing is to just bring yourselves!

Presented by: Engineering Division, Education Division

STEM RESOURCES: Discover new favourites

A Bucketful of Engineers and Resources: Understand 10 Engineering Disciplines and Identify Their Top 10 Information Resources

Sun. June 12 | 11:45 AM - 1:15 PM

Help the Engineering Division celebrate its 50th anniversary by learning more about different engineering disciplines and their resources. Discover what 10 different types of engineers do (ranging from above the clouds to below the ground engineering), and the top 10 sources information professionals use to answer reference questions in these branches of engineering.

Presented by: Engineering Division
Sponsor: SAE International

The Link Found Elsewhere: Archival Information in Forensic Engineering and Historic Preservation

Tue. June 14 | 9:45 AM - 10:45 AM

Existing buildings are artifacts of manufacturing and construction processes that occurred in the past and may be forgotten, obsolete, or not readily discernible today. Engineers that work with existing buildings need to bring these hidden processes to light, whether to replicate them or to understand how they led to failure. (Although the latter

is the primary goal of forensic engineering, it is also relevant to arresting or reversing deterioration in a preservation project.) These investigations typically begin with the physical evidence that is exposed to view and proceed into areas hidden behind architectural finishes, but we need to keep in mind that the missing link may be awaiting discovery miles away in a library or archive. Using examples from greater Philadelphia and elsewhere, the speaker will show how archival information—sometimes just a single document—can be critical to the success of a forensic engineering investigation or historic preservation project.

Presented by: Engineering Division

Standards Update

Mon. June 13 | 10:00 AM - 11:30 AM

Standards are the backbone of engineering and providing access to them a core function of information professionals. This session is the place to learn what is new straight from the source. Ask questions and provide feedback while Standards Development Organizations (SDOs) are all in the same room! Meet representatives from many SDOs and content providers; learn about their latest and greatest innovations. Come early, grab a seat... this session fills up fast!

Presented by: Engineering Division, Transportation Division

Sponsors: American Society of Civil Engineers, ASTM International, IEEE Xplore Digital Library, Elsevier

QUICK TAKE: Googling for Facts, Grey Literature, and Metrics in STEM

Mon. June 13 | 9:30 AM - 9:50 AM

Google products complement traditional article and full-text databases in the sciences and engineering by including grey literature sources, providing metrics for articles, authors, and journals, and allowing quick access to factual information. This quick take presentation will discuss: techniques for using Google tools and features to find facts and grey literature sources; citation searching in Google Scholar, and creating a My Citations profile page to calculate an author's

h-index and track citations to his/her publications; building a Google Custom Search engine to search image resources on a specific subject; and cases where Google instruction was incorporated in information literacy sessions offered to different groups.

Presented by: Engineering Division

CO-SPONSORED SESSIONS: Learning with our partners

Last but not least, we are also co-sponsoring the following sessions:

All Sciences and Engineering Poster Session and Awards Reception

Mon. June 13 | 5:00 PM - 7:00 PM

Join your colleagues for an entertaining evening discovering the latest in science research. Make new friends, renew acquaintances, chat with others interested in your field, and have a wonderful evening before joining the later parties. A variety of posters will be available covering science, technology, and engineering. Several divisions will be having award ceremonies during this time. We welcome all attendees!

Presented by: Science-Technology Division, Biomedical & Life Sciences Division, Physics-Astronomy-Mathematics Division, Pharmaceutical & Health Technology Division, Food Agriculture & Nutrition Division, Engineering Division, Chemistry Division
Sponsor: IEEE Xplore Digital Library

Crucial Conversations

Mon. June 13 | 12:00 PM - 2:00 PM

Information professionals find themselves in challenging communication situations every day – working with demanding clients, educating people on what we do, negotiating with vendors, and more. Learn how to create an environment conducive to open dialogue and effectively make yourself heard and understood when engaged in high-risk, high-emotion discussions.

Presented by: Solo Librarians Division, Engineering Division - Aerospace Section, Pharmaceutical & Health Technology Division, Military Libraries Division, Leader-

ship & Management Division, Insurance & Employee Benefits Division

Datamining Non-Patent STEM Literature: Roadblocks and Successes

Sun. June 12 | 11:45 AM - 1:15 PM

Datamining of non-patent literature has often been restricted by copyright or licensing making the analysis of “external” data a challenge for organizations. This roadblock is a hot topic in Europe where laws are being reformed. Join this panel to discuss legislation trends, copyright aspects, licensing and contracts, and successful examples of content mining.

Presented by: Leadership & Management Division Content Buying Section, Engineering Division

Ethnographic Research Methods

Tue. June 14 | 2:00 PM - 3:30 PM

The term ethnographic research conjures up images of a person in a lab coat watching people go about their daily routines while feverishly taking notes on everything they observe. While the idea remains true, social scientists have made great strides in the areas of techniques and applications over the years. This session will feature a panel of experts leading the way in social research from anthropological and marketing perspectives.

Presented by: Business & Finance Division, Engineering Division, User Experience Caucus, Physics-Astronomy-Mathematics Division

MASTER CLASS: The Librarian’s Role in Research Assessment and Highlighting Value

Tue. June 14 | 11:00 AM - 12:00 PM

With an increased emphasis on all types of institutional and academic assessment, libraries are collaborating with campus partners to help deliver these metrics. Using commercial analytical tools such as Scival and InCites, librarians can assist organizations in identifying research strengths and areas of opportunity, and help visualize institutional and faculty productivity. Using citation da-

tabases, librarians help faculty and institutions evaluate research output using citation metrics and analysis and help interpret and utilize altmetric tools. This session will cover real-life examples how libraries have partnered with their institutional assessment offices, academic departments and individuals to assist them in evaluating their research output.

Presented by: Chemistry Division, Academic Division, Science-Technology Division, Physics-Astronomy-Mathematics Division, Engineering Division, Biomedical & Life Sciences Division

I hope to see many of you at the conference!

Ciao for now, Giovanna
SLA Engineering Division Chair 2016

News from the Aerospace Section

Aerospace Section

Gabriele Hysong, 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.

HELLO TO ALL SCI-TECH NEWS READERS AND AEROSPACE SECTION MEMBERS!

The SLA annual conference is almost upon us, and I hope you are as eager as I am to be in Philadelphia, one of my old stomping grounds.

Do plan on joining your colleagues at this year's conference. Exciting programs including interesting side trips are scheduled. Moreover, it is fitting that the conference this year is in Philadelphia, following the 2015 conference in Boston. Both cities birthed revolutionary ideas and continue to do so.

This year, in lieu of a breakfast, Aerospace will be co-sponsoring a session, *Crucial Conversations: Tools for Talking When Stakes are High*, with Solo Division as the lead. A Crucial Conversation is defined as "A discussion between two or more people where (1) stakes are high, (2) opinions vary, and (3) emotions run strong" and the outcome greatly impacts their lives. As information professionals and librarians, we deal with crucial conversations quite often.

Aerospace will be one of several co-sponsors, along with Insurance & Employee Benefits, Leadership & Management, Military, and the Pharmaceutical & Health Technology divisions. Not only will this be an opportunity to make our section be more visible outside of Engineering and Sci-Tech, but to utilize economies of scale to host a high-quality and well-attended session.

Moreover, not only are the various divisions co-sponsoring, but IEEE, a valued supporter of many SLA events, programs and awards, has also agreed to help sponsor this important session. Please be sure to thank IEEE

for their support when you visit their booth or meet their representatives.

Crucial Conversations is scheduled for Monday, June 13, 12 noon - 2:00 pm.

I am also very pleased to announce the Mandel Award winner for 2016—Sara Tompson, of the Jet Propulsion Laboratory in Pasadena California. Sara is a very active member of SLA, serving for many years in various capacities, including Chair of the Engineering Division, 2002–2003. Sara has authored and co-authored numerous peer-reviewed papers, book chapters and presented at SLA and other conferences. If you read her CV (<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzYXJhdGlmcnxneDozZjdIOGE2NzBjM2E1NzQ2>) you can see how active she is—not only in SLA, but within JPL, Caltech and USC. In addition, Sara is also an instrument rated private pilot!

It will be my honor to present Sara with the Mandel Award at the All Sciences Poster Session and Reception, Monday, June 13, 5:00 PM - 7:00 PM. Please be sure to attend to see all the posters and award winners! This year, too, we will be celebrating 50 years of the Engineering Division. First formed in 1942 as the Engineering-Aeronautics Section of the Science-Technology Division, the section quickly grew until it became a division, launching at the SLA conference in Minneapolis in 1966.

To celebrate this event, members and friends will gather together Saturday, June 11 from 7:00 pm - 9:00 pm. Tell your colleagues, friends and acquaintances about this event! As one last thought, it's never too early to

think about volunteering to serve as Aerospace Section Chair-elect for 2017. If I can do it, anyone can!

Looking forward to seeing you at SLA 2016 in Philadelphia!

Gabriele Hysong
SLA Aerospace Section Chair, 2016

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>.

GEOGRAPHY

G70 9781498707633

Spatial Analysis: Statistics, Visualization, and Computational Methods

Tonny J. Oyana and Florence M. Margai
CRC Press, ©2016 305 p. \$99.95

Oyana and Margai provide a problem-based learning approach to spatial analysis by combining fundamental theories and concepts with the practical application of geospatial data tools, techniques, and strategies in geographic studies. Their goal is to offer a theoretical/methodological foundation in spatial analysis using traditional, contemporary, and emerging computational approaches then to encourage readers to apply the critical knowledge and skills in analyzing and interpreting geographic data. Among their topics are making scientific observations and measurements in spatial analysis, using statistical measures to analyze data distributions, understanding spatial statistical relationships, and engaging in geostatistical analysis.

