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## SciTech News- 69(2)-2015

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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 69, Number 2 (2015)**  
**ISSN 0036-8059**

# SciTech News



## On the Cover

Our cover image this month is one of SpaceX's Falcon 9 rocket and Dragon spacecraft, launching from Launch Complex 40 at the Cape Canaveral Air Force Station, Florida, September 21, 2014.

These and many other images from SpaceX were placed in the public domain by none other than SpaceX's founder, Elon Musk. The images had been released on SpaceX's Flickr account under a Creative Commons License, but in response to a suggestion from writer Mike Masnick at blog Techdirt, Musk switched them to being entirely public domain. Musk's ventures, while founded as for-profit corporations, have often taken steps to ensure public access to their 'product', whether in the case of declining to patent Tesla's electric car technology or in this case, of ensuring the same access to images produced by SpaceX as is offered by NASA to its space-flight images.

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Dr. Mathukumalli Vidyasagar  
Head, Bioengineering Dept.  
University of Texas, Dallas



## From the Editor

Jeremy Cusker



In February of this year, RadioShack announced it was filing for bankruptcy. The electronics chain had been in trouble for a long time, having been left behind by trends in both electronics retailing and consumer preferences.

Many people have pointed out how RadioShack got its start in a very different, early- to mid-20th century technological environment in which consumers expected to be able to not just purchase ready-to-use devices but to tinker with, repair and improve them themselves. Shoppers at a RadioShack might purchase a television antennae but also expect to find any of hundreds of kinds of circuits, fuses, fittings, housings and diodes necessary to customize electronics themselves. More 'electronics hardware store' than competitor to a modern-day Best Buy.

Ironically, such consumer interest in 'making' and repairing is experiencing something of a rebirth.

Adam Savage (of *Mythbusters* fame) noted during one of his *Tested* podcasts that there might have been a chance for RadioShack to reinvent itself as a chain catering to such amateur technologists, perhaps selling kits and components co-branded with the O'Reilly *Make* line of magazines, books, and equipment. But if such a possibility ever occurred to the company's management, then it came as too little, too late.

It will be interesting to see if the new wave of 'makerspaces', at present existing mostly as a loose network of educational or nonprofit sites and organizations (some even based in libraries), can make the jump to being a serious consumer phenomenon.

### What have you been doing lately?

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

Send such information to Jeremy Cusker, [jcusker4031@gmail.com](mailto:jcusker4031@gmail.com) by August 1 for publication in the next issue of *SciTech News*.

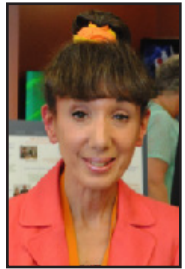
### Do you have a research project?

*SciTech News* is interested in publishing refereed research articles on library science topics. If you would like to submit such an article for consideration for publication in *SciTech News*, please contact the editors for details on formatting and creating an anonymized manuscript for referee review.

## News from the Science-Technology Division

### Science-Technology Division Sheila Rosenthal, 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.'



Dear SciTech News Subscribers,

As promised at the end of my column in the March issue of SciTech News, I want to document important information provided at the 2015 SLA Leadership Summit in Baltimore, Maryland. This Summit took place at the Hyatt Regency Baltimore on the Inner Harbor, January 21 – 23, 2015. In addition to the 2016 Annual Conference Planning meeting that took place on Wednesday, January 21st, beginning at 2:00 PM and lasting much longer than two hours, the most important sessions that I attended were as follows:

#### Thursday, January 22

- [Session 6: Moving SLA Forward](#)  
Kate Arnold, 2015 Past President  
Jill Strand, 2015 President  
Cindy Shamel, Interim Executive Director  
Ulla de Stricker, Interim Strategic Director
- [Session 7: State of the Association](#)  
Kate Arnold, 2015 Past President  
John DiGilio, Treasurer (2013-2015)  
Jill Strand, 2015 President

#### Friday, January 23

- [Session 8: Strategic Thinking](#) – Applying the SLA strategic plan to divisions and chapters – an interactive session
- Closing Keynote: [Exercising Leadership Influence for an Empowering Culture in Organizations: Outreach Empowerment](#)  
James Calvin, Professor, Johns Hopkins School of Business

Sessions 6 and 7 above answered so many questions that our members needed to have addressed especially in regard to the SLA Board's decision to name Cindy Shamel and Ulla de Stricker as interim executives of SLA until a permanent executive is hired. The links

above will take you to the SLA website location where these presentations are described in detail. As many of you already know, Cindy Shamel, head of Shamel Information Services in Poway, California, will serve as interim executive director and Ulla de Stricker, president of de Stricker Associates in Toronto, will serve as interim strategic director. The SLA Board has engaged them to address the following eight specific charge areas:

1. membership levels
2. business partner relationships
3. conference models
4. revenue modeling
5. financial review and modeling
6. new products and services
7. market viability
8. organizational review

Jill Strand clarified that Ulla de Stricker and Cindy Shamel are change consultants and their contract is for 150 work days during 2015. Doug Newcomb is the Interim Executive Director - he is the representative for SLA along with President Jill Strand.

On Friday which was the final day of the Summit I attended Session 8 on "Strategic Thinking" presented by SEI Fellow Rebecca Jones of Dysart & Jones. This was a very engaging and thought provoking interactive session that I felt really tied the SLA Strategic Plan to our SciTech Division. We were instructed to form teams with members seated at our respective tables and come up with ideas on how to attract new members to our chapters and division, brainstorm what types of events we would use that would have the most appeal, and discover different types of media to use to save cost of travel but still provide great information sharing and collaboration. This session went by so quickly and we all came away with great ideas for



the future.

I also attended the Summit's Closing Keynote by James Calvin, Professor, Johns Hopkins School of Business. Like the previous session by Rebecca Jones, this was also a very engaging and thought provoking interactive session that held your attention right to the very end. Professor Calvin wanted to connect members of the audience to each of the main topics in his presentation entitled, "Exercising Leadership Influence for an Empowering Culture in Organizations: Outreach Empowerment". He would ask the audience for examples of certain leadership qualities, traits and responsibilities and would then solicit their responses in regard to how these leadership qualities have been used within their own organizations. Instead of waiting for audience members to volunteer to provide examples, he would select people on his own, calling them up to the stage by the color of their clothing or hair color, what they might be holding, if they wore glasses, or any other distinguishing characteristic. Then he would expect them to provide examples from their own work experiences. Since each audience member never knew when they might be called up to the stage, we were all very engaged, paid extra careful attention to the presentation and tried to be ready to supply examples. Although this was very interesting and kept you on the edge of your seat, I have to admit I was a bit relieved when this closing keynote session was over and I had not been called up to the stage. I want to add the fact that all of the folks who were called upon responded very well and definitely appeared to be enjoying the experience. I am just not a quick "think on your feet!" type of person, although I would like to work at trying to achieve this quality.

Since this column is for the June 2015 Sci-Tech News "pre-conference issue" I wanted to take this opportunity to provide more details on the 3 programs that I have initiated for the SciTech Division's participation in the 2015 SLA Annual Conference in Boston, MA. Ironically they all take place on Tuesday June 16th, 2015 beginning with the one directly below:

**Tuesday (16th) 7:30 am -9:30 am Revolutionize Library Management: Best Practices in Scientific, Technical and Corporate Libraries Panel Discussion**  
Co-hosting Unit: DBIO

The most vital requirement for special librarians is to support their organizations overall mission and goals. Speaking from their own personal experiences, these information professionals will cover best practices for measuring and documenting the tangible value of the information services they provide for their respective corporate, medical, scientific and/or technical institutions. This panel discussion will include the following subjects: best practices in libraries; ISO Standard for assessing the impact of libraries; research data analysis; field testing; outsourcing; systems thinking; information technology; partnerships and teaming. Audience participation is welcomed and encouraged.

Takeaways:

1. Participants will learn the components, benefits and results of field testing, i.e. research data analysis, as it relates to partnerships/teaming with stakeholders in business development
2. Participants will be introduced to some best practices for measuring and documenting the tangible value that the library provides, which will include frameworks from a current ISO standard covering statistics, performance measures and impact of libraries
3. Participants will become familiar with specific best practice methodologies, i.e. systems thinking; outsourcing; and from a medical librarian's perspective, an example of "best practices in the use of Information Technology"

Panelists will provide answers to the following questions while incorporating their special areas of interest

1. What is the main focus of your professional library, information or knowledge services center?
2. How do you measure the value of your corporate library?
3. Define "best practices" regarding the in-

formation services that you provide.

4. How do you align the research and services you provide with the business goals of your organization?
5. Do you use the frameworks provided by current ISO standards as a guide for providing statistics, performance measures and for evaluating the impact of the services you provide?
6. Have you ever formed partnerships or used "teaming" with your business development stakeholders? What effect did this have on internal operations?

## About the Panelists

### **BETTY EDWARDS - SENIOR RESEARCH ANALYST – DRAPER LAB**

Betty Edwards joined Draper Lab in July 2010 as Senior Research Analyst. Located in Cambridge, Massachusetts, the Lab is a not-for-profit independent R&D facility primarily focused on applied development for the United States Department of Defense and NASA. Prior to this she was associated with the law firm Seyfarth Shaw LLP -- initially as a law librarian and then in a firm-wide marketing and business development role. In addition to these two positions, she brings wide-ranging experience from the online provider world, having worked for Outsell, Primark/Disclosure, and Dialog. She has been an active member of SLA on both the local and national levels and has held a number of leadership positions such as New England Chapter President, Legal Division Treasurer, Engineering Division Program Planner, and Deputy Chair of the Annual Conference. She was named a Fellow of the Association in 2008.

**JOYCE FEDECZKO** is a professional librarian employed by LAC as a project manager on a long-term outsourcing contract for a global energy company.

Project Manager, BP (630) 420-4850 joyce.fedeczko@bp.com Joyce Fedeczko is on assignment with Library Associates Companies (LAC) as the information resources director at BP. Joyce has been outsourced at BP in Naperville, IL with LAC of Los Angeles, CA

since 2002. In her role at BP, Ms. Fedeczko has responsibility for managing the workflow of the library staff serving all BP business segments and she is responsible for keeping the broader organization informed of valuable information resources and new ways of accessing critical information to aid in decision-making.

Joyce serves as BP's representative to the Conference Board's Information Research and Management Council, and is the secretary for this group. Since joining BP and the petroleum & energy resources division (DPER) of the Special Libraries Association, Fedeczko has served DPER in the roles of International Relations chair, as Nominating Committee chair and as Membership chair. Most recently Joyce was elected Treasurer of DPER.

**SUSAN HENCZEL** has held management and operational positions in government, corporate, public and academic libraries and for an academic library consortium providing services to libraries in all sectors. She is a Director on the Public Libraries Australia Board, a member of the Library Management (Emerald) Editorial Board and is its Book Review Editor, a member of the ASLIB (UK) Advisory Council, and a Fellow of the Special Libraries Association (SLA). Sue served two terms as a member of the IFLA Standing Section Committee on Statistics and Evaluation and was the inaugural Convener of the Committee's e-metrics special interest group.

**NALINI MAHAJAN** is Medical Library Director and Webmaster since 1986 for the Marianjoy Rehabilitation Hospital in Wheaton, IL. Nalini won the 2010 "Librarian of the Year" award from DuPage Library System, IL. She is a part-time faculty at College of DuPage Library since 1981, and received the "outstanding Part-time Faculty Award" in 1996. In 2002 she was a recipient of "Scroll of Exemplary Service" for the Hospital Libraries Section of the Medical Library Association.

She is very active in the Special Library Association. Nalini has held several offices in DBIO: Secretary (2012-2013), Chair (2009-

2010) and member (2007-2008) of the Vendor Relations Committee. She also serves on the Library Board of Advisors for Doody's Review Service.

**VALERIE J. RYDER** has over 30 years of experience in managing business and research libraries in the corporate sector; spearheaded the migration from print to electronic information resources at a Fortune 300 company, and has been a solo librarian as well as an independent information consultant during her career transitions. Valerie developed and monitored library service quality measurements and metrics demonstrating the value of information services at several industrial and manufacturing companies, including a Fortune 50 company.

She has an MLS degree from the University of Pittsburgh, a Master's degree in International Business Management from Point Park University and a Bachelor's degree in mathematics from the University of Rochester.

Valerie has held a number of leadership roles in the Philadelphia Chapter, the Pittsburgh Chapter and the Nuclear Science Division of SLA. She is the 2014 Past-President of the Philadelphia Chapter and is actively involved in the chapter's program planning activities as well as member recruitment and retention efforts.

**DEBORAH SCHWARZ** is president and founder of LAC (Library Associates Companies). LAC is a professional services firm specializing in outsourcing and consulting for information management and library projects. <http://www.lac-group.com/about-us/deborah-schwarz/>  
Chief Executive Officer – Libraries Associates Companies (LAC)

Ms. Schwarz founded the company as Library Associates Companies (LAC) in 1986 as a boutique agency for temporary personnel, primarily serving the law library community in Los Angeles. Under her leadership, the organization has evolved into an international corporation with offices in North America and the United Kingdom, becoming the LAC

Group in 2009. Clientele includes Fortune 500 corporations, government agencies, and global law firms and media companies. As a "roll up your shirtsleeves" CEO, Ms. Schwarz routinely works alongside her project managers and staff, inspiring her team to pursue innovation and excellence in all projects and assignments. She is particularly interested in helping organizations focus on strategic and pragmatic solutions for managing information, research and assets. Long a passionate proponent of utilizing information professionals in non-traditional projects and careers, Ms. Schwarz speaks and writes frequently on outsourcing and professional development.

Ms. Schwarz received her BA from the University of Michigan and her Master's degree in Library & Information Science from the University of Toronto. She is an active member of numerous professional associations focused on information sciences and digital asset management, and serves on the advisory boards of emerging companies bringing information management products to market.

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**SARA R. TOMPSON, MS**, is Manager of the Library, Archives and Records Section at the Jet Propulsion Laboratory in Pasadena, CA. As a pilot and science fiction enthusiast, she considers this her dream job. With Lorri Zipperer, Tompson has written, presented, and taught together on systems thinking and other topics related to the value of libraries and librarians, and won the Special Libraries Association H.W. Wilson Award for best article of 2002 for "Communicating Competencies and Collaboration."

**VICKI VALLEROY, MLIS**, is the Manager of Library Services at The Boeing Company. She directs a geographically dispersed group of librarians and library assistants engaged in acquisitions, collection development, content licensing, copyright compliance, document delivery, electronic resource management, reference (including virtual chat), research data analytics, and serials manage-

ment. She received her Master of Library and Information Science degree from the University of Washington in Seattle. She has been an active member on both the local and national levels of professional associations, and is a current member of the American Library Association (ALA), Special Libraries Association (SLA), and Society of American Archivists. Currently Vicki hosts the monthly Corporate Library Community of Practice meetings.

The next program that directly follows the "Best Practices" panel discussion is an SLA "Masters Class" as described below:

**TUESDAY JUNE 16, 2015 - 9:45 am-10:45 am - Demystifying the information audit: from knowledge management (KM) to enterprise information management (EIM) – this is an SLA Masters Class!**

Sponsors: DPER, DBIO

**SUSAN HENCZEL** has held management and operational positions in government, corporate, public and academic libraries and for an academic library consortium providing services to libraries in all sectors. She is a Director on the Public Libraries Australia Board, a member of the Library Management (Emerald) Editorial Board and is its Book Review Editor, a member of the ASLIB (UK) Advisory Council, and a Fellow of the Special Libraries Association (SLA). Sue served two terms as a member of the IFLA Standing Section Committee on Statistics and Evaluation and was the inaugural Convener of the Committee's e-metrics special interest group.

From knowledge management (KM) to enterprise information management (EIM), the information audit is a tool to be used to address operational and strategic challenges regarding information and knowledge within an organization.

An information audit reveals the current information and/or knowledge environment by:

- Identifying information/knowledge generation, access, transfer, utilization and storage;

- Discovering personal information management practices that impede effective KM/EIM;
- Establishing information / knowledge priorities within contexts such as risk management and legal compliance; and
- Assessing information / knowledge transfer processes.

This session will include a description of the information process and its relationship to the knowledge audit and to enterprise information management. It will include discussion of requisite skills, potential outcomes and a variety of case studies.

In recent years, the information audit (IA) has evolved from a library-focused activity to one that provides enterprise-wide information management solutions to meet business challenges and management responsibilities. As a tool used to address operational and strategic information management challenges it has begun to engage managers, business analysts and policy makers. An information audit reveals the current information environment by establishing information processes and policies; identifying gaps that impede effective enterprise information management; and more. Sue Henczel will be co-presenting with Graham Robertson who founded and is the Principal Associate at Bracken Associates Information Services in London, England, United Kingdom. Mr. Robertson specializes in strategic implementation of information and knowledge management initiatives.

