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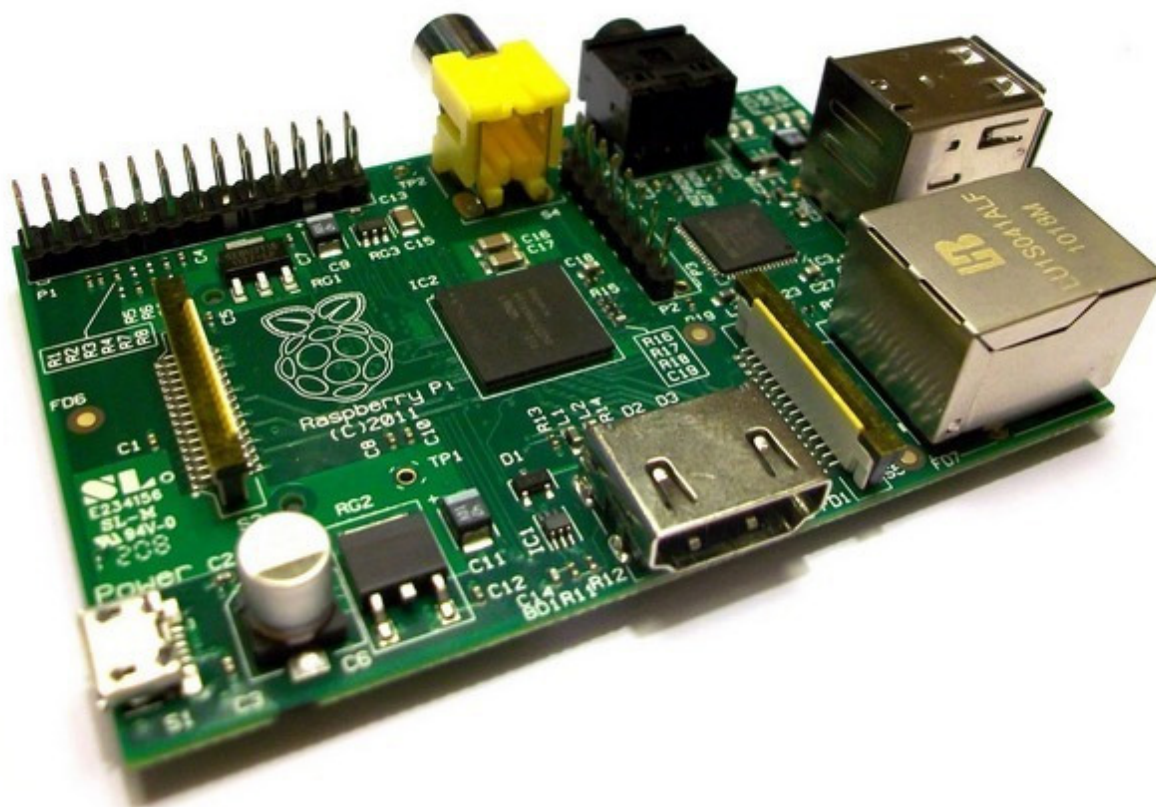
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SciTech News

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 68, Number 1 (2014)
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SciTech News



On the Cover

The Raspberry Pi is a revolutionary, single-board computer created to help teach the basic elements of computer programming. Since that time it has also become a popular component in 'maker' circles for do-it-yourself electronics, computing and science projects. Approximately the size of a credit card and using an SD card for memory, it boots immediately to a command line interface when attached to another computer. A broad array of software is now available for it and new versions are in development.

Photo credit (via Creative Commons):
Danny Chamorro, <https://www.flickr.com/photos/dannychamoro/7850199478>

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SciTech News

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Editor

Jeremy Cusker
103B Carpenter Hall
Cornell University
Ithaca, NY 14850
jpc27@cornell.edu

Assistant Editor

Christine Malinowski
Lewis & Clark College
0615 SW Palatine Hill Road
Portland, OR 97219
cmalinowski@lclark.edu

Chair of the Review Board

Bonnie Osif
Pennsylvania State University
325 Hammond Building
University Park, PA 16802-1403
(814) 865-3697
bao2@psu.edu

Business Manager

Nevenka Zdravkovska
University of Maryland
1403J Mathematics Bldg
College Park, MD 20742-7011
(301) 405-9144
Fax: 301-405-9164
nevenka@umd.edu

Department Editors

Sci-Tech Book News Reviews
Selector: Susan Fingerma
smfinfo@verizon.net

Web Reviews
Currently Open

Beyond the Chemistry Web
Bob Buchanan
buchara@auburn.edu

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Offices: *SciTech News*, c/o Editor, Jeremy Cusker, 103B Carpenter Hall, Cornell University, Ithaca, NY, 14851, jcusker4031@gmail.com. Business Manager, Nevenka Zdravkovska, University of Maryland, 1403J Mathematics Bldg, College Park, MD 20742-7011, (301) 405-9144, nevenka@umd.edu.

From the Editor

Jeremy Cusker



Greetings Colleagues:

This is my first issue as full editor of *SciTech News* and already I find myself deeply indebted to my assistant editor, Christine Malinowski, who has been in her job as little time as I have been in mine!

Among the changes in the near future for *STN* will likely be a change in hosting from the old digs at Jefferson University to hosting at the SLA Sci-Tech Division's Wordpress site.

I am also hoping to make a policy change concurrent with that move (which will likely occur some time between the publication of this issue and the next one in June, just before SLA 2014) whereby issues will be stored only as single documents, rather than as full issues and also as separate pieces. While some divisions reported that they sometimes preferred linking directly to the section pertaining to their division, I felt this would save time and effort all around and that we would also be adding bookmarks to the final version to enable similar functionality.

Hope to see you all in Vancouver this June!

***SciTech News* Call for Articles!**

SciTech News is looking for a few good authors!

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 writing for *SciTech News*. In addition to the regular articles, we now have a refereed section. Colleagues will review your article and provide feedback. Accepted articles will be published in the new electronic *SciTech News*. This is an excellent venue to get your research and ideas out to a group of interested readers and get that important refereed article for your dossier or annual review.

For additional information, contact Editor Jeremy Cusker (jcusker4031@gmail.com) or Review Board Chair Bonnie Osif (bao2@psu.edu). Articles for the refereed section may be submitted to the Review Board Chair at bao2@psu.edu.

News from the Science-Technology Division

Science-Technology Division Nevenka Zdravkovska, 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.'



Greetings Colleagues:

It gives me great pleasure to be the 2014 Chair of the Science Technology Division. This year we will mark the 90 year anniversary of our Division; 90 years of supporting science and technology. What a milestone.

We also have many exciting things to report, as well as ahead of us. We have a new Executive Board: Sheila Rosenthal, Chair Elect; Helen Josephine, Past Chair (she did an amazing job in organizing the San Diego conference); and Anna Renn, Secretary. Thea Allen is in her second year as Treasurer. I am very fortunate to be surrounded by these talented colleagues.

The Advisory Board also has some new faces and I will highlight just a few.

- In 2014 the Executive Board decided to add the position of Conference Planner. The role of planner in the past was the responsibility of the chair-elect. Beth Thomsett-Scott has been selected for the position and will work on planning the 2015 conference in Boston.
- Janet Hughes assumed the role of Awards Chair (thanks Sheila for the wonderful job you did in the past several years as chair of the Awards Committee),
- Heather Lewin is taking on two committees – Student Relations and Communications
- Mary Frances Lembo, as chair of the Professional Development, is already busy preparing for an online webinar (stay tuned for details).

The complete list of officers and chairs is on the [SciTech Website](#).

If you would like to volunteer for some of the committees, please send me an email. There

is always something for everyone. You gain the most from your membership when you are involved.

Board and Business Meetings

The Executive and Advisory Boards met on February 7th, 2014. At the meeting the budgets for SciTech Division and STNews for 2014 were approved. We also discussed the program in Vancouver.

In 2014 the SciTech Division will conduct its first online Business meeting, which will be held on Thursday, May 15th at 12:00 pm (noon) EST. Hope many of you will be able to join us to hear about the Division's finances, plans, and to contribute with ideas for the future of our Division. In the past we had conducted these meetings during the Annual Conference, but we decided this time to try this virtual venue. Watch your email for details on how to join the meeting.

Vancouver Conference

I am pleased to report that the 2014 program is shaping up nicely. As we are putting the final touches on the programs, please visit the website for up to date information on speakers, sponsors, description, take-aways: <http://scitech.sla.org/conferences-and-events/conference-programming/>. Hope many of you will come to join us for this exciting program. Registration is now open. Here is a summary:

Saturday, June 7, 2014

Newcomers' Lunch, by invitation only. Sponsored by IEEE

Sunday, June 8, 2014

Quick Take: Altmetrics – The Basics.

Program: *Standards Update* (co-host, Engineering lead)

Program: *The Science & Politics of Sustainable Seafood* (co-host, DBIO lead)

Program: *Science and Engineering 101*. In 2014 Mary Frances and James are celebrating their 10th anniversary of offering this program with a retrospective survey of past sessions including their favorite sources, updates, and their favorite memories, including the infamous patent session. Sponsored by SPIE and CRC NetBase.

Program: *Staying in the Game – New Roles for Libraries in Research Support* (co-host, FAN lead)

SciTech Division Reception and Awards Ceremony, Mahoney's and Sons, conveniently located in the Convention Centre. Sponsored by IEEE and Elsevier.

We will celebrate the 90th anniversary of our Division and recognize our awards winners:

- S. Kirk Cabeen Student Travel Award, sponsored by SPIE
- Nancy Forster International Student Award, jointly awarded with the European Chapter
- Bonnie Hilditch International Librarian Award, jointly awarded with the Engineering Division
- Ann Koopman Science Technology Division Achievement Award, sponsored by ASTM. I would like to thank the Board for taking the initiative for renaming the highest award of a member of the Division after Ann Koopman, a long time active member of the Science Technology Division and one of the past recipients of this award who recently passed away.

Monday, June 9, 2014

Program: *Reproducible Research: a Path for Boosting Science in the 21st century*, PAM co-host. Sponsors: ACS, WorldScientific

Program: *Computer Science Roundtable* (co-host, IT lead)

Moderators: Helen Josephine and Ruth Kneale.

Program and Reception: All Sciences Poster Session (co-host, DBIO lead)

Tuesday, June 10, 2014

Spotlight session: *Academic Libraries: Supporting Innovation and Entrepreneurship*, the Academic Division is co-host. It has been said that: "Entrepreneurship, one of the fastest-growing subjects in today's undergraduate curricula, has moved from the margins of higher education to the mainstream." The speakers will share how their libraries partnered with other departments as well as, in some cases, outside corporate partners to do just this.

Wednesday, June 11, 2014

SciTech Division Tour

Join your colleagues for an exciting tour. We will be visiting TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics), UBC, the Museum of Anthropology, and the Irving K. Barber Learning Centre. Boxed lunch and bus transportation will be provided.

See you online in May, and in person in Vancouver, June 8-11, 2014.

Nevenka Zdravkovska, Chair
nevenka@umd.edu

Science-Technology Division New Members

Submitted by Ann Ren, Membership Committee Chair, Science-Technology Division

The Science-Technology Division welcomes its new members:

Abeer Behbehani
Kuwait
Kuwait

Kyunghye Kim
Tallahassee, FL
USA

Dianne Bohach
Westcliffe, CO
USA

Stacey Mantooth
Chapel Hill, NC
USA

Crystal Boyce
Bloomington, IL
USA

Randolf Mariano
Manila
Philippines

Leslie Christensen
Madison, WI
USA

Jennifer Lege Matsuura
Philadelphia, PA
USA

Jennifer Clark
Baton Rouge, LA
USA

Sandra McLean
Knoxville, TN
USA

Toni Emerson
Bronx, NY
USA

Edward Morrow
Minneapolis, MN
USA

Chris Ewing
Spokane, WA
USA

Jennifer Robinson
Toronto, ON
Canada

Jess Gafkowitz
Astoria, NY
USA

Akash Singh
New Delhi
India

Anthea Gotto
Washington DC
USA

Mary Tebo
Knoxville, TN
USA

Jessica Greene
Riverside, CA
USA

Sulbha Wagh
Naperville, IL
USA

Anne Marie Houppert
Washington DC
USA

Mary Elizabeth Woodruff
Quincy, MA
USA

News from the Chemistry Division

Chemistry Division

Valerie Tucci, Chair

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

Greetings to all Chemistry Division members! I am honored to serve as Chair of the Chemistry Division after some forty years as an SLA member. As I look back over my career, and the evolution of SLA, I think that what SLA and I have learned to do is to adapt to change. I started in chemical information during the days of large chemical information centers with large print collections. I witnessed and welcomed the transformation to digital collections, but I am still amazed at some of the advancements that I did not see coming. There are many examples of change that I did not predict such as the clamor for full text of journal articles in digital format. On a personal note, when it came time for me to retire from the corporate world five years ago I had no idea that academia would beckon. I did not realize how fulfilling it would be to transfer to academia and share the knowledge I had gained with a young generation of students. Based on these experiences, I have planned the sessions for Vancouver to help all of us understand some of what the future holds and how we can adapt. I am sure there will be more disruptive innovations in the future that some of us will predict but others will miss or resist. So I urge everyone to join with me and acknowledge the challenges ahead, learn more about some of them in Vancouver, and use these challenges as opportunities for growth.

The Vancouver program is exciting, and I am thrilled that so many members have volunteered to share their knowledge with all of us. As usual the meeting will start with the Newcomers Hosted Dinner on Saturday night at 7:00 PM. The co-hosts will soon be announcing their choice of a restaurant guided by proximity to the convention hotel, menu choices, and of course, dinner costs. Please plan to join the group and welcome the Newcomers. (Vendors will host Newcom-

ers; Current members will pay for their dinner). On Sunday afternoon, the Chemistry Division will be one of the co-hosts for the always popular "Science of Series" which this year will feature the Science of Sustainable Seafood with DBIO in the lead. This will be followed at 3:30-5:00 by a presentation arranged by the Materials Science Research Section of DCHE. The Vancouver-based materials science research work known as Project Prometheus will be described. Lead researcher Neil Branda will describe his remarkable work and how he is shaping researchers of the future at Simon Fraser University.

