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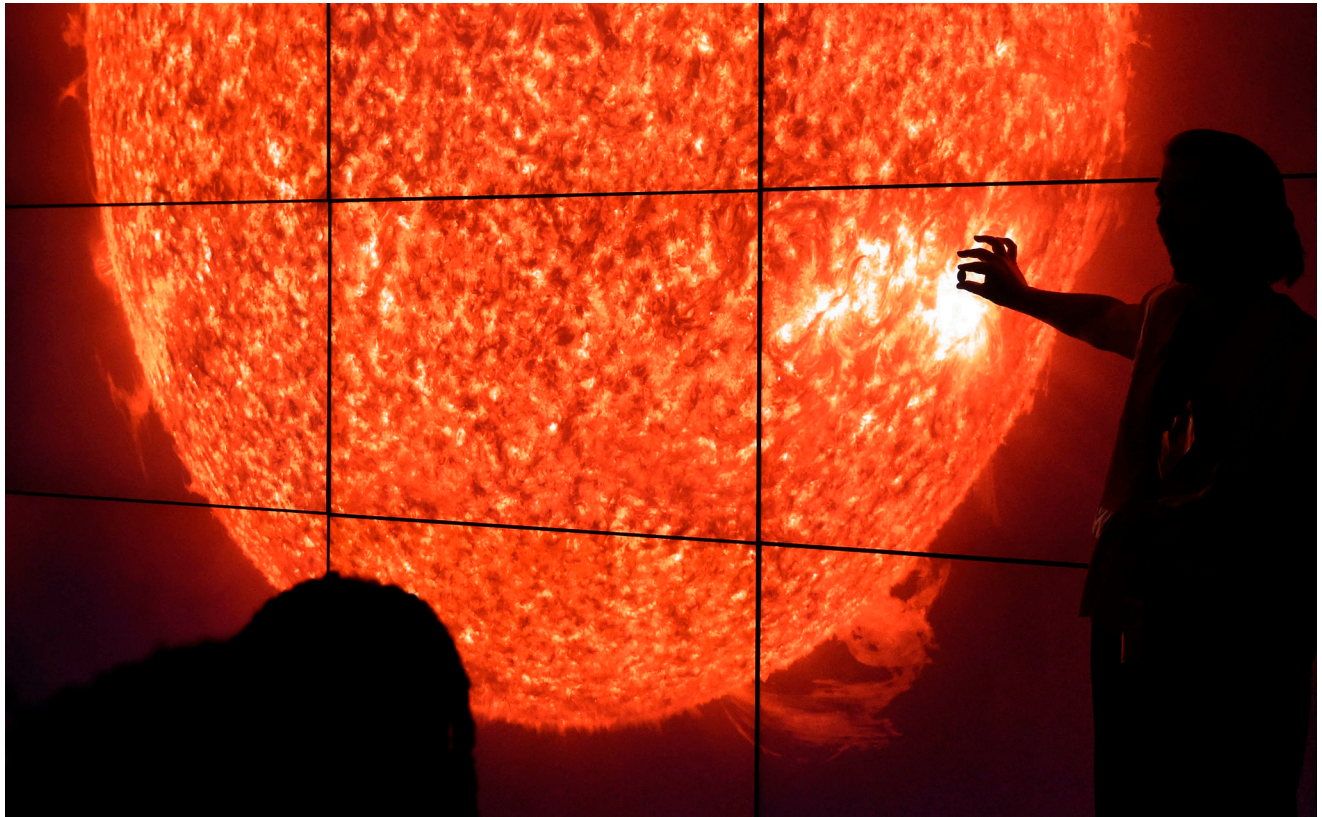
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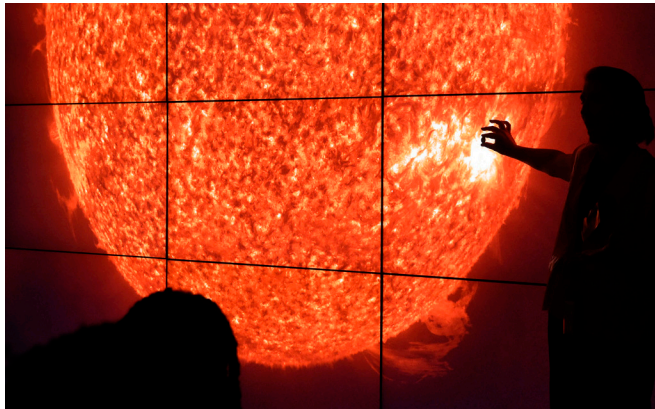
SciTech News

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



Volume 70, Number 4 (2016)
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SciTech News



On the Cover

On Friday, Nov. 4, 2016, NASA’s Goddard Space Flight Center, along with its partner The Maryland Space Business Roundtable, invited approximately 60 Prince George’s County high school girls, ages 16 to 17, and their chaperones to its first-ever “STEM Girls Night In” sleepover. The event aimed to reinvigorate, inspire and engage high school girls who may be struggling with, or are not fully engaged in, STEM education.

Activities included competitions and challenges, a telescope stargazing party, a scavenger hunt, speed networking, movie night and more.

Photo and Caption Credit: NASA/Goddard/Debbie McCallum. Image license: CC BY 2.0, available at <https://flic.kr/p/PnRkml>

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From the Editor

Christine Malinowski



Welcome to the last issue of *SciTech News* for 2016! As with past years, this December issue is full of reflections – from both outgoing chairs and conference attendees.

With the Phoenix Annual Meeting already on the horizon, it's great to take a moment and review our 2016 meeting experiences. If you're like me, you leave the conference each year with loads of ideas and only minimal time to implement them. Before you know it, it's already December! In reading the reports in this issue, I'm feeling reinvigorated and re-inspired to incorporate those conference takeaways into my own professional work.

And for those that were unable to attend the

conference, I hope you find these reports to be useful snapshots into the various presentations, panels and networking events.

With the close of 2016 approaching, I'm also taking the opportunity to consider how our little quarterly publication can evolve to better meet our community's needs. To this end, if you have feedback and ideas for how we can continue to shape *SciTech News* please don't hesitate to contact me at cmalinowski@post.harvard.edu.

I hope you enjoy our December issue, and I look forward to continuing to engage with our amazing community in 2017!

Ways to contribute to *SciTech News*:

- **Become the Assistant Editor!** Have experience laying out content in Adobe InDesign or a similar program? Want to help shape and evolve *SciTech News*? This could be the position for you!
- **Give us your updates!** Send us information about your awards, promotions, professional publications and presentations or other recognition. We'll publish your activities in *SciTech News*, bringing news of our members' accomplishments to the wider SLA and library communities.
- **Write an article!** If you have a research project, a new service in your library, a new instructional method, or other information you'd like to share with your colleagues, please consider contributing an article.

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

News from the Science-Technology Division

Science-Technology Division 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.'



My year as Sci-Tech Chair is nearly over and it feels like the time has gone by too fast to accomplish everything I wanted to. Maybe we should look into longer terms? We did have a successful program at the annual conference in Philadelphia. I've had a chance to look over the response forms, and we got a lot of positive and constructive feedback. Some things we learned were to warn people about interactive elements to sessions, limit the size of panels, improve presentation methods at the poster session, and have back-up plans for when your session IT guy oversleeps. All easy to implement, so expect us to improve on an already pretty good program next year.

In my last column, I talked a bit about the awards we presented this year. Although the recipients are all worthy, we'll be making a few modifications in how the awards work for the future. First, we approved PAM joining us and DENG in presenting the Hilditch Award. That should allow us to increase the candidate pool and the amount awarded. There was some discussion in the board about just how to interpret the required qualifications for the Koopman Award, so we're going to clarify that in our governing documents, so that contributions to the division are prioritized. We've had trouble finding applicants for the Cabeen Student Award, so we'll be working to improve communications with library schools, and perhaps increasing the amount of the award. The Foster Award, while larger, is also on the small side for funding international travel, particularly when the regional chapter can't afford to chip in half. We'll be looking at methods to improve funding there too.

This year, our Professional Development Committee staged the webinar "Beyond the p-value: Interpreting Results of Statis-

tical Analyses" by Dr. Deborah South Richardson, which was well attended and well received. I'm hopeful we can have an expanded slate of webinars next year to build on that success.

You'll likely have noticed that we closed our mailing list this year and replaced it with a message board on SLA Connect. This was a less traumatic experience for us than many divisions, as our mailing list hasn't had high traffic in recent years. Still, it took a bit of organization and work by Anna Ren, our listserv (and now Connect message board) manager, to get it set up the way we like it. The technology has some promise as a communications forum; I hope the community takes it up.

Behind the scenes, we've begun the process of moving the division records to a more secure archive. Our Archivist, Roger Beckman, has vetted several possible sites. University of Illinois is looking promising, but we're still in the early stages of the process. Keep an eye on future columns for updates. With our 100th anniversary coming up soon, it's important that our history is both secure and accessible.

We're also continuing with planning the future of the division, as best we can as SLA itself changes, under the guidance of Brad Gulliford, our new head of the Strategic Planning committee. The initial member survey he did this year has been a useful starting point. Look for more news from him in the coming year.

As Chair, I, of course, did very little work organizing all of this. Credit should go to the Sci-Tech Committee Chairs and committee members. Beth Thomsett-Scott deserves

singling out for the great work she did organizing the conference programming, working with me on curating the All Sciences and Engineering Poster Session, and keeping our finances organized as division Treasurer. I'd also like to thank Sheila Rosenthal for her guidance as Past Chair which has kept my work as Chair on track.

As always, we need your help to keep the division working for our community. It's fulfilling work that looks great on your CV, so do please volunteer for our committees. We

have a variety positions open, so you can contribute no matter what your skillset is. Just contact me or our Incoming Chair Sue Wainscott, and we'll match you up with a committee that could use your help.

We have plenty planned for 2017, including a very promising program for the conference in Phoenix, but I've talked enough here and I'll leave that for Sue to cover in her first column as Chair. I'm looking forward to continuing to work for the division as Past Chair under her leadership.

Science-Technology Division New Members

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

The Science-Technology Division welcomes its new members from August 9-October 28, 2016:

Crystal Boyce
Bloomington, IL
USA

Marybeth Manning
Bellingham, WA
USA

Kelli Trei
Decatur, IL
USA

Ole Villadsen
Pittsburgh, PA
USA

SLA Annual Meeting 2016 Report

by Shaun Bennett (*S. Kirk Cabeen Travel Stipend Award recipient*)

The Special Libraries Association 2016 Conference, held in Philadelphia, was a remarkable and varied offering of discussions about issues and opportunities in the library world. It was the first major library conference of my career, and was a perfect way to get more involved in the profession and get a better sense of concerns facing librarians. Before getting into the details, I should first thank the Science and Technology Division of SLA, who so kindly awarded me the S. Kirk Cabeen Travel Stipend; I cannot thank them enough for their kindness, and I hope that this conference write-up serves as proof of how beneficial I found the conference.

