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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

THE "KING" AND THE "TWELVE WIRED" BIRDS OF PARADISE.

Published by Jefferson Digital Commons, 2010

Volume 64, Number 4 (2010)
ISSN 0036-8059

SciTech News

Ellis Mount, Editor Emeritus

SLA Connecting People and Information

On the Cover

THE "KING" AND THE "TWELVE WIRED" BIRDS OF PARADISE.

Alfred Russel Wallace spent 8 years in Indonesia, 1854-62, in what was then called the Malay Archipelago, collecting specimens, and thinking about the origin of species. He is best remembered for a letter he sent to Charles Darwin in 1858, which stimulated Darwin to write his own book on the origin of species, but Wallace made many valuable observations on the fauna of places like Borneo and Papua New Guinea. He was one of the first westerners to see close-up the fabled birds of paradise, which had been known for hundreds of years only through specimens obtained by natives. The image of the "King" and the "12-wired" birds of paradise is from his Malay Archipelago (London, 1869; *photo and caption courtesy of the Linda Hall Library of Science, Engineering & Technology)*.

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From the Editor

James Manasco

Hello everyone and welcome to the fourth issue of *SciTech News* for 2010.

I hope you all are looking forward to the holidays with joy and happiness in your hearts. I know that I'm looking forward to the warm embrace of family and friends during this most wonderful time of the year, while also looking ahead to SLA's Leadership Summit in DC in January and the Annual Conference in Philadelphia in June.

As this issue, and the year, draws to a close, I want to thank everyone associated with *SciTech News* for all their hard work at making this such a quality multi-divisional bulletin. Without your efforts the past two years would not have been such a success. We have seen the bulletin migrate from a print-only offering into the dynamic online-only venue it now is. We have seen the rebirth of its refereed section though, at the moment, we are still waiting for authors to step up and submit their works to our Review Board Chair, Bonnie Osif, so we can all watch this resource grow.

I am quite happy with our progress and take great satisfaction in the results. However, as I look back, I also feel the need to look forward. And that forward view has convinced me that it is now time to step down from *SciTech News* as your Editor. I have accomplished what I set out to do when I was appointed to this position and now I leave it in the very capable hands that will continue moving this wonderful bulletin forward. Abby Thorne, an Assistant Editor these past two years, will succeed me as Editor. Bonnie has agreed to stay on as Review Board Chair and Ann Koopman will also remain as Assistant Editor. I know they will continue to work hard to make this a top-notch resource for our members.

While I admit some sadness in this parting of ways, I know that a fresh perspective will be a benefit to the publication. So, in closing, I want to wish the entire editorial board the best in the coming months. I look forward to watching how the publication will continue to evolve!

Happy holidays, everyone!!!! ❖

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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 James Manasco (james.manasco@louisville.edu) 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 — Hilary Davis, 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.'

As I wrap up my service as Chair to the Science-Technology Division, I'd like to share some thoughts with you regarding (1) a reflection on our 2010 Division goals; (2) a look ahead to 2011; and (3) a note of thanks for the opportunity to serve the Division.

Reflection on 2010 Division Goals: You'll recall that our goals included a website facelift; member retention & engagement initiatives; reviewing division communication tools; and updating our logo, brand, mission and vision in accordance with the SLA Alignment project. The results of this work are as follows:

- Our division webmaster, Margaret Smith, is working with SLA HQ to work out the kinks with SLA's adoption of WordPress as the new content management service and website platform. The Sci-Tech Division is an early adopter of the new platform! If you're headed to the 2011 Leadership Summit in Washington, D.C., you'll get to learn more about SLA's adoption of WordPress. Look for changes in our division website over the coming months!

- Thanks to the efforts of many folks from the Membership Committee, Public Relations Committee, and the Student Relations Committee, several member retention and engagement initiatives are underway. Did you notice the new Member Spotlight section in the last issue of *SciTech News* (learn all about our Professional Development Committee chair, Susan Shepherd)? Sarah Oelker, Chair of the Membership Committee, has been following up with folks whose memberships in the division have lapsed to investigate the reason for the lapse. She's also publishing a list of new division members in *SciTech News*. Led by Diane Foster, the Public Relations Committee is creating a new division brochure that outlines the benefits of being a member of the Sci-Tech Division.

- Chair-Elect Joe Kraus collected many ideas on topics for focused discussions on our division listserv. A day-long discussion focused on library spaces was conducted in April with a few participants. While our listserv tends to be leveraged mostly by members of the division's Executive Board and Advisory Council, there's potential for more interaction amongst our members via the focused topic discussions. On the other hand, the division made great use of our WebEx web-conferencing account (which has now been replaced by another web-conferencing service called DimDim) to support planning for conference sessions and committee projects, as well as a popular division-sponsored webinar (Twitter for Special Libraries).

- By now you've no doubt noticed the activities of SLA HQ to collect feedback on proposed mission, vision, and values for the association. While SLA hones in on how to align the mission, vision, and values across the various divisions and chapters, the Sci-Tech Division is reviewing its strategic plan to ensure that our mission, vision, and goals are current and relevant and will integrate with the outcome of the association's Alignment Project. To find out more about our division's strategic plan review, contact the chair of the Strategic Planning Committee, Sue Brewsaugh.

Looking ahead to 2011:

- As of January 2011, Joe Kraus will assume the role of division Chair, accompanied by Cheryl Hansen (Chair-Elect), Nevenka Zdravkovska (Treasurer), Lisa Johnston (Secretary), and myself (taking on the role of Past-Chair). I've had the pleasure of working with each of these folks over the past year and am very impressed with their leadership and commitment. Expect great things from Joe, Cheryl, Nevenka and Lisa!

- If you're planning on attending the 2011 Annual Conference in Philadelphia, you'll

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want to pay particular attention to the slate of sessions that are being planned by the division's 2011 Conference Planning Committee, led by Joe Kraus. You can't beat a combination of sessions that includes the Science of Ice Cream, Forensics Basics Murder Mystery, Science and Engineering 101, Science 2.1, contributed papers presentation, and the many other excellent co-sponsored sessions.

- Following the success of the ToxNet webinar and the Twitter for Special Libraries webinar, the Professional Development Committee, led by Susan Shepherd, is planning for more convenient, affordable training for our members.

A note of thanks:

I am grateful to the support of the Sci-Tech Division Executive Board and Advisory Council members for their support, encouragement, hard work, and expertise. They made my job easier and made me remember why I joined this division in the first place.

- The Sci-Tech Division offers a great mentoring program for all members.

- We encourage the growth of our division by engaging with LIS students (e.g., offering the free student memberships contest every year).

- We recognize the expertise and valuable contributions of our members by supporting both monetary and recognition awards.

- We welcome the enthusiasm of members who want to gain experience by joining a committee and actively contribute to strategic initiatives (e.g., developing division brochures, planning conference programs/sessions, enhancing our website, conducting outreach) or by participating in our programming at conferences as speakers, organizers, moderators, audience members (such as the famous Science and Engineering Resources 101 series).

- Our *SciTech News* online-only publication (which spans multiple science divisions) and includes a peer-reviewed section keeps our members in touch with each other and gives a voice to our collective interests.

- The recent online webinars that we've conducted (which have been free to Sci-Tech Division members) offers opportunities for learning and networking in addition to our sessions and face-to-face networking events at the annual conference.

Thank you for an exciting year! Any and all who are interested in getting involved are welcome to get in touch with me and Joe Kraus. I look forward to continuing to serve the Sci-Tech Division in the coming years. ❖

Hilary Davis
hilarymdavis@gmail.com or
hilary_davis@ncsu.edu

Volunteer for the Sci-Tech Division

Interested in volunteering for a Sci-Tech Division committee or other project work?

Please send the following information to me (hilarymdavis@gmail.com or hilary_davis@ncsu.edu) or Joe Kraus (joseph.kraus@du.edu). The list of committees is available at: http://units.sla.org/division/dst/Officers/officers.html

Name:
Email:
Phone:
Organization:
Sci-Tech Division Committee/project interest:

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Science-Technology Division

Joe Kraus, Chair-Elect

I have been thinking about scholarly communication issues a lot lately. I have been reading many reports and articles concerning the future of libraries, the future of books, and the future of publishing and scholarly communication. Some of these reports are:

Report -- The ARL 2030 Scenarios: A User's Guide for Research Libraries (http://www.arl.org/news/pr/scenariosguide19oct10.shtml)

Report -- "Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines" (http://cshe.berkeley.edu/publications/publications.php?id=351)

Report -- "Peer Review in Academic Promotion and Publishing: Its Meaning, Locus, and Future" (http://cshe.berkeley.edu/publications/publications.php?id=357)

Book Review -- "The Case for Books: Past, Present, and Future; Reading and Writing the Electronic Book. Synthesis Lectures on Information Concepts, Retrieval, and Services" (http://onlinelibrary.wiley.com/doi/10.1002/asi.21434/abstract)

Blog Post -- "2515 Futurology: The Role of the Library in 500 years" (http://www.mazar.ca/blog/2010/10/30/2515-futurology-the-role-of-the-library-in-500-years-according-to-me/)

(I tag articles and reports like these at http://www.delicious.com/jokrausdu/future so follow along if you are so inclined.)

It was also Open Access Week recently (http://www.openaccessweek.org) and our library celebrated by helping to organize the Provost Conference. This year, the topic of the conference was "Scholarly Communication in the Digital Age" (http://portfolio.du.edu/provostconference). We were able to bring in many great speakers such as Heather Joseph from SPARC/ARL, Dr. Diane Harley from the University of California-Berkeley, and Jamaica Jones from the National Center for Atmospheric Research.

What does this have to do with special librarianship? The way research is conducted and the way those results are communicated to the public is changing. While scientists and engineers will always write journal articles, technical reports, and conference papers, they are also writing on blogs or sharing their thoughts on wikis. Concerning scientific data, the National Science Foundation will require researchers who receive NSF grants to provide a data management plan (http://www.nsf.gov/bfa/dias/policy/dmp.jsp). Many scientists, engineers, librarians, and information technologists are working on the infrastructure for the curation of this data (https://wiki.internet2.edu/confluence/display/cidays/Home).

I am sure that we will be discussing many of these issues over the next year. The Sci-Tech Division will be sponsoring and co-sponsoring several sessions where these issues will be discussed. I look forward to seeing you all at the 2011 SLA Conference in Philadelphia where we can continue to discuss topics along these lines.

I hope you all have a great holiday season and a happy new year.

