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

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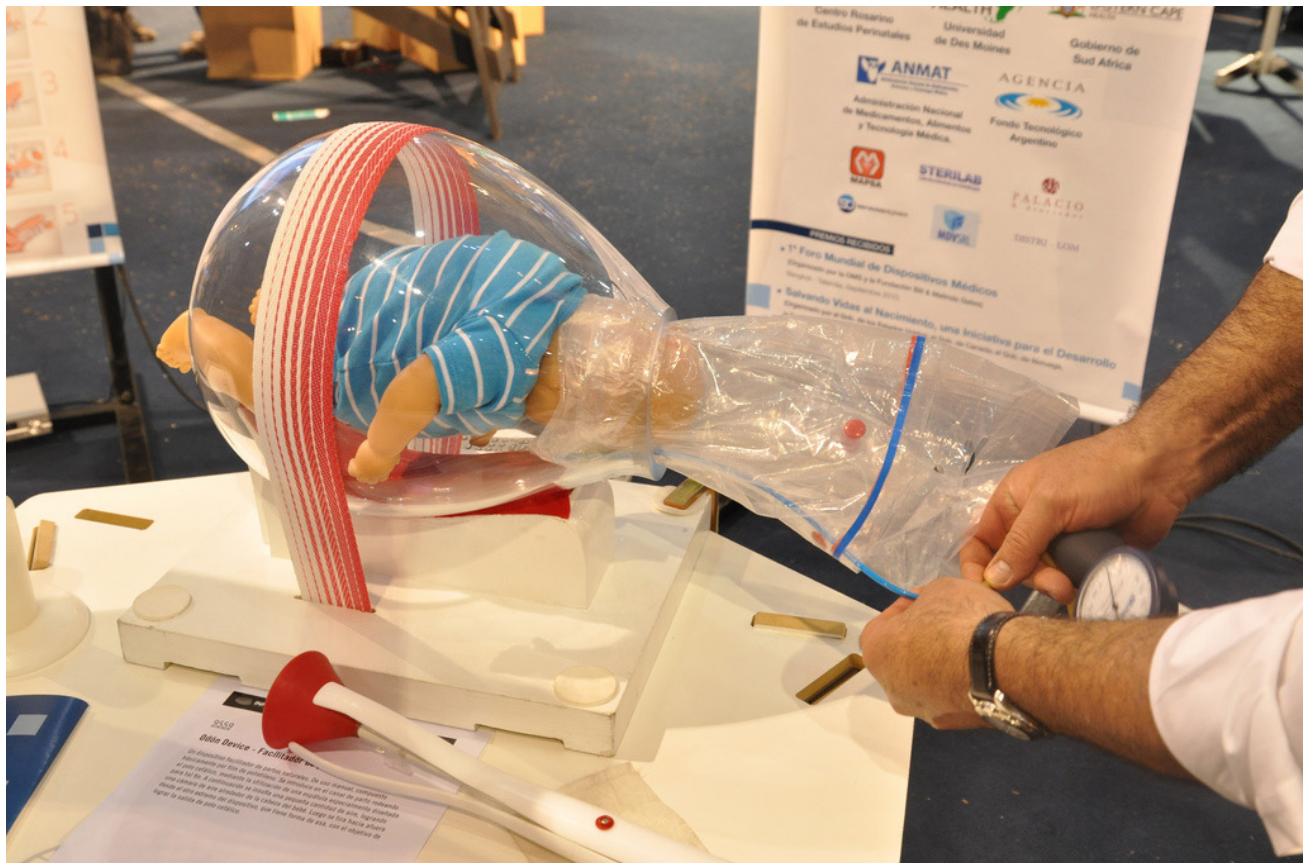
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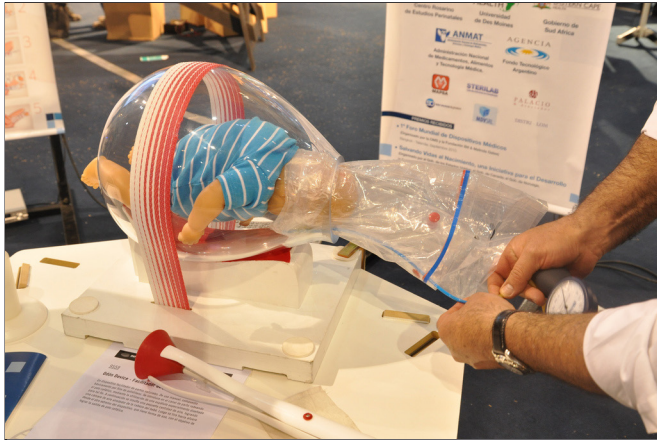
On the Cover

"The Odon device is a new low cost instrument [costing $30 to $50 to manufacture] to deliver the fetus when complications occur during the second stage of labor. This device is made of film-like polyethylene material and may be potentially safer and easier to apply than forceps and vacuum extractor ...for assisted deliveries, and a safe alternative to some Caesarean sections in settings with limited surgical capacity ...

The Odon Device is being tested in a two-phased study in health care facilities in Argentina and rural South Africa."

Caption credit: World Health Organization (WHO) (Jan. 20, 2016). *Odon device*. http://www.odondevice.org

Photo credit: Argentina Ministerio de Cicencia. Some rights reserved at: https://www.flickr.com/photos/ministeriodecien-cia/6243742439

Copy Deadline

SciTech News

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From the Editor   Jeremy Cusker

In May of last year, I joined 23,330 other individuals as a backer of the Planetary Society's "Lightsail" campaign on Kickstarter. My own relatively small pledge (I gave just enough to qualify for an official mission patch, which now adorns my book bag) mixed with those of others, adding up to over $1.2 million dollars, meeting the Planetary Society's campaign goal. If all goes as planned, the 'primary' model Lightsail spacecraft will be launched as a 'CubeSat'-profile secondary payload aboard an Atlas V rocket some time in the late spring of 2016, following an earlier, proof-of-concept flight by a test model spacecraft in May of 2015.

The Lightsail project is aimed at proving the possibility of spaceborne 'flight by light': Of generating angular momentum by use of a mylar 'sail' and thereby harnessing solar wind. The potential is exciting: Although the force exerted by solar wind is quite small, the lack of resistance in space and continuous impulse of force imparted could serve as a means of unlimited-range propulsion for a spacecraft. Much like a terrestrial sailboat, the Lightsail will continually 'tack', adjusting its sail to receive the maximum impulse of solar wind when the sun is directly aft and then turning edge-on when the sun is abeam. Over time, the lightsail would gain speed, describing larger and larger orbits around the Earth until it achieved escape velocity.

Better still is the relatively low mass of a lightsail as compared to the normal fuel requirements of a similar-sized spacecraft. If time is no object, then a lightsail could provide an inexpensive way to send small, unmanned craft anywhere in the solar system.

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 by March 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.

Reminder: *SciTech News* needs an assistant editor

From the Desk of the Editor:

SciTech News is hiring! After this issue (March 2016), I am planning to step down after 4 years of involvement with this publication. My very capable colleague, **Christine Malinowski** will at that point change roles from Assistant Editor to Editor. In keeping with that change, we are seeking a capable, digital-savvy individual to take on the role of Assistant Editor.

This is a position that requires perhaps 10-15 hours of work for each of 4 quarterly issues. Interested individuals should be able to demonstrate an interest in science journalism and the library profession, proficiency with layout software (ideally, Adobe InDesign or equivalent), English language and writing skills, and attention to detail. Familiarity with DropBox and with collaborative editing also a plus. A small stipend, payable either as cash or in the form of an SLA annual convention registration subsidy, is available.

The Division of Science and Technology is able to cover the annual costs of an Adobe InDesign Creative Cloud license should an interested individual not have access to one. Access to a computer capable of running InDesign is a prerequisite.

Interested individuals should contact us (cmalinowski@post.harvard.edu) with a letter and portfolio or links to prior relevant design, layout and/or editing work.

News from the Science-Technology Division

Science-Technology Division   William Jacobs, Chair

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

Hi, I'm Bill Jacobs, your 2016 Chair for the Sci-Tech Division. First, I'd like to thank Shiela Rosenthal, the 2015 Chair, for all the work she did guiding the division, overseeing our conference program, and getting me up to speed for my term in office. The rest of the division Officers also deserve recognition, particularly Beth Thomsett-Scott who is staying on as conference planner for this year.

A quick introduction for those who don't know me: I have served as the physical and applied sciences librarian at the University of Miami for the last nine years. This is my first library job after a career in science journalism. I've served Sci-Tech as the head of the Communications Committee for the last few years, helped run the All Sciences Poster Session last year, and have done a few other projects which you can find posted on the Sci-Tech website.

These are interesting times for SLA as it goes through restructuring, and particularly for Sci-Tech as we try to navigate the changes. The announced plan of turning the current divisions into special interest groups under broad umbrella divisions has been controversial for many, but particularly problematic for us as we are the only division even broader than the Science and Technology umbrellas proposed. Thus, my primary concern as chair is ensuring that our division continues to exist as the plan moves forward. It would be a shame to dissolve so near to our 100th anniversary. Possibly, we might become the new Science division? All of the more tightly focused divisions spun out of Sci-Tech originally. Perhaps we could bring them back in. I will keep an eye on the reorganization and report on our response in these columns. If you have ideas on what our strategy ought to be, do please let me know.

In the meantime, we have a conference program to organize! Many thanks to Beth for taking the lead on the planning and to Helen Josephine for her work with the vendors to bring in funding.

Here's the line-up:

Science and Engineering 101 – Data Curation and Management: The Basics. Sunday 1:30pm-3pm

Join James Manasco and Mary Frances Lembo as they present the fun and informative facts on data curation and management. Discover the basics that will guide you into a career related to this topic or join us for a refresher or just plain catch up on what's going on in this field. Speakers will discuss and raise questions about data curation/management and future developments/practices/policies. (DPER)

Hidden Treasures: Mastering Grey Literature. Monday, 10am-11:30am

We know grey literature exists. What we don't know is how to find it effectively or at all. This session will move attendees from pecking at grey literature to mastering it. Find what you need when you need it is the vision behind this session. Attendees will discover best sites to use, how to search the deep web, and how to ferret out the buried grey literature our customers need.

Sciences and Engineering Poster Session. Monday, 5pm-7pm

Join your colleagues for an entertaining evening discovering the latest in science research. Make new friends, renew acquaintances, chat with others interested in your field, and have a wonderful evening before joining the later parties. A variety of posters will be available covering science, technolo-

gy, and engineering. Several divisions will be having award ceremonies during this time. We welcome all attendees!

Preparing Students for Corporate Research Life. Tuesday, 11am-12pm
Academic science librarians are key to preparing students to be successful in corporate research positions. A panel of librarians will discuss ways academic librarians in the STEM disciplines can help students be more prepared for corporate life. Panel will include a library school instructor sharing how library schools are working in this regard.

Find Your Niche: Preparing for New Areas in Librarianship. Tuesday, 7:30am-9:30am
In the last few years, librarianship opportunities for many of us have moved from the basics (reference, cataloging, access services) to wide-ranging and fascinating opportunities in areas such as data management, e-science, knowledge management, user experience, undergraduate focus, faculty focus, competitive intelligence, consulting, and more. Come and hear from a panel of librarians who will share their job functions and give you advice on how to prepare for and move to these newer fields. Panelists will include academic and special librarians, solo librarians, managers, consultants, and possibly a library school instructor or two. This program is aimed for budding librarians

and those who are in the field and looking to make a move to a different discipline within librarianship. Speakers will provide insight into their specialty (discipline) and some tips for how attendees can ready themselves to make a successful transition.

You may have noticed that we're not doing an open house this year. After the All Science's Poster Session's huge success last year, it seemed like a good idea to concentrate our efforts and funds on making that centerpiece for both our Sci-Tech members and for everyone else interested in sciences and technology. I think it is a great example of what we can offer to the librarian community and it makes sense to highlight it.