The third and final program that I initiated is described below:

**TUESDAY JUNE 16, 2015 - 2:00pm-3:30pm International perspectives on Emerging Technologies and New Practices for Improving Scientific and Technical Library Services** - Lead Division: DST

- Co-sponsors: Asian Chapter, DBIO, KIIE

**Program Theme: How Emerging Technologies and New Practices for Improving Library Services Impact Science and Technology Librarians on a Global Scale**

– the following countries are represented:

- Australia
- India
- Italy
- The Netherlands
- Saudi Arabia
- United Kingdom
- United States

Program Moderator: Dr. Nalini Maharan - Medical Library Director and Webmaster Marianjoy Rehabilitation Hospital, Wheaton, IL.

Panelists:

- **Mr. Jay Bhatt – US.** At Drexel University, Jay Bhatt is responsible for building library collections in engineering subject areas, outreach to faculty and students, and teaching information and research skills to faculty and students in Engineering, Biomedical Engineering, and related subject areas. He provides individual and small group consultations to students, instructional sessions to specific classes, online research support in both face to face and distance learning programs, and workshops for specialized research areas.
- **Ms. Gimena Campos Cervera – Italy.** Gimena Campos Cervera is an information professional with many years of experience on the international field. Paraguayan by birth, she holds a Master's degree in Library and Information Studies by the Robert Gordon University, and has worked for the United Nations agencies, non-governmental organizations, and the U.S. Department of State. In 2009 she was elected Information Professional of the Year by SLA Europe.
- **Dr. Susmita Chakraborty – India.** Susmita Chakraborty is an Assistant Professor in the University of Calcutta teaching 'Digital Content Management' and 'Technical Writing' to MLIS students. She is a Gold Medalist (M. Lib. Sc.) of Calcutta University and a First Class Second (MLIS in digital Library Management) of Jadavpur University. Before that, she was serving responsible positions in Bengal Engineering & Science University, in Maharaja Manindra Chandra College and in Indian

Institute of Social Welfare and Business Management. She has done Masters in English Literature Calcutta University and Associateship in Information Science from Indian National Scientific Documentation Centre, a premier CSIR Institute under Government of India. She did her PhD in Medical Informatics. She is actively involved in LIS global leadership.

- **Mr. Andrew Clark – UK.** Head of Information Discovery, UCB. Andrew Clark has more than 15 years experience in the information industry and is currently Head of Information Discovery at UCB a global Biopharmaceutical company headquartered in Brussels Belgium. Passionate about information Andrew is an active participant of both the Pharmaceutical and Healthcare Division of the SLA, as well as being a member of SLA Europe and the Pharma Documentation Ring.
- **Ms. Susan Henczel – Australia.** SUSAN HENCZEL has held management and operational positions in government, corporate, public and academic libraries and for an academic library consortium providing services to libraries in all sectors. She is a Director on the Public Libraries Australia Board, a member of the Library Management (Emerald) Editorial Board and is its Book Review Editor, a member of the ASLIB (UK) Advisory Council, and a Fellow of the Special Libraries Association (SLA). Sue served two terms as a member of the IFLA Standing Section Committee on Statistics and Evaluation and was the inaugural Convener of the Committee's e-metrics special interest group.
- **Mr. Dennie Heye – The Netherlands.** Dennie is knowledge and information manager for the Human Resources IT division at Royal Dutch Shell in the Netherlands. He is responsible for the definition and implementation of a strategy covering the technical, content and organizational aspects of knowledge and information management. Prior to that he was involved in establishing a global virtual library and providing consultancy on taxonomies, document management and search engine requirements.

- **Dr. P.K. Jain – India.** Dr.P.K.Jain has twenty five years of experience in the field of Library and Information Science (LIS). He holds Ph.D., M.Phil and Master Degree in LIS and Master Degree in Economics and Sociology. He is presently working as Librarian at Institute of Economic Growth, University of Delhi Enclave, Delhi, India. He wrote more than 20 papers, which presented in National & International Conferences and published in reputed journals and edited one book. He presented many papers in International Conferences in USA, UK, Malaysia, Philippines and India. He presented a paper in SLA 2010 conference in New Orleans on 14 June 2010 and a talk at Alabama University, USA.
- **Ms. Geeta Paliwal – India.** Ms. Geeta Paliwal holds Degree of Master of Philosophy (M.Phil) in Library and Information Science from University of Delhi, India. She has also completed her MLIS from University of Delhi and Post Graduate Diploma in Library and Automation Networking from Indira Gandhi National Open University, Delhi, India. Presently she is working in University College of Medical Sciences, Delhi, India. Prior to this she worked in the Institute of Economic Growth, Delhi. She is a member of Indian Library Association and Special Libraries Association (SLA, USA). She has been awarded Bonnie Hilditch Librarian Award 2012 from Science and Technology Division, SLA and Early Career Award 2011 from Business and Finance Division SLA. She attended SLA 2012 in Chicago, USA and SLA 2011 conference in Philadelphia, USA. She presented her paper in the 2013 IFLA World Library and Information Congress held in Singapore. She has written seven papers and presented in International and National Conferences and attended many conferences.
- **Mr. Rindra M. Ramli – Saudi Arabia.** Team Lead, E-Resources Specialist at KAUST. Current position is in King Abdullah University of Science and Technology KAUST.
- **Mr. Graham Robertson – UK.** Graham Robertson who founded and is the Principal Associate at Bracken Associates In-

formation Services in London, England, United Kingdom. Mr. Robertson specializes in strategic implementation of information and knowledge management initiatives.

Panelists will address and provide answers to the following questions:

1. Describe the impact of “emerging technologies” on your library collections and services
2. Are there any Initiatives that you have participated in which highlight U.S. collaboration within your organization?
3. How has knowledge management and enterprise information management been implemented within your organization? Has your library or organization ever conducted an “information audit?” Have you used the information audit as a management process?
4. Do you have any recommendations on International Programs and Activities for librarians and information managers?
5. Have you encountered difficulty working with library metrics on a global scale due to international inconsistency?

You will learn about (takeaways) from International Librarians:

- Impact of Emerging Technologies on a Global Scale
- Initiatives involving U.S. international collaboration in the field of library and information science
- Information auditing as a management process
- International programs and activities for librarians and information managers
- Importance of international consistency on library metrics

Please try to attend all three of these programs described in detail above as I strongly recommend them and am sure that you will all enjoy and benefit from the information they will provide.

Here is the URL that contains information on all of the SciTech Programs for the 2015 Annual Conference in Boston:

<http://scitech.sla.org/conferences-and-events/conference-programming/>

I am including details for the programs from Saturday, Sunday, Monday and the tour we are sponsoring on Wednesday directly below:

Saturday, June 13th

**New Members' Welcome Dinner and Member Meetup, Saturday, June 13, 6:00-8:00 pm**

All new DST members are invited to join the DST Officers for a welcome dinner at our expense. Please RSVP. Any DST member is also invited at their own cost. Join us for food, fun, and networking. Gain conference tips and discover the ways you can volunteer for the Division. Make new friends and enjoy fantastic foods. Moderator: Anna Ren, Sci-Tech Division Membership Committee Chair. Please RSVP to Anna at [annawu@northwestern.edu](mailto:annawu@northwestern.edu).

Place: TBA

Sunday, June 14th

**What is Data Visualization? A Science & Engineering 201 Session, Sunday, June 14th, 1:30-3:00 pm**

Mary Frances Lembo, Barbara Wetzel and James Manasco will provide an introductory session on data visualization. This session will provide a definition of the concept of data visualization, note some of the major players in the field, and discuss how data visualization can be used to enhance search results. Co-host: DTRAN, DPER.

Moderated by Sheila Rosenthal with speakers Mary Frances Lembo, Barbara Wetzel and James E. Manasco

**DST Awards Reception and Presentations, Sunday August 14, 7:00-9:00 pm**

Come and celebrate with us as we present the Science and Technology Division's awards. Congratulate the award winners, meet your colleagues, and partake in delicious appetizers and desserts.

Moderators: Sheila Rosenthal and Janet Hughes

Monday June 15th

**Revolutionize Your Data – Tools for Visualization (CSRT), Monday June 15th, 12:00-1:30 pm**

In this 90 minute session, attendees will experience a variety of data visualization tools that will maximize the impact of their research and information display. This will be in lightning talk format. Speakers will be corporate/special and academic librarians as well as faculty and researchers.

Co-host: PAM, DGI, DIT

**All Sciences Poster Session and Reception, Monday June 15th, 5:00-7:00 pm**

Presented By Biomedical & Life Sciences Division, Chemistry Division, Engineering Division, Pharmaceutical & Health Technology Division, Physics-Astronomy-Mathematics Division, Science & Technology Division.

Cohost: PAM, DCHE, DBIO, DPHT, DFAN DENG

**Engineering Division Tour (DST Co-host), Wednesday, June 17, 7:30 am-3:00 pm, limit 25. Cost \$25.**

FM Global Facility Tour. Fires, explosions, hurricane-force winds, flying debris—it's all in a day's work at the FM Global Research Campus. Equipped with the most advanced technology and designed with property owners, product manufacturers and continuously evolving industry trends in mind, our distinguished scientists and loss-prevention engineers conduct research in four main laboratories. On this tour, visitors will view the Fire Technology and Natural Hazards Laboratories and view a live dust explosion. Bus transportation to the 1,600-acre FM Global Research Campus in West Glocester, RI, is provided, along with lunch.

We hope that you will try to attend ALL of the SciTech Division programs for the June 2015 Boston Conference and look forward to seeing you there and receiving your feedback on the programs we have provided. Thank you!

## Science-Technology Division New Members

*Submitted by Anna Ren, Membership Committee Chair, Science-Technology Division*

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### **The Science-Technology Division welcomes its new members:**

Lee Akras  
Upton, NY  
USA

Jennifer Phillips  
Boulder, CO  
USA

Penny Andrews  
Leeds  
United Kingdom

Jessica Pierce  
Danvers, MA  
USA

Michael Aparicio  
Jersey City, NJ  
USA

Chuck Piotrowski  
Niskayuna, NY  
USA

Diane Baksa  
Mississauga, Ontario  
Canada

Jodi Psoter  
Williamstown, MA  
USA

Shweta Dhingra  
New Delhi  
India

Nancy Shore  
Cheyenne, WY  
USA

Craig Elam  
Fort Worth, TX  
USA

Bridget Thrasher  
Menlo Park, CA  
USA

Colleen Funkhouser  
Alexandria, VA  
USA

Allison Tyler  
Aurora, CO  
USA

Sandra Lewis  
Fairfax, VA  
USA

Will Weston  
El Cajon, CA  
USA

Sandeep Pathak  
Bhuri, Bopal  
India

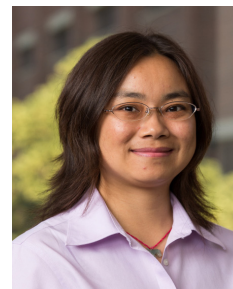


## News from the Chemistry Division

### Chemistry Division

### Ye Li, 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.



Greetings to all colleagues! The SLA Annual Conference is approaching us fast. Hope you all have registered for the conference. Please check out Chemistry Division [programs at our website](#) and more details including speakers and session take-away through the [online scheduler](#). Don't forget to take our great [CE course offerings](#), buy the ticket to the [Breakfast session](#) on Monday, and [RSVP for the Dinner](#) on Saturday. We look forward to seeing you at Boston. Together, let's make it a conference full of learning, sharing, and lots of fun!

Here, I would like to acknowledge our sponsors for their generosity and continuous support to our conference programs. They are American Chemical Society Publishing, Royal Society of Chemistry, Elsevier, Chemical Abstracts Service, and Thieme. Please thank our colleagues from these organizations when you meet them at the Exhibition Hall or during the conference programs. And please join us in [the Business Meeting](#) on Sunday when we will formally acknowledge our sponsors and also present the Sparks Award to the winner in 2015, Stacey Mantooth. We will also hear updates from many vendors during the vendors' roundtable part of this session.

The Chemistry Division Board had our first 2015 virtual meeting on March 9. We have discussed our goals for this year as a division and individual goals in specific areas of responsibility for each board member. Our division goals for this year are to (1) articulate and enhance the division membership benefit to our members and (2) improve communication among members across different

sectors. We are implementing our membership survey and you will receive an invitation to participate in the survey soon. Please take the opportunity to share your comments and suggestions. The results of the survey will inform the strategic planning we aim to complete this Fall. If you'd like to volunteer and contribute to the strategic planning process, please contact Ye at [liye@umich.edu](mailto:liye@umich.edu) or [other board members](#). The goal of this process is to make a concise 1-2 pages strategic plan to outline our directions in the next five years. Your voice is crucial.

The next virtual board meeting is scheduled on May 11, 2015 between 11am – 12pm EDT. And we will also have an on-site board meeting during the annual conference at 5:30 – 6:30 pm EDT on June 13, 2015. We always welcome division members to participate in the board meeting. Please feel free to contact us if you'd like to do so. One of the important agenda items of the May meeting is to discuss the leadership and future of our Material Research and Manufacturing Section (MRM). If you have any good ideas about MRM or would like to volunteer for leadership positions of the section, please contact Ye at [liye@umich.edu](mailto:liye@umich.edu) or [other board members](#).

Last, while you are arranging your trip to our conference at Boston, don't forget to check out the [website provided by the local chapter](#) for traveling tips, food, music and fun! Look forward to a wonderful time with all of you in June.

## **DCHE Welcomes New Members**

(Joining dates between November 2014 - January 2015)

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Diane Baksa  
Vale Canada Limited

Cheryl Bain  
McGill

Jack Dale  
The Catholic University of America

Kaija Sipila  
Helsinki University Library

## **Materials Research & Manufacturing Section New Members**

*Submitted by Bette Finn, Materials Research & Manufacturing Section*

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### **The Materials Research & Manufacturing Section of the Chemistry Division Welcomes Its New Members:**

Ms. Cheryl Bain  
Montreal, QC  
Canada

Chuck Piotrowski  
Niskayuna, NY  
USA

## Stacey Mantooth Receives 2015 Marion E. Sparks Award for Professional Development

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The SLA Chemistry Division (DCHE) is pleased to announce that Stacey Mantooth is the winner of the 2015 Marion E. Sparks Award for Professional Development.

Stacey Mantooth is a science librarian at Florida State University. She obtained the Master degree in Library Science in May 2014 at University of North Carolina- Chapel Hill, NC. Her undergraduate degree in a double major in English Literature/Creative Writing and Classical Languages is from Agnes Scott College, Decatur, GA. She also holds a MFA degree in Creative Writing from University of Wisconsin, Madison, WI.

In her application essay, Stacey wrote about her passion to build a program to demonstrate how libraries can be valuable and productive partner with the Chemistry Department. Stacey is particularly interested in providing support for laboratory safety for undergraduate labs and developing a pilot program for 3D printing at Florida State University libraries.

She joined the Chemistry Division in November of this year to engage with the chemical information community and learn more

about assisting chemistry researchers and students. At the SLA annual conference, Stacey seeks to connect with experienced information professionals and other newcomers like herself. She is also planning to attend several DCHE-sponsored sessions and workshops in hopes of improving services and programs at Florida State University.

The Chemistry Division will present Stacey Mantooth with a \$1500 check and award certificate to support her attendance at the 2015 SLA Annual Conference in Boston. The presentation will take place during the DCHE Business Meeting and Vendor Roundtable on Sunday, June 14, 2015.

The Sparks Award is named to honor Marion E. Sparks, a pioneering and influential chemistry librarian who worked at the University of Illinois from 1913 through 1929.

Congratulations Stacey, and enjoy the 2015 SLA Conference!

Tina Qin  
Chair of Awards Committee  
SLA Chemistry Division

# Post International Chemical Congress Report Held in Malaysia and Vietnam 2014

by Malarvili Ramalingam, PhD

(Department of Chemistry Malaysia, Petaling Jaya, Malaysia)

## Introduction

Research & development in ASEAN countries need to be enhanced, especially in less-developed countries. Thus, the more economically developed countries in Asia were encouraged to play a more active role in strengthening the scientific and technological capacities and capabilities of other ASEAN countries. The focus has been placed on chemical research, technology innovation, commercialization and entrepreneurship for sustainable development in the region. The 18th Malaysia International Chemical Congress (18MICC) and Vietnam Malaysia International Chemical Congress (VMICC) were platforms for researchers, academics and other professionals from Vietnam, Malaysia, and other countries to present their research findings, innovative technology and the latest developments in all related areas of chemistry.