Monday will begin with a DCHE breakfast at 7:30-9:30, a short business meeting, and a roundtable that will feature the major vendors that provide us with great information resources. Please be sure to purchase your ticket and have your questions ready. This will be followed by two sessions on Open Access Resources. (Certainly a development I never foresaw.) The first session at 10:00 to 11:30 will consist of panelists describing their view of open access, the pluses and the minuses. The second session at 12-1:30 will focus on available open access resources as we all struggle to stay abreast of what is available. Monday night is highlighted by the All Science Poster Session led again by DBIO so be sure to submit your proposal for a poster.

Tuesday will begin with the second ticketed DCHE breakfast at 7:30-9:30 and feature a topic which is designed to appeal to both the corporate and the academic members of the Chemistry Division – Electronic Laboratory Notebooks. (A development that I thought would be in wide-spread use years ago.) A panel of experts will provide an introduction



and update to this topic including the implementation progress made in the corporate world and in academia. This will be followed by roundtable discussions among attendees where opinions and prognostications will be shared. The next presentation at 9:45-10:45 will be an update on the analysis of patent data and other large bibliographic data sets.

(Big data is another development I missed forecasting). This is another area of interest and concern both to industry and academia. The Board meeting at 11:00-12:00 will wrap -up with an evaluation of the program.

Looking forward to seeing everyone and to sharing a great program!

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 Member:

Dr. Beth Trapp
Research Librarian, R&D
Masco
7500 Holland Rd.
Taylor, MI 48180

News from the Engineering Division

Engineering Division

Andrew Shimp, 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.



In my first report as chair, I look forward to informing you about the developments in the Engineering Division which the Board will be working on during the year. The members of the Division will play a crucial role in the planning process. Please contact me or other members of the Board if you have any comments or suggestions. The list of current officers is available on the [SLA Engineering Division Website](#).

I first would like to recognize the volunteers who served the Division in 2013:

- **Past-Chair, Penny Sympson:** After completing a successful term as Chair, Penny now moves on to Past Chair where she will lead the Nominating Committee and update the Division's Recommended Practices;
- **Outgoing Treasurer, Mary Whittaker:** Mary efficiently managed the Division treasury and filed timely financial reports during two consecutive terms in the position;
- **Outgoing Awards Chair, Diane Brenes:** Diane successfully managed the awards process since 2011.

I welcome new volunteers, several of whom will be continuing service from other positions on the Board:

- **Chair-Elect, Sara Davis:** Sara will collaborate with the program planner for the 2015 Annual Conference in Boston;
- **New Treasurer, Diane Brenes:** Diane will serve a two year term as an Officer of the Division and handle finances;
- **New Awards Chair, Taya Cagle:** Taya will issue the call for nominations for Division awards and present the awards;
- **2015 Program Planner, Penny Sympson:** in addition to her responsibilities as Past-Chair, Penny has stepped forward to lead conference planning for Boston.

Vancouver Conference

Registration and housing will open on February 10, 2014 for the Annual Conference. Our 2014 Program Planner Beth Thomsett-Scott has organized a great program for Vancouver.

Standards Update

Sunday, June 8, 1:30-3:00pm

This is your opportunity to meet representatives and vendors from many standards development organizations. Learn about new developments and the latest product and technological innovations.

Crossing Boundaries: Corporate and Academic Librarians

Sunday, June 8, 3:30-5:00pm

Join us for a lively and engaging discussion on the similarities and differences between academic and corporate libraries and their parent organizations. A panel of librarians who have experienced both cultures will share practical tips for working in and working with both areas to help us "cross boundaries".

Aerospace Section Breakfast and Program

Monday, June 9, 8:00-9:30am

Join the Aerospace Section for a delicious meal and stimulating discussion on current topics.

Engaging Users with Technology

Monday, June 9, 10:00-11:30am

How do we decide what products we will purchase and invest our time in? Are these decisions driven by the functionality of the technology, or how the interaction enhances our experience? The speakers will explore models to measure user engagement along with teaching and learning applications, such as gaming.

Engineering Division Business Meeting and Luncheon

Monday June 9, 12:00-1:30 pm

Join the Engineering Division for networking and information as we present awards, discuss the past year and future goals, and eat!

Engineering Café

Tuesday, June 10, 2:00-3:30pm

Join us for this roundtable discussion of current topics of interest to engineering and science librarians. Topics will be chosen based on survey results/discussion on the DENG listserv. There will be 3 rounds of 25 minutes each to allow attendees to gain multiple experiences yet have time to effectively discuss each topic.

We are excited to co-sponsor these sessions:

Science and Engineering 101

Sunday, June 8, 3:30-5:00pm

Join Mary Frances Lembo and James Manasco as they celebrate their 10th anniversary with a retrospective survey of past sessions including their favorite sources, with updates, and their favorite memories, including the infamous patent session.

All Sciences Poster Session

Monday, June 9, 5:30-7:00pm

ELN—Electronic Laboratory Notebooks

Tuesday, June 10, 9:45-10:45am

ELNs are more than a simple alternative to the traditional paper laboratory notebook. Current technologies make ELN critical for R&D collaboration, knowledge management and productivity. Although well-established particularly in the pharmaceutical world, ELNs, by providing a variety of research solutions, are quickly moving into the mainstream for all industry and many disciplines in academia. Some of the questions to be addressed include the following. What are ELNs? With the many choices, how do we decide what ELN is right for our organization? What is the librarian's role in the transition to and implementation of the ELN?

Strategic Planning

During the past year, the Board initiated a Strategic Planning Task Force chaired by Karen Vagts. The Task Force has drafted a scope, vision and strategic agenda for the Engineering Division. Please watch for a survey to gain member feedback. We welcome your ideas and comments concerning the direction of the Division in the next four years.

Architecture, Building Engineering, Construction and Design Section

At the October 24, 2013 Engineering Division Board meeting, the Board voted to pursue the addition of a new section, the Architecture, Building Engineering, Construction and Design Section. The official scope note of the Section reads as follows:

The Architecture, Building Engineering, Construction and Design Section is intended for those information professionals working in, or interested in architecture, building engineering, construction and design. This Section provides a forum for members to exchange knowledge about information resources, trends, and best practices. Meetings and programs focus on issues related to this industry and allow information professionals to better serve their organizations and clientele.

The existing Architecture, Building Engineering, Construction and Design Caucus was created in 2006 and currently has 36 members. If a section is created, Caucus conveners will jointly submit a recommendation to the SLA Board of Directors to dissolve.

Procedure requires that a petition be initiated by Division members and a minimum number (15) of signatures be obtained. We distributed a petition and obtained the required number of signatures. The petition will be forwarded to the Division Cabinet Chair and submitted to the SLA Board of Directors for their approval.

Finally, I would like to thank all members of the Division Board for their willingness to contribute to what I know will be another successful year. I invite you to contact me with your suggestions for improving the Division, particularly as we move forward with strategic planning and begin programming for the 2015 conference in Boston.

Andy Shimp, Chair
andy.shimp@yale.edu

Call for Nominations and Applications

\$1000 IEEE Continuing Education Stipend – Call for Applications

Stipend to attend the SLA Annual Meeting in Vancouver, B.C., Canada, June 8-10, 2014

IEEE (Institute of Electrical and Electronics Engineers) is sponsoring for SLA Engineering Division members a travel stipend up to \$1000 toward payment of expenses incurred while attending any Continuing Education course offered at the annual SLA conference in Vancouver, B.C., Canada, June 8-10, 2014.

The IEEE Stipend will be given to the qualified member who submits an essay, of three or fewer double-spaced typed pages, which is judged to be the best paper that addresses "How the member will benefit professionally from a continuing education course." Please email Stephanie Sheldon (stephanie.sheldon@lmco.com) for a list of Continuing Education courses offered during the SLA 2014 conference. The winner will also be required to submit an article to the Engineering Division newsletter (SciTech News) within twelve months of completion on how the course helped them in library applications.

Qualifications for Entering Award Competition:

Be a member of the SLA Engineering Division in good standing at the time of applying for the award.

Special Instructions:

Type your full name (without any additional personal information) at the top of each essay page. Double space the typing on all pages.

Deadline for Submission: March 15, 2014.

The winner must be present to accept the award at the annual Engineering Division Business Meeting during the SLA 2014 conference.

Submit Entries for the award to:

Stephanie Sheldon
E-mail: stephanie.sheldon@lmco.com

or to:

Stephanie Sheldon, SLA-ENG Awards Committee
Lockheed Martin Aeronautics Company
Company Research Library, MZ 0124
1011 Lockheed Way
Palmdale, CA 93599
Ph: (661) 572-7648

SLA Engineering Librarian of the Year Award sponsored by IHS

The Engineering Librarian of the Year, sponsored by IHS, highlights the accomplishments and contributions of SLA Engineering Division members to the engineering librarian profession. The winner must be present to accept the \$1500 award at the annual Engineering Division Business Meeting held during the annual SLA conference in Vancouver, B.C., Canada June 8-10, 2014 .

Prospective candidates are encouraged to nominate themselves, or they may be nominated by a colleague or associate.

Criteria for entry are:

1. Be a member of the SLA Engineering Division in good standing at the time of applying for the award.
2. Distinguished achievement(s) in the engineering library profession, through an exceptional contribution on the job, within the SLA Engineering Division, or within the industry at large. Accomplishment(s) should have taken place within the calendar year immediately preceding nomination/application. However, in selected cases, based solely on the Awards Committee's judgment, recognition may be given for ongoing, long-term contribution(s).

Instructions for submissions:

Submit the nomination/application by **March 15th, 2014**.

Provide full name, job title, address, telephone numbers, e-mail address, and a maximum one-page statement of the nominee's qualifications to: Taya L Cagle, SLA-ENG Awards Committee, at the following email address: taya.cagle@boeing.com (425) 518-3048.

\$1500 Momentum Press SLA Annual Conference Grant

Momentum Press is sponsoring for SLA Engineering Division members a \$1,500 grant to be used toward payment of expenses incurred while attending the SLA Annual Conference in Vancouver, B.C., Canada, June 8-10, 2014.

Criteria for entry are:

- Be a current SLA Engineering Division member actively working at an academic, government, or special library;
- Receive no financial support from employer;
- Provide an essay (300 words or less) on how attending the conference will be a benefit to you.

Post-Award Requirement:

Recipient will write a brief article (approximately 1,000 words) on the conference experience for the Dec 2014 SciTech News.

Instructions for submissions:

Submit entries for the grant by **March 15th, 2014**.

Provide full name, job title, address, telephone numbers, e-mail address, and short essay to: Taya Cagle, SLA-ENG Awards Committee, at the following email address: taya.cagle@boeing.com (425-518-3048).

\$1200 SPIE Digital Library Student Travel Stipend Award

SPIE Digital Library is sponsoring for library school students the award of a \$1200 travel stipend toward payment of expenses incurred while attending the annual Special Libraries Association conference in Vancouver, B.C., Canada, June 8-10 2014. SPIE Digital Library is the world's largest collection of optics and photonics applied research.

The SPIE Digital Library Student Travel Stipend Award will be given to the qualified student who submits an essay of three or less double-spaced typed pages that is judged to be the best essay submitted describing the following scenario:

When the Special Library Association (SLA) was established in 1909, the idea of "special" libraries fit the movement that was occurring, and the name of the association as the Special Libraries Association was selected in default of a better name. Since this time, the Special Libraries Association (SLA) has gone back and forth regarding the name of the association. Should the association keep the name "Special Libraries Association" or change it? Support your position with relevant and current examples. How does keeping the name versus changing the name of the association impact existing special libraries? (Special libraries include: Corporate, Medical, Law, Religious, etc.)

Qualifications for Entering Award Competition:

The essay winner must be a student member of the SLA Engineering Division at the time of acceptance of the award. Part of the award will be a one-year student membership to the SLA Engineering Division.

Special Instructions:

1. Give your full name, address, telephone number, email address, and a statement, on one page, of your qualifications, as given above, for entering the award competition. Include the name of your library school.
2. Type your full name (without any additional personal information) at the top of each essay page. Double space the typing on all pages.

Application Deadline for Submission: March 15th, 2014

Submit entries for the award to:

Bette Finn, SLA Engineering Division Awards Committee
Georgia Tech Library and Information Center
Georgia Institute of Technology
Atlanta, Georgia 30332-0900
Phone: (404) 894 1790 | Fax: (404) 894 8190
E mail: bette.finn@library.gatech.edu

News from the Aerospace Section

Aerospace Section

Edna Paulson, 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.

As Chair of the Aerospace Section for 2014, I'd like to introduce myself. Since December 2013 I've been Information Services Team Lead for Cadence Group at the NASA Goddard Research Center Library in Greenbelt, Md. My team handles reference, research, ILL, and some outreach activities. We have a lot of contact with end users, which I greatly enjoy. In my previous job I worked at the NASA Center for AeroSpace Information in Hanover, Md., a contractor-run facility that gathers NASA's scientific and technical information and produces the publicly available NTRS (NASA Technical Reports Server) and the registration-required NTRS Registered (formerly the NASA Aeronautics and Space Database). My team handled the Information Desk and had a lot of contact with librarians at other NASA Centers and in industry, and I've met many Section members during my 11 years there. I've also worked at the American Petroleum Institute and the National Academies.

I've been active in SLA for quite a few years, most recently in my chapter, so it seems natural to be involved now with the Aero Section. Last year, as Chair-Elect, I learned from Section Chair Mary Strife and served as a member of the Engineering Division Board. As I write this in February, we are in the final stages of selecting a Section Chair-Elect for 2014, and you will probably have seen the announcement already by the time you read this.

The Engineering Division has some great programs planned for the Vancouver Conference, and I hope to see many of you there! The Aerospace Section Breakfast and Business Meeting will be on Monday morning, June 9, 8:00-9:30 a.m. The day is a change from last year, since we need to have our

section business meeting before the division business meeting, which will be that same day at noon.

(Locations will be announced in the online planner and program when they're assigned later in the spring.) The Aero business meeting will be followed by a discussion of section activities. I feel it's hard for divisions and sections, whose members don't see each other as often as chapter members, to have a sense of being a group with mutual support and common goals. But if any group can manage virtual relationships, it should be aerospace! So I'm hoping for your ideas and suggestions as to how to meet this challenge. There will also be time for getting to know each other better.

Speaking of communication, if you are not receiving the SLA-AERO discussion list, why not join? Just follow the instructions at <http://engineering.sla.org/discussion-lists/#Aero>

Thanks again for your support of our section and division, and I look forward to being in touch with you throughout the year. Please feel free to contact me with your suggestions and ideas.

