Summer 2002

SciTech News Volume 70, No. 3 (2016)

SciTech News

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

Volume 70, Number 3 (2016)
ISSN 0036-8059

SciTech News

On the Cover

The Skylight

A skylight is not just a view to the world above you, but a window to the world beneath. In this photo, taken in early June on the Puʻu ʻŌʻō crater at Kīlauea, the standalone skylight is amazing. The skylight is about 6m (20 ft) across and the lava stream is traveling toward the upper right side of the photo.

You can see more photos at on.doi.gov/KilaueaPhotos.

Photo and Caption Credit: USGS. Image Public Domain at https://flic.kr/p/JuvsfJ

Columns and Reports

Copy Deadline

SciTech News

Department Editors

From the Editor — Christine Malinowski

Welcome to the post-conference issue of *SciTech News!*

After what I heard of the last conference (I was unable to attend last year due to other commitments), I went to Philly not sure of what to expect. Had we turned a corner as an organization? Would we get clarity on issues of concern?

The conference this year held an air of cautious optimism. We are, in short, the same community of caring, thoughtful professionals in a field that is evolving in new, exciting, and sometimes uncomfortable, ways.

I'll let our Division columnists provide insights into specific sessions; they've done a great job of rounding up the highlights. I hope we can keep the conversations going well into the year – whether that's via *SciTech News*, our new SLA Connect forum or other opportunities.

Thank you to all our contributors this issue for your thorough reflections on the conference. It's impossible to attend all the sessions of personal interest (though we run ourselves ragged trying), and sometimes we aren't able to make the conference at all. Your reports are invaluable to us, your colleagues! Thank you!

Ways to contribute to *SciTech News*:

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

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

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

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

News from the Science-Technology Division

Science-Technology Division   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.'

Welcome back! As is traditional, my third column will be a run-down of this year's conference. Our sessions went pretty smoothly overall, thanks to the efforts of our moderators and the insight of our speakers. Where we had problems, they were mostly my fault, but we learned useful lessons to do better next time. We haven't gone through all of the feedback forms yet, so we'll get into that in my next column. I'd like to give summaries of the sessions for those who couldn't make it, but I was busy helping run them and couldn't take many notes. For now, I hope to give you some behind-the-scenes insight where I can.

Data Curation and Management - James Manasco couldn't make it this year, but Mary Frances Lembo did a great job on her own. Making it interactive by having teams of audience members come up with data plans for Stark Industries was a really smart and fun idea that got us seriously thinking about the issues involved in creating a data management plan. It was also my first chance to give A/V support, and I'm happy it went well.

Newcomers Breakfast - Combined with Engineering, we got a good turnout considering, and I did enjoy meeting everyone who was there, but there were too many other vendor-funded breakfast options on Monday morning. A pre-opening Sunday breakfast would be a good idea for future years.

Mastering Grey literature - Huge turnout and really interesting talks. Very few walk-outs despite being standing room only. It was all Beth's idea and organization, so she deserves all the credit. Sheila was going to moderate, but took a spill and couldn't make it (she was treated immediately and is recovering quickly), so I ended up moderating as well as doing A/V support. That only

went well because nothing went wrong. Due to the clear strong interest and broad appeal of this topic, I think we'll be revisiting it next year to do more.

All Sciences and Engineering Poster Session - Last year surprised us with attendance numbers twice our usual, so I was concerned that we might revert this year, but we were able to match it. Since the posters have always been great, that wasn't what brought people in; it seems the key was location and timing. And catering, too. This year we ordered enough food.

If you weren't able to attend, you can check out most of the posters on the Sci-Tech website.

The innovation this year was doing the awards during the event, and that didn't go so well, as it was hard to hold everyone's' attention. It does seem a good idea in theory, though, and we've got some clever ideas for doing better next time.

Find Your Niche - This session got off to a late start because they were missing the laptop and projector I was supposed to bring. Alarm troubles. But Brad Gulliford, our moderator, and the panelists managed to scrounge up a laptop and get a conference center projector from a passing A/V tech and organize it themselves. Kudos and apologies. Honestly, the size of the panel got a bit out of hand, but everyone had interesting perspectives to offer.

Preparing Students for Corporate Research Life - Not the best turnout, but we had an early morning timeslot, and the topic is a bit niche as it's only of practical interest to academic instruction-focused librarians.

I'm one, and I appreciated the direct practical advice from the panelists. Those who were there stayed and more filtered in over time, though. By the end, there was a decent crowd, and they stuck around to ask more questions and talk to the panelists, so I think it worked out well.

I also have a bit of news from the big officers council meetings. Both the Division Cabinet and the Joint Cabinet Meeting were surprisingly quick and uncontentious. There was no mention from headquarters of SLA's plans to merge divisions and take over conference planning that caused such uproar last year. It looks like they're quietly setting those aside, at least for now. That leaves them with the financial and organization issues, those plans were intended to resolve, so I'm keeping a close eye on developments.

As you probably noticed, the plan to close down the mailing lists was not set aside. The list has been replaced with a message board at SLA Connect. We've opened it up to all SLA members, so do please join us and help make it a vibrant community for discussion.

William Jacobs
Science and Engineering Librarian
University of Miami
billjac@miami.edu
305 284-4059

Science-Technology Division New Members

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

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

Colleen Cook
Ridgecrest, CA
USA

Dr. Francesco Gerali
Norman, OK
USA

Sarah Hammond
York
United Kingdom

Deepa Singhal
Delhi
India

Brock Temanson
Aldie, VA
USA

Tom Volkening
East Lansing, MI
USA

Allaina Wallace
Arvada, CO
USA

News from the Chemistry Division

Chemistry Division   Lutishoor Salisbury, Chair

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

My column this quarter will highlight activities from the 2016 annual conference. It was a pleasure to meet, greet and interact with so many colleagues and vendors at the annual conference in Philadelphia. I learned a great deal from many of you and by visiting the exhibits and talking to the vendors.

The Chemistry Division hosted 12 programs (http://chemistry.sla.org/2016/2016-sla-annual-conference-chemistry-division-schedule-of-events-updated/), all of which were well attended. Our programs this year were supported by the American Chemical Society Publications, Chemical Abstract Service, Elsevier, Royal Society of Chemistry, Thieme Publishers, Thomson Reuters, We Buy Books and Documents Delivered. Thank you!!

Chemistry Division 50th Anniversary Celebration
[Summary by Luray Minkiewicz]

The Chemistry Division celebrated its 50th Anniversary during the SLA Conference in Philadelphia with a reception in the Othmer Library at the Chemical Heritage Foundation on Saturday, June 11. Guests were treated to a fabulous venue, wonderful food, good libations and great conversations, plus a keepsake pen, sticker and some anniversary-themed M&Ms (TM). Several rare chemistry-related books from the Othmer Library collection were on display. Luti Salisbury thanked Elsa Atson, Director of the Othmer Library and our event host, our sponsors for the event (We Buy Books, Thieme, and Documents Delivered) and the planning com-

mittee (Luray Minkiwicz, Ted Baldwin, Dawn French and Mindy Peters). She then cut the anniversary cake. Many past Chairs of the Division were present and posed for a "photo op". Amy Burke, newly named SLA Executive Director, was a special guest.
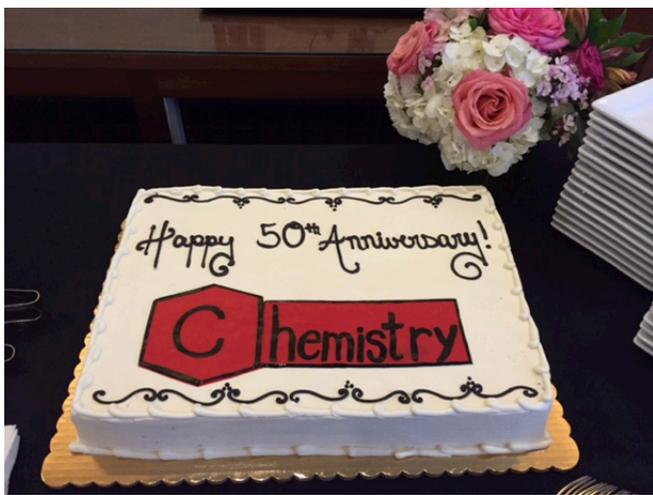
Back in 1966 the Chemistry Division officially formed from the Chemistry Section of the Science-Technology Division of SLA, having been a Section since 1933. Other noteworthy events in the Division's timeline are:

- 1971 - Inaugural issue of the Chemistry Division Newsletter
- 1980s - First Tri-Society Symposium
- 1990s - Formation of the Chemical Information Discussion List
- 2000s - First CE Courses developed and presented at SLA Annual Conferences

Some attendees at the celebration with Amy Burke, SLA Executive Director

- 2002 - Formation of the Marion Sparks Award for student stipends
- 2005 - Materials & Manufacturing Division becomes the MRM Section of DCHE
- 2011 - First Wiggins-Roth Award presented to Grace Baysinger
- 2016 - Judith Currano, a Chemistry Division member, receives the Rose L. Vormelker Award from SLA

Past and Current Chairs of the Chemistry Division at the reception

Professional Development Courses
[Summary by Ted Baldwin]

We saw another successful year for professional development at the annual conference. The Division sponsored two courses, presented to an enthusiastic group of learners. Six attended the "Chemistry for the Non-Chemist Librarian" all-day course on Friday. Thanks to Judith Currano and Sue Cardinal for being our instructors, and for skillfully guiding these students through the basics of

chemistry. A special thanks to Judith and the University of Pennsylvania Libraries for hosting the class on their beautiful campus. On Saturday, thirteen people attended the half-day "Chemical Information Sources" course at the convention center. Thank you to Judith Currano and Dawn French for being our instructors, and for providing their expertise on research resources, techniques, and tips.

Sue Cardinal (standing) and Judith Currano teaching "Chemistry for the Non-Chemist Librarian"

The Academic and Corporate Roundtable was held on June 13, 2016 from 8:30 a.m. – 9:00 a.m. Denise Callihan, PPG Industries and A. Ben Wagner, University at Buffalo planned and co-facilitated the session.

[Summary by Ben Wagner]

Twenty-two people attended the roundtable. Attendees chose one of three roundtables with each one discussing one of the following topics. Each topic was introduced by a 5-minute lightning talk that outlined significant issues and recent trends.

Topic 1: e-Collections/e-Resources/Data Management (Denise Callihan, lightning talk)

The discussion was wide ranging with a mix of issues that have been with us for some time and others that are new opportunities. In the first category, we are continuing a shift to electronic resources

while struggling with budgets that cannot possibly keep pace. E-books and patron driven demand become more common, while the problems of having a browsable shelf list that includes electronic books, dealing with multiple platforms and varying digital rights, and promoting use of e-books remain. More familiarity with data management tools and a clear direction for our precise roles in that area are needed. Electronic lab notebooks options are increasing, though the expense and difficulty of roll out in the academic community impede progress.

Topic 2: Outreach & Patron Services (Ben Wagner, lightning talk)

Much of the discussion revolved around new roles for libraries as reference work, at least in a traditional sense, continues to decline. Some concern and opportunities were noted in the shift towards functional staffing, e.g., digital, scholarly communications, copyright, and information literacy librarians. These can be new positions or a shifting of subject specialists into a hybrid model which includes functional area assignments. The open question is whether this will dilute or enhance the perceived and actual value of subject specialists. It is not always easy to determine which new roles our organizations will allow us to move into and which will benefit the libraries the most.

One key theme that continues is the importance of getting out to where our patrons are and to become embedded in key initiatives within the groups we serve. Finally, patron driven acquisitions continues to make great inroads into our traditional collection building activities. On the minus side, we are losing touch with what resources are in our collections. On the plus side, this frees us up to take on some of the new roles being advanced as the future of our libraries.

Topic 3: Space (Judith Currano, University of Pennsylvania, lightning talk)

Judith shared her experience in remodeling the UPenn Chemistry Library to create a flexible, inviting space. Judith brought pictures that she shared with us that included the Computer Resource and Teaching Room. The importance of movable furniture was stressed. Students want both quiet and group study space. As collections move off-site and are weeded as more material is digitized, repurposing space has become a major issue. Creative use of technology such as maker space, "play" space, and high-end visualization laboratories are central to integrating the library into the study/research goals of the institution.

Chemistry Division Business Meeting and Vendor Update Session, June 14, 2016, 7:30 a.m. – 9:00 a.m.
[Summary by Linda Galloway]

One of my consistently favorite and practical conference sessions is the DCHE Vendor Roundtable. We heard about product updates and enhancements from our vendor partners – and they heard from our very astute and opinionated chemistry librarians. It is a true exchange of ideas and information from different perspectives and one of the things I like best about SLA. This year, we heard from American Chemical Society Publications (Michael Qiu), Chemical Abstract Services (Edwin Robinson), Elsevier (Steve Dueball), The Royal Society of Chemistry (Peter Hranjec), Thieme Publishing (Adam Bernacki) and Thomson-Reuters (Jeff Clovis).

CAS: The Solutions behind the Science
(Summary by Edwin Robinson)

At CAS, scientists, technologists and business leaders organize, analyze and connect information that enables researchers to achieve their next scientific discovery and facilitates global innovation.

With worldwide coverage of thousands of scientific journals, 63 patent authorities

and more, CAS offers the most comprehensive, timely information on a wide range of scientific disciplines, including biomedical sciences, chemistry, engineering, materials science and agricultural science, among many others.

Providing the best content is important, but it is only valuable if it can be accessed by those who need it. CAS offers powerful, yet intuitive, search and analysis solutions that make it fast and easy to find relevant information.

Information needs differ from one industry to the next, so CAS solutions are designed with specific applications in mind. SciFinder was developed to integrate into scientific research and discovery workflows. STN, operated in association with FIZ Karlsruhe in Germany, is trusted and relied upon by patent offices and IP professionals worldwide. NCI Global is an online regulatory solution for organizations that manufacture, import, export and / or transport chemicals.

Over the past 18 months, CAS has introduced three new solutions that facilitate scientific research and business endeavors: ChemZent™, MethodsNowTM and PatentPakTM.

ChemZent gives you a view into the early history of chemistry. Chemisches Zentralblatt is the oldest journal of chemistry abstracts, covering literature from 1830-1969. ChemZent is the first and only indexed, searchable, English-language version of all Chemisches Zentralblatt records, so you can explore, discover and isolate historical chemistry information. CAS indexing makes it easier to find relevant publications and pinpoint the location of an abstract within the original German PDF.

MethodsNow is your single source for the largest collection of scientific methods. Search millions of disclosed procedures in areas like pharmacology, bioassays, and food analysis. Find step-by-step instructions and method details, including ma-terials, instrumentation (HPLC, GC/MS, spectrophotometry), conditions and much more. Display experimental details in an easy-to-read table format. You can even compare up to three methods side-by-side.

PatentPak is an award-winning patent workflow solution that offers direct access to hard-to-find chemistry in languages users know. Users can radically reduce the time spent locating the important chemistry in a patent. Searchable, secure, full-text patent documents are available from major patent offices around the world.