The overall tone of the conference was upbeat: while I haven't been with the SLA for very long, it seemed like the Philadelphia conference marked a fresh start for the organization, with an optimistic view towards the future. This attitude especially came across in the opening keynote, given by Erika Andersen. Ms. Andersen offered some remarkable advice: "Be bad first". She noted that even as we need to learn new skills, we should accept that "being bad" is going to come first, and offered strategies to work through that difficult patch. She spoke frankly about the fact that no one enjoys being terrible at a new skill, and that we tend to place a psychological stigma upon ourselves; "I should be better at this" we say to ourselves, a self-defeating interior voice, one that she urged the gathered librarians to write down and cast aside, externalizing that internal voice. Even more interestingly, she equated curiosity as a drive on the same level as hunger or thirst, and one of her quotes still sticks in my mind: "He or she who learns, leads!" Ms. Andersen's keynote was exactly what we needed to start the conference with a bang, and I left fired up with enthusiasm for the rest of the conference.

The first day of the conference continued with a session on strategic planning for information professionals, a sort of high-level look at

library planning. After lunch (at the always-wonderful Terminal Market in Philadelphia), I enjoyed a packed discussion on best practices in data management. Data management is rapidly becoming a major area for science and technology librarians, and it was wonderful to see this subject addressed at the conference. The day concluded with a first time attendee's informal get-together in the EXPO hall. It was wonderful to get to know the other first time conference-goers, and was a startling glimpse at just how many different jobs are available to ML(I)S graduates; I even spoke with a librarian from the Pentagon!

The new attendee's get-together took place in the EXPO hall, and before continuing I should talk a bit about the vendors. Since this was my first major library conference, I was unsure of what to expect from the vendor hall. It turned out to be a welcoming and information-rich atmosphere, mixed with all sorts of free goodies to bring back home. I was able to walk in and immediately strike up a conversation with our account manager for a major publisher, instantly solving some questions I just never got around to emailing, and creating a personal connection with the account manager. In another instance, I was able to talk with a vendor who was offering new and exciting materials that might be of interest to our faculty; while I'm not the one to make those decisions, I could at least bring the information back to our collections group for further discussion. Perhaps most shocking, the vendors were not pushy, but instead cordially invited you in for further discussions, and several reached out to me later after the conference was over.

Day two started off with the Sci-Tech Newcomers Breakfast, a great opportunity to get to know other members of the division in person. What struck me most was how far-reaching the profession and the division really are; one of my favorite conversations of the breakfast was with a librarian originally

from Ireland who now works for a major university in the UAE. The next session was on working with grey literature, and drew what, I think, was the largest crowd of the entire conference – it was standing room only by the time they started. It was extremely interesting, especially for someone like myself still early in my library career. While it didn't make me an expert in grey literature, at least now I know where to start. The next session, offered by The New York Times, discussed innovative storytelling and how the paper has been working with virtual reality. While I don't currently work with VR, I suspect that this will become a part of library services and tech lending, and it was nice to get an overview of the current technology and how it's being used. After more networking and refreshments in the vendor hall, the day concluded with the All Sciences Poster Session and Reception. It was a wonderful event, and the posters were extraordinarily well done. I ended up getting copies of several of the posters and showing them to colleagues, since they directly addressed projects we were currently working on.

Day three opened with a session on closing the skills gap for librarians, followed by a discussion on what role librarians can play in research on a campus, and rounding the day out with a talk on how libraries can expand their reach by partnering with faculty on campus in non-traditional ways. The final talk was especially interesting because it focused on data management, research impact measurements, and data literacy for patrons; these concepts are becoming increasingly important (especially in the science and technology fields), and it was useful to hear how other libraries are tackling them.

The SLA 2016 conference was a remarkable experience, in large part because of the forward-thinking slant of the sessions. It was a conference centered not simply on current problems or concerns, but with the issues coming up on the horizon, and the opportunities which will be available for libraries and librarians. It was an enriching experience, and one that I would highly recommend to any LIS student or librarian interested in getting more involved in the profession.

Reflections on SLA Annual Meeting

by Matthias Ammon

(Diane K. Foster International Student Travel Award recipient)

This conference report first appeared on the [SLA Europe Blog](#) and is reprinted here with permission.

Well, the couple of months since the SLA conference have certainly been busy for me: I started a new job, there was rather a lot of political upheaval in the UK, and I became an uncle for the first time! In between all of this, however, I have had a chance to reflect on what I have taken away from the conference.

After the excitement of being awarded the ECCA and the very helpful pre-conference prep by SLA and the insider tips by Tracy Z. Maleeff, I was very much looking forward to my first SLA conference. My trip started, somewhat inauspiciously, with watching a film called [Library Wars](#) as part of the in-flight entertainment programme. This was truly brilliant/terrible (delete as appropriate according to your enjoyment of Japanese B movies) but happily not a sign of things to come.

On my first evening in Philadelphia I met up for dinner with some of my fellow European chapter members, which was a great way to make some first connections. My fellow ECCA winner Helen has already described the inspiring opening parts of the conference which felt like not only a celebration of individual achievements but of the community of information professionals as a whole.

I was in a slightly unusual position during the conference in that I was literally between jobs (moving from an engineering library to a scholarly communications role) so there had been a bit of a switch of focus in my interests in the time between being awarded the ECCA and attending the conference. In addition, both my old and my new manager were involved in organising and presenting at the conference, so I split my time

between science/technology- and scholarly communication-related events. Of course, I also attended the evening receptions and made use of the excellent food options available at Reading Terminal Market next door!

Overall, the main theme that emerged for me from the sessions I went to was that the work that (academic) librarians do and are perceived to do is changing. This will not come as a surprise to many, but I felt that this was something that came through strongly, not only in the panels and presentations but also in conversations. One aspect of this was the 'skills gap' between what librarians are trained in in library school and what skills are needed in 'new' areas of librarianship such as scholarly communication. This is partly also reflected in the changes of job descriptions and job titles, particularly with regard to the role of the liaison librarian: there is a move away from subject specialists to jobs like 'research support librarian' which require less knowledge of subject content but more of wider frameworks in, for example, research data management.

There were a couple of case studies based on some of this relatively new kind of work that I found particularly illuminating. Tina Budzise-Weaver of Texas A&M University spoke about her project of measuring impact for a department (Performing Arts) that produced a lot of non-traditional scholarly output and how this had shown value to both the researchers and the administrative hierarchy. The panel this presentation was part of ('Scholarly communication at a turning point') also included a lively discussion about the lack of provision of useful metrics by publishers and vendors. Another aspect that was stressed during this session as well as others was the need for institutional support or buy-in to the services libraries may be able to provide with regard to their role in areas such as publishing, research assess-

ment and data management.

Another topic which received a lot of attention was information professionals' use of data. This ranged from an introduction to copyright law in both the UK and North America (USA and Canada) to examples of how librarians can engage users through making data more accessible. Jan Johansson (Information Manager at the Board of Governors of the Federal Reserve System) gave examples of strategies for extracting data which the owners were reluctant to make available in order to benefit your own institution's research. Scott Brown (Cybrarian at Oracle Systems) spoke about ways of 'repackaging' data to make it interesting even for people who have access to the same information by giving a fresh perspective and marketing it in an engaging manner. I also attended a panel in which information specialists from pharmaceutical companies presented their experiences of text mining for finding out what topics were being discussed by their medical affairs liaisons, for searching for specific genes and for the aim of repurposing drug compounds. One topic that featured strongly in most of the presentations on data was the importance of visualisation to make data more appealing and comprehensible.

For me personally the conference was a

great opportunity to learn from information professionals in different sectors and parts of the world other than my own. I have to admit though that flying in on Saturday and back out on Tuesday evening made it a bit of a whirlwind trip, and I don't think I ever fully adapted to the time difference. Straight after returning to the UK, I started working for the Office of Scholarly Communication at the University of Cambridge, based in the University Library. It had been very interesting for me to see how other librarians, whether in academia or other sectors, were working on similar issues to the OSC. Part of the work we are doing pertains to addressing several of the problems discussed, particularly with regard to raising awareness of and taking measures to reduce the 'skills gap'. We also work on a number of issues surrounding the changing landscape in academic publishing and scholarly communication more widely. Basically I felt very reassured about the relevance of my new job! You can follow our work at <https://unlockingresearch.blog.lib.cam.ac.uk/>

I would once again like to thank SLA Europe and the SLA Science-Technology Division for awarding me an Early Career Conference Award. I hope to stay involved with SLA in the future and to be able to keep exchanging ideas with my fellow practitioners.

SLA Annual Meeting Report

by Shazia Arif (*Bonnie Hilditch International Librarian Award recipient*)



Shazia Arif, Engineering and Design Librarian at Brunel University London, won the SLA Science-Technology and Engineering Divisions' Bonnie Hilditch International Librarian of the Year Award 2016 and reflects on her experience at the annual conference.

ence at the annual conference.

It's over four months since I attended the SLA Annual Conference, and I've had a chance to reflect and implement what I have learnt.

Since completing my MSc in Information Management from Robert Gordon University in 2015, I have embraced a number of opportunities to attend conferences and present papers. In December last year, with the support of the Interim Library Director, Malcolm Emmett at my current workplace, (Brunel University London) and my dissertation supervisor Dr Dina Martzoukou, I submitted my application for the Bonnie Hilditch International Librarian Award.

I was delighted to learn that I'd won! It was with great excitement that I planned my trip and attended the conference; it provided me with a fantastic professional development networking opportunity and allowed me to share my experiences and learn from others in an international setting. I tried to attend the sessions most relevant to engineering students, staff and researchers and leadership and management more generally.

My SLA adventure began in the summer with a whistle stop tour of New York, followed by my stay in Philly for the conference and culminated in a trip to Washington, where I was able to indulge my inner geek by visiting the National Postal Museum (I was a keen stamp collector in my youth) and the Library of Congress - every librarian's dream!

My first taster of what was to come com-

menced on the evening before the conference began, when I attended the anniversary dinner to celebrate the achievements of the Engineering Division over the past 50 years.

Food continued to be a theme, one of the best opportunities for informal interaction with my fellow SciTech members was at the "New Members Breakfast". As a first timer, it was great to get some tips and to have my questions answered. The conference was on a much bigger scale than anything I had attended before and events like this made it less daunting.

On day two of the conference, Brandy King invited the SLA European Chapter ECCA award winners and some of the committee members for dinner. This provided me with an opportunity to put some faces to Twitter names and resulted in a visit to the Engineering Faculty Library at Cambridge University on my return to catch up with Niamh Tumelty (SLA 2016 Engineering Division Conference Programme Planner).

Some of my conference highlights include:

The Masterclass session arranged by the Leadership and Management division, "The Conscious Leader: 9 Principles and Practices to Create a Wide-Awake and Productive Workplace" was delivered by Shelley Recienello. She focussed on the principles of authentic and effective leadership and I found it inspirational.

"If you are a leader, if you want to be a leader, if you want to be a better leader, an enlightened, authentic leader, embracing the nine principles and practices to consciousness can be your guide to worthwhile achievement and contribution" (Davidson, 2016).

Check out Emma Davidson's post for a more detailed [summary of the session](#).

Giovanna Badia's 'quick take' session "Googling for facts, grey literature and metrics in STEM" provided me with practical tips such as:

- Locating ASTM standards
- Searching for technical reports
- Finding grey literature sources

The "All Sciences and Engineering Poster Session" was a great place not just to collect my award, but also learn about interesting new research. Mei Ling Lo's Poster presentation "[Teaching Information Literacy Through the Lens of Citation Metrics and Research Impact](#)" was not only informative, but has had a direct impact on the work I do with Engineering students in my current role to prepare them for their Major Project. Since attending, I have collaborated with academics to deliver a series of lectures to final year project students. And in Lo's words this approach has "transformed my relationship with faculty".