ENVIRONMENTAL SCIENCE, ECOLOGY

GF90 9781482237399

Land Use and Land Cover Semantics: Principles, Best Practices, and Prospects

Edited by Ola Ahlqvist, Dalia Varanka, Steffen Fritz, and Krzysztof Janowicz
CRC Press, ©2016 328 p. \$149.95

Geographers and environmental scientists explain new terminology and new meanings for old terms in the field of land use and land cover as new technology has increased both the quantity and the nature of data that is available, and seek to establish common semantics. Among the topics are a Nordic forest classification perspective on the need for an awareness of semantic plasticity in the international harmonization of geographical information, parameterized approaches to categorizing land use and land cover, an applied ontology for semantics associated with

surface water features, and crowdsourcing landscape perceptions to validate land cover classifications.

SCIENCE (GENERAL)

Q325 9781479986453

Intelligent Human-Machine Systems and Cybernetics; proceedings; 2 volume set

International Conference on Intelligent Human-Machine Systems and Cybernetics (7th: 2015: Hangzhou, Zhejiang, China)
Computer Society Press, ©2015 1151 p.
\$365.00 (pa)

Researchers and practitioners share research findings, novel ideas, and innovative applications in all aspects of human-machine systems and cybernetics. About 260 papers consider such topics as analyzing the traffic and user behavior of online mobile games, modeling and simulating a ship's fuel supply unit, the asymptotic stability of a system with two identical robots and a built-in safety, using Wikipedia categories for discovering the themes of text documents, the behavior evolution of a duffing oscillator, an active contour model based on local and global image information, an aged-care service information system based on cloud computing, and automobile anti-collision millimeter-wave radar signal processing.

Q334 9781614995883

Scandinavian Conference on Artificial Intelligence; proceedings

Scandinavian Conference on Artificial Intelligence (13th: 2015: Halmstad, Sweden) Edited by Slawomir Nowaczyk (Frontiers in Artificial Intelligence and Applications; Volume 278)
IOS Press, ©2015 195 p. \$127.00

Editor Slawomir Nowaczyk presents readers with a collection of papers selected from the research materials presented at the Thirteenth Scandinavian Conference on Artificial Intelligence held in Sweden in November of 2015. The collection is organized in three parts. The first part is devoted to invited speakers and includes papers on the stable walking of bipedal robots and the challenges with new data analysis in smart envi-

ronments. The second part is devoted to regular papers and contains selections on a wide variety of subjects like interfacing agents to real-time strategy games, ontology-based introspection in support of stream reasoning, predicting adverse drug events with confidence, and others. The third and final part of the text is focused on doctoral symposium on the subject. The editor is a faculty member of Halmstad University, Sweden.

Q335 9781498734820

Risks of Artificial Intelligence

Edited by Vincent C. Müller

CRC Press, ©2016 291 p. \$129.95

European and American researchers working in computer science and other areas provide 12 chapters that examine the risks of artificial intelligence and ways to ensure that artificial intelligence systems will be beneficial to humans. They consider how artificial agents can turn into serious threats to humans; errors, insights, and lessons from famous artificial intelligence predictions; the path to more general artificial intelligence; the limitations and risks of machine ethics; utility function security; an artificial general intelligence meta-architecture enabling goal preservation and radical self-improvement; universal empathy and ethical bias for artificial general intelligence; how artificial intelligence can learn to understand what is moral; the ethics of brain emulations; long-term strategies for mitigating existential risk from fast takeoff to superintelligence; and the need to consider risks such as the military use of artificial intelligence. Most chapters are based on papers given at a conference on the topic held in Oxford, England, in December 2012, published in a subsequent journal volume.

Q337 9781498741064

Swarm Intelligence: Principles, Advances, and Applications

About Ella Hassanien and Eid Emary

CRC Press, ©2016 209 p. \$99.95

This work outlines engineering applications of swarm intelligence and describes optimization algorithms drawn from the movements of fish, insects, and animals. The first chapter deals with basics of mathematical optimization, swarm intelligence, random walks, and chaos theory. Subsequent chapters are devoted to describing specific swarm algorithms, all created in the past 10 years, such as the bat algorithm, firefly algorithm, artificial fish swarm, the cuckoo search algorithm, the flower pollinator algorithm, artificial bee colony optimization, wolf-based search algo-

rithms, and bird's-eye view. The book attempts to standardize these algorithms and compares their strengths and weaknesses for various purposes. The algorithms are evaluated based on criteria such as probability distribution, exploitation of positional distribution of agents, and number of control parameters. B&w images and charts are included. A companion web site offers case examples and MATLAB code.

Q342 9781498743709

Computational Intelligence Paradigms for Optimization Problems Using MATLAB/SIMULINK

S. Sumathi, L. Ashok Kumar, and Surekha P.

CRC Press, ©2016 601 p. \$219.95

Electronic engineers explain how to use computational intelligence techniques to solve complex real-world problems, particularly problems related to optimization. They cover unit commitment and the economic load dispatch problem, harmonic reduction in power systems, voltage frequency control in power systems, the job shop scheduling problem, multi-depot vehicle routing problem, and digital image watermarking. The material is for upper-level undergraduate, graduate, and research students interested in understanding and implementing computational intelligence algorithms for various applications using MATLAB/Simulink.

MATH, COMPUTERS

QA75 9789814740098

International Conference on Software Engineering and Information Technology, proceedings

International Conference on Software Engineering and Information Technology (2015: Guilin, Guangxi, China) Edited by Xiaolong Li

World Scientific, ©2016 356 p. \$155.00

The 67 papers selected for the June 2015 conference present recent research on computer intelligence, networking, algorithms, simulation methods, signal processing, and software engineering. Five electrical engineering papers propose a conversion method between left linear grammar and right linear grammar via finite automata, measure vacuum levels in MEMS packaging, detect a magnetizing inrush current in single-phase traction transformers, control the angle of DC motor output, and estimate lithium battery state-of-charge. Other topics include the competition dynamics of information propagation in a complex network, a partially blind signature scheme,

calculating the crown dimension of a plant with trigeminal tree structure, applying big data to food safety risk monitoring, and a swarm intelligence algorithm optimization function simulation platform.

QA76.58 9781614993803

Parallel Computing: Accelerating Computational Science and Engineering (CSE); proceedings

International Conference on Parallel Programming (2013: Garching, Germany) Edited by Michael Bader, Arndt Bode, Hans-Joachim Bungartz, Michael Gerndt, Gerhard R. Joubert, and Frans Peters (Advances in Parallel Computing; Volume 25)

IOS Press, ©2014 846 p. \$196.00

The invited talks cover extreme data science at the National Energy Research Scientific Computing Center, and performance analysis techniques for the exascale co-design process. About another 85 papers consider such topics as approximate inverse preconditioners for Krylov methods on heterogeneous parallel computers, simulating multiphase flows in the subsurface of supercomputers based on graphics processing units, a fault tolerant implementation of multi-level Monte Carlo methods, global communication schemes for the sparse grid combination technique, potentials and limitation for energy efficient auto-tuning, and a generic prototype to benchmark algorithms and data structures for hierarchical hybrid grids.

QA76.585 9781522501534

Developing Interoperable and Federated Cloud Architecture

Edited by Gabor Kecskemeti, Attila Kertesz, and Zsolt Nemeth (Advances in Systems Analysis, Software Engineering, and High Performance Computing)

Information Science Reference, ©2016 398 p. \$210.00

This book is for practitioners who use cloud infrastructures. International contributors in computer engineering, distributed systems, cloud computing, and informatics describe the latest research and applications in infrastructure as a service (IaaS) cloud systems. They present solutions to interoperability and efficiency challenges faced by infrastructure clouds, with special focus on developing and running interoperable, federated IaaS cloud systems. Section 1 offers four chapters on foundations, covering areas such as properties and architectures of cloud federation, and identity and access management in cloud computing environments. Section 2 details

practice and experiences in areas such as highly available fault-tolerant cloud database services, distributed multi-cloud based building data analytics, and a transatlantic multi-cloud infrastructure for studying climate change.

QA76.585 9781466698345

Managing Big Data in Cloud Computing Environments

Edited by Zongmin Ma (Advances in Systems Analysis, Software Engineering, and High Performance Computing)

Information Science Reference, ©2016 314 p. \$195.00

Nine of the eleven papers in this collection explore foundational issues of big data management in cloud computing environments, evaluating current approaches to big data processing, cloud-aware distributed object storage in internet services, data-intensive applications distributed across multiple cloud-based data centers, and databases for storing large-scale spatiotemporal trajectory data. The last two chapters survey Chinese organizations about the advantages and disadvantages of cloud computing, and propose a cloud-oriented green computing architecture for eLearning applications.

QA76.585 9781482242836

Mobile Cloud Computing: Architectures, Algorithms and Applications

Debashis De

CRC Press, ©2016 351 p. \$109.95

De describes recent developments in mobile cloud computing, which he says is essential for high-speed fifth-generation mobile networks. He covers mobile computing, cloud computing, mobile cloud computing, offloading, green mobile cloud computing, resource allocation, sensor mobile cloud computing, social computing, privacy and security, trust, vehicular mobile cloud computing, business aspects, applications, and the scope of future research. He includes chapter-end questions to facilitate the book being used as a course textbook.