Also, this year, instead of our usual Newcomers Dinner, we'll be doing a Newcomers Breakfast before the conference opens on Monday morning. We'll be focusing on bringing Newcomers together with mentors and helping them make the most of the conference. If you'd like to come to meet the new crop of Sci-Tech members to welcome them aboard, please contact our membership committee head, Bernice Koh at bkoh@cs.ubc.com, so she has an accurate headcount for the reservation.

I'll talk to you again in the next newsletter and I hope to see you at the conference!

News from the Chemistry Division

Chemistry Division   Lutishoor Salisbury, Chair

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

It is my pleasure to assume the responsibilities as the Chair of the Chemistry Division for 2016. My other very capable executive committee members for 2016 are Dawn French (dawn.french@cristal.com), Ye Li (liye@umich.edu), Mindy Peters (mpeters@cartech.com), and Linda Galloway (galloway@syr.edu). Together we are poised and ready to attend to the activities of our members. Please send us your wishes and concerns.

On behalf of the Chemistry Division members, I would like to express our sincere gratitude to Ye Li for her capable leadership in 2015 and for co-planning a wonderful conference with Amanda Schoen.

Annual 2016 Conference

The preliminary program for the 2016 conference will be available in February when room allocations should be available.

We collaborated with several divisions to bring our membership some new and exciting programs and continuing education courses for the annual conference. Please register for the conference soon and also purchase your tickets to the DCHE Business Meeting, Breakfast & Vendor Update, and DCHE Breakfast and Academic / Corporate Roundtable.

Friday, June 10, 2016

Chemistry for the Non-Chemist Librarian [Continuing Education Course], 8:00 am-5:00pm [University of Pennsylvania]

Saturday, June 11, 2016

ELNs: Implementing an Institution-wide Solution and a Hands-on Session Using an Electronic Lab Notebook [Continuing Education Course], 8:00am-12pm

Chemical Information Sources, Requests and Reference [Continuing Education Course], 1:00pm-5:00pm

DCHE Board Meeting, 5:00pm-7:00pm

DCHE Newcomers Hosted / DCHE No-Host Dinner, 7:00pm-9:00pm
Participants will be introduced to new members of the division that will provide network opportunities. New members will become acquainted with division members. New members enjoy a free meal.

Sunday, June 12, 2016

DCHE Business Meeting, Breakfast & Vendor Update, 7:30am-9:30am
This program will begin with a brief business meeting of the Chemistry Division. DCHE board members will report division business and future plans and the Marion E. Sparks Award will be presented to the 2016 winner.

The rest of the session will focus on new developments and future trends in the chemical and scientific publishing industry. Participants will learn of the latest developments in chemistry research dissemination from each of the major chemistry and science related vendors and publishers.

Using Metrics to Help Faculty and Researchers Showcase their Value (Quick Take), 1:00pm-1:20pm
Participants will gain a familiarity with metrics in order to assist faculty and researchers in showcasing their value. Practical examples will be demonstrated on evolving journals and database article-level metrics, as well as, using the Web of Science database

to demonstrate how to create a portfolio of scholarly and other metrics for a faculty, department, college or an organization.
Speaker: Luti Salisbury, Distinguished Faculty/Librarian, Head of the Chemistry and Biochemistry Library, University of Arkansas, Fayetteville

Prepare for Your Future! Learn how to Leverage Networks to Advance Your Career (Quick Take), 1:30pm-1:50pm
The presentation will include an overview of best practices and provide participants with recommendations to increase visibility and build a solid online network to facilitate success. Preparing for promotion, tenure, or continuing appointment is a stressful time in your career. Leveraging the power of academic and professional online networks can showcase an information professional's productivity and demonstrate effectiveness. From blog posts to peer-reviewed journal articles, knowing how to best promote your work will make the process easier.
Speaker: Linda Galloway, Collection Development and Analysis Librarian, Librarian for Chemistry and Forensic Sciences, Syracuse University

Best Practices in Data Management and User Engagement, 3:30pm-5:00pm
Researchers on our campuses and organizations have a diverse set of data-intensive research obligations – from data management plans to data discovery platforms and services. Librarians are uniquely qualified to assist by providing services including data curation, visualization, interpretation, discovery, storage and analysis. Helping out with these responsibilities has enabled libraries to move beyond their traditional roles to add value in services they provide to their users and take on a more active role in user engagement.

While a primary speaker has not yet been identified for this program, he or she will lead the program by sharing thoughtful insights on how the roles of the library and librarians have shifted to meet researcher's data-intensive obligations. The speaker will highlight how libraries have modified librarian job responsibilities to take on a more ac-

tive role in the research data lifecycle - from data management plans to data discovery platforms. Teh speaker will discuss the successes and challenges of assisting and engaging researchers with library-led data initiatives.

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

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

Monday, June 13, 2016

DCHE Breakfast and Academic / Corporate Roundtable, 7:30am-9:30am
In this session, we will discuss current topics and future trends in the information industry. Participants will have an opportunity to network with division members from both the academic and corporate world to share information.

All Sciences Poster Session & Reception, 5:30pm-7:30pm
Chemistry Division members will have an opportunity to showcase their work in this session.

Tuesday, June 14, 2016

Value Added Services: Becoming a Strategic Research Partner (Quick Take), 10:00am-10:20am
Want to become an integral member of your

customer's research team? Come and learn strategies and techniques for collaborating with your customers and the skill sets that can get you on the team. Don't just respond to their requests - impress them by anticipating their needs. Learn what it means to become a strategic research partner!
Speaker: Susan Makar, Librarian and Liaison to the Material Measurement Laboratory, National Institute of Standards and Technology

Librarian's role in research assessment and highlighting value, 11:00am-12pm
With an increased emphasis on all types of institutional and academic assessment, libraries are collaborating with campus partners to help deliver these metrics. Using commercial analytical tools such as Scival and InCites, librarians can assist organizations in identifying research strengths and areas of opportunity, and help visualize institutional and faculty productivity. Using citation databases, librarians help faculty and institutions evaluate research output using citation metrics and analysis and help interpret and utilize altmetric tools. This session will cover real-life examples how libraries have partnered with their institutional assessment offices, academic departments and individuals to assist them in evaluating their research output.

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

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

The second speaker, **Elizabeth Ten Have**, the Director of Library Academic Partnerships at Drexel University Libraries will speak on:

Expanding our reach: Libraries support of research activities at Drexel University.

Her presentation will describe how Drexel University Libraries has broadened its programmatic activities to support its current strategic initiative of ""Research Innovation" and how the efforts have contributed to raising the Libraries profile on campus. She will highlight their use and impact of both free (e.g. ORCID, SciENcv) and proprietary tools (e.g. LibGuides, InCites) through a collaboration of the liaison librarians.

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

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

The science of food and biocultural evolution: implications for the future of food, 2:00pm-3:30pm
Learn about the science of food and biocultural evolution from Dr. Solomon H. Katz, director of the Krogman Center for Childhood Growth and Development at the University of Pennsylvania. Dr. Katz will share his research on the evolutionary history of several cuisine traditions that, until contemporary times, provided sufficiently balanced diets to support the success of many different food traditions as well as how over time dietary imbalances have been created impacting and challenging the health and welfare of populations throughout the world. This session will be of interest to biomedical and health science information professionals, particularly those who work closely with healthcare professionals and researchers, to gain a better understanding of current research in this area, but also to a broad audience who is interested in the many roles cuisine traditions play in our everyday life.

DCHE Welcomes New Members

Submitted by Dawn French, DCHE Membership Chair 2015
(Joining dates between October 2015 - December 2015)

Jennifer Henry
Olin Products

Materials Research & Manufacturing Section New Members

Submitted by Bette Finn, Materials Research & Manufacturing Section

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

Jennifer Henry	Susan Cardinal
Charleston, TN	Rochester, NY
USA	USA

Call for Nominations and Applications

SPARKS AWARD for PROFESSIONAL DEVELOPMENT
Travel stipend to attend the 2016 SLA Annual Conference, Philadelphia PA
Application Deadline: March 11, 2016

The **Chemistry Division** of the Special Libraries Association (SLA) is sponsoring a student/new member travel award to defray the costs of attending the 2016 SLA Annual Conference June 12‑14 in Philadelphia, PA. The award is intended to encourage the professional development of student or new members of the Chemistry Division and encourage their participation in Chemistry Division activities.

TRAVEL AWARD:
$1,000 stipend to attend the 2016 SLA Annual Conference and reimburse the successful candidate for one DCHE Continuing Education course at the 2016 SLA Annual Conference. The winner also receives an award certificate at the Annual Conference during the Chemistry Division Business Meeting.

ELIGIBILITY:
All student members of the Chemistry Division and all new members of the Chemistry Division (individuals who have joined since January 2015) are eligible. *All applicants must have joined the Chemistry Division by March 1, 2016.* See below for information on joining SLA and the Chemistry Division.

Individuals who accept a travel award or stipend for the annual conference from any other SLA entity are not eligible for the Marion E. Sparks Award for Professional Development. Travel funds provided by your employer, your school (for students), or any other non‑SLA affiliated group do not affect your eligibility.

The successful candidate will be required to submit a conference impressions essay to be published in SciTech News, serve one year on a DCHE committee and serve as a reviewer for the 2017 Sparks Award applications.

APPLICATION PROCEDURE:
Please submit the following:
• A brief essay that: a) articulates your objectives for professional development; and b) indicates what you hope to gain from attending the SLA Annual Conference. Maximum length: 2 pages.
• Resume
• Names of two references
• Brief budget (expected expenses for registration, airfare, lodging, food and/or continuing education course).

DEADLINE:
All applications must be received by midnight on March 11, 2016. The winner will be notified by March 25, 2016. Essays will be judged and the winner selected by a panel of SLA Chemistry Division members.

SUBMIT APPLICATION VIA EMAIL TO:
Tina Qin (qinna@msu.edu)
Michigan State University Libraries
366 W. Circle Dr. W441,
East Lansing, MI 48824

Want to join the Chemistry Division of SLA? Not a member of SLA? Use this link to join SLA: http://www.sla.org/accessmembership/joinsla/ When you join SLA, you can also join one division for free, additional divisions are $20/year.

Already an SLA member? To join the Chemistry Division either: 1) Login using your membership Username and Password and download the SLA Change/Add Units form: http://www.sla.org/accessmembership/ Fax or mail the form to SLA. Or 2) Call 1‑703‑647‑4936 and pay with a credit card.

HISTORY:
The award is named to honor Marion E. Sparks, a chemistry librarian at the University of Illinois from 1913 until her death in 1929. Ms. Sparks contributed a great deal to the field of chemical information, her achievements include teaching courses on chemical information, and authoring and publishing what is argued to be the first book to formally address chemical literature and library instruction.

The Chemistry Division Web Site http://chemistry.sla.org/about/awards/sparksaward/ includes a listing of previous winners.

News from the Engineering Division

Engineering Division   Giovanna Badia, Chair

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

Once upon a time, in the early 1940s, a group of engineering librarians formed the Engineering-Aeronautics Section of the Science-Technology Division. This group quickly expanded and became a strong independent force, which led to the official launch of the Engineering Division at SLA's 1966 Annual Conference in Minneapolis. Why do I bother bringing up history? To remind us all that this year is our golden anniversary. Happy 50th anniversary to the Engineering Division! I am extremely happy to be given the wonderful opportunity to serve as Chair of the Engineering Division during this momentous year. 2016 is going to be a spectacular. I am proud to be an engineering librarian and ready to celebrate with everyone, both online and in person.

On the virtual side of things, we hope to offer more webinars this year to help individuals keep current and practice evidence-based librarianship. Stay tuned to our division's discussion listserv for announcements about upcoming webinars and to meet the friendliest, most resourceful group of engineering librarians I know (see http://engineering.sla.org/discussion-lists/ to join us if you are not a current subscriber). If you have any ideas for a webinar or other online continuing education activities, please let me know at any time (email: giovanna.badia@mcgill.ca). I welcome your input and will do my best to try to implement your ideas. Let your imaginations be the only limit!