Overall, the conference was fascinating; it had a great variety of activities and sessions. It provided ample opportunities for networking, exchanging teaching strategies, discussing changes to scholarly communications and the chance to learn about different engineering resources. I returned with lots of ideas which I've shared with colleagues at my workplace and beyond. I've implemented these in my work with the departments of

Mechanical, Aerospace, Civil Engineering and Design.

Once again, I'd like to extend my thanks to SLA Europe and the SLA Engineering and Science-Technology Divisions for

awarding me the Bonnie Hilditch International Librarian Award. I am keen to become more involved with the SLA throughout my career and am hopeful about continuing to network with and exchange ideas across international boundaries.

I'm still on a bit of a high after attending the conference! It was a valuable experience and has given me enthusiasm for sharing what I've learnt.

Finally, I'm looking forward to getting involved with the Awards Committee and judging next year's applications, and I'd like to encourage others to apply. If it's something you've considered but not had the courage to follow up - don't put it off. Apply for the 2017 award!



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.

Dear Chemistry Division Members,

It has indeed been a pleasure to serve as the Chair of the Chemistry Division for 2016. One of the highlights for me is to get to know a lot of our members and the networking opportunities it provided. It is always very satisfying to know that we have so many dedicated professionals in our division who are always willing to chip in and help. Thank you for renewing your membership and getting involve with the association.

Our 2016 conference sessions were very successful, and we were able to garner sufficient vendor support for our programs. The highlight of our conference this year was, of course, our division's 50th anniversary celebration.

We would once again like to thank all our vendors (ACS, CAS, Documents Delivered, Elsevier, Thieme, Thomson Reuters, and We Buy Books) and look forward to your continued support of the Chemistry Division.

Our new Executive Board for 2017 is comprised of the following officers:

- Dawn S. French, Chair
- Lutishoor Salisbury, Past-Chair

- Heather Lewin, Chair-Elect
- Mindy Peters, Treasurer
- Linda Galloway, Secretary



The bios of the two new incoming Executive Board members are below:

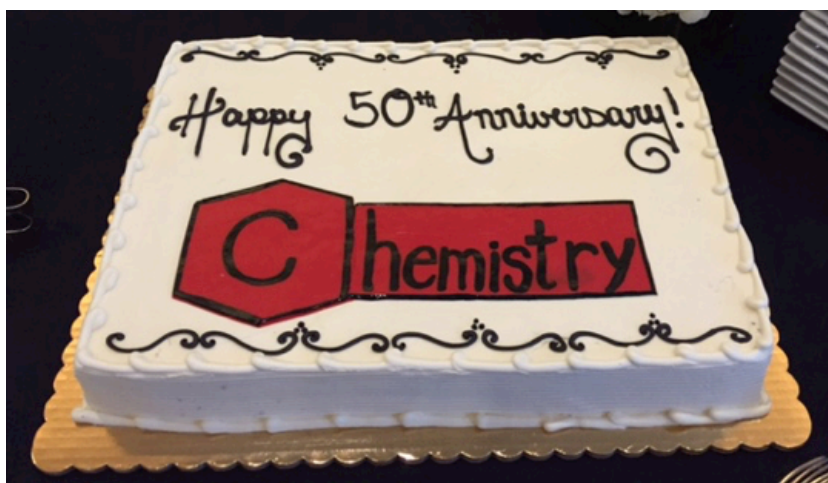
- Heather Lewin from Iowa State University for the three-year term of Chair-Elect – 2017; Chair – 2018; and Past Chair – 2019
- Mindy Peters from Carpenter Technology Corporation for the Treasurer position for an (additional) two-year term, beginning 2017

Heather Lewin is a Reference and Instruction Librarian at Iowa State University. She received her undergraduate degree in Biochemistry from Spring Arbor University and her Masters in Library and Information Science from University of Southern Mississippi.

Heather started her career in librarianship at Iowa State University nearly 10 years ago. In addition to supporting the overall mission of the library, Heather is responsible for instruction, collection development, and research support for her assigned subject areas.

She is currently subject specialist for Chemistry; Biochemistry, Biophysics, and Molecular Biology; Genetics, Development and Cell Biology; and Chemical and Biological Engineering.

Heather has been involved in SLA since 2007. She has served on committees in the Academic and SciTech Divisions. She is excited to serve the Chemistry Division and work with an amazing group of colleagues.



Mindy Peters is the Librarian and Copyright Officer for Carpenter Technology Corporation, a Steel and Specialty Alloy Manufacturer in Reading, PA. Mindy received her bachelors in Library Science from Kutztown University, and her MSLS from Clarion.

Mindy is a solo librarian wearing many hats, from patent research and intellectual property management to managing all aspects of library operations including document delivery, cataloging, collection development, budgets, technical education and outreach, assisting with research requests as needed, as well as being the go-to for copyright permissions and usage.

Mindy has been a member of SLA since 2007, served as Membership Chair of the Chemistry Division from 2013-2014 and has been serving as the Chemistry Division Treasurer since 2015.

Projects in Progress

- Update of the Chemistry Division Practice Manual (Ye Li, Past-Year, 2016, lead)
- Update to the Chemistry Division Strategic Plan (Ye, Li and Luti Salisbury)

Update on Members

Ye Li, past Chair of the Chemistry Division and previously the Chemistry Librarian at the University of Michigan has accepted a new position as the Scholarly Communications and Instruction Librarian at the Colorado School of Mines, Golden, Colorado.

Linda Galloway, secretary of the Chemistry Division and previously STEM Collection Development & Analysis Librarian at Syracuse University Libraries has accepted a new position as the Health Sciences Librarian at Chapman University.

Publications

Ginger Shultz and Ye Li. 2016. Student Development of Information Literacy Skills During Problem-based Organic Chemistry

Laboratory Experiments. *Journal of Chemical Education*. 93 (3), 413-422. DOI:10.1021/acs.jchemed.5b00523. This publication was made open access and listed as the Editor's Choice in the *Journal of Chemical Education*.

Salisbury, Lutishoor and Gwendolyn Matice. 2016. Early exposure to the Scientific Research Process through Collaboration with Chemistry Faculty and the Science Librarian. *Science and Technology Libraries*. 35(2), <http://www.tandfonline.com/doi/pdf/10.1080/0194262X.2016.1162118> DOI:10.1080/0194262X.2016.1162118

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From the Chair-Elect, Dawn French

Are you going to SLA 2017?

Planning for SLA 2017 conference sessions is moving along. We are focusing on the themes of data management and patent searching. We will also have our traditional sessions such as the Academic/Corporate Roundtables, Vendor Update, etc. The MRM section will have a session on resources in Materials Science.

SLA is making exciting changes to the annual conference. Be sure to mark your calendars and plan to attend. I



Bookmarks given at SLA 2016 by the Chemistry Division

would like to extend a big thank you to all who are helping to plan the conference and to provide feedback to make our conference a success.

Please let us know if you'd like to help in any way with the annual conference. We still need moderators, etc.

Did you know that Arizona has a history of gold, copper, and turquoise mining? Read A

Brief History of Phoenix by Jon Talton, for an introduction to the city. Additional reading recommendations can be found at: www.readingarizona.org and www.onebookaz.org Cu @ SLA 2017!

Dawn French, Chair-Elect 2016, Conference Co-Planner dawn.french@crystal.com

Kiem Ta, Conference Co-Planner kiem.ta@okstate.edu

DCHE Welcomes New & Returning Members

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

Kortney Rupp
University of Illinois at Champaign-Urbana
USA

Robert Tomaszewski
California State University
USA

Fiona Patrick
Corning Incorporated
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:

Ian Bruno
Cambridge
United Kingdom

Kortney Rupp
Champaign, Illinois
USA

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.



For this issue of *SciTech News*, there is no specific Chair column for the Engineering Division. Instead the Division shares two re-

ports from 2016 Engineering Division Award Winners.

Reflections from the 2016 SLA Conference

by Kerry Dubyk (*SPIE Digital Library Student Travel Stipend recipient*)



I was honored to receive the SPIE Digital Library Student Travel Stipend for the 2016 SLA Conference in Philadelphia as a current graduate student pursuing a Masters of Library and Information Science at Rutgers University. I would like to express my extreme gratitude to the SPIE Digital Library and the Engineering Division for investing in the future generation

of information professionals and for making such an extraordinary opportunity possible. My experience at the 2016 SLA Conference was amazing with many takeaways that I am privileged to share, and that would not have been possible without their generosity and support.

Joining the Community

Attending the SLA conference and joining the Engineering Division community, I become a part of an innovative, supportive community that has left a legacy of 50 years. I attended the celebration dinner of the 50 years of the Engineering Division, meeting with engineering librarians from around the country and the world who dedicate their professional lives to educating the next generation of engineering and science students. Their

professional stories and career advice were of tremendous value to me. Along with many other newcomers, I was welcomed by this strong community at the Science and Engineering Newcomers' Breakfast. I was recognized as an awardee and was able to learn about the amazing research being conducted by this extraordinary community at the All Sciences Poster Session and Reception. Becoming a part of this community by attending the SLA conference meant sharing in their wealth of knowledge and collaborating with leaders of the industry.

Emerging Technologies and the Digital Information Landscape

The amazing sessions at the SLA Conference were an educational opportunity to delve into many aspects and issues of this special library community. Emerging technologies and the ever-evolving digital information landscape and their impact in the information science community was one such aspect. The SLA conference sessions explored the excitement and challenges of these notions from digital copyright and data curation to data management and information privacy. Special libraries are in the midst of groundbreaking innovations that will change the way we seek and use information. The Library Lectures @ The Times introduced one of these technologies: virtual reality. I got a glimpse into how The New York Times is breaking new ground with

virtual reality experiences that customers can enjoy right from their smartphones. The possibilities and educational opportunities of such technologies are ripe for librarians.

While technology advances the capabilities of special libraries, I learned how information professionals have to be cognizant of how to handle the digital challenges as well. Cybersecurity and Cyberliability: Critical Issues That Matter to You and Your Organization was a great learning experience into how cybersecurity is a challenge of every staff member and is not just a problem for your organization's IT department. A few simple actions by all library staff members, such as proper data storage and access, can make a big difference in the overall cybersecurity of an institution.

Preserving History

The SLA Conference was an insightful experience in how we can preserve history for the next generation. The efforts of special librarians are invaluable to historians and writers. I attended the MAHD No-Host Mystery Author Lunch where a Philadelphian author spoke on her writings of mystery tales and biographies thanks to the historical records found in special libraries and archives. Land records and blueprints found in special collections and archives are essential to the work of architects, engineers, and preservation technicians. The Link Found Elsewhere: Archival Information in Forensic Engineering and Historical Preservation was an eye-opening session into the works of engineers and architects and their use of archival records in construction projects and renovations of historic properties. What Good is a Museum Library in the 21st Century? explored the crucial roles museum libraries play in the preservation of all areas of life from natural history to maritime life in New Zealand.

A Lasting Impact

As a graduate student, I was particularly

touched by the immense opportunities for networking and professional guidance offered at the SLA Conference. At the SLA Fellows and First Timers Meet, I met with library and information science students, recent alumni, and early-career professionals from around the country. Many sessions offered advice for students, such as Secrets from the Search Committee, which provided valuable advice from applying to jobs to interview success. Simply being immersed in the conference allows a student to explore the diversity of the industry and gain knowledge on the critical trends and issues currently facing special libraries.