QA76.585 9781466699168

Modern Software Engineering Methodologies for Mobile and Cloud Environments

Edited by António Miguel Rosado da Cruz and Sara Paiva (Advances in Systems Analysis, Software Engineering, and High Performance Computing)

Information Science Reference, ©2016 355 p. \$210.00

Computer scientists and software engineers survey methods and techniques for modeling, con-

structuring, and validating mobile and cloud-based applications; for analyzing and testing underlying networks and services; and for studying and developing new approaches that try to cope with the limitations of one by exploiting the opportunities leveraged by the other. Their topics include designing mobile collaborative applications for cloud environments, estimation for mobile and cloud environments, the effects of bad smell-driven refactoring in mobile applications on battery usage, a domain independent pedestrian dead reckoning system solution for Android smartphones, Android executable modeling: beyond Android programming.

QA76.76 9781466698581

Emerging Innovations in Agile Software Development

Edited by Imran Ghani, Dayang Norhayati Abang Jawawi, Siva Dorairaj, and Ahmed Sidky (Advances in Systems Analysis, Software Engineering, and High Performance Computing) Information Science Reference, ©2016 323 p. \$205.00

Editors Ghani, Jawawi, Dorairaj, and Sidky present a collection of academic and expert contributions on contemporary and emerging developments in the world of agile software development. The fourteen contributions that make up the main body of the text cover agile assessment methods and approaches, usability engineering in the agile software development process, rapid agile transformation at a large IT organizations, and many other related subjects. Imran Ghani and Dayang Norhayati Abang Jawawi are faculty members of the Universiti Teknologi Malaysia. Siva Dorairaj is a software educator based in New Zealand. Ahmed Sidky is with ICAgile in the U.S.

QA76.9 9781284058482

Cyberwarfare: Information Operations in a Connected World

Mike Chapple and David Seidl (Information Systems Security & Assurance Series)

Jones & Bartlett, ©2015 428 p. \$99.95 (pa) Chapple and Seidl present a textbook to be used in a course on cyberwarfare for graduate or undergraduate computer science or information science majors or students at two-year technical or community colleges who have a basic technical background. In sections on the cyberwarfare landscape, offensive and defensive cyberwarfare, and the future of cyberwarfare, they consider such topics as targets and combatants, social engineering and cyberwarfare, non-state actors in cyberwar, cryptography and cyberwar, and cyberwarfare and military doctrine.

QA76.9 9781608079285

Information Hiding

Stefan Katzenbeisser and Fabien Petitcolas (Artech House Computer Security Series)

Artech House, ©2016 299 p. \$129.00

Specialists describe the current status of various domains that comprise information hiding for computer or network security or to counter surveillance or censorship. They cover multimedia steganography, steganalysis, network steganography, robust watermarking, watermarking security, fingerprinting, fragile and authentication watermarks, media forensics, and watermarking in the encrypted domain. One goal of the book is to encourage students to enter the field and instructors to add information hiding to their curriculum.

QA76.9 9781472566737

Logic of the Digital

Aden Evens

Bloomsbury, ©2015 183 p. \$112.00

This discussion of digital ontology presents ideas that are currently outside the realm of digital studies, investigating the limits of the binary code at the foundation of all digital technologies and how these limits manifest themselves in digital technologies such as the computer, software, the user interface, and the Web. The author seeks to explain how the binary code crosses the ontological divide from abstract logic to the material world. Of special interest is discussion of the paradox that even though the binary code itself is not creative, it yields creativity and innovation.

QA169 9781470427238

Colored Operads

Donald Yau (Graduate Studies in Mathematics; Volume 170)

American Mathematical Society, ©2016 428 p. \$89.00

This introduction to colored operads and their algebras in a symmetric monoidal category explores colored operads whose underlying colored symmetric sequences are concentrated in arity 1, the motivation for axioms governing the partial compositions in a colored operad, free colored non-symmetric operads, and the left adjoint of the forgetful functor from colored operads all the way down to colored objects. The opening chapters review the construction of related graphs and rooted trees, and the basic concepts of category theory.

QA218 9781466581456

Handbook of Linear Partial Differential Equations for Engineers and Scientists, 2nd

Edition

Andrei D. Polyanin and Vladimir E. Nazaikinskii
 CRC Press, ©2016 1609 p. \$199.95

In this book, authors Polyanin and Nazaikinskii present readers with the second edition of their comprehensive examination of various types of linear partial differential equations for engineers and scientists. The authors have organized the thirty chapters that make up the main body of their text in four parts devoted to first-order equations with two independent variables; analytical methods for various equation types; symbolic and numerical solutions with Maple, Mathematica, and MATLAB; and tables and supplements to the rest of the text. Andrei D. Polyanin and Vladimir E. Nazaikinskii are faculty members of the Russian Academy of Sciences.

QA221 9789814704434

Frontiers in Time Scales and Inequalities

George A. Anastassiou (Series on Concrete and Applicable Mathematics; Volume 17)

World Scientific, ©2016 278 p. \$88.00

The author presents his work in discrete and functional analysis, which can be applied in pure and applied mathematics, particularly in difference equations and fractional differential equations. He describes the right delta and right nabla fractional calculus on time scales; right delta and right nabla discrete fractional calculus in the Caputo sense; representations formulae of functions on time scales and Ostrowski type inequalities, Landau type inequalities, Grüss type, and comparison of means inequalities; integral operator inequalities and their multivariate vectorial versions using convexity of functions over time scales; general Grüss and Ostrowski inequalities using s-convexity; essential and convexity Ostrowski and Grüss inequalities using several functions; general fractional Hermite-Hadamard inequalities using m-convexity and convexity; and the reduction method in fractional calculus and fractional Ostrowski type inequalities.

QA273 9781498704199

Essentials of Probability Theory for Statisticians

Michael A. Proschan and Pamela A. Shaw (Chapman & Hall/CRC Texts in Statistical Science Series)

CRC Press, ©2016 328 p. \$89.95

Some graduate biostatistics and statistics programs still require a full year of probability, while some have acceded to student impatience and eliminated it entirely. Proschan and Shaw offer a textbook for a compromise between these extremes. They present the essential probability re-

sults that are used repeatedly in statistical applications, and selected proofs that make repeated use of mathematical techniques that professional statisticians continue to use when rigor is needed. Among their topics are size matters, random variables and vectors, modes of convergence, laws of large numbers, and conditional probability and expectation.

QA273 9781498701297

Extreme Value Modeling and Risk Analysis: Methods and Applications

Edited by Dipak K.Dey and Jun Yan

CRC Press, ©2016 520 p. \$119.95

Statisticians and specialists from such domains as climatology, hydrology, finance, insurance, and sports review recent research into risk analysis related to extreme events. Their topics include univariate extreme value mixture modeling, the threshold modeling of non-stationary extremes, max-autoaggressive and moving maxima models for extremes, Bayesian inference for extreme value modeling, estimating extreme conditional quantiles, an overview of nonparametric tests of extreme-value dependence and of some related statistical procedures, and the analysis of bivariate survival data based on copulas with log-generalized extreme value marginals.

QA274 9781482210507

Stochastic Cauchy Problems in Infinite Dimensions: Generalized and Regularized Solutions

Irina V. Melnikova (Monographs and Research Notes in Mathematics)

CRC Press, ©2016 286 p. \$99.95

Melnikova explores stochastic differential equations for random processes with values in Hilbert spaces. Her goal is to give nonspecialists an account of modern semi-groups and distribution methods in their interrelations with the methods of infinite-dimensional stochastic analysis. She also shows how the idea of regularization, which she treats as the regularization in a broad sense, runs through all these methods. Among the topics are distribution methods for constructing generalized solutions to ill-posed Cauchy problems, and infinite-dimensional stochastic Cauchy problems with white noise processes in spaces of distributions.

QA276 9781482232448

Perfect Simulation

Mark L. Huber (Monographs on Statistics and Applied Probability; 148)

CRC Press, ©2016 228 p. \$89.95

Huber describes techniques by which Markov

chain Monte Carlo statistical approaches can be bumped to an infinite number of steps in a finite length of time. The first one, coupling from the past, appeared in 1996, he says, and in 2000 many techniques doing the same thing with very different protocols started being introduced. He covers acceptance/rejection, coupling from the past, bounding chains, advanced techniques using coalescence, coalescence on continuous and unbounded state spaces, spatial point processes, the randomness recycler, advanced acceptance/rejection, stochastic differential equations, and applications and limitations of perfect simulation.

QA278 9781466505544

Ranking of Multivariate Populations: A Permutation Approach With Applications

Livio Corain, Rosa Arboretti, and Stefano Bonnini
CRC Press, ©2016 328 p. \$99.95

Corain, Arboretti, and Bonnini introduce a novel permutation-based nonparametric approach to the problem of ranking several multivariate populations using data collected from both experimental and observation studies and set within some of the most useful designs applied by research and industry investigations such as MANOVA--multivariate independent samples--and multivariate randomized complete block design--multivariate dependent samples also known as repeated measures. They begin with theory and methods, then discuss software tools, applications, and case studies.

QA279 9781118632338

Applied Univariate, Bivariate, and Multivariate Statistics

Daniel J. Denis

Wiley, ©2016 726 p. \$130.00

Denis introduces and summarizes univariate and multivariate statistical modeling techniques typically used in the social and behavioral sciences. He assumes students to be at the upper-division or graduate level in any of the social or behavioral sciences. Striking a middle-ground between abstract theory and a software manual, he considers such topics as mathematics and probability theory, introduction to random effects and mixed models, multiple linear regression, logistic regression and the generalized linear model, and path analysis and structural equation modeling.

QA372 9781470425555

Singular Perturbation in the Physical Sciences

John C. Neu (Graduate Studies in Mathematics; Volume 167)

American Mathematical Society, ©2015 326 p.