Experts, researchers and educators chaired and spoke in plenary sessions and parallel sessions, where they discussed and presented the latest information and findings for quality technological innovation to spur sustainable development.

The 18MICC took place at the Putra World Trade Centre (PWTC), Kuala Lumpur, from 3 – 5 November 2014. It was jointly organized by Institut Kimia Malaysia, together with Chemistry Department Malaysia (JKM), Chemical Industries Council of Malaysia (CICM), Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM), Universiti Sains Malaysia (USM), Universiti Teknologi Malaysia (UTM), Universiti Malaysia Pahang (UMP) and Universiti Teknologi MARA. The Congress was supported by the Ministry of Science, Technology and Innovation (MOSTI), and the sponsors, the Japan Interaction of Science

and Technology, and KISM Sdn Bhd. The opening ceremony on 3 November 2014 was officiated by the Deputy Minister of Science, Technology and Innovation, YB Datuk Abu Bakar Bin Mohamad Diah.

This successful event featured more than 130 speakers, 40 poster exhibitors and 250 participants from 10 countries. Under the overall theme of 'Excellence in Research and Development for Better Quality of Life', 18MICC 2014 explored how we get to a brighter future in which technology enables everyone to enhance and enrich themselves.

The conference's programme brought together the latest research-based evidence as well as tried and tested techniques. In total there were 26 parallel sessions, which covered seven key themes, as outlined here.

- Analytical Chemistry and Laboratory Management (ACLM)
- Environment and Green Chemistry (AGC)
- Inorganic Chemistry and Bioinorganic (IABC)
- Materials and Polymer Chemistry (MAPC)
- Natural Products and Medicinal Chemistry (PMC)
- Organic and Biomolecular Chemistry (OABC)
- Physical and Computational Chemistry (PACC)

With some many presentations (including oral and poster presentations), 4 plenary and 6 keynote lectures, covering the stated seven themes, there were many different topics. Just the plenary are delineated here.

Dr. Michael G. Organ, Professor from York University, Canada, addressed the opening plenary with an inspiring presentation outlining his research findings on the combination of synthetic studies, NMR spectroscopy,

and mass spectroscopy, a new theory for the structure of the active transmetallating species in the Negishi reaction involving alkyl organozincs.

Michael's speech was followed by Professor Masahiro Yamashita, from Tohoku University, Japan, who studied the new quantum molecular spintronics using single-molecule magnets, which are composed of multi-nuclear metal complexes and nano-size magnets.

Professor Atsushi Nishida, Japan, explained the synthesis of lundurine A and B. According to Professor Atsushi, lundurine, an alkaloid, has unique cyclopropane-fused indoline structure and been reported for selective anti melanoma activity. What is worth mentioning here is that the choice of chiral ligands together with catalysts is the possible key to attaining high asymmetric induction, which reflects to be an innovative synthetic tool in modern organic chemistry.

In the closing plenary, Professor Mukram Mohamed Mackeen, Malaysia, presented on solving the conformational problem of endoplasmic reticulum associated degradation (ERAD) Glucosylated N-Glycans using structural and chemical biology. Professor Mukram made a passionate case for a broad spectrum of audience connecting with research applications in organic synthesis, biophysical and structural analyses.

In conjunction with 18MICC, VMICC 2014, the first scientific meeting organized by the Institute Kimia Malaysia (IKM) and Chemical Society of Vietnam (CSV) was held at the Daewoo Hotel, Hanoi, Vietnam on 7 November 2014 until 9 November 2014. VMICC was organized under the patronage of the Federation of Asian Chemical Societies (FACS) and with the support of the MOSTI. It is an international congress that covered all issues related to the field of chemistry themed "Chemistry for Sustainable Socio-economic Development". VMICC 2014 was officiated by the Honorable Minister of Science and Technology Vietnam, Dr Pham Cong Tac.

The congress received extensive recognition

from mainly the Asian Countries. The VMICC brought together about 236 participants from seven countries, which included more than 210 presentations comprising five Plenary Lectures, 5 keynote Lectures, 175 oral and 25 poster presentations. Similar key themes were covered in VMICC including a session Chemistry Education and Careers in Chemistry (CECC).

Professor Michael G. Organ reported on a newly developed reactor that can withstand very high pressures (e.g; > 1000psi) / boiling points (200 -800 °C) and maintaining the reactions in a liquid state, which is a so-



Figure 1: Participants at conference banquet.

lution for sustainable chemical manufacturing. This procedure was indeed stated to be used to evaluate continuously synthesized products, e.g. drug intermediates. Professor Dr. Masahiro Yamashita concentrated on multi-functional nano-sciences of advanced metal complexes. His research relates to creating gigantic third order optical nonlinearity, which are available for the use of optical communications and optical computers.

Professor Chu Pham Ngoc Son shared the results of his research on usage of green analytical methods for food safety testing, a logic step toward sustainable development, ensuring environmental preservation and health protection. Dr Nguyen Anh Duc presented on development of compact systems to transform biomass into biofuels for agricultural activities in rural areas of Vietnam.



Figure 2: Author (second from right) with speakers from Japan and Canada (on the left), Chairman of VMICC organizing committee Dr Soon Ting Kueh (in the middle), Prof Yang Farina (in front) and Dr Boey Peng Lim (in the right).

His research focus was mainly on developing new catalysts and technologies that could help to efficiently utilize or convert CO<sub>2</sub> and CO<sub>2</sub>-rich gas to methanol or fuels with the capacity of 101/h by 2020.

The oral presentations were divided into 31 parallel sessions, covering the eight key themes and each session had a minimum of nine paper presenters. This was to get participants to focus on their area of research interest. The poster presentations were held at the exhibition hall and divided into eight categories as well.

Special highlights for many, 18MICC and VMICC 2014 included the welcoming reception, luncheon and banquet provided participants with ample opportunity to make new contacts and reinforce existing contacts in an informal environment.

## Conclusion

The 2014 18MICC and VMICC congress was a platform to gather professionals and scientists from all around the world to share their views on 'Excellence in Research and Development for Better Quality of Life' and 'Chemistry for Sustainable Socio-economic Development'. The output was in concurrence with the 18MICC and VMICC purpose to create a global colloquium for public, government, academia and industry to address all aspects of chemistry in ensuring sustainability in the region. As Prof. Yamashita had pointed out in his talk, "*Science is not from 1 to 100, but from 0 to 1 and Science is not No 1, but only 1*", this is what truly sets the scientists like us together: how we learn and acknowledge that science is the only way to know and discover the truth.



Figure 3: VMICC Joint organizing committees of IKM and CSV.

## News from the Engineering Division

Engineering Division

Sara Davis, 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.

Hello, everyone! It is 10 weeks (as of April 1, as I am writing) and counting before we land in Boston for our annual conference! Have you registered for the conference? Have you made your hotel reservations? Have you purchased your ticket for our Division's annual business meeting and awards luncheon? Have you purchased your ticket for our Division field trip to FMC Labs? Better get busy, time is running out!!

As you know, you can go to the SLA website's Boston link: <http://www.sla.org/attend/2015-annual-conference/>. It contains a wealth of information about all of the above AND it contains information on our Division and Section programs taking place in Boston. To make things a bit simpler for you, here is a list of all of the programs that are sponsored or co-sponsored by our Division and Sections. Specific room numbers for each program will be issued closer to convention time.

### ENGINEERING DIVISION SPONSORED AND CO-SPONSORED PROGRAMS

#### Engineering Division Board Meeting

Description: Engineering Division elected officers and committee chairs report on their areas of responsibility and discuss business. All division members are welcome to attend.  
Time: Saturday, June 13, 2015, 5-6:30 p.m.  
Lead: Engineering Division

#### Engineering Division No-Host Dinner

Description: Welcome Engineering Division members to our FIRST ever no host dinner at SLA 2015! Join fellow early arrivals for a no-host (Dutch treat) dinner in Boston. Come meet other Division members, catch up on shop talk, enjoy great food at a local Boston restaurant and relax together before the Boston conference kicks into high gear.

The restaurant we'll be eating at is 75 at Liberty Wharf and we'll meet in the lobby of the Westin hotel (convention HQ hotel) to walk over together.

Time: Saturday, June 13, 2015, 7-9 p.m.

Lead: Engineering Division

#### Green Building Standards

Description: This session will familiarize attendees with Green Building standards such as LEED, GreenGlobes, and EnergyStar and provide examples of their application in libraries.

Time: Sunday, June 14, 2015, 11:45 a.m. - 1:15 p.m.

Lead: Environment & Resource Management Division

Division Co-sponsors: Engineering Division, Architecture, Building Engineering, Construction and Design Section

#### NASA Spinoffs: To Space and Back

Description: NASA Spinoffs are technologies, originally developed to meet NASA mission needs, that has been transferred to the public and now provide benefits as commercial products or services. Listen as a panel discuss how NASA Spinoffs enhance many aspects of daily life, including health and medicine, transportation, public safety, consumer goods, energy and environment, information technology, and industrial productivity. Learn how NASA technology has been successfully transferred to several companies.

Time: Sunday, June 14, 2015, 3:30-5 p.m.

Lead: Engineering Division, Aerospace Section

Sponsors: AIAA, IEEE

#### Engineering Division Business Meeting and Luncheon (Ticketed Event)

Description: Members of the Engineering Division and other interested parties are invited to join Chair Sara Davis and the Division's

officers for a review of events over the past year and plans for the future. Award recipients and sponsors will also be honored.

Time: Monday, June 15, 2015, 12-1:30 p.m.

Lead: Engineering Division

Sponsors: ACM, ASME, Basch, Elsevier, IEEE

**Ticket prices (Member/Non-Member/Student) \$25/\$35/\$15**

#### All Sciences Poster Session & Reception

Description: Join your colleagues in the sciences for an entertaining evening of viewing the latest in science librarianship research while munching on great tasting goodies. Renew acquaintances, meet new friends, chat with others interested in the same research area, and see what is new and hot in science librarianship.

Time: Monday, June 15, 2015, 5:30-7 p.m.

Lead: Sci-Tech Division

Division Co-sponsors: Engineering, Biomedical, PAM, Pharma, FAN, Chemistry

Sponsors: ACM

#### Standards Development and Update

Description: Ask questions and provide feedback while Standards Development Organizations (SDOs) are all in the same room! Meet representatives from many SDOs; learn about their latest and greatest innovations. New for 2015, learning how standards are developed. Come early, grab a seat...this session fills up fast!

Time: Tuesday, June 16, 2015, 7:30-9:30 a.m.

Lead: Engineering Division

Division Co-sponsors: Petroleum and Energy Resources, Transportation

Sponsors: ASTM

#### Hot Topics in Architecture & Building Design: ABCD Section Round Table

Description: Network with other architecture and building design information professionals to discuss current topics in the field.

Time: Tuesday, June 16, 2015, 9:45-10:45 a.m.

Lead: Engineering Division, Architecture, Building Engineering, Construction & Design Section

Sponsors: ICE Publishing

#### How-to Select the Best Databases for Your Community: Proven Methods for Comparison

Description: Research intensive communities require more than one database to ensure adequate indexing of literature. Comparison of databases is necessary to select the most comprehensive or the best database for researchers. This presentation will review (literature on the) criteria used to evaluate databases for subscription decisions. In addition, comparison methods such as citation analysis, sample searching across multiple databases for recall and/or precision etc. will be covered for determining database coverage in a specific discipline. Our speaker will describe steps, findings, and practice implications of her current research project using citation analysis methods to compare databases.

Time: Tuesday, June 16, 2015, 11 a.m. - 12 p.m.

Lead: Engineering Division

Division Co-Sponsor: Chemistry

Sponsors: IEEE

#### Nanotechnology: What's the Big Deal

Description: Listen as Dr. Brian Wardle, Associate Professor of Aeronautics and Astronautics at MIT, discusses what nanotechnology is and how it's being applied to engineered materials and structures. Reference will be made to efforts over the past decade in using nanoscale materials to enhance performance of advanced aerospace materials and their structures through the industry.

Time: Tuesday, June 16, 2015, 2-3:30 p.m.

Lead: Engineering Division

Sponsors: IEEE, Taylor & Francis

#### SharePoint, Metadata and Taxonomy

Description: SharePoint's architecture has built-in components for metadata and auto-categorization, and it is increasingly being used as a content management platform. Panelists will discuss how these components work, when the built-in components are the best choice, when an alternative might be a better option, and how to connect SharePoint to other institutional systems. As a crescendo session, our first panelist will discuss SharePoint and taxonomy basics, our next panelist will present a case study of how tax-



onomy was implemented at his site, and our third panelist will present Advanced Tips and Tricks.

Time: Tuesday, June 16, 2015, 2-3:30 p.m.

Lead: Taxonomy Division

Division Co-sponsor: Engineering

### Science of 3D Printing

Description: Advances in 3D printing technology and materials have enabled many new applications in 3D modeling, prototyping and manufacturing in fields including engineering, biomedicine, and chemicals/pharmaceuticals. From perspectives of library-based 3D printing services and a visualization software developer, the panel will introduce principles of 3D printing technologies and associated material science; discuss applications and potential of 3D printing for visualization in research, STEM education, and industry; and provide insights on 3D printing service operations, including service models, opportunities, community impacts and partnerships.

Time: Tuesday, June 16, 2015, 2-3:30 p.m.

Lead: Chemistry Division

Division Co-sponsors: Engineering, Biomedical, Sci-Tech, Pharma, IT, FAN

### FM Global Facility Tour (ticketed event)

Description: Fires, explosions, hurricane-force winds, flying debris—it's all in a day's work at the FM Global Research Campus. Equipped with the most advanced technology and designed with property owners, product manufacturers and continuously evolving industry trends in mind, our distinguished scientists and loss-prevention engineers conduct research in four main laboratories. On this tour, visitors will view the Fire Technology and Natural Hazards Laboratories and view a live dust explosion. Bus transportation to the 1,600-acre FM Global Research Campus in West Glocester, RI, is provided, along with continental breakfast and lunch.

Time: Wednesday, June 17, 2015, 7:30 a.m. - 3:30 p.m.

Lead: Engineering Division

Division Co-sponsors: Sci-Tech

**Ticket prices (Member/Non-Member/Student) \$30/\$40/\$20**

I'm also delighted to share the following in-

formation with you....one of the Engineering Division's SLA 2015 sessions has been assigned a session hashtag in a pilot project to generate social media buzz and conversation around conference sessions. Overall, ten broad-interest sessions have been identified and assigned a unique hashtag. Yours is below:

1487: How to Select the Best Databases for Your Community: Proven Methods for Comparison (Tuesday, 11:00 - 12:00) <http://sched.co/2HQF>  
**#comparedatabases**

These hashtags have already been posted in the online planner, and will also appear in the conference pocket guide distributed on-site in Boston. We'll be publicizing this effort through various channels, including the SLA blog, other conference communications, and social media.

With the above announcement, I'll reiterate the need for folks from our Division being willing to tweet from the conference once you are actually onsite. Here are our Division credentials (@SLA\_DENG and DENGtwitter) and if you are willing to tweet once at the conference, please let me know.

We will once again be offering a buddy system for newcomers to the conference and to our Division or Sections. If you are interested in being involved with this program, in either capacity, please contact Ashleigh Faith at [afaith@sae.org](mailto:afaith@sae.org)

I also want to take this column to say THANK YOU to Penny Sympson, our 2015 Engineering Division Program Planner. She has put together an amazing set of programs for our Division and without her hard work and skill, you would have very little in the way of programs for Boston. She has worked tirelessly throughout the year putting together programs and obtaining speakers and dealing with all the myriad of details that will make our sessions in Boston terrific! Thank you, Penny and here is my offer(in print... smile!) to buy you the dessert or drink of your choice, maybe even 2 or 3, while we are in Boston!

I look forward to seeing all of you in Boston and if you have any questions before before we arrive, please let me know.

Until then,  
Sara Davis  
Chair, 2015, Engineering Division, SLA  
[sara.davis@jacobs.com](mailto:sara.davis@jacobs.com)

## Award Announcements

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### SLA Engineering Librarian Award

*sponsored by I H S*

Daureen Nesdill has been the Data Curation Librarian at the J. Willard Marriott Library, University of Utah since 2009. In this position Daureen lead a team in evaluating the resources available and the needs of both the library and campus for initiating a research data management program. As a result Daureen teaches workshops in data management, develops library guides, educates librarians, informs the campus of changing federal policies, and assists with writing data management plans. Daureen also initiated a program to introduce electronic lab notebooks, ELNs to researchers. In addition, Daureen is the subject liaison to the Department of Civil and Environmental Engineering and the Department of Chemistry.