The networking experience of the SLA Conference was invaluable to me as I continue my studies and will soon endeavor into the professional world of information science. There is no other venue quite like it, where I met with engineering and academic librarians, museum librarians, government librarians, corporate librarians, and many more. Experiencing the INFO-EXPO was a great opportunity to learn about all the amazing services offered by organizations that are crucial to special libraries, such as the SPIE Digital Library, which provides extensive research resources on optics and photonics.

I took away so much from the SLA Conference, and it will make a lasting impact in my educational and professional future. I will continue to share my amazing experience with my student community and beyond. As the co-President of SOURCE, the Student Organization for Rare and Unique Collections Everywhere, the Rutgers University Student Chapter of the Society for American Archivists, I am able to share my new knowledge and spread the word of the opportunities that are available to students. I also hope to pay it forward in the future as I start my information professional career in special libraries. I would like to thank the SPIE Digital Library and the members of the Engineering Division for making such an extraordinary experience at the 2016 SLA Conference possible.

Fundamentals of Knowledge Management and Knowledge Services

by Niamh Tumelty (IEEE Continuing Education Stipend Recipient)



This year, the IEEE Continuing Education Stipend made it possible for me to attend the Fundamentals of Knowledge Management and Knowledge Services course in Philadelphia. Knowledge management

seems to me to be core to any information-related role and I would like to be able to support library users in managing their own information and knowledge, so I was eager to pick up some tips that I could bring back to my workplace. I was not disappointed! Course leaders Dale Stanley and Deborah Hunt were professional, polished and ex-

tremely knowledgeable about the subject area, and the other course participants brought valuable insights from a wide range of sectors, including financial, NGO, health-care and law.

The course started with the basic principles (as you might expect from a 'Fundamentals' course), moving on to thinking about why it's essential (what would you lose if person X left the company?), to considering what services could be developed to support knowledge management and what roles information and knowledge specialists can play in all of this. The point was made that knowledge can't actually be managed and that we're really talking about creating a culture of knowledge sharing and strategic learning. I par-

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ticularly liked this link between 'knowledge management' and strategic learning – this is something I have been asked to advise on in the past and would love to be better able to support throughout my institution.

Before attending this course, my knowledge management strategy involved saving important information in specific email folders and on my team's shared drive. This worked well for me as an individual, but would be complicated to share with others. Since the course, I have started working to improve knowledge management within my team. I am storing key information in a shared One-Note notebook and have started to engage the rest of my team in doing this too. As

members of staff join us, it will be increasingly easy for them to quickly access the information they need when they need it, and my hope is that once good practice in this area has become a habit for my team, we will be able to turn our attention to developing this culture in other parts of the department.

I would like to thank IEEE again for sponsoring the continuing education stipend, and thank the SLA Engineering Division for awarding it to me. I strongly encourage others to apply for this great opportunity to learn practical skills as an add-on to the SLA conference.

Makerspaces in Libraries: The Big Table, the Art Studio or Something Else?

by Jeremy Cusker (*Engineering Reference and Outreach Librarian, Engineering Library, Cornell University*)

The siting of makerspaces in libraries arises out of a conception of the library as not just a repository of information, but also a place of creation. Further, it holds that creation should entail not only thinking, writing and other intellectual work but also the physical creation of and interaction with artworks, technology, and craft.

Many consider the 'ideal state' of a makerspace to be the image of a group of individuals, each working on a separate project but able to easily turn to each other and ask questions, exchange ideas and share tips with each other. We can refer to this as the 'Big Table' model of makerspaces. This can be contrasted with the older 'Art Studio' model in which different materials are used in entirely separate spaces--a pottery studio, a photography studio, and so forth. Some aspects of the Art Studio model are dictated by safety or practicality concerns (for instance, the blowtorch of a jeweler is directly incompatible with a photographer's need for darkness in which to expose negatives). In the Art Studio model, artists working in different media might rarely interact, unless perhaps separate social spaces are established and even then they are unlikely to be able to watch each other work.

In pursuit of the Big Table ideal, many would-be makerspace hosts decide that the best way to proceed would be to offer support for as many different interests as possible and so attract the largest number of individuals with the most-diverse possible range of interests. But there are many real difficulties to this approach:

- Resources for any makerspace are necessarily limited and trying to support every interest likely means supporting no interest in any depth.

- On a related note, different activities often have widely incommensurate price entry points. Purchasing some starter Arduino kits for electronics enthusiasts is relatively cheap, whereas a laser cutter can be thousands of dollars. These price differentials likewise can contribute to very good support for some users, poor support for others.
- Equipment for making necessarily involves dealing with the world of 'bits'--that is to say physical machines and all of their attendant moving parts, consumables, physical tolerances, and inevitable breakdowns. The more of these machines one accumulates in the name of serving a diverse population of users, the larger and more time-consuming does the maintenance backlog become.
- Beyond questions of price, there are limits to the ability of staff to develop expertise in different areas of technology, art and craftsmanship, especially in the context of a library or university, where supporting a makerspace is often a secondary responsibility.

This last point – the very real obstacles to development of staff expertise to assist would-be makers – is worth emphasizing. My own library's makerspace group determined early on that there were a number of makerspaces already on our campus that were equipped to assist specific populations of 'expert' users – engineering students, graduate students, members of project teams and so forth. We, therefore, sought to fill a niche as an 'introductory' makerspace for individuals without well-defined interests or much prior experience. We ourselves had relatively little technical expertise to draw upon but sought to educate ourselves so as to best support our users. Our initial slate of equipment offerings had been as follows:

- Three 3D printers (Makerbot Replicator, Replicator Mini and a TurnKey Innovations 3-axis model)
- 3D scanning
- A Silhouette vinyl cutter
- Eventual support for a laser cutter
- Button maker
- Extensive set of starter microelectronics and single-board computer kits including Arduino, Raspberry Pi, Makey-Makey and other models
- Art supplies
- Some hand tools

Adding a further wrinkle to our situation was that we had no permanent space to make this equipment available – we tried first a ‘mobile makerspace’ approach, taking the equipment from place to place and setting it up temporarily, later a ‘closet’ approach, storing the equipment in one place and setting it up temporarily in a computer lab for predetermined weekly periods, then packing it up and putting it away afterwards. Neither arrangement has been ideal: some of the equipment proved too fragile to easily move from place to place and none of it was easy to transport. The closet approach meant that projects that could not be completed in an hour or two could not realistically be undertaken, since everything would need to be closed down and put away.

But overshadowing even these difficulties was simply that we were trying to offer too much and so were not good at offering anything. Visitors to our makerspace events were overwhelmed by how much we had, but if they needed a concrete question answered about anything, they might immediately put us out of our technical depth.

A visit to a neighboring university (Ithaca Col-

lege) and its makerspace – which is focused entirely on 3D printing – was clarifying for us and led to a decision to focus almost entirely on 3D printing, with a small ancillary focus on small-scale crafting (particularly our button maker, which was reliably popular, easy to learn and demonstrate, and could serve as an advertisement for our services).

This narrowing of focus paid dividends of time by sharply reducing the amount of time we had to dedicate to maintenance and troubleshooting while also increasing the time we had available to increase our own knowledge and hence offer specialized help for would-be users. This has paid off with a now-steady stream of users with a genuine need for 3D printing services, such as those who have obtained high-resolution scans of biological specimens from Cornell’s Bioimaging Resource Center and now want to create replicas for teaching or consulting.

By focusing our services and our attention in this way, we have in some sense given up on the Big Table model of makerspaces, at least for the time being. We have shelved some aspects of the more participatory, multidisciplinary goals of that vision. But we have gained the ability to offer a real, tangible service for users and real skills for ourselves and our library.



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.



Greetings to my fellow Aerospace Section members and others!

Another eventful year is coming to a close, and I find every year becoming more compressed. Wasn't it just yesterday that I attended the annual conference in Philadelphia? The past year was, and still is, a time of great transitions, not only for my company, a global British enterprise, but also SLA and global politics. As I write this the U.S. election season is in its final days.

I am also ending my term as chair for the Aerospace Section, joining the ranks of Past Chair for 2017. With my term as Aerospace Chair ending at the end of December, I will be handing over my duties as Chair to Barbara Williams, the AeroAstro and Physics Librarian and Coordinator for the Science & Engineering Community of Practice at MIT Libraries. You will be in good hands with Barbara's plethora of experience. I am very grateful for Barbara taking up the mantle of Chair. She and others are planning a thought-provoking 2017 conference in Phoenix. I am certainly looking forward to the 2017 annual conference not only for the program sessions, but the camaraderie, networking and the desert!

I am indebted to all who have encouraged and supported me this year as chair. Many thanks go to Mary Whittaker, the current past-chair, whose reassuring and helpful support guided me well. Since this was my first leadership position in SLA, I had to

hit the ground running. I am thankful she was there with words of encouragement and at my side. I learned how to develop relationships with other divisions by co-sponsoring an insightful session. She was a good mentor, helping me navigate through my tenure.

I am looking forward to Barbara Williams as chair for the Aerospace section in 2017 and Teresa Powell as chair-elect. Thank you for your service to SLA and the Aerospace section. I will be here to help and encourage like those who also helped me.

As a last reminder—it's not too early to think about nominating someone for the Mandel Award for 2017. The George Mandel Memorial Award was established in 1989 by the Aerospace Section of the Engineering Division in memory of George Mandel, who passed away on July 16, 1989. George Mandel was a member of the aerospace industry library community for 30 years. This award was established to preserve the goals of the Aerospace Section and to keep alive George's belief that participating in professional organizations is important for an individual's growth and development.

Best wishes to all as we end this year and embark upon 2017.

Gabriele Hysong

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 9781138029637

Spatial Context: An Introduction to Fundamental Computer Algorithms for Spatial Analysis

Christopher M. Gold (International Society For Photogrammetry and Remote Sensing (ISPRS) Book Series; 8)

CRC Press, ©2016 217 p. \$179.95

During his 30 years working in geology, surveying, water resources and computer science, says Gold, he has tried to filter out a variety of concepts of space that seemed clumsy, awkward, and special-purpose, and replace them with more general and cross-disciplinary techniques. Here he shares what he has done so far. After setting out preliminaries of how to live with coordinates, graphs, and dominance, he covers models of space, points, boundaries, two-dimensional geographical information systems, and three-dimensional geographical information systems. He writes for a broad readership, but assumes readers are more comfortable with geometric explanations than algebraic ones.

GA105 9781462509980

Making Maps: A Visual Guide to Map Design for GIS, 3rd Edition

John Krygier and Denis Wood

Guilford Press, ©2016 293 p. \$55.00 (pa)

Krygier and Wood revise their guide for students and professionals to creating effective and compelling maps. They emphasize how design choices relate to the reasons for making a map and its intended purpose. The third edition expands coverage of using mobile digital devices to collect data for maps, including discussions of location services and locational privacy, and adds or expands several other areas. The topics include how to make a map, map making tools, the big picture of map design, map generalization and classification, map symbol abstraction, words, and color.