We have planned informative sessions and fun activities for SLA's annual conference in June. Here are the titles of upcoming sessions and activities to give you a sneak peak at what will be happening in Philly:
- ELNs: Implementing an Institution-Wide Solution and a Hands-On-Session Using an Electronic Lab Notebook (CE course)
- 50 Years of the Engineering Division (meal, ticketed event)
- A Bucketful of Engineers and Resources: Understand 10 Engineering Disciplines and Identify their Top 10 Information Resources
- Science and Engineering Newcomers' Breakfast (meal, ticketed event)
- Googling for Facts, Grey Literature, and Metrics in STEM
- Standards Update
- Stop Press: Libraries' Role in the Future of Publishing
- Your Teaching Toolkit
- Integrating Information into the Engineering Design Process
- The Link Found Elsewhere: Archival Information in Forensic Engineering and Historic Preservation
- Explore Hershey's Chocolate World & the Town of Hershey (field trip, ticketed event)

Last but not least, a reminder that there is still time to apply for a travel award to attend the 2016 annual conference. The deadline is March 1st, 2016. Details about these awards can be found on the Engineering Division website at http://engineering.sla.org/.

Ciao for now,
Giovanna
SLA Engineering Division Chair 2016

Giovanna Badia, Assistant Librarian
Schulich Library of Science & Engineering
McGill University, Montreal, Quebec
514-398-7340, giovanna.badia@mcgill.ca

News from the Aerospace Section

Aerospace Section

Gabriele Hysong, Chair

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

Hello to my fellow Aerospace Section members!

Welcome to 2016! I am both pleased and a bit apprehensive to serve as Chair of the Aerospace Section this year. I had asked myself, "What can I possibly contribute to this Section that has had so many brilliant Chairs in the past?" Then I realized; I will contribute my perspective and knowledge! In the years of being a member of SLA, it had never occurred to me that I had the ability to serve in any leadership capacity for SLA. However; when Mary Whittaker asked to me to serve as Chair Elect in 2015, I said, "Sure!" and then realized I have really big shoes to fill of the Past Chair. Mary, now our Past-Chair, has been guiding me through the vicissitudes of the duties and responsibilities of being the current Chair. Think about serving as the Aerospace Chair for 2017!

I am truly excited to be a member of SLA and the Aerospace Section. This may be a volatile period not only for SLA, but many companies in the aerospace industry. This makes it even more imperative to be a member of SLA and the Aerospace Section. As Information Professionals, we continually demonstrate and increase our value to our employers. I am truly optimistic about the future. Over the years I have learned so much from my remarkable fellow information professionals in SLA. In the age of Google and easy ready reference, a highly trained information professional's necessity can be questioned. I am continually learning from my colleagues, absorbing ideas, knowledge, insights and perspectives as how to be a world-class 21st century librarian.

As for my background, I received my MLS from Indiana University-Purdue University at

Indianapolis in late 2006, having had a 10-year career in the environmental field. That career was very interesting and I enjoyed working in the hazmat field—being 40-hour hazwoper trained and a Certified Hazardous Materials Manager. I was quite familiar with the environmental staff at Rolls-Royce long before I accepted the position of librarian. Now I enjoy explaining what a corporate librarian does! In my previous vocation, the part of the job I enjoyed the most was the training I did for our company and our customers. I loved teaching and taking a dry subject such as hazardous waste transportation and making it an entertaining course but I wanted a change. Thus at the age of 50, I quit my job, sold my house and went to graduate school to become a librarian.

I wasn't sure if I would find viable employment as a librarian after receiving my MLS, but I decided that it was a risk worth taking. When I received my MLS in late 2006, Rolls-Royce offered me the position of librarian and I jumped at the chance since. I didn't think the position would last for more than a year, since the library had not been upgraded since the mid-1990s. I began transforming the library (that's another story) into a 21st century library to not only meet, but exceed expectations by my customers and senior management. Now, almost 10 years later, I am ensconced in an attractive new space with beautiful views out the floor-to ceiling windows. In addition to being an engineering librarian in the manufacturing sector, I am also a solo and that means I do it all. There is never a dull or boring moment.

Over the years, attending the annual SLA conferences, have provided me with invalu-

able educational and networking opportunities. Here's an unconventional example about learning something new: At the annual SLA conference in 2015, I attended the Aerospace Section's sponsored program, "NASA Spinoffs". That presentation had well exceeded my expectations. I never realized there was so much more to NASA. Now, I am even using a NASA spinoff product that I would never have discovered had it not been for that session. Moreover; I am looking forward to an exciting program in Philadelphia. For the 2016 program, Aero is co-sponsoring a session with the Solo Division, "Crucial Conversations". This allows Aero to interface with other divisions and to pool our financial resources to procure high quality speakers. That co-sponsored session will be held, Monday, June 13, from 12:00 to 2:00.

It is fitting that I follow Mary Whittaker from Boeing as the Chair, since Rolls-Royce en-gines (Rolls-Royce is a gas turbine manufacturing company, not the automobile company) are on many Boeing aircraft! They provide the airframes and we provide the power. As Mary, our past Chair has done in the previous year; it is my intention to send out emails to the AERO listserv describing both online and hardcopy resources that I make use of for a variety of reasons. If you are not already a subscriber, consider joining the SLA-AERO listserv. To join, follow the URL below:
http://engineering.sla.org/discussion-lists/

Let me know if you have any suggestions or questions. I am available and do want to hear from you!

Cheers and let's meet in Boston!

Gabriele Hysong
Gabriele.hysong@rolls-royce.com

Sci-Tech Book News Reviews   Susan Fingerman, Selector

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

HYDROLOGY, OCEANOGRAPHY

GB656   9781118872031
Remote Sensing of the Terrestrial Water Cycle
Edited by Venkat Lakshmi, Douglas Alsdorf, Martha Anderson, Sylvain Biancamaria, Michael Cosh, et al (Geophysical Monograph; 206)
Wiley, ©2015   556 p. $199.95
The text is a collection of research presented at a conference discussing remote satellite viewing of water patterns around the planet. Paper titles include, Rain/No Rain Classification Using Passive Microwave Radiometers, Water Use and Stream-Aquifer-Phreatophyte Interaction Along a Tamarisk-Dominated Segment of the Lower Colorado River, Spatial Patterns of River Width in the Yukon River Basin, Dominant Patterns of Water Storage Changes in the Nile Basin During 2003-2013, and Challenges for Observing and Modeling the Global Water Cycle. The text is divided into seven larger segments, each encompassing a specific area such as groundwater, data collection, soil moisture, etc. The text includes applicable color graphs and charts and will be of interest to people involved in a number of environmental science fields.

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.

ENVIRONMENTAL SCIENCE, ECOLOGY

GF26   9781783474639
Handbook of Research Methods and Applications in Environmental Studies
Edited by Matthias Ruth (Handbooks of Research Methods and Applications)
Edward Elgar, ©2015   534 p. $290.00
Environmental studies encompasses a broad and sometimes complex range of subject areas because as a field of study it attempts to provide an understanding of the environment and how it influences and affects how well people live. Contributors discuss research methodologies and related applications used in environmental studies, the current status of environmental studies, and basic principles. Specific topics addressed include public meanings of science and the environment, the structured mental model approach, action research for coherently integrated sustainability policy design and implementation, energy return on investment and its implications for long-term prosperity, network analysis of industrial ecosystems, valuing estuarine and coastal ecosystems for storm protection, vulnerability assessments, and more.

GF90   9781482237399
Land Use and Land Cover Semantics: Principles, Best Practices, and Prospects
Edited by Ola Ahlqvist, Dalia Varanka, Steffen Fritz, and Krzysztof Janowicz
CRC Press, ©2016   328 p. $149.95
Geographers and environmental scientists explain new terminology and new meanings for old terms in the field of land use and land cover as new technology has increased both the quantity and the nature of data that is available, and seek to establish common semantics. Among the topics are a Nordic forest classification perspective on the need for an awareness of semantic plasticity in the international harmonization of geographical information, parameterized approaches to categorizing land use and land cover, an applied ontology for semantics associated with surface water features, and crowdsourcing landscape perceptions to validate land cover classifications.

SCIENCE (GENERAL)

Q175   9783038356042
Innovative Materials and Technology for Sustainable Development of Society; select papers
RMUTP International Conference on Science, Technology and Innovation for Sustainable Development (5th: 2014: Bangkok, Thailand) Edited by Rattikorn Yimnirun (Applied Mechanics and Materials; Volume 804)
Trans Tech Publications, ©2015   364 p.
$170.00 (pa)
The 82 papers cover ceramics, semiconductors, and composites; recent building materials; bio-materials and biomedical engineering; material and technologies in the textile business; advanced technologies in agriculture, environmental engineering, and waste treatment and recycling; engineering decisions in designing machines and power; and innovative technology education for the sustainable development of society. Among specific topics are the effect of a blowing agent on cell morphology and acoustic absorption in natural rubber foam, the surface investigation of laser-glazed mullite thin films of yttria-stabilized zirconia coatings, predicting the ultraviolet spectrum of single-stranded DNA, a reliable home-made tissue culture protocol for Dendrobium orchid cultivation, heating energy briquettes from cashew nut shell, and constructing and evaluating instructional packages on vector quantity.

Q175   9781119052715
Repeated Measures Design for Empirical Researchers
J.P. Verma
Wiley, ©2016   257 p. $125.00
Verma helps empirical researchers in any area understand situations where repeated measure designs can be used and can provide a handy solution to analyzing them with the proprietorial SPSS statistics software. He emphasizes the importance of this design in any experimental research, and discusses the most widely used repeated measure designs in empirical studies. His topics are foundations of experimental design, the analysis of variance and repeated measures design, testing assumptions in repeated measures design using SPSS, one-way repeated measures design, two-way repeated measures design, two-way mixed design, one-way repeated measures MANOVA, and mixed design with two-way MANOVA.

Q180   9781783264148
The Grant Writer's Handbook: How to Write a Research Proposal and Succeed
Gerard M. Crawley and Eoin O'Sullivan
Imperial College Press, ©2016   231 p. $28.00 (pa)
As governments around the globe increase funding for scientific research, it has become vital for researchers to understand the process of peer based review in the funding process. This book is intended as a how-to book for researchers early in their careers with little experience creating successful grant proposals, as well as providing valuable tips to veteran grant writers. The authors, both experienced grant writers and reviewers, provide practical advice and real world examples on how to develop and draft proposal ideas, dealing with reviews, and how grant awards will impact the intended research. Additionally, the authors describe the selection of reviewers for various funding agencies, as well as the inner workings of research grant competitions to give grant writers a deeper understanding of the process. Distributed by World Scientific.

Q334   9781942270003
Artificial Intelligence in the 21st Century: A Living Introduction, 2nd Edition
Stephen Lucci and Danny Kopec
Mercury Learning and Information, ©2016
610 p. $99.95
Authors Lucci and Kopec present readers with the second edition of their comprehensive overview of the theoretical foundations, recent developments, and contemporary research in artificial intelligence (AI). The authors cover the history of AI, uninformed search, informed search, search using games, logic in artificial intelligence, knowledge presentation, production systems, uncertainty in AI, and a great many other related subjects. The book also comes with a companion DVD. Stephen Lucci is a faculty member of the City College of New York. Danny Kopec is a faculty member of both Brooklyn College and the CUNY Graduate Center in New York. Distributed in North America by Stylus Publishing and Distribution.