\$79.00

Neu explores singular perturbation in the physical sciences using a main text of basic material and a subtext of worked problems that go deeper and present engaging examples. The mathematical models of phenomena with widely separated scales are often singularly perturbed, he says, meaning that the solution of the equations do not converge uniformly as the ratio of scales becomes large or small. He covers what a singular perturbation is, asymptotic expansions, matched asymptotic expansions, matched asymptotic expansions in partial differential equations, Prandtl boundary layer theory, modulated oscillations, modulation theory by transforming variables, and nonlinear resonance.

QA402 9781466699649

Advanced Methods for Complex Network Analysis

Edited by Natarajan Meghanathan (Advances in Wireless Technologies and Telecommunication)
Information Science Reference, ©2016 461 p.
\$215.00

This work gathers international contributors in computer science, information systems, telecommunication engineering, and information technology to present the latest research in complex network analysis and applications in various areas, including medicine and academic programing. Coverage encompasses current graph models, algorithms, analysis measures, and tools for network science research and practice. Some subjects examined include vertex cover problems in distributed systems, link prediction in complex networks, computer virus propagation on scale free networks, and social network analysis. Other subjects are wireless body area networks for healthcare applications, use of biomedical image processing in blood cell counting using the Hough transform, and a network analysis method for tailoring academic programs. The book contains b&w charts, graphs, and images throughout. With standalone tutorial-style chapters, the book is appropriate for students and researchers in network science as well as industry practitioners and business professionals.

QA929 9781849738132

Fluid-Structure Interactions in Low-Reynolds-Number Flows

Edited by Camille Duprat and Howard A. Stone
(RSC Soft Matter Series; 4)

Royal Society of Chemistry, ©2016 477 p.

\$300.00

Mechanical engineers explore mechanical problems arising from the interaction between a

structure and a fluid flow that is characterized by motions at low Reynolds number. The topics include model problems coupling elastic boundaries and viscous flows, theoretical models of low-Reynolds-number locomotion, elastic fibers in flows, mechanical instabilities induced by the drying of complex liquids, the dynamics of membrane-bound particles: capsules and vesicles, and the importance of the deformability of red blood cells in blood flow. Distributed in the US by Ingram Publisher Services.

PHYSICS

QC174 9781482259155

Quantum Optomechanics

Warwick P. Bowen and Gerard J. Milburn
CRC Press, ©2016 357 p. \$99.95

In this book, authors Warwick P. Bowen and Gerard J. Milburn present readers with an introduction and examination to the new field of quantum optomechanics. The field is examined from both theoretical and experimental viewpoints. The authors cover feedback control; single photon and nonlinear optomechanics; optomechanical cooling and entanglement; optomechanical synchronization; coupling optomechanical systems to microwave circuits and two-level systems, like atoms and superconducting qubits; and many other related subjects. The authors are both faculty members of the University of Queensland, Australia.

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.

QC760 9781498709019

Analytical Techniques in Electromagnetics

Matthew N.O. Sadiku and Sudarshan R. Nelatury
CRC Press, ©2016 245 p. \$129.95

This work for researchers, scientists, and engineers working on electromagnetics (EM) features

an emphasis on applications for problem solving, covering both analytical methods and numerical techniques, with emphasis on the complementarity between these two approaches. Early chapters review fundamentals of EM, such as Maxwell's equations, time harmonic fields, and wave equations. EM problems are classified according to three categories: solution regions, differential equations, and boundary conditions. Later chapters deal with separation of variables, the series expansion method, conformal transformation, transform methods, and perturbation methods. Pedagogical features include worked examples, chapter exercises, and color diagrams and charts.

QC861 9781771883863

Meteorology and Energy Security: Simulations, Projections, and Management

Edited by Paul S. Samuel

Apple Academic Press, ©2016 319 p.
\$149.95

Researchers in environmental and Earth sciences and in mechanical and electrical engineering explore links between climate change and energy use. They cover generating a typical meteorological year; social, economic, and environmental issues; solar energy and the weather; hydropower and the weather; and seasonal energy management. Their topics include assessing wind farm reliability using weather-dependent failure rates, whether local wind power resources are well estimated, the impact of droughts and climate change on electrical generation in Ghana, identifying peak period impacts when a typical meteorological year weather file is used in simulating a building's energy use, and implications of diurnal and seasonal variations in renewable energy generation for large-scale energy storage. Distributed in the US by CRC Press.

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.

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.

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 methchromasy induced by thiazine dyes. Distributed by CRC Press, A Taylor & Francis Group member.

QD401 9781849738903

Imidazole Dipeptides: Chemistry, Analysis, Function and Effects

Edited by Victor R. Preedy (Food and Nutritional Components in Focus; Number 8)

Royal Society of Chemistry, ©2015 602 p. \$330.00

The 24 papers in this collection explore the chemistry, function, and laboratory analysis of imidazole dipeptides as nutritional components. Disease-specific chapters review recent research on the link between carnosine and cancer, vascular dementia, Alzheimer's, kidney disease, liver injury, gastric protection, and blood glucose. Other topics include the influence of carnosine on the

quality of meat, the biochemistry of enzymes producing carnosine and anserine, protein covalent modifications induced by reactive carbonyl species, antioxidant activity, muscle function, and liquid chromatography coupled to tandem mass spectrometry.

QD505 9781783268948

Enantioselective Titanium-Catalysed Transformations

Hélène Pellissier (Catalytic Science Series; Volume 14)

Imperial College Press, ©2016 265 p. \$118.00
 Pellissier demonstrates the impressive amount of enantioselective synthetic uses that have been found for new and previously known titanium chiral catalysts recently. She covers enantioselective titanium-promoted alkylation, arylation, alkynylation allylation, and vinylation reactions of carbonyl compounds; cyanation reactions of carbonyl compounds and derivatives; thioether oxidations; epoxidation reactions; cycloaddition reactions; aldol-type reactions; reduction reactions; ring-opening reactions of epoxides and aziridines; domino and tandem reactions; and miscellaneous reactions. Distributed in the US by World Scientific.

QD505 9781782620334

Metal Nanoparticles for Catalysis: Advances and Applications

Edited by Franklin Tao (RSC Catalysis Series; Number 17)

Royal Society of Chemistry, ©2014 270 p. \$240.00

Editor Franklin Tao presents readers with a collection of academic and expert contributions on nanomaterials synthesis and characterization, as well as catalysis. The thirteen contributions that make up the main body of text are focused on nanocatalysis, the fabrication of nanostructured colloidal and supported metal nanoparticles and their efficient catalytic applications, nickel nanoparticles in the transfer hydrogenation of functional groups, and many other related subjects. The editor is a faculty member of the University of Notre Dame, Indiana. Distributed in the U.S. by Ingram Publisher Services.

QD549 9781466561793

Biofoams: Science and Applications of Bio-Based Cellular and Porous Materials

Edited by Salvatore Iannace and Chul B. Park

CRC Press, ©2016 450 p. \$189.95

Writing for students, teachers, and practitioners, chemists and chemical engineers explore biologi-

cally based materials for developing biodegradable and sustainable polymeric foams, foams in food, foams in biomedical applications, and biologically informed foams. Their topics include the equation-of-state approach in polymer solution and polymer foaming thermodynamics, heterogeneous cell nucleation mechanisms in polylactide foaming, fabricating biologically based cellular and porous materials for tissue engineering scaffolds, and the formation and stability of food foams and aerated emulsions.

QD561 9781118439067

Ionic Liquids Completely UnCOILed: Critical Expert Overviews

Natalia V. Plechkova and Kenneth R. Seddon

Wiley, ©2015 548 p. \$149.95

Concluding the previous discussion in Ionic Liquids UnCOILed and Ionic Liquids Further UnCOILed, this volume provides 11 overviews of specific areas of ionic liquid chemistry: definitions, nuclear magnetic resonance studies, unusual anions as ionic liquid constituents, the structure of ionic liquids, molecular modeling, chemical engineering of ionic liquid processes, vibrational spectroscopy of ionic liquid surfaces, Raman spectroscopy and the heterogeneous liquid structure in ionic liquids, (eco)toxicology and biodegradation, organic reaction mechanisms, and crystallography. Contributors are chemists from Europe, the US, Australia, and Japan.

QD882 9781782620228

Functional Metallosupramolecular Materials

Edited by John G. Hardy and Felix H. Schacher (RSC Smart Materials; 15)

Royal Society of Chemistry, ©2015 404 p. \$260.00

Editors Hardy and Schacher present readers with a collection of contributions from leading academics and experts in the field of metallosupramolecular materials and their use in a variety of magnetic, electronic, and photonic materials. The selections that make up the body of the text cover naturally occurring functional metallosupramolecular materials, DNA-based metallosupramolecular materials, metallo polymers, metallogels, other functional materials based on MOFs, and a variety of related topics. John G. Hardy is a faculty member of Queen's University Belfast in the UK. Felix H. Schacher is a faculty member of Friedrich Schiller University, Germany. Distributed in the U.S. by Ingram Publishers Services.

BIOLOGY

QH323 9781466587083

Statistical Optimization of Biological Systems

Tapobrata Panda, R. Arun Kumar, and Thomas Theodore

CRC Press, ©2016 277 p. \$139.95

Encompassing both single-response and multiple-response systems, this guide for engineers presents mathematical and statistical tools for experimental optimization of biological systems. The book begins with an overview of how biological systems differ, then presents a rationale for statistical methods of optimization and an overview of statistical techniques. Advantages and disadvantages of non-statistical methods of optimization are also discussed. Subsequent chapters deal with response-surface experimental designs, statistical analysis of experimental designs, optimization of process variables, evolutionary operation programs, and Taguchi's design. The final chapter explains hybrid experimental design based on a genetic algorithm. Worked examples and chapter exercises are included.