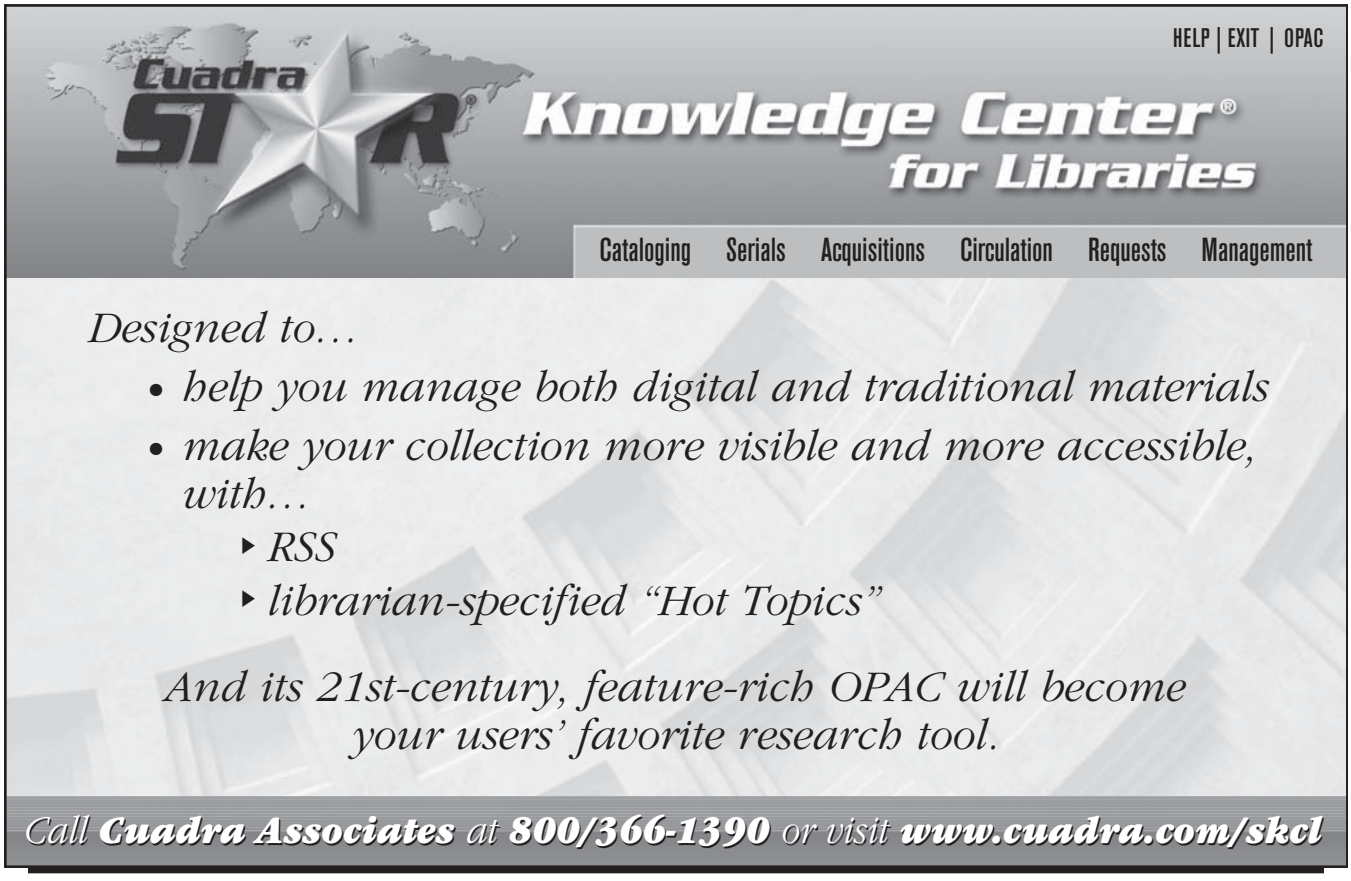
Best,
Joseph Kraus
joseph.kraus@du.edu ❖

Report from the Sci-Tech Division's Elections Committee

Submitted by Christine Whitaker, Chair, Sci-Tech Division Nominating Committee

I am pleased to announce that our Science and Technology Division Chair–Elect for 2011 is Cheryl Hansen. I am equally pleased to announce that Nevenka Zdravkovska is incoming Treasurer. Their terms will begin on January 1, 2011.

On behalf of the Elections Committee, I offer congratulations to both, and thanks to all division members who voted! ❖



Winners of the Sci-Tech Division Free Student Memberships Contest

Submitted by Thea Allen, Sci-Tech Division Student Relations Committee

The Student Relations Committee of the Sci-Tech Division conducted a contest for LIS students to win two free SLA memberships (including affiliation with the Sci-Tech Division and a chapter of their choice). The contest invited current LIS students to come up with some creative ways that the Sci-Tech Division should engage with library/information science students who are looking forward to a career in Sci-Tech librarianship. Our winners are Caroline Starbird and Andrea Kepsel.

Caroline lives in Denver, Colorado and Library Information Science is a career change for her. She always had an interest in science, but after graduating from Stanford University she ended up with a career in International Development and Education. In the past few years she became interested in how technology can connect people around the world, so she entered the LIS program at the University of Denver to learn how information systems are built. Caroline is interested in digital repositories and especially curation of digital scientific research data. Caroline is currently doing an internship at the National Snow and Ice Data Center at the University of Colorado in Boulder. In particular, Caroline is interested in the metadata schema and database systems that provide the foundation for a digital ecosystem in which people from different fields and different geographical locations can share data.

Andrea received her bachelor's in molecular biology from Michigan State University in 2004. She then began working as a research assistant at Wayne State University. After spending time in two cancer biology labs she moved to her current position where she is studying the effects of blast-induced traumatic brain injury. After realizing that she is better suited to life outside of the lab, Andrea joined the School of Library and Information Sciences at Wayne State in 2008. She has slowly been taking classes while continuing to work full-time, and plans to graduate in the spring of next year.

Below are the winning ideas suggested by Caroline and Andrea. To see some of the other fun and exciting ideas sparked by the contest visit http://units.sla.org/division/dst/studentmembershipcontest.html. Share these ideas, act on them, blog them, and build upon them:

- Video blog, created monthly or quarterly, distributed to student members. Authors/creators of the videos will be professionals in the field with a wide range of topics covered, including current issue or challenges, advice, tours of the professional's library, or even a day-to-day synopsis of what life is like in the "real world."

- Online conference with students, professionals, vendors, and professionals in the fields that sci-tech libraries serve. Video chats can be used for a more personal environment, but also provide other ways for students to connect (such as chat services). Digital presentations and posters can be presented from both students and professionals alike, and papers can be shared.

- A student-only blog or listserv. This will allow students from all over to connect, share ideas and opinions, and help each other with problems.

- Have a student column in the *SciTech News* with alternating student authors. Students can share their class work and ideas on the profession. An expansion of this idea is to create a newsletter just for students.

- Create a SMS text messaging service that updates students to news and events.

- Sponsor a science librarianship week and have each student chapter hold some events during that week, with central support from the Sci-Tech division.

- Interview various people in the Sci-Tech Division, asking them to talk for 5 minutes or less about their jobs, and put those videos on the website. You could brand the page with the videos "Exploring Science Librarianship" or some other catchy name. Components of the program could include:
  - The video interviews on the website, starting with about four videos and adding a new one every two months or so during the year.
  - Organize real time video or audio conference calls with the people featured in the videos, so anyone on the conference call can ask questions. Archive the

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conference call so other people can view/hear it later.
- Feature science library related organizations and highlight some specific projects they are doing.
- Spotlight large foundations who are involved in the digital information space and how they are involved in the intersection of science data, research, and digital collections.
- Spotlight interesting sources/projects that science librarians are involved in, including projects such as Linked Data.
- Organize virtual field trips to a site somewhere in the world where they are involved in some interesting scientific research, and have those people talk about the data they are collecting, how they store it, and what they do with it. ❖

Conference Report from Bonnie Hilditch International Librarian Award Winner Dr. Shantanu Ganguly

Background

Special Library Association (SLA) organizes an Annual Conference every year. This year the conference was organized in one of the most beautiful and serene places, New Orleans.

It is a lifetime achievement and great opportunity for library and information science professionals to attend this wonderful, scintillating conference. As SLA writes in their logo "Connecting People and Information," in a real sense it is true because it gives an ample opportunity to the professionals to acquire knowledge, expertise, and skills from the experiences of others. By attending this conference, it has nurtured my previous experience and thoughts which are reshuffled several times while discussions with renowned experts in the fields of library and information science and knowledge management. At least I am connected to several experts and leading information professionals. This was my first visit to the USA and my first time attending the SLA Annual Conference.

Height of Hospitality Offered by the Science-Technology Division: Science-Technology Division Newcomers Lunch, Sunday, June 13, 2010

All the newcomers to the Science-Technology Division were invited to a lavish lunch in one of the renowned French Quarter restaurants in New Orleans. Thanks to the Science-Technology Division for offering such palatable, lavish lunch and drink to us.

Newcomers are anxiously waiting to assemble and proceed to the lunch

New members of the Science-Technology Division at lunch

Science-Technology Division Business and Awards Breakfast Session - Tuesday, June 15, 2010

Science-Technology Division Business and Awards Breakfast at the Convention Center

For the first time, I had the chance to attend the Science-Technology Division breakfast session at 08:00 am in the morning. I have never experienced such a wonderful division in my life. There is so much warmth and affection among the people. As I was representing my parent organization TERI, I first distributed the institute's and LIC brochures. The members of the Sci-Technology division showed keen interest in our institute's work profile, because TERI is working in the field of energy, environment,

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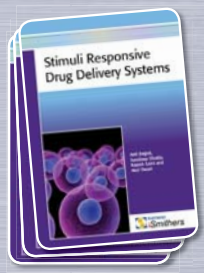
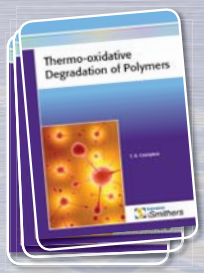


Stimuli Responsive Drug Delivery Systems

This book offers a convincing approach to understanding the basic principles of drug delivery process, their mathematical modeling, different types of drug delivery systems, various polymer systems responsive to stimuli such as swelling, pH, temperature, electric and magnetic fields, chemical agents, and more.

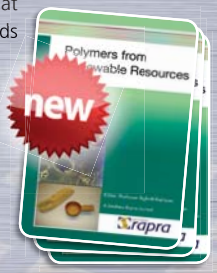
Update on Health and Safety in the Rubber Industries

Another title in our acclaimed 'Update' series, this book takes a broad overview of the rubber industry and highlights the key concerns over safety that are currently being raised. Legislation in the UK and USA is discussed in depth.



Thermo-oxidative Degradation of Polymers

This book brings together information on the thermo-oxidative resistance of polymers to change during processing and end-use life. Our present understanding of the chemical changes of the polymer that accompany degradation are also reviewed and the analytical methods by which changes can be ascertained are also discussed.



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and sustainable development. I had an interactive session with all the esteemed members.