Q342   9781466694262
Improving Information Security Practices Through Computational Intelligence
Edited by Wasan Shaker Awad, El Sayed M. El-Alfy, and Yousif Al-Bastaki (Advances in Information Security, Privacy, and Ethics)
Information Science Reference, ©2016   327 p.
$210.00
Editors Awad, El-Alfy, and Al-Bastaki present

students, academics, researchers, and professionals working in a variety of contexts with a collection of academic papers and scholarly articles focused on the enhancement of information security through computational intelligence. The editors have organized the ten contributions that make up the main body of the text in five parts devoted to applications of evolutionary computation in cryptology, intelligent intrusion detection, authentication, multimedia security, and a wide variety of other related subjects. Wasan Shaker Awad is a faculty member of Ahlia University, Bahrain. El Sayed M. El-Alfy is a faculty member of King Fahd University of Petroleum and Minerals, Saudi Arabia. Yousif Al-Bastaki is a faculty member of the University of Bahrain.

MATH, COMPUTERS

QA76   9781466568570
Event Mining: Algorithms and Applications
Edited by Tao Li (Chapman & Hall/CRC Data Mining and Knowledge Discovery Series)
CRC Press, ©2016   308 p. $99.95
This volume contains eight chapters detailing event mining applications and algorithms to extract knowledge from historical event/log data in computing system management. Computer scientists from the US cover event generation and system monitoring, including methods that can transform log data in different formats and contents into a canonical form and optimizing system monitoring configurations; pattern discovery and summarization, including different types of event patterns and related event mining techniques, non-parametric and parametric methods for discovering time lags in temporal data, and log event summarization techniques; and applications for detecting system issues and social media event summarization using Twitter streams.

QA76.585   9781498715096
Advances in Mobile Cloud Computing Systems
Edited by F. Richard Yu and Victor C.M. Leung
CRC Press, ©2016   338 p. $99.95
This book reveals the latest research and practice in the design and architecture of cloud computing systems for mobile devices, for those involved in research and development of mobile cloud computing systems. The book begins with an overview of current mobile cloud computing service models, including third-party cloud mobile media (CMM) services. Other areas discussed include energy-efficient task execution in mobile cloud computing, virtual mobile networks in clouds, modeling and analysis of a single-hop mobile cloudlet, cloud radio access networks, and software piracy control in mobile cloud computing systems. B&w diagrams and charts are included.

QA76.585   9781482254815
Cloud Computing Networking: Theory, Practice, and Development
Lee Chao
CRC Press, ©2016   507 p. $99.95
Author Lee Chao presents students, academics, researchers, and IT professionals working in a wide variety of contexts with an examination of the theory and practical applications of cloud computing networking. The author has organized the main body of his text in eleven chapters devoted to an overview on cloud and networking, network protocols, network concepts and design, network directory services, dynamic host service and name service, and a wide variety of other related subjects. The author is a faculty member of the University of Houston, Texas.

QA76.758   9781482228656
Evidence-Based Software Engineering and Systematic Reviews
Barbara Ann Kitchenham, David Budgen, and Pearl Brereton (Chapman & Hall/CRC Innovations in Software Engineering and Software Development)
CRC Press, ©2016   309 p. $79.95
The concept of evidence-based software engineering was introduced in 2004, and though it is rarely put into practice, the philosophy is being widely enough discussed that Kitchenham, Budgen, and Brereton think it is time to consolidate thinking into a single volume. They cover evidence-based practices in software engineering, the systematic reviewer's perspective of primary studies, and guidelines for systematic reviews. Among specific topics are using systematic reviews in software engineering, searching for primary studies, qualitative synthesis, tool support for systematic reviews, and replication and distributed studies.

QA76.76   9781498706247
Game Development and Simulation with Unreal Technology
Alireza Tavakkoli
CRC Press, ©2016   701 p. $69.95 (pa)
Tavakkoli explains how to use the Unreal Technology software to develop computer games and other simulation content, focusing on the latest version, Unreal Engine 4. Moving from beginning through intermediate to advanced concepts and

techniques, she covers setting up Unreal project templates, level design in Unreal technology, Unreal visual scripting with blueprints, materials in Unreal Engine, advanced material concepts in Unreal Engine, visual effects and cascade in Unreal Engine, terrains and landscapes, advanced blueprint concepts, and a top-down game with blueprints.

QA76.76   9781466694743
Handbook of Research on Advanced Hybrid Intelligent Techniques and Applications
Edited by Siddhartha Bhattacharyya, Pinaki Banerjee, Dipankar Majumdar, and Paramartha Dutta (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2016   653 p. $285.00
Editors Bhattacharyya, Banerjee, Majumdar, and Dutta have collected contributions from a diverse group of experts in computer science regarding contemporary developments in research related to the hybridization of artificial intelligence, its practical applications, and methods of implementation. The eighteen chapters that make up the text are organized in two sections devoted to the concepts and fundamentals of hybrid intelligent techniques and applications for hybrid intelligent techniques. Siddartha Bhattacharyya and Dipankar Majumdar are faculty members of the RCC Institute of Information Technology, India. Pinaki Banerjee is with Goldstone Infratech Limited, India. Paramartha Dutta is a faculty member of Visva-Bharati University, India.

QA76.9   9781466687677
Handbook of Research on Innovative Database Query Processing Techniques
Edited by Li Yan (Advances in Data Mining and Database Management)
Information Science Reference, ©2016   625 p. $335.00
Researchers in computer science, electrical engineering, information science, and related fields discuss recent developments in the technologies of database query processing. They cover technologies and methodologies of database and XM queries, spatio-temporal data questions, big data querying, metadata resource description framework and Semantic Web ontology OWL querying, and other issues in database querying. Among specific topics are processing queries with fuzzy similarity domains, a user-driven query framework of social networks for the geo-temporal analysis of events of interest, supporting position change through on-line location-based skyline queries, the fuzzy querying of a resource

description framework with bipolar preference conditions, and adding context into classification reasoning based on good classification tests.

QA76.9   9781783266432
The Human Face of Computing
Edited by Cristian S Calude (Advances in Computer Science and Engineering: Texts; Volume 9)
Imperial College Press, ©2016   432 p. $138.00
A series of 26 conversations with influential computer scientists, mathematicians, and physicists reveals the inner thinking of people who have made essential contributions to the development of computing and its applications. The interviews are in sections on computing science; computing in biology, mathematics, and physics; and social aspects of computing. Among the topics are Kurt Mehlhorn: from theory to library of efficient data types and algorithms and algorithm engineering, Ian H. Witten: a stroll through the gardens of computer science, Francoise Chatelin: qualitative computing, Yuri Manin: my life is not a conveyor belt, and Reinhard Wilhelm: compiler construction and Dagstuhl. Distributed in the US by World Scientific.

QA76.9   9781482202557
Multilevel Modeling of Secure Systems in QoP-ML
Bogdan Ksiezopolski
CRC Press, ©2016   242 p. $99.95
This guide outlines the multilevel analysis of information security systems using the quality of protection modeling language (QoP-ML) approach. It covers the basis of QoP-ML and time analysis; quality of protection evaluation of previously predefined security mechanisms and security configurations not directly defined; analysis of energy consumption, environmental impact, financial costs, and reputation; the methodology for generation of security metrics; support for the automated quality of protection analysis tool, security mechanisms evaluation tool, and crypto-metrics tool; and functionality and usability assessment of QoP-ML and comparisons to PL/SQL (procedural language/structured query language), SecureUML, and UMLsec approaches.

QA76.9   9781482263497
Networking for Big Data
Edited by Shui Yu, Xiaodong Lin, Jelena Misic, and Xuemin (Sherman) Shen (Chapman & Hall/CRC Big Data Series)
CRC Press, ©2016   410 p. $99.95
Computer and information scientists examine big data from the perspectives of networking theory and design, networking security, and platforms

and systems for big data applications. Their topics include a survey of virtual machine placement in cloud computing for big data, network configuration and flow scheduling for big data applications, energy-aware survivable routing in ever-escalating data environments, a user data profile-aware policy-based network management framework, and circuit emulation for big data transfers in clouds.

QA76.9   9781466687370
Research Advances in the Integration of Big Data and Smart Computing
Edited by Pradeep Kumar Mallick (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2016   379 p. $210.00
Editor Pradeep Kumar Mallick presents students, academics, researchers, and IT professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on contemporary research into the integration of big data and smart computing. The eighteen contributions that make up the main body of the text are devoted to the data deluge, transmission control protocol for mobile and ad hoc networks, cotton leaf disease detection by feature extraction, and a wide variety of other related subjects. The editor is a faculty member of the Institute for Research and Development, India.

QA269   9781498712392
Adversarial Risk Analysis
David L. Banks, Jesus Rios, and David Ríos Insua
CRC Press, ©2016   214 p. $89.95
Authors Banks, Rios, and Insua present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of the construction of Baysian models for the strategic analysis of rival or oppositional forces. The authors have organized the main body of their text in seven chapters devoted to games and decisions, simultaneous games, auctions, and a wide variety of other related subjects. David L. Banks is a faculty member of Duke University, North Carolina. Jesus Rios is with the IBM Thomas J. Watson Research Center, New York. David Ríos Insua is a faculty member f the Institute of Mathematical Sciences, Spain.

QA276   9781439886489
Inferential Models: Reasoning With Uncertainty
Ryan Martin and Chuanhai Liu (Monographs on Statistics and Applied Probability; 147)
CRC Press, ©2016   254 p. $89.95

Authors Martin and Liu present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of statistical inference from the foundational level, arguing for a new way of thinking on scientific inference. The authors have organized the main body of their text in twelve chapters devoted to the preliminaries, prior-free probabilistic inference, inferential models, predictive random sets, conditional inferential models, marginal inferential models, and a wide variety of other related subjects. Ryan Martin is a faculty member of the University of Illinois at Chicago. Chuanhai Liu is a faculty member of Purdue University, Indiana.

QA276   9781482211924
Missing Data Analysis in Practice
Trivellore Raghunathan (Chapman & Hall/CRC Interdisciplinary Statistics Series)
CRC Press, ©2016   210 p. $79.95
Trivellore Raghunathan presents readers with an in-depth survey of the various methods for analyzing missing data and the theories behind them. He examines the development of missing data analysis methods and the various ways they can be adapted to practical research problems. The author has organized the main body of his text in nine chapters focused on weighting methods, imputation, multiple imputations, regression analysis, longitudinal analysis with missing values, and a variety of other related subjects. The author is a faculty member of the University of Michigan.

QA276   9781482232448
Perfect Simulation
Mark L. Huber (Monographs on Statistics and Applied Probability; 148)
CRC Press, ©2016   228 p. $89.95
Huber describes techniques by which Markov chain Monte Carlo statistical approaches can be bumped to an infinite number of steps in a finite length of time. The first one, coupling from the past, appeared in 1996, he says, and in 2000 many techniques doing the same thing with very different protocols started being introduced. He covers acceptance/rejection, coupling from the past, bounding chains, advanced techniques using coalescence, coalescence on continuous and unbounded state spaces, spatial point processes, the randomness recycler, advanced acceptance/rejection, stochastic differential equations, and applications and limitations of perfect simulation.

QA279   9781118632338
Applied Univariate, Bivariate, and Multivariate Statistics

Daniel J. Denis
Wiley, ©2016   726 p. $130.00
Denis introduces and summarizes univariate and multivariate statistical modeling techniques typically used in the social and behavioral sciences. He assumes students to be at the upper-division or graduate level in any of the social or behavioral sciences. Striking a middle-ground between abstract theory and a software manual, he considers such topics as mathematics and probability theory, introduction to random effects and mixed models, multiple linear regression, logistic regression and the generalized linear model, and path analysis and structural equation modeling.

QA280   9781584886501
Models for Dependent Time Series
Granville Tunnicliffe Wilson, Macro Reale, and John Haywood (Monographs on Statistics and Applied Probability; 142)
CRC Press, ©2016   323 p. $89.95
Authors Wilson, Reale, and Haywood present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of issues arising when the dependence between time series is described and modeled and the methodology that can be applied to the situation. The authors have organized the main body of their text in nine chapters devoted to lagged regression and autoregressive models, spectral analysis of dependent series, the estimation of vector autoregressions, and a wide variety of other related subjects. Granville Tunnicliffe Wilson is a faculty member of Lancaster University in the UK. Marco Reale is a faculty member of the University of Canterbury, New Zealand. John Haywood is a faculty member of Victoria University of Wellington, New Zealand.