As a division of the American Chemical Society, CAS supports the society's vision, striving to improve people's lives through the transforming power of chemistry. To learn more about CAS solutions, please visit the CAS website or contact us at 800-753-4227 (North America) or 614-447-3700 (Worldwide).

Master Classes: This year the Chemistry Division arranged two of these sessions. Both of them were well attended.

(1) Best Practices in Data Management and User Engagement, June 12, 3:30 p.m. – 5:00 p.m.
[Summary by Linda Galloway]

Presenters Rita Vine, Scott Brown and Jan Johansson focused on an evolving area of librarianship – data services – and how to engage users with these services. Rita spoke about the changing roles of the library and how librarians are meeting researcher's data-intensive obligations and interests. She spoke about how to help individual librarians navigate from subject liaison roles to more functional specialties. Scott highlighted how to successfully use social media to drive visibility for information services. He spoke about socializing data in an organization and confirmed the importance mobile distribution channels because executives receive most of their information via mobile devices. Jan discussed the latest trends and best practices in maintaining a vibrant and effective data curation and management pro-

gram. He addressed finding data that is not easily or readily available and the value this brings to an organization. These speakers, directly or indirectly, all acknowledged the role of change in responsibilities, services or circumstances.

(2) Librarian's Role in Research Assessment and Highlighting Value, June 14, 11:00 a.m. – 12 noon. Presenters: Dr. Danny Kingsley, Elizabeth Ten Have and Christopher Belter
[Summary by Luti Salisbury]

Dr. Danny Kingsley elaborated on how her research office and the University Library are collaborating to integrate different systems within the University of Cambridge system to address compliance requirements with the aim of achieving the goal of 'submit once, use many times'. She presented examples to demonstrate how the Library is forging new relationships – and successful engagement with the academic community.

Ms. Ten Have described 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 highlighted the use and impact of both free (e.g. ORCID, SciENcv) and proprietary tools (e.g. LibGuides, InCites) through a collaboration of the liaison librarians.

Through a series of case studies, Mr. Belter highlighted and assessed 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.

Quick Take Sessions

(1) Using Metrics to help Faculty and Researchers Showcase their Value, June 12, 1:00 p.m. – 1:20 p.m.
Presenter: Lutishoor Salisbury

Ms. Salisbury presented an overview of the various metric measurements (traditional and altmetrics) and discussed how they complement one another to tell a story. She provided several areas where librarians can help their faculty and department chairs to showcase their value. She presented a range of databases in science and technology that provide cited reference data that may be useful. She emphasized that the data presented in each database is constrained by the scope of the material indexed. So it is important to recognize this and use multiple sources to gather the whole picture. She presented a case study using the Web of Science of how to study an author's publication and their citation patterns. She demonstrated a case where one can also use the author's cited references to enhance the story by identifying which journals are citing them and from which institutional affiliation. She emphasized that disambiguation tools such as Researcher ID and ORCID can greatly help in such an undertaking and that librarians should be encouraging their faculty and researchers to create these.

(2) Prepare for Your Future! Learn How to Leverage Networks to Advance Your Career, June 12, 1:30pm-1:50pm.
Presenter: Linda Galloway

In her presentation Ms. Galloway stressed the importance of using business and academic social networking tools to manage your online identity. Tools allowing users to combine communication and dissemination of scholarship were discussed, as well as best practices when using these resources. The presentation also included series of recommendations for participants who wish to enhance their online profiles.

(3) Value-Added Service: Becoming a Strategic Partner, June 14, 10:00 a.m. – 10:20 a.m.
Presenter: Susan Makar

In this session, Ms. Makar spoke about how the NIST Information Services Office's Lab Liaison Program began as a targeted library outreach program in 1997, and evolved into today's program of collaboration between li-

brarians and researchers working together as "Strategic Research Partners" to help increase NIST's reach and impact. Ms. Makar described how today's "Lab Librarians" help increase the visibility of NIST research results and publications, assess the impact of NIST's research and help determine new directions, and add value to traditional library products such as literature reviews.

Submitted by Lutishoor Salisbury
Chair, Chemistry Division
July 25, 2016

DCHE Welcomes New Members

Submitted by Kevin Manning, DCHE Membership Chair 2016
(Joining dates between May 2016 - August 2016)

Erin Rivero
LA County Office of Education
USA

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:

Ron Hudson
London
United Kingdom

Dana Moore
Stamford, CT
USA

Conference Impressions
by Allison A. Langham (SPARKS award winner)

As a current graduate student in Library and Information Studies at the University of Wisconsin, I was delighted to receive the Marion E. Sparks Award to attend the SLA Annual Conference in Philadelphia this June. The Chemistry Division, along with some of the other science divisions, put on a great program, and I attended some very interesting talks.

The first DCHE event of the conference was a "Quick Take" by Luti Salisbury about using metrics to help researchers showcase their value. Though it was a little difficult to hear with the noise of the Expo going on just steps away, it was interesting to hear about different types of metrics and learn of the Leiden Manifesto, which seems like a promising way to get beyond the typical (and problematic) journal citation metric.

Sunday afternoon was time for sessions on data management: one session on data management plans and "Best Practices in Data Management and User Engagement." Although Twitter made it seem that everyone at #SLA2016 was in a different session, I was really glad I went to this one. It was a set of three presentations about liaison librarian roles, how to get new data by making new relationships, and adding value to data. The changing role of liaison librarians is one that I have heard about before, and did a small class project on in the fall. When I started my program, I had the idea of being a liaison librarian. I feel like I am coming into the field during a time of evolution, and I am really excited about where the profession is heading.

Monday had no DCHE-sponsored events until the evening poster session. I caught up on sources of grey literature in the morning, at both the Quick Take on Googling for Facts and in the session on Mastering Grey Literature. In both sessions I learned about many different sources, so many of which I would have loved to have known about in my previous career, which often involved conducting "open source" research for clients that, for a variety of reasons, did not have their own data. For me, the highlight of the day was the Teaching Data Literacy session. This summer I am doing a practicum that involves helping a chemical engineering research group organize their data and the talks during this session gave me a lot to think about. I got to talk to the experts who presented and meet many like-minded people in the audience who care as much as I do about the ties between data literacy and proper data management. The evening poster session offered interesting research, friendly and engaging people, and delicious canapes!

Tuesday started with the DCHE breakfast business meeting and vendor roundtable. I continue to be very grateful to the awards committee for the Sparks award and it was nice to meet more division members at the breakfast. The mid-day DCHE session was the Librarian's Role in Research and Assessment and Highlighting Value, which covered a range of very interesting topics. The first speaker talked about requirements for making data accessible for research funded by the government. She was speaking about her experience in the United Kingdom, but it seems they are experiencing many of the same challenges we face in the US. The second speaker presented on new roles that liaison librarians are adopting at Drexel, which in many ways was an extension of what I heard on Sunday. The final speaker described NIH's bibliometric services, which they were able to use to track influence of funding they provide to researchers on clinical practice guidelines. In a sense, this was an extension of the first talk I attended, about using metrics beyond mere citation counts. My final stop of the conference was at the session on ethnographic research methods, which, having been trained as an engineer, I have little experience in. It was fascinating and a topic I will want to learn more about in the future. After this session, it was to the airport for

me, to get back to work (and finish the final project for my summer class).

In looking back at what I experienced over three short days, I am realizing how closely all of the sessions I attended are linked. The conference was large, so not everyone would have experienced it in the same ways as I did, but to me the themes of the confer-ence were the changing nature of librarians' roles in the research process and our role in data management and making data acces-sible, assessing the quality of research, and communicating the value of this. The expe-rience of attending SLA 2016 reassures me that I made the right decision in going back to school to become a librarian—I am excited to be a part of this community.

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.

I am happy to report that the conference sessions we led and co-sponsored this year were positively received by audience members, with an average attendance of approximately 55 individuals per session and three sessions attended by a 100 or more people.

Our levels of programming and travel funding would not have been possible without the generous support of our sponsors. Thank you to:

- IEEE Xplore Digital Library
- Elsevier
- ASME
- SAE International
- Association for Computing Machinery (ACM)
- American Institute of Aeronautics and Astronautics (AIAA)
- IHS
- SPIE Digital Library
- American Society of Civil Engineers (ASCE)
- ASTM International
- Morgan & Claypool Publishers

You will find below summaries and photos of selected sessions and events presented by the Engineering Division at the conference.

50 years of the Engineering Division!
Sat. June 11 | 7:00 PM - 9:00 PM
Presented by: Engineering Division
Session reporter: Giovanna Badia (McGill University)

Thank you to all attendees for helping to start off DENG's 50th anniversary celebrations. There was great company, a decadent dessert to finish off a tasty main dish, and a lively band.

A Bucketful of Engineers and Resources: Understand 10 Engineering Disciplines and Identify Their Top 10 Information Resources
Sun. June 12 | 11:45 AM - 1:15 PM
Presented by: Engineering Division
Session reporter: Barbara Williams (Massachusetts Institute of Technology)

Christina Byrne
@librarianchris

Follow

Full house at Bucketful of Engineers & Resources. Plus Cake! @SLA_Eng #SLA2016

This session delivered more than the presenters, Giovanna Badia (McGill University) and Daureen Nesdill (University of Utah), promised.

Instead of diving right into listing and annotating the top resources engineers use, Giovanna began her presentation by defining what engineering is and what engineers do. One trivia question posed to the audience was: Including subspecialties, how many branches of engineering exist? Do you know the answer to that question?

Giovanna went on to highlight the available majors within the various engineering disciplines and discussed which ones are on the rise. The audience participated in the session via a game called, Name that Engineering Discipline. One question posed to the audience was, what field of engineering would you be working in if you were creating a wearable crystal patch that changes color when hit by a shock wave? I found this portion of the session particularly informative.

The methodology for constructing the top 10 lists was not a rigorous exercise in sam-

pling nor was it intended to be. Rather the approach for ranking resources consisted of surveying information professionals by contacting authors of book chapters found in Using the Engineering Literature, and sending out a request for information on the DENG listserv. In total, a combined total of 36 people responded to the survey.

The top ten engineering resources highlighted were:

- Compendex & Inspec via Engineering Village
- Knovel
- IEEE Xplore Digital Library
- CRCnetBase
- IHS Standards Store
- Web of Science
- ASTM Standards & Digital Library
- Google Scholar
- NTIS.gov
- ScienceDirect

Other top resources featured, consisted of the following topics:

- Specialty resources used by engineers
- Finding journal articles
- Finding patents
- Finding background information on a subject (presented by Daureen)
- Finding standards (covered by Daureen)
- Finding government information for engineers (discussed by Daureen)
- Finding business information

The audience seemed genuinely engaged in this session, evidenced by the many participants who were using their telephones to snap pictures of the various top ten lists. This session provides a great overview of the important engineering resources available.

QUICK TAKE: Googling for Facts, Grey Literature, and Metrics in STEM
Mon. June 13 | 9:30 AM - 9:50 AM
Presented by: Engineering Division
Session reporter: Jeremy Cusker (Cornell University)

This session discussed means of solving daily problems for researchers, using under-pub-

licized tools of Google and other resources. Among the techniques shown included: how to use the basic Google search to hop directly to the calculator, shorthand transcriber, dictionary, or unit converter just by properly formatting a search string. Also described were the use of Google Alerts for getting regular updates on a topic. From there, the discussion moved to the use of grey literature (reports and documents authored and published by institutions, such as conference proceedings). Also mentioned were ASTM standards, technical reports and patent information sources (USPTO, European Patent Office, World IP). After that, Badia went on to discuss establishing a Google Scholar profile for yourself or someone else and using its metrics options to track citations. The presentation concluded with a discussion of Google Custom Search Engine (in particular, its use for a group of users like a class of students) and using the "cite" option in Google Scholar. Badia concluded by saying that Google can best be used as a complement to what is found elsewhere.

Standards Update
Mon. June 13 | 10:00 AM - 11:30 AM
Presented by: Engineering Division, Transportation Division
Session reporter: Sabina D. Tannenbaum (LTK Engineering Services)

CSA Group (formerly, Canadian Standards Association), Patti Ensor, Manager, Commercial Alliances

SLA Member Alice Desrocher replaces retired member Susan Morley at the organization.

CSA Group, founded in 1919, is a non-profit member-based organization with 1300 technical committees and is accredited in Canada and the USA. CSA has a new president & CEO, David Weinstein. The organization is working to improve its subscription platform. DRM has been removed from electronic documents. 20 new standards will be available in eBook and eBook Plus. CSA has improved on and increased the number of electronic stu-

Standards Update

dent tools to prepare for examinations. For example, if a student answers a question in a practice exam incorrectly, the service links to the pertinent clause in the standard in question. CSA Z809, Sustainable Forest Management, is celebrating 20 years with a new edition. A free, downloadable whistle-blowing guide has been made available. CSA supports northern infrastructure standards regarding climate change in the northern part of Canada.

Document Center, Inc. (DCI), Kyle Bach, General Manager

DCI is a standards aggregator, in business for over 30 years. It offers fast notification service on updates. DCI maintains a historical database to aid in understanding the history of individual standards but prices are not posted. The president of the company, Claudia Bach, is active in the standards community. She writes 2 blogs: (1) standardsforum.com and (2) blog.document-center.com, covering manufacturing, aerospace, medicine, and nanotechnology. DCI offers an online subscription service. The administrator of the subscription account can create and control teams to tailor who sees what and who can download or just read online. It is a cloud-based service.

I H S Global, Justin Geiger

I H S is now offering enhanced usage reporting, is adding content, including GM standards, technical documents, patents, and books of major tech publishers. The interface uses semantic search technology. It enables searching within documents, table-of-contents navigation, project-based collaboration, real-time reporting, and root cause analysis.

American National Standards Institute (ANSI), George Gulla, Vice President of Publications

The subscription product utilizes the ANSI Standards Connect platform and includes active and superseded American standards, ISO, IEC, and standards from other national bodies. As American national coordinator of standards & development, ANSI represents the U.S. in ISO. Read more about Standards Connect here: http://webstore.ansi.org/StandardsConnectET/?source=sl_landing_page. ANSI is providing a university outreach program. Read more about it here: http://standardslearn.org.

American Society of Mechanical Engineers (ASME), Michael Rovins, Director, Customer Sales and Service

ASME standards and other documents are available either directly through ASME or through aggregators. Deep discounting will be offered to academic institutions in the near future. ASME recognizes the different needs of the corporate world and academia. Self-study or assessment-based courses will soon be available, including as a subscription package at low cost covering all sorts of engineering topics, and one free course: ZABC19, ASME Standards & Certification. ASME sponsors a multimillion-dollar scholarship program for students and hosts conferences around the world.