Daureen started her career as a science and engineering librarian at the Marriott Library in 2002 after graduating from the University of Alabama, Tuscaloosa with an MLIS. She was named the Interim Head of the Science and Engineering Library in 2005. Daureen answered the call for participants to work on the TRAIL (Technical Report Archive and Image Library) and joined the team in January 2007. She has served TRAIL in various capacities, including Coordinator of the Communications Working Group and Treasurer. Daureen has served SLA as the Chair of the Engineering Division in addition to various Board positions. She served as member and Chair of the SLA Bylaws Committee. In her spare time Daureen enjoys reading, playing board games, gardening and traveling.

### IEEE Continuing Education Stipend

Gabriele (Gabi) Hyson is the senior librarian at RollsRoyce, located in Indianapolis, Indiana. Gabi earned her MLS in August, 2006 and was hired by RollsRoyce in December, 2006. While earning her degree, Gabi focused her graduate coursework around becoming a medical librarian; however RollsRoyce made an offer that Gabi could not refuse. As a Solo librarian, Gabi manages collection development, budget, training, copyright, research, marketing, knowledge management, training and anything else that requires the input of an information operative.

Gabi received her undergraduate degree in Environmental Science and worked in that field for 10 years. Those were very interesting and enjoyable years, but Gabi somehow felt something was missing but she could not quite place her finger on it. Soon thereafter, Gabi had an epiphany, or as some folks might call it, a midlife crisis. Gabi quit her job, sold her house and became a fulltime graduate student in the MLS program at Indiana University.

Gabi feels she has big shoes to fill as the 2015 Chairelect for the Aerospace Section!

When she's not working, Gabi enjoys kayaking, archery, microscopy, architecture, photography, small space gardening, visiting the deserts of the US southwest, reading non-fiction and collecting artwork.

## News from the Aerospace Section

Aerospace Section

Mary Silva Whittaker, Chair

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



Greetings *Sci-Tech News* readers and Aerospace Section members!

The SLA annual conference is on the horizon and I am excited to be travelling to Boston. I hope that you, too, are planning on being there.

At last year's Aerospace Section breakfast in Vancouver, members proposed great suggestions for having a program (instead of a breakfast) for this year's conference. Several members thought that a session about the NASA Spinoff Program would be an informative program. I polled the Aero listserv and the response was that it would be "revolutionary" to propose this program and forego our traditional breakfast meeting, so that is what I did. We received a positive response from SLA headquarters and the go-ahead to plan the program (NASA Spinoffs: To Space and Back) with more detail. Sara Davis, Chair of the Engineering Division, has been our enthusiastic supporter of this program and has put energy into locating and confirming our speakers who include:

- Daniel Lockney, Program Executive, NASA Technology Transfer Program
- Darryl Sargent, Vice President of National Security and Space, Draper Laboratory
- Daniel Theobald, Co-founder and CTO, Vecna

**NASA Spinoffs: To Space and Back** program description: NASA Spinoffs are technologies, originally developed to meet NASA mission needs, that have been transferred to the public and now provide benefits as

commercial products or services. Listen as a panel discuss how NASA Spinoffs enhance many aspects of daily life, including health and medicine, transportation, public safety, consumer goods, energy and environment, information technology, and industrial productivity. Learn how NASA technology has been successfully transferred to several companies.

Our generous sponsors for this session are AIAA and IEEE. Please be sure to thank them for their support when you visit their booths at the InfoExpo.

Our Aerospace Program is on the opening day of SLA 2015 – **Sunday, June 14 at 3:30 – 5:00 pm**. Please plan to attend this informative program! (Tell your colleagues, too!)

As we are not having our traditional annual breakfast this year, I invite you to attend the **Engineering Division Luncheon (on Monday, June 15 at noon)**. At that time, we will hold our annual business meeting and enjoy lunch together with our colleagues. Please purchase your tickets for this event soon.

Looking forward to seeing you at SLA 2015 in Boston!

Warm regards,  
Mary Silva Whittaker  
SLA Aerospace Section Chair 2015

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

### ABCD Section

### Kati Arzeta, Chair

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



The ABCD Section is busy getting ready for the Annual Conference in Boston and we look forward to participating in two sessions. The first we are co-sponsoring with the Environment & Resource Management Division and is titled "Green Building Standards". This session will provide an overview of third-party certification systems such as LEED, Energy-Star and Green Globes. It was also walk attendees through a sustainable project from design to occupancy with emphasis on the information needs in each phase.

Our second session will be "Hot Topics in Architecture and Building Design". Even if you aren't a member of the ABCD section, we strongly encourage everyone to attend as this will be a great opportunity to discuss issues facing STEM information professionals. If you have any suggestions for discussion topics, please contact Kati Arzeta (ABCD Section Chair). Thank you so much and see you in Boston!

### Engineering Division Mentoring Program

Are you a prospective or new Special Libraries Association (SLA) Engineering Division member? Would you like to be connected with an engineering mentor?

Are you a seasoned Division Member and would like to mentor fellow engineering librarians new to the field or to SLA?

The Engineering Division facilitates mentoring opportunities to support new and existing members in exchanging ideas, sharing knowledge and experience, and offering guidance. Most of the interaction will be through phone, email, or social media but there may be SLA chapter events where mentors and mentees can meet face to face. A great upcoming opportunity is the SLA 2015 Conference.

For more information or to sign up as a mentor or mentee, send an email to Ashleigh Faith, SLA Engineering Division Mentoring Chair, at [afaith@sae.org](mailto:afaith@sae.org).

## 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

G109 9781608078103

#### **GNSS Interference Threats and Countermeasures**

Edited by Fabio Dovis (GNSS Technology and Applications Series)

Artech House, ©2015 213 p. \$139.00

Dovis presents students, academics, researchers, and working engineering professionals with an examination of the effects of radio-frequency interference (RFI) on global navigation satellite systems (GNSS), including spoofing threats. He has organized the main body of the text in eight chapters, covering the interference threat, classification of interfering sources and analysis of the effects on GNSS receivers, the spoofing menace, analytical assessment of interference on GNSS signals, interference detection strategies, classical digital signal processing countermeasures to interference in GNSS, interference mitigation based on transformed domain techniques, and antispooing techniques for GNSS. Fabio Dovis is a faculty member of Politecnico di Torino, Italy.

GA105 9781589483910

#### **Mapping the Nation: Building a More Resilient Future**

Esri

Esri Press, ©2015 91 p. \$19.99 (pa)

Esri collects a variety of demonstrations of the potential of Geographic Information Systems (GIS), on the level of global development, civilian technology, and US governmental functioning. The highly illustrated introduction explains GIS and the resilience of infrastructure, public safety, economy, food supply, health care response, and global cooperation that it can protect. The US Departments of Agriculture, Commerce, Defense, Education, Health and Human Services, Homeland Security, The Interior and Veterans Affairs present GIS-aided maps and the data and conclusions drawn from them. A concluding section also shows the use of these tools by the Environmental Protection Agency, US General Services Administration, US Postal Service Office of Inspector General, Smithsonian Institution, Confederated Tribes of the Umatilla Indian Reservation, and the Spokane Tribe.

### HYDROLOGY, OCEANOGRAPHY

GB401 9781473905740

#### **The Basics of Geomorphology: Key Concepts**

Kenneth J. Gregory and John Lewin

SAGE, ©2014 231 p. \$100.00

Gregory and Lewin present students, academics, and researchers with a resource text, introducing the key concepts defining geomorphology. The text is supported by a wide variety of web-based resources, and covers landform science, the geomorphic system, system contexts, system functioning, system adjustments, and drivers for the future of geomorphic engineering, production and design, and hazards, across twenty chapters. Kenneth J. Gregory is a faculty member of the University of London, UK. John Lewin is a faculty member of Aberystwyth University, UK.

GB661 9781466552418

#### **Handbook of Engineering Hydrology: Fundamentals and Applications**

Edited by Saeid Eslamian (Handbook of Engineering Hydrology)

CRC Press, ©2014 619 p. \$119.95

Eslamian presents students, academics, practitioners, policy-makers, consultants, and researchers with an examination of growing concerns, new approaches, and the impacts on ecology and climate change of practices in hydrological science and engineering. The twenty-nine chapters, authored by a group of international experts in the field, cover catchment water yield, cold region hydrology, conjunctive use of groundwater and surface water in semiarid hard-rock terrain, and a wide variety of other related subjects. Saeid Eslamian is a faculty member of the Isfahan University of Technology, Iran.

GB665 9781482242935

#### **The Science of Water: Concepts and Applications, 3rd Edition**

Frank R. Spellman

CRC Press, ©2015 528 p. \$129.95

The primary audience for this book is technical professionals and students in water and wastewater fields. It will have a secondary readership of people in other fields looking for information on fresh water and wastewater and its treatment.

The book covers surface water, groundwater, and groundwater under the direct influence of surface water, as well as what constitutes the later category, and the Surface Water Treatment Rule. This new edition has been expanded to discuss the growing problem of water contamination. It also includes new tables and charts. There is a new chapter on water economics and another on water useage, and expanded coverage of wastewater stabilization ponds. Chapters look at water as a substance, water hydraulics, chemistry, biology, ecology, and treatment.

GB2401 9781118368855

### **Remote Sensing of the Cryosphere**

Edited by M. Tedesco (Cryosphere Science)  
Wiley-Blackwell, ©2015 403 p. \$129.95  
Environmental and space scientists survey methods, techniques, and recent developments in using remote sensing to monitor and measure the environment in parts of the world where water is temporarily or permanently frozen. Among the topics are electromagnetic properties of components of the cryosphere, remote sensing snow depth and snow water equivalent, remote sensing accumulation over the Greenland and Antarctic ice sheets, gravimetry measurements from space, remote sensing lake and river ice, and field measurements for the remote sensing of the cryosphere.

GB2803 9781118629574

### **Hydrometeorological Hazards: Interfacing Science and Policy**

Edited by Philippe Quevauviller (Hydrometeorological Extreme Events)  
Wiley-Blackwell, ©2015 328 p. \$99.95  
This volume brings together 14 chapters on the science and policy related to hydrometeorological hazards like flash floods, droughts, and storms. Scientists, economists, and others from Europe and the US address the history of these events in Europe and the following: the current understanding of climate change impacts on extreme events, common characteristics of different hydrometeorological events and knowledge integration, and the interaction between science and policy; policy aspects, including enhancing governance and the management of disaster risks, the role of the Intergovernmental Panel on Climate Change, and European Union and international policies on hydrometeorological events; hydroinformatics and its role in flood management, drought preparation and management, and predicting storm impacts on beach and dune systems; and social and economic considerations like costs, resilience, and adaptation.

GB5014 9780123948465

### **Hydro-Meteorological Hazards, Risks, and Disasters**

Edited by Baolo Paron and Giuliano Di Baldassarre (Hazards and Disasters Series)  
Elsevier, ©2015 288 p. \$130.00  
Geographers, economists, and hydraulic engineers are among the contributors who explore instances and effects of too much water and too little water. Their topics include measuring and mapping flood processes, palaeo-flood hydrology: reconstructing rare events and extreme flood discharges, large-scale assessments of vulnerability and exposure in developed and developing countries, the integrated risk assessment of water-related disasters, floods and storms practical exercises, remote sensing and modeling approaches for monitoring and assessing drought in the Famine Early Warning Systems Network, and hydrological modeling for drought assessment.

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## **SCIENCE (GENERAL)**

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GP702 9781909030817

### **Glycopolymers: Synthesis and Applications**

Edited by Ravin Narain  
Smithers Rapra, ©2014 168 p. \$130.00  
Engineers and chemists from Europe, North America, and Japan describe the synthesis of glycopolymers and their characterizations, biological properties, and applications to biomedicine. The five chapters cover the recent development of synthetic glycopolymers; their solution properties and the impact of molecular weight, types of carbohydrate residues, and morphology; glycopolymer bioconjugates; and biomedical technologies that use glycopolymers, such as for improving biocompatibility, the formulation of novel therapeutic drugs, and genes, biosensing, bioimaging, cell/protein isolation, and pathogen inhibition.

HA30 9781446272947

### **An Introduction to R for Spatial Analysis & Mapping**

Chris Brunsdon and Lex Comber  
SAGE, ©2015 343 p. \$130.00  
Brunsdon and Comber explain how to use the R software and language as a tool for manipulating geographical information and for producing maps. They write both for geographers and for researchers in other fields who want to develop spatial analyses, and so assume no prior knowledge of either R or spatial analysis and mapping. More specifically, they have in mind undergraduate students in their second or third year and

graduate students. They emphasize vector geographical information systems, because other texts thoroughly cover raster with classic geostatistics.

Q130 9781781954065

**Women in STEM Careers: International Perspectives on Increasing Workforce Participation, Advancement and Leadership**

Edited by Diana Bilimoria and Linley Lord  
Edward Elgar, ©2014 256 p. \$130.00

Drawing on research from the US, Australia, and Europe, the 12 essays in this volume examine reasons for women's low participation, advancement, and leadership in science, technology, engineering, and mathematics (STEM) fields and successful strategies at the individual, organizational, and industry levels. Engineering, management, science, educational psychology, and other specialists from these regions address women's individual experiences in STEM careers and decisions to stay or leave, with discussion of the role of the ideal self and engagement in women's persistence in engineering, factors that differentiate women working in engineering from those who left the profession, the career attitudes and motivations of women in the Australian mining industry, family issues for female engineers, and insights from female managers and leaders in engineering; organizational initiatives for advancement, including the concept of women as power resources, practices to increase participation in US academic STEM fields, and the role of professional societies in gender equity; and changing the discourse and practice about women in STEM careers through gender equality interventions, negotiating organizational norms on combining career and child care, and addressing the problematic idea that engineering is gendered.

Q172 9781466552838

**Patterns in Excitable Media: Genesis, Dynamics, and Control**

Sitabhra Sinha and S. Sridhar  
CRC Press, ©2015 308 p. \$89.95

This work explains how to use a computer simulation method called excitable media models to identify patterns in nonlinear physical, chemical, and biological systems. The book gives examples of computer code and sample programs for numerical simulation of excitable media models, which can be used in various applications. Part 1 overviews the dynamics of patterns in excitable media and gives examples of excitable media across scales. Part 2 deals with the dynamics of disordered excitable media, looking at localized defects, spatial gradients, distributed heteroge-

neities, and connection topology. Part 3 details techniques for controlling various dynamics of excitable media, such as controlling multiperiodical behavior, reentrant waves and spirals, and spatiotemporal chaos. B&w images are included.

Q181 9781483345680

**Reading and Writing in Science: Tools to Develop Disciplinary Literacy, 2nd Edition**

Maria C. Grant, Douglas Fisher, and Diane Lapp  
Corwin, ©2015 176 p. \$25.00 (pa)

The authors assist science instructors in developing curricula and an approach that fosters scientific literacy in a new generation of students who will need to be prepared to tackle global issues like world hunger, ocean acidification, global warming, water shortages, and other science-based issues. The goal of this book is to provide teachers with the tools needed to inspire curiosity and informed conversations about science issues, engage students in a deep reading of science content, and guide students in documenting evidence-based science thinking.

Q183 9781466553569

**Educating Scientists and Engineers for Academic and Non-Academic Career Success**

James G. Speight  
CRC Press, ©2015 182 p. \$49.95 (pa)

In the past, a high proportion of scientist and engineers with postgraduate degrees sought employment within academia, says Speight, but this is no longer the case, and the teaching process, including post-graduate education, must impart a broader range of skills as well as the willingness to participate in teamwork. He discusses scientists and engineers, the education of scientists and engineers, professional societies and education, gaps in knowledge, bridging the knowledge gap, the complete scientist and engineer, and the future.

Q325 9781479949564

**Intelligent Human-Machine Systems and Cybernetics (IHMSC 2014); proceedings; 2 volume set**

International Conference on Intelligent Human-Machine Systems and Cybernetics (6th: 2014: Hangzhou, Zhejiang, China)  
Computer Society Press, ©2014 812 p.  
\$307.00 (pa)

The conference attracts researchers and practitioners to share research results, novel ideas, and innovative applications involving all aspects of human-machine systems and cybernetics. The 190 papers, selected from more than twice that many submissions, consider such topics as

an adaptive naive Bayesian classifier for the automatic classification of web pages from massive network data, two-stage obstacle detection based on stereo vision in an unstructured environment, self-organized aggregation based on cockroach behavior in swarm robotics, a piezoelectric ultrasonic clamp for a force feedback arm, a real-time system for detecting anomalies based on streaming technology, and an effective and secure epidemic routing for disruption-tolerant networks. The volumes are paged and indexed separately.