Bonnie Hilditch International Librarian Award 2010

Conferred to Dr Shantanu Ganguly
Fellow, Library and Information Center
Knowledge Management Division
TERI
New Delhi

I am extremely thankful to the Science-Technology Division of the Special Library Association for selecting my name to confer the most prestigious Bonnie Hilditch International Librarian Award and also for sponsoring and giving me a chance to attend the SLA Conference in New Orleans. I am also thankful and indebted to the Chair of the Sci-Tech Division and the Award Chair for selecting me for this award. I feel very much honored to receive this award. This conference also brings honor to my organization, TERI, who I am representing. I had the opportunity to meet a lot of science library and information professionals and network with them. It was an excellent platform where we can meet and exchange ideas with the different science and technology professionals.

Science-Technology Division is a very wonderful group of information professionals in the field of science and technology. I attended its breakfast session and I am very impressed with the professionals of this division. It was a great learning experience for me. ❖

Science-Technology Division New Members

Submitted by Sarah Oelker, Membership Committee Chair, Science-Technology Division

Dhanukumar Pattanashetti
Bangalore
India

Yvonne Socha
Knoxville, TN
USA

Caroline Starbird
Englewood, CO
USA

Andrea Kepsel
Madison Heights, WI
USA

Matthew Smith
Urbana, IL
USA

Andrew Nelson
London, ON
Canada

News from the Engineering Division

SLA Engineering Division
$1200 Inspec Travel Stipend Application:
Using LinkedIn to Connect Your Library Users to Vital Information

Submitted by Andrea N. Davis

Since the emergence of Web 2.0 technology, libraries have new exciting toolkits to connect users to information using innovative methods.[1] As special librarians, we can not only push important content to our patrons, but we can also seek out new library users and embed ourselves within the organization using Web 2.0 tools to promote our engineering libraries.

While many exciting applications are available, this paper will discuss the advantages of using of LinkedIn in special libraries to connect our users with important information. In brief:

"LinkedIn is an interconnected network of experienced professionals from around the world, representing 150 industries and 200 countries. When you join, you create a profile that summarizes your professional expertise and accomplishments. You can then form enduring connections by inviting trusted contacts to join LinkedIn and connect to you. Your network consists of your connections, your connections' connections, and the people they know, linking you to a vast number of qualified professionals and experts."[2]

This rich group of networks can include members of the organization's executive team down to its independent contractors. The service is free to use, does not require a software download, and is generally allowed behind company firewalls, unlike Facebook and other popular web-based social media applications.[3] The partnership with Capital IQ provides basic company information while LinkedIn users provide their own professional information, resulting in a robust tool for library user management. Another advantage of using LinkedIn instead of Facebook to reach your users is that the professional implications don't impede on users' personal identity, which is generally reserved for Facebook usage.

Among the useful benefits of LinkedIn for libraries is the easy method to provide valuable tailored information to a diverse set of users, partitioned into network Groups[4] you can set up and invite departments/locations/projects to join. For example, the marketing team in your engineering company needs to know about new product releases from the competition ASAP, which you can easily send out via a news alert including links to the press release and the competitive company's LinkedIn profile.[5] In the same vein, you can send out a news alert to selected users about new library acquisitions such as books, articles, studies, and database subscriptions. The alerts utilize the microblogging status update technology of Twitter.[6] These news alerts will be placed prominently on each user's LinkedIn homepage and will trigger an email if the users' preferences are set to do so.

You can also create an Event and invite users to the library for brownbag lunch workshops, webinars, and other library-hosted events.

LinkedIn event announcement

Increasing library patronage and visibility is an important goal in today's ROI budget environment. By keeping up with the New Hires section of your Company Page,[7] you can easily perform tailored outreach services based on their interests, professional connections, and previous experience. If your workplace is using Microsoft Office 2010, LinkedIn profiles are supported in the Outlook Social Calendar[8] which could be very helpful if your company LinkedIn accounts do not include contact information. If you have the ability to edit the library webpage, you can add a LinkedIn Widget[9] that will display the various public profiles you have set up for your library user groups.

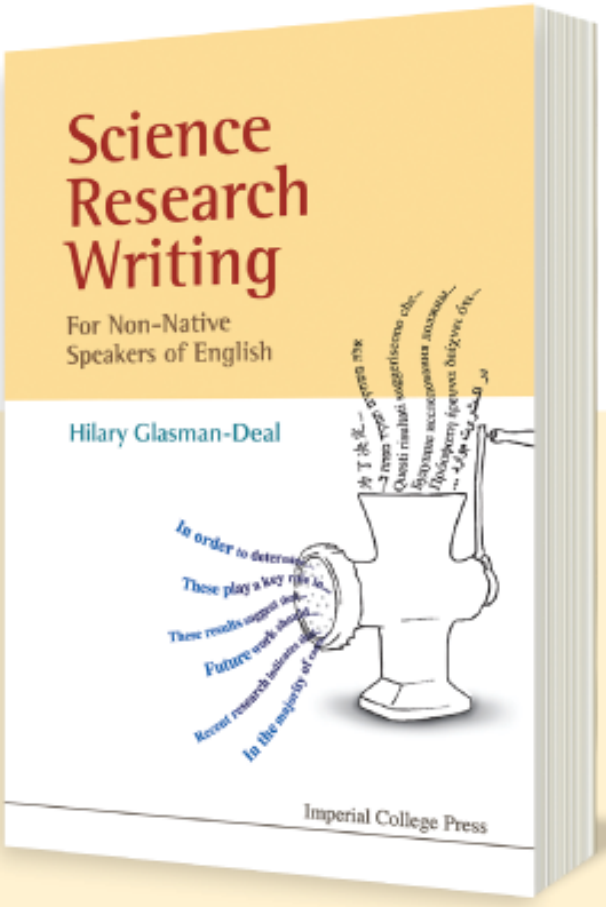
A relatively new service to LinkedIn lets our librarian research skills soar in the Answers section,[10] where LinkedIn users can post questions

World Scientific
Connecting Great Minds

Science Research Writing

For Non-Native Speakers of English

Hilary Glasman-Deal *(Imperial College London, UK)*



272pp	Dec 2009
978-1-84816-309-6	US$58
978-1-84816-310-2(pbk)	US$25

This book is designed to enable non-native English speakers to write science research for publication in English. It can also be used by English speakers and is a practical, user-friendly book intended as a fast, do-it-yourself guide for those whose English language proficiency is above intermediate.

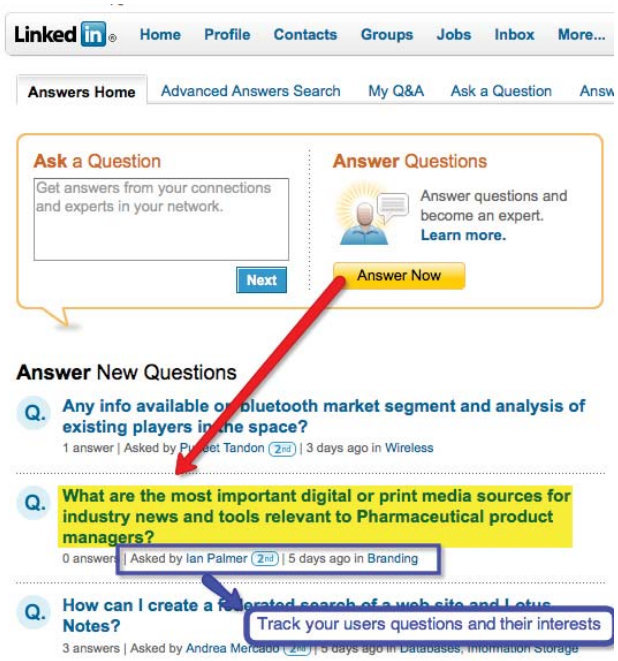
Science writing is much easier than it looks because the structure and language are conventional. The aim of this book is to help the reader discover a template or model for science research writing and then to provide the grammar and vocabulary tools needed to operate that model. There are five units: Introduction, Methodology, Results, Discussion/Conclusion and Abstract. The reader develops a model for each section of the research article through sample texts and exercises; this is followed by a Grammar and Writing Skills section designed to respond to frequently-asked questions as well as a Vocabulary list including examples of how the words and phrases are to be used.

www.worldscientific.com

to their group/interest area/network and receive multiple answers. Your qualified answers will quickly make you a go-to resource for your organization's LinkedIn users who are not familiar with the engineering library, thus leveraging your librarian know-how across the social network in a manner with which the traditional one-on-one reference exchange cannot compete. This increased visibility will be noticeable throughout your organization's connections, including upper management.

The LinkedIn support for mobile devices is strong, including applications for the iPhone, BlackBerry, and Palm. This allows your users more flexible access to your LinkedIn announcements in or out of the workplace. As a librarian, you can also update the Group news alerts you monitor at any time day or night, without special access to your work computer.

In conclusion, engineering libraries can connect to a broad range of users to promote the library, push important information, and increase visibility using the free services of LinkedIn as an innovative Web 2.0 technology. Enjoy exploring! ❖



LinkedIn Answers

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[2] http://press.linkedin.com/about

[3] Fernandez, J. (2009). A SWOT Analysis for Social Media in Libraries. *Online*, 33(5), 35-37.

[4] http://www.linkedin.com/createGroup?displayCreate=

[5] http://learn.linkedin.com/answers/

[6] http://developer.linkedin.com/docs/DOC-1072

[7] http://blogs.msdn.com/outlook/archive/2009/11/18/announcing-the-outlook-social-connector.aspx

[8] http://learn.linkedin.com/company-pages/

[9] http://learn.linkedin.com/twitter/

[10] http://blog.guykawasaki.com/2007/01/ten_ways_to_use.html#axzz0bUJLgFMG

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2011 Science-Technology and Engineering Divisions
BONNIE HILDITCH INTERNATIONAL LIBRARIAN AWARD
Call for Nominations and Applications

The Bonnie Hilditch International Librarian Award, sponsored by the Science-Technology and Engineering Divisions, is presented to a librarian outside of the United States and Canada. The purpose of the award is to provide an opportunity for a librarian outside of the United States and Canada to attend the annual Special Libraries Association (SLA) conference.

The award will cover conference registration, lodging and airfare, up to and not exceeding US $2,000. The SLA Annual Conference will be held in Philadelphia, PA, USA, June 12-15, 2011.

The Awards Committee reserves the right to withhold the award if a sufficient number of appropriate candidates are not nominated.

QUALIFICATIONS:
- Be a current member of SLA, preference given to members of the SLA Science-Technology and/or Engineering Division.
- Candidate should reside and work outside of the United States and Canada and be working currently in a library, information center, library school or other information capacity, preferably either in the science and technology and/or engineering area.
- Submission should be in English.

NOMINATIONS:
Self-nominations are encouraged. Send an online statement including information on the candidate's professional career, professional activities or offices held, special projects or services, publications, and any other related functions that qualify the person for the award.