American Society of Civil Engineers (ASCE), William Nara, Director, Publications Sales & Marketing

ASCE publishes standards on structural design, loads, seismic designs, flooding, environment, and water resources (water & agriculture). Standard ASCE 7, Minimum design loads for buildings and other structures, is well known and on a 6-year development cycle. A new version, 2016, is being prepared. The current edition is still 2010. Among the significant changes includes coverage of tsunami loads and effects. It is scheduled to be in print in November or December. ASCE is working to create an online XML platform for ASCE 7, with a completely different presentation from the eBook. It will include historical and red line versions. Annotating will be possible both at the corporate and personal levels. ASCE is introducing "Guides to the Use of …" series in a new platform in early January. It will be available on a subscription basis. Concurrent user licenses across single and multiple sites, and personal licenses, will be offered.

Institute of Electrical and Electronics Engineers (IEEE), Michael Spada, Director of Product Marketing

IEEE publishes standards, technical articles, and e-courses and makes them available via its proprietary IEEEXplore platform. The National Electrical Safety Code (NESC) is coming to IEEEXplore. Critical changes are being made since the last edition 5 years ago. The 2017 edition will be out in August 2016. Pre-orders are being accepted now. There will be a brand new NESC Handbook offered, as well as an e-learning series of courses. Free MOOC (Massive Open Online Courses) on the NESC will be offered in EdX and made linkable from Xplore. Archival – standards go back to 1929. Another IEEE product is InnovationQPlus, an IEEE + IP.com platform combined for patents.

American Society for Testing and Materials (ASTM), John Pace, Vice President, Publications & Marketing

ASTM Compass platform's new features have been finalized. They include notes, annotations, redlines, PDF front ends, and HTML back ends. The latest offering is redlines on demand, allowing the user to compare one version to any in the past. ASTM experienced some difficulties with integrating links using discovery services, and is working on improving the service. Spec-builder is a new ASTM tool. It facilitates the development of corporate standards. XML data will soon be compatible and interactive with other standards organizations' data, but will have true semantic capability. The system will assist you in automatically updating your documents when changes are made to an ASTM standard. Two years ago, ASTM announced videos of test methods, and now e-learning modules are available around those videos and in support of test methods. These products are useful, especially in laboratory environments.

Madcad, Erdem Dedebas, Vice President, Sales & Operations

Madcad is a Washington, D.C.-based company in its 21st year. Madcad helps a firm to optimize compliance by making the research process easy. U.S. codes and standards are available. Errata are automatically added. There are no downloads or PDFs in the database. The database offers digital, granular, XML-based content. The speaker described it as a holistic database, one immense library, with search tools, and highlighted it as a value-added feature. It includes paid and free content. Madcad can create a customized library with an enterprise-wide subscription. To optimize your subscription, purchase a high number of simultaneous seats for the more heavily used titles and fewer seats for the titles of less importance to your organization. The customer can always add seats to the subscription as needed. This year, deeper content classifications have been created. One can filter by publication type and jurisdiction. There are virtual

topic & location groups. Enterprise-wide accounts can be opened instantly. Madcad offers advanced pricing algorithms, invoicing, and reporting. Quantity, simultaneous users, and member discounts can be applied. Administrative analytics is available. Something new: a platform for servicing other organizations' Web distribution needs has been completed and offered as a service now. For example, one publisher will be offering its own docs on the Madcad platform!

SAE International (formerly, Society of Automotive Engineers), John Tintinalli, Product Management Executive

SAE has been writing standards for automobile safety since 1905. Orville Wright founded the aerospace standards group. SAE also offers standards on medical devices and equipment, oil & gas fuels, automotive vehicles, and connected vehicles. SAE is on the forefront of developing standards on these topics. Through ANSI, SAE regularly submits standards to ISO. SAE is now working on XML formatting, allowing redline and updating into other formats. It is developing 2-D and 3-D parts simulators, and can export such models to CAD programs and use 3-D printers. This service will soon be offered for ground vehicle standards, too. The new digital library program is called SAE Moebilus.

Techstreet, Todd Fagin, Vice President, General Manager

Techstreet Enterprise offers a user-friendly interface. 2016 is a milestone year for techstreet.com: its 20th year anniversary. Techstreet focuses on the standards landscape with tools. It is concerned with format delivery, including print, print + electronic, multiple single-user license PDF packages. Updates since last year: Techstreet has added AOAC, ASIS, BICSI, National Research Council Canada, and Metal Building Manufacturers Association standards. It is continuing to add multiple formats and redlines, and partnering with publishers to provide e-commerce service.

This partnering is why sites look familiar. The enterprise subscription model is newly offering releases incrementally, every couple of weeks. Administrative tools include improved usage reporting with graphical representation, improved power for analyzing data, improved administration to manage deposit accounts, and limitations to restrict authorization to add accounts by domain. It is working to improve full-text service; to implement a new single sign-on, which will be particularly useful in corporate environments; and to enable customers to upload their own documents into the Techstreet environment.

MASTER CLASS: Stop Press: Libraries' Role in the Future of Publishing
Mon. June 13 | 12:00 PM - 1:30 PM
Presented by: Engineering Division
Session reporter: Jeremy Cusker (Cornell University)

This session began with a discussion on the (dubiously legal) research source, SciHub, and that its user base seems essentially the same as the research community writ large, that even individuals with regular, subscription access to the journals it covers are using it as well! The remainder of the presentation included some points well known to many attendees about the internet being a source of first reference for many researchers and what possibilities exist for the library to better-publicize and make available the research products of their institutions online. There was some discussion of 'alternative forms' of publishing, including blogs and online newsletters. Also mentioned were techniques for improving the 'findability' of online content, including the use of tagging and DOIs.

Your Teaching Toolkit
Mon. June 13 | 4:00 PM - 5:00 PM
Presented by: Engineering Division, Education Division
Session reporter: Kim Beets (Black & Veatch)

This presentation was not a traditional lecture format, but a high-energy interactive session that produced many ideas from a

wide range of participants. This session was based on a popular approach in the United Kingdom called, "Teach Me," where learning is done in a casual atmosphere that consists of peers sharing ideas with each other without formal presentations. This is an idea that is similar to the popular unconference format that has had success at many library gatherings. The topic for our Teach Me session was to share what you teach, or what you need help with teaching, in your library. Many great ideas emerged:

In an intro to library resources class, what else can you use beyond a PowerPoint presentation?
- Scavenger hunt with library resources (include prizes)
- Stop talking and give them something to do
- In PowerPoint, insert link and make them click
- Teach with real world examples/cases

Embedding videos & interactive tools in course management (pilot project)
- Interact with librarian in discussion board sessions
- Flipped learning
- This idea can be used in corporate learning as well

Get up early/stay up late webinars
- Effective in a global corporate environment
- People still want the personal connection

What to do when people sign up for classes but do not come?
- Give a webinar option instead
- Offer food
- Get buy in from professors/instructors (academic setting)
- Try one-to-one teaching
- Form sessions around solving problems such as "How do I pass this test?"
- Teach in small chunks—20 minute power-er sessions
- Send reminder emails
- Learning where they need it—put presentations on YouTube

- Brand the webinar, i.e. "Expert Series"

Being both the corporate librarian and archivist
- Understanding company history makes employees more invested in the company
- In new employee orientation, tell them about the company's history and do hands-on demos with company artifacts if applicable

Peas & Cake
- Teach them resources that they need and ones they want
- Cake example in academic library: "Who is citing you" "How do you find a good graduate school"

Teaching Young Global Scholars (high school students)
- Teach how to do patent searching using a Cush ball (describe it and compare it to a patent)
- Teach concept of engineering, intellectual property law, and active learning
- Another example: teaching metadata through Legos

ORCID (Open Researcher and Contributor ID) http://orcid.org/
- Authors register
- Interact with researchers

Jupyter Notebook http://jupyter.org/
- Write documentation, write code & execute
- Great way to teach layers of data management
- Teach files/directories and file naming conventions

E-Learning Guild http://www.elearningguild.com/
- Mobile learning
- Focuses on training & development
- Good for learning skills as a trainer

Techniques for teaching
- Walk around & interact the entire time—no podium
- Do not ask them questions—they need

- to volunteer the answers
- Tell them up front that you cannot hear well—it makes them speak up

This was an excellent session and I believe that this is a good format that should be used in future conferences.

Integrating Information into the Engineering Design Process
Tue. June 14 | 7:30 AM - 9:30 AM
Presented by: Engineering Division - Architecture Building Engineering Construction & Design Section
Session reporter: Daureen Nesdill (University of Utah)

This early morning session following a late night of open houses, receptions and the IT dance party kept everyone awake because the presentation by Michael Fosmire from Purdue and Laura Robinson from Worcester Polytechnic Institute was a hands-on and interactive session. The presenters kept us busy designing a community playground while introducing us to a conceptual model for integrating information into the engineering design process. In short, students (or teams of students) generally select the solution to an assigned design problem without really discovering if any alternatives exist or examining the issues resulting from the solution selected. This model brings librarians into the project to teach about the resources available for the subject and for each step in the process. In addition, librarians can teach students how to evaluate the information and the resulting outcomes.

Integrating Information into the Engineering Design Process Session

This session was directed towards design engineering students, but while working through the design of the playground I realized that the model could be used in other subject areas. The presenters provided evidence of the model being successfully used in mechanical engineering and also electrical & computer engineering. I had taught information resources to a class of environmental engineers and now realize I could have introduced the professor to the model and asked him/her to allow me to work with each team on analyzing the information, determining what other options exist and evaluating outcomes. This model is certainly one to learn more about and integrate into classes. To learn more about the model, see the slides at http://sla16.mapyourshow.com/6_0/sessions/session-details.cfm?ScheduleID=98 or, even better, read the freely available book written by Michael Fosmire and David Radcliff (also from Purdue) at http://docs.lib.purdue.edu/purduepress_ebooks/31/.

The Link Found Elsewhere: Archival Information in Forensic Engineering and Historic Preservation
Tue. June 14 | 9:45 AM - 10:45 AM
Presented by: Engineering Division
Session reporter: Diane F. Brenes

This very informative session on the importance of archival information in the field of preservation engineering was well attended with over 35 attendees. Speaker Justin Spivey opened the session with definitions describing how "Forensic Engineering + Historic Preservation = Preservation Engineering".

Justin next outlined three categories of information sources that are crucial to the forensic or preservation engineer:
1. Building Specific: original contract documents, construction progress pho-

Photo: Justin Spivey and Becca Smith

tos, Makers Markings, "Exploratory openings", non-destructive testing, and maintenance records.

2. *Library and/or public record:* building codes, code-related documents, referenced standards, and, trade publications.

3. *Manufactures' product data:* catalogs, test reports.

Case studies of local historic preservation projects or forensic engineering investigations were presented that highlighted the ins and outs of tracking down these various information sources. Justin spoke of the challenges in obtaining information that can be key to the completion of the project. And offered recommendations including:

- *Collect product literature*, "Don't trust manufactures to do this!",
- *Support collective efforts* like the Build-

ing Technology Heritage Library,

- *Tag chronological relationships between manufactures* due to M&A, and
- *Combine data sets*.

The session concluded with audience questions ranging from how to locate original plans and blue prints to collaborating with Archeological firms.

I hope you found this conference report useful.

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

Engineering Division Awards Report

The Engineering Division Executive and Advisory Board was pleased to announce and present awards to winners during the **All Sciences and Engineering Poster Session and Awards Reception**, which was held on Monday, June 13th, 2016 in Philadelphia.

Engineering Librarian of the Year, sponsored by IHS

Hema Ramachandran has been an engineering librarian and faculty member at California State University-Long Beach (CSULB) since May 2007. She started her career (over 25 years ago) as a librarian in a civil engineering and construction company in England and has worked at NASA/STAC (University of Florida), University of New Hampshire, Northwestern University, San Jose State University, California Institute of Technology (Caltech) and Pasadena City College.

Ramachandran was chair of the SLA Aerospace Section in 2010 and won the SLA Leadership Diversity Award in 1996. She wrote the chapter on "Computer Engineering" in *Using the Engineering Literature* (edited by Bonnie Osif). The first edition of the book won the ASEE Best Reference Book Award in 2007. She co-authored a book entitled *Lifelong Learning for Engineers and Scientists in the Information Age* which won the ASEE's 2013 Best Publication Award. Ramachandran is the editor of Morgan and Claypool's "Emerging Trends in Librarianship" series and the editor for engineering titles in RCL: Career Resources.

IEEE Continuing Education Stipend

Niamh Tumelty leads a team of six information professionals within the Department of Engineering at the University of Cambridge. This role involves overseeing the development of research and teaching support services, spaces and collections, tailored to the needs of faculty, student and research engineers, as well as liaising with other departments to improve library and information services across the university. Niamh is Engineering Division Program Planner for the 2016 SLA Annual Conference and a member of the Annual Conference Advisory Council for the 2017 SLA Annual Conference, as well as being a member of the Sci-Tech Division Awards Committee. She is delighted to have received the IEEE Continuing Education Stipend.

SPIE Digital Library Student Travel Stipend

Kerry Dubyk is currently a Masters of Library and Information Science Student at Rutgers University. She graduated with her B.A. in Broadcast Journalism from Pennsylvania State University in 2010 and previously worked in the radio and marketing industry. She is a Library Assistant at Pennsylvania State University's Abington Library and a Library Instructor at Rutgers University. She was a Digital Asset Management intern at Longwood Gardens in the summer of 2015.

She is highly active on the executive board of several Rutgers student organizations as co-President of the archival studies club, the Student Organization for Unique and Rare Collections Everywhere (SOURCE), and the

Events Coordinator of the ALA Rutgers Student Chapter, LISSA. She is also a participant in the NJLA's Committee Internship Program. She was a recipient of the 2015 Freedom to Read Foundation's Judith F. Krug Memorial Fund for the Intellectual Freedom and Censorship Course by the University of Illinois.

She hopes to become a librarian to make a difference in the information science community, to preserve history, information, and the values of intellectual freedom for the future, and to educate the next generation in information literacy. She has a strong interest in special, digital, and academic libraries. Her hobbies include reading, writing, visiting museums and cultural institutions, and travel.

Bonnie Hilditch International Librarian of the Year, offered in partnership with SLA's Science-Technology Division

Shazia Arif is a Subject Liaison Librarian at Brunel University London, supporting the College of Engineering, Design and Physical Sciences (CEDPS). Ms. Arif has presented on numerous occasions and in many venues. She shared results from her dissertation for her MSc in Information Management at the Grampian Information Conference in Aberdeen in 2014, and presented a 40-minute paper on exploring the digital literacies of doctoral students at her institution at the Chartered Institute of Information Professionals (CILIP) Library and Information Literacy Conference (LILAC) in March 2016. She has also been actively serving on advisory boards for ACM and for Alexander Street Press.