QA379   9789814696548
Multiple Solutions of Boundary Value Problems: A Variational Approach
John R. Graef and Lingju Kong (Trends in Abstract and Applied Analysis; Volume 1)
World Scientific, ©2016   279 p. $88.00
Graef and Kong show how variational methods and their generalizations can be used to prove the existence of solutions to a variety of boundary value problems for ordinary, impulsive, and partial differential equations and for difference equations. They begin by setting out the basic notions and fundamental theorems they use so that readers do not have to look elsewhere for them and to make the volume self-contained. The topics include nontrivial solutions of Sturm-Liouville systems, infinitely many solutions of multi-point problems, anti-periodic solutions for impulsive problems, a Kirchhoff-type problem involving two parameters, and homoclinic solutions for difference equations.

QA614   9789814678384
Differentiability and Fractality in Dynamics of Physical Systems
Ioan Merches and Maricel Agop
World Scientific, ©2016   282 p. $110.00
Merches and Agop collect ideas developed by several authors on differentiabililty and fractality as basic frames within which to approach the study of physical system dynamics. Their topics include the inertial invariantive motion of the material point, the invariant mechanics of systems of material points, a Lagrangian approach in invariantive mechanics, chaos versus fractality in gravitational dynamical systems, and an extended fractal hydrodynamic model with an arbitrary fractal dimension and its implications.

QA861   9781118954386
Dynamics of the Rigid Solid With General Constraints by a Multibody Approach
Nicolae Pandrea and Nicolae-Doru Stanescu
Wiley, ©2016   320 p. $140.00
Dealing with both holonomic and non-holonomic constraints to study the mechanics of the constrained rigid body, Pandrea and Stanescu take a multibody approach that highlights the matrix of constraints for each case. They cover elements of mathematical calculation; kinematics of the rigid solid; general theorems in the dynamics of the rigid solid; matrix differential equations of the motion of the rigid solid; and the motion of the rigid solid with constraints at given proper points, constraints on given proper curves, and constraints on the bounding surface.

ASTRONOMY

QB51   9781583818749
Astronomical Data Analysis Software and Systems; proceedings
Astronomical Data Analysis Software and Systems (24th: 2014: Calgary, Alberta, Canada)
Edited by A.R. Taylor and E. Rosolowsky (Astronomical Society of the Pacific Conference Series; Volume 495)
Astronomical Society of the Pacific, ©2015
594 p. $77.00
The annual conference is for scientists, developers, and programmers working in areas related to algorithms, software, and systems for acquiring, reducing, analyzing, and disseminating astronomical data. The 128 papers cover dem-

onstrations and focus demonstrations, big data challenges, visualization for astronomy, large surveys, data analysis and pipelines, web services and application-programming interfaces, and metadata management and file formats for astronomical data. Among specific topics are web-based two-dimensional visualization with large datasets, stacking radio continuum surveys, the high level data reduction library, and astronomical data integration beyond the virtual observatory.

QB362   9789814630542
From Ordered to Chaotic Motion in Celestial Mechanics
Yi-Sui Sun and Li-Yong Zhou
World Scientific, ©2016   405 p. $128.00
Sun and Zhou briefly introduce some basic but important problems in celestial mechanics, drawing on the main results of their own research, which is related to the qualitative methods of celestial mechanics and nonlinear dynamics. The objects of their research include comets, asteroids, planetary rings, and Trojan asteroids. Among their methods are the nonlinear dynamical method, the mapping method, the symplectic integrator, and spectral analysis. They cover the qualitative analysis of motion in a three-body system, motions of small bodies in the planetary system, the chaotic motion of orbits, and orbit diffusion.

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

PHYSICS

QC174   9781482237634
Optical Multi-Bound Solitons
Le Nguyen Binh (Optics and Photonics; 13)

CRC Press, ©2016   547 p. $139.95
Binh deals with nonlinear systems in terms of fundamental principles and associated phenomena as well as their applications in signal processing in contemporary optical systems for communications and laser systems, with a touch of mathematical representations of nonlinear equations to provide some insight into the nonlinear dynamics at different phases of solitons. His topics include generations of solitons in optical fiber ring resonators, multi-bound solitons under carrier phase modulation, bound-soliton bispectra and nonlinear photonic signal processing, and multirate multiplication soliton fiber ring and nonlinear loop laser.

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

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

QC176.9   9781482232707
Structural and Morphological Evolution in Metal-Organic Films and Multilayers
Alokmay Datta and Smita Mukherjee
CRC Press, ©2016   203 p. $129.95
Mukherjee and Datta present a monograph probing the complexities of Langmuir monolayers and Langmuir-Blodgett multilayers. Specifically, they focus on the issues of how metal-organic monolayer systems behave like solids vs liquids, and the bonding differences of two-dimensional systems compared to bulk systems. The first chapter introduces the film systems under investigation including their growth mechanisms and wetting interactions. Chapters 2-4 discuss research methods, including film preparation, analytical equipment and technique, and data analysis background. Chapters 5-9 present results, discussing the relationship of coordination and conformation of headgroups and overall film structure, film morphology throughout the growth process, solid- and liquid-like behavior observed, and the use of films to promote nanocrystal self-assembly. The final chapter summarizes results regarding the dependence of molecular structure and film morphology on preparation methods, the unique structures and properties available in the two-dimensional phase, and the many novel research directions suggested by the authors' work.

QC223   9780415564168
Acoustics in Moving Inhomogeneous Media, 2nd Edition
Vladimir E. Ostashev and D. Keith Wilson
CRC Press, ©2016   521 p. $195.00
Authors Ostashev and Wilson present students, academics, researchers, and professionals working in a wide variety of contexts with the second edition of their examination of the propagation of sound in random moving media. The authors have organized the thirteen chapters that make up the main body of their text in three parts devoted to the theoretical foundations of acoustics in moving media, sound propagation and scattering in random moving media, and numerical methods for sound propagation in moving media. Vladimir E. Ostashev is a faculty member of the University of Colorado. D. Keith Wilson is with the U.S. Army ERDC, New Hampshire.

QC786   9781498727273
Fractional Calculus With Applications for Nuclear Reactor Dynamics
Santanu Saha Ray
CRC Press, ©2016   201 p. $179.95
Author Santanu Saha Ray presents students and academics, researchers, and professionals working in a wide variety of contexts with an examination of the applications for fractional calculus in nuclear reactor dynamics. The author has organized the main body of his text in eight chapters devoted to mathematical methods in nuclear reactor physics, neutron diffusion equation models in dynamical systems, fractional order neutron point kinetic models, and a wide variety of other related subjects. The author is a faculty member of the National Institute of Technology Rourkela, India.

QC793   9781482238006
14 MeV Neutrons: Physics and Applications
Vladivoj Valkovic (Series on Resource Management)
CRC Press, ©2016   500 p. $159.95
Valkovic describes experiments he has conducted over many years using 14 MeV neutrons, which are more difficult and time consuming than using charged particles, he says, but can offer insights into nucleus and other materials because of the absence of charge. Most of his work has involved identifying harmful material in the environment. He covers nuclear reaction d + t > alpha + eta, sources of 14 MeV neutrons, detectors, nuclear reactions induced by 14 MeV neutrons, a method for analyzing fast neutron activation, applications of tagged neutron beams, logging nuclear reactions, and medical applications of 14 MeV neutrons.

CHEMISTRY

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

QD381   9781771881227
Chemical and Structure Modification of Polymers

Edited by Kajetan Pyrzynski, Grzegorz Nyszko, and Gennady E. Zaikov

Apple Academic Press, ©2016   413 p. $139.95
This work is for students, polymer scientists, and engineers involved in experimental research on polymers, polymer product development, and quality control in polymer synthesis and manufacturing. It reports on real experiments and offers guidance for choosing techniques for characterizing the properties of polymers and elastomers. The book begins with an overview of recovery technology used in depleted oil fields. This is followed by 29 chapters detailing various polymer characterization test methods. Each chapter describes principles, procedures, and instrumentation of a test method and gives examples of real chemical, pharmaceutical, medicinal, and agricultural applications. B&w images and illustrations are included. Distributed by CRC Press, a Taylor & Francis Group.

QD526   9781593703431
Distillation & Hydrocarbon Processing Practices
Ashis Nag
PennWell Books, ©2016   529 p. $139.00
For practicing process engineers and students of chemical engineering, Nag compiles and elucidates practices in the hydrocarbon industry and their fundamental principles in a single and concise volume. He explains and illustrates advanced practices in distillation with the help of examples, and presents design guidelines based on knowledge and experience he has gathered from his own career as well as from other sources. His topics include distillation tower auxiliaries, hydrotreating and hydrocracking, sour water strippers, fluid catalytic cracking units and residual fluid catalytic cracking units, and general process calculations.

QD549   9781466561793
Biofoams: Science and Applications of Bio-Based Cellular and Porous Materials
Edited by Salvatore Iannace and Chul B. Park
CRC Press, ©2016   450 p. $189.95
Writing for students, teachers, and practitioners, chemists and chemical engineers explore biologically based materials for developing biodegradable and sustainable polymeric foams, foams in food, foams in biomedical applications, and biologically informed foams. Their topics include the equation-of-state approach in polymer solution and polymer foaming thermodynamics, heterogeneous cell nucleation mechanisms in polylactide foaming, fabricating biologically based cellular and porous materials for tissue engineering

scaffolds, and the formation and stability of food foams and aerated emulsions.

QD549   9789814613613
Polysaccharide Hydrogels: Characterization and Biomedical Applications
Edited by Pietro Matricardi, Franco Alhaique, and Tommasina Coviello
Pan Stanford Publishing, ©2016   524 p. $179.95
In this book, editors Matricardi, Alhaique, and Coviello present readers with a collection of academic and expert contributions on hydrogels and their applications in medicine and pharmaceuticals. The contributions that make up the main body of the text are devoted to the rheological characterization of hydrogels, hydrogel mesh size evaluation, dynamic light scattering, NMR methodologies in the study of plysaccharides, small-angel neutron scattering of polysaccharide hydrogels, stimuli-responsive polysaccharide-based hydrogels, and other related subjects. The editors are all faculty members of the University of Rome "La Sapienza." Distributed in the US by CRC Press.

QD553   9781466561199
Nanoelectrochemistry
Edited by Michael V. Mirkin and Shigeru Amemiya
CRC Press, ©2015   849 p. $199.95
Mirkin and Amemiya present this electrochemistry-nanoscience crossover text as an introduction for student or reference for researchers in the field. Section I examines the theory of electron transfer in nanoscale systems. Specific nanoelectrical designs, materials, and dynamics are then discussed in Section II, including monolayer-protected clusters, semiconductor photochemistry, single-molecule electronics, solid-state devices, stochastic events, carbon nanostructures, electrodeposition, nanoporosity, microelectrode investigation of living cells, applications in proteins and enzymes, and exocytosis measurement. The final section discusses nanoelectrochemical techniques, including the use of liquid-liquid interfaces, microfabrication, more on electrodeposition, scanning electron microscopy of nanostructures and cells, tunneling microscopy, atomic force microscopy, and potentiometry.

TECHNOLOGY (GENERAL)

T10   9781498705776
Engineering Speaking by Design: Delivering Technical Presentations With Real Impact
Edward J. Rothwell and Michael J. Cloud
CRC Press, ©2016   152 p. $49.95 (pa)

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

T55   9781118940389
Hazard Analysis Techniques for System Safety
Clifton A. Ericson II
Wiley, ©2016   616 p. $125.00
Author Clifton A. Ericson II presents students, academics, and professionals working in a wide variety of contexts with the second edition of his examination of contemporary hazard analysis techniques employed in the discipline of safety engineering. The author has organized the main body of his text in thirty-four chapters devoted to system safety and hazard analysis, systems, hazards, mishap, and risk, hazard analysis features, and a wide variety of other related subjects. The author is a safety engineer employed by the URS Corporation of California.