HYDROLOGY, OCEANOGRAPHY

GB1003 9781498742849

Groundwater Assessment, Modeling, and Management

Edited by M. Thangarajan and Vijay P. Singh

CRC Press, ©2016 511 p. \$259.95

Established scientists of recent decades and dynamic young academics and researchers describe methods for assessing, modeling, and managing groundwater, and illustrate them with examples from around the world. They cover groundwater resources and assessment, exploration, flow modeling, transport modeling, pollution and remediation, and managing water resources and the impact of climate change on groundwater. Their topics include applying electrical resistivity tomography to delineate a saltwater and freshwater transition zone: a case study on the west coast of Maharashtra in India, estimating stream conductance, modeling radionuclide transport in groundwater, toward the quantification of ion exchange in a sandstone aquifer, and applying natural and artificial isotopes in groundwater recharge estimation.

GB1399 9781138030039

Operational Flood Forecasting, Warning and Response for Multi-Scale Flood Risks in Developing Cities

María Carolina Rogelis Prada

CRC Press, ©2016 197 p. \$79.95 (pa)

In the context of a persistent lack of data, hydrologic and hydraulic conditions, and limited resources Prada aims to promote understanding of risk knowledge and forecasting elements of early flood warning vis-a-vis the environment of tropical high mountains in developing cities. She proposes a regional method for assessing flash flood susceptibility and for identifying debris flow predisposition at the watershed scale. Chapter 1 presents the thesis. Chapters 2 and 3 cover methodology for regional prioritization of flood risk in mountainous watersheds and focuses in the regional analysis of flood risk carried out in mountainous area surrounding Bogota. Chapter 4 presents the research carried out to propose a method to produce rainfall fields in real time for flood early warning purposes. Chapter 5 ex-

plores the performance of a distributed model (TETIS), a semi-distributed model (TOPMODEL) and a lumped model (HEC HMS soil moisture accounting) in the upper area of the basin that contains most of the priority watersheds identified in chapter 3. Chapter 6 takes as the starting point the TOPMODEL described in chapter 5 to study the added value of the precipitation forecasts produced with the weather research and forecasting (WRF) model. Chapter 7 presents the conclusions and recommendations.

GC10 9781466580817

Radar Imaging for Maritime Observation

Edited by Fabrizio Berizzi, Marco Martorella, and Elisa Giusti (Signal and Image Processing of Earth Observations Series)

CRC Press, ©2016 347 p. \$199.95

Editors Berizzi, Martorella, and Giusti present readers with a collection of research and professional perspectives on the latest results in radar imaging for maritime observation. The editors have organized the eleven selections that make up the main body of the text in two parts devoted to SAR and ISAR signal processing and applications. The individual contributions are focused on the principles of radar imaging, ISAR processing, 3D interferometric ISAR, and a variety of other related subjects. Fabrizio Berizzi and Marco Martorella are faculty members of the University of Pisa, Italy. Elisa Giusti is with the National Inter-University Consortium for Telecommunications in Italy.

GE300 9781498716529

Ecotoxicology and Chemistry Applications in Environmental Management

Sven Erik Jorgensen (Applied Ecology and Environmental Management)

CRC Press, ©2016 304 p. \$159.95

The textbook Integrated Environmental Management--A Transdisciplinary Approach, which Jorgensen wrote with J. C. Marques and S. Nors Nielsen, sets out seven steps for dealing with environmental problems. Problems with the discharge of toxic substances, however, proved too difficult--there being more than 100,000 different chemicals now in common use--so he has written this separate book on how to do what is possible within the constraints and lack of information. It focuses on toxicology and chemistry, but within the same seven step as the textbook. His hope is that the two volume together will show how integrated environmental management is applicable even to such a difficult area.

SCIENCE (GENERAL)

Q327 9781522505655

Pattern Recognition and Classification in Time Series Data

Edited by Eva Volna, Martin Kotyrba, and Michal Janosek (Advances in Computational Intelligence and Robotics)

Information Science Reference, ©2017 282 p. \$185.00

Editors Volna, Kotyrba, and Janosek present readers with a collection of academic essays and scholarly articles focused on intelligent methods and techniques for recognizing and storing dynamic patterns. The eight selections that make up the main body of the text are devoted to the recognition of patterns with fractal structure in a time series, artificial intelligence algorithms for classification and pattern recognition, modeling and language support for pattern management, and a great many other related subjects. Eva Volna, Martin Kotyrba, and Michal Janosek are all faculty members of the University of Ostrava in the Czech Republic.

MATH, COMPUTERS

QA9 9781501510809

Concepts of Proof in Mathematics, Philosophy, and Computer Science

Edited by Dieter Probst and Peter Schuster (Ontos Mathematical Logic; Volume 6)

De Gruyter, ©2016 374 p. \$154.00

Scholars from mathematics, informatics, and philosophy whose studies are centered on proof gathered in Bern, Switzerland in September 2013 to ponder the depth and breadth of the venerable concept of proof. From that conclave, 17 papers have emerged into print. Their topics include proof-oriented categorical semantics; the continuum hypothesis implies excluded middle, non-deterministic inductive definitions and fullness, relating quotient completion via categorical logic, Hilbert's program and ordinal analysis, and Aristotle's deductive logic: a proof-theoretical study.

QA193 9781482254648

Finite Element Methods for Eigenvalue Problems

Jiguang Sun and Aihui Zhou (Monographs and Research Notes in Mathematics)

CRC Press, ©2017 343 p. \$139.95

Sun and Zhou offer a self-contained, systematic, and up-to-date treatment of finite element methods for eigenvalue problems. They cover functional analysis, finite elements, the Laplace

eigenvalue problems, the biharmonic eigenvalue problem, Maxwell's eigenvalue problem, the transmission eigenvalue problem, the Schrödinger eigenvalue problem, adaptive finite element approximations, matrix eigenvalue problems, and integral based eigensolvers. The book can serve as a textbook for a graduate course on finite element methods for eigenvalue problems, they say, or as a self-contained reference for researchers who are interested in such problems and solutions.

QA241 9781470420208

Dynamics and Numbers

Edited by Sergiy Kolyada, Martin Möller, Pieter Moree, and Thomas Ward (Contemporary Mathematics; Volume 669)

American Mathematical Society, ©2016 315 p. \$108.00 (pa)

Editors Kolyada, Möller, Moree, and Ward present readers with a collection of academic papers that emerged from the proceedings of the Dynamics and Numbers activity held at the Max-Planck Institute for Mathematics in Germany in the summer of 2014. The selections that make up the main body of the text are devoted to the chaotic behavior of group actions, halving dynamical systems, dynamical systems of non-algebraic origin, Shearer's inequality and infimum rule for Shannon entropy and topological entropy, loops of transitive interval maps, and a great many other related subject areas.

QA278 9781482225662

Mixture Model-Based Classification

Paul D. McNicholas

CRC Press, ©2017 212 p. \$89.95

This book details mixture model-based approaches to the clustering and classification of unlabelled observations. Chapters discuss Gaussian mixtures, mixtures of factor analyzers and their extensions, variable selection, and high-dimensional applications, as well as mixtures of distributions that parameterize concentration; mixtures of skewed distributions; mixtures of distributions that parameterize skewness and concentration, or tail weight; and mixtures of multiple scaled distributions. They also cover methods for clustering and classification of longitudinal data, cluster-weighted models, averaging mixture models, the definition of a cluster, and the existence of a best clustering and classification method.

QA402 9781498758475

Theory of Stabilization for Linear Boundary Control Systems

Takao Nambu

CRC Press, ©2017 272 p. \$179.95

Nambu examines the stabilization theory for linear systems governed by partial differential equations of parabolic type. He covers the stabilization of linear systems of finite dimension, the basic theory of elliptic operators, the stabilization of linear systems of infinite dimension: static feedback and dynamic feedback, the stabilization of linear systems with Riesz bases: dynamic feedback, output stabilization: the lack of observability and/or controllability conditions, the stabilization of a class of linear control systems generating C_0 -semigroups, and a computational algorithm for an infinite-dimensional Sylvester's equation.

PHYSICS

QC718 9781628412956

Laser Plasma Physics: Forces and the Non-linearity Principle, 2nd Edition

Heirich Hora

SPIE, ©2016 332 p. \$74.00 (pa)

New material in this edition shows how the non-linearity principle is compatible with fundamentals of physics as described by Richard Feynman, thereby dispelling any concerns about the saturation or end of physics, and showing instead that nonlinearity is opening a new dimension of physical knowledge. Other topics include elementary plasma properties and hydrodynamics, the hydrodynamic derivation of the nonlinear forces with ponderomotive motion, the single-particle derivation of the nonlinear force, the ultrafast acceleration of plasma blocks by nonlinear force, and laser-driven fusion energy with picosecond pulses for block ignition.

CHEMISTRY

QD40 9781771881272

Research Methodology in Chemical Sciences: Experimental and Theoretical Approach

Edited by Tanmoy Chakraborty and Lalita Ledwani

Apple Academic Press, ©2016 371 p. \$197.95

Editors Chakraborty and Ledwani present readers with a collection of research papers and scholarly articles examining various contemporary problems in experimental, theoretical, and applied chemistry. The nineteen selections that make up the main body of the text are devoted to the magnetic field effect on photoinduced interactions, plasma chemistry as a tool for eco-friendly pro-

cessing of cotton textile, eco-friendly products as corrosion inhibitors for aluminum, and a wide variety of other related subjects. Tanmoy Chakraborty and Lalita Ledwani are faculty members of Manipal University in India. Distributed by CRC Press, a Taylor and Francis Group.

QD77 9783110352665

Grignard Reagents and Transition Metal Catalysts: Formation of C-C Bonds by Cross-Coupling

Edited by Janine Cossy

De Gruyter, ©2016 285 p. \$168.00

Mostly French chemists focus mainly on the cross-coupling reactions between organo halides as well as pseudo-halides and Grignard reagents to form carbon-carbon bonds using in turn palladium, nickel, iron, cobalt, manganese, copper, and silver. They do not aspire to exhaust the field, but to provide a useful overview of what has been achieved so far and what has yet to be realized, and to inspire those who are planning future development in carbon-carbon bond formation (or carbon-heteroatom bond formation) using Grignard reagents or who are trying to solve synthetic problems generally.

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TECHNOLOGY (GENERAL)

T59 9781498760706

Ergonomics in Design: Methods & Techniques

Edited by Marcelo M. Soares and Francisco Rebelo (Human Factors and Ergonomics Series)

CRC Press, ©2017 508 p. \$189.95

In this work for professionals and students in ergonomics and design, international contributors provide an overview of current methods in ergonomics as applied to human-system interactions in products, workstations, machinery, and systems. Examples come from areas such as games, education, fashion, virtual reality, consumer products, and transportation. After a review of theoretical issues, sections cover human characteristics in design, methodological issues, and design development. Some specific topics examined include ergonomics and wayfinding design, human factors and sustainability in architecture, grip comfort evaluation, and older workers and virtual environments. The book includes color and b&w photos, images, diagrams, and screenshots.

ENGINEERING (GENERAL, CIVIL)

TA166 9781466598430

Ergonomic Workplace Design for Health, Wellness, and Productivity

Edited by Alan Hedge (Human Factors and Ergonomics)

CRC Press, ©2017 443 p. \$99.95

Contributors from interior design, occupational health and safety, ergonomics, and other fields summarize the quite narrow range of environmental conditions under which humans can operate best, and the issues that arise in different workplaces. Among their topics are psychoacoustics: resolving noise distractions in the workplace, shift work effects on health and productivity, ergonomic concerns in universities and colleges, managing the safety and performance of home-based teleworkers: a macroergonomics perspective, and challenges and future research opportunities with ways of working.