Q335 9781466672581

**Handbook of Research on Artificial Intelligence Techniques and Algorithms; 2 volume set**

Edited by Pandian Vasant (Advances in Computational Intelligence and Robotics)

Information Science Reference, ©2015 873 p. \$495.00

This two-volume set gathers 25 peer-reviewed chapters on artificial intelligence algorithms and techniques for handling uncertainties. International contributors in information technology, electronics engineering, theoretical physics, and computer science present metaheuristic optimization (MO) methods inspired by various phenomena in nature and man-made activities, such as fuzzy logic, artificial neural networks, particle swarm optimization, glowworm swarm optimization, bee algorithms, and ant colony algorithms. Applications of the algorithms are described for modeling problems in industry, business, computer science, and healthcare. Volume 1 deals with topics including robust control and synchronization of chaotic systems, machine learning approaches to automated medical decision support systems, and applications of fuzzy logic for mapping agro-ecological zones. Volume 2 considers topics including artificial intelligence techniques for handling uncertainty in chemical processes, vehicle routing solutions, and fuzzy logic in healthcare. The handbook will be of interest to graduate students, researchers, and engineers in computer science, applied mathematics, physics, and economics.

Q342 9781479975525

**Computational and Business Intelligence; proceedings**

International Symposium on Computational and Business Intelligence (2nd: 2014: New Delhi, India) Edited by Suash Deb, Antoaneta Serguieva, and Simon Fong

Computer Society Press, ©2014 122 p. \$188.00 (pa)

The Symposium has quickly become the flagship

event of the International Neural Network Society, India Regional Chapter, and this second gathering drew 25 papers on advanced neural networks and systems; applications of metaheuristics; economics and business intelligence; intelligent systems; and soft computing, data mining, and applications. Among the topics are the multiple-stage classification of human poses while watching television, assessing risk in environmentally sustainable business planning and optimization based on identifying regional meteorological patterns, the safe transmission of text files through a new audio steganography technique, a novel approach to finding semantic similarity measure between words, and load balancing in task allocations of a multi-agent system.

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**MATH, COMPUTERS**

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QA55 9780123849335

**Table of Integrals, Series, and Products, 8th Edition**

I.S. Gradshteyn and I.M. Ryzhik

Academic Press, ©2015 1133 p. \$99.95

This dense reference lists known integrals of elementary functions and many special functions that arise in all aspects of mathematics and its applications. The tables are organized in a logical manner with standard forms of integrands arranged in increasing order of complexity, ranging from algebraic forms to special functions and combinations. Subsequent chapters deal with the most important special functions and their properties. The eighth edition removes the chapters on matrices and norms, and reflects new results and corrections to the existing integrals.

QA76 9783038351399

**Computers and Information Processing Technologies I; select papers; 2 volume set**

International Conference on Computers and Information Processing Technologies (2014: Shanghai, China) Edited by Prasad Yarlagadda and Yun-Hae Kim (Applied Mechanics and Materials; Volumes 571-572)

Trans Tech Publications, ©2014 1220 p. \$276.00 (pa)

Editors Yarlagadda and Kim present students, researchers, and IT professionals with a two volume set collecting selected, peer-reviewed papers from the 2014 International Conference on Computers and Information Processing Technologies held in Shanghai, China. The first volume is organized in five chapters, focusing on advanced computing technology and mathematical modeling, detection and optimization algorithms, arti-



ficial intelligence and intelligent systems, communications and networks, software engineering, and database systems and data security. The second volume begins with a continuation of the final chapter of the first volume before investigating computer vision and image processing, signal and media information processing, modern electronics, photonics science, and engineering, controller and sensor technology, mechanical design and engineering, e-commerce, e-government, and IOT and management.

QA166 9781470409654

**A Geometric Theory for Hypergraph Matching**

Peter Keevash and Richard Mycroft (Memoirs of the American Mathematical Society; Volume 233, Number 1098)

American Mathematical Society, ©2014 95 p. \$71.00 (pa)

Keevash and Mycroft develop a theory for the existence of perfect matching in hypergraphs under quite general conditions. Obstructions to perfect matching are geometric and of two types, they say, "space barriers" from convex geometry and "divisibility" barriers from arithmetic lattice-based constructions. To formulate precise results, they introduce the setting of simplicial complexes with minimum degree sequences, which is a generalization of the usual minimum degree condition. Their topics include results and examples, geometric motifs, hypergraph regularity theory, and packing tetrahedra.

QA183 9781470412272

**Geometric Group Theory**

Edited by Mladen Bestvina, Michah Sageev, and Karen Vogtmann (IAS/Park City Mathematics Series; Volume 21)

American Mathematical Society, ©2014 399 p. \$90.00

The Park City Mathematics Institute Graduate Summer School for 2012 focused on geometric group theory, and four lectures each discuss CAT(O) cube complexes and groups; geometric small cancellation; proper CAT(O) spaces and their isometry groups; quasi-isometric rigidity; the geometry of outer space; some arithmetic groups that do not act on the circle; lattices and locally symmetric spaces; marked length spectrum rigidity; expander graphs, property (tau), and approximate groups; and cube complexes, subgroups of mapping class groups, and nilpoint genus.

QA269 9781482235432

**The Mathematics of Games: An Introduction**

**to Probability**

David G. Taylor (Textbooks in Mathematics) CRC Press, ©2015 404 p. \$69.95

As part of the inquiry-based learning movement, Taylor presents a textbook for a mathematics course that introduces probability using casino games and other games that involve chance as examples. He covers dice, coins, and candy; wheels and more dice; counting the pokers; windmills and Black Jacks; more fun dice; board games; betting systems; and more games. He explains the probabilities involved first, then sets out the mathematical dimensions. Readers besides mathematics students might find the material interesting and perhaps useful.

QA276 9781439854617

**Handbook of Missing Data Methodology**

Edited by Geert Molenberghs, Garrett Fitzmaurice, Michael G. Kenward, Anastasios Tsiatis, and Geert Verbeke (Chapman & Hall/CRC Handbooks of Modern Statistical Methods)

CRC Press, ©2015 574 p. \$99.95

The handbook summarizes many of the techniques that have been developed since the 1990s to deal with missing data in the statistical analysis of collected data. The material should interest statisticians developing or using missing data methods in empirical research. After preliminaries, the sections cover likelihood and Bayesian methods, semi-parametric methods, multiple imputation, sensitivity analysis, and special topics. Among specific topics are the joint modeling of longitudinal and time-to-event data, double-robust methods, multi-level multiple imputation, Bayesian sensitivity analysis, and missing data in sample surveys.

QA279 9781482299557

**Experimental Design and Process Optimization**

Maria Isabel Rodrigues and Antonio Francisco Iemma

CRC Press, ©2015 318 p. \$149.95

Offering a wealth of cases in food science, this book presents methods for fractional factorial designs, which can be used in research involving multiple variables. The book begins by outlining the advantages of fractional factorial designs. Later chapters are devoted to essentials of statistical science, along with case studies and interpretation of results and statistical analysis. Coverage encompasses strategies used for between two and eight factors, as well as methods used when dealing with many factors, based on the screening design methodology developed by Plackett and Burman. The final chapter offers five

more case studies. B&w images and charts are included.

QA297 9781482211290

**Accelerating MATLAB Performance: 1001 Tips to Speed Up MATLAB Programs**

Yair Altman

CRC Press, ©2015 743 p. \$99.95

Many engineers consider the MATLAB programming environment suitable for prototypes and modeling, says Altman, but not fast enough to real-life applications. To explain a number of ways to make the programs run very fast, he covers performance tuning, profiling MATLAB performance, standard performance-tuning techniques, MATLAB-specific techniques, implicit parallelization (vectoring and indexing), explicit parallelization using MathWorks toolboxes, explicit parallelization by other means, using compiled code, memory-related techniques, graphics and graphic user interfaces, and input/output techniques.

QA331 9781482255737

**Pseudolinear Functions and Optimization**

Shashi Kant Mishra and Balendu Bhooshan Upadhyay

CRC Press, ©2015 488 p. \$129.95

The book is dedicated to a specific class of generalized convex functions called pseudolinear functions and their applications in nonlinear optimization problems. The authors present the mathematical foundations for a class of optimization problems and extend the theory of optimization to generalized convexity and optimization models in a wide spectrum of applications. The readership includes practitioners in mathematical programming, industrial engineering, and operations management.

QA372 9781611973839

**Preconditioning and the Conjugate Gradient Method in the Context of Solving PDEs**

Josef Málek and Zdenek Strakos (SIAM Spotlights; 1)

SIAM, ©2015 104 p. \$39.00 (pa)

Málek and Strakos set out a common language and mutual understanding to connect mathematical modeling and partial differential equation analysis with computational mathematics and matrix computation. They believe their results could strengthen connections among communities dealing with the mathematics of problems that arise on the way from formulating and analyzing a mathematical model to the numerical computation of the discretized system of algebraic equations. Their case study is built around

the unifying principle of minimizing the energy of a given infinite-dimensional system as well as the associated discretized finite-dimensional system.

QA377 9781470410162

**Shock Waves in Conservation Laws With Physical Viscosity**

Tai-Ping Liu and Yanni Zeng (Memoirs of the American Mathematical Society; Volume 234, Number 1105)

American Mathematical Society, ©2014 168 p. \$89.00 (pa)

To study the perturbation of a shock wave in conservation laws with physical viscosity, Liu and Zeng obtain the detailed pointwise estimates of the solutions, and show that the solution converges to a translated shock profile. Because they assume the strength of the perturbation and of the shock to be small but independent, their results apply to the Navier-Stokes equations for compressible fluid and the full system of magneto-hydrodynamics, including the case of multiple eigenvalues in the transversal fields, as long as the shock is classical.

QA401 9781470414085

**Higher-Order Time Asymptotics of Fast Diffusion in Euclidean Space: A Dynamical Systems Approach**

Jochen Denzler, Herbert Koch, and Robert J. McCann (Memoirs of the American Mathematical Society; Volume 234, Number 1101)

American Mathematical Society, ©2014 81 p. \$70.00 (pa)

Denzler, Koch, and McCann explore such topics as an overview of obstructions and strategies, the nonlinear and linear equations in cigar coordinates, the cigar as a Riemannian manifold, Schauder estimates for the heat equation, the quantitative global well-posedness of the linear and nonlinear equations in Hölder spaces, the spectrum of the linearized equation, asymptotic estimates in weighted spaces, and higher asymptotics in weighted spaces. They append a pedestrian derivation of all Schauder estimates.

QA699 9780486779782

**The Fourth Dimension: Toward a Geometry of Higher Reality (reprint, 1984)**

Rudy Rucker

Dover Pub. Co., ©2014 228 p. \$14.95 (pa)

A long-expected reprint of the wonderful overview of relativity and our knowledge of the nature of the geometry of space-time from the incomparable Rudy Rucker--mathematician, and one of the originators of cyberpunk movement in science fiction, who also happens to have a

wicked sense of humor and a knack for explaining far-out concepts in physics, cosmology and mathematics. Originally published in 1984, it is perhaps a little dated, but on the whole has aged quite gracefully: after all, it deals primarily with the geometrical concepts rather than physical ones. From Flatland to our four-dimensional space-time, Rucker develops the concepts with side-splitting wit, tickling our sense of wonder and providing plenty of hilarious illustrations to spice up the narrative. This wonderful intellectual adventure should be on the reading list of anyone interested in modern physics in general and the theory of relativity in particular. A foreword by the great Martin Gardner adds the icing to the cake. And, being a Dover edition, it is well within the means of, well, anybody.

QA911 9781482233803

**Nanoscale Flow: Advances, Modeling, and Applications**

Edited by Sarhan M. Musa

CRC Press, ©2015 241 p. \$189.95

Engineers and scientists from a number of fields review recent research into the multidisciplinary principles, modeling, and applications of nanoscale flow. They cover boiling heat transfer and critical heat flux phenomena of nanofluids; modeling for heat transfer of nanofluids using a fractal approach; thermal conductivity enhancement in nanofluids measured with a hot-wire calorimeter; two-phase laminar mixed convection Al<sub>2</sub>O<sub>3</sub>-water nanofluid in an elliptic duct; nano-oncology: molecular imaging, omics, and nanoscale flow-mediated medicine tumors strategies; and nanoscale flow applications in medicine.

QA7888 9781439895832

**Hardware Security: Design, Threats, and Safeguards**

Debdeep Mukhopadhyay and Rajat Subhra Chakraborty

CRC Press, ©2015 556 p. \$89.95

Mukhopadhyay and Chakraborty present students, academics, and practitioners with an overview of the design-for-security methodology employable in hardware design. Their text is organized in six parts, covering the background of hardware security, hardware design of cryptographic algorithms, side channel analysis, hardware intellectual property protection, hardware trojans, and physically unclonable functions. Throughout the text, the authors provide key background and contemporary information to learn hardware security fundamentals and practical applications. Debdeep Mukhopadhyay and Rajat Subhra Chakraborty are both faculty

members of the Indian Institute of Technology Kharagpur West Bengal, India.

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**ASTRONOMY**

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QB539 9781583818626

**Solar Polarization 7; proceedings**

Solar Polarization (7th: 2013: Kunming, China)

Edited by K.N. Nagendra, J.O. Stenflo, Z.Q. Qu, and M. Sampoorna (Astronomical Society of the Pacific Conference Series; Volume 489)

Astronomical Soc./Pacific, ©2014 342 p. \$77.00

Editors Nagendra, Stenflo, Qu, and Sampoorna present students, academics, and researchers with a collection of materials presented at a workshop held at the Expo Garden Hotel in Kunming, China in September of 2013, focusing on solar polarization. The editors have organized the contributions that make up the main body of the text according to nine sessions of the conference, devoted to quiet-sun magnetic fields, active-region magnetic fields, measurements of magnetic and electric fields, the physics of scattering polarization, solar diagnostics and scattering polarization, polarized radiative transfer with frequency redistribution, multi-dimensional polarized radiative transfer, ground-based instrumental projects, and recent projects in spectro-polarimetry. K. N. Nagendra and M. Sampoorna are faculty members of the Indian Institute of Astrophysics. J. O. Stenflo is a faculty member of the Institute of Astronomy and the Instituto Ricerche Solari Locarno, Switzerland. Z. Q. Qu is a faculty member of the Chinese Academy of Sciences.

QB600 9781482214888

**Planetary Geodesy and Remote Sensing**

Edited by Shuanggen Jin

CRC Press, ©2015 382 p. \$149.95

Astronomers and geographers set out the main techniques, methods, and observations of planetary geodesy and remote sensing and their applications in planetary science for planetary explorers and researchers who have some background and experiences in geodesy and remote sensing. The topics include laser altimetry and its applications in planetary science, integrating and co-registering multisource Lunar topographic data sets for synergistic use, Martian minerals and rock components from MRO CRISM hyperspectral images, Mercury's magnetic field in the MESSENGER era, determining the Lunar gravity field with data from Chan'E-1 and other missions, and the theory of the physical libration of the Moon with a liquid core.

QB791 9781466572119

**Dark Matter: An Introduction**

Debasish Majumdar

CRC Press, ©2015 257 p. \$89.95

We may not be able to observe dark matter directly, but we can observe its effects on the surrounding components of interstellar medium, dust, gas and stellar bodies. As the datasets containing our observations grow and become more precise and comprehensive, more information about its distribution can be derived from them--and more clues about its nature gleaned. This concise and up-to-date introduction covers the essentials of the underlying disciplines necessary for the study of dark matter (astrophysics, particle physics and cosmology). Some background in all three subjects as well as a degree of mathematical sophistication are prerequisite, even though the author provides the basics of relativity and the above three disciplines as well as a thorough overview of basic astronomical evidence for the existence of dark matter in several chapters before diving into a discussion of candidates for dark matter (including super-symmetric, Kaluza-Klein, scalar singlet and other hypothetical proposals and their motivation and direct matter detection methods. He describes several experiments conducted to directly detect it and their results, as well as several indirect detection methods and their state of progress. The book concludes with an overview of several other, less exotic dark matter candidates.

QB801 9781583818480

**Stellar Astrophysics; proceedings**

Pacific Rim Conference on Stellar Astrophysics (10th: 2013: Seoul, Korea) Edited by Hee-Won Lee, Kam-Ching Leung, and Young Woon Kang (Astronomical Society of the Pacific Conference Series; Volume 482)

Astronomical Soc./Pacific, ©2014 280 p.