T55   9781466551602
System Safety Engineering and Risk Assessment: A Practical Approach, 2nd Edition
Nicholas J. Bahr
CRC Press, ©2015   407 p. $129.95
Bahr presents students, academics, and engineers working in a variety of professional contexts with the second edition of his text investigating best practices in system safety and risk assessment techniques. The author has organized the main body of his text in fourteen chapters, covering safety analysis in engineering, safety management systems, hazard analysis, process safety analysis, fault tree analysis, and a wide variety of other related subjects. Nicholas J. Bahr is a system safety, risk assessment, and enterprise risk management systems consultant.

T58   9781466688339
Handbook of Research on Innovations in Information Retrieval, Analysis, and Management
Edited by Jorge Tiago Martins and Andreea Molnar (Advances in Knowledge Acquisition, Transfer, and Management)

Information Science Reference, ©2016   580 p. $325.00
International contributors in information systems, computer engineering, and information management report on the latest developments in management of information. Major themes discussed include developments in information retrieval, information analysis, the reciprocal relationship between information systems and organizations, effective information management practices, how society is being shaped by information systems, and knowledge management as a way to generate value. Some specific topics include measuring the success of Wikipedia and open content, prediction of international stock markets based on hybrid intelligent systems, a wheelchair controlled by hand-gesture recognition, and a customer experience management system at a university. The book includes b&w charts, graphs, and process and hierarchy diagrams. The book's audience includes researchers, developers, managers, strategic planners, and advanced students in information management and information science.

T385   9781482232837
Fluid Simulation for Computer Graphics, 2nd Edition
Robert Bridson
CRC Press, ©2016   263 p. $79.95
Author Robert Bridson presents students, academics, researchers, and professionals working in a wide variety of contexts with the second edition of his examination of the techniques required to animate fully three-dimensional incompressible flow. The author has organized the fifteen chapters that make up the main body of his text in three parts devoted to the basics, more types of fluids, and more algorithms. Individual chapters are focused on the equations of fluids, an overview of numerical simulation, advection algorithms, level set geometry, making fluids incompressible, and a wide variety of other related subjects.

ENGINEERING (GENERAL, CIVIL)

TA153   9781482254839
Remote Sensing of Impervious Surfaces in Tropical and Subtropical Areas
Hongsheng Zhang, Hui Lin, Yuanzhi Zhang, and Qihao Weng (Taylor & Francis Series in Remote Sensing Applications)
CRC Press, ©2016   174 p. $129.95
Specialists in remote sensing describe applications of it to monitor the growth of cities by de-

tecting and measuring impervious urban surfaces. They focus on tropical and subtropical zones because they contain most of the non-industrialized countries that are urbanizing most quickly. They cover impervious surface estimation using remote sensing, the methodology of combining optical and synthetic aperture radar data, the impact of climate zone on impervious surface estimation and mapping, assessing the urban land cover complexity, comparative studies with different image data and fusion methods, and an in-depth study estimating impervious surface area using optical and synthetic aperture radar data.

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

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

TA168   9781466506831
Systems Engineering: Design Principles and Models (online access included)

Dahai Liu
CRC Press, ©2016   463 p. $99.95
Author Dahai Liu presents students, academics, researchers, and professionals working in a wide variety of contexts with an examination of the design principles and modeling of systems engineering. The author has organized the ten chapters that make up the main body of his text in three parts devoted to systems and systems engineering concepts, systems methods, models, and analytical techniques, and systems management and control methods. Individual chapters are focused on decision-making models in systems engineering, engineering economy in systems engineering, and a wide variety of other related subjects. The author is a faculty member of Ebry-Riddle Aeronautical University, Florida.

TA169   9781118873328
Reliability and Risk Models: Setting Reliability Requirements, 2nd Edition
Michael Todinov (Wiley Series in Quality & Reliability Engineering)
Wiley, ©2016   419 p. $150.00
Todinov balances statistical and engineering approaches to predicting and improving reliability in systems and components. His topics include common reliability and risk models and their applications, load-strength (demand capacity) models, solving reliability and risk models using a Monte Carlo simulation, generic principles for reducing traditional risk, reliability governed by the relative locations of random variables in a finite domain, reliability analysis and setting reliability requirements based on the cost of failure, and the optimal allocation of limited resources among discrete risk reduction options.

TA170   9781133629771
Engineering Applications in Sustainable Design and Development
Bradley A. Striebig, Adebayo A. Ogundipe, and Maria Papadakis
Cengage Learning, ©2016   762 p. $129.95
Using a problem-based quantitative approach, Striebig, Ogundipe, and Papadakis present a textbook on sustainable design and development that can be used in any field of engineering. The prerequisites are foundational courses in calculus, chemistry, and physics and the general education of upper-level undergraduate engineering students. The topics include analyzing sustainability using engineering science, water quality impacts, the carbon cycle and energy balances, energy conservation and development, life cycle analysis, and challenges and opportunities for sustainability in practice.

TA332   9781119038115
Formulas for Dynamics, Acoustics and Vibration
Robert D. Blevins (Wiley Series in Acoustics, Noise and Vibration)
Wiley, ©2016   448 p. $145.00
This book compiles about 1000 formulas for solving dynamics, acoustics, vibration, natural frequency, and mode shape problems in engineering. It presents formulas and data for dynamic analysis in tables and discusses examples, explanations, and some derivations. It covers definitions, symbols, units, and geometric properties; dynamics of point masses and rigid bodies; natural frequencies and mode shapes for spring-mass systems, pendulums, strings, membranes, beams, plates, and shells; fluid and acoustic solutions to the wave equation and added mass; formulas for the response of elastic structures to sinusoidal, transient, and random loads; and properties of structural solids, liquids, and gases that support the formulas in the previous chapters.

TA345   9781466688230
Handbook of Research on Computational Simulation and Modeling in Engineering
Edited by Francisco Miranda and Carlos Abreu (Advances in Systems Analysis, Software Engineering, and High Performance Computing)
Engineering Science Reference, ©2016   824 p. $420.00
Editors Miranda and Abreu present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on advanced engineering technologies including theoretical and computational models, algorithms, software programs, and prediction tools. The editors have organized the twenty-four contributions that make up the main body of the text in five parts devoted to intelligent systems and control engineering, software and computer engineering, civil and environmental engineering, and a wide variety of other related subjects. The editors are both faculty members of the Intituto Politécnico de Viana do Castelo, Portugal. Francisco Miranda is also a faculty member of the University of Aveiro.

TA352   9780831135225
Applied Dynamics in Engineering
Michael B. Spektor
Industrial Press, ©2016   702 p. $79.95 (pa)
In this book, author Michael Spektor gives students and engineering professionals a vital reference work for the solving of problems in engineering dynamics. The author covers the principles of applied dynamics, common engineering problems in dynamics, force of inertia, friction, constant resistance, constant resistance and friction, stiffness, stiffness and friction, stiffness and constant resistance, and a wide variety of other related subjects over the books nineteen chapters. The author is a former faculty member of the Oregon Institute of Technology.

TA405   9783038355687
Experimental Mechanics of Solids; select papers
Symposium on Experimental Mechanics of Solids (26th: 2014: Jachranka, Poland) Edited by Pawel Pyrzanowski and Jacek Gadomski (Solid State Phenomena; Volume 240)
Trans Tech Publications, ©2016   270 p. $140.00 (pa)
Editors Pyrzanowsk and Gadomski present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of peer-reviewed academic papers selected from materials presented at the twenty-sixth Symposium on Experimental Mechanics of Solids, held in October of 2014 in Jachranka, Poland. The editors have organized the contributions that make up the main body of the text in four chapters devoted to experimental and numerical methods and equipments for practical investigation and engineering designing, investigation processes of fatigue and fracture, investigations of the mechanical properties of advanced materials, and experimental methods for investigations of devices, machines, and structures.

TA409   9783038355410
Advances in Fracture and Damage Mechanics XIV; select papers
International Conference on Fracture and Damage Mechanics (14th: 2015: Budva, Montenegro) Edited by Darko Bajic, Zdenko Tonkovic, and Ferri Aliabadi (Key Engineering Materials; Volume 665)
Trans Tech Publications, ©2016   295 p. $210.00 (pa)
This volume provides papers presented at the 14th International Conference on Fracture and Damage Mechanics held in Montenegro, in 2015, which showcased the latest in computation, theoretical and experimental research on structural integrity and durability and fracture and damage mechanics. Over 70 papers cover a variety of subjects: fracture prediction; light alloy structural behavior in severe conditions; evaluation of bond strength; mixed-mode crack patterns; flexural property; fatigue resistance; inelastic

dynamic seismic response; crack bridging modelling; role of residual stresses; influence of wedge shape in dynamic fracture toughness; Williams' stress function; energy dissipation; optimal sensory placement, inter alia.

TA418   9783038355755
Advances in Very High Cycle Fatigue; select papers
International Conference on Very High cycle Fatigue (6th: 2014: Chengdu, China) Edited by Qingyuan Wang (Key Engineering Materials; Volume 664)
Trans Tech Publications, ©2016   340 p.
$140.00 (pa)
Participants from various engineering disciplines around the world exchange views and experiences regarding very high cycle fatigue, which concerns components going through well above 107 load cycles. They cover scientometric research, advancements in instrumentation, advanced materials, the influence of environment and temperatures, the influence of small damage conditions, microstructure and initiation mechanisms, and life prediction and modeling. Among the topics are calculating thermal dissipation, the effects of stress concentration on fiber reinforced composites, estimating fatigue limit in interior inclusion induced fracture mode for bearing steel in rotating bending, failure mechanism of high strength steels, and the influence of high-cycle fatigue on crater wear characteristics of cemented carbide tool.

TA418   9781482245004
Braided Structures and Composites: Production, Properties, Mechanics, and Technical Applications
Edited by Sohel Rana and Raul Fangueiro (Composite Materials: Analysis and Design)
CRC Press, ©2016   310 p. $179.95
Contributors from a range of fields describe various applications of braiding technology that are already in use or in the research stage, along with recent developments in materials, processes, and structures to achieve the desired functions. They cover the braiding process and parameters; the analysis of braided structures and properties; braided composites and their analysis; applications of braided structures in medical fields, civil engineering, aerospace engineering, and transportation; and recently developed multiscale braided structures and composites.

TA418   9781466509962
Handbook of Granular Materials
Edited by Scott V. Franklin and Mark D. Shattuck

CRC Press, ©2016   506 p. $149.95
Thirteen papers survey experimental techniques and computational methods for studying dense granular materials, kinetic theories of collisional grain flows, and statistical tools for analyzing the behavior of static and slowly driven granular media. The contributors share recent computational research on the structural and mechanical properties of mechanically stable static packings of spherical particles, the mechanical response of experimental packings to very small disturbances, the impact of shear on the structure and dynamics of granular materials, and segregation in dense sheared systems. Extensions of granular systems explore the properties and behavior of wet foams, slippery grains, suspensions, and colloids.

TA418   9781498700672
Inorganic-Whisker-Reinforced Polymer Composites: Synthesis, Properties and Applications
Qiuju Sun and Wu Li
CRC Press, ©2016   326 p. $149.95
To begin, Sun and Li explain the importance of modifying polymer materials and describe the variety, characteristics, surface treatment, and evaluation methods of inorganic whiskers on the market. Then they summarize the preparation methods and performance analysis of polymers filled with inorganic whiskers. Drawing on their own research, they conclude by introducing the surface treatment methods for and factors influencing calcium carbonate whiskers and examine characteristics of polypropylene filled with them. The information could be useful to researchers, students, and engineers in polymer materials.