Edna Paulson, Chair
edna.w.paulson@nasa.gov



Beyond the Chemistry Web

Bob Buchanan, Chemistry Librarian, Auburn University



Last year, a Beyond the Chemistry Web column highlighted resources for search committee members on how to conduct an effective search. This column looks at search committee members from another angle – as a source of advice for job seekers. After all, who is better positioned to give advice than a search committee member?

Job Hunting: What Search Committees Want You to Know by Candice Benjes-Small, Eric Ackermann, and Gene Hyde is an excellent 2010 article which is available free on the ALA website. It presents the results of a survey of library search committee members and should be of interest to both job seekers and search committee members. If you want research-based information about what search committee members think instead of anecdotal reports, then this is a good place to start. For example, only 81% of the respondents reported using phone interviews to screen candidates – I would have predicted that number would be even higher.

http://www.ala.org/acrl/sites/ala.org/acrl/files/content/conferences/confsandpreconfs/national/2011/papers/job_hunting.pdf

As suggested by its title, **Demystifying the Academic Search Process, or Getting that Academic Librarian Position** by Suann Alexander, Jackie Dowdy, and Sharon Parente, this brief online article describes the typical process of an academic librarian search. Along the way, the authors also provide tips for prospective job seekers.

<http://tnla.org/displaycommon.cfm?an=1&subarticlenbr=299>

A number of freely accessible columns in *The Chronicle of Higher Education* provide the perspective of the search committee.

The View From the Search Committee's Side of the Table by Margaret Gibelman talks about what the search looks like from the committee's perspective.

<http://chronicle.com/article/The-View-From-the-Search/45510/>

Reflections on a New Hiring Season offers twelve tips from a search committee veteran. Spending time on the cover letter is the best tip. Although the "new hiring season" was 2007, the advice still relevant.

<http://chronicle.com/blognetwork/lesboprof/2007/08/05/reflections-on-new-hiring-season/>

Having recently secured a position an associate professor of history at a major research university, Max Clio (pseudonym) tells job seekers what he now sees from his new perspective of a search committee member in **A Search Committee Virgin Tells All**.

<http://chronicle.com/article/A-Search-Committee-Virgin/44752/>

Although not aimed specifically at library faculty, **Preparing for Campus Interviews** gives advice that applies to most academic faculty positions.

<http://chronicle.com/article/Preparing-for-Campus-Interv/45331/>

If you need to give a presentation for a job interview, take a look at **Grim Job Talks are a Buzz Kill**.

<http://chronicle.com/article/Grim-Job-Talks-Are-a-Buzz-Kill/132843/>

Not everything in **What Search Committees Wish You Knew** is relevant to every job search and to every search committee, but much of it is.

<http://chronicle.com/article/What-Search-Committees-Wish/136399/>

What to Ask—and Not to Ask—in Your Interview should not be that difficult to handle. If you don't have any appropriate and intelligent questions to ask, then ask

yourself how interested you are in the position. The search committee will certainly ask themselves the same question.

<http://chronicle.com/article/What-to-Ask-and-Not-to/130837/>

It may seem obvious to **Show Them You Really Want the Job**, but the search committee (and everyone you meet on a campus interview) needs to believe it. Don't

pretend, but if you really want the job, let them know.

<http://chronicle.com/article/Show-Them-You-Really-Want-the/132281/>

Take a look at **12 Bloopers to Avoid in a Job Interview**. If you can see yourself doing any of these, please be try not to.

<http://chronicle.com/article/Bloopers-to-Avoid-in-Job/137449/>

Special Book Review

Sharon Butcher, MLS, MSO

Sharon Butcher is a recently retired aerospace engineering/military librarian, and a member of the Southern Association for the History of Medicine and Science (SAHMS).

Urban Bodies: Communal Health in Late Medieval English Towns and Cities.

By Carole Rawcliffe, Professor of Medieval History, University of East Anglia.

Published by The Boydell Press, Woodbridge, UK. 2013.

455 pages. ISBN 978-1-843-836-4

A good part of the book deals with development of roads, roads maintenance, development of public privies, refuse control, waterworks, waste management from industries such as tanning, metalworking, butchering, wool and textile manufacturing in urban environments. Excavations have revealed some relatively intact waterworks engineering; monks were often instrumental in developing waterworks projects, which then benefitted the entire immediate urban environment.

Ordances and regulations began to emerge, for quality control of food stuffs, road maintenance/repair, refuse disposal, as did taxes for supporting these efforts, oversight of

apothecaries to ensure proper weights and measures, proper ingredients in ales and beverages, etc. Magistrates and officials, many eventually compensated for their work, offered guidance, enforcement (it varied widely), and clarification. (FDA, EPA, and other governmental agencies immediately come to mind.) Plagues and other pestilence periodically decimated the population, sometimes halting public health advances. Leper colonies, much different than what movies portray, were fairly numerous, came and went, and became the focus of another book, "Leprosy in Medieval England" by Rawcliffe.

(The area of East Anglia which is the focus of both volumes is an area somewhat familiar to me. In the late 1960's - early 1970's, I was posted to RAF Chicksands, Bedfordshire, which lies in the western edge of East Anglia.)

Sci-Tech Book News Reviews Susan Fingerman, Selector



The following section consists of book reviews selected from *Reference and Research Book News*, reprinted with the permission of Book News Inc. This review journal is published six times a year, each issue reviewing thousands of new titles in all disciplines. For a sample issue and subscription information, contact Book News Inc at booknews@booknews.com or (503)281-9230.

OCEANOGRAPHY

GC178 9780857093417

Subsea optics and imaging.

Title main entry. Ed. by John Watson and Oliver Zielinski. (Woodhead Publishing series in electronic and optical materials; no.46)

Woodhead Publishing, ©2013 571 p. \$305.00

The introductory textbook for students and workers in the field to optics and imaging under the ocean combines perspectives from marine science, physical sciences, and imaging technology. Among the topics are the history of subsea optics, measuring hyperspectral underwater light fields, the optical assessment of harmful algal blooms, geometric optics and strategies for subsea imaging, laser Doppler anemometry and particle image velocimetry for marine environments, fiber optic sensors for subsea structural health monitoring, and underwater hyperspectral imagery to create biogeochemical maps of seafloor properties.

MATH, COMPUTERS

QA76 9781608075751

Cryptography for security and privacy in cloud computing.

Rass, Stefan and Daniel Slamanig. (Information security and privacy series)

Artech House, ©2014 255 p. \$129.00

Rass (computer science, Alpen-Adria U., Austria) and Slamanig (applied information processing and communication, Graz U. of Technology, Austria) describe various cryptographic methods to improve security and privacy in cloud computing, warning readers that this is a very new and very dynamic area that is changing rapidly. Their focus is on nonstandard techniques of security and cryptography, and they skip much of the underlying mathematics for the sake of clarity and compactness. They cover fundamentals, the protection of identifying information, privacy-enhanced encryption, remote data storage, and practical issues.

QA76.585 9781466645226

Communication infrastructures for cloud computing.

Title main entry. Ed. by Hussein T. Mouftah and Burak Kantarci. (Advances in systems analysis, software engineering, and high performance computing)

Information Science Reference, ©2014 559 p. \$195.00

Computer and information scientists and electrical engineers examine issues in communication infrastructures for cloud computing, as a reference for researchers, graduate students, and engineers who are or will be designing and developing cloud communications platforms. They cover core networks and cloud computing, wired and wireless access networks and cloud computing, engineering cloud data centers, energy efficiency in cloud communications, and applications and security. Among specific topics are location and provisioning problems in cloud computing networks, designing and implementing optical cloud networks, energy-efficient optical interconnects in cloud computing infrastructures, towards energy sustainability in federated and interoperable clouds, and communication aspects of resource management in hybrid clouds.

QA76.5915 9781466646957

Creating personal, social, and urban awareness through pervasive computing.

Title main entry. Ed. by Bin Guo, Daniele Riboni, and Peizhao Hu. (Advances in human and social aspects of technology)

Information Science Reference, ©2014 412 p. \$175.00

Computer scientists show how the emergence of social networks, the prevalence of sensor-equipped mobile devices, and large amounts of geographically referenced data allow the analysis of such matters as people's mobility patterns, emotional status, and activities. They explore the possibilities in the three levels of awareness. Their topics include opportunistic detection methods for emotion-aware smartphone

applications, architecture patterns for context-aware smart environments, community detection and profiling in location-based social networks, news recommendation for China Sina Weibo microblog service based on user social behaviors, and understanding urban dynamics from taxi GPS traces.

QA76.75 9780124159174

Software engineering for embedded systems; methods, practical techniques, and applications.

Title main entry. Ed. by Robert Oshana and Mark Kraeling. (Expert guide)

Newnes, ©2013 1150 p. \$99.95

Editors Oshana and Kraeling, with a combined experience of over 50 years in embedded software and an array of authors with backgrounds in various aspects of hardware and software design both in industry and academia rely on a variety of case studies and software code examples to provide exhaustive coverage of the field of software engineering for embedded systems. There is an interleaved two-dimensional conceptual framework to the work that divides the topics into three vertical and five horizontal layers. The vertical ones are automotive, networking, and storage and I/O while the horizontal are applications, middleware, platform, hardware, and process. There is extensive discussion of the increasing role of the Linux operating system in embedded systems and the use of the many excellent open source development tools available for that platform. Other topics covered include software optimization for varied goals, real time software engineering, software reuse, and development for multi-core hardware. Human factors involved in the development process such as end user safety in medical and automotive applications, user interfaces, development models, software design patterns, software testing, and intellectual property considerations are discussed in detail. The book's code examples are written in C though there is brief coverage of the advantages and disadvantages of C++. There is also an appendix that describes a suggested naming convention and syntax standard for C.

QA76.9 9781466645141

Architectures and protocols for secure information technology infrastructures.

Title main entry. Ed. by Antonio Ruiz-Martínez, Fernando Pereñíguez-García, and Rafael Marín-López. (Advances in information security, privacy, and ethics)

Information Science Reference, ©2014 405 p. \$195.00

International contributors relate the latest security problems and solutions for protocols, architectures, and frameworks used in information technology infrastructures. Material is grouped in sections on state of the art, cryptographic algorithms and security protocols, malware and intrusion detection systems, and secure platforms and frameworks. Some topics addressed include securing XML with role-based access control in the health care environment, a mobile-based aggregation architecture for user-centric identity management, a new encryption algorithm based on chaotic maps for wireless sensor networks, and a polling booth-based electronic voting scheme. Other subjects are host-based intrusion detection systems, security and privacy issues in cloud computing, and efforts towards a certified email system.

QA76.9 9781466559578

Distributed networks; intelligence, security, and applications.

Title main entry. Ed. by Qurban A. Memon.

CRC Press, ©2014 394 p. \$159.95

As digital networks grow in size, complexity, and ubiquity, centralized command and control becomes more difficult, and there is movement towards distributing control and command functions throughout the network instead. Computer scientists and electrical engineers present recent research into how distributed intelligent systems and services can be successfully implemented to incorporate current theory and applications of network intelligence. Among the topics are a sensor data aggregation system using mobile agents, a semi-supervised and active learning method for alternatives ranking functions, tackling intruders in wireless mesh networks, the smart operating room, and a used products return service based on ambient recommender systems to promote sustainable choices.

QA76.9 9780240824086

Understanding augmented reality; concepts and applications.

Craig, Alan B.

Morgan Kaufmann Pub., Inc., ©2013 272 p. \$59.95 (pa)

Augmented reality is a fascinating new field that is related to virtual reality but involves layering digital elements onto the user's real perceptual environment. In this book Craig, an expert on data visualization, supercomputing, and augmented and virtual reality, offers a work intended for AR users, scholars, and developers. The introductory chapter discusses the history of AR and provides a detailed description of how the technology allows

the user to interact with the (augmented) world. The rest of the book covers topics of interest to both users and developers: AR hardware and software, particularly software tools for content creation, issues of licensing, and choice of computer languages relevant to developers; conceptual foundations of AR; 2D, 3D, and audio content creation; interacting with the AR world; mobile AR; and AR applications such as navigation as well as more exotic ones such as "magic" doors, windows, lenses, and books that present AR content within particular real or virtual object. The final chapter presents an overview of current trends in AR and looks ahead to future possibilities for this expanding field. There are many excellent color figures showing the capabilities of AR systems and how content is presented. Morgan Kaufmann is an imprint of Elsevier.

QA166 9781584884125

Handbook of graph drawing and visualization.

Title main entry. Ed. by Roberto Tamassia. (Discrete mathematics and its applications) *CRC Press*, ©2014 851 p. \$99.95

A massive compendium of information on all aspects of graph-drawing and computer visualization, this collection of papers by an expert crew of computer scientists and mathematicians is well-organized and comprehensive. Beginning with fundamental mathematical tools necessary for later discussion--in particular, topology and geometry as they apply to drawing techniques--it then describes and analyzes many algorithms for constructing drawings of graphs, including chapters on tree-drawing, planar orthogonal and polyline and spine and radial drawings, algorithms for constructing various geometrical shapes, hierarchical drawings, labeling and three-dimensional graphs. Several specific software packages and frameworks are described, from GraphML to Open Graph Drawing Framework and others. Finally, issues in security and applications for graph-drawing in specific fields--such as data analytics, cartography, and education--are discussed.

QA279 9781439821510

Optimal design for nonlinear response models.

Fedorov, Valerii V. and Sergei L. Leonov. (Chapman & Hall/CRC biostatistics series)

CRC Press, ©2014 373 p. \$89.95

Drawing on their experience in drug companies developing optimal design machinery for earlier phases of clinical studies, Fedorov and Leonov introduce graduate students and researchers to a statistical area that can loosely be called the model-based optimal design of experiments. Most of the

book requires only a modest formal background in calculus, matrix algebra, and statistics, so is accessible to readers with backgrounds in natural sciences and engineering as well as to statisticians. The topics include regression models and their analysis, algorithms and numerical techniques, nonlinear response models, adaptive model-based design, and useful matrix formulae.

QA402 9783527332915

Advances in network complexity.

Title main entry. Ed. by Matthias Dehmer, Abbe Mowshowitz, and Frank Emmert-Streib. (Quantitative and network biology; v.4)

Wiley-Blackwell, ©2013 293 p. \$189.95

Mathematicians and scientists present and explain methods for determining the complexity of networks. Among the topics are functional complexity based on topology, three types of network complexity pyramid, the computational complexity of graphs, dimension measure for complex networks, thermodynamic depth in directed and undirected networks, and circumscribing complexity in ecological networks. The material is for researchers and graduate and advanced undergraduate students in such fields as mathematics, computer science, chemistry, ecology, and systems biology.