\$77.00

The 48 papers cover stellar activities and atmosphere, binary stars, compact objects, and stellar clusters. Among the topics are widest separation and the lowest mass objects among planetary-mass companion candidates around young stars, mass transfer in eccentric binaries using the binary evolution code BINSTAR, dark-spot activity on the secondary as the origin of variable mass accretion in cataclysmic variables, orbital period changes of two possible progenitors of type Ia supernovae, and eigenfunctions and Green's function for a radiative transfer equation in curvilinear geometries.

**PHYSICS**

QC20 9781466592537

**Monte Carlo Methods for Particle Transport**  
**Alireza Haghghat**

CRC Press, ©2015 273 p. \$119.95

Nuclear engineer Haghghat discusses fundamental concepts and issues associated with Monte Carlo methods of simulation. He writes primarily for engineers and scientists who are interested in using the methods, but provides the necessary mathematical derivations for readers interested in studying the Monte Carlo methods themselves. After setting out the basics, he shows how the methods can be used for particle transport simulations, then ends with a chapter on the vector and parallel processing of Monte Carlo methods.

QC176 9783038359982

**Time-Dependent Mechanical Properties of Solids: Relaxation of Stress and Density, Strength (Fatigue)**

Wolfgang Gräfe (Materials Science Foundations; Volume 78)

Trans Tech Publications, ©2015 191 p.

\$115.00 (pa)

Aiming to improve technical safety in traffic and other fields, this book examines the time-dependent mechanical properties of solids like metallic alloys and silicate glasses, focusing on the relaxation of mechanical stresses, density relaxation, internal friction, static fatigue, and the reduction of strength caused by a cyclic loading. It addresses migration processes in solids, stress and density relaxation in glasses, the background on internal friction, creep of steel and the static fatigue of glass, the activation energy of the static fatigue and creep, fatigue due to an oscillating load, statistical checks of Stromeier's fatigue formula, models for defect growth, generalized laws of strength degradation, a compressive stress resulting from Tamm's electronic surface states, the activation energy of creep and the surface energy of solids, and other aspects. This edition has new chapter on environmental influences on fatigue strength, new appendices, and new sections.

QC244 9781118456088

**Nonlinear Acoustic Waves in Micro-Inhomogeneous Solids**

Veniamin E. Nazarov and Andrey V. Radostin

Wiley, ©2015 251 p. \$170.00

After reviewing nonlinear acoustics in homogeneous media, Nazarov and Radostin present results of their theoretical and experimental

research on nonlinear processes caused by the propagation and interaction of longitudinal elastic waves in micro-inhomogeneous media with a strong acoustic nonlinearity of different types—elastic, hysteretic, and non-elastic. Among the topics are physical models and mechanisms of the structure acoustic nonlinearity of micro-inhomogeneous media with cracks and cavities, wave processes in micro-inhomogeneous solids with hysteretic nonlinearity, wave processes in polycrystalline solids with dissipative and reactive nonlinearity caused by dislocations, experimental studies of nonlinear acoustic phenomena in granular media, and nonlinear phenomena in seismic waves.

QC321 9783038353737

**Heat and Mass Transfer Processes: New Developments and Applications: Special Topic Volume With Invited Peer Reviewed Papers Only**

Edited by J.M.P.Q. Delgado (Diffusion Foundations; Volume 3)

Trans Tech Publications, ©2015 193 p.  
\$135.00 (pa)

Scientists and engineers from a wide range of fields explore heat and mass transfer in porous material, as well as related material properties and their measurement. Combining theoretical and experimental results, they examine such topics as simulating heat and mass transfer in a drying process with applications to grains, modeling the pore level heat transfer in porous media using the immersed boundary method, determining hydraulic permeability by measuring outflow, the hydrothermal performance and degradation of gypsum houses in different Brazilian climates, and individual and collective patterns of motion as key mechanisms behind pedestrian dynamics.

QC355 9781466551176

**Optics Essentials: An Interdisciplinary Guide**  
Araz Yacoubian

CRC Press, ©2015 207 p. \$79.95

Yacoubian offers engineers and researchers basic information about optics that will help them when they encounter optical systems or components without having to commit to extended periods of study. This is a companion that they can carry around to use as a reference when needed, he says. He presents simulations in MATLAB, and suggests experiments to help clarify the information. His topics are optical systems and components; light sources; light detection; manipulating light; polarization; geometrical optics; imaging systems; guiding lightwaves; optics,

electronics, software, and applications; optical sensing; and advanced experiments and topics.

QC367 9781466598317

**Phase Estimation in Optical Interferometry**

Edited by Pramod Rastogi and Erwin Hack

CRC Press, ©2015 336 p. \$129.95

A technical book with an international list of contributors, this volume deals with interferometry. It covers phase-stepping algorithms in both interferometry and pseudointerferometric techniques. It presents the essential concepts and mathematics that engineers and scientists working with lasers need in order to understand the most current methods of phase estimation. A secondary goal of the book is to allow its readers to compare the advantages and limitations of different methods currently in vogue.

QC374 9781439872161

**Laser-Induced Damage in Optical Materials**

Edited by Detlev Ristau

CRC Press, ©2015 537 p. \$149.95

This work for advanced students, practitioners, and researchers in laser technology, photonics, and optical components surveys emerging research on laser damage occurring in the bulk and on the surface or the coating of optical components. Section 1 reviews fundamentals of laser-induced damage by thermal effects, by defects, and by nonlinear effects. Section 2 deals with the measurement and detection of laser-induced damage, and Section 3 treats materials, surfaces, thin films, and contamination. Section 4 presents three applications in lithography in deep ultraviolet and extreme ultraviolet, free-electron lasers, and the high-energy petawatt laser PHELIX and its high-power optics. B&w photos and images are included.

QC611 9781482252965

**Quaternary Alloys Based on II-VI Semiconductors**

Vasyl Tomashyk

CRC Press, ©2015 511 p. \$249.95

A technical reference handbook for materials scientists, engineers, and others who deal with semiconductors, this book collects quaternary diagrams based on II-IV semiconductor systems with four components. It critically evaluates many industrially significant systems, showing two-dimensional sections for the condensed phases. In nine chapters, it classifies materials according to their groups on the periodic table: Zn, Cd, Hg, S, Se, and Te, in order of group number. Each database description contains brief information on: diagram type, possible phase transforma-

tions and physical-chemical interactions of the components, thermodynamic characteristics, and methods of equilibrium investigation and sample preparation.

QC861 9789814335690

**Applicable Atmospheric Dynamics: Techniques for the Exploration of Atmospheric Dynamics**

Istvan Szunyogh

World Scientific, ©2015 588 p. \$158.00

For researchers who use weather prediction models or data sets created with the help of weather prediction models, this volume outlines advanced techniques in the study of atmospheric dynamics by numerical experimentation, as well as simplified and highly idealized models for the development and initial testing of such techniques. It focuses on the design of diagnostic calculations for data sets produced by forecast centers or a simplified or idealized model. It reviews the key model and diagnostic equations, then discusses concepts based on partitioning the fields of the atmospheric state variables into a basic flow component and perturbation component, including the most often used reduced forms of the atmospheric governing equations, atmospheric wave dynamics, atmospheric instabilities, and atmospheric energetics; how the continuous governing equations can be turned into the spatially and temporally discretized equations of the numerical models; and atmospheric data assimilation. Knowledge of calculus, vector calculus, linear algebra, and probability theory and statistics is assumed.

QC878 9781589483767

**Mapping and Modeling Weather and Climate With GIS**

Edited by L. Armstrong, K. Butler, J. Settelmaier, T. Vance, and O. Wilhelmi

Esri Press, ©2015 319 p. \$49.99 (pa)

Editors Armstrong, Butler, Settelmaier, Vance, and Wilhelmi collect contributions from meteorologists, climatologists, and programmers in this geoinformatics reference geared toward engineers, researchers, policymakers, and students of atmospheric and geospatial science and modeling. The foreword emphasizes the emerging collaboration between atmospheric and geospatial scientists. The book then proceeds in six parts discussing representations of atmospheric phenomena, observational methods and data presentation, effective atmospheric and ocean modeling, integrated analysis of models and observations, use and improvement of web services, and tech/programming resources for work-

ing with data. Use of GIS and ArgGIS are heavily emphasized, along with mention of the NOAA Climate Prediction Center, METOC, NetCDF, and Python as research and modeling tools.

QC976 9781118442197

**Solutions in Lidar Profiling of the Atmosphere**

Vladimir A. Kovalev

Wiley, ©2015 275 p. \$130.00

This volume proposes alternative methods to invert lidar signals to compare results when the uncertainties of the atmospheric parameters are not treatable statistically, and estimate the credibility of different methods. It explains the systematic errors in lidar measurements and how to apply these methods to simulated and real data and covers the basic issues of elastic-lidar inversion; separating the backscatter and transmission terms in the lidar equation when profiling the atmosphere with zenith-directed and vertically-scanning lidars; and profiling the atmosphere with scanning lidar that operates in a multiangle mode.

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**CHEMISTRY**

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QD54 9781466560727

**Labs on Chip: Principles, Design, and Technology**

Eugenio Iannone (Devices, Circuits, and Systems)

CRC Press, ©2015 1136 p. \$189.95

Designed for advanced students, researchers wishing to explore a new field, and specialists seeking a broader understanding, this thorough reference is a complete resource for understanding labs on chip in biotechnology. The book begins with an introduction to the biological chemistry needed to work on labs on chip. Iannone then explores the technology and design techniques associated with fluid dynamics, monolithic micro- and nanotechnology and out-of-equilibrium biochemistry, the three major fields of labs on chip technology. The book takes a global perspective as it also addresses fabrication, microfluidics, optical detection techniques, planar technologies and labs on chip for genetics.

QD139 9780444594204

**Microwave-Assisted Sample Preparation for Trace Element Determination**

Edited by Érico Marlon de Moraes Flores

Elsevier, ©2014 400 p. \$199.95

Chemists provide additional information to previously published books on using microwave radia-

tion in the preparation of samples to determine trace elements. The topics include microwave heating, systems for microwave-assisted wet digestion, wet digestion using microwave heating, microwave-induced combustion, diluted acids in microwave-assisted wet digestion, microwave-assisted ultraviolet digestion, microwave-assisted extraction, flow digestion systems with microwave and conductive heating, and microwave-assisted sample preparation focusing on "omics" areas.

QD172 9781616149727

**Rare: The High-Stakes Race to Satisfy Our Need for the Scarcest Metals on Earth**

Keith Veronese

Prometheus Books, ©2015 270 p. \$25.00

Author Veronese is a science writer whose work has appeared on web sites owned by Gawker Media and Alpha Brand Media. Writing in plain language for general readers and students, he unearths the interconnected scientific, political, and social aspects of the rare metals necessary for smartphones, televisions, video game systems, computer monitors, and other modern technology. Veronese takes readers on a global journey from children working in India to African wars for control of natural resources and to China, the biggest source of rare metals. Color photos are included.

QD262 9781118379028

**Chemistry of Organo-Hybrids: Synthesis and Characterization of Functional Nano-Objects**

Edited by Bernadette Charleux, Christophe Copret, and Emmanuel Lacote

Wiley, ©2015 533 p. \$150.00

Molecular chemists examine organo-hybrid-materials made by linking polymeric, carbon-rich, or inorganic materials to small-molecule or macromolecular organics--for the benefit of organic synthetic chemists interested in applying their skills to function-oriented synthesis, or non-organic chemists wishing to introduce molecular complexity to their field, and for students trying to make sense of objects that span several fields of the curriculum. Among the topics are functionalized graphenes, functional metal-organic frameworks: synthesis and reactivity, the covalent organic functionalization of nucleic acids, cyclodextrins-metal hybrids, and polymer-protein/peptide bio-conjugates.

QD305 9783527335053

**Modern Alkyne Chemistry: Catalytic and Atom-Economic Transformations**

Edited by Barry M. Trost and Chao-Jun Li

Wiley-VCH, ©2015 402 p. \$190.00

Chemists explore the potential of alkynes in organic reactions that are catalytic in nature rather than consuming stoichiometric reagents, occur under ambient conditions, can tolerate various functional groups, and render "dial-up" reactivity when needed. They cover the catalytic isomerization of alkynes, catalytic cycloaddition reactions, catalytic nucleophilic additions and subtractions, and other reactions. Specific topics include the redox isomerization of propargyl alcohols to enones, alkyne metathesis in organic synthesis, the catalytic enantioselective addition of terminal alkynes to carbonyls, the catalytic dimerization of alkynes, and the alkyne zipper reaction in asymmetric synthesis.

QD411 9781118203514

**Ligand Platforms in Homogenous Catalytic Reactions With Metals: Practice and Applications for Green Organic Transformations**

Ryohei Yamaguchi and Ken-Ichi Fujita

Wiley, ©2015 344 p. \$150.00

This chemistry handbook surveys the chemical formulations of ligand platforms in homogeneous transition metal complexes that catalyze organic transformations based on the hydrogen transfer. The first three sections individually address N-heterocyclic carbene ligands, cyclopentadienone ligands, and pincer ligands. The final section explores the oxidation of alcohols and amines to carbonyl compounds and imines catalyzed by well-defined transition metal complexes bearing bidentate and miscellaneous chelating ligands, recent progress in reducing polar carbon-heteroatom unsaturated bonds, and carbon-carbon bond-forming reactions via hydrogen transfer.

QD553 9781466582859

**Introduction to Electrochemical Science and Engineering**

Serguei N. Lvov

CRC Press, ©2015 307 p. \$99.95

This textbook for an undergraduate engineering course will also be useful as a reference for graduate students, industry professionals, and researchers. The textbook overviews the field of electrochemical engineering and explains related technologies for electrochemical energy conversion systems, such as flow batteries, fuel cell cars, water electrolysis systems, solar energy generators, and other emerging electrochemical energy conversion systems. Coverage progresses from electrolyte solutions, electrochemical cells, and electrical conductivity, through electrochemical techniques, electrochemical kinetics, and electri-

cal energy conversion. The final chapter presents 75 pages of data and reference tables. The text offers a total of 360 conceptual and numerical problems, including nine assignments based on videos of laboratory experiments (which can be found on the companion web site). The textbook also includes short, illustrated profiles of key figures, plus b&w drawings, diagrams, and images.

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## MICROBIOLOGY

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QR189 9780470261941

### **Vaccine Development and Manufacturing**

Edited by Emily P. Wen, Ronald Ellis, and Hari S. Pujar (Wiley Series in Biotechnology and Bioengineering)

Wiley, ©2015 440 p. \$149.95

Citing vaccine development as a complex process requiring multiple clinical trials to demonstrate product safety, efficacy, purity, potency, and consistency in manufacturing, Wen, Ellis, and Pujar and their international expert contributors provide comprehensive information on the various fields involved in the production of vaccines from fermentation, purification and formation to regulatory filing and facility design. They aim for a book that will be useful for a broad cross-section of biotechnology professionals, medical and biomedical scientists, and health care professionals. There are 15 chapters: history of vaccine process development; the production of Plasmid DNA vaccine in *Escherichia coli*; fungal expression systems for vaccine production; novel expression systems for vaccine production; viral vaccines purification; protein subunit vaccine purification; conjugate vaccine production technology; stabilization and formulation of vaccines; lyophilization in vaccine processes; strategies for heat-stable vaccines; production and characterization of aluminum-containing adjuvants; the biologics license application (BLA) in common technical document (CTD) format; the original new drug application (investigational new drug); facility design for vaccine manufacturing; vaccine production economics.

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## TECHNOLOGY (GENERAL)

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T47 9780757004070

### **Secrets of Successful Inventing: From Concept to Commerce**

Edited by Edith G. Tolchin

Square One Publishers, ©2015 261 p.

\$19.95 (pa)

This guide for beginning inventors is organized

by chronological sequence from product development, prototyping, and patenting, through funding, manufacturing, marketing, and licensing. The 16 contributors are inventors, trainers, coaches, and consultants in marketing and public relations. The book includes an extensive resources section that offers briefly annotated web sites in categories of each chapter, in areas such as inventors' groups, crowdfunding, packaging, manufacturing and importing, marketing, software and services, sales reps, retailers, public relations, direct response TV, and trade shows. B&w photos of inventions are included.

T173 9783038352075

### **Advanced Manufacturing and Industrial Engineering; select papers; 2 volume set**

International Conference on Advanced Engineering Materials and Technology (4th: 2014: Xiamen, China) Edited by Xianghua Liu (Advanced Materials Research; Volumes 1006-1007)

Trans Tech Publications, ©2014 1220 p.