TA418   9783038356127
Multifunctional Chemical Materials and Technologies; select papers
International Scientific Conference "Multifunctional Chemical Materials and Technologies" (2015: Tomsk, Russia) Edited by Yuriy G. Slizhov and Irina A. Kurzina (Key Engineering Materials; Volume 670)
Trans Tech Publications, ©2016   279 p.
$170.00 (pa)
Drawn from the International Scientific Conference, "Multifunctional Chemical Materials and Technologies," (MCMT-2015), held in May 2015 in Tomsk, Russia, the 44 papers in this volume address topics in nanosystems and materials, environmental management, and chemical and analytical control and monitoring of substances, materials, and objects in the environment, including the creation and modification of multifunctional

materials, the properties of organic and inorganic substances and materials, and high-performance and resource-saving methods of processing natural and synthetic raw materials. They discuss topics related to chemical materials and technologies in chemical manufacturing; biomaterials and biomedical technologies, environmental engineering, and applied biotechnologies; and sensors and measurement in chemical research. Contributors are chemists and other researchers from Russia.

TA439   9781498704885
Concrete Surface Engineering
Benoit Bissonnette, Luc Courard, and Andrzej Garbacz (Modern Concrete Technology Series; 18)
CRC Press, ©2016   255 p. $139.95
In this book, authors Bissonnette, Courard, and Garbacz present readers with an in-depth examination of concrete surface engineering, a variety of concrete surface treatments, protective coatings, and repairs. The authors have organized the main body of their text in eight chapters covering the achievement and appraisal of bonds between existing concrete and surface treatments or repairs, a review of surface preparation techniques for concrete, the compatibility requirements for concrete surface treatments and repairs, and many other related subjects.

TA440   9781856176903
Concrete Petrography: A Handbook of Investigative Techniques, 2nd Edition
Alan B. Poole and Ian Sims
CRC Press, ©2016   794 p. $199.95
Poole and Sims describe techniques for analyzing and evaluating concrete and other cementitious materials, providing professional petrographers both background information and details of some of the specialist techniques necessary for petrographic investigations. As in the first edition, they emphasize the value and importance of the polarizing microscope and related techniques. They cover petrographic equipment and methods; sampling and specimen preparation; the composition of concrete; the appearance and textures of cementitious materials; examining deteriorated and damaged concrete; pre-cast and special concretes; Portland cement mortar, screeds, renders, and special cements; and non-Portland cementitious materials, plasters, and mortars.

TA455   9781605950938
Joining Composites With Adhesives: Theory and Applications
Edited by Magd Abdel Wahab

DEStech Publications, Inc., ©2016   316 p. $184.50
Scientists and engineers who specialize in the field discuss the theory and application of bonding composite materials with adhesives. They cover many relevant topics: the history of adhesive composite joints, material properties, joint strength, composite to composite adhesion, composite to metal, application of externally bonded fiber-reinforced plastic to strengthen reinforced concrete, composite to timber, adhesive repair for surface gouges and cracks in continuous carbon fiber/epoxy laminated composites, application to aircraft structures, automotive, public transport service, strengthening reinforced concrete structures in civil engineering, applications within marine and naval sectors, and dentistry.

TA455   9781482239331
Plastics Reinforcement and Industrial Applications
T.R. Crompton
CRC Press, ©2016   238 p. $149.95
Crompton thoroughly reviews developments in altering the mechanical, electrical, thermal, and other properties of plastics by incorporating reinforcing agents such as glass fiber, carbon fiber, carbon nanotubes, talc, and clay. Plastics so modified could be used in the structure or high-temperature applications of aircraft and lightweight automobiles, he says. His topics include measuring the mechanical properties of reinforced plastics, the thermal and thermo-oxidative degradation of reinforced polymers, applying reinforced plastic in the automotive and aerospace industries, the radiative resistance of unreinforced and reinforced plastics, and unreinforced and reinforced fire retardant polymers.

TA492   9783038355922
Problems of Deformation and Fracture in Materials and Structures; select papers
All-Russian Conference on Problems of Deformation and Fracture in Materials and Structures (2015: Perm, Russia) Edited by V.P. Matveenko, A.A. Tashkinov, and D.A. Chinakhov (Solid State Phenomena; Volume 243)
Trans Tech Publications, ©2016   173 p. $0.00 (pa)
Editors Matveenko, Tashkinov, and Chinakhov present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of peer-reviewed papers selected from research presented at the All-Russian Conference on Problems of Deformation and Fracture in Materials and Structures held in June of 2015. The contributions that make up the main

body of the text are devoted to estimation of salt rocks' long-term strength in natural conditions, mathematical modeling of underworked rock strata failure process, analysis of thermal conditions within the flow conduits of MHD-devices.

TA1522   9781466504028
Bioinspired Photonics: Optical Structures and Systems Inspired by Nature
Viktoria Greanya
CRC Press, ©2016   396 p. $79.95
Author Viktoria Greanya presents students, academics, researchers, and professionals working in a wide variety of contexts with an interdisciplinary examination of the various photonic systems observed in nature and how they may inform and inspire the creation of new photonic materials and systems. The author has organized the main body of her text in nine chapters devoted to an introduction to bioinspired photonic systems, low dimensional structural color, complex structural color, and a wide variety of other related subjects. Viktoria Greanya is with the U.S. Defense Reduction Agency, and a faculty member of George Mason University, Virginia.

TA1570   9781118094884
Fundamentals of Infrared and Visible Detector Operation and Testing, 2nd Edition
John David Vincent, Steven E. Hodges, John Vampola, Mark Stegall, and Greg Pierce (Wiley Series in Pure and Applied Optics)
Wiley, ©2016   564 p. $145.00
This succinct reference is for people who are entering the field of infrared detector design, test, or use; who work in peripheral areas; and who teach and train newcomers. It does not discuss the detailed design and fabrication of detectors or readout integrated circuits (ROIC) because the details are proprietary, complex, or change frequently. The second edition accounts for changes in the technology such as arrays of 512 X 512 pixels and larger using ROICs, specialized software collecting and analyzing all data, and radiometric nomenclature becoming mature and stable. The first volume considered only infrared detectors.

TA1634   9781466687233
Innovative Research in Attention Modeling and Computer Vision Applications
Edited by Rajarshi Pal (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2016   456 p. $200.00
A combination of survey articles and research reports provides a snapshot of the state of image processing and computer vision. Looking first at visual attention modeling and applications then at other computer vision applications, they consider such topics as biologically-inspired models for attentive robot vision, video saliency detection for visual cryptography-based watermarking, a generic design for implementing intersection between triangles in computer vision and spatial reasoning, a survey of palmprint-based biometric recognition systems, and analyzing facial expression using three-dimensional range images.

TA1653   9781482226546
Face Detection and Recognition: Theory and Practice
Asit Kumar Datta, Madhura Datta, and Pradipta Kumar Banerjee
CRC Press, ©2016   325 p. $99.95
The book compiles major approaches, algorithms, and technologies available for automated face detection and recognition to provide a reference for students, researchers, and practitioners working in image processing, computer vision, bio-metrics, and security computer graphics and animation. It includes many programs in easily available software. Among the topics are subspace-based face recognition, face detection in color and infrared images, evolutionary design for face recognition, frequency domain correlation filters in face recognition, and data sets of face images for face recognition systems.

MECHANICAL ENGINEERING & MACHINERY

TJ163   9781482262223
The Carbon Footprint Handbook
Edited by Subramanian Senthilkannan Muthu
CRC Press, ©2016   533 p. $189.95
International contributors explain how to determine the carbon footprint of various activities and conditions and show how to apply that information in real-life planning. Section 1 covers the science of carbon footprint assessment, choosing alternative functional units, carbon footprint calculation in crop and livestock production, the carbon footprint of wood cladding, and applications of carbon footprint in urban planning and geography. Section 2 examines modeling aspects of carbon footprints, with six chapters built around cases demonstrating methods, such as sensitivity analysis for milk production, building information modeling, and quantifying spatial-temporal variability of carbon stocks and fluxes in urban soils. Section 3 provides case studies from around the world, looking at carbon footprint assessment in electronic parts assembly, cultivation of micro-algae, aquaculture, and paper production. B&w

photos, images, and diagrams are included.

TJ193   9781498739184
High-Conformal Gearing: Kinematics and Geometry
Stephen P. Radzevich
CRC Press, ©2016   331 p. $159.95
Radzevich examines gears that feature convex-to-concave contact of the tooth flanks of the gear and the mating pinion, commonly referred to a conformal gearings. Novikov and Wildhaber gearings are the best known examples, he says, along with the Bramley-Moore--otherwise known as Vivkers, Bostock, and Bramley, or just V.B.B. His topics include conditions for transmitting a rotation smoothly, high conformal gearing, the impossibility of cutting gears for conformal and high-conformal gearing using generating (continuously-indexing) machining processes, and high-conformal intersected-axis gearing.

TJ211   9781482244564
Cognitive Robotics
Edited by Hooman Samani
CRC Press, ©2016   220 p. $119.95
This work for researchers in robotics can also be used as a supplemental text for undergraduate and graduate students for courses in advanced robotics. International contributors from multidisciplinary perspectives explore chemical and physical aspects as well as ethical, philosophical, cultural, social, and psychological aspects. Some specific topics examined are negligence and product liability, design of modular AI robots inspired by American Indian material culture, human willingness to engage with collaborative robots, and social cognition of robots during interactions with humans. Color and b&w photos and images are included.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAr ENGINEERING

TK1010   9781498729628
Power Quality Issues: Current Harmonics (online access included)
Suresh Mikkili and Anup Kumar Panda
CRC Press, ©2016   166 p. $149.95
This book discusses the use of active power filters (APFs) in dealing with power quality issues due to harmonics. It describes the importance of active power filters and solid-state devices and APF configurations and selection considerations; proportional-integral (PI) controller-based shunt active filter (SHAF) control strategies; type 1 fuzzy logic controller (FLC)-based SHAF control strategies with different fuzzy membership functions for extracting three-phase reference currents; type 2 FLC-based SHAF control strategies with different fuzzy membership functions; and real-time simulation. Online access to an ebook is included.

TK1751   9781118987209
Substation Automation Systems: Design and Implementation
Evelio Padilla
Wiley, ©2016   251 p. $130.00
Padilla introduces new substation automation systems to both system engineers with a limited knowledge of substation secondary systems and to experienced utilities personnel faced with learning new concepts and terminology. One goal is to clarify the roles and responsibilities of each group in relation to the project, operations, and each other. His topics include main functions of substation automation systems, system inputs and outputs, communication with the remote control center, training strategies for power utilities, and substation automation systems engineering process according to standard IEC 61850.

TK5103   9781482220940
The Future of Wireless Networks: Architectures, Protocols, and Services
Edited by Mohesen Guizani, Hsiao-Hwa Chen, and Chonggang Wang (Wireless Networks and Mobile Communications)
CRC Press, ©2016   442 p. $89.95
Computer scientists project future wireless network architecture, protocols and enabling technologies for future wireless networks, and services and applications in future wireless networks. Among their topics are advanced technologies in gigabit wireless local area networks: an in-depth overview of 802.11ac, future wireless sensor networks for the smart grid, base station joint transmission with limited backhaul data transfer for multicell networks, resource allocation in cognitive radio networks, multimedia streaming over mobile networks, and content dissemination and security in device-to-device communication.

TK7867   9781118094914
Passive Macromodeling: Theory and Applications
Stefano Grivet-Talocia and Bjorn Gustavsen (Wiley Series in Microwave and Optical Engineering)
Wiley, ©2016   872 p. $160.00
Authors Grivet-Talocia and Gustavsen present readers with a comprehensive examination of the theory and applications of passive macromodeling. The authors discuss a variety of pas-

sive macromodeling algorithms for distributed and lumped systems, comparing their accuracy, efficiency, and robustness. The book is primarily focused on black-box approaches to passive macromodeling, but the authors do also get into general macromodeling concepts, making this a good reference for graduate-level students of electrical engineering. Stefano Grivet-Talocia is a faculty member of the Politecnico de Torino, Italy and President of IdemWorks. Bjorn Gustavsen is with SINTEF Energy Research, Norway.