QH431 9789004306684

Genetic Transparency?: Ethical and Social Implications of Next Generation Human Genomics and Genetic Medicine

Edited by Malte Dreyer, Jeanette Erdmann, and Christoph Rehmann-Sutter (Life Sciences, Ethics and Democracy; Volume 2)

BRILL, ©2016 292 p. \$117.00

Through seven essays, genomics, humanities, and social sciences specialists from Europe and Canada consider who has or should have access to personal genomic and genetic information. They explore the metaphor of transparency in general and genetics contexts; the process of DNA sequencing in genomics; anthropological issues relating to who the subject of genetic responsibility is; personal genomics and its governance; the ethics of genetic disclosure; the regulation of newborn screening programs and research in whole-genome sequencing; and ethical issues in the communication of genetic transparency. Earlier versions of the essays were first presented at a workshop held at the U. of Lübeck, Germany, in March 2013.

QH506 9781498751155

Basic Principles of Analytical Ultracentrifugation

Peter Schuck, Huayaing Zhao, Chad A. Broutigam, and Rodolfo Ghirlando

CRC Press, ©2016 302 p. \$99.95

This volume outlines the fundamentals in the theory and practice of analytical ultracentrifugation in the molecular sciences. It has an experimental emphasis and covers the physical and detection principles and technical setup of an analytical ultracentrifugation experiment; ultracentrifugation experiments from a macromolecular perspective; practical aspects of conducting an experiment, including sample preparation and ancillary characterization, data acquisition and data structure, and the execution of the centrifugal experiment; and instrument calibration and quality control experiments.

QH513 9781482258837

Forensic Biomechanics and Human Injury: Criminal and Civil Applications- an Engineering Approach

Harold Franck and Darren Franck

CRC Press, ©2016 262 p. \$99.95

Harold Franck, an engineer and forensic engineering investigator who has been involved in vehicle accident reconstruction, fire investigations, and electrical incidents, and Darren Franck, an engineer specializing in forensic engineering investigations, structural analysis and design, accident reconstruction, computer-aided design, and 3D animations, describe the methodologies used to calculate the forces, stresses, and energies required to produce injury to the human body, and applications to criminal and civil investigations. They discuss the court system and expert testimony; the need for biomechanical analysis and explanation of how injuries occur; types of injuries; anatomy, biomechanical terminology, and the physical characteristics of human biological materials; static and dynamic equations used in analysis, with discussion of the mechanics of materials and examples of the analysis of various injuries; protective structures like helmets and safety goggles; errors, sensitivity, uncertainty, and probability; and federal and other standards.

QH541 9781874267867

Fluid Frontiers: New Currents in Marine Environmental History

Edited by John Gillis and Franziska Torma

The White Horse Press, ©2015 225 p. \$88.00

From an October 2011 international conference in Rockland, Maine, 13 papers explore marine environmental history from the perspectives of reimagining oceans, historicizing seas and marine life, and science and local knowledge. The topics include the swamp: waterland of the semi-wild, ecological imperialism on the North-West Australian coast, fishing communities in 18th-

century Iceland: an interdisciplinary case study from Vestfirðir, the Arctic Ocean as an outdoor laboratory: how the First International Polar Year expanded the visual perception of the Arctic, and from oceans through islands to mountains: creating the "correspondence principle." Distributed in the US by Turpin Distribution.

ANATOMY & PHYSIOLOGY

QP301 9781498703321

Nonlinear Analysis for Human Movement Variability

Edited by Nicholas Stergiou

CRC Press, ©2016 394 p. \$99.95

Editor Nicholas Stergiou presents readers with a collection of academic and professional perspectives on the analysis of human movement variability within the framework of nonlinear dynamics. The nine contributions that make up the main body of the text are devoted to time series; state-space reconstruction; the Lyapunov Exponent; surrogation; entropy; fractals; autocorrelation functions, mutual information, and correlation dimensions; and a variety of specific case studies in the field. The editor is a faculty member of the University of Nebraska at Omaha.

QP601 9789814613422

Enzyme Nanocarriers

Edited by Daniela Cardinale and Thierry Michon
Pan Stanford Publishing, ©2016 246 p. \$149.95

This introduction to biologically ordered structures having the potential to become enzyme nanocarriers explores the different biological properties enabling the formation of viral nanoparticles, methods for assembling enzymes with virus nanoparticles, and the use of virus-like particles' reconstitution to produce a biomimetic confinement of enzymes. The seven chapters also describe a porous polymersome reactor that mimics the natural compartmentalization of enzymes in the cell organelles, DNA origami formation, and nanocarriers being developed as enzyme drug delivery vehicles. Distributed by CRC Press.

QP603 9781849739504

2-Oxoglutarate-Dependent Oxygenases

Edited by Robert P. Hausinger and Christopher J. Schofield (RSC Metallobiology Series; 3)

Royal Society of Chemistry, ©2015 487 p. \$300.00

Editors Schofield and Hausinger present readers with a collection of research and professional contributions that together provide a resource of information regarding the key fixtures of the essential group of 2-oxoglutarate-dependent dioxygenases and related enzymes. The twenty-

one contributions that make up the main body of the text are devoted to the biochemical diversity of 2-oxoglutarate-dependent oxygenases, structural studies on 2-oxoglutarate-dependent oxygenases and related enzymes, and other related subjects. Christopher J. Schofield is a faculty member of the University of Oxford in the UK. Robert P. Hausinger is a faculty member of Michigan State University. Distributed in the US by Ingram Publisher Services.

QP624 9781118696866

DNA in Supramolecular Chemistry and Nanotechnology

Edited by Eugen Stulz and Guido H. Clever
Wiley-Blackwell, ©2015 500 p. \$190.00

Chemists and other scientists from Europe, North America, Asia, and Israel provide 25 chapters on the role of DNA in supramolecular chemistry and nanotechnology, focusing on (non-)covalently modified DNA with novel functions, DNA wires and electron transport through DNA, oligonucleides in sensing and diagnostic applications, conjugation of DNA with biomolecules and nanoparticles, and alternative DNA structures, switches, and nanomachines.

QP702 9781498709187

Glycobiology and Human Diseases

Edited by Gherman Wiederschain
CRC Press, ©2016 324 p. \$179.95

This volume examines glycobiology and its role in different human diseases. The 17 chapters explore simple and complex carbohydrates and glycoconjugates; methods of structural analysis of glycosaminoglycans, applications of these methods for identification of lysosomal storage diseases, and participation in the development of Lyme disease; the role of viral envelope protein glycosylation in the pathogenesis of influenza A virus; the application of lectin histochemistry in the diagnosis of lysosomal storage diseases; computational approaches for studying carbohydrate-lectin interactions in infection; the pathogenic effects of altered sialylation of specific glycoconjugates in genetic diseases; sialyltransferase regulation of cancer-associated O-glycans; and the history of pectin study, chemistry, and medicinal uses of pectin. Others address the glycobiology of human milk in health and disease; molecular mechanisms underlying the association between Gaucher's disease and Parkinson's disease; the expression and function of poly-N-acetyllactosamine glycans in the nervous system; the role of glycosylation in various types of immunoglobins in health and disease; basic biochemical, genetic, and clinical features of congenital dis-

orders of glycosylation; and immune response to hyaluronic acid in preeclampsia. Contributors are biologists and other researchers from North America, Europe, Australia, Israel, and the United Arab Emirates.

MICROBIOLOGY

QR69 9781910190258

Gas Plasma Sterilization in Microbiology: Theory, Applications, Pitfalls and New Perspectives

Edited by Hideharu Shintani and Akikazu Sakudo
Caister Academic Press, ©2016 157 p.
\$259.00 (pa)

Scientists in energy and electronics and in food and agriculture set out basic information on the physical technique of gas plasma sterilization, for students, engineers, and laboratory scientists. Their topics include the theoretical background and mode of action of gas plasma sterilization, nitrogen gas plasma for remote sterilization and clarification of sterilization, fungal and mycotoxin inactivation by cold plasma sterilization, disinfecting seed-borne fungi and bacteria by plasma with alternating-current high-voltage discharge, and misinterpreting microbiological data on gas plasma sterilization: avoiding the pitfalls. Distributed in the US by Book Systems Plus.

TECHNOLOGY (GENERAL)

T50 9781482225228

Handbook of Measurements: Benchmarks for Systems Accuracy and Precision

Edited by Adedeji B. Badiru and LeeAnn Racz (Industrial Innovation Series)

CRC Press, ©2016 706 p. \$129.95

Engineers from a wide range of fields, economists, and contributors from several medical specialties offer a systems perspective on measuring nearly everything that can be measured. The topics include fundamentals of measurement, measuring environmental contamination, measurement and quantum mechanics, measurement in the social sciences, systems interoperability measurement, the evolution of large-scale dimensional metrology from the viewpoint of scientific articles and patents, visualizing big data: ship maintenance metrics analysis, measuring personnel productivity during government furlough programs, the mathematical measurement of project parameters for multi-resource control, and using metrics

to manage contractor performance.