ASTRONOMY

QB51 9781583818343

Astronomical data analysis software and systems XXII; proceedings.

Astronomical Data Analysis Software and Systems (22nd: 2012: Champaign, Illinois) Ed. by Douglas N. Friedel. (Astronomical Society of the Pacific conference series; v.475)

Astronomical Soc./Pacific, ©2013 421 p. \$77.00

This year's conference was not about gathering data, but analyzing, storing, accessing and moving it. The 95 papers cover community development; advances in algorithms; enabling research; large-scale computing; astronomy applications for handheld devices; scientific archives; data reduction pipelines; databases, metadata, and catalogs; tools, libraries, and toolkits; observatory-specific software; and demonstrations, focus demonstrations, and birds-of-a-feather sessions.

QB857 9781583818381

Galaxy mergers in an evolving universe; proceedings.

Galaxy Mergers in an Evolving Universe (2011: Hualien, Taiwan) Ed. by Wei-Hsin Sun, Kevin C. Xu, Nick Z. Scoville, and David B. Sanders.

(Astronomical Society of the Pacific conference series; v.477)

Astronomical Soc./Pacific, ©2013 312 p. \$77.00
The 61 papers look at low-z mergers and starbursts, merger dynamics and simulations, mergers in galaxy evolution, merging and active galactic nuclei, high redshift merging and sub-millimeter galaxies, active galactic nuclei/starburst feedbacks, chemical evolution, and results from new surveys. There being no index, a summary and poster papers conclude.

PHYSICS

QC173 9783527410606

The molecule-metal interface.

Title main entry. Ed. by Norbert Koch, Nobuo Ueno, and Andrew T.S. Wee.

Wiley-VCH, ©2013 255 p. \$140.00

The textbook for a graduate course and a reference for researchers in organic electronics, molecular electronics, and nanoscience focuses on the interface between molecules and metals. Physicists, chemists, and electrical engineers cover theory, atomic structure, and electronic structure. The topics include the basic theory of the molecule-metal interface, scanning tunneling microscope studies of the interfaces, X-ray standing waves and surfaces X-ray scattering studies of molecule-metal interfaces, the fundamental structure of organic solids and their interfaces by photoemission spectroscopy and related methods, and vibrational spectroscopies for future studies of the molecule-metal interface.

QC176 9789814303200

Handbook of molecular plasmonics.

Title main entry. Ed. by Fabio Della Sala and Stefania D'Agostino.

Pan Stanford Publishing, ©2013 479 p. \$179.95

Scientists and engineers in the physical sciences combine introductory and advanced information on an interdisciplinary science that investigates the nanometer-scale coupling between emitting molecules and metallic nanostructures, which increases the strength of the nanostructure's magnetic field. In addition to attracting both beginning and experienced readers, the goal is to link the basic science with the methods and applications, and provide a reference that will remain useful at all levels. The topics include computational approaches, the size and shape dependence of localized surface plasmon resonances, near-fields in assembled plasmonic nanostructures, surface-enhanced Raman scattering, and wet-chemical synthesis

techniques for colloidal plasmonic nanostructures assisted by convective or microwave dielectric heating. Distributed in the US by CRC Press.

QC318 9781466504011

Friction-induced vibrations and self-organization; mechanics and non-equilibrium thermodynamics of sliding contact.

Nosonovsky, Michael and Vahid Mortazavi.

CRC Press, ©2014 313 p. \$199.95

Departing from most books about friction, Nosonovsky and Mortazavi (both mechanical engineering, U. of Wisconsin-Milwaukee) look at various effects and manifestations of friction in order to identify those properties of friction that are invariant for different friction mechanisms, and thus constitute the very essence of friction as a physical phenomenon. By so doing, they make the case that friction is a fundamental force of nature whose properties can be deduced directly from the second law of thermodynamics, rather than treated as a hodge-podge of phenomenologically unrelated effects and empirical observations.

QC378 9780857095947

Optical thin films and coatings; from materials to applications.

Title main entry. Ed. by Angela Piegari and Francois Flory. (Woodhead Publishing series in electronic and optical materials; no.49)

Woodhead Publishing, ©2013 835 p. \$375.00

Materials scientists review recent developments in optical thin films, focusing on thin-film materials and applications in optics and related fields. Among their topics are optical monitoring strategies for optical coating manufacture, complex materials with plasmonic effects for optical thin film applications, controlling thermal radiation from surfaces, optical thin films containing quantum dots, optical coatings on plastics for anti-reflection purposes, optical coatings for high-intensity femtosecond lasers, optical coatings for large facilities, and optical coatings in the space environment.

QC611 9780123878397

Molecular beam epitaxy; from research to mass production.

Title main entry. Ed. by Mohamed Henini.

Elsevier, ©2013 731 p. \$229.95

Molecular beam epitaxy is the process of depositing atoms or molecules onto a crystalline substrate under conditions of high or ultra-high vacuum. The substrate's crystal structure provides a template for the particles in the beam to organize themselves as they deposit onto the substrate. The technique can be put to a remarkably broad

set of uses. In this 31 chapter volume, editor Henini (physics and astronomy, University of Nottingham, United Kingdom) brings together a diverse set of physicists, electrical and mechanical engineers, and nanotechnologists to cover many of today's applications. The first chapter presents an introduction to the field. Following this the reader will find chapters detailing the value of MBE in diverse applications. Some of these include the creation of semiconductor nanowires, droplet epitaxy of complex 3D nanostructures, optoelectronics, semiconductor bandgap engineering, thin films of semiconductor and organic materials, complex oxides, ferromagnetic semiconductors, multilayer films, spintronics, quantum dots, the creation of graphene, the use of fullerene dopants, and transparent semiconducting oxides among other things. The final three chapters cover the details of scaling up MBE systems for industrial production. Figures are in b&w.

QC688 9781118346495

Orthogonal polarization in lasers; physical phenomena and engineering applications.

Zhang, Shulian and Wolfgang Holzapfel.

Wiley, ©2013 434 p. \$165.00

Zhang (Tsinghua U., China) and Holzapfel (U. of Kassel, Germany) explore polarization phenomena in lasers, particularly lasers emitting radiation in two linear polarization states that are exactly orthogonally oriented to each other. Such lasers have been commercially available for some years, they say, and though many papers and reports have addressed them, they present the first full-length reference on them. They cover fundamentals of lasers and beam polarizations, generating orthogonal laser polarizations, nonlinear behavior of orthogonally polarized lasers, and applications.

QC718 9781466509900

Low temperature plasma technology; methods and applications.

Title main entry. Ed. by Paul K. Chu and XinPei Lu.

CRC Press, ©2014 481 p. \$149.95

Scientists and engineers from a wide range of physical sciences summarize recent technological advances and research in low-temperature plasmas and their application. The topics include atmospheric pressure plasmas, high-pressure microcavity discharges, laser-induced fluorescence methods for detecting transient species in high-pressure discharges, assessing potential applications of plasma with liquid water, and the plasma surface engineering of titanium-based materials for osseo-integration.

CHEMISTRY

QD96 9780470683187

Practical Raman spectroscopy; an introduction.

Vandenabeele, Peter.

Wiley, ©2013 161 p. \$60.00 (pa)

Vandenabeele (archaeology, Ghent U., Belgium) presents this introduction to applied Raman spectroscopy. The basic theory behind the technique is presented, and sources of interference or enhancement are covered. Instrumentation is then discussed with an eye toward informed component choice and understanding sources of noise. The final chapter, taking up one-third of the book, addresses practical implementation, including instrumental calibration, spectral post-processing, interpretation, quantitative and qualitative use, and several "intermezzo" text-boxes describing the analytical use of Raman spectroscopy in biology, pharmacy, and curation.

QD181 9783527411511

Electrical conduction in graphene and nanotubes.

Fujita, Shigeji and Akira Suzuki.

Wiley-VCH, ©2013 284 p. \$99.95 (pa)

Physicists Fujita (State U. of New York-Buffalo) and Suzuki (Tokyo U. of Science) explore electrical conductivity in two forms of carbon that may someday replace silicon in computer chips. Among their topics are kinetic theory and the Boltzmann equation, phonons and electron-phonon interaction, the electrical conductivity of multi-walled nanotubes, semiconducting single-wall nanotubes, superconductivity, magnetic susceptibility, magnetic oscillations, and the quantum Hall effect in graphene.

QD262 9781118016015

Organic nanomaterials; synthesis, characterization, and device applications.

Title main entry. Ed. by Tomás Torres and Giovanni Bottari.

Wiley, ©2013 601 p. \$175.00

Editors Torres and Bottari (both organic chemistry, Autonomous U. Madrid, Spain) present this compendium on the exciting field of nanoscale carbon structures. The book begins with a chapter suggesting a taxonomy of nanoscale building blocks. In addition to the usual nanotubes, fullerenes, and graphenes, substantial discussion is given to porphyrins, phthalocyanines, and monolayers. The book flows through five areas of application: basic principles of structure and self-assembly; physical and electronic

properties of simple carbon scaffolds, including their ability to act as cages or molecular sensors for other molecules; interactions of organic nanomaterials with inorganic surfaces; biological functionalization and potential medical uses; and a few chapters on complex technological applications in environmental sensors and solar cells.

QD281 9780470572184

Molecular basis of oxidative stress; chemistry, mechanisms, and disease pathogenesis.

Title main entry. Ed. by Frederick A. Villamena. Wiley, ©2013 420 p. \$150.00

With an eye toward improving diagnosis and designing new therapeutic agents, Villamena (pharmacology, The Ohio State University) presents *Molecular Basis of Oxidative Stress*, spotlights oxygen regulation, and focuses on reactive species, typical oxido-reductants, oxygen, nitrogen, sulfur, and halogens. As by-products of oxygen metabolism, they are regulated by oxidant and antioxidant defense systems, but the imbalance between pro-oxidant and antioxidant defense mechanisms in favor of the pro-oxidant can result in oxidative stress, which can then lead to pathogenesis, e.g., cancer, neurodegeneration. Thus the most fundamental causes of disease are reactive species. There are 15 chapters: chemistry of reactive species; lipid peroxidation and nitration; protein posttranslational modification; DNA oxidation; downregulation of antioxidants and phase 2 proteins; mitochondrial dysfunction; NADPH oxidases: structure and function; cell signaling and transcription; oxidative stress and redox signaling in carcinogenesis; neurodegeneration from drugs and aging-derived free radicals; cardiac ischemia and reperfusion; atherosclerosis: oxidation hypothesis; cystic fibrosis; biomarkers of oxidative stress in neurodegenerative diseases; synthetic antioxidants. This concise and well-organized book has a multitude of figures, both color and black-and-white, along with tables and references.

TECHNOLOGY (GENERAL)

T57 9781466554610

Fuzzy multiple objective decision making.

Tzeng, Gwo-Hsiung and Jih-Jeng Huang. CRC Press, ©2014 308 p. \$129.95

Tzeng (operations research and management science, Kainan U.) and Huang (computer science and information management, Soochow U.) introduce the most popular methods used to calculate the solution of multi-objective programming in the field of multi-objective decision making. They include their own contributions to

the field: multi-objective evolutionary algorithms, expanding de novo programming to changeable spaces including decision spaces and objective spaces, and network data envelopment analysis. They also survey applications, such as bicycle manufacture, a novel algorithm for uncertain portfolio selection, and production efficiency for global telecoms. The material could be used by students or professionals.

T174 9780857094179

Carbon nanotubes and graphene for photonic applications.

Title main entry. Ed. by Shinji Yamashita, Yahachi Saito, and Jong Hyun Choi. (Woodhead Publishing series in electronic and optical materials; no.47) Woodhead Publishing, ©2013 398 p. \$270.00 Mechanical engineers and physicists cover optical properties and fabrication of carbon nanotubes and graphene, laser applications, and carbon-based optoelectronics. The topics include the synthesis of carbon nanotubes and graphene for photonic applications, optical gain and lasing in carbon nanotubes, carbon-nanotube based bulk solid-state lasers, electromagnetic nonlinearities in graphene, carbon nanotube solar cells, carbon nanotube-based photovoltaic and light-emitting diodes, and hybrid carbon nanotube-liquid crystal nanophotonic devices.

T174 9780849381447

Nanotechnology and human health.

Title main entry. Ed. by Ineke Malsch and Claude Emond.

CRC Press, ©2014 364 p. \$139.95

Contributors from relevant fields present an overview of the cutting edge science and research in medical applications of nanotechnology. Both central areas of ongoing research and ethical and environmental questions are discussed. The volume takes an interdisciplinary approach, with contributions organized into several different thematic units, from an overview of nanotechnology proper and its medical use to its interrelationship with agriculture and water supply, general environmental aspects, potential problems, and life cycle. The book concludes with several contributions on ethical, legal and social impacts of the technologies in question. A short conclusion provides a synopsis of material and discusses the near-future prospects. The editors (a physicist and an Environmental and Occupational Health researcher) pull together an impressive array of contributors from relevant fields. A natural progression in both technical detail and width of applications to environment and society provides structural unity to this collection of papers.

ENGINEERING (GENERAL, CIVIL)

TA169 9781118551127

Designing high availability systems; design for Six Sigma and classical reliability techniques with practical real-life examples.Taylor, Zachary and Subramanyam Ranganathan
Wiley, ©2014 461 p. \$125.00

Taylor and Ranganathan, electrical engineers for a telecommunications equipment manufacturer describe how to design systems in which high availability is an integral critical design element and differentiator as well as a customer requirement. Such systems might be used in telecommunications, medicine, aerospace, and public safety. Among their topics are initial considerations for reliability design, discrete and continuous random variables, modeling and reliability basics, the Markov analysis of repairable and non-repairable systems, Six Sigma tools for predictive engineering, a case study of updating reliability estimates, and complex high availability system analysis.

TA403 9780857094186

Advanced fibre-reinforced polymer (FRP) composites for structural applications.

Title main entry. Ed. by Jiping Bai. (Woodhead Publishing series in civil and structural engineering; no.46)

Woodhead Publishing, ©2013 906 p. \$385.00
Advanced composite materials were developed primarily for applications in aerospace and commercial and military aircraft, but are becoming attractive for civil engineering infrastructure applications as well because of their exceptional strength, stiffness-to-density ratios, and superior physical properties. Here civil engineers set out principles and techniques for producing fiber-reinforced polymer composites, and describe examples of their structural applications. The topics include epoxy resins as a matrix material, filament winding processes in manufacturing the composites, testing pultruded glass fiber-reinforced polymer composite materials and structures, applications in the manufacture and rehabilitation of pipes and tanks in the oil and gas industry, and sustainable energy technologies.