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SciTech News

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, Sci-Tech readers and Aerospace members! For me, time is flying by faster every year. It seems like it was only a couple of weeks ago that I attended the Annual Conference in Philadelphia. With another jam-packed conference now behind us, I look forward to Phoenix in 2017. The Philadelphia conference not only met, but well-exceeded my expectations. In addition to the numerous educational and informative sessions, a wonderful chocolate-filled adventure culminated my SLA conference attendance—Hershey's Chocolate World. The trip to Hershey Park and its environs made me feel like a kid again. Oh, and the personalized chocolate candy bars we got to make were the best! Just recalling this trip is making me crave chocolate…

Many heartfelt thanks to the Philadelphia Chapter for their gracious hospitality. The Chapter certainly reminded attendees that Philadelphia is the city of brotherly AND sisterly love. As a past resident of the Philadelphia area, it was wonderful to see and tour the dynamic city center architecture. When I lived in Philly, City Hall with William Penn was the tallest edifice.

It was also my honor to present, during the All Sciences Poster Session and Reception, the Mandel Award to Sara Tompson, currently manager of the Jet Propulsion Laboratory Library. Sara is consummately active in many aspects of SLA, including the Sci-Tech and Engineering Divisions. She was a most deserving winner.

At this year's conference, rather than having a separate Aerospace session or breakfast, Aero, along with Solo, Pharmaceutical & Health, Military Libraries, Leadership & Management, and Insurance & Employee Benefits Divisions co-hosted "Crucial Conversations", a well-attended and highly interactive program. I thoroughly enjoyed all the sessions that invited active participation such as this one. Gaining a better understanding of how to communicate with others when having those less than amiable conversations was something I had definitely planned to do. Consequently, when I arrived back home, I decided to initiate a crucial conversation and the effect of that conversation not only resulted in the resolution of an issue, but the conversation itself was not as agonizing as I had imagined. Many thanks also go to IEEE for generously sponsoring this session. Without their support the costs for this session would have been much higher.

With so many thought-provoking and informative sessions held at the conference, it was challenging to decide what to go to since some of the sessions I wanted to attend met concurrently. One session I attended was the very enlightening, "Strengths-Based Development using the Clifton StrengthsFinder". This session was an exploration of our natural talents since they are the source of our true potential. Not only did the assessment that we completed prior to our attendance confirm my suspicions of what I thought about myself, but I discovered another talent of which I wasn't even cognizant. Attendees also learned how to use their strengths, work with others who have different strengths and learn how to complement each other's various talents.

The camaraderie, education and networking I share with members of SLA at the annual conferences inspire and encourage me. I hope these conferences do the same for you. Best to all of you!

– Gabriele

Sci-Tech Book News Reviews Susan Fingerman, Selector

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

GEOGRAPHY

G70 9781446274323
GIS Algorithms
Ningchuan Xiao (Advances in Geographic Information Science and Technology)
SAGE, ©2016 318 p. $153.00
Xiao offers this GIS algorithms text using real Python code to show the mechanistic workings of GIS packages. The introduction gives a broad view of the topic by illustrating the variety of algorithms needed to perform just one simple GUI function and touching on some of the computational issues to be addressed. The book is then divided into three sections. Part I discusses basic algorithms for handling geometric data: distances, comparison of points to polygons, transformation of coordinate systems, and overlays. Part II discusses spatial indexing, first developing the concept of tree structure, then delving specifically into k-D trees and quadtrees and discussing to how to index points, lines, and polygons. Part III focuses on GIS applications of spatial analysis and modeling. Topics reviewed include the interpolation techniques of inverse distance weighting and kriging, midpoint displacement, pattern analysis with indices such as Moran's I, network analysis and shortest paths, and spatial optimization by exact and heuristic methods. The appendices offer a primer on Python and other details of coding.

G70 9781482220155
Online GIS and Spatial Metadata, 2nd Edition
Terry Bossomaier and Brian A. Hope with Christoph Karon
CRC Press, ©2016 414 p. $119.95
This is not a book about geographical information systems (GIS), say Bossomaier and Hope, and refer readers to the many good introductions available. However, for programmers and others new to GIS, they provide a brief primer on the basics. Their main focus in on how online GIS works and how programmers can implement their own applications using it. Their topics include GIS and the Internet, server-side and client-side operations, introduction to markup, metadata on the Web, SDI metadata portals and online GIS, loca-

tion-based services, and future directions.

HYDROLOGY, OCEANOGRAPHY

GB599 9781138029682
Karst Without Boundaries
Edited by Zoran Stevanović, Neven Kresić, and Neno Kukurić (Selected Papers on Hydrogeology; 23)
CRC Press, ©2016 364 p. $169.95
The 23 papers in this collection were selected from presentations at a June 2014 conference in Trebinje, Bosnia & Herzegovina. They cover managing transboundary karst aquifers; characterizing and monitoring karst aquifers; the water flow in karst: from vadose to discharge zone; and the engineering, sustainable use, and protection of water in karst. Among topics are groundwater flow in the Orontes River basin and the Syria-Lebanon water sharing agreement, characterizing selected karst springs in Slovenia by means of a time series analysis, characterizing the karst system by modeling rainfall-discharge relationship in the Preghar and Dimeh springs of Iran's Zagros region, water balance analysis of a vadose stream to discern hillslope hydrology in a bare karst area of southwest China, and the reactivation of karst springs after regional mine dewatering in the Tata area of Hungary.

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 Model-

ing 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.

GE45   9781498706353
Environmental Systems Analysis With MAT-LAB
Stefano Marsili-Libelli
CRC Press, ©2016   540 p. $179.95
Marsili-Libelli presents readers with a guide to the exploration of the inner workings of various environmental processes using mathematical approaches. The book covers the identification of environmental models, the analysis of environmental time series, the fuzzy modeling of environmental systems, population dynamics modeling, flow reactor modeling, microbial kinetics modeling, the analysis of aquatic ecosystems, and a wide variety of other related subjects over eight chapters. The author is a faculty member of the University of Florence in Italy.

SCIENCE (GENERAL)

Q342   9781498743709
Computational Intelligence Paradigms for Optimization Problems Using MATLAB/SIMULINK
S. Sumathi, L. Ashok Kumar, and Surekha P.
CRC Press, ©2016   601 p. $219.95
Electronic engineers explain how to use computational intelligence techniques to solve complex real-world problems, particularly problems related to optimization. They cover unit commitment and the economic load dispatch problem, harmonic reduction in power systems, voltage frequency control in power systems, the job shop scheduling problem, multi-depot vehicle routing problem, and digital image watermarking. The material is for upper-level undergraduate, graduate, and research students interested in understanding and implementing computational intelligence algorithms for various applications using MATLAB/Simulink.

MATH, COMPUTERS

QA76   9781482249071
Handbook of Big Data
Edited by Peter Bülmann, Petros Drineas, Michael Kane, and Mark van der Laan (Chapman & Hall/

CRC Handbooks of Modern Statistical Methods)
CRC Press, ©2016   464 p. $139.95
Computer scientists and statisticians describe some modern approaches to analyzing and understanding the structure of datasets where their size outpaces the computing resources needed to analyze them using traditional approaches. They cover general perspectives on big data, data-centric exploratory methods, efficient algorithms, graph approaches, model fitting and regularization, ensemble methods, causal inference, and targeted learning. Among specific topics are the advent of data science: some considerations on the unreasonable effectiveness of data, high-dimensional computational geometry, learning structured distributions, tutorial for causal inference, and the online estimation of the average treatment effect.

QA76   9781466697676
Managing and Processing Big Data in Cloud Computing
Edited by Rajkumar Kannan, Raihan Ur Rasool, Hai Jin, and S.R. Balasundaram (Advances in Data Mining and Database Management (ADM-DM) Book Series)
Information Science Reference, ©2016   307 p.
$200.00
This volume contains 15 chapters on managing and processing big data in cloud computing. Computer scientists from Europe, Pakistan, India, and Ethiopia address text classification, social networks, Map Reduce, Hadoop, virtual packet streaming, wireless multi-hop networks, mobile cloud computing, big data virtualization, machine learning algorithms for big data computation, resource scheduling, techniques for big data analysis, green and energy-efficiency issues, and the heterogeneity paradigm in big data architectures.

QA76   9781498707473
Security Without Obscurity: A Guide to PKI Operations
J. J. Stapleton and W. Clay Epstein
CRC Press, ©2016   343 p. $69.95
Stapleton and Epstein present a new approach and practical guide to public key infrastructure (PKI) cryptography systems. Discussing best practices and bad practices, they illustrate them with anonymous case studies. As with most new technologies, they say, PKI has survived its period of inflated expectations and disappointment phase to gain widespread adoption. They cover cryptography basics; PKI building blocks; PKI management and security; PKI roles and responsibilities; security considerations; operational

considerations; incident management; PKI governance, risk, and compliance; and advanced PKI.

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.

QA76.758   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   9781614995777
Artificial Intelligence Research and Development; proceedings
International Conference of the Catalan Association for Artificial Intelligence (18th: 2015: Valencia, Spain) Edited by Eva Armengol, Dionís Boixader, and Francisco Grimaldo (Frontiers in Artificial Intelligence and Applications; Volume 277)
IOS Press, ©2015   294 p. $124.00 (pa)
The conference drew research findings from the Catalan speaking world, but make them available to the world by publishing the proceedings in English. The 24 full papers cover modeling, logics and semantics, decision support systems and data mining, classification, machine learning, and image analysis. Among the topics are free models for horn clauses over predicate fuzzy logics, a data mining methodology for event analysis in neurophysiological signals, using multi-agent systems to mediate in an assistive social network for the elder population, using kernal alignment for feature selection in schizophrenia diagnosis, and the domain adaptation problem in statistical machine translation systems. Eight posters and abstracts of three invited talks are also included.
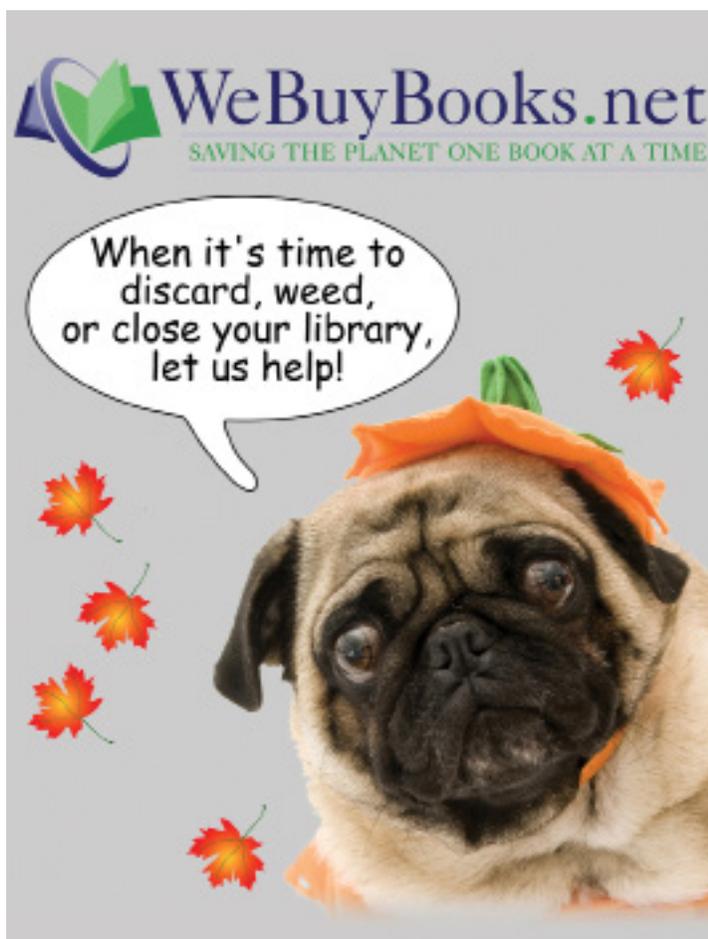
QA76.76   9781498726702
Embedded Software Development for Safety-Critical Systems
Chris Hobbs
CRC Press, ©2016   343 p. $69.95
Drawn from material originally written for a QNX Software System training course, this guide recommends tools and techniques for building em-

bedded software systems that will comply with IEC 61508, ISO 26262, EN 50128, and IEC 62304. Separate chapters discuss patterns used during the architecture and design of a product, tools for ensuring the validity of the design, coding guidelines and metrics for implementation, and integration testing. The code examples are written in C and most tools are open source.

QA76.9   9781118442265
System Engineering Analysis, Design, and Development: Concepts, Principles, and Practices, 2nd Edition
Charles S. Wasson (Wiley Series in Systems Engineering and Management)
Wiley, ©2016   846 p. $135.00
In this book, author Charles S. Wasson gives students and professionals working in the field a comprehensive guide to system engineering analysis, design, and development through concepts, principles, practices, and methodologies applicable to any type of human system. The book employs a contemporary multi-discipline systems engineering and development approach for ease of understanding, attempting to unify system use and acquisition with project, functional, and executive management across a wide variety of contexts and institutional settings. The author is a consultant with Wasson Strategies.

QA273   9781498701297
Extreme Value Modeling and Risk Analysis: Methods and Applications
Edited by Dipak K.Dey and Jun Yan
CRC Press, ©2016   520 p. $119.95
Statisticians and specialists from such domains as climatology, hydrology, finance, insurance, and sports review recent research into risk analysis related to extreme events. Their topics include univariate extreme value mixture modeling, the threshold modeling of non-stationary extremes, max-autoagressive and moving maxima models for extremes, Bayesian inference for extreme value modeling, estimating extreme conditional quantiles, an overview of nonparametric tests of extreme-value dependence and of some related statistical procedures, and the analysis of bivariate survival data based on copulas with log-generalized extreme value marginals.

QA321   9781611973778
Variational Methods for the Numerical Solution of Nonlinear Elliptic Problems
Roland Glowinski (CBMS-NSF Regional Conference Series in Applied Mathematics; 86)
SIAM, ©2015   462 p. $79.00 (pa)
After writing three books on applying variational

methods to problems from science and engineering, Glowinski recently became interested in the numerical solution of nonlinear elliptic problems, and so describes how to use variational methods to solve them as well. He covers some variational problems in Hilbert spaces, iterative methods in Hilbert spaces, operator-splitting and alternating directions methods, augmented Lagrangians and alternating direct methods of multipliers, the least-squares solution of linear and nonlinear problems, obstacle problems and Bingham flow with applications to control, nonlinear eigenvalue problems, Eikonal equations, and fully nonlinear elliptic equations.

QA374   9781498746151
The Fractional Laplacian
C. Pozrikidis
CRC Press, ©2016   278 p. $89.95
The fractional Laplacian, also called the Riesz fractional derivative, describes an unusual diffusion process due to random displacements executed by jumpers that are able to walk to neighboring or nearby sites, says Pozrikidis, but can also perform excursions to remote sites by way of Lévy flights. He introduces them in discussions on the fractional Laplacian in one dimension, numerical discretization in one dimension, further concepts in one dimension, periodic functions, the fractional Laplacian in three dimensions, and the fractional Laplacian in two dimensions.