\$345.00 (pa)

From the 4th International Conference on Advanced Engineering Materials and Technology (AEMT 2014), held in June 2014 in Xiamen, China, the 238 papers in this collection address advanced manufacturing and industrial engineering topics, including structural dynamic analysis, optimization, and control; oil, gas, and mineral exploration engineering; heat, fluid, and flow engineering and thermodynamics manufacturing applications; innovative mechanical design and systems dynamics; computer-aided design, manufacturing, and engineering; advanced manufacturing and industry engineering, manufacturing production, operations, quality, and control; the green supply chain and the development of the internet of things; mechatronics, industrial robots, automation, and control technologies; machine vision technology and image and video processing; measurement technology, instruments and sensors, and detection technologies and methodologies; embedded systems and modern electronic, circuit technology, electric, electromagnetic, and power engineering applications; computer applications and mathematical modeling, intelligent algorithms, and optimization; and engineering education and management. Contributors are engineers and other researchers from China and elsewhere.

T174 9781482231038

### **A Laboratory Course in Nanoscience and Nanotechnology**

Gérrard Eddy Jai Poinern

CRC Press, ©2015 230 p. \$69.95



This guide presents a hands-on approach to key synthesis techniques and processes used in nanotechnology and nanoscience and how to analyze results using advanced characterization techniques. It covers the nanometer-scale world and examples of nanomaterials and structures found in nature; types of nanometer-scale materials and synthesis processes used to produce them; advanced characterization techniques used to examine nanometer-scale materials and structures; laboratory safety, potential hazards, and scientific report writing; the synthesis of gold nanoparticles, eco-friendly silver nanoparticles, zinc sulfide nanoparticles, fluorescent carbon nanoparticles, zinc oxide nanorods, bimetallic nanoparticles, polymeric nanoparticles, and alginate beads, and fingerprint analysis, superhydrophobicity and self-cleaning effect of a surface, and sample analysis using scanning electron microscopy and atomic force microscopy; and specific projects.

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## ENGINEERING (GENERAL, CIVIL)

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TA5 9783038353669

### **Civil, Materials and Computing Engineering; select papers; 2 volume set**

International Conference on Civil, Materials and Computing Engineering (2014:Taiwan) Edited by Wen-Pei Sung and Jimmy (C.M.) Kao (Advanced Materials Research; Volumes 1079-1080)

Trans Tech Publications, ©2015 1324 p.

\$420.00 (pa)

About 350 papers, selected from more than 1,000 submissions, cover materials engineering and technologies; applied mechanics, geological sciences, buildings, and structural and civil engineering; power, energy, and thermal research; environmental engineering; mathematical analysis, computer science, and communications and information technologies; mechanical engineering, measurement, control, and automation; and engineering management, business, and economics. Among the topics are the comparative analysis of wind load standards in China and elsewhere, the numerical simulation of the relation between displacement ventilation efficiency and different outlet positions, the impact of wi-fi electromagnetic waves on brain waves, and the analysis and design of a traffic light control system.

TA7 9783038352815

### **Innovative Technologies and Economics in Engineering; select papers**

International Scientific Practical Conference "In-

novative Technologies and Economics in Engineering" (5th: 2014: Yurga, Russia) Edited by D.A. Chinakhov (Applied Mechanics and Materials; Volume 682)

Trans Tech Publications, ©2014 646 p.

\$276.00 (pa)

Revised from presentation and approved for publication by conference organizers, 118 research reports could interest readers in mechanical engineering, welding, metallurgy, material science, and computer-aided manufacturing and economics. Among the topics are increasing the accuracy of determining the position of a well bottom by minimizing seismic vibration finding errors, the effect of mold heating temperature on the cooling rate of the melt upon bronze crystallization, the mechanism of forming a protective membrane on the surface of metal-bonded diamond disks, a performance assessment of carbide tooling under thermal and loading conditions, structuring data and knowledge for the information technology of road-climatic zoning, and increasing the economic efficiency of building machines by applying reconditioning technologies.

TA119 9783038352792

### **Engineering and Technology Research; select papers**

International Malaysia-Ireland Joint Symposium on Engineering, Science and Business (4th: 2014: Penang, Malaysia) Edited by Mohd Mustafa Al Bakri Abdullah, Liyana Jamaludin, Muhammad Faheem Mohd Tahir, and Mohd Najmuddin Mohd Hassan (Applied Mechanics and Materials; Volume 679)

Trans Tech Publications, ©2014 314 p.

\$207.00 (pa)

This collection draws together 48 papers from the 4th International Malaysia-Ireland Joint Symposium on Engineering, Science and Business (IM-iEJS 2014), held in June 2014 in Penang, Malaysia. Contributed by engineers and scientists from Asia, the Middle East, Romania, Ireland, and the US, the papers offer research in engineering and technology in the areas of applied science, mechanics, materials, design engineering, and related topics.

TA160 9783038353201

### **Applied Engineering Decisions in the Context of Sustainable Development**

International Conference on Green Materials and Environmental Engineering (2014: Hong Kong) Edited by Anil K. Bhatnagar (Advanced Materials Research; Volume 1051)

Trans Tech Publications, ©2014 1093 p.

\$276.00 (pa)

Volume 1051, of the Advanced Materials Research collection, this book contains the proceedings from the 2014 International Conference on Green Materials and Environmental Engineering (GMEE2014) which took place on September 21 and 22, 2014 in Hong Kong. The papers included in this collection represent a variety of different disciplines but cover three general topics: alternative energy, nontraditional materials and technologies, and engineering solutions for sustainable development. Specific topics covered include applied nanotechnologies like bacteriostasis of nano-silver, noise characteristics of subway cars, the operating conditions in micro pump components and many more

TA164 9780470018491

### **Event-Based Neuromorphic Systems**

Edited by Shih-Chii S. Liu, Tobi Delbruck, Giacomo Indiveri, Adrian Whatley, and Rodney Douglas  
Wiley, ©2015 413 p. \$150.00

Researchers working at the border between the neurosciences and computer technology review research by neuromorphic engineers into creating electronic communication systems that mirror the organization of the brain, focusing on the asynchronous event-driven protocol called the address-event representation. The early chapters describe neuromorphic systems, and the later chapters provide information for building them. The topics include silicon cochleas, learning in neuromorphic systems, programmable and configurable analog neuromorphic integrated circuits, towards large-scale neuromorphic systems, and the brain as potential technology.

TA174 9781482252903

### **Computer-Aided Graphing and Simulation Tools for AutoCAD Users**

P.A. Simionescu  
CRC Press, ©2015 608 p. \$129.95

This book presents problem-solving approaches, step-by-step procedures, software tools, and code for using AutoCAD for visual applications such as data visualization, CAD format conversion, animations, simulations, and kinematic simulation. Coverage includes plotting programs, Pascal programs for generating 2D graphs, AutoLISP applications, and algorithms for multicriteria optimization. The final chapter offers a collection of problems and applications from areas like dynamical systems, vibrations, kinematics, and robotics, which can be solved using the software tools presented earlier. The book includes extensive appendices of useful formulae and source code. B&w diagrams and illustrations are provided throughout. The companion web site of-

fers source code, executables, and simulations. The book is intended for students, engineers, and scientists who have access to AutoCAD and Working Model 2D software; however, it can still be used if the reader only has AutoCAD LT or access to a DXF viewer.

TA365 9781482223255

### **Acoustic Analyses Using MATLAB and ANSYS**

Carl Q. Howard and Benjamin S. Cazzolato  
CRC Press, ©2015 670 p. \$139.95

Howard and Cazzolato provide examples of how to solve acoustic problems using MATLAB, ANSYS Workbench, and ANSYS Mechanical APDL software. They provide mathematical theory, which is referenced to published works, then demonstrate the theory by examples implemented using the three software packages. They assume the reader has some familiarity with theory relating to vibrations and acoustics, and with finite element analysis. This is not a vibration and acoustic textbook, they warn. Among their topics are sound inside a rigid-walled cavity, sound absorption in a lined duct, room acoustics, and fluid-structure interaction.

TA401 9783038353706

### **Advanced Research on Materials, Chemistry and Informatization IV; select papers**

International Conference on Material Engineering, Chemistry, Bioinformatics (4th: 2014: Hefei, China) Edited by Helen Zhang, M. Han, and X.J. Zhao (Applied Mechanics and Materials; Volume 707)

Trans Tech Publications, ©2015 546 p.  
\$210.00 (pa)

These proceedings contain 114 papers from the 2014 4th International Conference on Material Engineering, Chemistry, Bioinformatics (MECB 2014), held in November of that year in Hefei, China. Focusing on research in the area of machinery, technologies, and informatization, they discuss applied chemistry and chemical engineering; microbiology and biomedical engineering; environmental engineering; machine parts and mechanisms, mechatronics, automation, and control; communication and networks, applied information technologies, and data processing; and engineering management. Contributors are engineers, chemists, and other researchers mainly from China.

TA418 9781771880329

### **Green Biorenewable Biocomposites: From Knowledge to Industrial Applications**

Edited by Vijay Kumar Thakur and Michael R.

Kessler  
 Apple Academic Press, ©2015 547 p.  
 \$149.95

Editors Thakur and Kessler present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic essays and articles exploring the potential efficacy of a variety of biocomposites and their preparation and processing for use in a variety of contexts. The seventeen contributions that make up the main body of the text cover a variety of related subjects, including spider silk biocomposites, biogenic hydroxyapatite based implant materials, liquid crystals and cellulose derivatives composites, and others. Vijay Kumar Thakur and Michael R. Kessler are faculty members of Washington State University. Distributed by CRC Press, a Taylor & Francis Group.

TA440 9780128005170

**Self-Sensing Concrete in Smart Structures**

Baoguo Han, Xun Yu, and Jinping Ou  
 Butterworth-Heinemann, ©2014 385 p.  
 \$135.00 (pa)

Civil and mechanical engineers explain that self-sensing concrete is made by adding functional fillers such as steel fibers or carbon nanotubes into conventional concrete to create a conductive network that can sense the strain, stress, crack, or damage in itself while maintaining or even improving mechanical properties. They cover structures, compositions, processing, measuring the sensing signal, sensing properties, sensing mechanisms, applications, carbon-fiber filler, nickel-powder filler, carbon-nanotube filler, and challenges.

TA462 9783038353614

**Corrosion in Power Industry: Special Topic Volume With Invited Peer Reviewed Papers Only**

Edited by Maros Halama and Jan Stoulil (Materials Science Forum; Volume 811)  
 Trans Tech Publications, ©2015 94 p.  
 \$125.00 (pa)

This book collects the latest research on methods for preventing corrosion failures. The peer-reviewed papers deal with areas such as application of nanotechnologies, corrosion monitoring techniques, materials characterization, and case studies of corrosion failures in the power industry. Papers are in sections on degradation of solar cells, corrosion of nanoparticles, failure analysis, surface treatment, material properties, and safety issues. Some specific subjects explored include metallic nanoparticles in heat exchange liquids, the effect of humidity on the surfaces of

solar absorber plates, and corrosion degradation of steel pipes in indirect cooling circuits. B&w photos and images are included.

TA480 9781627080798

**Titanium: Physical Metallurgy Processing and Applications**

Edited by F.H. Froes  
 ASM International, ©2015 404 p. \$179.00

This reference for industry practitioners collects recent work in the science and technology of titanium and its alloys. After a history of the industry, the book describes extraction processes and provides information on processing characteristics and performance of different classes of titanium alloys. Coverage encompasses alloying, deformation and recrystallation, testing, and metallography, as well as practical applications, including superplastic forming. Also covered are emerging powder metallurgy techniques, microstructure and mechanical properties, and corrosion behavior. Color and b&w photos, illustrations, and charts are included.

TA658 9780071839440

**Seismic Design of Reinforced Concrete Buildings**

Jack Moehle  
 McGraw-Hill, ©2015 760 p. \$175.00

This comprehensive resource for structural engineers covers the behavior and design of earthquake-reinforced concrete buildings. It is divided into four parts. Part 1 goes over applicable design methods. Part 2 discusses properties of steel, concrete and confined concrete important to seismic design. Part 3 explains the behavior of structural concrete components. Part 4 describes seismic design of certain structural systems, including gravity framing, structural walls, diaphragms and collectors, and foundations.

TA1367 9781466569584

**Introduction to Imaging From Scattered Fields**

Michael A. Fiddy and R. Shane Ritter  
 CRC Press, ©2015 228 p. \$89.95

The authors discuss the problem of determining information about an object from measurements of the field scattered from that object and approaches to recovering information about it. They address the fundamentals, including inverse scattering, electromagnetic waves, and scattering; inversion methods, including data processing, born approximation observations, alternate inverse methods, and homomorphic (cepstral) filtering; and applications to real measured data, advanced cepstral filtering, and advanced topics.

Understanding of basic electromagnetic principles, background in calculus and Fourier analysis, and familiarity with MATLAB is needed.

TA1505 9781608077762

### **Terahertz Metrology**

Edited by Mira Naftaly

Artech House, ©2015 359 p. \$179.00

Physicists and electronic engineers in Australia and Britain survey processes of measuring materials, devices, and systems using terahertz frequency radiation. The topics are terahertz time-domain spectrometers, parameter extraction in time-domain spectrometers, metrology for time-domain spectrometers, evaluating uncertainty in time-domain spectroscopy, metrology for Fourier transform spectrometers, terahertz spectrometer calibration, terahertz imaging, metrology for vector network analyzers, terahertz optics, terahertz laser sources, and electronic sources of terahertz radiation and terahertz detectors.

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## **ENVIRONMENTAL TECHNOLOGY**

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TD192 9781118496978

### **Nanomaterials for Environmental Protection**

Edited by Boris I. Kharisov, Oxana V. Kharissova, and H. V. Rasika Dias

Wiley, ©2014 568 p. \$149.95

Scientists and engineers in a number of fields survey applications of nanomaterials in environmental protection. They cover remediation with the use of metals, metal oxides, complexes, and composites; remediation using carbon nanotubes; photocatalytic remediation; nano-adsorbents and nano-filtration; nanomaterial membranes; green methods in nanomaterial synthesis; carbon dioxide adsorption; intelligent nanomaterials; desalination; nano-catalysis; nanosensors; nano-reservoirs for storing hydrogen; nanomaterials in fuel cells; the remediation of radionuclides; and environmental risks and toxicity.

TD195 9781610696913

### **Fracking: A Reference Handbook**

David E. Newton (Contemporary World Issues)

ABC-CLIO, ©2015 340 p. \$58.00

With the recent vaunted development of two gas and oil industrial technologies--directional (horizontal) drilling and hydraulic fracturing (fracking)--seemingly paving the way for a sooner-rather-than-later ETA for U.S. energy independence, a number of social, political, economic, environmental, health, and other issues associated with the use of fracking and horizontal drilling were downplayed or ignored. Concom-

itant with reports of huge flows of oil and gas from newly drilled wells came complaints from people living near the fields of respiratory problems, psychological problems, increased risk of cancer, disruption of the environment, and other damage. Newton provides a detailed background of the history and development of the oil and gas industry and examines the primary concerns about fracking, while providing assistance on further research, a chronology of important events, a glossary of terms, and profiles of important people and institutions active in the field. Five chapters cover background and history; problems, controversies, and solutions; perspectives; profiles; data and documents. The end materials include a glossary, chronology, resources for further research, and references.

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## **ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING**

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TK1005 9781118854150

### **Optimization of Power System Operation, 2nd Edition**

Jizhong Zhu (Power Engineering; 47)

IEEE/Wiley, ©2015 633 p. \$135.00

Zhu offers engineers and academics a broad picture of the optimization techniques used in operating modern power systems. The second edition incorporates changes in electrical power during the past five years, especially innovations in renewable energy and smart grid. Among his topics are power flow analysis, multi-areas system economic dispatch, unit commitment, steady-state security regions, optimal load shedding, the optimal reconfiguration of electrical distribution networks, and analyzing uncertainty in power systems.

TK2896 9781482203752

### **Graphene: Energy Storage and Conversion Applications**

Zhaoping Liu and Xufeng Zhou (Electrochemical Energy Storage and Conversion; 6)

CRC Press, ©2015 306 p. \$149.95

The authors describe the development and progress of the application of graphene-based materials for energy storage and conversion systems, such as lithium-ion batteries, supercapacitors, fuel and solar cells, lithium sulfur batteries, and lithium-air batteries. They also discuss the main synthesis methods of graphene and its history, structure and properties, and application in other areas.