TA404 9780123943996

Informatics for materials science and engineering; data-driven discovery for accelerated experimentation and application.Title main entry. Ed. by Krishna Rajan.
Butterworth-Heinemann, ©2013 525 p. \$195.95
The first half of the volume sets out foundational

aspects of data science, and the second half surveys applications in materials science using a case-study approach. The topics include novel approaches to statistical learning in materials science, data dimensionality reduction in materials science, towards the rational design of sensing materials from combinatorial experiments, high-performance computing for accelerated zeolitic materials modeling, and using multivariate analysis to answer questions concerning the conservation of artworks and cultural heritage materials.

TA418 9780071828697

Applied creep mechanics.

Hyde, Thomas H. and Wei Sun, Christopher J. Hyde.

McGraw-Hill, ©2014 370 p. \$150.00

One of the avenues for reducing emission in engines and processing is to increase the operating temperature, but that increases the risk of creep and creep fracture in the containment material. Here engineers at the University of Nottingham provide a thorough account of applied creep mechanics from the basic fundamentals to advanced topics. Among the topics are material behavior models for creep analysis, the stationary-creep of multi-material uncracked components, applications of the finite element method for single-material components, the creep of welded components, creep of cracked components, and small specimen creep testing.

TA418 9780857093387

Ceramic nanocomposites.

Title main entry. Ed. by Rajat Banerjee and Indranil Manna. (Woodhead Publishing series in composites science and engineering; no.46)

Woodhead Publishing, ©2013 596 p. \$290.00
Ceramic nanocomposites offer improved hardness, strength, toughness and creep resistance over conventional ceramic matrix composites. These eighteen reviews of nanocomposite structure and properties include significant attention to manufacturing applications, and is well-illustrated. Topics include properties (thermal shock resistance and flame retardance, magnetic properties, optics, failure mechanisms, multiscale modeling), types (in metal matrix composites, carbon nanotube reinforced glass and glass/ceramic matrix composites, ultra-thin coatings using atomic deposition), processing metallic-ceramic composite powders, sintering of ultrafine and nanosized ceramic and metallic particles, and applications (ceramic nanocomposites for energy storage and power generation, biomedical applications, and tissue engineering).

TA418 9783110266443

Nanocomposites; materials, manufacturing and engineering.

Title main entry. Ed. by J. Paulo Davim and Constantinos A. Charitidis. (Advanced composites; 1)

De Gruyter, ©2013 211 p. \$196.00

Nanocomposites are defined by editors Davim and Charitidis (Mechanical Engineering, University of Aveiro, Portugal, and Materials Science and Engineering, University of Athens, Greece, respectively) as a multiphase solid material where one of the phases has one, two or three dimensions of the phases or repeat distances smaller than 100nm. Nanocomposites have become vital in many fields of industry ranging from coatings to medicine. This book covers the topic in six chapters. The first is on ceramic hollow nanocomposites which are valuable for light weight and the ability to be filled with many other useful substances. Chapter two covers polyurethane nanocomposites, especially their use as nanofillers (one phase in a multiphase nanocomposite). The third chapter covers combinations of polyurethane with organoclays, carbon nanotubes, and carbon nanofibers. Chapter four covers mechanical properties and wear in multiphase nanocomposites. Chapter five discusses computer modelling of nanocomposites with considerable mathematical and theoretical rigor. The final chapter deals with polyaniline derivatives and carbon nanotubes. There is an emphasis here on techniques of analysis such as UV spectroscopy, cyclic voltammetry, and characterization of conductivity. The figures are primarily in b&w due to the reliance on electron microscopy but color is used in the graphs and diagrams.

TA418 9781118148860

Nanocatalysis; synthesis and applications.

Title main entry. Ed. by Vivek Polshettiwar and Tewodros Asefa.

Wiley, ©2013 719 p. \$195.00

Chemists and materials scientists review the development and status of using nanometer-scale materials in catalysis. Their topics include nanocatalysts for the Heck coupling reactions, Sonogashira reactions using nanocatalysts, oxidizing alcohols using nanocatalysts, tuning the morphology of metal oxides for catalytic applications, properties of nanocatalytic materials for producing hydrogen from renewable resources, the role of nanocatalysis in the chemical industry, and activating small molecules and converting them into useful feedstock.

TA418 9781119991779

Self-cleaning materials and surfaces; a nanotechnology approach.

Title main entry. Ed. by Walid A. Daoud.

Wiley, ©2013 352 p. \$185.00

Chemists, architects, and engineers explore various approaches to developing self-cleaning materials and surfaces. Their topics include recent developments in self-cleaning cementitious coatings, self-cleaning surface of clay roofing tiles, self-cleaning fibers and fabrics, liquid flame spray as a means to achieve nanoscale coating with easy-to-clean properties, fabrication of anti-reflective self-cleaning surfaces using layer-to-layer assembly techniques, and the environmental impact of a nanoparticle-based reduced need of cleaning products and the limitation thereof.

TA1235 9780768079524

Integrated vehicle health management; the technology.

Title main entry. Ed. by Ian K. Jennions.

SAE International, ©2013 286 p. \$89.95

Jennions (integrated vehicle health management, Cranfield U., UK) presents a guide for industry professionals, researchers, and students that contains 12 chapters on the essential elements of integrated vehicle health management and how they fit together. Practitioners and engineers working in the field in the US, UK, and Chile discuss sensors, instrumentation, and signal processing; fault detection and diagnostics; prognostics and metrics; architecture; data management; vehicle-level reasoning systems; system design; applications in structures, rotating machinery, motorsport, and wind turbines; and disruptive technologies.

TA1530 9781466558762

Computational nanophotonics; modeling and applications.

Title main entry. Ed. by Sarhan M. Musa.

CRC Press, ©2014 513 p. \$169.95

Physicists, biomedical and electrical engineers, chemists, and other contributors describe a field that investigates interaction between light and objects that are smaller than the wavelength of the light. The topics include the role of computational intelligence in nanophotonics technology, modeling and characterizing nonlinear optical effects in photonic nanowires, modeling optical applications of nanofibers and nanowires, coupled mode theory and its applications in computational nanophotonics, advanced techniques in medical computational nanophotonics and nanoplasmonics, and computational modeling aspects of light propagation in biological tissue for medical

applications.

ENVIRONMENTAL TECHNOLOGY

TD898 9780857094353

Radioactive waste management and contaminated site clean-up; processes, technologies and international experience.

Title main entry. Ed. by William E. Lee, Michael I. Ojovan, and Carol M. Jantzen. (Woodhead Publishing series in energy; no.48)

Woodhead Publishing, ©2013 879 p. \$390.00
Lee (materials and Centre for Nuclear Engineering, Imperial College London, UK), Ojovan, and Jantzen offer 27 chapters that discuss radioactive waste management processes, technologies, and international experiences. They outline the fundamentals of radioactive waste, including sources, classification, categories, characterization, and processing strategies, as well as international safety standards, risk assessment, remediation of contaminated sites and irradiated nuclear fuel management, and conditioning, immobilization, and encapsulation processes, and assessing and modeling performance for long-term management. They detail the current situation in Africa, Asia, Europe, and North America, with a specific chapter on the Fukushima incident of 2011, and the clean-up sites contaminated by weapons programs in the US and former USSR. Contributors are engineers and scientists from Europe, North America, South Africa, and Asia. The book is aimed at researchers, scientists, professionals, students, and academics in radioactive waste management, governmental, and other regulatory bodies and the nuclear power industry.

MECHANICAL ENGINEERING & MACHINERY

TJ213 9781118647912

Filtering, control, and fault detection with randomly occurring incomplete information.

Dong, Hongli and Zidong Wang, Huijun Gao.

Wiley, ©2013 263 p. \$145.00

In the context of systems and control, explain Dong (Northeast Petroleum U., China), Wang (Brunel U., Britain) and Gao (Harbin Institute of Technology, China), incomplete information refers to a dynamical system in which knowledge about the system states is limited due to the difficulties in modeling complexity in a quantitative way. They investigate the filtering, control, and fault detection problems for several classes of nonlinear systems with randomly occurring incomplete information. The topics include

variance-constrained finite-horizon filtering and control with saturations, filtering and control with stochastic delays and missing measurements, filtering and fault detection for Markov systems with varying nonlinearities, distributed filtering over sensor networks with saturations, and distributed filtering for Markov jump nonlinear time-delay systems.

TJ223 9781118521212

True digital control; statistical modelling and non-minimal state space design.

Taylor, C. James and Peter C. Young, Arun Chotai. *Wiley*, ©2013 333 p. \$125.00

Researchers at Britain's Lancaster University develop a true digital control design philosophy that encompasses data-based statistical model identification through to control algorithm design, robustness evaluation, and implementation. They begin by laying down the foundations of linear state space control theory, with non-minimal state space design as the central worked example. Their topics are discrete-time transfer functions, minimal state and non-minimal state variable feedback, true digital control for univariate and multivariate systems, control structures and interpretations, and the data-based identification and estimation of transfer function models.

TJ254 9780857095411

Fluidized bed technologies for near-zero emission combustion and gasification.

Title main entry. Ed. by Fabrizio Scala. (Woodhead Publishing series in energy; no.59)

Woodhead Publishing, ©2013 1058 p. \$425.00
Intended for power plant operators and industrial engineers, this collection introduces fluidized bed combustion and gasification technology, particle characterization methods, the fluid dynamics of bubbling beds, heat transfer in fluidized beds, and attrition phenomena. The 23 chapters describe the conversion of solid fuels and sorbents during fluidized bed combustion, the conversion of liquid and gaseous fuels, control of pollutant emissions, the modeling of fluidized bed processes, and fluidized bed reactor design. The closing chapters explore new developments in oxy-fired fluidized bed combustion technology, chemical looping combustion, calcium looping for carbon dioxide capture, and sorption-enhanced gasification.

TJ267 9780857094261

Advances in wind turbine blade design and materials.

Title main entry. Ed. by Povl Bro>ndsted and Rogier P.L. Nijssen. (Woodhead Publishing series in energy; no.47)

Woodhead Publishing, ©2013 461 p. \$270.00
 Mechanical and chemical engineers describe developments in the engineering of rotor blades for a wind turbine, evaluate the challenges in rotor blade design, and discuss the requirements and challenges for the composite material to be used in the wind turbine blades of the future. Their topics include the aerodynamic design of wind turbine rotors, aerodynamic characteristics of the blade airfoils, effects of resin and reinforcement variations on fatigue resistance, the micromechanical modeling of materials surface protection and coatings, and wind turbine blade structural performance testing.

TJ789 9780768064582

Fuel/engine interactions.

Kalghatgi, Gautam.

SAE International, ©2014 255 p. \$119.00
 Focusing on internal combustion engines for transport, Kalghatgi (aeronautical engineering, Imperial College London) examines fuel in engines during this time of demand for more efficiency, less pollution, and fuels besides petroleum. He covers the outlook for energy and transport fuels; the manufacture, composition, and properties of practical fuels for internal combustion engines; deposits in internal combustion engines; fuel effects on auto-ignition in premixed systems--knock in spark ignition engines and combustion in homogeneous charge compression ignition engines; pre-ignition and super-knock in turbocharged spark ignition engines; fuel effects on compression ignition combustion--whether low-octane gasoline is the best fuel for advanced diesel engines; and implications for future transport fuels.

TJ810 9780444563521

Renewable hydrogen technologies; production, purification, storage, applications and safety.

Title main entry. Ed. by Luis M. Gandía, Gurutze Arzamendi, and Pedro M. Díez.

Elsevier, ©2013 460 p. \$199.95

Editors Gandía, Arzamendi, and Díez (U. Navarre, Spain) offer this collection on the chemistry, physics, and technology of hydrogen fuel. Aimed at researchers, industry professionals, and students of environmental science, the book focuses on renewable feedstocks including photocatalysis and biomass, as well as purification and storage challenges that must be met before hydrogen can be used for a large portion of our energy needs. Chapters move from water splitting and biological sourcing to production and purification technologies to storage materials and safe utilization. The treatment of these topics

is technical and requires solid background in chemistry, physics, and mathematics.

TJ1077 9781118451199

Numerical calculation of lubrication; methods and programs.

Huang, Ping.

Wiley, ©2013 392 p. \$150.00

Huang (South China U. of Technology, Guangzhou) introduces numerical calculation programs for lubrication, which are rarely mentioned in most books on tribology. He focuses mainly on numerical solutions to the Reynolds equation, energy equation, elastic deformation equation, and combinations of the three. The lubrication problems he analyzes include line, surface, and point contacts, which correspond to thrust bearings, journal bearings, and rolling contact bearings. Among the working conditions he considers are compressible and incompressible, thermal and non-thermal, isoviscosity and variable viscosity, Newtonian and non-Newtonian fluid, and rigid and elastic deformation situations.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2896 9780444538802

New and future developments in catalysis; batteries, hydrogen storage and fuel cells.

Title main entry. Ed. by Steven L. Suib. (New and future developments in catalysis)

Elsevier, ©2013 535 p. \$210.00

Chemists and physicists review current research and future possibilities regarding improved energy storage using the three modalities. The topics include a novel enzymatic technology for removing hydrogen sulfide from biogas, transition metal nanoparticles as catalysts in generating hydrogen from boron-base hydrogen storage materials, catalysis in fuel cells and hydrogen production, new trends in direct ethanol fuel cells, and catalytic materials and processes in secondary lithium-ion batteries.

TK2931 9780444563255

Fuel cells; current technology challenges and future research needs.

Behling, Noriko Hikosaka.

Elsevier, ©2013 685 p. \$249.95

Retired from the US Central Intelligence Agency, science and technology policy analyst Behling investigates why the fuel cell, over 170 after it was invented, is still not a commercial product in wide use. She documents the many advances in knowledge and ultimate abandonment of projects

by both researchers and companies. The topics are fuel cells and the challenges ahead, the history of the alkaline fuel cell, phosphoric acid fuel cells, molten carbonate fuel cells, solid oxide fuel cells, proton exchange membrane and direct methanol fuel cells, strengths and weaknesses of major government fuel cell research and development programs, and policy recommendations.

TK2945 9781118183656

Lithium batteries; advanced technologies and applications.