TA169 9781498719179

Reliability Assessments: Concepts, Models, and Case Studies

Franklin R. Nash

CRC Press, ©2016 777 p. \$129.95
 Nash explains the statistical modeling of failure data for assessing reliability that reliability engineers need to know, thoroughly discussing several fundamentals without trying to be comprehensive and without going over matters that are adequately covered elsewhere. These are an overview of reliability assessments, the concept of randomness, probability and sampling, reliability functions, reliability model: exponential, reliability models: Weibull and lognormal, and bathtub curves for humans and components. Then he presents 72 case studies, among them 19 insulated fluid specimens (34 kV), 36 failures of a 500 MW generator, 101 aluminum coupons (31 kpsi), and 417 light bulbs.

TA170 9781498753050
Environmental Sustainability Using Green Technologies

Edited by V. Sivasubramanian
 CRC Press, ©2016 430 p. \$129.95
 Contributors from chemical engineering and biotechnology explore emerging dimensions of environmental sustainability in a number of fields. Their topics include the green synthesis of eco-friendly nanoparticles and their medical applications, the role of phytoremediation in maintaining environmental sustainability, current developments in the mass production of microalgae for industrial applications, an integrated biological system for treating sulfate-rich wastewater, treating textile dyes using biosorption and bioaccumulation techniques, microbial fuel cell technology: a sustainable energy producer from a wide variety of waste sources, and a comprehensive review on source apportionment of pollutants in the atmosphere by receptor models.

TA349 9789813145597
Mechanics and Mechanical Engineering: Proceedings of the 2015 International Conference (MME2015)

Edited by Maosen Cao
 World Scientific, ©2016 1375 p. \$295.00
 Professors, researchers, and scholars from around the world gathered in Chengdu, China to share recent innovative research and other developments in mechanics and mechanical engineering. The 165 papers appear in sections on applied mechanics, mechanical engineering and manufacturing technology, material science and material engineering, automation and control engineering, electrical engineering, and system modeling and simulation. Among specific topics are the impact of water depth on dynamic characteristics of a bridge, the sensitive frequency of

fixed-point loading for a track loading vehicle, an extension of the quartic Said-Bell curve with two parameters, a benchmark study on the finite element analysis of two interacting circular holes, a hybrid algorithm for multi-objective optimization problems, flexible charging power supply of pulse capacitors, and simulating and evaluating marine product virtual factory.

TA357 9781498760904
Convective Flow and Heat Transfer From Wavy Surfaces: Viscous Fluids, Porous Media, and Nanofluids

Aroon Shenoy, Mikhail Sheremet, and Ioan Pop
 CRC Press, ©2017 306 p. \$189.95
 Wavy surfaces are widely used to facilitate flow and heat transfer, but Shenoy, Sheremet, and Pop pull the information into a single reference for the first time. They offer a comprehensive treatise on flow and heat transfer from a wavy surface and in cavities having wavy walls. Among their topics are governing equations, steady natural and mixed convection flow in viscous fluids over a wavy vertical wall, forced convective flow in a wavy horizontal channel, natural convection flow saturated with nanoparticles in wavy-walled cavities and in wavy-walled porous cavities.

TA404 9783110412369
Multiscale Materials Modeling: Approaches to Full Multiscale Modeling

Edited by Siegfried Schmauder and Immanuel Schäfer
 De Gruyter, ©2016 326 p. \$168.00
 Mechanical engineers, civil engineers, materials scientists, and other contributors explore the growing field of multiscale materials modeling, and demonstrate some of the first examples from multi-time-scale and multi-length-scale simulations of precipitation and strengthening effects; multiscale simulations of plastic deformation and fracture; and multi-scale simulations of biological and bio-inspired materials, bio-sensors, and composites. Among specific topics are multiscale modeling predictions of age hardening curves in aluminum-copper alloys, the kinetic Monte Carlo modeling of shear-coupled motion of grain boundaries, atomistically informed crystal plasticity model for body-centered cubic iron, molecular dynamics study on low temperature brittleness in tungsten single crystals, and peptide-zinc interaction.

TA417 9781482263916
Miniaturized Testing of Engineering Materials
 V. Karthik, K.V. Kasiviswanathan, and Baldev Raj

(Advanced Materials Science and Technology)
CRC Press, ©2017 165 p. \$139.95

This volume details methods for miniature specimen testing using sizes much smaller (0.3-3.0 mm) than conventional sizes, to characterize the mechanical properties of engineering materials, including scaled-down versions of tensile, impact, and fracture toughness tests, as well as the punch and indentation-based nonconventional techniques. It outlines different conventional mechanical test methods and the specimen sizes they use and the need to use miniaturized specimens in applications where conventional tests are not possible; miniaturized test methods for the determination of tensile properties and associated flow curve of material; methods for fatigue and fracture toughness determination; specimen size effects, their influence on the measured mechanical properties, and various factors, such as number of grains, constraints, and deformation/failure mechanisms, that have size effects for each of the test techniques; and the applications of this testing technology to nuclear (irradiated components), power plant structures, narrow zones like weld joints and coatings, and characterizing nanomaterials and biomaterials.

TA418 9783110352849

Ceramic Matrix Composites: Materials, Manufacturing and Engineering

Edited by J. Paulo Davim (Advanced Composites; Volume 5)

De Gruyter, ©2016 145 p. \$196.00

Physicists and materials scientists and engineers provide graduate and undergraduate students an overview of recent research into ceramic matrix composites, which consist of a ceramic primary phase embedded with a secondary phase to improve mechanical properties, primarily toughness. They cover the mechanical behavior of ceramic matrix composites and predicting lifetime by acoustic emissions, advanced electroceramic composites: property control through processing, regulating and controlling macro-micro structure for optimal performance in alumina self-lubricated composites, measuring mechanical properties of interfaces in ceramic composites, carbonaceous nanomaterials for hybrid organic photovoltaic application, and advances in self-healing based on carbon nanomaterials for electrical circuits.

TA643 9781522505884

Modeling and Simulation Techniques in Structural Engineering

Edited by Pijush Samui, Subrata Chakraborty, and Dookie Kim (Advances in Civil and Industrial Engineering)

Engineering Science Reference, ©2017 523 p. \$220.00

Samui, Chakraborty, and Kim present developments in advanced computational techniques and new research areas in the diverse field of structural engineering. The chapters are written by more than fifteen experts who aim to promote the impetus for application of new modeling techniques for assessing performance of structure. A sampling of topics covered includes dynamic analysis of offshore wind turbine structures, agent based modelling of smart structures, finite analysis of pipe bends under external loads, and fuzzy structural analysis using surrogate models.

TA656 9781138028104

Non-Destructive Techniques for the Evaluation of Structures and Infrastructure

Edited by Belén Riveiro and Mercedes Solla (Structures and Infrastructures Series; Volume 11)

CRC Press, ©2016 396 p. \$159.95

Engineers in a range of fields describe non-destructive technologies that are used to evaluate buildings and other structural elements more quickly and cheaply than previous techniques, and with increasing accuracy. The sections cover an overview of geomatic technologies, applications in infrastructure facilities, and new management tools and intelligent modeling. Among their topics are fundamentals of geophysics and applications in structures and infrastructures, fundamentals and applications of infrared thermography, using ground penetrating radar and LiDAR in the non-destructive testing of tunnels, monitoring breakwaters using geomatic technologies, non-destructive techniques applied to assessing ancient masonry bridges: structural diagnosis and geometric modeling, and new challenges in processing data from laser scanning: automatic processing of data and object recognition.

TA772 9780124201156

Design and Construction of Soil Anchor Plates

Hamed Niroumand and Khairul Anuar Kassim

Elsevier, ©2016 202 p. \$120.00 (pa)

Anchor plates are geotechnical devices designed to prevent the overturning of structures that experience lateral, inclined, and uplift loads, say Niroumand and Kassim, and they focus here on the structural design of anchor plates and the uplift and bearing capacity of anchors designed primarily to resist outwardly-directed loads imposed onto the foundations of structures. They begin by introducing all types of earth anchors, then narrow their focus to anchor plates, giving

calculation equations and outlining requirements of anchor plates for use in sandy soils and plates embedded in clays. Finally, they explain all the features of anchor plates that can be used in multilayer soils.

TA1145 9781498726177

Human Factors in Transportation: Social and Technological Evolution Across Maritime, Road, Rail, and Aviation Domains

Edited by Giuseppe Di Bucchianico, Andrea Vallicelli, Neville A. Stanton, and Steven J. Landry (Industrial and Systems Engineering Series; 11) CRC Press, ©2017 452 p. \$129.95

Researchers in transportation, human factors, architecture, and other fields report research and reflect on experience related to the relationship between human factors; recent social and technological developments; and the main areas of transportation: maritime, rail, road, and aviation. Their topics include using eye-tracking and mouse cursor location to examine visual alerting in a multi-display environment, a multi-method analysis of the accessibility of the Izmir Ferry system, analyzing ecological driving with the decision ladder: the first step to fuel-efficient driving for all, exploring the role of culture in helicopter accidents, and investigating relevant cognitive abilities in the velocity-obstacle-based display for collision avoidance.

TA1530 9789814669764

Silicon Nanophotonics: Basic Principles, Present Status, and Perspectives, 2nd Edition

Edited by Leonid Khriachtchev
Pan Stanford Publishing, ©2016 503 p. \$179.95
So quickly are the science and technology of silicon nanophotonics changing that eight of the 16 chapters in the 2008 first edition have been replaced by seven entirely new chapters. Among the topics are silicon nanocrystals for photonics and photovoltaics: ab initio results, room temperature light emission from silicon nanowires fabricated by a metal-assisted wet etching process, engineering nonlinear sources with silicon-compatible optical materials, silicon nanocrystals in silica: optical properties and laser annealing, and biological applications of silicon nanostructures. Distributed by CRC Press, A Taylor & Francis Group member.

TA1634 9781522508892

Multi-Core Computer Vision and Image Processing for Intelligent Applications

Edited by Mohan S. and Vani V. (Advances in Computational Intelligence and Robotics)

Information Science Reference, ©2017 291 p. \$210.00

Editors Mohan S. and Vani V. present readers with a collection of academic papers and scholarly essays focused on contemporary and emerging developments in the field of image processing. The nine contributions that make up the main body of the text are devoted to controlling prosthetic limb movements using EEG signals, parallel computing in face image retrieval, creating a sound glyph database for video subtitling, and a wide variety of other related subjects. Mohan S. and Vani V. are faculty members of Al Yamamah University in Saudi Arabia.

HYDRAULIC ENGINEERING

TC333 9789814749602

Design and Construction of Berm Breakwaters

Jentsje van der Meer and Sigurdur Sigurdarson (Advanced Series on Ocean Engineering; Volume 40)

World Scientific, ©2017 329 p. \$98.00

Van der Meer contributes his scientific experience and Sigurdarson his practical experience in berm breakwaters to present a guide for the practical designer. The scientific background and validation might also interest hydraulic modelers and researchers. They focus on what is called the Icelandic-type berm breakwaters, which are more stable structures because they use more rock classes and involve less reshaping than the designs that were developed during the 1980s. They cover the history of modern berm breakwaters; the classification and types of berm breakwaters; predicting stability and reshaping; functional behavior: wave overtopping, reflections, and transmissions; the geometrical design of the cross-section; armourstone and quarrying; construction; geometrical design into practice; and constructed examples.