QA377   9781470419233
Imaging, Multi-Scale, and High-Contrast Partial Differential Equations; proceedings
Seoul ICM 2014 Satellite Conference (2014: Seoul, South Korea) Edited by Habib Ammari, Yves Capdeboscq, Hyeonbae Kang, and Imbo Sim (Contemporary Mathematics; Volume 660)
American Mathematical Society, ©2016   148 p. $108.00 (pa)
In this book, Editors Habib Ammari, Yves Capdeboscq, Hyeonbae Kang, and Imbo Sim present readers with a the proceedings of a conference dedicated to imaging, multi-scale and high-contrast PDEs, held in August of 2014 in Daejeon, Korea. The contributions that make up the text are focused on wavelet methods for shape perception in electro-sensing, time-domain multiscale shape identification in electro-sensing, daylight imaging for virtual reflection seismology, direct scattering by a sound hard small body, and a wide variety of other related subjects.

QA377   9783110315486
Singular Solutions of Nonlinear Elliptic and Parabolic Equations

Alexander A. Kovalevsky, Igor I. Skrypnik, and Andrey E. Shishkov (De Gruyter Series in Nonlinear Analysis and Applications; Volume 24)
De Gruyter, ©2016   434 p. $252.00
Ukrainian mathematicians present the results of their investigations of some actual fields of the contemporary theory of nonlinear partial differential equations. They cover nonlinear elliptic equations with L1-data, the removability of singularities of the solutions of quasi-linear elliptic and parabolic equations of the second order, and boundary regimes with peaking for quasi-linear parabolic equations. Among their topics are nonlinear elliptic equations of the second order with L1-data, quasi-linear elliptic equations with coefficients from the Kato class, energy methods for investigating localized regimes with peaking for parabolic second-order equations, and non-localized regimes with singular peaking.

PHYSICS

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.

QC611   9789814669702
Wide Bandgap Semiconductor Spintronics
Vladimir Litvinov
Pan Stanford Publishing, ©2016   184 p. $149.95
Litvinov is largely concerned with the spintronic properties of III-V nitride semiconductors. As wide bandgap III-nitride nanostructures are relatively new materials, he pays special attention to comparing zinc-blend gallium-arsenic with wurtzite gallium-nitrogen-based structures where the Rashba spin-orbit interaction plays a crucial role in voltage-controlled spin engineering. He also considers topological insulators, a new class of materials that could deliver sizable Rashba spin splitting in the surface electron spectrum when implemented into a gated device structure. Distributed in the US by CRC Press.

QC793   9789814663700
Quark-Gluon Plasma 5
Edited by Xin-Nian Wang
World Scientific, ©2016   403 p. $154.00
Physicists share recent findings and current thinking about quark-gluon plasma. Among their topics are the thermodynamics of strong-interaction matter from lattice quantum chromodynamics, initial state and thermalization in the color glass condensate framework, introduction to hydrodynamics, jet structure in heavy ion collisions, parton energy loss and momentum broadening at nonlinear optimization in high-temperature quantum chromodynamic plasmas, jet quenching in high-energy heavy-ion collisions, and quarkonia in high-energy nuclear collisions.

CHEMISTRY

QD181   9781849738880
Fluorine: Chemistry, Analysis, Function and Effects

Edited by Victor R. Preedy (Food and Nutritional Components in Focus; Number 6)
Royal Society of Chemistry, ©2015   360 p.
$330.00
After reviewing the chemistry and biocheistry of fluorine, the collection describes laboratory methods for measuring fluorine concentration in milk, tea, water, blood, and bone, and reports the results of recent analyses. The nineteen papers review data on the intestinal absorption of fluoride, fluoride accumulation in crops and vegetables, teeth-saliva migration of fluoride ions, bone metabolism and remodeling, PET bone scans, fluoride-induced oxidative stress in hippocampal cells and the liver, and preventing fluoride toxicity with selenium.

QD878   9781849739337
Polytroxane and Slide-Ring Materials
Koichi Mayumi, Kohzo Ito, and Kazuaki Kato (Monographs in Supramolecular Chemistry; 15)
Royal Society of Chemistry, ©2016   206 p.
$180.00
The authors present a comprehensive examination of contemporary and emerging research into the theory and application of polyrotaxane and slide-ring materials. The book covers the applications of polyrotaxane and slide-ring materials, the synthesis of polyrotaxane and slide-ring materials, insulated molecular wires based on polyrotaxane structure, the solid-state properties of polyrotaxanes, and many other related subjects. Kohzo Ito, Kazuaki Kato, and Koichi Mayumi are all faculty members of The University of Tokyo, Japan. Distributed in the US by Ingram Publisher Services.

MICROBIOLOGY

QR201   9781910190210
Arboviruses: Molecular Biology, Evolution, and Control
Edited by Nikos Vasilakis and Duane J. Gubler
Caister Academic Press, ©2016   398 p. $319.00
(pa)
Specialists in viruses transmitted to humans and other animals by arthropod vectors discuss new approaches, concepts, and concerns about the molecular biology, viral diversity and evolution, diagnosis and control, and future trends. Their topics include host metabolism and its contribution in flavivirus biogenesis, vector-borne bunyavirus pathogenesis and innate immune evasion, the role of inter-host and intra-host genetics in arbovirus evolution, the role of vertical transmission in mosquito-borne arbovirus maintenance and evolution, genetically modified vectors for controlling arboviruses, and small molecule drug development for dengue virus. Distributed in the US by Book Systems Plus.

TECHNOLOGY (GENERAL)

T58   9781630810870
Information Fusion and Analytics for Big Data and IoT
Éloi Bossé and Basel Solaiman (Artech House Intelligence and Information Operations Series)
Artech House, ©2016   250 p. $179.00
In this book, authors Bossé and Solaiman present readers with a guide to the employment of fusion of information and analytics technology (FIAT) to address information overload and complexity in both military and civilian complex systems and networks caused by big data and the Internet of Things (IoT). The authors cover cyber physical and social systems, situation awareness and decision support, information and uncertainty, information characteristics and representations, and a wide variety of other related subjects. Éloi Bossé is a faculty member of the Ecole Nationale Supérieure des Télécommunications de Bretagne, France. Basel Solaiman is a retired researcher from Defence Research and Development Canada Valcartier.

T59   9781506322803
Reviews of Human Factors and Ergomics; Volume 10: Worker Fatigue and Transportation Safety
Edited by Stephen M. Popkin
Human Factors & Ergonomics Soc, ©2015
306 p. $114.00 (pa)
Specialists in safety and human factors look at the relationship between worker fatigue and safety in transportation. Their topics include the case for addressing operator fatigue, a method for applying fatigue science to accident investigation, countermeasures for mitigating fatigue in motor vehicle operators, design standards considerations and the effective prevention of operator fatigue, evolving regulatory approaches for managing fatigue risk in transport operations, and from transportation fatigue research to effective practice: the case for evaluation.

T174   9780323289900
Emerging Nanotechnologies for Manufacturing, 2nd Edition
Edited by Waqar Ahmed and Mark J. Jackson (Micro and Nano Technologies Series)
Elsevier, ©2015   551 p. $225.00

Editors Ahmed and Jackson present readers with the second edition of a collection of academic and research perspectives on contemporary and emerging nanotechnologies which can be put to use in a variety of manufacturing contexts. The seventeen contributions that make up the main body of their text are devoted to nanotechnology and nanomanufacturing, gas phase nanofication, advanced characterization techniques for nano-structures, and a wide variety of other related subjects. Waqar Ahmed is a faculty member of the University of Central Lancashire in the UK. Mark J. Jackson is with the Micro Machinists Corporation of Massachusetts.

T174   9781849738057
Nanocharacterisation, 2nd Edition
Edited by Angus I. Kirkland and Sarah J. Haigh
(RSC Nanoscience & Nanotechnology; 37)
Royal Society of Chemistry, ©2015   358 p.
$275.00
Editors Kirkland and Haigh offer the second edition of this nanocharacterisation compilation, revised and updated to incorporate new advances in the field of nanomaterials and their analysis. The first two chapters thoroughly cover the seminal analytic method of transmission electron microscopy (TEM) and its derivative, scanning transmission electron microscopy (STEM). The third chapter introduces scanning tunneling microscopy (STM) in the context of surfaces and nanostructures. Chapter 4 builds up these techniques with electron energy loss spectroscopy (EELS) and energy dispersive X-ray (EDX) analysis and how they can be used in the electron microscope. The 3-dimensional shape-determining techniques of electron holography and tomography are discussed before ending with a contribution on scanning electron microscopy (SEM) and its novel extension into helium ion microscopy. With each contribution, the indications and limitations of each technique for elucidating chemical and physical properties are described and the consequences for data analysis are discussed. Distributed in the US by Ingram Publisher Services.

ENGINEERING (GENERAL, CIVIL)

TA119   9783038358879
Advanced Engineering Forum; Volume 14
Trans Tech Publications (Advanced Engineering Forum; Volume 14)
Trans Tech Publications, ©2016   99 p. $135.00 (pa)
The periodical publishes results of basic research in any scientific field that have practical engineer-

ing value, or may have in the future. This volume presents 10 articles on materials, technologies, and engineering decisions for industrial application; and engineering management and environmental safety in the context of sustainable development. Among the topics are revivification of the hard alloys by shock waves, the application of new material and new technology in car design, the design and fluid structure interaction analysis of a micro-channel as a fluid sensor, enhancing productivity and overall equipment efficiency using the time and motion study technique, and a model of environmental problems priority arising from the use of environmental and natural resources in construction material sectors of Thailand.

TA174   9781557537232
Analyzing Design Review Conversations
Edited by Robin S. Adams and Junaid A. Siddiqui
Purdue University Press, ©2016   504 p. $79.95
Editors Adams and Siddiqui present readers with a collection of interdisciplinary academic essays focused on the process of giving and receiving feedback, guidance, and critique during the design review process. The editors have organized the twenty-three contributions that make up the main body of the text in six parts devoted to analyzing design review conversations, design inquiry, design discourse, design interactions, design being, and design coaching. Robin S. Adams is a faculty member of Purdue University in Indiana. Junaid A. Siddiqui is a faculty member of King Fahd University of Petroleum and Minerals in Saudi Arabia.

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

TA350   9783038355236
Mechanical and Aerospace Engineering VI; select papers
International Conference on Mechanical and Aerospace Engineering (6th: 2015: Roma, Italy) Edited by Dashnor Hoxha, Ian McAndrew, and Anh Dung Ngo (Applied Mechanics and Materials; Volume 798)
Trans Tech Publications, ©2015   648 p. $280.00 (pa)
Editors Hoxha, McAndrew, and Ngo present readers with a collection of peer-reviewed papers selected from research presented at the sixth International Conference on Mechanical and Aerospace Engineering, held in July of 2015 in Rome, Italy. The editors have organized the selections that make up the main body of the text in eight chapters devoted to designing and manufacturing in mechanical engineering, dynamics and vibration of machines and mechanisms, fluids and thermal engineering, researching and designing internal combustion engines, and many other related subjects.

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.

TA365   9781498725736
Acoustical Sensing and Imaging
Hua Lee
CRC Press, ©2016   121 p. $89.95
Hua Lee presents readers with a comprehensive examination of contemporary and emerging research into the design and development of high-performance sensing and imaging systems for system analysis and signal processing. The book covers underwater signal parameter detection and estimation, system analysis, acoustic imaging applications, and resolution enhancement and motion estimation over five chapters. The author also investigates physical modeling, mathematical analysis, formulation of image reconstruction algorithms, performance evaluation, and system optimization for said systems. Hua Lee is a faculty member of the University of California Santa Barbara.

TA404   9789814583183
Frontiers in Electronics: Advanced Modeling of Nanoscale Electron Devices
Edited by Benjamin Iñiguez and Tor A. Fjeldly (Selected Topics in Electronics and Systems; Volume 54)
World Scientific, ©2014   195 p. $98.00
The rationale for the volume is that accurate modeling of nanoscale electron devices is essential both for their technological and optimization and for their use in circuit design and, depending on the applications, different levels of modeling have to be used. Electronic engineers describe different modeling levels for different nanoscale metal-oxide semiconductor structures, looking at different levels of electrostatics and transport modeling and the relationships between them. They cover the Monte-Carlo simulation of ultra-thin film silicon-on-insulator metal-oxide-semiconductor field-effect-transistor (MOSFETs), analytical models and the electrical characterization of advanced MOSFETs, the physics-based analytical modeling of nanoscale multigate MOSFETs, and the compact modeling of double and tri-gate MOSFETs.

TA410   9789814613064
Materials Characterization: Modern Methods and Applications
Edited by Narayanaswami Ranganathan
Pan Stanford Publishing, ©2015   320 p. $149.95
Researchers in chemistry and materials science describe methods of determining local and global mechanical properties of a variety of materials, among them metals, plastics, rubber, and ceramics. Their topics include measuring surface properties of polymers and rubber by nanoindentation, characterizing light-cured dental composites, determining plastic zone sizes at the crack tip, measuring wear and friction resistance in bulk and coated materials, and characterizing elastic properties by means of the dynamic resonant technique. Distributed in the US by CRC Press.

TA418   9781466591257
Nanomaterials: A Guide to Fabrication and Applications
Edited by Sivashankar Krishnamoorthy and Krzysztof Iniewski (Devices, Circuits, and Systems)
CRC Press, ©2016   292 p. $149.95
Editors Krishnamoorthy and Iniewski present

product developers, researchers, and materials scientists with a comprehensive resource for understanding the nanomaterials and options currently available for use in a variety of practical applications. The eleven selections that make up the main body of the text cover magnetron-sputtered hard nanostructured TiAIN coatings, functional nanoceramics, studying biologically templated materials with atomic force microscopy, and a variety of other related subjects. Sivashankar Krishnamoorthy is a faculty member of the Luxembourg Institute of Science and Technology. Krzysztof Iniewski is with Emerging Technologies CMOS Inc. or Canada.

TA418   9781482239003
Natural Fiber Composites
Edited by R.D.S.G. Campilho
CRC Press, ©2016   352 p. $169.95
International contributors describe current advances in the material properties, processing, design, testing, characterization, and modeling of natural fiber composites, with an emphasis on methods that enhance performance. The book begins with a chapter-length overview of natural fiber composites; subsequent chapters deal with natural fibers, matrices, composites, and joint design, with applications in industry described. Some specific topics covered include interfacial compatibility and adhesion in natural fiber composites, alternative solutions for reinforcement of thermoplastic composites, and environmental issues. B&w photos, images, and drawings are included.

TA418   9789814571692
Particle Methods for Multi-Scale and Multi-Physics
M. B. Liu and G. R. Liu
World Scientific, ©2016   377 p. $135.00
In this book authors M. B. Liu and G. R. Liu present readers with an examination of the theoretical background, numerical techniques, and several applications multi-scale and multi-physics particle research, concentrating specifically on micro-fluidics and bio-fluids. The authors cover computer modeling in general, molecular dynamics, the methodology and applications of dissipative particle dynamics, the methodology and applications of smoothed particle hydrodynamics, and many other related subjects over the book's seven chapters. M. B. Liu is a faculty member of Peking University in China. G. R. Liu is a faculty member of the University of Cincinnati, Ohio.