TK7871   9781482220032
Gallium Nitride (GaN): Physics, Devices, and Technology
Edited by Farid Medjdoub and Krzysztof Iniewski
(Devices, Circuits, and Systems)
CRC Press, ©2016   372 p. $169.95
This guide for students and practitioners reports on the latest results in gallium nitride (GaN), a semiconductor used in solar cells, RF semiconductor devices, bright-light-emitting diodes, and other high-frequency, high-power applications. International contributors in research and industry describe aspects of material physics, fabrication of devices and circuits, and applications. Some specific topics examined include InGaN-based solar cells, GaN transistors on large-diameter Si(111) substrate, GaN high-voltage power devices, and GaN-based interband tunnel junctions. B&w images, illustrations, and diagrams are included.

TK7871   9781498722605
Ionizing Radiation Effects in Electronics: From Memories to Imagers
Edited by Marta Bagatin and Simone Gerardin
(Devices, Circuits, and Systems)
CRC Press, ©2016   391 p. $159.95
Electrical and information engineers explore the effects of ionizing radiation on modern semiconductor devices and solutions for hardening the devices. They include background material, case studies, and references for the benefit of readers new to the field of ionizing radiation. Their topics include Monte Carlo simulations of radiation effects, radiation effects in flash memories, single-event mitigation techniques for analog and mixed-signal circuits, radiation effects on complementary metal-oxide semiconductor active pixel sensors, and radiation effects on optical fibers and fiber-based sensors.

TK7871   9789814613637
Proteotronics: Development of Protein-Based Electronics
Eleonora Alfinito, Jeremy Pousset, and Lino Reg-giani
Pan Stanford Publishing, ©2016   270 p. $149.95
After reviewing the chemistry of proteins, this book shares the results of recent research for developing innovative electronic devices based on the selective action of specific proteins. The similarity between protein sensing action and change of an electrical signal lays the groundwork for building the proposed new generation of biosensors. A unified impedance network protein analogous model is applied to most known transmembrane proteins belonging to the family of G protein-coupled receptors. An appendix details the computation procedure for investigating charge transport properties and associated fluctuations in a given protein. Distributed by CRC Press.

TK7871   9781498714532
Substrate Integrated Antennas and Arrays
Yu Jian Cheng
CRC Press, ©2016   250 p. $149.95
Author Yu Jian Cheng presents students, academics, researchers, and professionals working in a wide variety of contexts with a comprehensive guide to contemporary research in substrate integrated circuits and substrate integrated waveguide technologies. The author has organized the main body of the text in seven chapters devoted to substrate integrated circuits, substrate integrated feeding networks, substrate integrated slot array antennas, and a wide variety of other related subjects. The author is a faculty member of the University of Science and Technology of China.

TK7872   9781119009542
Pulse-Width Modulated DC-DC Power Converters, 2nd Edition
Marian K. Kazimierczuk
Wiley, ©2016   930 p. $155.00
This volume addresses switching-mode DC-DC power converters with pulse-width modulation control, presenting foundations for semiconductor power devices, topologies of pulse-width modulation switching-mode DC-DC power converters, and modeling, dynamics, and controls of these converters, focusing on energy conversion. It covers topologies of transformerless and isolated pulse-width modulation converters, such as buck, boost, and buck-boost, flyback, forward, half-bridge, and full-bridge converters; small-signal circuit models of pulse-width modulation converters, transfer functions of converter power stages, voltage-mode control, and current-mode control; and silicon and silicon carbide power devices. Familiarity with general circuit analysis

techniques and electronic circuits is assumed. This edition has been revised and expanded to incorporate new challenges and advances in the field and adds new chapters on advances in power conversion, namely the small-signal model and dynamic characteristics of the buck converter in continuous conduction mode, voltage-mode control of buck converter, the small-signal model and characteristics of the boost converter in the discontinuous conduction mode, and electromagnetic compatibility. It also has revised solutions for end-of-chapter problems and revised figures based on real data.

TK7874   9789814463386
Handbook of Single-Molecule Electronics
Edited by Kasper Moth-Poulsen
Pan Stanford Publishing, ©2016 433 p. $179.95
Physicists and electronic engineers introduce others to single-molecule electronics, which is advancing in the theoretical stage but has yet to attain practical results. Their topic include the basic theory of electron transport through molecular contacts, controlling the molecule-electrode contact in single-molecule devices, switching mechanisms in molecular switches, parallel self-assembly strategies toward multiple single-molecule electronic devices, and towards circuit design in single-molecule electronics. Distributed in the US by CRC Press.

TK7874   9781482229646
VLSI Architectures for Modern Error-Correcting Codes
Xinmiao Zhang
CRC Press, ©2016   383 p. $149.95
Writing for system and hardware designers, Zhang reviews the available techniques and architectures for developing efficient very large scale integrated (VLSI) implementations of encoders and decoders for state-of-art error-correcting codes. Among his topics are VLSI architecture design fundamentals, Reed-Soloman encoders and hard-design and erasure decoder architectures, interpolation-based Chase and generalized minimum distance decoders, and binary and non-binary low-density parity-check codes and decoder architectures.

TK7882   9781498707619
Touchless Fingerprint Biometrics
Ruggero Donida Labati, Vincenzo Piuri, and Fabio Scotti (Series in Security, Privacy, and Trust)
CRC Press, ©2016   224 p. $149.95
Authors Labati, Piuri, and Scotti present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of the theory and application of touchless biometric systems. The authors have organized the main body of their text in seven chapters devoted to biometric systems, touchless and less-constrained biometrics, fingerprint biometrics, touchless fingerprint recognition, and a wide variety of other related subjects. Ruggero Donida Labati is a postdoctoral research assistant at Universitá degli Studi di Milano, Italy. Vincenzo Piouri and Fabio Scotti are faculty members of the same university.

TK8316   9781498710992
Optical Imaging Devices: New Technologies and Applications
Edited by Ajit Khosla and Dongsoo Kim (Devices, Circuits, and Systems)
CRC Press, ©2016   238 p. $149.95
In this book for students and practitioners, international contributors from research and industry overview physical principles, design, operation, and applications of optical imaging and sensing systems. Examples are given from biomedicine and other areas. Some specific subjects explored include thin-film sensors integrated in information displays, a high-speed fluorescence imaging system for freely moving animals, ToF cameras for eye-in-hand robotics, and laser Doppler velocimetry technology for integration and directional discrimination. The book includes color and b&w photos and images.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL220   9781118752524
Electric Vehicle Machines and Drives: Design, Analysis and Application
K.T. Chau
IEEE/Wiley, ©2015   400 p. $140.00
Author K.T. Chau presents students, academics, researchers, and professionals working in a wide variety of contexts with an examination of contemporary research and development in electric vehicles and drives for electric and hybrid propulsion. The author has organized the main body of the text in thirteen chapters devoted to DC motor drives, induction motor drives, permanent magnet brushless motor drives, switched reluctance motor drives, and a wide variety of other related subjects. The author is a faculty member of the University of Hong Kong, China.

TL220   9781118414781
Fundamentals and Application of Lithium-Ion Batteries in Electric Drive Vehicles

Jiuchun Jiang and Caiping Zhang
Wiley, ©2015   280 p. $140.00
Focusing on systematically explaining in detail the theoretical connotation and practical application of lithium-ion battery management systems, Jiang and Zhang discuss key technologies and research methods for lithium-ion power battery management systems, and the difficulties encountered in electric vehicles. Seven chapters are: introduction; performance modeling of lithium-ion batteries; battery state estimation; the prediction of battery pack peak power; charging control technologies for lithium-ion batteries; evaluation and equalization of battery consistency; technologies for the design and application of the battery management system.

TL589   9781466686731
Mission Adaptive Display Technologies and Operational Decision Making in Aviation
Kevin M. Smith and Stéphane Larrieu
Engineering Science Reference, ©2015   355 p. $205.00
Authors Smith and Larrieu present students, academics, researchers, and aviation professionals working in a wide variety of contexts with an examination of avionics and the use of adaptive and assistive technologies in aviation. The authors have organized the fifteen chapters that make up the main body of their text in six parts devoted to the air transport mission, conceptual models, challenges and opportunities, solutions and recommendations, their conclusions and recommendations, and additional material covering a wide variety of other related subjects. Kevin M. Smith is an aviator, author, speaker, and retired U.S. Navy captain. Stéphane Larrieu is an aerospace consultant.

TL692   9781498705042
Aeronautical Telecommunications Network: Advances, Challenges, and Modeling
Edited by Sarhan M. Musa and Zhijun Wu
CRC Press, ©2016   274 p. $159.95
Editors Musa and Wu present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic papers and scholarly articles focused on advances and challenges in the modeling of aeronautical telecommunications networks, worldwide. The ten contributions that make up the main body of the text are devoted to an overview of the aeronautical telecommunications network, modern air traffic control systems, GNSS multipath interference and mitigation for UAVs in urban canyon environments, and a wide variety of other related subjects.

MILITARY & NAVAL SCIENCE

U800   9781482238297
Armour: Materials, Theory, and Design
Paul J. Hazell
CRC Press, ©2016   379 p. $139.95
This volume describes the materials, theory, and design of modern armor systems in vehicles, ships, personnel, and fortifications. It explains the science and technology used to provide protection against blasts and ballistic attacks: the theory of material behavior and typical threats; materials technologies used in protection, including metallic armor, ceramic armor, woven fabrics and composite laminates, and reactive armor systems; effects on the body; and blast and ballistic testing techniques.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z675   9780838913673
Becoming an Embedded Librarian: Making Connections in the Classroom
Michelle Reale
ala editions, ©2016   104 p. $54.00 (pa)
Author Michelle Reale presents students, academics, and library professionals working in a wide variety of contexts, with an examination of embedded librarianship, its contemporary practice, and its challenges. The author has organized the main body of her text in twelve chapters devoted to the definition of embedded librarianship, the importance of relationship building, clarifying ones role in the embedded classroom, establishing a teaching style in the classroom, and a wide variety of other related subjects. The author is a faculty member of Arcadia University, Pennsylvania.

Z675   9781466695429
Special Library Administration, Standardization and Technological Integration
Edited by Joseph M. Yap, Martin Julius V. Perez, Maria Cecilia I. Ayson, and Gladys Joy E. Entico
(Advances in Library and Information Science)
Information Science Reference, ©2016   373 p. $185.00
The 14 chapters in this collection report on trends, standards, and technological advancements in special libraries and information centers around the world. Librarians and others from the Middle East, Asia, the US, and France address standards and competencies, including technological competencies and skills for children's and

youth librarians; knowledge management and partnerships, including the knowledge management programs of medical health libraries and electronic resource sharing in special library consortia; the management of law libraries, with discussion of e-government services and management in consortia; social media tools, uses in special collections, and the social media literacy of agricultural librarians; cloud-based library system platforms, services management systems, innovative products, and open environments; and special topics: local studies centers, cartographic collections, preservation management, and news agency libraries.

Z688 9781611328561
Curating Oral Histories: From Interview to Archive, 2nd Edition
Nancy MacKay (Practicing Oral History Series; Volume 2)

Left Coast Press, Inc., ©2016 225 p. $32.95 (pa)
The first edition of this book was published in 2007; this second edition is completely rewritten to reflect the trend toward the democratization of oral history, as well as technological changes impacting the field, such as the growth of online archives. The book offers guidelines on the entire cycle of oral history research, from planning through collecting and curating oral histories, archives management, ethical considerations, legal issues, and technological systems for recording, saving, and cataloging oral histories. Issues of use and access are also highlighted. The book includes a glossary, along with about 15 pages of sample forms, questionnaires, logs, release agreements, and permissions. The book's audience includes librarians, curators, and managers of oral history projects, in addition to teachers, activists, and artists.

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