TC405 9781466581302

Hydrology and Water Resource Systems Analysis

Maria A. Mimikou, Evangelos A. Baltas, and Vasiliios A. Tsihrintzis

CRC Press, ©2016 459 p. \$69.95

Civil engineers Mimikou and Baltas and environmental engineer Tsihrintzis provide students and practitioners with a guidebook on hydrological and water resource issues with basic and theoretical information illustrated by many examples. They cover precipitation and hydrological losses, runoff, probability and statistics in hydrology,

groundwater hydrology, hydrological design, urban hydrology and stormwater management, and sediment transport and erosion. Among details are hydrological variables and their units of measurement, cooling mechanisms and types of precipitation, determining potential evapotranspiration from climate data, the statistical analysis of extremes, and computing the quantity of urban runoff.

ENVIRONMENTAL TECHNOLOGY

TD201 9781784661410

Urban Water Systems and Floods

Edited by D. Proverbs, S. Mambretti, C. A. Brebbia, and N. Ursino (WIT Transactions on the Built Environment; Volume 165, 2016)

WIT Press, ©2016 344 p. \$312.00

The 29 papers in this collection were selected from presentations to an international conference held in Venice. Looking in turn at urban water and flood risk, they consider such topics as the influence of chlorinated water on the mechanical properties of polyethylene and polyvinyl chloride pipes, using energy generated by water flowing in pipes to power devices monitoring the water supply network, a laboratory study of the rainfall influence over the sediment transport dynamics in the discharge from pervious pavements, a projection in Hilbert space for forecasting flooding of New Zealand's Pomahaka River, and the hydraulic efficiency of road drainage inlets for a storm draining system under clogging effect. The US office of WIT Press is Computational Mechanics International Inc.

TD477 9781498753333

Advanced Nanomaterials for Wastewater Remediation

Edited by Ravindra Kumar Gautam and Mahesh Chandra Chattopadhyaya (Advances in Water and Wastewater Transport and Treatment; 4)

CRC Press, ©2017 414 p. \$239.95

Chemical and environmental engineers describe the synthesis, fabrication, and application of advanced nanomaterials in water treatment processes. They highlight the material's adsorption, transformation into low toxic forms, or degradation phenomena, and the adsorption and separation of hazardous dyes, organic pollutants, heavy metals, and metalloids from aqueous solutions. Their topics include electro-oxidation processes for dye degradation and colored wastewater treatment, nanomaterial-supported biopolymers for water purification, nanomaterial-based sorbents for removing heavy metal ions from water,

activated carbon-doped magnetic nanoparticles for wastewater treatment, and the environmental face and ecotoxicity of engineered nanoparticles: current trends and future perspectives.

TD796 9781771883085

Thermochemical Waste Treatment: Combustion, Gasification, and Other Methodologies

Edited by Elena Cristina Rada

Apple Academic Press, ©2017 293 p. \$149.95

Chemical and environmental engineers discuss various approaches and technologies for the thermochemical treatment of waste in order to reduce environmental emissions and landfill. Among their topics are characteristics of melting incinerator ashes using a direct current plasma torch, the cogeneration of renewable energy from biomass: utilizing municipal solid waste to produce electricity through gasification, landfill minimization and material recovery through waste gasification in a new waste management scheme, the thermal and catalytic pyrolysis of plastic waste, and the hydrothermal upgrading of Korean municipal solid waste for solid fuel production. Distributed by CRC Press, A Taylor & Francis Group member.

MECHANICAL ENGINEERING & MACHINERY

TJ211 9781498767040

Nonlinear Control of Robots and Unmanned Aerial Vehicles: An Integrated Approach

Ranjan Vepa

CRC Press, ©2017 544 p. \$179.95

Vepa focuses on control and regulation methods that rely on techniques related feedback linearization, rather than the more commonly known methods that rely on Jacobian linearization. The underpinning themes that serve as a foundation for both robot dynamics and unmanned aerial vehicles include Lagrangian dynamics, feedback linearization, and Lyapunov-based methods of both stabilization and control. The book addresses the increasing appearance of both robot manipulators and unmanned aerial vehicles with operating regimes that involve large magnitudes of state and control variables in environments that are not generally very noisy.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK1041 9781498708227

Thermal Power Plants: Modeling, Control,

and Efficiency Improvement

Xingrang Liu and Ramesh Bansal
 CRC Press, ©2016 303 p. \$159.95
 Liu and Bansal introduce methods for modeling and controlling fossil fuel boiler combustion processes and improving their efficiency that are used in thermal power plants, discussed in scientific research, and taught at universities. They focus narrowly on how to solve highly complex problems regarding identifying, controlling, and optimizing by integrating computational fluid dynamics with conventional technologies such as modern control technology, computational intelligence-based multi-objective identification and optimization, distributed computing, and cloud computing. They discuss the methods in electric power engineering, but say they can be applied in other sectors as well, such as concrete and steel production.

TK1087 9781482259803
Photovoltaic System Design: Procedures, Tools and Applications

Suneel Deambi
 CRC Press, ©2016 254 p. \$119.95
 Writing for photovoltaic system designers, project developers, and manufacturers, Deambi focuses on sizing a photovoltaic system and on tools for analyzing and designing a system. He also emphasizes the importance of using solar photovoltaic technologies for a number of end-use applications. Among his topics are the role of renewable energy technologies in the overall energy scenario at a global level, solar radiation availability on Earth, photovoltaic system design considerations, photovoltaic system sizing procedures using simulation software, and capacity-building initiatives for simulation software outreach.

TK2933 9789814669344
Structural Characterization Techniques: Advances and Applications in Clean Energy

Edted by Lorenzo Malavasi
 Pan Stanford Publishing, ©2016 250 p. \$129.95
 This volume compiles eight chapters that outline advanced tools used to characterize the crystal structure of complex materials for energy conversion and storage technologies, including spectroscopic, crystallographic, and modeling strategies and materials for oxide ions and protons, solid-oxide fuel cells, lithium batteries, and hydrogen storage materials. Contributors are scientists from Europe and Japan. Distributed by CRC Press.

TK2941 9781482258530
Metal-Air and Metal-Sulfur Batteries: Fundamentals and Applications

Edited by Vladimir Neburchilov and Jiujun Zhang (Electrochemical Energy Storage and Conversion)
 CRC Press, ©2017 194 p. \$119.95
 Scientists from the US, Canada, and Asia detail the fundamentals and applications in the electrochemical energy storage and conversion of different types of metal-air and metal-sulfur batteries: zinc-air, lithium-air, aluminum-air, magnesium-air, lithium-sulfur, and vanadium-air redox flow batteries. It provides analysis of these batteries at the material, component, and system levels, as well as discussion of recent technological trends in their development.

TK7871 9781498736534
Organic Thin-Film Transistor Applications: Materials to Circuits

Brajesh Kumar Kaushik, Brijesh Kumar, Sanjay Prajapati, and Poornima Mittal
 CRC Press, ©2017 351 p. \$159.95
 Kumar and colleagues offer a comprehensive review of the theory behind organic electronics, considering recent aspects from materials to device physics. Their topics include analytical modeling and parameter extraction of top and bottom contact structure of organic thin-film transistors, the impact of semiconductors and dielectric thickness on the performance of top and bottom contact organic thin-film transistors, organic light-emitting transistors, digital circuit designs based on single and dual gate organic thin-film transistors using diode load logic and zero-V_{gs} load logic configurations, and applications and future perspectives.

TK7872 9781498746854
Mobile Ad Hoc Networks: Bio-Inspired Quality of Service Aware Routing Protocols

G. Ram Mohana Reddy and Kiran M.
 CRC Press, ©2017 180 p. \$129.95
 Reddy and M explore research into how swarm intelligence and cross-layer design in combination can improve the quality of service in mobile ad hoc networks, focusing on how security could be provided to the application end user through swarm intelligence principles for the networks. They also describe the animal behavior that researchers take inspiration from. Their topics include multi-hop networks, insect swarms, fish flocks, ants and network routing, hybrid-bio-inspired routing algorithms, the load-balanced terminate: novel load aware bio-inspired routing, and a classification of security attacks.

TK7874 9781439878309

Semiconductor Nanocrystals and Metal Nanoparticles: Physical Properties and Device Applications

Edited by Tupei Chen and Yang Liu (Advances in Materials Science and Engineering)

CRC Press, ©2017 511 p. \$179.95

Contributors from physics and materials science examine the physical properties and device applications of semiconductor nanocrystals and metal nanoparticles. Among the topics are size-controlled and shape-controlled zinc oxide nanostructures for multi-functional devices, silicon nanocrystals: properties and potential applications, second-order nonlinear susceptibility in quantum dot structures, applications of metal nanoparticles and nanostructures fabricated using ultrafast laser ablation in liquids, and novel nanoelectronic device applications of nanocrystals and nanoparticles.

TK7876 9781522507734

Handbook of Research on Advanced Trends in Microwave and Communication Engineering

Edited by Ahmed El Oualkadi and Jamal Zbitou (Advances in Wireless Technologies and Telecommunication)

Information Science Reference, ©2017 715 p. \$315.00

Computer scientists and electrical engineers review current research and development in antennas, electromagnetic theory, and applications; micromechanical integrated circuits, radio frequency circuits, and devices for wireless communication; wireless communication systems, wireless sensors, and vehicular ad hoc networks; and radar, signal and image processing, and power electronics. Among their topics are a new technique to determine the complex permittivity of each layer for a bi-layer dielectric material at microwave frequency, some new topologies and associated techniques for achieving planar filters, advance and innovation in wireless power transmission technology for autonomous systems, adjusting fuzzy model parameters for head election in wireless sensor network protocols, and an accurate and efficient analytic method to extract the parameters of the single and double diode photovoltaic cells model.

TK7882 9781498745710

Multisensor Attitude Estimation: Fundamental Concepts and Applications

Edited by Hassen Fourati, and Djamel Eddine Chouaib Belkhiat (Devices, Circuits, and Systems)

CRC Press, ©2017 580 p. \$259.95

The 31 chapters in this volume outline the fundamental concepts and applications of contemporary data fusion methodologies for attitude estimation, as well as recent research and advances in the multisensor attitude estimation task and disciplines like navigation, robotics, biomedicine, and motion analysis. Fusion researchers and academics from around the world cover the nature of sensors and information sources; the computational ability at the sensors; the theoretical developments and convergence proofs; and the system architecture, computational resources, and fusion level. They discuss attitude representations, rotations, kinematics, and dynamics, then the main theories and advances in multisensor filtering for attitude estimation with experimental tests and advances like aerial navigation, motion analysis, and satellites.

TK8315 9781510601833

Getting Started With UAV Imaging Systems: A Radiometric Guide

Barbara Grant

SPIE, ©2016 144 p. \$59.00 (pa)

Grant examines unmanned aerial vehicle (UVA) imaging systems in light of their platform and applications contexts for engineers and scientists who specify instrument requirements; design, build, or test hardware; or analyze images for commercial, scientific, or military applications. She covers the radiometry of targets: emission and reflection; radiometric propagation basics; imaging system basics; platforms, sensors, and applications; the image data product and quality metrics; and detectors for unmanned aerial vehicle systems.