TK2933 9781118329405

**Polymers for PEM Fuel Cells**

Hongting Pu (Wiley Series on Polymer Engineering and Technology)

Wiley, ©2014 415 p. \$150.00

This volume outlines polymer applications for polymer electrolyte or proton exchange membrane (PEM) fuel cells. After an introduction to types of fuel cells, applications, the fundamental materials of PEM fuel cells, membranes for PEM fuel cells, and testing, chapters cover fluoropolymers for proton exchange membranes, nonfluorinated polymers for proton exchange membranes, anhydrous proton-conducting polymers for high-temperature PEM fuel cells, anion exchange membranes for alkaline fuel cells, and polymers for new types of fuel cells.

TK5102 9781118906491

**Automatic Modulation Classification: Principles, Algorithms, and Applications**

Zhechen Zhu and Asoke K. Nandi

Wiley, ©2015 163 p. \$130.00

Electronic and computer engineers Zhu and Nandi explain a method of determining the modulation type in received signals to guarantee that the signals can be correctly demodulated and that the transmitted message can be accurately recovered. Automatic modulation classification has found significant roles in military, civil, intelligence, and security applications, they say. Their topics include signal models for modulation classification, likelihood-based classifiers, machine learning for modulation classification, a comparison of modulation classifiers, and modulation classifier design for military applications.

TK5104 9781608077557

**Filter Design for Satellite Communications: Helical Resonator Technology**

Efstratios Doumanis, George Goussetis, and Savvas Kosmopoulos (Artech House Space Technology and Applications Series)

Artech House, ©2015 203 p. \$149.00

Filters employing helical resonators are a class of distributed filters that offer a trade-off between performance and size/mass that makes them valuable for use in satellite communications, explain Doumanis, Goussetis, and Kosmopoulos. Writing for engineers with a basic knowledge of high frequency electronics, they describe an approach to designing radio frequency and microwave filters for satellite application with an emphasis on helical resonator technology. They cover requirements and constraints for microwave filters for satellite systems, filter synthesis techniques, the analysis and design of helical

resonators, synthesizing helical resonator filters, quasi-elliptic helical resonator filters, and helical resonator filters with the capacity to handle high power for space applications.

TK6592 9781466597846

**Compressive Sensing for Urban Radar**

Edited by Moeness Amin

CRC Press, ©2015 472 p. \$149.95

Exploring some of the subtle issues in compressive sensing for urban radar, electrical engineers and radar specialists present solutions to many problems that are specific to sensing opaque scenes and targets with obstructed lines of sight. Among the topics are compressive sensing for the radar imaging of underground targets, mitigating wall clutter for the compressive imaging of building interiors, the time-frequency analysis of micro-Doppler signals based on compressive sensing, and the three dimensional imaging of vehicles from sparse apertures in an urban environment.

TK7872 9781118451007

**Chaos Analysis and Chaotic EMI Suppression of DC-DC Converters**

Bo Zhang and Xuemei Wang

IEEE/Wiley, ©2015 239 p. \$130.00

After reviewing the fundamentals of chaos behavior in DC-to-DC converters, the authors present recent findings on symbolic entropy, complexity, and invariant probability distribution to analyze the characteristics of chaotic DC-DC converters. Power spectral analysis describes the distribution (over frequency) of the power contained in a signal based on a continuous signal or a finite set of data. Chaos point process, Prony, and wavelet analysis are suggested for estimating the power spectral density of chaotic pulse width modulation (PWM) converters. The final chapter develops a chaos signal generation circuit-piecewise linear capacitor chaos circuit.

TK7874 9781466666276

**Performance Optimization Techniques in Analog, Mixed-Signal, and Radio-Frequency Circuit Design**

Edited by Mourad Fakhfakh, Esteban Tlelo-Cuautle, and Maria Helena Fino (Advances in Computer and Electrical Engineering)

Engineering Science Reference, ©2015 464 p. \$235.00

For skilled designers, researchers, and engineers as well as students, electrical engineers review recent developments in optimizing the performance of analog, mixed-signal, and radio-frequency circuits. The topics include enhancing an

automatic analog integrated circuit design flow by using a technology-independent module generator, the distributed selection of the optimal sizes of analog unity gain cells by fuzzy set intersection, analyzing the performance of electromagnetic interference shielding based on carbon nanomaterials used in integrated circuit design, and radio frequency chaotic circuit design from theory to practice.

TK7876 9781482214352

### **An Introduction to Microwave Measurements**

Ananjan Basu

CRC Press, ©2015 303 p. \$119.95

This textbook is for senior undergraduate and first-year graduate students majoring in electrical engineering and studying radio frequency and microwave systems; students do not need previous background in microwave engineering. The book will also be useful as a reference for non-specialist professionals in the wireless industry who deal with microwave systems. Unlike other textbooks, this book does not cover traditional introductory topics in measurement. Also unlike other textbooks, material in this book is centered on measurement instruments: network analyzers, spectrum analyzers, synthesized microwave sources, and oscilloscopes. B&w images are included.

TK8316 9781628413892

### **Digital Converters for Image Sensors**

Kenton T. Veeder (Tutorial Texts in Optical Engineering; Volume TT97)

SPIE, ©2015 174 p. \$55.00 (pa)

Veeder offers image sensor professionals this book on complex circuits mediating analog and mixed-signal integrated circuit designs. The introduction to digital image sensors looks at data converters, reasons for and against the use of on-chip analog-to-digital conversion, and different architectures. Converter characteristics are then discussed, moving from basics of data conversation to static and dynamic characteristics. DACs and ADC architectures are covered followed by a case study in pipeline ADCs. The final chapters cover automatic calibration, error correction and testing ADCs on image sensors according to IEEE standards. Some basic background in electrical engineering is assumed.

TK8360 9781439866856

### **Handbook of Optical Sensors**

Edited by José Luís Santos and Faramarz Farahi

CRC Press, ©2015 699 p. \$179.95

The 21 chapters in this volume detail the fun-

damentals, structures, technologies, and applications of optical sensors. Physicists and engineers from North America, Europe, and Jamaica describe the basic aspects of optical sensing and the principles of optical metrology; optical measurement principles and techniques, including the role of optical waveguides in sensing and sensor technologies based on intensity modulation, phase modulation, fluorescence, and plasmonic waves, as well as wavefront sensing, multiphoton microscopy, and imaging based on optical coherence tomography; optical fiber sensing, with discussion of its history, light guiding in standard and microstructured optical fibers, sensing supported by the modulation of intensity and phase of light, sensor multiplexing, distributed sensing, fiber Bragg grating, applications of fiber sensors for the detection of chemicals, and standardization in optical sensors; and future trends.

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## **MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS**

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TL796 9781466566477

### **Building Earth Observation Cameras**

George Joseph

CRC Press, ©2015 350 p. \$169.95

Joseph explains imaging sensing technology and provides insights into different aspects of building an imaging system for a space platform, focusing on electro-optical sensors that operate in the optical-infrared region. The necessary information is usually only available in specialist literature of a number of fields, he says, but he combines it into a single volume. He covers image formation, imaging optics, Earth observation cameras, optomechanical scanners, pushbroom imagers, sub-meter imaging, hyper-spectral imaging, adding the third dimension with stereo imaging, and the journey from ground to space.

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## **MINING ENGINEERING**

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TN871 9781118842690

### **Electrokinetics for Petroleum and Environmental Engineers**

George V. Chilingar and Mohammed Haroun

Scrivener/Wiley, ©2014 240 p. \$195.00

This guide describes the use of electrokinetics in petroleum and environmental engineering, focusing on electrically enhanced oil recovery, electrically enhanced oil recovery in carbonate reservoirs, and the decontamination of soils and water. It also addresses mathematical modeling of electrokinetic transport and enhancing oil re-

covery in porous geo-media, and the introduction outlines electrokinetics concepts and principles, as well as other uses in petroleum and environmental engineering.

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## CHEMICAL TECHNOLOGY

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TP155 9781466558830

### **Green Chemical Engineering: An Introduction to Catalysis, Kinetics, and Chemical Processes (CD-ROM included)**

S. Suresh and S. Sundaramoorthy

CRC Press, ©2015 511 p. \$129.95

Focusing on applications rather than theory, this textbook/reference for advanced students and professionals offers real-world cases, exercises, and problems on green chemical engineering and chemical reaction engineering. Part 1 explains foundations of chemical reaction engineering and reactor design, covering principles of chemical kinetics and catalysis and describing types of chemical reactors and how they work. Part 2, on green chemical processes and applications, contains two chapters. One chapter is devoted to green reactor modeling and reactor design software. The other chapter presents case studies on applications of green catalysis and processes, in areas such as industrial effluents, thermolysis of petrochemical industrial effluent, and catalytic wet-air oxidation processes. B&w images and illustrations are included. The CD-ROM provides MATLAB software for creating computer code and solving problems.

TP157 9781118807569

### **Design of Multiphase Reactors**

Vishwas Govind Pangarkar

Wiley, ©2015 512 p. \$120.00

Chemical engineer Pangarkar describes process design procedures for a variety of commercially important multiphase reactors. The intrinsic kinetics of any multiphase reaction do not vary with the type of the reactor used and its scale, he says, but the transport parameters--particularly the gas-liquid/solid-liquid mass transfer coefficients--depend on both the the type of reactor and its size. Therefore, he focuses on developing credible correlations for predicting the mass transfer coefficients.

TP159 9781118921609

### **Ultrasonic Technology for Desiccant Regeneration**

Ye Yao and Shiqing Liu

Wiley, ©2014 311 p. \$140.00

Aiming to improve energy efficiency, regeneration

time, and the performance of the desiccant air conditioning system, this volume outlines ultrasonic-assisted regeneration technology for desiccant air conditioning systems and the air dehumidification cycle, focusing on the mechanism of solid/liquid desiccant regeneration enhancement through power ultrasonic radiation. It explains technologies related to desiccant materials, desiccant dryer systems and regeneration methods, and the background on ultrasound and methods for producing it; ultrasound-assisted regeneration of silica gel and new honeycomb desiccant material; ultrasound-atomizing regeneration for liquid desiccants and the effect of the ultrasonic atomization on the liquid desiccant regeneration; the principle and design calculation method for longitudinal and radial vibration ultrasonic transducers that have applications in ultrasound-assisted regeneration; and various desiccant air conditioning systems with ultrasonic-assisted regeneration.

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## MANUFACTURES, ARTS & CRAFTS

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TS248 9780124200067

### **Friction Stir Superplasticity for Unitized Structures**

Zongyi Ma and Rajiv S. Mishra (Friction Stir Welding and Processing Book Series)

Butterworth-Heinemann, ©2014 97 p.

\$49.95 (pa)

Ma and Mishra present the current state of understanding and development of the superplastic behavior of friction stir processing aluminum alloys. They pay special attention to the effects of friction stir processing parameters on resultant microstructure and final superplastic properties; and mechanisms responsible for the superplastic deformation, particularly at high strain rate and low temperature. Their topics include friction stir microstructure for superplasticity, an example of superplasticity of a cast alloy, cavitation during superplasticity, the potential of extending superplasticity to thick sections, superplastic punch forming and forging, and friction stir welding and superplastic forming for multisheet structures.

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## MILITARY & NAVAL SCIENCE

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U163 9781610694438

### **Cyber Warfare: A Reference Handbook**

Paul J. Springer (Contemporary World Issues)

ABC-CLIO, ©2015 340 p. \$37.00

This handbook on cyber warfare begins with discussion of the background and history of infor-

mation in human conflict; problems, controversies, and solutions in terms of cyber as a military domain; cyber strategy; the cyber capabilities of countries' diplomatic, informational, military, and economic assets; cyber crime, espionage, and terrorism; ascertaining who is responsible for attacks; paranoia; and cyber ethics. It also has a chronology; biographical profiles of individuals and organizations, from Google to Edward Snowden; documents and other primary source material; five essays, on the escalation of crisis in cyberspace, efforts by the US Department of Defense to develop cyber-minded officers, whether the military adequately creates cyber warriors, the type of analysis they make regarding emerging threats from terrorists, and the relationships between space platforms and the cyber domain; and an annotated list of print and nonprint resources.

UG485 9781608078691

**EW 104: EW Against a New Generation of Threats**

David L. Adamy

Artech House, ©2015 441 p. \$129.00

Adamy presents students, academics, researchers, and professionals working in a wide variety of public and private contexts with an examination of issues in communications, radar, and IR as they relate to legacy and contemporary threats to defense. The author has organized the main body of his text in eleven chapters devoted to spectrum warfare, legacy radars, next generation threat radars, digital communication, legacy communication threats, modern communication threats, and a wide variety of related subjects. David Adamy is an independent researcher, author, and expert in electronic warfare.

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**PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY**

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Z669 9780838987360

**Handbook of Academic Writing for Librarians, Revised Edition**

Christopher V. Hollister

Assoc. of College & Research Libraries, ©2014

250 p. \$56.00 (pa)

The goal of this handbook is to assist library and information science professionals by serving as a reference for the development and publication of professional literature. This text will also serve useful for students of library and information science in writing academic papers and preparing for careers which require aspects of professional writing. The authors seek to inspire and aid in

the development of academic writing ideas, improve writing skills, promote the contribution of innovative ideas to professional literature, guide the reader in pursuit of fulfilling writing opportunities, inform the identification of publishing outlets, and aid in the understanding and appreciation of fundamental and emerging concepts.

Z674 9781856047135

**Social Media for Creative Libraries**

Phil Bradley

Facet Publishing, ©2015 169 p. \$95.00 (pa)

Author Bradley is an information specialist who consults with libraries and schools, blogs about search and social media, and writes a column for CILIP Update magazine. In this book, he offers librarians and information professionals advice on how to use social media to communicate, how to teach others how to use social media, and how to use social media to promote services. The book begins with an overview of different varieties and features of social media, then provides a chapter devoted to authority checking, which is a subject emphasized throughout the book. Coverage continues with chapters on search engines and bookmarking tools, information resources, presentation tools, teaching and training platforms, and communication sites. Two chapters are devoted to marketing and promotion. The final chapter gives guidelines on creating social media policy for an organization. Each chapter closes with an extensive list of web sites mentioned in the chapter. An appendix describes seven real-life social media disasters. B&w screenshots included. The book is intended to be useful to for both new and experienced social media users. It is distributed in the US by Neal-Schuman.

Z680 9780838913017

**Usability and the Mobile Web: A LITA Guide**

Junior Tidal (LITA Guides)

ALA Techsource, ©2015 118 p. \$65.00 (pa)

Multimedia and web librarian Tidal explores usability within the context of mobile web and applications for libraries. Libraries must be in the forefront of mobile web use, he says, so that reliable and accurate resources can get into the hands of students. He covers mobile devices; mobile apps, websites, and hybrids; developing mobile websites; what usability is; mobile usability testing; and gathering data after testing. He appends sample scripts and forms.

Z711 9780838912782

**Reinventing Reference: How Libraries Deliver Value in the Age of Google**

Edited by Katie Elson Anderson and Vibiana Bow-



man Cvetkovic

ala editions, ©2015 176 p. \$65.00 (pa)  
 Editors Anderson and Cvetkovic present students, academics, and librarians working in a variety of contexts with a collection of academic essays and articles that together provide a comprehensive guide to the past, present, and future of library reference in an evolving digital and physical landscape. The editors have organized the nine selections that make up the bulk of their text into three parts. The first part is focused on providing an understanding of the history of reference, reference ethics in the twenty-first century, and the digital library user. The second part is focused on reference service trends in academic settings, school libraries, public libraries, and academic arts libraries. The final section is devoted to possibilities in the near future of reference. The editors are both faculty members of Rutgers University.

Z716 9781483382821

**Worlds of Making: Best Practices for Establishing a Makerspace for Your School**

Laura Fleming (Corwin Connected Educators Series)

Corwin, ©2015 65 p. \$11.95 (pa)  
 Defining a school makerspace as a place where young people have an opportunity to explore their own interests, learn to use tools and materials--both physical and virtual--and develop creative projects, Fleming describes the Maker Movement as about moving from consumption to creation and turning knowledge into action, while placing it in pedagogical terms and locating it in the broadly constructivist philosophies of education. Citing research that shows play as building social-emotional competence in many spheres--language skills, social skills, empathy, imagination, self-control, persistence, and higher-order thinking --they aim to create learning experiences that empower and equip students with the necessary skills to effectively produce and consume content across multiple media platforms, and to enable educators in applying these innovative methods and cutting-edge technology in their particular fields of expertise. Eleven chapters are: the Maker Movement; planning your makerspace; setting up your makerspace; creating a maker culture in your school; makerspaces and the standards; the "expert" maker; makerspaces and the school library; makerspaces as a unique learning environment; showcasing student creations; makerspaces as catalysts for future change; school leaders.

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