T55 9781118795033

Guidelines for Integrating Management Systems and Metrics to Improve Process Safety Performance

Center for Chemical Process Safety
Wiley, ©2016 186 p. \$99.95

Founded in 1985, the Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE) promotes improved management of chemical process safety, with the goal of achieving good safety performance by using a combination of technology and management excellence. This volume/guideline offers organizations a way to reduce overall operational risk by integrating monitoring-related work across groups, focusing on common high-risk metrics which affect process safety performance, and presents a process through which organizations can develop or improve the ties between its existing process safety, occupational safety and health, environmental, quality and security management programs.

T57 9781614993902

Examining Robustness and Vulnerability of Networked Systems

Edited by Sergiy Butenko, Eduardo L. Pasiliao, and Volodymyr Shylo (NATO Science for Peace and Security Series D: Information and Communication Security; Volume 37)

IOS Press, ©2014 309 p. \$196.00

Editors Butenko, Pasiliao, and Shylo present readers with a collection of papers from the NATO Advanced Research Workshop Examining Robustness and Vulnerability of Critical Infrastructure Networks held in June of 2013 in Kiev, Ukraine. The selections that make up the main body of the text cover data clustering solutions, monotonic and non-monotonic infections on networks, variable neighborhood search for edge-ratio network clustering, and a wide variety of related subjects. Sergiy Butenko is a faculty member of Texas A&M University. Eduardo L. Pasiliao is with the U.S. Air Force Research Laboratory in Florida. Volodymyr Shylo is a faculty member of the Glushkov Institute of Cybernetics in Ukraine.

T57 9781498705653

Extremal Optimization: Fundamentals, Algorithms, and Applications

Yong-Zai Lu, Yu-Wang Chen, Min-Rong Chen, Peng Chen, and Guo-Qiang Zeng

CRC Press, ©2016 334 p. \$199.95

Based on numerous classic publications and their own recent researchers results, Lu and col-

leagues introduce the current status of extremal optimization solutions from fundamentals, methodologies, and algorithms to applications. They hope to make the approach more popular in multidisciplinary areas such as operations research, software, systems control, and manufacturing. Their topics are self-organizing optimization inspired by extremal dynamics, modified extremal optimization, memetic algorithms with extremal optimization, multi-objective optimization with extremal dynamics, systems modeling and control, and production planning and scheduling.

T57 9781522500445

Stochastic Processes and Models in Operations Research

Edited by Neelamegam Anbazhagan (Advances in Logistics, Operations, and Management Science) Business Science Reference, ©2016 338 p. \$217.00

Anbazhagan presents a collection of academic and professional contributions on the mathematical tools and equations relevant for solving complex problems within a variety of industrial and business settings. The sixteen selections are arranged in parts devoted to analyzing queues in fuzzy environments, a single server retrieval queueing system with two types of batch arrivals, perishable inventory systems with bi-level service systems, stochastic inventory systems with complement items and retrieval customers, and many other related subjects. The editor is a faculty member of Alagappa University in India.

ENGINEERING (GENERAL, CIVIL)

TA145 9781482212631

Low-Volume Road Engineering: Design, Construction, and Maintenance

Robert A. Douglas
CRC Press, ©2016 320 p. \$139.95

Author Robert A. Douglas presents readers with an international perspective on the engineering design of a variety of low-volume roads, as well as their construction and maintenance. He covers road classification, geometric design, pavement concepts, pavement materials, pavement design, drainage, soil erosion, sediment control, water-course crossings, slope stability, geosynthesis, and many other related subjects over the books fifteen chapters. The author is an engineer, consultant, and a faculty member of the University of New Brunswick, Canada, and the University of Canterbury, New Zealand.

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 9781482219753

Probability Methods for Cost Uncertainty Analysis: A Systems Engineering Perspective, 2nd Edition

Paul R. Garvey, Stephen A. Book, and Raymond P. Covert

CRC Press, ©2016 501 p. \$119.95

Garvey, Book, and Covert present a textbook for an upper-level undergraduate course on applying probability methods to cost engineering and analysis problems. They assume readers have a solid foundation in differential and integral calculus, and suggest but do not require some elementary background in probability theory and systems and cost engineering. They have left the material on the underlying theory of cost uncertainty analysis unchanged, but describe new applications of the theory.

TA174 9789814730501

Design, Manufacturing and Mechatronics; proceedings

International Conference on Design, Manufacturing and Mechatronics (2015: Wuhan, China) Edited by A. Mehran Shahhosseini

World Scientific, ©2016 1516 p. \$365.00

Editor A. Mehran Shahhosseini presents readers with a collection of papers selected from materials presented at the 2015 International Conference on Design, Manufacturing, and Mechatronics held in Wuhan, China. The editor has organized the contributions that make up the main body of the text in ten chapters devoted to advanced design and manufacturing technologies, automation and control systems, communications systems and computer networks, and a wide variety of other related subjects. The editor is a faculty member of Indiana State University.

TA357 9781119117605

Wave Technology in Mechanical Engineering: Industrial Applications of Wave and Oscillation Phenomena

R.F. Ganiev, S.R. Ganiev, V.P. Kasilov, and A.P. Pustovgar

Scrivener/Wiley, ©2015 156 p. \$175.00

In this book, authors Ganiev, Ganiev, Kasilov, and Pustovgar present readers with an examination of the advantages of employing wave technologies in the development of innovative machine building. The authors cover the practical application of wave technologies to address problems with dispersion and the fine-scale mixing of liquid, viscous and bulky multi-phase media, and the grinding and batching of bulky materials; the unique results available through wave technology; problems found in the day-to-day operations of mechanical engineering, and many other related subjects. R.F. Ganiev, S. R. Ganiev, and V. P. Kasilov are faculty members of the Russian Academy of Sciences. A P. Pustovgar is a faculty member of Moscow State University, Russia.

TA401 9783038356639

Innovative Manufacturing Engineering; select papers; 2 volume set

Innovative Manufacturing Engineering (19th: 2015: Iasi, Romania) Edited by Laurentiu Slatineanu, Vasile Merticaru, Florin Negoescu, Margareta Coteata, Razvan Pacurar, Gabriela Strnad, Irina Tita, Gheorghe Oancea, Petru Dusa, Eduard Nitu, and Oana Dodum (Applied Mechanics and Materials; Volumes 809-810)

Trans Tech Publications, ©2015 1622 p. \$420.00 (pa)

Editors Slatineanu, Merticaru, Negoescu, Coteata, Pacurar, Strnad, Tita, Oancea, Dusa, Nitu, and Dodum present readers with a two volume collection of peer reviewed papers selected from research presented at the nineteenth Innovative Manufacturing Engineering conference held in May of 2015 in Romania. The editors have organized the selections that make up the main body of the text in twelve chapters over the two volumes. The first volume contains chapters devoted to advanced machining technologies and surface engineering, forming technologies, and other related subjects. The second volume contains chapters devoted to transport machinery, product quality and design, and other related topics.

TA418 9781784661670

Composites: Advances in Manufacture and Characterisation

Edited by S. Syngellakis

WIT Press, ©2016 226 p. \$206.00

This is the second volume of selected articles from the Transactions of the Wessex Institute devoted the advanced composites, and while the first focused on "green" composites, this one has a broader scope that encompasses various materials, types of reinforcement, manufacturing techniques, and characterization methods and objectives. The articles consider improving fiber performance and assessing the respective processes, enhancing composite performance through novel manufacturing techniques, and characterizing mechanical performance. Among the topics are heating properties of carbon fibers subjected to direct resistance heating, optimizing process parameters for electrophoretic deposition in carbon nanotubes/carbon fiber hybrid composites, and characterizing multifunctional nanocomposites with respect to their electrical properties.

TA418 9781910242391

Conducting Polymer Nanocomposites for Supercapacitors

Subhash B. Kondawar

Smithers Rapra, ©2015 172 p. \$130.00

Kondawar sets out the basics of conducting polymer technology as the nanostructurization of conducting polymers and their composites emerges as a new field of research and development directed to the creation of new smart materials for supercapacitors. His emphasis is on the preparation of conducting polymer-based binary and ternary nanocomposites and their electrochemical performances for supercapacitor application. The material could be useful to scientists, engineers, students, and general readers interested in either conducting polymer nanocomposites or supercapacitors.

TA418 9781466509962

Handbook of Granular Materials

Edited by Scott V. Franklin and Mark D. Shattuck
CRC Press, ©2016 506 p. \$149.95

Thirteen papers survey experimental techniques and computational methods for studying dense granular materials, kinetic theories of collisional grain flows, and statistical tools for analyzing the behavior of static and slowly driven granular media. The contributors share recent computational research on the structural and mechanical properties of mechanically stable static packings of spherical particles, the mechanical response of experimental packings to very small disturbances, the impact of shear on the structure and dynamics of granular materials, and segregation in dense sheared systems. Extensions of granu-

lar systems explore the properties and behavior of wet foams, slippery grains, suspensions, and colloids.

TA418 9781849738323

Porous Carbon Materials From Sustainable Precursors

Edited by Robin J. White (RSC Green Chemistry; Number 32)

Royal Society of Chemistry, ©2015 433 p.

\$300.00

Chemists show how porous materials, especially porous carbon, might be synthesized in a sustainable manner and used to store and transport energy from renewable sources. In sections on starbons, hydrothermal carbonization, characterizing porous carbonaceous solids, and commercialization, they consider such topics as the search for functional porous carbon from sustainable precursors, applying carbonaceous materials in separation science, hydrothermal carbon materials for heterogeneous catalysis, the bulk and surface analysis of carbonaceous materials, and microscopy and related techniques for analyzing porous carbonaceous material. Distributed in the US by Ingram Publisher Services.