Title main entry. Ed. by Bruno Scrosati, K.M. Abraham, Walter van Schalkwijk, and Jusef Hassoun. (The Electrochemical Society series)

Wiley, ©2013 374 p. \$135.00

For electrochemistry students, researchers, engineers, and decision makers in academia and industry, Scrosati (electrochemistry, Sapienza U. of Rome, Italy), Abraham, van Schalkwijk, and Hassoun compile 16 chapters on advanced technologies and applications of lithium-ion batteries, focusing on the need for electrode materials and battery chemistries that can meet the energy and power demands of devices, tools, and electric vehicles, and identifying battery chemistry and electrode and electrolyte materials for future high-energy-density rechargeable batteries. Scientists from North America, Europe, Asia, and Israel describe the basics of electrochemical cells, the history of lithium-ion battery development, additives in organic electrolytes for lithium batteries, electrolytes for lithium-ion batteries with high-voltage cathodes, core-shell structure cathode materials for rechargeable lithium batteries, problems and expectancy in lithium battery technologies, and fluorine-based polyanionic compounds for high-voltage electrode materials. They also discuss lithium-air and other batteries, aqueous lithium-air systems, polymer electrolytes for lithium-air batteries, the kinetics of the oxygen electrode in lithium-air cells, lithium-ion batteries and supercapacitors for use in hybrid electric vehicles, safe lithium rechargeable batteries based on ionic liquids, electrolytic solutions for rechargeable magnesium batteries, the use of Li4Ti5O12 chemistry for lithium-ion batteries, and rechargeable sodium and sodium-ion batteries.

TK2945 9781608076598

A systems approach to lithium-ion battery management.

Weicker, Phillip. (Artech House titles in power engineering)

Artech House, ©2014 299 p. \$139.00

A veteran researcher in electric vehicle propulsion and energy storage technology, Weicker offers a

broad reference to lithium-ion batteries, which are offering an alternative to the heavy and bulky lead-acid batteries that were long the only choice for large-format battery systems. Their improved energy density, cycle life, power capacity, and durability, he says, can give electric vehicles meaningful ranges, can be used in grid-tied storage systems to accommodate intermittent electric production, and may lead to marine and air transport soon. His topics include large-format systems, architectures, battery management system functionality, communications, battery models, limit algorithms, state-of-health estimation algorithms, safety, and robustness and reliability.

TK3105 9781439877838

Security and privacy in smart grids.

Title main entry. Ed. by Yang Xiao.

CRC Press, ©2014 337 p. \$79.95

Computer scientists and electrical engineers explore approaches and technologies for security and privacy on smart grids, which they define as electrical power delivery systems that use communication networks and information technology to provide better service. They begin by explaining smart grids in general, before focusing on security and privacy aspects. Among their topics are distributed opportunities scheduling for building load control, advanced metering infrastructure and its integration with the distribution management system, cognitive radio network for the smart grid, vulnerability assessment for substation automation systems, and smart grid security in the last mile.

TK5102 9780124071919

Strategic intelligence management; national security imperatives and information and communications technologies.

Title main entry. Ed. by Babak Akhgar and Simeon Yates.

Butterworth-Heinemann, ©2013 316 p. \$79.95 International contributors in computing, communications systems, criminology, and emergency medicine provide a detailed overview for scholars, policy makers, and those in law, security, government, and business. The book examines current issues of national security strategy in the context of new global communication networks and global connections among regions and resources. Sections cover national security strategies, risk communication, technologies, cyber security, and future threats, with a concluding chapter on national security in the networked society. Although the book is for scholars and professionals, it offers a textbook's easy-read color layout with process diagrams, case boxes, and summary charts,

making it accessible to a broad audience of non-experts. Editors Akhgar and Yates are affiliated with Sheffield Hallam University.

TK5103 9781466581524

Neuro-fuzzy equalizers for mobile cellular channels.

Raveendranathan, K.C.

CRC Press, ©2014 186 p. \$139.95

Raveendranathan (LBS Institute of Technology for Women Poojappura, affiliated to the University of Kerala) investigates issues in the design of a neuro-fuzzy channel equalizer to null the effects of fading in mobile communication. One of his objectives is to establish that, within an acceptable bound, the mobile cellular channel is a linear time variant channel. Another is to assess the suitability of neuro-fuzzy models as applicable to analyzing and designing mobile cellular channel equalizers. After an overview of mobile channels and equalizers, he considers such aspects as a compensatory neuro-fuzzy filter, a radial basis function framework, and a modular approach to channel equalization.

TK5105 9781466582088

Network anomaly detection; a machine learning perspective.

Bhattacharyya, Dhruva Kumar and Jugal Kumar Kalita.

CRC Press, ©2014 340 p. \$89.95

Computer scientists Bhattacharyya (Tezpur U., India) and Kalita (U. of Colorado-Colorado Springs) explore anomaly-based network intrusion detection, which looks for exceptional or nonconforming patterns in network traffic data, compared to normal behavior, as an alert for intrusion. They focus on characterizing such anomalies and detecting them from a machine learning perspective. Their topics are networks and anomalies, machine learning methods, detecting anomalies in network data, feature selection, approaches to detecting anomalies, evaluation methods, tools and systems, and open issues and challenges.

TK5105 9780071798259

Power over ethernet interoperability.

Maniktala, Sanjaya.

McGraw-Hill, ©2013 454 p. \$125.00

Maniktala (Microsemi Corp.) collects the technical specifications for implementing a power over Ethernet system where power and data are sent together down a standard Ethernet cable. The opening chapters discuss how detection schemes work, how ports power up, and how to protect the cabling infrastructure and power sourcing

equipment (PSE) from faults while retaining a robust energy delivery stream. Later chapters address magnetic components, resistance imbalance, isolation requirements, surge testing, cable electrostatic discharge events, thermal management, chip decoupling, n-pair power delivery systems, and auxiliary power.

TK5105 9781466645660

User behavior in ubiquitous online environments.

Title main entry. Ed. by Jean-Eric Pelet and Panagiota Papadopoulou. (Advances in human and social aspects of technology)

Information Science Reference, ©2014 285 p. \$175.00

Researchers in information science, management, computer science, and other fields explore the technology and experience of being constantly online. Their topics include reply timing as emotional strategy in mobile text communications of Japanese young people, user empowerment versus user obsequy in ubiquitous computing in the cloud, a cultural perspective on the adoption of mobile services in China and developed countries, evaluating web portal interfaces of South African universities using a triangulation of ubiquitous computing evaluation areas and a technology acceptance model, and translating user needs to a mobile knowledge management.

TK6570 9780470689769

Internet protocol-based emergency services.

Title main entry. Ed. by Hannes Tschofenig and Henning Schulzrinne.

Wiley, ©2013 367 p. \$105.00

Some contributors are from universities and regulatory agencies, but most are from technology or network companies. They explore how emergency services should be offered in the new communication environment based on the Internet Protocol. Assuming readers are minimally familiar with how the Internet and telecommunications infrastructure works, they focus fairly narrowly on the communication chain from a caller dialing 911 or another emergency number, to the call takers who receive the call and dispatch first responders. The information could interest researchers, standards developers, product architects, and regulators.

TK6680 9781118355114

Emerging technologies for 3D video; creation, coding, transmission and rendering.

Title main entry. Ed. by Frédéric Dufaux, Béatrice Pesquet-Popescu, and Marco Cagnazzo.

Wiley, ©2013 492 p. \$135.00

The transition from a world in which visual information was almost always presented and acquired in 2D form to one where 3D visuals and information are ubiquitous is well underway. In this often rather technical compilation of essays collected by editors Dufaux, Pesquet-Popescu, and Cagnazzo (all researchers in the Signal and Image Processing department of France's Télécom ParisTech) the reader will find a look ahead into the near future of new 3D technologies. There are six parts to the book covering, in sequence: content acquisition and analysis; data representation issues such as new 3D formats and compression; view synthesis (essentially the creation of complex spatiotemporal 3D representations of an evolving scene); display technologies; human factors issues related to visual perception; and finally, target applications such as virtual tourism, 3D applications for mobile devices, and 3DTV systems. An interesting aspect of this work is a section of color plates in the center that present anaglyph color format examples of some of the issues discussed. These can be viewed using inexpensive dual color 3D glasses.

TK7871 9781608075195

Handbook of reflector antennas and feed systems; v.3, applications of reflectors.

Title main entry. Ed. by Sudhakar Rao, Lotfollah Shafai, and Satish Sharma. (Handbook of reflector antennas and feed systems; v.3)

Artech House, ©2013 447 p. \$219.00

To complement the many books on the theory and analysis of reflector antennas, engineers provide information about practical applications and design in different communications systems. The topics are space and terrestrial communications, terahertz imaging applications, multiband reflector antennas, remote sensing, feed assemblies, passive intermodulation, multipaction, corona, deployable reflectors, and mechanical aspects of reflector antennas for space applications.

TK7872 9781439895597

Multilevel converters for industrial applications.

González, Sergio Alberto and Santiago Andrés Verne, María Lnés Valla. (Industrial electronics series)

CRC Press, ©2014 229 p. \$139.95

González, Verne, and Valla (all electronic engineering, National U. of La Plata, Argentina) analyze high-power multilevel converters with a common direct-current voltage source and describe their control and modulation strategies, their characteristics, and design trade-offs. After an introduction and a discussion of multilevel

topologies, they cover diode-clamped, flying capacitor, and cascade asymmetric multilevel converters. Case studies look at distribution static compensator built with a cascade asymmetric multilevel converter, and a medium-voltage motor drive built with diode-clamped multilevel converter. The material is for graduate students, researchers, and practitioners in circuit design.

TK7872 9781466556942

Wireless ad hoc and sensor networks; management, performance, and applications.

He, Jing (Selena) and Shouling Ji, Yi Pan, Yingshu Li.

CRC Press, ©2014 349 p. \$99.95

For scientists who depend on sensor networks in some way, computer scientists He (Kennesaw State U., Georgia), Ji, Pan (both Georgia State U.), and Li (U. of Minnesota-Twin Cities) provide a reference on the algorithm description, performance analysis, and applications of network management techniques in such networks. The topics include the greedy-base construction of load-balanced virtual backbones, approximation algorithms for load-balanced virtual backbone construction, constructing load-balanced virtual backbones in probabilistic wireless sensor networks with a multi-objective genetic algorithm, reliable and energy efficient target coverage, snapshot and continuous data collection in dual radio-multi-channel wireless sensor networks based on connected dominating sets, and broadcast scheduling in cognitive radio networks.

TK7872 9781466518100

Wireless sensor networks; from theory to applications.

Title main entry. Ed. by Ibrahiem M.M. El Emary and S. Ramakrishnan.

CRC Press, ©2014 779 p. \$119.95

International contributors offer intermediate and advanced coverage of wireless sensor networks (WSNs), with material in sections on data collection, physical layer and interfacing, routing and transport protocols, energy-saving approaches, mobile and multimedia WSNs, and data storage and monitoring. Some topics include sensor bus architecture for real-time WSNs, routing and transport protocols, virtual clustering in WSNs, GPS-free indoor localization for mobile sensor networks, and building and orchestrating centralized remote management procedures for WSNs. Applications in artificial eye vision and environmental modeling are described. The book is for researchers, engineers, and advanced students with background in computer networks, wireless communication, and basic electronics. El Emary

is affiliated with King Abdulaziz University, Saudi Arabia. Ramakrishnan is affiliated with the College of Engineering and Technology, India

TK7874 9781466560666

Novel advances in microsystems technologies and their applications.

Title main entry. Ed. by Laurent A. Francis and Krzysztof Iniewski. (Devices, circuits, and systems) CRC Press, ©2014 613 p. \$159.95

Electrical and biomedical engineers alert colleagues and graduate students in their fields to innovations in microsystems along five dimensions. They are organic and flexible electronics, imaging and display technologies, sensors and microdevices, point-of-care and biosensors, and ultra-low-power biomedical systems. Among the topics are nanoscale phase separation and device engineering in polymer solar cells, increasing projector contrast and brightness through light redirection, power density limits and benchmarking of resonant piezoelectric vibration energy harvesters, a point-of-care testing platform with nanogap-embedded field-effect transistors, and ultra-low-power techniques in small autonomous implants and sensor nodes.

TK7874 9783527409952

One-dimensional superconductivity in nanowires.

Altomare, Fabio and Albert M. Chang. Wiley-VCH, ©2013 307 p. \$145.00

The continuing drive for miniaturization in electronic devices makes it necessary to reduce heat dissipation by using interconnects that are superconducting. Experimental physicists Altomare and Chang (physics, Duke U.) explore superconductivity in very narrow metallic wires, looking in turn at theoretical aspects and at experimental results. Among their topics are basic notions of one-dimensional superconductivity, quantum phase slips and quantum phase transitions, experimental techniques for fabricating nanowire, coherent quantum phase slips, and one-dimensional superconductivity in a related system.

TK7874 9789814411691

Spintronics in nanoscale devices.

Title main entry. Ed. by Eric R. Hedin and Yong S. Joe.

Pan Stanford Publishing, ©2013 209 p. \$149.95 Spintronics uses the spin of an electron, rather than its charge, for switching and to provide information. Physicists and engineers who are active researchers in spintronics examine solid-state semiconductor-based devices for producing and manipulating spin-polarized current in

nanometer-scale devices. Their topics include spin-polarized transport in a quantum dots system with Rashba spin-orbit interaction, triangular triple quantum dots driven by alternating-current magnetic fields, the atomistic tight-binding simulation of semiconductor devices with coupled spin and orbit, the magnetic properties of nanostructures synthesized on a vicinal surface, and magnetism and spintronics in graphene. Distributed in the US by CRC Press.

TK7875 9781608075270

Hermeticity testing of MEMS and microelectronic packages.

Costello, Suzanne and Marc P.Y. Desmulliez. (Artech House integrated microsystems) Artech House, ©2013 195 p. \$139.00

Scottish electrical engineer Costello and Desmulliez (sensors, signals, and systems; Heriot-Watt U., Scotland) explain hermeticity test methods and their application to electronic components that have packages with low-volume cavities. The book augments H. Greenhouse's Hermeticity of Electronic Packages (2nd edition 2011) by covering additional methods used in determining molecular leak rates, permeation, and outgassing and by providing a classification of the efficacy and sensitivity of each method. They assume readers to be new to the field.

TK7875 9783527331208

Nanomachines; fundamentals and applications.