TA418   9781605951188
Shape-Memory Polymers for Aerospace Ap-

plications: Novel Synthesis, Modeling, Characterization and Design
Edited by Gyaneshwar P. Tandon, Amber J.W. McClung, and Jeffery W. Baur
DEStech Publications, Inc., ©2016   659 p.
$209.50
Editors Tandon, McClung, and Baur present readers with a collection of papers selected from contemporary research into the synthesis, modeling, characterization, and design of shape-memory polymers for a variety of aerospace applications. The eighteen selections that make up the main body of the text cover the environmental durability of shape memory polymers and composites, visocelasticity based models for thermally activated systems, microvascular activation of shape memory polymers, and a wide variety of other related subjects. Gyaneshwar P. Tandon is a faculty member of the University of Dayton, Ohio. Amber J.W. McClung is a faculty member of St. Mary's University, Texas. Jeffery W. Baur is with the U.S. Air Force Research Laboratory.

TA418   9783038356721
Superplasticity in Advanced Materials; select papers
International Conference on Superplasticity in Advanced Materials (12th: 2015: Tokyo, Japan) Edited by Eiichi Sato, Goroh Itoh, Yoshimasa Takayama, Koichi Kitazono, Koji Morita, Takaomi Itoi, and Junya Kobayashi (Materials Science Forum; Volume 838-839)
Trans Tech Publications, ©2016   634 p.
$285.00 (pa)
Editors Sato, Itoh, Takayama, Kitazono, Morita, Itoi, and Kobayashi present readers with a collection of peer-reviewed papers selected from research presented at the twelfth International Conference on Superplasticity in Advanced Materials, held in September of 2015 in Tokyo, Japan. The articles that make up the main body of the text are organized in five chapters devoted to the mechanisms of superplasticity, superplastic materials, microstructure refinement, industrial applications, and other related subjects. Individual selections are focused on the superplasticity of alloys, the enhanced plasticity of pure metals, and many other subjects.

TA418   9783038356523
Uncertainty in Mechanical Engineering II; select papers
International Conference on Uncertainty in Mechanical Engineering (2nd: 2015: Darmstadt, Germany) Edited by Peter F. Pelz and Peter Groche (Applied Mechanics and Materials; Volume 807)
Trans Tech Publications, ©2015   260 p.

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SciTech News

$135.00 (pa)

Editors Peter F. Pelz and Peter Groche present readers with a collection of contributions selected from research presented at the second International Conference on Uncertainty in Mechanical Engineering held in November of 2015 in Germany. The editors have organized the selections that make up the main body of the text in nine chapters devoted to uncertainty in mechanical engineering, uncertainty of structural dynamic improvements in light weight design, modular design and scaling for reduced uncertainties in the design process, and many other related topics.

TA455   9781771881197
High-Performance Polymers for Engineering-Based Composites
Edited by Omari V. Mukbaniani, Marc J. M. Abadie, and Tamara Tatrishvili (AAP Research Notes on Polymer Engineering Science and Technology)
Apple Academic Press, ©2016   384 p. $159.95
Chemists and related scientists present new research in polymer science and engineering with applications in chemical engineering, materials science, and chemistry. In addition to synthetic polymer chemistry, they also look at the properties of polymers in various states--solution, melt, solid--and survey the important categories of polymers, including commodity thermoplastics and fibers, elastomers and thermosets, and engineering and specialty polymers. Among the topics are polyacrylamide hydrogels obtained by frontal polymerization and their properties, fulvic and humin acids in surface waters of Georgia, modeling the physical mechanism of activation (opening) of ion channels in nerve impulse transmission, and the thermal curing of composite-based epoxy. Distributed by CRC Press, A Taylor & Francis Group member.

TA455   9781119184867
Marine, Waterborne and Water-Resistant Polymers: Chemistry and Applications
Johannes Karl Fink
Scrivener/Wiley, ©2016   220 p. $175.00
Fink offers a review of polymer chemistry in contexts in and around water. The material is presented in four dense chapters, the first dealing with marine polymers, introducing marine microbes and microgels and discussing the properties of algal lipids, terpenoids, proteins such as collagen and elastin, and the variety of polysaccharides including chitin, chitosan, and fucoidans, with special attention to their medical applications. Chapter two addresses the inverse: uses of conventional polymers in the marine environment as well as targeted modification of marine polymers for improved or novel functionalities. Chapter three discusses waterborne polymers or colloids, including their synthesis, characterization, and uses for thin layer deposition as well as conversion to solids through UV curing and similar methods. The final chapter covers water resistant materials for resins, inks, adhesives, reinforcement fibers, masonry, filtration, medical and personal care products.

TA455   9781498743686
Surface Phenomena in the Structural and Mechanical Behaviour of Solid Polymers
A. L. Volynskii and N. F. Bakeev
CRC Press, ©2016   525 p. $169.95
Volynskii and Bakeev explore the special features of mass transfer and related structural transformation in deformed polymers, and the effect of diverse external conditions on this process. Among their topics are the development of the interfacial surface in the deformation of polymers, special features of the structure and properties of surface layers and thin films of glassy polymers, the role of surface phenomena in the deformation of polymers in active liquid media, multiphase nano-dispersed systems based on crazed polymers, evaluating the structural and mechanical properties of nanometric surface layers, and practical applications of surface phenomena in solid polymers.

TA492   9781498755177
Crush Mechanics of Thin-Walled Tubes
Dai-heng Chen
CRC Press, ©2016   329 p. $159.95
In this book, author Dai-heng Chen presents readers with a comprehensive examination of the performance of thin-walled tubes in a variety axial compression, bending, and torsion scenarios in a variety of industrial and automotive contexts. The author covers the axial compression of circular, square, and corrugated tubes; the bending of tubes; thin-walled structures with an open cross section; torsion; and other related subjects over the book's six chapters. The author is a retired faculty member of Jiangsu University, China and Tokyo University of Science, Japan.

ENVIRONMENTAL TECHNOLOGY

TD196   9781138028395
Antibiotics and Antibiotic Resistance in the Environment
Carlos F. Amábile-Cuevas
CRC Press, ©2016   127 p. $99.95

Amábile-Cuevas presents this study into the prevalence and significance of antibiotic resistance, not only in the laboratory and clinic but in the environment as well. He begins by laying out a functional definition of "antibiotic" and then inspects the concept of resistance, including genetic and adaptive mechanisms and their spread. The natural history of antibiotics and antibiotic resistance genes is reviewed. Then, he moves on to the release of antibiotics into the environment by humans from agriculture and wastewater, as well as other human-related selective pressures on bacteria, and the spread of resistant organisms themselves from human centers. He emphasizes the nonspecificity of resistance, such that antibiotics also have effects on nonbacterial organisms and generalized biocides can promote adaptive changes in bacteria. The final chapter attempts to quantify the impact of antibiotic exposure and resistance in the environment as well as estimating the depth of relevant unknowns, touching on topics such as modification of soil bacteria, resistant organisms in wildlife, creation of hotspots for resistance development, and implications for political regulation.

TD196   9780784414088
Nanomaterials in the Environment
Edited by Satinder Kaur Brar, Tian C. Zhang, Mausam Verma, Rao Y. Surampalli, and Rajeshwar D. Tyagi
American Society of Civil Engineers, ©2015
624 p. $170.00 (pa)
The Society's Hazardous, Toxic, and Hazardous Waste Engineering Committee has produced a reference on the fate and impact of nanomaterials in the environment. They cover characterization, assessment approaches, and monitoring; environmental fate and behavior of nanomaterials, risk assessment and toxicology; and futuristic nanotechnology. Among the topics are the analysis of nanomaterials by single-particle methods, the quantification and analysis of nanoparticles in natural environments with different approaches, the behavior and fate of natural and engineered nanomaterials in soils, the nano-ecotoxicology of nanomaterials for animals and humans, nanomaterial-associated metabolomics: tools and techniques for assessing nanomaterials in environmental matrices, and green nanomaterials.

ROADS, RAILROADS

TE228   9781498721912
Cognitive Vehicular Networks
Edited by Anna Maria Vegni and Dharma P.

Agrawal
CRC Press, ©2016   225 p. $129.95
Editors Vegni and Agrawal present readers with a collection of academic essays and research devoted to current and emerging areas of cognitive vehicular networks and mobile ad hoc networks in particular. The editors have organized the ten selections that make up the main body of their text in three parts devoted to cognitive radio, cognitive radio for vehicular networks, and applications for cognitive vehicular networks. Anna Maria Vegni is a faculty member of Roma TRE University in Italy. Dharma P. Agrawal is a faculty member of the University of Cincinnati, Ohio.

TE228   9781118894781
Intelligent Transport Systems: Technologies and Applications
Edited by Asier Perallos, Unai Hernandez-Jayo, Enrique Onieva, and Ignacio Julio García-Zuazola
Wiley, ©2016   341 p. $140.00
Contributed by engineers and information technology, transport, and other specialists working in academia and industry in Europe, the US, and Asia, the 16 chapters in this volume discuss transport systems that apply information and communication technologies. They address reference architectures developed in European and American research projects; each of the layers presented in architectures, from the physical to application layer, and the technological challenges faced by research groups, such as wireless communications in vehicular environments, cyber security risk analysis, electromagnetic fields, antennas, sensors networks and surveillance, and data processing techniques for congestion prediction and advanced driver assistance systems; and end applications and services for users and traffic managers deployed by industrial partners, including urban traffic management, intelligent in-car traffic information management, and multimodal trip planning.

MECHANICAL ENGINEERING & MACHINERY

TJ211   9789814725231
Assistive robotics; proceedings
International Conference on Climbing and Walking Robots (18th: 2015: HangZhou, China) Edited by Hongye Su, Tianmiao Wang, Mohammad O. Tokhi, and Gurvinder S. Virk
World Scientific, ©2016   764 p. $175.00
The plenary presentations for CLAWAR 2015 discuss infrastructure robotics: opportunities and challenges, cognition-inspired robot learning and control, biologically inspired miniature jumping

robots from design to control, and understanding animal locomotion using biologically inspired robotics and soft robotics. The rest of the 89 technical papers cover assistive robots; autonomous robots; biologically inspired systems and solutions; innovative design; inspection and innovative sensing; locomotion; manipulation, intelligence, and learning; medical and rehabilitation robotics; modeling and simulation; perception, localization, and rescue operations; planning and control; and underwater and sea robotics.

TJ808   9783038356479
Emerging Functional Materials: Advances in Energy and Environmental Applications: Special Topic Volume With Invited Peer Reviewed Papers Only
Edited by Alagarsamy Pandikumar, Nay Ming Huang, and Hong Ngee Lim (Materials Science Forum; Volume 832)
Trans Tech Publications, ©2015   191 p.
$140.00 (pa)
Research and review articles explore the fabrication of various functional materials and their use in energy and environment applications. Their topics include the canvas of optics behind nanocrystalline TiO_2 film engaged in dye-sensitive solar cells, the influence of indium and zinc doping on the cadmium-selenium based photo-electro-chemical solar cells using the electron beam evaporation technique, the growth mechanism of annealed graphite powder and gas-sensor applications, preparing and characterizing the stability of copper oxide nanofluid by a two-step method, and the synthesis and characterization of zinc stannate nanomaterials by the sol-gel method.

TJ1073   9780470057216
Thermohydrodynamic Instability in Fluid-Film Bearings
J. K. Wang and M. M. Khonsari
Wiley, ©2016   199 p. $140.00
In this book, authors Wang and Khonsari present readers with a comprehensive examination of the impact of thermohydrodynamic instability in fluid-firm bearings on a high-speed rotating machinery utilized in a variety of process industries in a variety of settings. They cover residual shaft imbalance and other manufacturing imperfections, uneven wear and other service-related issues and a variety of other influencing factors on rotor-bearing systems employed in power generation, oil and gas extraction, aerospace turbomachinery, and other contexts. They also provide general design guidelines to help guard against bearing malfunction and failure, as well as a variety of other issues that can affect bearing sta-

bility. J. K. Wang is with TSC Group Holdings of Houston, Texas. M. M. Khonsari is a faculty member of Louisiana State University.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK443   9783038356516
Advances in Abrasive Technology XVIII; select papers
International Symposium on Advances in Abrasive Technology (18th: 2015: Juju Island, Korea)
Edited by Hon-Zong Choi, Haedo Jeong, Xiping Xu, and Hideki Aoyama (Advanced Materials Research; Volume 806)
Trans Tech Publications, ©2015   700 p.
$280.00 (pa)
Edited by Choi, Jeong, Xu, and Aoyama, this book is comprised of peer-reviewed papers selected from research presented at the eighteenth International Symposium on Advances in Abrasive Technology, held in October of 215 in Korea. The editors have organized the contributions that make up the main body of the text in ten chapters devoted to grinding, abrasive jet machining, advanced cutting technology, the processing of brittle materials, and other related categories according to use. Individual selections are focused on drilling of microholes using diamond grinding tools, experimental research on flexible polishing by compound diamond powder, and many other topics.

TK876   9781630810153
Electronics for Microwave Backhaul
Edited by Vittorio Camarchia, Roberto Quaglia, and Marco Pirola (Artech House Microwave Library)
Artech House, ©2016   327 p. $179.00
Seven papers describe possible architectures and the main building blocks of a backhaul radio system which connects the core and the periphery of a mobile communication network, explaining the role of the modem, receiver, transmitter, and antenna. The Italian authors discuss branching, capacity improvement, modulations and coding, countermeasures against imperfections in TX and RX chains, low noise amplifiers, local oscillators, analog-to-digital converters, power amplifiers, upconversion, linearization techniques, and parabolic antennas.

TK876   9789814669429
Microwave Engineering of Materials: From Mesoscale to Nanoscale
Edited by Erwann Guénin

Pan Stanford Publishing, ©2016 435 p. $179.95
Chemists describe the use of microwave irradiation in engineering materials and nanomaterials. Among their topics are general features of microwave interaction with materials, the microwave-assisted synthesis and modification of polymers, the microwave processing of ceramics and glasses, microwave engineering for synthesizing clays and modifying properties in zeolites, the microwave engineering of carbon nanotubes, the microwave-assisted synthesis of metallic nanoparticles, the microwave-assisted synthesis of semiconductor nanomaterials for energy conversion, and microwave nano-surface engineering. Distributed in the US by CRC Press.

TK881   9789814669580
Ultrahigh-Density   Magnetic   Recording: Storage Materials and Media Designs
Edited by Gaspare Varvaro and Francesca Casoli
Pan Stanford Publishing, ©2016 527 p. $179.95
Researchers offer an overview of ultrahigh-density magnetic recording materials, beginning with an introductory chapter for readers new to magnetic recording. Other topics are hard disk drives: fundamentals and perspectives, conventional perpendicular magnetic recording media, energy-assisted magnetic recording, L1o-FePt granular films for heat-assisted magnetic recording media, exchange coupled composite media, bit-patterned magnetic recording, the magnetic characterization of perpendicular recording media, and new trends in magnetic memories. Distributed by CRC Press.