TK8322 9781498723275

Organic Solar Cells: Device Physics, Processing, Degradation, and Prevention

Pankaj Kumar

CRC Press, ©2017 325 p. \$169.95

This book outlines the types, structures, fabrication, and degradation of organic solar cells. It describes the various generations of solar cells; degradation in different solar cell technologies; the architecture, materials and processing, and parameters that control the performance of organic solar cells; device physics and modeling; roll-to-roll processing; cost analysis and technological impacts; and qualitative and quantitative measurement and prevention of degradation.

**MOTOR VEHICLES, AERONAUTICS,
ASTRONAUTICS**

TL589 9780877036319

**Guidance, Navigation, and Control 2016
(CD-ROM included)**

Edited by David A. Chart (Advances in the Astro-
nautical Sciences; Volume 157)

American Astronautical Society, ©2016 1109 p.
\$240.00

Editor David A. Chart presents readers with the collected proceedings of the thirty-ninth annual AAS Rocky Mountain Section Guidance and Control Conference, held in February of 2016 in Breckenridge, Colorado. He has organized the selections in fourteen parts devoted to student innovations in guidance, navigation, and control; guidance, navigation, and control future concepts; the future of space servicing; and a wide variety of other related subjects. The editor is employed by Lockheed Martin Space Systems Company of Denver, Colorado. Published by Univelt for the American Astronautical Society.

TL718 9781624103544

**Civil and Commercial Unmanned Aircraft
Systems**

Jay Gundlach (AIAA Education Series)

American Institute of Aeronautics & Astronautics,
©2016 474 p. \$99.95

Gunlach does consider commercial applications, and even touches on military matters when they overlap, but the book's main focus is on civil unmanned aircraft systems, used by civilians and by civilian governments for such purposes as recreation, law enforcement, emergency response, and scientific research. He does not delve into the mechanical and electronic interior of the systems, but explores their myriad places in the world. Among the topics are system technologies for civilian missions; surveying, mapping, and aerial photography; law enforcement and public safety; journalism, cinematography, and photography; and hobbies, art, and recreation.

TL790 9781624104084

Advances in Systems Engineering

Edited by John Hsu and Richard Curran (Progress
in Astronautics and Aeronautics; Volume 252)

American Institute of Aeronautics & Astronautics,
©2016 298 p. \$119.95

Six papers revolve around recent conference presentations and other research reports to provide a reference on the current status of systems engineering. They cover system of systems integration: fundamental concepts, challenges, and opportunities; advances in socio-technical sys-

tems; engineering resilience into human-made systems; applying SysML and a model-based systems engineering approach to a small satellite design; a system engineering approach and case study for technology infusion for aircraft conceptual design; and powerful opportunities to improve program performance using lean systems engineering and lean program management.

TL1489 9781624103537

**The Space Environment and Its Effects on
Space Systems, 2nd Edition**

Vincent L. Pisacane (AIAA Education Series)

American Institute of Aeronautics & Astronautics,
©2016 923 p. \$114.95

Pisacane writes for readers who want to understand the physics of the space environment and those who want to understand the engineering aspects of the effects of the space environment on space systems. The level is suitable for advanced undergraduate or beginning graduate engineering students, and for practitioners in fields other than space environment. His main focus is the interaction of spacecraft with Earth's environment, but he also considers extraterrestrial environments. A selection of the material could serve a one-semester course, and the whole book would fill two semesters.

TL1499 9781624103230

**Asteroid and Space Debris Manipulation:
Advances From the Stardust Research Network**

Edited by Massimiliano Vasile and Edmondo Minisci (Progress in Astronautics and Aeronautics;
Volume 250)

American Institute of Aeronautics & Astronautics,
©2016 517 p. \$134.95

The Stardust Research Network is an initiative of the European Space Agency charged partly to train a next generation of engineers and scientists to turn the threat represented by asteroids and space debris into an opportunity and to mitigate, if not remove, the threat of an impact. The chapters here were developed from lectures delivered during the opening training in November 2013. The topics include the accessibility of the near-Earth asteroids, regular and chaotic motions in dynamical systems with applications to asteroid and debris dynamics, classical methods of determining orbit, robotic active debris removal and on-orbit servicing, and methods and techniques for asteroid deflection.

CHEMICAL TECHNOLOGY

TP248 9781771882699

Industrial Biotechnology: Sustainable Production and Bioresource Utilization

Edited by Devarajan Thangadurai and Jeyabalan Sangeetha

Apple Academic Press, ©2017 464 p. \$159.95
 Chemical engineers, microbiologists, and other researchers involved in biotechnology consider the use of cells and biomolecules in the manufacture of various products. Among their topics are alkaliphilic bacteria and thermophilic actinomycetes as new sources of antimicrobial compounds, halophiles: pharmaceutical potential and biotechnological applications, proteases from thermophiles and their commercial importance, the genetic enhancement of *Saccharomyces cerevisiae* for first and second generation ethanol production, and anaerobic bioreactors for treating chlorinated hydrocarbons. Distributed by CRC Press, A Taylor & Francis Group.

TP329 9781498772891

Lignites: Their Occurrence, Production and Utilisation

Clifford Jones

Whittles Publishing, ©2016 203 p. \$89.95
 This volume describes the occurrence, production, and use of lignites/brown coal as a fuel resource. It explains their physical properties, petrography, use in pre-industrial times and in the early industrial era, and application for electricity generation in Germany and other European countries, North America, Asia, the Indian subcontinent, the former Soviet Union, and Australia. It covers briquette production, carbonization, gasification, conversion to liquid fuels, chemical substances drawn from lignites, the development of unworked lignite deposits, hazards, leonardite, carbon capture and storage at lignite-utilizing plants, co-combustion of lignites with other fuels, comparisons with peat and sub-bituminous coals, lignite originating in isolated or undeveloped locations, and national and international standards. Distributed in North America by CRC Press.

TP359 9781498732994

Fuel Cells: Dynamic Modeling and Control With Power Electronics Applications, 2nd Edition

Bei Gou, Wookni Na, and Bill Diong (Power Electronics and Applications Series)

CRC Press, ©2017 393 p. \$179.95

This volume outlines the modeling and control of proton exchange membrane fuel cells and their power electronics applications. It details typical

approaches and results and includes linear and nonlinear models and control designs, as well as power converter control designs for fuel cell power applications, including a linear controller, the sliding mode control technique, and predictive control. It covers the basics of fuel cells and fuel cell power systems; linear and nonlinear modeling of fuel cell dynamics; approaches of linear and nonlinear modeling and control design methods for fuel cells; the Simulink implementation of fuel cells; applications in vehicles and utility power systems and stand-alone systems; the modeling and analysis of hybrid renewable energy systems, including wind and solar power; a multiobjective optimization method; power electronics applications; and a digital signal processor-based control design and implementation for power converters for a fuel-cell vehicle and power systems. This edition adds more power electronics applications and material on direct methanol fuel cells and a fuel cell temperature model, as well as the implementation of a digital signal processor controller-based power electronics system. Basic knowledge of control theory and fuel cell chemical reactions, electric circuits, and power electronics is assumed.

TP393 9781498734998

Advances in Heat Pump-Assisted Drying Technology

Edited by Vasile Minea (Advances in Drying Science & Technology)

CRC Press, ©2016 297 p. \$189.95

Engineers and scientists from a number of disciplines review recent innovations and system improvements proposed by academic and commercial research and development communities regarding drying technology that is assisted by heat pumps. They consider various aspects such technological advances in heat pumping in general, optimal dryer-heat pump coupling and control strategies, systems modeling and simulation, and in-field long-term experience. Among the topics are drying agro-food, fruits, vegetables; the impact of drying method on product quality; and dehumidifier timber drying in New Zealand.

TP971 9781910242667

Innovations in Pressure-Sensitive Adhesive ProductsMikhail M. Feldstein and Alexander P. Moscalets
Smithers Rapra, ©2016 140 p. \$130.00

Having written about molecular design principles in previous publications, here Feldstein and Moscalets focus on the structure-function relationship and distinctive characteristic features of various functional adhesive products based on

innovative tacky polymer composites. Their topics include scientific fundamentals of preparing innovative pressure-sensitive adhesives by mixing non-adhesive functional polymers, pressure-sensitive adhesive hydrogels and moisture absorbents, electroconducting pressure-sensitive adhesives based on poly-electrolyte complexes, hybrid pressure-sensitive adhesives based on biomacromolecules for monitoring neuron cell signals, and applications of innovative adhesives in the form of specific products.

TP1180 9789814745499

Dendrimers in Nanomedicine

Edited by Delphine Felder-Flesch
Pan Stanford Publishing, ©2016 405 p.
\$179.95

Chemists, material scientists, biochemists, and other researchers survey research on dendrimer-based or dendrimer-nanoparticles hybrid nanodevices for use in nano-medicine, including perspectives from materials science, biology, various diagnostic methodologies, and computer simulation. Their topics include dendrimer-nanoparticle conjugates in nano-medicine, dendritic polymers for the repair of tissues, the theranostic potential of dendronized iron oxide nanoparticles, structurally flexible and amphiphilic poly(amidoamine) dendrimers as non-viral vectors for siRNA delivery, and the impact of physico-chemical properties on dendrimer pharmacokinetics and biodistribution. Distributed in the US by CRC Press.

**PUBLISHING, LIBRARY SCIENCE,
BIBLIOGRAPHY**

Z666 9780838915219

Being Evidence Based in Library and Information Practice

Edited by Denise Koufogiannakis and Alison Brettle

Neal-Schuman, ©2016 208 p. \$75.00 (pa)
Librarians from Europe and North America provide 14 chapters illustrating theory, research, and case studies in evidence-based library and information practice (EBLIP) and how it can be incorporated into library work. They offer a revised framework for evidence-based library and information practice, integrating a wider range of evidence sources and understanding of how librarians use evidence, and consisting of the steps of articulate, assemble, assess, agree, and adapt. Each chapter in the first section details the theory related to each step, as well as practical tools and examples. The second section outlines the use of this framework in different library set-

tings: academic, public, health, school, and special libraries.

Z675 9780838914557

Librarians and Instructional Designers: Collaboration and Innovation

Joe Eshleman, Richard Moniz, Karen Mann, and Kristen Eshleman

ala editions, ©2016 198 p. \$65.00 (pa)
Citing learning in the digital age as a networked and participatory process, the authors focus on people--librarians, instructional designers, students--and the collaborative opportunities available to them. While it is of the utmost importance to know how to use the tools of current technologies, it does not supersede the need for relationship building. The authors present a case study that explores massive open online courses (MOOCs) and show how collaborating with instructional designers allows librarians to gain a better understanding of MOOC construction, design, goals, and responsibilities. They hope to change librarians' answers as to why they became librarians from "because I like books (or information, or technology)" to "because I like collaborating and innovating with people."

Z701 9781932326505

ARSC Guide to Audio Preservation

Edited by Sam Brylawski, Maya Lerman, Robin Pike, and Kathlin Smith

Council on Library...Resources, ©2015 240 p.
\$30.00 (pa)

In this guide from the Association for Recorded Sound Collections, specialists in sound preservation offer advice to organizations and individuals on audio conservation and preservation, recorded sound formats and their associated risks, appraisal, related copyright issues and disaster preparedness. They also discuss making informed decisions about digitization and strategies for managing digital content. Topics explored include preserving audio; audio formats: characteristics and deterioration; appraisals and priorities; care and maintenance; description of audio recordings; preservation reformatting; what to do after digitization; audio preservation: the legal context; and disaster prevention, preparedness, and response.

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