Documentation must include a current curriculum vita OR resume for the candidate, significant publications, supporting letters, etc. Please inform the committee if you are currently applying for other SLA awards.

DEADLINE FOR NOMINATIONS: December 31, 2010. Nominations and all accompanying materials should be sent to Sheila Rosenthal, Chair of the Sci-Tech Division Awards Committee, at the following email address: slr@sei.cmu.edu.

APPLICATION PROCEDURES:
1. The winner will be responsible for making all necessary travel arrangements (passports, visas, etc.) for a visit to the U.S. as well as for conference attendance.
2. Include a current resume and relevant materials as outlined in the criteria for the award.

POST AWARD REQUIREMENTS:
1. Recipient will write a brief article (approximately 1,000 words) on the conference experience for the November 2011 *SciTech News*.
2. Recipient will be asked to serve on the Science-Technology and Engineering Division Awards Committee the following year in order to provide for the continuity and enthusiasm of this award.

NOTIFICATION:
1. Applicants will receive notification of award status by early February 2011. The award check will be sent to the recipient as soon as the receipts are received by the Awards Chairperson.
2. The recipient's names will be posted to the Science-Technology and Engineering Division's Web sites.
3. The announcement and introduction of the recipient will take place at both the Science-Technology Division's and the Engineering Division's Annual Business Meetings/breakfasts.

E-mail nominations and materials preferred.

$1000 IEEE Continuing Education Stipend – Call for Applications Stipend to attend the SLA Annual Meeting in Philadelphia, PA June 12-15, 2011

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 Philadelphia, PA June 12-15, 2011.

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 Diane F. Brenes (diane.f.brenes@boeing.com) for a list of Continuing Education courses offered during the SLA 2011 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 for at least one year as of January 1, 2010.

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: February 9, 2011.

The winner must be present to accept the award at the annual Engineering Division Business Meeting during the SLA 2011 conference.

Submit Entries for the Award to:
Diane F. Brenes, SLA-ENG Awards Committee
The Boeing Company
Boeing Library Services – Huntington Beach
Mail Code: H012-A001
5301 Bolsa Avenue
Huntington Beach, CA 92647
Phone: (714) 235-0814
E-mail: diane.f.brenes@boeing.com

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Special Libraries Association Engineering Division $1500 Inspec Stipend Award -- Call for Applications

Award to attend the SLA Annual Meeting in Philadelphia, LA, 12-15 June 2011

Inspec is sponsoring for library school students the award of a $1500.00 travel stipend toward payment of expenses incurred while attending the annual Special Libraries Association conference in Philadelphia, PA, June 1215, 2011.

The Inspec 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:

"What is your vision of an Engineering Library in the year 2020? Describe the mission, services, collection, resources, staffing, location, etc."

Qualifications for Entering Award Competition:

- Be a student member of the Engineering Division of the Special Libraries Association.

Special Instructions:

1. Give your full name, address, telephone number, e mail 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.

Deadline for Submission: February 9, 2011.

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 Materials Research & Manufacturing Section

Materials Research & Manufacturing Section

Jack Bashian, Chair

Members of the Materials Research and Manufacturing Section of the Chemistry Division share information concerning all phases of materials procurement, production, applications, and handling by means of educational activities, cooperative programs, publications, and Section-sponsored events at annual conferences.

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

Kathryn Bommarito
BASF Corp
Information Center
1609 Biddle Avenue
Wyandotte, MI 48192

News from the Chemistry Division

Chemistry Division — Teri Vogel, 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.

We are heading into the final two months of the year. Now that the rush of orientations and (for some) fall teaching is winding down, please take a few minutes to verify that your SLA membership and division affiliations are up to date.

Also, if you were unable to attend Judith Currano's excellent webcast, "Chemical Information for the Non-Practioner," the slides and recording are available (http://bit.ly/bp3erL, which includes a link for the recording). This event was jointly sponsored by the Philadelphia Chapter and Chemistry Division.

There are some DCHE projects that will carry us into next year, including a new strategic plan and possibly a new web presence as SLA launches a Wordpress-driven content management system (CMS) for the unit websites. And of course, planning is underway for the 2011 Conference in Philadelphia. Chair-Elect Bill Armstrong, Professional Development Chair Ted Baldwin, and others on the 2011 Planning Team have put together a great list of sessions and CE courses that will make Philadelphia worth the trip.

Are you looking for ways to expand your professional development and service dossier for 2011? We still need more DCHE members for key committees like Membership, Sponsorship, and Professional Development, as well as an Alignment Ambassador and more *SciTech News* writers. Please contact me (tmvogel@ucsd.edu) or Bill Armstrong (notwwa@lsu.edu) after January 1 if you are interested in getting more involved in DCHE.

Finally, it has been an honor to serve as your DCHE Chair this year. I think we've had a good year, and I know that next year will be even better. I want to extend a special thanks to the DCHE Executive and Advisory Boards, as well as to our Sponsors, Conference Planners, and everyone else who contributed their valuable time and resources to our Division. ❖

Teri Vogel
tmvogel@ucsd.edu

Conference Report – American Chemical Society Meeting, August 22, 2010 – Boston
Assessing Collections and Information Resources in Science & Technology

Submitted by Teri M. Vogel, Chair, Chemistry Division

On August 22 the ACS Chemical Information Division (CINF) hosted "Assessing Collections and Information Resources in Science and Technology," a joint symposium organized with the SLA Chemistry Division (formerly the Trisociety Symposium). We heard how librarians and vendors are using quantitative and qualitative tools to assess collections and user needs. The presentations are online at the ACS CINF Boston Symposia website (http://acscinf.org/).

Usage Metrics: Tools for Evaluating Science Monograph Collections

Michelle Foss Leonard, Dr. Vernon Kisling, Donna Wrublewski, and Stephanie Haas, University of Florida [mleonard@uflib.ufl.edu]

As the University of Florida Libraries move toward a business-based budget model, it's important for them to justify collection spending and identify how the collections are being used by patrons. Michelle and Donna shared how the Science Library analyzed circulation patterns, purchases, and usage statistics from July 2008 to June 2010. They gathered data from their ILS on monograph purchases and checkouts by LC subclasses and user groups like graduate students. The librarians could look at circulation by LC subclass and user group like graduate students, identify high-circulating QD subclasses (which they highlighted during the presentation using TagCrowd), or analyze the circulation for monographs purchased in 2009. They also completed a 6-month in-house use study to identify materials where buying the online equivalent might be warranted. Other studies include analyzing the Springer e-book usage by LC to identify what titles are being accessed and how many times, and they also had a 6-month patron-driven e-book pilot via MyILibrary, where 2 checkouts triggered an automatic purchase of the book.

Among their conclusions:

- With data extraction limited to LC classes and/or subject headings, analyzing for subjects like nanotechnology can be more challenging.
- Call numbers and/or subject headings should be a mandatory part of e-book cataloging, to allow the data mining and analysis.
- As more e-books are purchased, collection management policies need to be adapted accordingly.

For more information, see Metrics and Science Monograph Collections at the Marston Science Library, University of Florida (published in the Summer 2010 ISTL).

Happily Ever After or Not: E-book Collection Usage Analysis and Assessment at USC Library

Norah Xiao, University of Southern California [nxiao@usc.edu]

Norah reported on the results of a survey she sent out to her chemistry and physics/astronomy faculty to gauge their awareness and use of the Springer E-Books collection, which the University of Southern California licensed in 2009. There were 15 questions, and 39 chemistry faculty responded. Some of the highlights from her survey results:

- 82% were aware of the collection.
- 62% learned about the e-books from Norah.
- 46% accessed the e-books from the catalog.
- When asked about the frequency of e-book use, "rarely" got the highest response.
- Most agreed with the statement that they treat e-books as regular consulting materials like journal articles.
- Most of the respondents strongly agreed that PDFs were the preferred format, and strongly disagreed about the need to read the content on alternative devices.
- Half had used other e-books, and more than half responded they would support future e-book acquisitions by the Libraries.

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Covering the spectrum of the physical sciences

Nature Publishing Group offers a range of journals in the physical sciences – from the broad scope of *Nature* and *Nature Communications* to specific titles in physics, photonics, materials, nanotechnology, geosciences, chemical biology, chemistry and new for 2011, climate change.

Available from Nature Publishing Group in 2010 – *Polymer Journal*
Polymer Journal is the official journal of The Society of Polymer Science, Japan (SPSJ) and aims to provide an integrated platform for scientific communication, facilitating the advancement of polymer science and related fields.

From nano to macro, whatever the size of your institution, a site license is your access to these journals on nature.com.

For further site license enquiries, or to request a free trial visit:
www.nature.com/libraries

Benefits to online access:
- Desktop access 24/7
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- Supplementary information
- Special web focuses

Impact factor: 29.504* | Impact factor: 16.058* | Impact factor: 15.491* | Impact factor: 26.309* | Impact factor: 22.869*

Impact factor: 8.108* | Launched in April 2009 | Impact factor: 1.386* | Launched in April 2010 | Launching in April 2011

*2009 Journal Citation Report (Thomson Reuters, 2010)

www.nature.com

nature publishing group npg

From Chemical Abstracts to SciFinder: Transitioning to SciFinder and Assessing Customer Usage
Susan Makar and Stacy Bruss, National Institute of Standards and Technology [susan.makar@nist.gov]

Susan shared her library's experience of moving from STN to SciFinder. This transition included assisting their customers with revising their complex STN searches into accurate, comprehensive SciFinder search strategies, as well as educating them on using SciFinder. The move from STN to SciFinder resulted in a 6-10x increase in usage, with the chemists being the largest group of users. With one seat the user success rate has been about 60% (with one month at 40%). SciFinder was being used about 200 times/month; searches peaked at 1200 but generally have been closer to 800 searches/month. They discovered one customer has been responsible for half of their usage, with the top 10% of their users responsible for 84% of the usage. Other trends they noticed: usage by non-chemists had decreased, few were using the alerting feature, and substance searching was increasing as reference searching decreased. They are planning to add 2 more seats, but will still have to find ways to manage the very high use by those few customers.

Using Web of Knowledge to Identify Publishing and Citation Patterns of Campus Researchers at the University of Arkansas
Lutishoor Salisbury and Jeremy Smith, University of Arkansas [lsalisbu@uark.edu]

Luti presented results of campus-wide studies her library conducted in 2007 and again this year. Their objectives were to identify the major departments of research output and to evaluate the comprehensiveness of the library collections in terms of where their researchers publish and what they use. Luti and her colleagues searched Web of Science for papers written by the faculty and then extracted the citation information, addresses, document type, and cited references into a file that can be imported into Excel for analysis.