TK1001   9781466699113
Handbook of Research on Emerging Technologies for Electrical Power Planning, Analysis, and Optimization
Edited by Smita Shandilya, Shishir Shandilya, Tripta Thakur, and Atulya K. Nagar (Advances in Computer and Electrical Engineering)
Engineering Science Reference, ©2016 401 p. $310.00
The editors present readers with a collection of academic and professional contributions on emerging and contemporary methods and research in the systemic and strategic planning of energy usage. The nineteen contributions that make up the main body of the text are devoted to electrical faults in power systems, energy-efficient routing techniques for wireless sensors networks, energy management strategies to improve electrical networks using storage systems, and several other related topics. Smita Shandilya is a faculty member of the Sagar Institute of Research Technology and Science, India. Shishir

Shandilya is a faculty member of Bansal Institute of Research and Technology, India. Tripta Thakur is a faculty member of Maulana Azad National Institute of Technology, India. Atulya K. Nagar is a faculty member of Liverpool Hope University in the UK.

TK5103   9781608079216
Internet Technologies for Fixed and Mobile Networks
Toni Janevski
Artech House, ©2016   376 p. $139.00
Author Toni Janevski presents students, instructors, and IT professionals working in a wide variety of contexts with a comprehensive overview of Internet principles, protocols, and services for both fixed and mobile networks, covering their technological, regulatory, and business aspects. She covers fundamental Internet technologies for mobile broadband networks, broadband Internet services, cloud computing, Internet standardization for the telecom sector, internet networking, and a variety of potential future networks. Additionally, she covers the convergence of all services onto the Internet itself. The author is a faculty member of Cyril and Methodius University, Macedonia.

TK5103   9781118610152
Wireless Communications Systems Design
Haesik Kim
Wiley, ©2015   416 p. $110.00
Author Haesik Kim presents students, instructors, and IT professionals with an introduction to wireless communications design focused primarily on broadband wireless communication systems based on OFDM/OFDMA. The author has organized the thirteen chapters that make up the main body of his text in three parts devoted to wireless communications theory, wireless communications blocks design, and wireless communications systems design. Individual chapters are focused on channel estimation and equalization, error correction codes, multiple input multiple output, and a wide variety of other related subjects. The author is with the VTT Technical Research Centre of Finland.

TK5103   9781482227932
Wireless Networks and Mobile Computing
Koushik Sinha, Sasthi C. Ghosh, and Bhabani P. Sinha
CRC Press, ©2016   519 p. $99.95
This text introduces the basic concepts of wireless networks and mobile computing, incorporating recent research and challenging problems. It describes different types of wireless networks,

including wi-fi, ZigBee, cellular mobile, ad hoc, cognitive radio, wireless mesh, and wireless sensor networks, followed by discussion of mobility, bandwidth, and node location management issues; message communication techniques and protocols in ad hoc networks; wireless local area networks; the placement of base stations in a cellular network and deployment of sensor nodes in wireless sensor networks; energy-efficient communication, with emphasis on physical, MAC (media access control), and network layers; and security aspects, including authentication, jamming, intrusion detection, and stream cipher generation.

TK5105   9781482208979
Cyber Physical Systems: Architectures, Protocols, and Applications
Edited by Chi (Harold) Liu, and Yan Zhang (Wireless Networks and Mobile Communications)
CRC Press, ©2016   249 p. $99.95
Contributed by researchers from Australia, China, and Europe, the 13 chapters in this volume describe the architectures, protocols, and applications of cyber physical systems. They discuss mobile sensing devices/platforms, naming/addressing/profile services, device search and selection, device management, and energy management; enabling technologies, from fundamental networking technologies to machine-to-machine communications and mobile cloud computing; and applications, including connected healthcare, multi-player gaming in public transport environments, and mobile cloud computing-enabled applications.

TK5105   9781466697645
Design Solutions for Improving Website Quality and Effectiveness
Edited by G. Sreedhar (Advances in Web Technologies and Engineering (AWTE) Book Series)
Information Science Reference, ©2016   423 p.
$220.00
Information researchers and website quality design specialists present recent investigations and findings in web engineering, emphasizing quality assurance and the development of web applications. In sections on website quality, web usability, web analytics, and website effectiveness, they discuss such aspects as enhancing the quality of an educational website design by assessing learning strategies, identifying an optimal web page set based on web usage using biclustering optimization techniques, an empirical study of a usability metric for websites, web analytics for improving web site quality, and web-based privacy disclosure threats and control techniques.

TK5105   9781479999026
IT Security Incident Management & IT Forensics; proceedings
International Conference on IT Security Incident Management & IT Forensics (9th: 2015: Magdeburg, Germany) Edited by Jana Dittmann and Holger Morgenstern
Computer Society Press, ©2015   136 p.
$95.00 (pa)
Editors Dittmann and Morgenstern present readers with a collection of papers selected from research presented at the ninth International Conference on IT Security, Incident Management, and IT Forensics, held in May of 2015 in Magdeburg, Germany. The selections that make up the main body of the text have been organized into five groups devoted to forensics, incidents and forensics, teaching forensics and intrusion management, malware analysis and forensics, and digitized forensics. Jana Dittman is a faculty member of Otto von Guericke University, Germany. Holger Morenstern is a faculty member of Albstadt-Sigmaringen University, Germany.

TK5105   9781466687615
Network Security Attacks and Countermeasures
Edited by Dileep Kumar G., Manoj Kumar Singh, and M.K. Jayanthi (Advances in Information Security, Privacy, and Ethics)
Information Science Reference, ©2016   357 p.
$205.00
Computer and information scientists seek to increase evolutionary computation awareness in network security by providing a clear direction for monitoring, analyzing, and detecting network attacks. Among their topics are security issues in mobile wireless networks, a classification of network attacks and countermeasures of different attacks, cluster-based countermeasures for distributed denial of service attacks, countering RSA vulnerabilities and replacing it with an elliptic curve cryptographic scheme for key generation, and changing dynamics of network security involving hacking/cracking with next-generation firewalls.

TK6553   9781608079704
Radar RF Circuit Design
Nickolas Kingsley and J. R. Guerci (Artech House Radar Series)
Artech House, ©2016   295 p. $169.00
In this book, authors Kingsley and Guerci present readers with an examination of practical techniques for optimizing RF and microwave circuits for use in emerging radar systems design applications. The authors cover the basics of micro-

wave design systems and applications, component modeling, component design, LNAs, passive circuitry, microwave integrated circuits, transmit and receive module integration, and many other related subjects. Nickolas Kingsley is with BAE Systems of Nashua, New Hampshire. J.R. Guerci is a Fellow of the IEEE Defense Advanced Research Projects Agency.

TK6560   9781608079650
Radio Frequency Interference in Communications Systems
Bruce R. Elbert (Artech House Space Technology and Applications Series)
Artech House, ©2016   215 p. $149.00
In this book, author Bruce R. Elbert presents readers with a practical guide to the engineering of radio communications and wireless systems in light of radio frequency interference (RFI), electromagnetic compatibility, spectrum sharing, and identifying RFI modes. The author covers the assessment and mitigation of RFI in a variety of radio systems, relating techniques to identify and resolve RFI before, during, and after it appears utilizing spectral capture, radio location, cancellation, and other techniques. The author is with Application Technology Strategy, LLC, a technology consultancy.

TK6575   9781608079797
Transmit Receive Modules for Radar and Communication Systems
Rick Sturdivant and Mike Harris (Artech House Radar Series)
Artech House, ©2016   240 p. $159.00
Sturdivant and Harris present readers with a comprehensive overview of the design, manufacture, integration, and implementation issues that accompany transmit receive, or T/R, modules for radar and communications. The author provide practical designs as well as a great many examples of the analysis, circuits, and components that go into T/R modules. Rick Sturdivant is with Microwave Products and Technology Company. The authors have organized the main body of their text in ten chapters focused on phased arrays, transmit/receive modules, signal integrity issues, and a wide variety of other related issues. Mike Harris is a retired engineer who teaches professional education coursed in electronics.

TK6592   9781466593145
Principles of Synthetic Aperture Radar Imaging: A System Simulation Approach
Kun-Shan Chen (Signal and Image Processing of Earth Observations Series)
CRC Press, ©2016   203 p. $149.95

This guide explains modern synthetic aperture radar (SAR) principles for the use, study, and development of SAR systems employed in areas ranging from geoscience studies to planetary exploration. It includes chapters on signal speckle, radar-signal models, sensor trajectory models, SAR-image focusing, platform-motion compensation, and microwave-scattering from random media, with numerical simulations, as well as a ground-based FMCW (frequency-modulated continuous-wave) system and system simulations for target classification and recognition.

TK7867   9781118985397
Electromagnetic Compatibility: Analysis and Case Studies in Transportation
Donald G. Baker
Wiley, ©2016   392 p. $130.00
In this book, author Donald G. Baker presents readers with an in-depth look at electromagnetic compatibility (EMC) issues related to a variety of topics in both transportation and communications. The author presents more than twenty real case studies that examine EMC issues in communications and transportation. He covers radiation from power lines, the shadow effects of subway cars, edge distortions, and train control systems, alongside many other related issues and topics. The author is a former electrical engineering educator with more than six decades of experience in the field.

TK7867   9781630810214
Microwave and RF Semiconductor Control Device Modeling
Robert H. Caverly (Artech House Microwave Library)
Artech House, ©2016   266 p. $189.00
In this book, author Robert H. Caverly presents readers with a comprehensive resource on the modeling and simulation of microwave semiconductor control devices and circuits. The author covers fundamental MESFET, MOSFET, and PIN nonlinear device modeling, as well as transient and harmonic behavior in microwave semiconductors, nonideal device behavior in control circuits, switch and switched circuit applications, control and attenuator applications, and many other related subjects. The author is a faculty member of Villanova University, Pennsylvania, and an associate editor of IEEE Microwave Magazine.

TK7867   9781118094914
Passive Macromodeling: Theory and Applications
Stefano Grivet-Talocia and Bjorn Gustavsen (Wi-

ley 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 macro-modeling. The authors discuss a variety of passive 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   9781482228670
Nanoscale Silicon Devices
Edited by Shunri Oda and David K. Ferry
CRC Press, ©2016   288 p. $139.95
Editors Oda and Ferry present readers with a collection of selected research papers examining the growth of semiconductor device miniaturization and related advances in circuits, devices, systems design, and materials. The eleven contributions that make up the main body of the text are devoted to tri-gate transistors, the physics of silicon nanodevices, variability in scaled MOSFETs, self-heating effects in nanoscale 3D MOSFETs, NEMS devices, and several other related topics. Shunri Oda is a faculty member of Tokyo Institute of Technology in Japan. David K. Ferry is a faculty member of Arizona State University, Tempe.

TK7871   9789814613637
Proteotronics: Development of Protein-Based Electronics
Eleonora Alfinito, Jeremy Pousset, and Lino Reggiani
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.

TK7874   9789814699013
Advances in 3D Integrated Circuits and Systems
Hao Yu and Chuan-Seng Tan (Series on Emerging Technologies in Circuits and Systems; Volume 1)
World Scientific, ©2016   375 p. $58.00 (pa)
Authors Hao Yu and Chuan-Seng Tan present readers with a comprehensive introduction to the emerging technology of 3D integration, the electronic engineering aspect of this technology, and 3D integrated circuits. The authors cover this material by examining the three stages of device development using 3D integrated circuits and systems: device basics, system level management, and real designs. Also included are chapters covering the fabrication techniques employed in the construction of 3D TSV and 2.5D TSI; thermal, power, and I/O management; device modeling; physical designs; and a variety of other related subjects.

TK7874   9781118751916
Spintronics for Next Generation Innovative Devices
Edited by Katsuaki Sato and Eiji Saitoh (Wiley Series in Materials for Electronic and Optoelectronic Applications)
Wiley, ©2015   255 p. $175.00
In this book, editors Sato and Saitoh present readers with a collection of expert contributions on spin electronics, or spin transport electronics, the control of the spin of electrons within multiple contemporary and emerging technologies. The selections that make up the text cover the fundamentals of magnetoresistance effects, spin current, spin hall effect and inverse spin hall effect, spin pumping, spin conversion at magnetic interfaces, and several other related subjects. Katsuaki Sato is a retired faculty member of Tokyo University of Agriculture and Technology, Japan. Eiki Saitoh is with the Institute for Materials Research, Tohoku University, Japan.

TK7875   9789814613231
Nanocantilever Beams: Modeling, Fabrication, and Applications
Edited by Ioana Voiculescu and Mona Zaghloul
Pan Stanford Publishing, ©2016   521 p. $179.95
Editors Voiculescu and Zaghloul present readers with a collection of expert and academic papers focused on the fabrication and applications of cantilever beams with nanoscale dimensions. The editors have organized the sixteen contributions that make up the main body of the text in three parts devoted to techniques for the fabrication of nanocantilever beams, nonlinearity of nano-

cantilever beam resonators, and applications for nanocantilever beams. Ioana Voiculescu is a faculty member of the City College of New York. Mona Zaghloul is a faculty member of the George Washington University in Washington D.C. Distributed by CRC Press.

TK7877   9781118920428
Semiconductor Terahertz Technology: Devices and Systems at Room Temperature Operation
Edited by Guillermo Carpintero, Luis Enrique García-Muñoz, Hans H. Hartnagel, Sascha Preu, and Antti V. Räisänen
IEEE/Wiley, ©2015   386 p. $130.00
Editors Carpintero, Muñoz, Hartnagel, Preu, and Räisänen give readers a collection of expert contributions designed to provide practicing researchers and professionals with a guide to contemporary advances in semiconductor THz technologies. The selections that make up the bulk of the text cover photomixers, photoconductive switches, electronic THz generation and detection, and many other related subjects. Guillermo Carpintero and Luis Enrique García Muñoz are faculty members of Universidad Carlos III de Madrid, Spain. Hans L. Hartnagel and Sascha Preu are faculty members of Technische Universität Darmstadt, Germany. Antti V. Räisänen is a faculty member of Aalto University, Finland.

TK7881   9781466694293
Reliability in Power Electronics and Electrical Machines: Industrial Applications and Performance Models
Shahriyar Kaboli and Hashem Oraee (Advances in Computer and Electrical Engineering)
Engineering Science Reference, ©2016   481 p. $255.00
In a text based on their teaching separate courses on power electronics and electrical machines, Kaboli and Oraee show the importance of reliability considerations in electric power converters, present the calculation methods of reliability in electric power converters, and propose techniques for improving reliability in electric power converters. As well as reliability in power electronics, they consider effective operational life of converters. They cover data preparation, reliability calculations, methods for preventing faults, methods for removing faults, and reliability in operation process.

TK7882   9781498717441
Adopting Biometric Technology: Challenges and Solutions
Ravindra Das

CRC Press, ©2016   242 p. $119.95
Das examines why the adoption rate of biometric security technologies is so great in some parts of the world and so poor in others. In various case studies, he ascertains both deployment and social methods that have and have not worked. In particular, he examines and reviews the electronic passport, the national identification card, and electronic voting structures. After drawing conclusions, he makes recommendations on how to increase the implementation rate of biometric technologies where they have been least adopted, particularly the US.