Wang, Joseph. Wiley-VCH, ©2013 160 p. \$125.00 (pa)

In this informative text on a cutting-edge topic, Wang (nanoengineering, U. of California San Diego) introduces graduate students and upper-level undergraduates in nanoengineering, nanoscience, or nanotechnology courses, as well as researchers in nanobiotechnology, nanomedicine, and nanoengineering, to the field of nanomachines and advances in their design and operation. He describes the fundamental aspects and challenges of nanoscale motion, including the history of nanomachines; biological nanoswimmers; molecular and DNA machines; chemically powered catalytic nanomotors; fuel-free externally actuated nanomotors; potential applications for these machines, from drug delivery to target isolation; and future aspects.

TK7882 9781466648685

Research developments in biometrics and video processing techniques.

Title main entry. Ed. by Rajeev Srivastava, S.K. Singh, and K.K. Shukla. (Advances in information

security, privacy, and ethics)

Information Science Reference, ©2014 261 p.
\$195.00

Writing for graduate students, researchers, and practitioners, computer scientists and engineers present research findings and new applications in biometrics and security techniques, and in video processing. The topics include thermal human face recognition for a biometric security system, biometric authentication based on hand vein pattern, feature-based affine motion estimation for the super resolution of a region of interest, using computer vision techniques to exploit new video coding mechanisms, and recognizing humans and their activities for video surveillance.

TK7895 9781439880630

Multicore technology; architecture, reconfiguration, and modeling.

Title main entry. Ed. by Muhammad Yasir Qadri and Stephen J. Sangwine. (Embedded multi-core systems)

CRC Press, ©2014 465 p. \$129.95

Computer architecture has become so complex that putting multiple cores on a single chip became better than increasing the size and complexity of a single processor. Computer scientists and electrical engineers introduce multicore technology in a textbook for a graduate course in embedded systems, computer architecture, or multi-core systems. Professional scientists and engineers could also use it as a tutorial or reference. It covers architecture and design flow, parallelism and optimization, memory systems, debugging, and networks-on-chips.

TK8304 9780857092656

Handbook of organic materials for optical and (opto)electronic devices; properties and applications.

Title main entry. Ed. by Oksana Ostroverkhova. (Woodhead Publishing series in electronic and optical materials; no.39)

Woodhead Publishing, ©2013 804 p. \$345.00

Rapid development in the field in the last 20 years results from the fact that organic (opto)electronic and nonlinear optical (NLO) materials are low cost, easy to fabricate, and tunable. Providing an overview of recent developments in materials development, characterization techniques, and applications, this book aims to be accessible for students entering the field and researchers coming to it from other disciplines, yet in-depth enough to be useful as a desk reference for professionals already working with organic materials and their applications. Fifty-two contributed chapters--written by a genuinely international roster of

authors based in Europe, Asia, North America, and Australia--were brought together by editor Ostroverkhova (Oregon State U.).

MINING ENGINEERING

TN688 9781118230770

Hydrometallurgy; fundamentals and applications.

Free, Michael L.

Wiley, ©2013 432 p. \$135.00

This introduction and self-contained overview of hydrometallurgy, from fundamentals to applications and method, covers several topics (aqueous corrosion, environmental hydrometallurgy, and others) not covered elsewhere. Included are many phase diagrams and extensive graphs and other illustrations. Several chapters deal with wider context including some history of hydrometallurgy and the importance of metals in general; an overview of metal deposition and general aqueous chemistry; and economics and statistics in general engineering context. Several appendices provide data on ionic species and atomic weights, properties of metals and minerals, free energy data and laboratory calculations. Information on environmental regulations and remediation technologies rounds out this rather magisterial volume. The author is a professor of metallurgic engineering at the University of Utah.

TN871 9781466556249

Corrosion and materials in the oil and gas industries.

Title main entry. Ed. by Reza Javaherdashti, Chikezie Nwaoha, and Henry Tan.

CRC Press, ©2013 701 p. \$199.95

Chemical, mechanical, materials, safety, and other engineers examine corrosion in the petroleum industries in light of new methods and technologies in oil and gas, and new ways of gathering and processing data as instruments become more precise and laboratory techniques more refined. In sections on degradation mechanisms; inspection and maintenance; and risk, integrity, and reliability the consider such topics as corrosion and oxidation in thermal barrier coatings, a green approach to inhibiting corrosion by surface treatment, modeling and simulating pipeline corrosion, environmental and corrosion control effects of hydrogen sulfide scavengers, and aging and life extensions of pressure systems.

CHEMICAL TECHNOLOGY

TP150 9781118777930

Guidelines for enabling conditions and conditional modifiers in layer of protection analysis.

Title main entry. Ed. by Center for Chemical Process Safety, New York, NY.

Wiley, ©2014 105 p. \$89.95

A product of the Center for Chemical Process Safety, this guideline for enabling conditions and conditional modifications in layers of protection analysis (LOPA) is an effort to make safety documentation easier to use and to understand. It begins by seeking to establish a clear context for the use of the documents, describes LOPA-enabling conditions, examine LOPA-conditional modifiers, gives applications to other methods such as quantifiable risk analysis, gives scenarios in which the documents can be used, and gives barrier analysis diagrams.

TP155 9781926895512

Chemical process in liquid and solid phases; properties, performance and applications.

Title main entry. Ed. by Alfonso Jiménez and Ali Pourhashemi.

Apple Academic Press, ©2014 533 p. \$149.95

Physical and biological scientists provide a broad perspective on recent developments in chemical processes that could interest researchers and students. Among the topics are free radical initiation in polymers under the action of nitrogen oxides, the biology of development of phytopathogenic *Fusarium* fungi and resistance of cereals to it in climate conditions of Tyumen region of Russia, fluid flow and control of bending instability during electrospinning, selecting medical preparations for treating lower parts of the urinary system, and the experimental and theoretical study of the effectiveness of a centrifugal separator. Distributed in the US by CRC Press, a member of the Taylor & Francis Company.

TP155 9780444543233

Domino effects in the process industries; modeling, prevention and managing.

Title main entry. Ed. by Genserik Reniers and Valerio Cozzani.

Elsevier, ©2013 372 p. \$175.00

Chemical, process, mechanical, and other engineers examine the phenomenon of a single, often simple accident cascading into a catastrophe in chemical processing operations. In sections of causes and prevention by technology and by management, they discuss such aspects as

the analysis of past accidents and relevant case histories, heat radiation effects, a threshold-based approach, quantitative assessment of risk caused by domino accidents, and decision support systems for preventing domino effects. The back matter includes nomenclature, tutorials on methodologies described in the text, and a glossary without pronunciation guides.

TP155 9781119953524

Sustainable development in chemical engineering; innovative technologies.

Title main entry. Ed. by Vincenzo Piemonte, Marcello de Falco, and Angelo Basile.

Wiley, ©2013 365 p. \$115.00

Piemonte, de Falco, and Basile present this volume on strategies for maintaining chemical production in the face of inevitable declines in petroleum feedstocks for energy and bulk small molecules. The first chapter provides an overview of alternative feedstocks and other sustainability issues to be addressed, followed by several chapters focusing on energy by discussing solar technology, intermittent renewables, and grid design. Technology for process intensification and the use of biological feedstocks for biofuels, bioplastics, and biosurfactants is then covered. Finally, environmental remediation is treated, including microbial, chelation, and nanoparticle techniques.

TP159 9783527332823

Microreactors in preparative chemistry; practical aspects in bioprocessing, nanotechnology, catalysis and more.

Title main entry. Ed. by Wladimir Reschetilowski.

Wiley-VCH, ©2013 335 p. \$110.00 (pa)

Editor Reschetilowski (chemical technology, Dresden U. of Technology, Germany) presents this summary of microprocess chemical technology for preparative applications. The first chapter introduces principles microreactors. Further chapters treat such topics as microfluidics and multiphase systems, modular design, lab-on-a-chip applications to synthesis of biomolecules, biosensors, synthesis of fine chemicals and nanomaterials, polymerization, electrochemistry, heterogeneous catalysis, process intensification, and flow modeling. Diagrams and equations throughout give an in-depth account of microscale dynamics, and detailed experimental sections allow reproduction of established successful syntheses.

TP159 9780444538741

New and future developments in catalysis; catalysis by nanoparticles.

Title main entry. Ed. by Steven L. Suib. (New and future developments in catalysis)

Elsevier, ©2013 499 p. \$210.00

Chemists and material scientists survey nanometer-sized particles that have an influence on catalytic activity, selectivity, and stability and modern synthetic methods used to make nano-sized particles. The topics include nanoparticle catalysis for reforming biomass-derived fuels, thin iron heme enzyme films on electrode and nanoparticles for biocatalysis, insights into heterogeneous catalysis through surface science techniques, hydrogenation by nanoparticle catalysts, supported gold nanoparticles as heterogeneous catalysts, and developing semiconductive catalysts with three-dimensional nanobranches via solution routes.

TP159 9781420060416

The science of defoaming; theory, experiment, and applications.Garrett, Peter R. (Surfactant science series; 155) *CRC Press*, ©2014 572 p. \$199.95

Retired from a research career at a large corporation, Garrett has been teaching and writing about various aspects of his specialty, interfacial science. Here he concentrates on the basic science of de-foaming, paying little attention to commercial applications. He begins with the general properties of foams and the experimental techniques for measuring foam properties relevant to studying anti-foam action. Other topics include mode of action of antifoams, deactivating mixed oil-particle antifoams during dispersal and foam generation in aqueous media, mechanical methods for de-foaming, controlling foam in waterborne latex paints and varnishes, and medical applications of de-foaming.

TP244 9780444538826

New and future developments in catalysis; activation of carbon dioxide.

Title main entry. Ed. by Steven L. Suib. (New and future developments in catalysis)

Elsevier, ©2013 644 p. \$210.00

One reason that carbon dioxide is a potent greenhouse gas is that the molecule is very stable, and if it could be made less so, it would be easier to bind and keep out of the atmosphere. Chemists and biochemists examine approaches and techniques for activating it using homogeneous or heterogeneous catalysis. Among the topics are the catalytic activation of carbon dioxide and its conversion into fuels or value-added chemicals by forming carbon-carbon bonds, new catalysts

for activating carbon dioxide in several typical processes, the electro-catalytic reduction of carbon dioxide, synthesizing cyclic carbonates from carbon dioxide and epoxides, and the photocatalytic conversion of carbon dioxide into fuels using layered double hydroxides coupled with hydrogen or water.

TP248 9780470972021

Aqueous pretreatment of plant biomass for biological and chemical conversion to fuels and chemicals.

Title main entry. Ed. by Charles E. Wyman. (Wiley series in renewal resources)

Wiley, ©2013 538 p. \$160.00

Biomass is an emerging source of renewable energy, but the inefficiency of isolating usable sugar from cellulosic feedstock remains a barrier to widespread utilization. Editor Wyman (chemical and environmental engineering, U. of California-Riverside) offers this compendium of pretreatment techniques to maximize polymer conversion to simple sugars and separation from other non-usable components. The book covers enzymatic hydrolysis, catalytic strategies, low and high pH treatments, fractionation, ionic liquid techniques, and the influence of starting material properties on the process. Laboratory design, characterization, and monitoring are also addressed, while newer, more experimental methods are covered later in the book.

TP248 9781118218358

Biopolymer nanocomposites; processing, properties, and applications.

Title main entry. Ed. by Alain Dufresne, Sabu Thomas, and Laly A. Pothan. (Wiley series on polymer engineering and technology)

Wiley, ©2013 684 p. \$185.00

Chemists and materials scientists explore nanocomposites made from biological polymers such as starch, chitin, and cellulose. Their topics include morphological and thermal investigations of chitin-based nanocomposites, processing techniques for starch-based bionanocomposites, preparing nanofibrillated cellulose and cellulose whiskers, mechanical properties of cellulose-based bionanocomposites, biocomposites and nanocomposites containing lignin, and protein-based nanocomposites for food packaging.

TP754 9780857092366

Semiconductor gas sensors.

Title main entry. Ed. by Raivo Jaanisoo and Ooi Kiang Tan. (Woodhead Publishing series in electronic and optical materials; no.38)

Woodhead Publishing, ©2013 552 p. \$305.00

Electrical engineers and physicists cover advanced sensing methods and structure, nanomaterials for gas sensing, and applications of semiconductor gas sensors. Among the specific topics are conduction mechanisms in semiconducting metal oxide sensing films and its impact on transduction, recent trends in silicon carbide and graphene-based gas sensors, micromachined semiconductor gas sensors, semiconducting direct thermoelectric gas sensors, semiconductor quantum dots for photoluminescence-based gas sensing, carbon nanotube and metal oxide hybrid materials for gas sensing, metal oxide semiconductor gas sensors in environmental monitoring, and solid-state sensor for detecting carbon dioxide.

TP807 9781466640665

MAX phases and ultra-high temperature ceramics for extreme environments.

Title main entry. Ed. by I.M. Low, Y. Sakka, and C.F. Hu.

Engineering Science Reference, ©2013 643 p. \$165.00

MAX phases--ternary carbides and nitrides--have hexagonal structures of an early transition metal (M), a group A element (A), and a carbon or nitrogen (X). Unlike binary versions of the ceramic material, they possess a unique quasi-plastic character that imports excellent damage tolerance; are resistant to creep, fatigue, and corrosion; and have ultra-low friction. Chemists and material scientists examine such aspects as the decomposition kinetics of MAX phase in extreme environments, the effect of transition metal silicides on microstructure and mechanical properties of ultra-high temperature ceramics, designing polymer-derived ceramics for applications at ultra-high temperatures and in extreme environments, reactive melt infiltration of carbon fiber reinforced ceramic composites, wetting and joining structural ceramic components, and tungsten composites reinforced with carbide particles in extreme hazard environments.

TP811 9783037858035

Layered clay materials for functional applications.

Title main entry. Ed. by Trilochan Mishra and Nigamananda Das. (Key engineering materials; v.571)

Trans Tech Publications, ©2013 213 p. \$138.00 (pa)

Specialists from several countries and disciplines explore the use of clay-based layered materials for different functional applications ranging from catalysis and biomaterials to self-healing coatings. Among the topics are hydrotalcites as catalysts and catalyst precursors for synthesizing biodiesel,

the adsorption of acid dyes on hydrotalcite-like anionic clays, recent developments in clay-based functional coating for corrosion protection, drug delivery using nano-sized layered double hydroxide, and progress in the one-pot synthesis of methyl isobutyl ketone using catalysts based on multifunctional layered clay.

PHOTOGRAPHY

TR897 9780240823942

Face it; a visual reference for multi-ethnic facial modeling.