They get e-journal usage statistics from the publishers like so many libraries, but Luti also pointed out several factors that can affect those numbers: being an ILL net lender, class assignments where students are accessing the same article, and even library instruction sessions. By looking at data like cited references, they get a better picture of journal usage by researchers.

Don't Forget the Qualitative: Including Focus Groups in the Collection Assessment Process
Teri Vogel and Susan Shepherd, University of California San Diego [tmvogel@ucsd.edu]

The UCSD Science and Engineering Library recently conducted focus groups with faculty and graduate students from the physical science and engineering departments. The participants were asked about favorite resources for research and if Google Scholar plays a role, how they keep up with new research, how they organize and manage what they find, and other questions as time allowed. Teri summarized the results from the chemistry focus groups. The answers they received from all of the focus groups will help them create a more detailed user survey that will go out in the coming months and have already given them fresh ideas for website improvements and where to focus instruction efforts. While the focus group process is very difficult and time consuming, the librarians found it valuable—as did the participants who appreciated the opportunity to talk about their research process.

Some of the observations from the Chemistry graduate student focus groups:

- Google Scholar is a go-to resource for many of the students, but none of them indicated it was their only resource. All of the students said they use SciFinder, PubMed, and/or Web of Science. The SciFinder users expressed a definite preference for the client version.

- Most of the students "save" the articles by printing them out, and some save the articles to their computers as well. Adoption of bibliographic management tools was low.

- The students used different methods to keep up with research: journal clubs, TOC alerts by email or RSS, and searching Google or the databases on a regular basis. Nobody had set up database search alerts.

Teri also shared some of the feedback they received across all of the focus groups: some surprising (users linking and returning to online PDFs multiple times) and not so surprising (confusion over library jargon and SFX resolvers) comments.

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Data-driven Development: How ACS Publications Uses Data to Enhance Products and Services and Respond to Customer Needs

Sara Rouhi and Melissa Blaney, ACS Publications [s_rouhi@acs.org]

In the sole vendor/publisher presentation of the day, Sara shared some of the projects that ACS Publications has been working on to improve their understanding of user needs and behavior, and how they are applying that information to improve both the content and platform. They have been looking at "key performance indicators," items that help define what users are looking for and how they behave when they're on the ACS Publications site. She also discussed how they are using metrics beyond COUNTER—including searches, web traffic into the site, geography, individual journal usage, browser/OS information, and most visited items—to define product strategies and to enhance the platform. Sara shared results of surveys sent out to ACS Mobile users, to find out what devices are being used and how are people using them. They also utilize comprehensive user testing, focus groups, customer surveys, and direct feedback, because web usage doesn't always tell them the whole story. A new outreach program is ACS on Campus, a two-day program of seminars and focus groups that is hosted by the library. Sample topics have included research strategies, ethics and copyright, scholarly publishing, the peer-review process, and alternative careers in chemistry.

Objective Collections Evaluation Using Statistics at the MIT Libraries

Mathew Willmott and Erja Kajosalo, MIT [willmott@mit.edu]

Mathew shared how MIT has taken a very data-driven approach to evaluating their serials collection, which makes up 85% of the collections budget. A smaller group of libraries were tasked with gathering all of the data they could get: usage, cost, impact factor, MIT editors, as well as the number of MIT-authored papers and cited references for each journal. The data came from a variety of resources, from their own budget commitments database to the local journal utilization report they purchased from Thomson. They analyzed the data and assigned points based on 4 performance values: cost/use, average subject ranking, MIT papers published, and MIT-affiliated editors. The highest performing journals scored a zero; the lowest performing journals received a four. Everything, from the raw data to the performance scores was presented to the librarians.

This study was used to identify cancellation candidates where further study was required, and not to make the final decisions. The process satisfies the data-driven needs of their stakeholders, allows for clearer explanations and communications, and encourages librarians to take a big picture view across all disciplines. Mathew also pointed out that there are challenges to serials collection reviews, such as cancellation limits set by publishers and the difficulty in comparing commercial vs. society publishers. Future plans include incorporating more of the Thomson data, looking at tools like Eigenfactor scores, and finding ways to incorporate ILL data into this process.

Getting the Biggest Bang for Your Buck: Methods and Strategies for Managing Journal Collections

Grace Baysinger, Stanford University [graceb@stanford.edu]

In her presentation, Grace took us on a tour of the various tools and strategies available to assess journal collections. Examples included data from ARL on library expenditures, the NSF science and engineering statistics, the *Library Journal* pricing survey that comes out every April, and the Federal R&D Project Summaries database (http://www.osti.gov/fedrnd/). Knowing about the programs you support and the key areas of research are also vital, and much of that information is readily available on department and faculty websites. Web of Science has the address field so you can limit your search for papers by campus or even a single department, and then analyze the results by journal title. She also mentioned Thomson's Local Journal Utilization Report as a tool to identify where your faculty are publishing and what they are citing. Along with publisher-supplied journal usage statistics there is also a report you can get from SFX for journal requests where full-text was not available.

Grace uses these tools for benchmarking her collection:

- Journal Citation Reports for a peer comparison: the number of titles for a subject, compared to what is held at Berkeley.

- Number and cost of all titles, and cost per journal. She uses the listed print subscription

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Libraries of every type have two common problems:

SPACE There's never enough space to keep every book.

There's never enough money to enhance the collection. **MONEY**

"We went way past the traditional size of bookstores to find the limit of what people would be interested in, and we've never found that limit."
–Michael Powell, Owner,
with daughter Emily Powell

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cost.
- Impact factors, e-journal usage statistics, number of papers written by Stanford authors, number of times papers were cited by Stanford authors, and that SFX report.

She concluded her presentation with some thoughts on whether libraries are on the cusp of breaking the "Big Deal" packages, and where the threshold point is for that to happen.

Taking a Collection Down to Its Elements: Using Various Assessment Techniques to Revitalize a Library

Leah Solla, Cornell University [leah.solla@cornell.edu]

Leah opened her presentation with a review and update of the changes at Cornell that she first shared at the Spring meeting in San Francisco. The Physical Sciences Library facility was closed earlier this year, the print collection was dispersed, and the collections emphasis has shifted from print to electronic. Data analysis was as vital to the success of this transition as was user feedback.

She completed a very thorough analysis of what was being used, what was being used most heavily, and who was using the collection. More than 70% of the collection, including the bound journals, was relocated to their annex; the remaining print materials were sent to the engineering, math, and life sciences libraries. Leah focused on usage and cost per use for her serials review to cancel journals with fewer than 300 downloads per year, while using other data to identify new journals and backfiles that her users needed. While there is still an active core print collection (books, reference materials, reserves, and journal backfiles), acquisition of print materials have been greatly reduced due to budget pressures and to meet the greater demand for materials with online access. Along the way she discovered gaps in their online holdings that she is filling in with journal backfiles, e-books, databases, and online reference works.

Leah will continue to collect data regularly and rigorously, while also moving forward with patron-driven e-book acquisitions and experimenting with virtual shelf browsing.

After the presentations, the symposium concluded with an enthusiastic panel discussion where attendees and presenters asked and answered questions on variety of topics, including:

- Metrics, including ways to improve how we collect and analyze the data.
- Identifying return on investment (ROI).
- Patron-driven e-book acquisition models, which was a very hot topic based on the number of attendees who reported their libraries were planning or already working on a pilot.
- How to make these resources discoverable and accessible for our users.

This was a well-attended and well-received symposium, and the SLA Chemistry Division looks forward to hosting the next joint DCHE-CINF symposium.

(*The author thanks Norah Xiao for proofreading and comments.*) ❖

News from the Aerospace Section

Aerospace Section Hema Ramachandran, 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.

My term as Aerospace Chair is over at the end of December and I will become the Past-Chair and turn the reins of the Aerospace Section over to the very capable and dynamic hands of Adrianne Jones Washburn. She and the incoming Engineering Division Chair, Kathryn Breininger, and Cynthia Eastman (our conference programmer) are hard at work planning the 2011 conference in Philadelphia (June 12-15). If you haven't, please put it on your calendar NOW so that you don't make other plans!

My biggest and most lasting accomplishment may be the moving of the Aerospace listserv from the NASA server to SLA! As many of you have heard it was accomplished in the last month or so. For those who want to subscribe to the listserv or recommend it to colleagues here are the details: http://www.sla.org/content/community/lists/instruction/index.cfm.

This major feat could not have been accomplished without the patience and expertise of Edna Paulson and Debra Drummheller working with Jeff Leach at HQ to make the transition. Edna and Debra have graciously agreed to continue as listserv managers until the end of the year as the Engineering Division decides how to proceed.

I would like to thank the Engineering Board for their support over the past 2 years, especially our extraordinary Vendor Relations Chair, Sara Davis, and Laurie Allen, Chair (soon to become Past-Chair) of the Engineering Division. And of course thanks to all the vendors who supported our programs.

I would also like to thank my speakers -- Jay Bhatt, Susan K. Smith, Joan Dubis, Diane Brenes and Joy McNally-- and congratulate them for a thought-provoking and informative session. I am sure we will return to these themes in years to come. Erin Lanham, Chair of Education, was a fabulous partner as we planned, organized, and delivered our two sessions on "Information Literacy in the Workplace."

As I look back on this year, it was the year of travel for me (India twice, Indonesia, Bali, New Zealand, New Orleans, San Francisco, and let's not forget St. Louis for the Leadership Summit last January) in between lots of hours at the computer as I worked on SLA, scholarship, conference papers, and, oh yes, the "real job." All of it was immensely satisfying professionally. Here are some images that will live on in my memory:

- Getting locked in the conference center at St. Louis (ask Adrianne about it – she helped us break out!).
- Dancing till the wee hours at the IT Division dance party even though we had to be at a session at 8:00 am next day.
- Getting drenched in a New Orleans downpour.
- Using mass transit to get from the airport to the hotel in St. Louis (never again).
- Taking the "red eye" from Los Angeles to DC and functioning on almost no sleep at the conference planners meeting (never again) and planning by "post-its" (it worked but I was worried about what would happen if the post-its fell off – what would James Manasco do?!).

But as Shakespeare would say, "All's well that ends well."

Finally, have you seen the Brigham-Young University Library parody of the Old Spice commercial? If not, you should take a look: http://www.youtube.com/watch?v=2ArIj236UHs

In that vein and with "tongue-in-cheek," I offer

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you the following:

Look at your status, now back at mine, now back to yours, now back to mine. Sadly, yours isn't mine.

But if you stop for a minute and send me an email to volunteer with the Aerospace Section (or the Engineering Division) this could be your status too!

Look down. Now back up. Where are you?

You are Aerospace Chair-Elect!

And to follow suit from Polonius in Hamlet: "Therefore, since brevity is the soul of wit" let me end by wishing you and your family a happy Holiday season and all the best for the New Year. See you in Philadelphia! ❖

Hema Ramachandran
hramacha@csulb.edu

Web Reviews

Lisa R. Johnston

Reviews of web resources of interest to *SciTech News* readers.