TK7882   9781466686540
Handbook of Research on Emerging Perspectives in Intelligent Pattern Recognition, Analysis, and Image Processing
Edited by Narendra Kumar Kamila (Advances in Computational Intelligence and Robotics)
Information Science Reference, ©2016   477 p. $255.00
Editor Narendra Kumar Kamila presents readers with a collection of academic and professional contributions that together makeup a research handbook on contemporary and emerging advances in the field of pattern recognition, analysis, and imaging. The editor has organized the nineteen contributions that make up the main body of the text in three parts devoted to pattern recognition, watermarking, and face recognition; image processing and computer vision; and bio imaging and its applications. The editor is a faculty member of C.V. Raman College of Engineering, India.

TK7895   9781482259759
Cyber-Physical Systems: A Computational Perspective
Edited by Gaddadevara Matt Siddesh, Ganesh Chandra Deka, Krishnarajanagar Gopalalyengar Srinvasa, and Lalit Mohan Patnaik
CRC Press, ©2016   623 p. $149.95
This volume consists of 25 chapters on developments in cyber-physical systems. Computer science, engineering, and information technology specialists from Asia, the US, the Middle East, Slovenia, and East Africa discuss the physical infrastructure required, including sensor networks and embedded systems; energy issues with the use of supercapacitors and reliability assessment; the modeling of cyber-physical systems as a network of robots, and issues related to design; the impact of ubiquitous and cloud computing; security and privacy issues; and the role of cyber-physical systems in big data analytics, social network analysis, and health care.

TK7895   9781466593923
Embedded Software Development: The Open-Source Approach
Ivan Cibrario Bertolotti and Tingting Hu (Embedded Systems)
CRC Press, ©2016   526 p. $129.95
In this book, authors Ivan Cibrarioio Bertolotti and Tingting Hu present readers with a practical introduction to embedded software development, focusing primarily on the use of open-source components. The authors have organized the sixteen chapters that make up the main body of their text in two parts devoted to the basics of embedded software development and advanced topics in embedded software development. The authors are both with the National Research Council of Italy. Hu is also a faculty member of Politecnico di Torino, Italy.

TK7895   9781118869260
Nanomagnetic and Spintronic Devices for Energy-Efficient Memory and Computing
Edited by Jayasimha Atulasimha and Supriyo Bandyopadhyay
Wiley, ©2016   332 p. $130.00
Ten papers describe different approaches for using spin torque to switch nanomagnets for memory and logic applications, and switching schemes for nanomagnets that implement memory and logic functions. The opening chapters review the use of quantum point contacts with lateral spin-orbit coupling to create a strongly spin-polarized current, a spin MOSFET with ferromagnetic contacts whose magnetizations can be switched from parallel or antiparallel configuration, and a pseudo-spin MOSFET with a magneto tunneling junction connected to the source or the drain. Much of the work was funded by the National Science Foundation.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL509   9783038356622
Advanced Research in Aerospace Engineering, Robotics, Manufacturing Systems, Mechanical Engineering and Biomedicine; select papers
International Conference on Smart Systems in the Fields of Aerospace, Robotics, Manufacturing Systems, Mechanical Engineering (2015: Bucharest, Romania) Edited by Adrian Olaru (Applied Mechanics and Materials; Volume 811)
Trans Tech Publications, ©2015   409 p.
$210.00 (pa)
Editor Adrian Olaru presents readers with a collection of peer-reviewed papers selected from research presented at the International Conference on Smart Systems in the Fields of Aerospace, Robotics, Manufacturing Systems, and Mechanical Engineering held in October of 2015 in Bucharest, Romania. The selections that make up the main body of the text are organized in nine chapters devoted to the science and technology of materials, tools and processing technologies in mechanical engineering, advanced research in robotics, advanced decisions in engineering management, and many other related subjects.

TL671   9780768083033
Aircraft Thermal Management: Integrated Energy Systems Analysis
Mark F. Ahlers
SAE International, ©2016   109 p. $75.00 (pa)
Ahlers presents readers with a collection of research and professional perspectives on the use of integrated energy systems analysis in the development and evaluation of aircraft thermal management designs. The contributions that make up the main body of the text cover power thermal management system design for enhanced performance in an aircraft vehicle, thermal management investigations for fuel cell systems onboard commercial aircraft, thermal management assessment tools for advanced hypersonic aircraft, and many other related topics. The author is with the Boeing Company of Washington State.

TL1200   9781118945148
Optical Payloads for Space Missions
Edited by Shen-En Qian
Wiley, ©2016   975 p. $225.00
The dense collection surveys the different types of optical sensor systems that have flown, are flying, or are to be flown in orbits or in situ of the Earth, Moon, Sun, and Mars. The 42 chapters describe the design, calibration, performance, test results, and operation of imaging spectrometers, multispectral sensors, Fourier transform spectrometers, lidar instruments, radiometers, and microsatellites. Projects include the international space station, China's Chang'E 3 spacecraft, CBERS 3&4 satellite series, NASA's upper atmosphere research satellite, Italy's PRISMA program, Japan's hyperspectral imager suite, and the Canadian Sapphire space surveillance mission.

TL1500   9780877036234
Spaceflight Mechanics 2015; proceedings; 3 volume set (CD-ROM included)
AAS/AIAA Space Flight Mechanics Meeting (25th: 2015: Williamsburg, Virginia, U.S.A.) Edited by

Robert Furfaro, Stefano Cassotto, Aaron Trask, and Scott Zimmer (Advances in the Astronautical Sciences; Volume 155)
American Astronautical Society, ©2015 3598 p. $660.00
About 200 papers document 28 sessions at the conference. Among the discussions are dynamical systems and trajectory design, orbital dynamics and estimation, launch and reentry operations, asteroid and cometary missions, attitude determination and sensors, low-thrust trajectory design, astrodynamic innovation and data sharing, small body proximity operations, spacecraft guidance and control, astrodynamics techniques, CubeSat and NanoSat missions, flight mechanics aspects of the LADEE Mission, attitude dynamics and control, orbit determination, and dynamics and control of large space structures and tethers. Published by Univelt for the American Astronautical Society. The three volumes are paged and indexed as one.

MINING ENGINEERING

TN688   9783038356783
Biotechnologies in Mining Industry and Environmental Engineering; select papers
International Biohydrometallurgy Symposium (2015: Bali, Indonesia) Edited by M. Zaki Mubarok, Siti Khodijah Chaerun, Wahyudin Prawira Minwal, Fadhli Muhammad, and Killang Pratama (Advanced Materials Research; Volume 1130)
Trans Tech Publications, ©2015 712 p. $275.00 (pa)
Edited by Mubarok, Chaerun, Minwal, Muhammad, and Pratama, this book is comprised of peer-reviewed papers selected from research presented at the International Biohydrometallurgy Symposium, held in October of 2015 in Bali, Indonesia. The editors have organized the contributions that make up the main body of the text in five chapters devoted to geomicrobiology, biogeochemical cycles, genetics, and molecular biology; microbe-mineral interactions; technologies of bioleaching in hydrometallurgy; bioflotation, biobeneficiation, biosorption, and bioaccumulation; and bioremediation and bio recovery of metals from wastes, and the impact of mining technologies on the environment.

TN799   9781466598041
Magnesium Alloys as Degradable Diomaterials
Yufeng Zheng
CRC Press, ©2016 578 p. $159.95

Zheng reviews the research to date on magnesium alloys as materials for medical implants that will degrade and dissolve inside the body once their purpose has been served. Except for one product in Europe, the devices and materials remain in various stages of clinical trial. His topics include biodegradation mechanism and influencing factors of magnesium and its alloys, magnesium-calcium alloy systems for biomedical applications, the fabrication and processing of biodegradable magnesium and its alloys from raw materials to final medical devices, and the in vivo testing of biodegradable magnesium alloy implants.

CHEMICAL TECHNOLOGY

TP159   9781466576827
Nanocomposite Membrane Technology: Fundamentals and Applications
P.K. Tewari
CRC Press, ©2016 311 p. $239.95
Author P.K. Tewari presents readers with a comprehensive exploration of the theory and applications of nanocomposite membrane technology. He covers the history, synthesis, and characterization of nanocomposite membranes; their processing challenges and scalability issues; the health, environmental, safety, and societal implications of their use; and their water treatment, gas separation, and biomedical applications. He also provides and analyzes several case studies of real-world implementation of nanocomposite membranes. The author is with the Bhabha Atomic Research Centre and a consultant to the Government of India on water issues.

TP690   9781466695450
Applying Nanotechnology to the Desulfurization Process in Petroleum Engineering
Edited by Tawfik A. Saleh (Advances in Chemical and Materials Engineering)
Engineering Science Reference, ©2016 555 p. $225.00
Editor Tawfik A. Saleh presents readers with a collection of expert contributions on using nanotechnology in the desulfurization of petroleum products. The fourteen contributions that make up the main body of the text cover petroleum desulfurization techniques, hydrodesulfurization for cleaner energy fuels, nanocomposites and hybrid materials for absorptive desulfurization, carbon-based nanomaterials for desulfurization, flue gas desulfurization, and a wide variety of other related subjects. The editor is a faculty member of King Fahd University of Petroleum and Minerals

in Saudi Arabia.

TP690   9781466699755
Petrochemical Catalyst Materials, Processes, and Emerging Technologies
Edited by Hamid Al-Megren and Tiancun Xiao (Advances in Chemical and Materials Engineering)
Engineering Science Reference, ©2016   539 p. $225.00
Written by chemists and chemical engineers from the US, Middle East, Europe, and Asia, the 15 articles in this volume outline developments in petrochemical technologies, focusing on technologies for catalyst materials for fuel upgrading, particularly sulfur removal, syngas conversion, alkane and oxygen activation, and the functionalization of polymers, as well as safety. They address the use of acyclic diene metathesis (ADMET) in the synthesis of functionalized polyolefins; catalytic technologies for selective oxidation of lower alkanes; palladium in heterogeneous oxidation catalysis; the production of ethylene and its commercial importance in the global market; membrane engineering and its role in oil refining; sustainable process integration; safety and efficiency enhancement in liquefied natural gas terminals; advances in catalytic conversion of syngas to ethanol and higher alcohols; the preparation of deep hydrodesulfurization catalysts for diesel fuel using organic matrix decomposition; desulfurization of fuel oils using ionic liquids; catalysis with room temperature ionic liquids mediated metal nanoparticles; kinetic models for complex parallel-consecutive reactions assessment of reaction network and product selectivity; valorization of glycerol to fine chemicals and fuels; the role of perovskite hollow fiber membranes in methane oxidation reactions; and the preparation, characterization, and desulfurization of the supported nickel phosphide catalysts.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRPAHY

Z675   9780838988343
Managing Creativity: The Innovative Research Library
Ronald C. Jantz (Publications in Librarianship; Number 70)
Assoc. of College & Research Libraries, ©2016   185 p. $44.00 (pa)
Jantz presents readers with a comprehensive examination of contemporary and emerging techniques in the management of creativity in a re-

search library. The book covers the resistance to change in many libraries and the necessity for change, the spread of innovation throughout a library, the research model and innovation in the research library, creating a culture of innovation, and many other related topics. Jantz is a faculty member of the Rutgers University Libraries in New Jersey.

Z682   9781440839641
Mastering Subject Specialties: Practical Advice From the Field
Edited by Karen Sobel
Libraries Unlimited, ©2016   184 p. $70.00 (pa)
The 16 chapters in this volume explain how to master subject specialties as an academic librarian. Librarians from the US cover reference and instruction generalists, physical sciences, biological sciences, engineering and applied science, art, music, law, literature and languages, area studies, government information, education, psychology, sociology, social work, history, religion, philosophy, business, and health sciences, detailing intersections with other disciplines, workplaces, special requirements, recommended courses, internships and work experience, career paths, professional organizations, and publications for each specialty. Other chapters address factors affecting subject specialist positions, using prior experience in a new field, and moving forward in a career.

ZA3075   9781771882927
Information and Data Literacy: The Role of the Library
Edited by Joyce Hagen-McIntosh
Apple Academic Press, ©2016   268 p. $139.95
Editor Joyce Hagen-McIntosh presents readers with a collection of academic and expert contributions on the challenges and trends experienced by different types of libraries throughout the United States as libraries try to keep up with their changing role in today's tech-driven world. The selections that make up the text are divided into five categories covering the role of information and data literacy within a library, new roles for librarians, methodologies for promoting information and data literacy, challenges libraries are experiencing, and the need for data literacy in marginalized populations. The editor is a consultant with the Freedom to Read Foundation and a former librarian. Distributed by CRC Press, a Taylor & Francis Group.

ZA3075   9780838913819
Visual Literacy for Libraries: A Practical, Standards-Based Guide

Nicole E. Brown, Kaila Bussert, Denise Hattwig, and Ann Medaille
ala editions, ©2016 187 p. $70.00 (pa)
Originating in a meeting of the Association of College and Research Libraries (ACRL) Visual Literacy Task Force, which aimed to aid academic librarians learn to apply, teach, and promote visual literacy, Brown, Bussert, Hattwig, and Medaille present their collaborative project. They define visual literacy as a set of abilities that enables an individual to effectively find, interpret, evaluate, use and create images and visual media. It enables the learner to understand and analyze the contextual, cultural, ethical, aesthetic, intellectual, and technical components involved in the production and use of visual materials. A visually literate individual is both a critical consumer of visual media and a competent contributor to a body of shared knowledge and culture. They provide ready-to-go activities, strategies, and ideas to begin working with images, and specific tools to use when discussing, teaching, and practicing visual literacy. There are activities and worksheets at the end of each chapter as well as examples.

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vld5011@psu.edu

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sara.davis@jacobs.com

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rhodesms@westinghouse.com

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kati.arzeta@ch2m.com

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dcopps@myfairpoint.net

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nt311@cam.ac.uk

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Andy Shimp
andy.shimp@yale.edu

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Denise Callihan
callihan@ppg.com

Nominating
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liye@umich.edu

Program Planner–2016 Conference
Luti Salisbury
lsalisbu@uark.edu

Linda Galloway
lgallowa@chapman.edu

Program Planner–2017 Conference

Dawn French
dawn.french@cristal.com

Kiem Ta
kiem.ta@okstate.edu

Professional Development
Ted Baldwin
baldwitw@ucmail.uc.edu

Sponsorship
David Dunaway
ddunaw1@lsu.edu

Strategic Planning
Ye Li
liye@umich.edu

Luti Salisbury
lsalisbu@uark.edu

Website
Amanda Schoen
amanda.schoen@sherwin.com

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carol_vreeland@ncsu.edu

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P.K. Jain
pkjain1310@gmail.com

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SciTech News

Editor
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cmalinowski@post.harvard.edu

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OPEN

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