TA658 9781138027787

Smart Connection Systems: Design and Seismic Analysis

Jong Wan Hu

CRC Press, ©2016 404 p. \$119.95

Hu presents a graduate or undergraduate textbook that can be used in architectural engineering, civil engineering, building construction, and structural engineering programs. He develops finite element models to predict the response of smart structures under seismic loading. He covers the design and analysis for smart partially restrained concrete-filled tube connections, both end plate and T-stub types; for bolted connections, including component models for recentering bolted connections; and for gusset plate, recentering slit damper and smart damping smart connections.

TA1520 9781628418873

Special Functions for Optical Engineering.

Vasudevan Lakshminarayanan and L. Srinvasa Varadharajan (Tutorial Texts in Optical Engineering; Volume TT103)

SPIE, ©2015 385 p. \$74.00 (pa)

Lakshminarayanan and Varadharajan explain the ideas of special functions for optical engineering as best they can, acknowledging that the only way to master physics or mathematics is to do problems. They do not provide problems because

there are many books with many unsolved problems, and they focus on the basic conceptual understanding. They do provide examples from a wide range of optical science and engineering. Readers should have completed a basic course in calculus, including if possible an introduction to linear differential equations; should be familiar with solution by separation of variables, vectors, simple trigonometry, and basic ideas of complex numbers; and should have some elementary knowledge of optics, electrodynamics, and quantum mechanics.

TA1530 9789814613743

Nanodevices for Photonics and Electronics: Advances and Applications

Edited by Paolo Bettotti

Pan Stanford Publishing, ©2016 430 p. \$149.95

In this book, editor Paola Bettotti presents readers with a collection of academic essays and scholarly articles focused on pure photonic systems, the interaction between photonics and electronics, and optoelectronics. The ten contributions that make up the main body of the text are devoted to photonic crystals, the fundamentals and device applications of engineered aperiodic spiral order in nanophotonics, nanowire architecture for fast electronic devices, and a wide variety of other related subjects. The editor is a faculty member of the University of Trento, Italy. Distributed by CRC Press.

TA1560 9781482234336

High-Speed 3D Imaging With Digital Fringe Projection Techniques

Song Zhang (Optical Sciences and Applications of Light)

CRC Press, ©2016 198 p. \$189.95

Though he reviews a variety of three-dimensional imaging technologies in the first chapter, Zhang focuses on digital fringe projection, which he finds to have some overwhelmingly advantageous properties compared to others. He discusses such topics as the theoretical foundation of fringe analysis techniques, temporal phase unwrapping for digital fringe projection systems, a spatial phase-unwrapping algorithm for real-time applications, a hands-on example of system design and development, and toward high-speed three dimensional imaging with phase-shifting methods.

TA1630 9781608078455

Data Fusion Support to Activity-Based Intelligence

Richard T. Antony (Artech House Intelligence and Information Operations Series)

Artech House, ©2016 348 p. \$199.00
Fusing text-based information with traditional sensor data is an achievable objective that promises more robust and timely situation understanding, says Antony, especially for contemporary challenging problems such as counter insurgency applications, treaty verification, organized crime, and homeland security. He covers foundational theory, prototype implementation, higher-level reasoning, special functions, the way ahead, refinement extensions, binary fusion, putting it all together: implementing the analytic workflow, reasoning paradigms, spatial reasoning support, and temporal reasoning support.

TA1637 9781466696853
Emerging Technologies in Intelligent Applications for Image and Video Processing

Edited by V. Santhi, D.P. Acharjya, and M. Ezhilarasan (Advances in Computational Intelligence and Robotics (ACIR) Book Series)

Information Science Reference, ©2016 518 p. \$235.00

Contributed by computer scientists and engineers from Asia, the US, and Iran, the 18 chapters in this volume examine image and video processing in different applications using intelligent computing techniques. They discuss image and video enhancement, restoration, and segmentation using sparse representation, optimizing segmentation parameters, noise removal techniques, and depth in two-dimensional video captures; image and video compression, indexing, and retrieval, including wavelet transform algorithms, fast block motion estimation in high-efficiency video coding, multi-modal fusion schemes, and quadtree; image and video processing in public safety, including the early recognition of suspicious activity for crime prevention, iris identification, object classification and tracking, gait-based biometric authentication, lung disease classification, and a multimodal biometric system; and image and video classification, clustering, and applications, including automatic image annotation, biomedical imaging techniques, the diagnosis of age-related macular degeneration, and automatic detection and classification of ischemic stroke.

TA1637 9781439849736
Variational Methods in Image Processing

Luminita A. Vese and Carole Le Guyader (Chapman & Hall/CRC Mathematical and Computational Imaging Sciences)

CRC Press, ©2016 385 p. \$79.95

Vese and Guyader explore variational models, their corresponding Euler-Lagrange equations, and numeral implementations for image process-

ing. They offer a general textbook on variational approaches, often overlapping with other textbooks in order to present a comprehensive and up-to-date account. It is suitable for graduate or advanced undergraduate students in applied mathematics, scientific computing, medical imaging, and related fields. Each chapter includes the presentation of the problem, its mathematical formation as a minimization operation, a discussion and analysis of its mathematical well-posedness, the derivation of the associated Euler-Lagrange equations, numerical approximations and algorithm descriptions, several numerical results, and a list of exercises.

TA1653 9781482226546
Face Detection and Recognition: Theory and Practice

Asit Kumar Datta, Madhura Datta, and Pradipta Kumar Banerjee

CRC Press, ©2016 325 p. \$99.95

The book compiles major approaches, algorithms, and technologies available for automated face detection and recognition to provide a reference for students, researchers, and practitioners working in image processing, computer vision, bio-metrics, and security computer graphics and animation. It includes many programs in easily available software. Among the topics are subspace-based face recognition, face detection in color and infrared images, evolutionary design for face recognition, frequency domain correlation filters in face recognition, and data sets of face images for face recognition systems.

MECHANICAL ENGINEERING & MACHINERY

TJ163 9783038356028
Applied Mechanics and Mechatronics II: Special Topic Volume With Invited Peer Reviewed Papers Only

Edited by Frantisek Trebuna
Trans Tech Publications, ©2015 584 p. \$220.00 (pa)

Researchers from Central Europe present their findings in the design, modeling, and research of mechanical and mechatronic systems; the development and modification of computational methods and algorithms; experimental methods of measurement and analysis in engineering practice; and the industrial engineering of modern production. The topics include modeling and simulating the vertical position stability of a quadcopter, positioning a pneumatic actuator using an open-loop system, using bond graphs

methodology for designing mechanical systems, balancing forces in segments of axial bearings by dynamometers, and specific car manufacturer recalls.

TJ163 9781482239317

Mechatronics: Fundamentals and Applications

Edited by Clarence W. de Silva, Farbod Khoshnoud, Maoqing Li, and Saman K. Halgamuge

CRC Press, ©2016 617 p. \$149.95

Specialists in mechatronics provide a reference to recent developments for engineers, designers, researchers, educators, and students. Looking in turn at fundamentals and applications, they consider such topics as modeling for control of rigid bodies in three-dimensional space, introduction to sensors and signal processing, system identification in human adaptive mechatronics, an automated mechatronic design tool, the mechatronic design of unmanned aircraft systems, a visual servo system for mobile robots, and neuro-mechatronics with in vitro microelectrode arrays.

TJ211 9781466695726

Handbook of Research on Design, Control, and Modeling of Swarm Robotics

Edited by Ying Tan (Advances in Computational Intelligence and Robotics)

Information Science Reference, ©2016 853 p. \$465.00

After surveying the current work being done in swarm robotics, the collection presents recent research results on cooperative movement and control, space deployment and formation control, path planning, target searching, stochastic modeling, cooperative operation and partner recruitment, and human-swarm interaction. The 27 contributions explore secure communication in swarm robotics, simulation of human nature and crowd behavior, shape control of swarm robots, distributed algorithms, autonomous driving, chemical plume tracking, cooperative scalar field mapping, underwater swarm robotics, and cockroach-inspired shelter seeking for holonomic swarms of flying robots.

TJ220 9781498753258

Nonlinear Systems Tracking

Edited by Lyubomir T. Gruyitch

CRC Press, ©2016 477 p. \$189.95

In this book, editor Lyubomir T. Gruyitch presents readers with an examination of the theory and practice of tracking, trackability, and tracking control synthesis for nonlinear processes and their varied control systems. The editor has organized the forty-three chapters and four appen-

dices that make up the main body of the text in twelve parts devoted to systems and control bias, trackability, perfect tracking, imperfect tracking, stable tracking, the criteria for stable tracking, and a wide variety of other related subjects. Gruyitch is a retired faculty member of the University of Technology Belfort-Montbeliard, France.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK4923 9781630810276

Battery Management Systems; Volume II: Equivalent-Circuit Methods

Gregory L. Plett (Power Engineering and Power Electronics)

Artech House, ©2016 316 p. \$149.00

In this second of three volumes on battery management systems, Plett applies equivalent-circuit style models to solve problems in battery management and control. He introduces the requirements of a battery management system, reviews equivalent circuit models of lithium-ion cells, investigates battery cell state estimation, looks at state-of-health estimation, discusses cell balancing, explores the computation of power limits where terminal-voltage constraints are applied, exposes the fundamental flaw with voltage-based power-limit estimates, and introduces physics-based methods that can be used alongside a circuit model to give better limits.