NSF Data Management Plan: A Primer

Breaking away from the usual format, this month I've decided to focus on a hot topic that should be on the minds of anyone who deals with science and technology researchers and organizations: the National Science Foundation (NSF) Data Management Plan (DMP). This new requirement will open the door to many new conversations with our users about how they manage their data and what we, as library and information professionals, can do to help preserve and disseminate their research data for future generations of researchers. You may use this column as a guide to getting started on developing your own handouts and training.

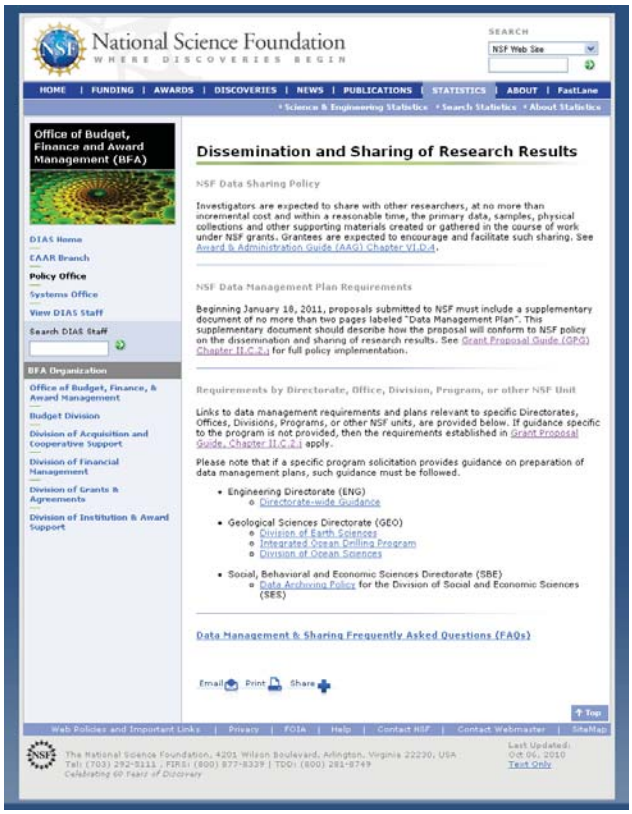
NSF Data Management Plan

http://www.nsf.gov/bfa/dias/policy/dmp.jsp

Beginning January 18, 2011, the National Science Foundation will require a Data Management Plan (DMP) included with all new proposals. (This does not pertain to supplementary support to an existing award). This supplementary document, of no more than two pages, will describe how the proposal will conform to the NSF data sharing policy. Some important points about the new NSF policy:

- Fastlane, the NSF online proposal submission tool, will not permit submission of a proposal that is missing a Data Management Plan.
- A valid Data Management Plan may include only the statement that no detailed plan is needed, as long as the statement is accompanied by a clear justification.
- Finally, the Data Management Plan will be reviewed as an integral part of the proposal, coming under Intellectual Merit or Broader Impacts or both, as appropriate for the scientific community of relevance.

This page collects the various resources (described below) into one URL that can be used in handouts and for speaking with researchers.



NSF Guide Part 1: Grant Proposal Guide (GPG)

http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#dmp

The NSF's Proposal & Award Policies & Procedures Guide has two parts. The first part, known as the Grant Proposal Guide (GPG), is a mammoth, 71-page booklet outlining all aspects of the proposal and submission process for NSF grants. In the relevant section titled, "Special Information and Supplementary Documentation," following instructions for creating a Postdoctoral Researcher Mentoring Plan, the NSF outlines the suggestions for creating a DMP. This placement alone underscores the need to better support our users who may be faced with this task, not to mention their lack of preservation and sharing expertise. In this section NSF suggests that a DMP include:

1. the types of data (including samples, physical

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Dana L. Roth, Librarian, California Institute of Technology

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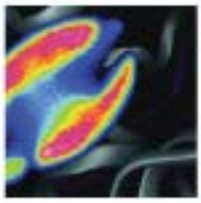

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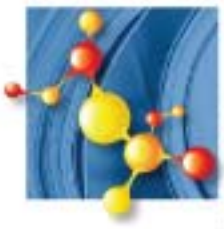

ACS Medicinal Chemistry Letters

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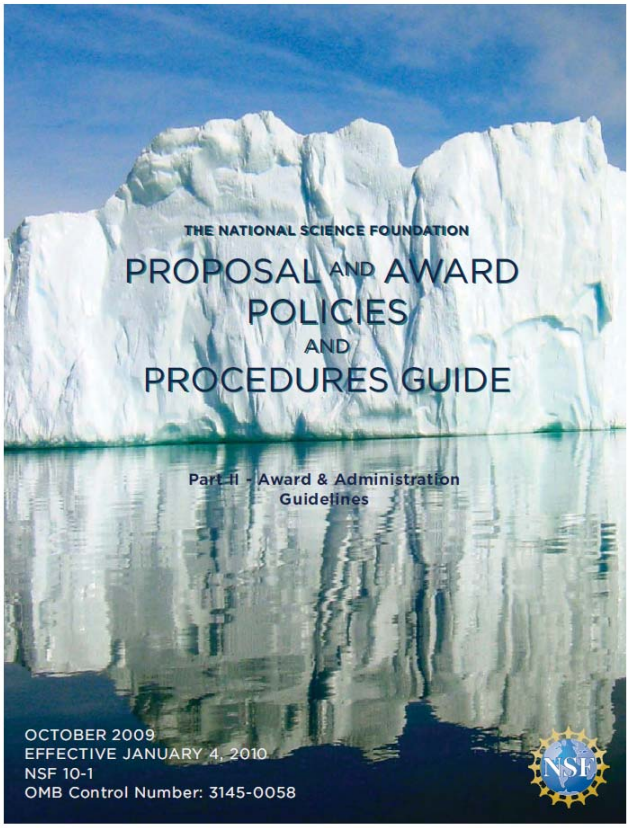
collections, software);
2. metadata standards to be used;
3. policies for access and sharing (including provisions for privacy/intellectual property);
4. policies and provisions for re-use; and
5. plans for archiving and preservation of access.



NSF Guide Part 2: Award and Administration Guide (AAG)
http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/aag_6.jsp#VID4

Part 2 of the NSF's Proposal & Award Policies & Procedures Guide is the even longer 81-page document outlining the management of the award once it has been given. This section contains the Dissemination and Sharing of Research Results section (as it relates to Intellectual Property) and outlines the expectations for data sharing. NSF has long had a sharing of data requirement that expects investigators to "share with other researchers, at no more than incremental cost and within a reasonable time, the data, samples, physical collections, and other supporting materials created or gathered in the course of the work under NSF grants." The updated requirement goes on to say, "Grantees are expected to encourage and facilitate such sharing" and that NSF will implement these policies for dissemination and sharing of research results through:

1. the proposal review process;
2. award negotiations and conditions; and
3. appropriate support and incentives for data cleanup, documentation, dissemination, storage and the like.

Finally, grantees are "encouraged" to share software and inventions created under the grant in a "widely available and usable" way. More on this in the exceptions outlined below.

Requirements by NSF Programs
http://www.nsf.gov/bfa/dias/policy/dmp.jsp

NSF explicitly says that any data sharing requirements specific to the Directorate, Office, Division, Program, or other NSF unit, should be followed and that "if guidance specific to the program is not available, then the requirements established in this section apply." Several NSF programs have established guidance on preparation of data management plans, and though they offer more concrete terms, each has their own set of exceptions. The sections, linked from the above URL, are:

- **Engineering Directorate (ENG):** This 4-page document reemphasizes NSF DMP requirements and goes on to say that "compliance with this policy will be evaluated not only by proposal peer review but also through project monitoring by NSF program officers…."
  - Minimum retention of data is 3 years.
  - Data should be accessible immediately after publication (except with patented information, where exceptions may apply).

- **Geological Sciences Directorate (GEO):** Three program divisions have more specific DMP requirements:
  - Division of Earth Sciences: Requires preservation for data supporting long-term research and stipulates that data be made openly accessible no more than two years after collection (but can be extended with permission).
  - Integrated Ocean Drilling Program: Ensures availability of drill samples are publicly available for access 36 months after research completion (with possibility of extension).
  - Division of Ocean Sciences: Requires that data be submitted to the "appropriate national data center" as soon as possible.

Suggests no later than two years after collection; and for observational metadata inventory to be deposited within sixty (60) days after the observational period/cruise.

- **Social, Behavioral and Economic Sciences Directorate (SBE):** The Division of Social and Economic Sciences' policy requires that data, in fully cleaned and documented form, must be placed in a data archive or library within one year after the expiration of an award. Before an award is made, investigators will be asked to specify in writing where they plan to deposit their data, and the suggestion is the Inter-University Consortium for Political and Social Research (ICPSR).

NSF Exceptions to the DMP

Going over the documentation revealed several "loopholes" for researchers to get around the data sharing policy aspect of the DMP. This is of course with valid reason to protect intellectual property and patentable information. However, with so many exceptions clearly outlined, it is not evident that this updated policy will have the sticking power that say, the NIH Sharing Policy had on researchers providing an open access copy of their research after one year of publication. Time will tell, but for now, here are a few such examples of NSF exceptions:

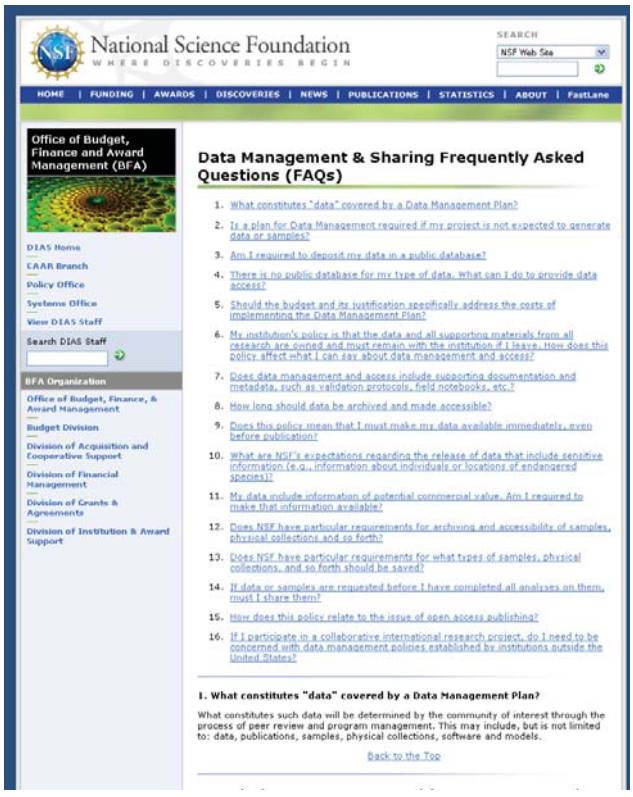
GPG Source: http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#dmp

1. A valid Data Management Plan may include only the statement that no detailed plan is needed, as long as the statement is accompanied by a clear justification.