Beckmann-Wells, Patricia.

Focal Press, ©2013 469 p. \$49.95 (pa)

Beckmann-Wells (founder, Bunsella Studios) and tutorial designer Wells (senior character artist, Treyarch/Activision) present this guide to accurate graphics modeling of faces of varying sex, age, and ethnic background. The book begins with a discussion of skull shape across sex and different ethnic groups. A large number of models with photographs taken from several different angles provide a library of reference images, with head measurements of each model laid out in text, while a small section at the end discusses facial expressions. Computer tutorials are provided on basic skulls, noses, eyes, and finally a comprehensive head sculpting. A brief primer on facial anatomical terminology is provided at the beginning of the book. Focal Press is an imprint of Taylor & Francis.

MANUFACTURES, ARTS & CRAFTS

TS23 9783037857670

Progress in manufacturing technologies.

Title main entry. Ed. by Dunwen Zuo, Hun Guo, Ji Xu, Taiyong Wang, Guoxing Tang, and Zhiwei Chen. (Key engineering materials; v.567)

Trans Tech Publications, ©2013 186 p. \$138.00 (pa)

This special topic volume contains 27 invited papers on progress in manufacturing technologies, particularly applied materials engineering and materials processing technologies in mechanical engineering and related topics. Researchers working in engineering and other fields in China, Australia, and the US discuss such topics as a method for the identification of an alloy's non-crystalline structure; a study on micro-cylindrical electrode fabrication in electrochemical machining; finite element analysis of ultrasonic vibration assisted turning of ferrous metals; the homogenous design of large area film hollow

cathode plasma graft polymerization; the FEM numerical simulation of die spinning with a three-dimensional model; the preparation and characterization of a nano zinc borate/epoxide resin composite; construction wastes recycling; an adaptive dynamic clone selection strategy for optimization; fault diagnosis; and the effect of the impact load on the main welding outer cylinder of large aircraft landing gear.

TS171 9781466507036

Designing complex products with systems engineering processes and techniques.

Bhise, Vivek D.

CRC Press, ©2014 462 p. \$119.95

Here Bhise (emeritus, engineering, U. of Michigan) helps engineers in systems engineering understand concepts, issues and methods of product design, quality, human factors, and safety engineering approaches, tools, applications, case studies, and integration. He begins with systems engineering and other disciplines of product design, then moves to decision making and risks, product attributes, requirements and allocation of functions, understanding and managing interfaces, product evaluation and verification, validation, program planning and management, costs and models, quality management and six-sigma initiatives, human factors, safety, methods and tool box, traditional and new quality tools, human factor engineering tools, and safety engineering tools. He includes a set of case studies.

TS183 9783037857694

Advanced manufacturing technologies and material properties.

Title main entry. Ed. by Dunwen Zuo, Hun Guo, Ji Xu, Taiyong Wang, Guoxing Tang, and Zhiwei Chen. (Advanced materials research; v.764)

Trans Tech Publications, ©2013 208 p.

\$138.00 (pa)

Invited and peer-reviewed papers cover advanced material technologies and machining; tribological materials, friction, wear, and strength; advanced engineering manufacturing technologies and equipment, mechanical engineering; and product design. Among specific topics are formation mechanisms of the red spark discharge of micro-arc oxidation, tribological properties of ceramic tool materials in contact with wood-based materials, the control bearing of pre-tightening force on the guide of a high-speed punch press, technology to reduce noise and vibration in hybrid electric vehicles, and a user-friendly design of a modern forest fire helmet.

TS1770 9781466566491

Textiles for industrial applications.

Kumar, R. Senthil.

CRC Press, ©2014 386 p. \$129.95

With industrial textiles, Kumar (textile technology, Kumaraguru College of Technology, Coimbatore, India) points out, functionality is the primary concern, unlike clothing and household textiles, in which appearance is at least as important. He surveys materials, processing, and applications. Among his topics are medical textiles, the finishing of industrial textiles, textiles in transmission and conveyor belts, testing industrial textiles, and textile composites.

TS1925 9781847359629

Polymeric protective technical textiles.

Title main entry. Ed. by Brian J. McCarthy.

Smithers Rapra, ©2013 164 p. \$200.00

Seven chapters presented by McCarthy (TechniTex Faraday Limited) explore select topics associated with polymeric protective technical textiles, including: the use of technical textiles in the specialist engineering industry of aircraft ejection seats; the European Union StayCool project for firefighter protection; effect of inter-yarn friction on ballistic performance of woven fabrics; registration, evaluation, authorization, and restriction of chemicals, classification, labeling, and packaging and sector specific European Union legislations; electrically conductive textiles for protection; the OEKO-TEX Standard 100 for testing for harmful substances in relation to professional and protective clothing; and the filtration of technical fabrics against chemical and biological agents under low flow and pressure.

MILITARY & NAVAL SCIENCE

U163 9781466592018

Conflict and cooperation in cyberspace; the challenge to national security.

Title main entry. Ed. by Panayotis A. Yannakogeorgos and Adam B. Lowther.

Taylor & Francis, ©2014 332 p. \$59.95

The editors and several contributors are researchers for the US Air Force, which has become the key military player in cyberspace. This volume reflects and advances recent effort to establish accepted standards for definitions, data structures, threat assessments, and policies among relevant agencies. The topics include taming the 21st century's wild west of cyberspace, the essential features of an ontology for cyberwarfare, challenges in monitoring cyberarms compliance, whether there can be an ethical cyber war, the cultivation

of global norms as part of a cybersecurity strategy, and cyber sovereignty.

U163 9780124078147

Introduction to cyber-warfare; a multidisciplinary approach.

Shakarian, Paulo and Jana Shakarian, Andrew Ruef.

Syngress Media, Inc., ©2013 318 p. \$49.95 (pa)

Traditionally, military academies have trained future officers through courses of study of actual wars throughout history. Following this lead Paulo Shakarian, Jana Shakarian, and Andrew Ruef, with backgrounds in the US military, academia, and industry, present a number of case studies of actual incidents of cyber warfare that have actually occurred. Most of these studies concern incidents that have occurred only since 2006 thus refuting the prior common view in the cyber security community that cyber warfare was largely a fiction created by media hype. The work is divided into three sections: the first concerns the use of cyber warfare in support of conventional military operations such the Russian invasion of Georgia in 2008 and the conflict between Hezbollah and Israel in 2006; the second section concerns cyber espionage such as the 2008 theft of Predator drone video feeds by Hezbollah in Iraq, the Chinese government's hacking of Tibetan computer systems, and the role of Anonymous in the Arab Spring of 2010; the final section concerns the use of cyber war to attack physical infrastructure such as power grids, industrial control systems, and the famous Stuxnet assault by Israel on Iran in 2010. Syngress Media is an imprint of Elsevier.

MILITARY SCIENCE

UF820 9781466564374

Ballistics; theory and design of guns and ammunition, 2d ed.

Carlucci, Donald E. and Sidney S. Jacobson. *CRC Press*, ©2014 586 p. \$169.95

This textbook for students and engineers covers interior, exterior, and terminal ballistics. This second edition contains new material on areas such as explosive equations of state and wound ballistics, plus new problems. The web site contains new MathCAD codes to assist in solving the new problems. Carlucci and Jacobson are affiliated with the US Army's Picatinny Arsenal.

VM605 9781466643178

Marine technology and sustainable development; green innovations.

Olanrewaju, Oladokun Sulaiman and Abdul Hamid Saharuddin, Ab Saman Ab Kader, Wan Mohd Norsani Wan Nik. (Advances in environmental engineering and green technologies)

Information Science Reference, ©2014 314 p. \$195.00

Marine scientists and engineers, many of them in Malaysia, describe efforts to make marine technology and development more environmentally friendly. Among the topics are hull and propeller performance for technical fuel conservation, propellers and shafting for sustainable shipping, risk requirements for multi-hybrid renewable energy for marine systems, the corrosion of aluminum alloys in seawater and the development of green corrosion inhibitor for marine applications, applying the safety and environmental risk and reliability model to prevent Malaysian Langkat River collisions, the effect of training on shipboard oil pollution violations, and assessing human reliability behavior from the use of technology to navigate ships within coastal water.

VM753 9780080971230

Marine propellers and propulsion, 3d ed.

Carlton, J. S.

Butterworth-Heinemann, ©2012 516 p. \$165.00

The third edition of this text/reference for marine engineers, naval architects, and students studying propulsion and hydrodynamics is updated to cover the latest theory, best practices, legislation, and industry standards since 2007. There is new material on the physics of cavitation development and collapse, erosive effects on propeller materials, and the effects of shipping activity on the behavior of marine mammals. Chapters are organized in three sections on hydrodynamic theory, materials and mechanical considerations, and design, operation, and performance. The book includes b&w photos, images, diagrams, and drawings. Carlton is affiliated with City University, London.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z665 9781466645622

Rethinking the conceptual base for new practical applications in information value and quality.

Title main entry. Ed. by George Leal Jamil, Armando Malheiro, and Fernanda Ribeiro. (Advances in information quality and management)

Information Science Reference, ©2014 445 p. \$175.00

Communication and information scientists, most from Portugal or Brazil but a few from France,

reformulate the conceptual and theoretical basis for the practical application of analyzing the value and quality of information. Their topics include a scientific and comprehensive approach to evaluating information, the contribution of information science through intellectual property to innovation in the Brazilian health sector, neglected diseases as a case study of the perception of information values for public health, key instruments for organizational performance, and managing information in complex and turbulent environments.

Z675 9781610694131

Embedded librarianship; what every academic librarian should know.

Title main entry. Ed. by Alice L. Daugherty and Michael F. Russo.

Libraries Unlimited, ©2013 201 p. \$65.00 (pa)

In this work, US college and university librarians share their experiences in integrating librarians into the teaching and learning process by embedding librarians into academic departments, research centers, and other academic support offices. Some specific topics include faculty and librarian collaboration in the first year, embedded librarianship in the context of the global distance education environment, and using a digital learning object repository to provide library support for online learning. The book is for those who identify with roles such as embedded librarian, blended librarian, liaison librarian, personal librarian, informationist, instructional design librarian, and user experience librarian. Daugherty and Russo are affiliated with Louisiana State University.

Z682 9781466647350

Technology and professional identity of librarians; the making of the cybrarian.

Hicks, Deborah. (Advances in library and information sciences)

Information Science Reference, ©2014 260 p. \$175.00

A specialist on libraries and library technology, Hicks (education policy, U. of Alberta-Edmonton, Canada) explores the impact of information technologies on how librarians practice librarianship and how they think of themselves and their profession. Among her topics are the role of technology in the historical development of libraries pre-automation, how librarians are using the Internet, the changing face of information literacy, perception of librarians as technology workers, ethics in the age of technological change and its impact on the professional identity of librarians, and public policies as spaces for the articulated professional identity of librarians.

ZA3075 9783631643525

Information seeking stopping behavior in online scenarios; the impact of task, technology and individual characteristics.

Hemmer, Erik. (Informationstechnologie und ökonomie; bd.52)

PL Academic Research, ©2013 234 p. \$69.95 (pa)

Hemmer (information systems researcher Texas Tech U.) examines clear guidelines for online searching. He gives a full account of his research, including the theoretical foundations, in which information is the fundamental entity in the information systems discipline, the set up for the test, in which human subjects are called upon to simply follow orders as to the extent of research, research and design of the test, pretest and theoryrefinement, and, finally, the empirical validation. The result should help designers determine how far to go in online use and testing.

ZA4060 9781856049443

M-libraries 4; from margin to mainstream -- mobile technologies transforming lives and libraries.

Title main entry. Ed. by Mohamed Ally and Gill Needham.

Facet Publishing, ©2013 250 p. \$59.95 (pa)

In these papers from the 2012 Fourth International M-Libraries Conference, international contributors examine the impact of mobile technologies for accessing information and services in libraries and information centers. Cases from around the world show how libraries are interacting with users and delivering resources via mobile and hand-held devices. Some subjects include the use of iPads for a roving inquiry service, promoting library services through social media, QR codes as teaching tools, designing the library's website, creating a university-wide mobile app, and mobile devices in medical schools. Visual elements include b&w photos, screenshots, process diagrams, and data charts. The book's readership includes students and practitioners in library and information science, along with technical developers. Ally is affiliated with Athabasca University, Canada. Needham is affiliated with the Open University Library and Learning Resources Center, UK. Distributed in the US by Neal-Schuman.

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amanda.schoen@sherwin.com

Bulletin Editor

Kiem Ta
Oklahoma State University
405-744-9743
kiem.ta@okstate.edu

Professional Development

Ted Baldwin
University of Cincinnati|
513-556-4211
baldwitw@ucmail.uc.edu

Sponsorship

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Professional Development Committee Chair

Mary Frances Lembo
MF.Lembo@pnnl.gov

Professional Development Committee Members

Darra Ballance
Dr. P.K.Jain
Jennifer Robbins
Susan Wainscott

Strategic Planning Committee Chair

Sue Brewsaugh
sue.brewsaugh@boeing.com

Strategic Planning Committee Members

Dorothy McGarry
Helen Kula
Vici Deem
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Wilda Bowers Newman
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Elisabeta Cosarca

Student Relations Committee Chair

Heather Lewin
hslewin@iastate.edu

Student Relations Committee Members

Michele Hadburg
Rebecca Miller
Sarah Oekler
Susan Powell

Vendor Relations Chair

Helen Josephine
helenj@stanford.edu

Vendor Relations Committee Members

Anna Ren

Web Master

Margaret Smith
margaret.smith@nyu.edu

2014 Science and Technology Division Liaisons

ALA/ACRL Science & Technology Section Liaison

Janet Hughes
jah19@psu.edu

SLA Cataloging Committee Liaison

Thea Allen
theaallen@gmail.com

SLA Ethics Ambassador

Anna Ren
annawu@northwestern.edu

Medical Library Association Liaison

Carol Vreeland
carol_vreeland@ncsu.edu

SLA Diversity Leadership Committee Liaison

P.K. Jain
pkjain1310@gmail.com

SLA Alignment Ambassador

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SciTech News

Editor

Jeremy Cusker
103B Carpenter Hall
Cornell University
Ithaca, NY 14850
jpc27@cornell.edu

Assistant Editor

Christine Malinowski
cmalinowski@post.harvard.edu

Advertising Manager

OPEN

Business Manager

Thea Allen
theaallen@gmail.com

SLA on the Web: *SciTech* News Division Websites

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