TK5102 9781498722360

Signals and Images: Advances and Results in Speech, Estimation, Compression, Recognition, Filtering, and Processing

Edited by Rosangela Fernandes Coelho, Vítor He-loiz Nascimento, Ricardo Lopes de Queiroz, Joao Marcos Travassos Romano, and Charles Casimiro Cavalcante

CRC Press, ©2016 598 p. \$169.95

Also appropriate as a supplemental text in signal processing, stochastic processes, detection and estimation, and information theory courses, this graduate textbook surveys recent advances in signal processing techniques for audio and speech enhancement, acoustic field estimation, video compression, biometric recognition, hyperspectral image analysis, and tensor decomposition. The 19 contributions explore such areas as Kernel-based nonlinear signal processing, assessment of speech quality in communication systems, cognitive power line communication, information geometry modeling for statistical

distributions, and seismic signal prospecting for discovering oil and gas reserves.

TK5103 9781608077533

Cognitive Radio: Interoperability Through Waveform Reconfiguration

Leszek Lechowicz and Mieczyslaw M. Kokar (Artech House Mobile Communications Series)

Artech House, ©2016 270 p. \$155.00

Believing there is much more to cognitive radio than spectrum management and communication policies, Lechowicz and Kokar explore some other nascent aspects that they urge researchers to pursue. Their topics are fundamentals of sampling and digital signal processing, software-defined radio, cognitive radio, interoperability and reconfiguration, language issues in the context of cognitive radio, component-based software development, ontology-based cognitive radio reconfiguration, and a case study of an example implementation.

TK5103 9783110449952

Free Space Optical Communication: System Design, Modeling, Characterization, and Dealing With Turbulence

A. Arockia Bazil Raj

De Gruyter Oldenbourg, ©2016 206 p. \$167.00

Free space optical communication is an effective alternative technology to meet the next generation network demands and the security concerns in military communications, says Raj, but it can be disrupted by turbulence in the air, so he conducted a rigorous experimental study to analyze the quality and reliability of the channel and the maximum data rate that the system can operate. He covers the real-time measurement of meteorological parameters for estimating low altitude atmospheric turbulence strength, comparing different models for ground-level atmospheric attenuation and turbulence strength prediction with new models according to local weather data for free space optical applications, mitigating beam wandering due to atmospheric turbulence and predicting control quality using intelligent decision making tools, low-power and compact response surface model and neural-controller design for beam wandering mitigation with a horizontal-path propagating Gaussian-beam wave: focused beam case, and quality metrics and reliability analysis of ground-to-ground free space laser communication in different weather conditions together with a beam steering system.

TK5103 9781118924648

LTE Backhaul: Planning and Optimization

Edited by Esa Metsälä and Juha Salmelin

Wiley, ©2016 284 p. \$120.00

Editors Metsälä and Salmelin have collected in this book the contributions of senior experts in the cellular network industry on the planning and maintenance of cost-efficient LTE backhaul networks. The selections that make up the text cover LTE backhaul planes; economic modeling, strategic input, dimensioning aspects, analytical models, and design examples of LTE backhaul networks; as well as sections devoted to network management and other related subjects. Juha T.T. Salmelin and Esa Markus Metsälä are with Nokia Networks of Finland.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL275 9781631264146

Hydraulic Systems for Mobile Equipment

Tim W. Dell

Goodheart-Willcox, ©2017 678 p. \$112.00

Dell presents a comprehensive examination of the hydraulic systems used in contemporary mobile construction, farming, and other heavy equipment. He covers hydraulic safety, hydraulic and fluid power principles, pumps, rotary actuators, cylinders, flow-control valves, contamination control, filtration, fluids, reservoirs and coolers, plumbing, and many other related subjects over the book's twenty-five chapters. The text also comes with digital access in a variety of online formats for a variety of devices. The author is a faculty member of Pittsburgh State University in Pennsylvania.

TL563 9781624102608

Computational Intelligence in Aerospace Sciences

Edited by Massimiliano Vasile and Victor M. Becerra (Progress in Astronautics and Aeronautics; Volume 244)

American Institute of Aeronautics & Astronautics, ©2014 844 p. \$134.95

Specialists present an overview of different computational intelligence techniques with aerospace applications, for aerospace practitioners and newcomers to the field who are looking for fundamental information with advanced examples. They cover fundamental concepts and methods, autonomy and robotics, structural and multidisciplinary design, aerodynamics optimization, and space trajectory design. The topics include function landscapes and the difficulty of global optimization, path planning algorithms in two-dimensional and three-dimensional obstacle-rich

environments, advances in space robotics autonomy, surrogate modeling in the service of multidisciplinary design, and an incremental algorithm for optimizing multiple gravity assist trajectories.

TL671 9780768082968

Aircraft Thermal Management: Systems Architectures

Mark F. Ahlers

SAE International, ©2016 99 p. \$75.00 (pa)
Ahlers presents readers with a collection of research and professional perspectives on contemporary and emerging systems architectures employed in the thermal management of aircraft. The selections that make up the main body of the text are focused on aircraft thermal management and the heat sink challenge, power and thermal management for future aircraft, thermal management and power generation for directed energy weapons, and many other related subjects. The author is with the Boeing Company in Washington State.

TL3250 9781118889985

Intelligent Testing, Control and Decision-Making for Space Launch

Yi Chai and Shangfu Li

Wiley, ©2015 271 p. \$150.00
In this book, authors Yi Chai and Shangfu Li present readers with an investigation of the fundamental theories and applications of modern information processing, intelligent decision making, and fault diagnosis specific to space testing and the launching of spacecraft. The authors have organized the main body of their text in six chapters devoted to an overview of testing and control for space launch, networks of testing and control for space launch, intelligent analysis and processing for testing data, intelligent fault diagnosis for space launch and testing, and other related subjects.

CHEMICAL TECHNOLOGY

TP754 9781498700122

MEMS and Nanotechnology for Gas Sensors

Sunipa Roy and Chandan Kumar Sarkar
CRC Press, ©2016 224 p. \$129.95
Roy and Sarkar describe how using microelectromechanical systems (MEMS) for gas sensing and biosensing can reduce the power consumption of the sensors and can analyze small volumes of the gas. Looking in turn at fabrication procedure and applications, they consider such topics as a substrate for MEMS, pattern transfer with photoli-

thography, microheaters for gas sensors, sensing with graphene, nanocrystalline zinc-oxide-based microfabricated chemical sensor, and nanostructures for volatile organic compound detection.

MILITARY & NAVAL SCIENCE

U168 9781466697799

Handbook of Research on Military, Aeronautical, and Maritime Logistics and Operations

Edited by Alberto Ochoa-Zezzatti, Jöns Sánchez, Gastón Ceillo-Campos, and Margain de Lourdes (Advances in Logistics, Operations, and Management Science)

Business Science Reference, ©2016 587 p. \$310.00

Twenty-seven papers propose hybrid artificial intelligence methods for solving modern problems of logistics management and optimization. The contributors analyze the vertex separation problem, random weight generators, quay crane scheduling, military logistics choices, airport capacity, mixed flow impeller blades, and maximum passenger load for aerotaxis to southwestern Chihuahua. Other topics include multi-objective simulated annealing algorithms, Hanoi Towers game theory, intentional food contamination in the food supply chain, temperature modeling in a greenhouse, and the relationship between construction time and crane optimization.

UG740 9781439806708

Air and Missile Defense Systems Engineering

Warren J. Boord and John B. Hoffman
CRC Press, ©2016 251 p. \$129.95
Boord and Hoffman outline a physics-based systems engineering approach to designing and developing a balanced air and missile defense system given a fixed set of target requirements. By balanced, they mean meeting performance requirements while minimizing design, development, and operational costs over the lifecycle of a combat system. Their topics include system engineering fundamentals, the air and missile defense program, preliminary design, preliminary systems design trade analysis, and the physics and mathematics of air and missile defense design and analysis.

UG1242 9781482299151

Smart Autonomous Aircraft: Flight Control and Planning for UAV

Yasmina Bestaoui Sebbane
CRC Press, ©2016 422 p. \$119.95

This book presents theory and algorithms for flight control and planning for unmanned aerial vehicles (UAV) and smart autonomous aircraft systems. The book begins with a brief overview of the current status of UAVs, autonomous systems, and smart aircraft. Later chapters deal with modeling, flight control, flight planning, and flight safety. Each chapter provides mathematical background for understanding the content, along with case studies. The book is accessible to researchers, practitioners, and advanced undergraduate engineering students, as well as PhD level students in UAV or aerial robotics courses.

**PUBLISHING, LIBRARY SCIENCE,
BIBLIOGRAPHY**

Z666 9781610694490

Metadata Standards and Web Services in Libraries, Archives, and Museums: An Active Learning Resource

Erik Mitchell

Libraries Unlimited, ©2015 290 p. \$75.00 (pa)
Author Erik Mitchell presents readers with an extensive look at digital archiving and metadata standards and web services used by a variety of institutions. The author has organized the main body of his text in nine chapters devoted to the

world of digital information organization, information systems as boundary objects, the design of information systems, information organization models, metadata standards, serialization, metadata in digital information systems, and a wide variety of other related subjects. The author is a faculty member of the University of California, Berkeley.

Z678 9788170007999

Library Management in 21st Century: Issues and Challenges

Edited by Lallaisangzuali and Sanjeev

Ess Ess Publications, ©2016 299 p. \$60.00 (pa)

Lallaisangzuali and Sanjeev offer a collection of professional perspectives on the contemporary management of the information, people, equipment, and other resources that make up a library. The nineteen selections that make up the main body of the text are devoted to the transition from bibliometrics to altmetrics, bibliometric mapping of the published literature in data mining and knowledge discovery, cloud computing, information seeking behavior in a variety of contexts, and many other related subjects. Sanjeev and Lallaisangzuali are faculty members of Mizoram University in India. Distributed in the US by ISBS.

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