AAG Source: http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/aag_6.jsp#VID4

1. Privileged or confidential information should be released only in a form that protects the privacy of individuals and subjects involved. General adjustments and, where essential, exceptions to this sharing expectation may be specified by the funding NSF Program or Division/Office for a particular field or discipline to safeguard the rights of individuals and subjects, the validity of results, or the integrity of collections or to accommodate the legitimate interest of investigators. A grantee or investigator also may request a particular adjustment or exception from the cognizant NSF Program Officer.

2. NSF normally allows grantees to retain principal legal rights to intellectual property developed under NSF grants to provide incentives for development and dissemination of inventions, software, and publications that can enhance their usefulness, accessibility, and upkeep. Such incentives do not, however, reduce the responsibility that investigators and organizations have as members of the scientific and engineering community, to make results, data and collections available to other researchers.



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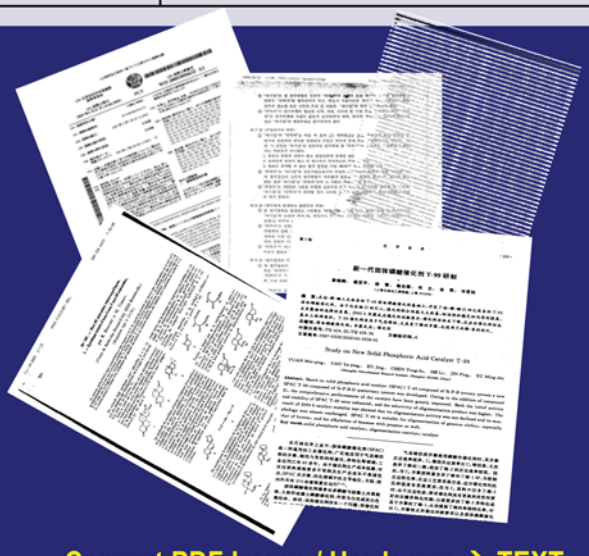

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FAQ's on Public Access to Data
http://www.nsf.gov/bfa/dias/policy/dmpfaqs.jsp

In many cases, the data type and disciplinary culture will determine the most appropriate place for sharing (i.e., ICPSR for social science or survey response data or NODC for oceanographic data). However, not all research disciplines have established repositories for data. In the FAQ section of the DMP policy page, the following questions are posed:

- *There is no public database for my type of data. What can I do to provide data access?* [A.] Contact the cognizant NSF Program Officer for assistance in this situation.

- *Should the budget and its justification specifically address the costs of implementing the Data Management Plan?* [A.] Yes. As long as the costs are allowable in accordance with the applicable cost principles, and necessary to implement the Data Management Plan, such costs may be included (typically on Line G2) of the proposal budget, and justified in the budget justification.

- *My institution's policy is that the data and all supporting materials from all research are owned and must remain with the institution if I leave. How does this policy affect what I can say about data management and access?* [A.] Data maintenance and archiving by an institution is one avenue by which data preservation and access can be achieved. However, the data access plan must address the institutional strategy for providing access to relevant data and supporting materials. ❖

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Science Today in Verse

Hope Leman, Samaritan Health Services

The Nobel Prize in Physics 2010
Graphene's a form of carbon, a material so new
That discovering it (so we're told) was a gee-whiz thing to do
Of dimensions, unlike you,
Graphene possesses only two
And for this remarkable stuff
Two appears to be enough
And, moreover, it's apparent
That it's virtually transparent
This was all such a surprise
That it won the Nobel Prize

The Nobel Prize in Chemistry 2010
Scientists use the element palladium as a point of rendezvous
And accomplish bond formations that are difficult to do
The scientists who made this happen number three
And won the Nobel for their methodology

The Nobel Prize in Medicine 2010
Sweet little Louise Brown
An infant girl of much renown
Was living proof that fertility
Could be tinkered with productively
And that parenthood could be had
By virtually any mom and dad
And, now, thanks to this success
Millions more can live with stress.

The Nobel Prize in Economic Sciences 2010
A buyer considers a seller's price too high
(People are like that, don't ask me why)
A seller considers a buyer's bid too low
(People can be difficult, don't you know)
A buyer suggests an acceptable price
But the seller cheats her in a trice
Only one of these outcomes can be the best
To economists I leave the rest. ❖

Sci-Tech Book News Reviews Susan Fingerman, Selector

The following section consists of 100 book reviews selected from *Sci-Tech Book News*, reprinted with the permission of Book News Inc. This review journal is published four times a year, each issue reviewing over 2,000 new titles in the physical and biological sciences, mathematics, engineering, computer science, technology, and agriculture. For a sample issue and subscription information, contact Book News Inc. at 5739 NE Sumner Street, Portland, OR 97218. Phone: (503)281-9230; Fax: (503)287-4485; E-mail: booknews@booknews.com.

PSYCHOLOGY

BF575 2009-040166 978-0-470-02875-9
Trust theory; a socio-cognitive and computational model.
Castelfranchi, Cristiano and Rino Falcone. (Wiley series in agent technology)
John Wiley & Sons, ©2010 369 p. $105.00
The rise of autonomous, computer-based agents as a technology has prompted cognitive scientists, computer scientists, psychologists, and others to develop models of trust and implement tentative models of trust in computer programs. Castelfranchi and Falcone's (both Italian National Research Council) is the first book providing an overview of the field of modeling trust and computational models of trust. Coverage includes the basic components and quantitative aspects of a socio-cognitive model of trust; lack of trust, mistrust, and diffidence; affective trust; trust dynamics; trust, control, and autonomy; economic reductionism and trust (ir)rationality; trust in social order; trust as relational capital; a fuzzy implementation of the authors' socio-cognitive model of trust; technological approaches to trust; and neuro-trust and the need for a theoretical model. For researchers and advanced students in ICT; website and robotics designers; scholars of human, social, and cultural aspects of technology; and e-commerce and peer-to-peer systems professionals.

GEOGRAPHY, HYDROLOGY, ENVIRONMENT

G70 978-1-4398-2798-7
Airborne and terrestrial laser scanning.
Title main entry. Ed. by George Vosselman and Hans-Gerd Maas.
Whittles Publishing, ©2010 318 p. $139.95
Mathematics and physics, electronic and computer engineering, and various earth sciences are represented by the team of authors gathering information from scattered repositories about the surveying technique for acquiring geospatial information. They cover laser scanning technology, visualizing and structuring point clouds, registration and calibration, extracting digital terrain models, building extraction, forestry applications, engineering applications, cultural heritage applications, and mobile mapping. Distributed in North America by CRC Press.

G70 2009-051482 978-1-4200-8733-8
Manual of geospatial science and technology, 2d ed.
Title main entry. Ed. by John D. Bossler et al.
CRC Press, ©2010 808 p. $199.95
Lead editor Bossler (emeritus, The Ohio State U.) and three associate editors have organized 39 contributed chapters into thematic sections beginning with the prerequisites—an introduction to geospatial science and technology, coordinates and coordinate systems, coordinate transformations, basic electromagnetic radiation, and data analysis. Following are chapters devoted to the three areas of knowledge that intermesh and must be understood by whoever is setting up a GIS project: GPS (global positioning system), remote sensing, and GIS (geographic information systems). The final section comprises chapters on applications in government, globally (toward a global spatial data infrastructure), in the private sector, in utility infrastructure, and biophysical and human-social applications. This second edition is substantially revised and updated, with some information (such as the chapter on computer basics) dropped out to make room for new chapters, such as one on basic statistics and least squares solutions.

PRODUCTION, INDUSTRY, COMMERCE

HD40 2010-929601 978-1-60750-576-1
Bridging the socio-technical gap in decision support systems; challenges for the next decade.
Title main entry. Ed. by Ana Respício et al. (Frontiers in artificial intelligence and applications; v.212)

Published by Jefferson Digital Commons, 2010

IOS Press, ©2010 600 p. $210.00
The socio-technical gap refers to the gap between real-life social interactions and the activities that are actually supported by technology. This work presents 50 papers from the 2010 international conference of the IFIP Working Group 8.3, shedding light on recent efforts to bridge the socio-technical gap and overcome technical limitations in the field of decision support. Major themes include design of decision support systems, Web 2.0 systems in decision support, business intelligence and data warehousing, and decision support in policy making, emergency scenarios, commerce, and production planning. Some specific topics considered include using action research in decision support with VIP software, case- and model-based hybrid reasoning for group decision making, inter-organizational decision support systems for supply chain planning, and the role of domain ontology for medical emergency management in mass gatherings. The editor is affiliated with the University of Lisbon, Portugal.

MATH, COMPUTERS

QA76 2009-047892 978-1-61520-809-8
Evolutionary computation and optimization algorithms in software engineering; applications and techniques.
Chis, Monica.
Information Science Reference, ©2010 262 p. $180.00
This work consists of 12 chapters by international researchers and practitioners in computer science and software engineering. The book opens with a survey of applications of evolutionary and bio-inspired techniques in software engineering, then looks at areas such as evolutionary approaches for estimating software development efforts, the application of genetic algorithms, and an artificial immune system paradigm for developing software fault prediction models. Some other subjects discussed include a fuzzy multi-criteria approach to assessment of software quality, verification of attributes in linked lists using an ant colony metaphor, and genetic programming for cross-release fault count predictions in large and complex software projects. Chis is affiliated with Seimens IT Solutions and Services, PSE, Romania.

QA76.5915 2009-039731 978-1-61520-843-2
Designing solutions—based ubiquitous and pervasive computing; new issues and trends.
Title main entry. Ed. by Francisco Milton Mendes Neto and Pedro Fernandes Ribeiro Neto.
Information Science Reference, ©2010 347 p. $180.00
International contributors report on new technologies, research, applications, and trends in ubiquitous and pervasive computing. Some topics explored include low power considerations, managing context uncertainty in smart pervasive environments, and evaluating voice user interfaces in ubiquitous applications. A few application areas discussed are wireless sensor network-based data fusion for an oil production platform, pervasive computing applications in e-health, and hybrid intelligent systems. The book's readership includes students, educators, researchers, and industrial trainers in computer science, networks, embedded and distributed systems, and electrical engineering. Mendes Neto teaches computer science at the Rural Federal University of the Semi-Arid, Brazil. Ribeiro Neto is affiliated with the State University of Rio Grande do Norte, Brazil.

QA76.5915 2009-048845 978-1-4398-0985-3
Enabling context-aware web services; methods, architectures, and technologies.
Title main entry. Ed. by Quan Z. Sheng et al.
CRC Press, ©2010 541 p. $109.95
The readership for this work consists of researchers, engineers, educators, and graduate students working in Internet computing, service-oriented computing, distributed computing, and e-business. It will also be of interest to anyone using service paradigms for software development, particularly for developing context-aware applications. Part I, on methodology, focuses on principles of context-awareness in web services and various ways to model these services at the specification level. Part II, on architecture, describes the infrastructures, frameworks, and standards needed to build context-aware web services. The final section of the book describes technology and techniques used in areas such as semantic web, databases, and artificial intelligence. It also examines formal methods in the development of context-aware web services.

QA76.758 2009-014731 978-1-60692-146-3
Software engineering and development.
Title main entry. Ed. by Enrique A. Belini.
Nova Science Publishers, ©2009 233 p. $129.00
Using a knowledge flow perspective to examine software processes, software engineers, mathematicians, and related professionals identify the particular knowledge needs of the

processes, and propose systems and strategies for meeting those needs. Expert commentaries, short communications, and research and review studies consider such topics as heterogeneity as a cornerstone of software development in robotics, embedding domain-specific languages in general-purpose programming languages, designing molecular visualization educational software for learning chemistry, software components for large-scale super and grid computing applications, and debugging concurrent programs using metaheuristics.

QA76.9 2009942750 978-1-60750-090-2
Adaptive stream mining; pattern learning and mining from evolving data streams.
Bifet, Albert. (Frontiers in artificial intelligence and applications; v.207)
IOS Press, ©2010 212 p. $160.00
This book focuses on the design of learning algorithms for evolving and time-changing data streams, specifically the adaptive sliding window algorithm (ADWIN) for change detection and value estimation and its use in predictive learning, clustering, and closed frequent tree mining from time-changing data streams. The first section introduces a framework for developing algorithms that can learn from data streams that change over time. It presents an ADWIN for detecting change and keeping statistics from a data stream updated. The second part of the book describes connected acyclic graphs, or 'trees,' from the point of view of closure-based mining, presenting efficient algorithms for subtree testing and for mining ordered and unordered frequent closed trees. The third section presents high-performance algorithms for mining rooted trees adaptively from data streams that change over time. There is also a general methodology presented for identifying closed patterns in a data stream, with examples of three different types. Bifet teaches computer science at the University of Waikato, New Zealand.

QA76.9 2010-014600 978-1-4398-2611-9
Knowledge discovery from data streams.
Gama, Joao. (Chapman & Hall/CRC data mining and knowledge discovery series)
CRC Press, ©2010 237 p. $79.95
Gama (artificial intelligence, U. of Porto, Portugal) explores methods of extracting knowledge from data sets that are too large and too dynamic to be squeezed into a conventional database. He introduces the concept and features of data streams then discusses detecting change, maintaining histograms from data streams, evaluating streaming algorithms, clustering from data streams, frequent pattern mining, decision trees, detecting novelty, ensembles of classifiers, time series data streams, and ubiquitous data mining. His final chapter forecasts the next generation of knowledge discovery.

QA76.9 2010-000636 978-1-60566-814-7
Soft computing applications for database technologies; techniques and issues.
Title main entry. Ed. by K. Anbumani and R. Nedunchezhian.
Information Science Reference, ©2010 331 p. $180.00
Visitors to the velvet underground of computing are apt to encounter fuzzy sets, neural networks, genetic algorithms, Bayesian belief networks, rough sets, and other methodologies of uncertainty. Computer scientists, software engineers, and related professionals explain how they are used in database technologies. Their topics include evolutionary algorithms in the supervision of error-free control, soft computing techniques in spatial databases, fuzzy decision rule construction using fuzzy decision trees and its application to electronic-learning databases, opportunities for database technologies in a Bayesian belief network methodology for modeling social systems in virtual communities, checking integrity constraints in a distributed database, soft computing techniques in content-based multimedia information retrieval, feature selection and variable precision rough set analysis and its application to financial data, a human-machine interface design to control an intelligent rehabilitation robot system, and congestion control using soft computing.

QA276 2009-043229 978-1-4200-7573-1
Visualizing data patterns with micromaps.
Carr, Daniel B. and Linda Williams Pickle. (Chapman & Hall/CRC interdisciplinary statistics series)
CRC Press, ©2010 164 p. $69.95
Micromaps are graphics that highlight geographic patterns among variables in a data set. With its accessible explanations and color maps and charts on every page, this book can be used as a supplementary text for courses in various disciplines, and as a resource for designers of visual mapping tools. The book begins by introducing the three main types of micromaps. The next two chapters summarize research behind the designs; these chapters are most helpful for designers, but will also provide background on choosing design options for other readers. The next three chapters are devoted to

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specifics of the three main micromap designs. A final chapter applies all three designs to the same data set to compare their limitations and strengths. The web site contains boundary files and data sets, R functions and scripts for linked micromaps and comparative micromaps, and Java-based CCmaps for conditioned micromaps. Carr teaches statistics at George Mason University. Pickle is a statistics consultant.

ASTRONOMY

QB843 2009-025205 978-1-60741-703-3
Black holes and galaxy formation.
Title main entry. Ed. Adonis D. Wachter and Raphael J. Propst. (Space science, exploration and policies series)
Nova Science Publishers, ©2010 401 p. $145.00
It is hypothesized that most massive galaxies grow simultaneously with the supermassive black holes at their centers. This book gathers international research in the field. Some areas explored include formation and evolution of primordial black holes, turbulent formation of protogalaxies at the end of the plasma epoch, and tracking order and chaos in a binary quasar dynamical model. Other topics examined are geometrical and numerical aspects of black hole evolution, powerful jets from accreting black holes, and Schwarzchild-like exteriors for stars in Kaluza-Klein gravity. The book is illustrated with color and b&w images. Information on the editors is not given.

PHYSICS

QC174 2010-007003 978-1-934015-52-0
Advanced quantum mechanics the classical-quantum connection.
Blümel, R.
Jones & Bartlett, ©2011 425 p. $85.95
For advanced undergraduate science, math, and engineering students who have taken introductory courses in linear algebra, calculus, and classical and quantum mechanics, as well as graduate students and scientists and engineers, Blümel (Wesleyan U.) introduces quantum chaos and semiclassical physics. Aiming to show the connection between classical and quantum mechanics, he first reviews elementary concepts in both areas, including basic math techniques and special functions, Newtonian mechanics, and Schrödinger's wave mechanics; then discusses semiclassical physics, classical periodic orbits, Lagrangian and Hamiltonian mechanics, the phenomenon of chaos, Feynman's Path Integrals, and applications of Gutzwiller's method and the trace formula to quantize chaos.

QC176 2009-028863 978-1-60876-110-4
Physics of nanostructured solar cells.
Title main entry. Ed. by Viorel Badescu and Marius Paulescu. (Renewable energy; research, development and policies series)
Nova Science Publishers, ©2010 522 p. $89.00
Photovoltaic (PV) cells for transforming solar energy into electricity have progressed from crystalline to thin film-based technology, and now to a third generation of semiconductors of materials at the nanoscale. Badescu (engineering thermodynamics, Polytechnic U. of Bucharest) and Paulescu (physics, West U. of Timisoara, Romania) introduce 16 illustrated chapters that treat the twin challenges of semi-conductor physics as further miniaturization and the development of cost-effective clean energy. Drawing on nanotechnology and quantum electronics which could push conversion efficiency to the thermodynamic limit, international experts present models which describe and predict properties of designs for quantum solar cell alternatives to PVs of various organic and synthetic materials.

QC176 2009-009177 978-1-60692-557-7
Quantum wells; theory, fabrication, and applications.
Ruyter, Alfred and Harper O'Mahoney.
Nova Science Publishers, ©2009 540 p. $295.00
This volume contains 15 articles on the theory needed to understand the properties of quantum-well structures and their use in various devices like photodetectors. Contributors working in physics, telecommunications, electrical engineering, and other fields around the world also discuss semiconductor quantum well structures, coupled quantum well structures, superlattices, semimagnetic quantum structures, optical gain, magnetoexcitons dispersion, spin splitting, approaches to quantization of the particle motion in an infinite square well potential, intersubband transitions, bonding and antibonding states, and other aspects.

QC176 2010-920287 978-1-60761-669-6
Surface plasmon resonance; methods and protocols.
Title main entry. Ed. by Nico J. de Mol and Marcel J. E. Fisher. (Methods in molecular biology; 627)

Humana Press Inc., ©2010 286 p. $119.00
The technique is used to analyze interaction between biological molecules, and the recent development of commercial instruments has broadened its use in medicine, food, and other areas. Researchers in physical and biomedical sciences here set out procedures for using surface plasmon resonance (SPR) for a number of tasks. Among their topics are the role of mass transport limitation and surface heterogeneity in the biophysical characterization of macromolecular binding processes, a capture coupling method for the covalent immobilization of hexahistidine-tagged proteins for SPR, a high-throughput kinase assay based on SPR, interactions between carbohydrates and lectins, the membrane binding of antimicrobial peptides, incorporating a transmembrane protein into a supported three-dimensional matrix of liposomes for SPR studies, and applying SPR spectroscopy to study G-protein coupled receptor signaling.

QC689 978-0-19-953262-9
Quantum electronics for atomic physics.
Nagourney, Warren.
Oxford U. Press, ©2010 381 p. $85.00
This text introducing the topic of quantum electronics is based on a graduate-level series of lectures given by the author at the U. of Washington. It differs from other textbooks on quantum electronics in that the material is more oriented towards the interests of atomic physics experimentalists as opposed to, say, workers in the telecommunications industry. As a result, many non-traditional topics have been included, including the application of nonlinear optics to the synthesis of coherent radiation in regions of the spectrum where lasers fail to work well; details of a practical frequency synthesis system beyond the basics of the theory of second harmonic generation, sum frequency mixing and parametric processes; and the frequency stabilization of lasers to cavities and cavities to lasers. Relatively conventional treatment is given on Guassian beams, "standing wave" cavities, continuous wave laser theory, electro-optical and acousto-optical modulation, and some nonlinear optics theory. Working knowledge of intermediate electromagnetic theory, quantum mechanics, and optics is assumed.

CHEMISTRY

QD39 2010-005452 978-1-4200-8292-0
Handbook of chemoinformatics algorithms.
Title main entry. Ed. by Jean-Loup Faulon and Andreas Bender. (Chapman & Hall/CRC mathematical and computational biology series)
CRC Press, ©2010 440 p. $99.95
Editors Faulon (biology, U. of Evry, France), Bender (chemoinformatics and pharmaceutical IT, U. of Cambridge), and 20 contributors explore current developments in handling chemical information electronically, otherwise known as chemoinformatics. The field has accelerated in recent decades as computing power has grown substantially. Subjects addressed include: representing two-dimensional chemical structures with molecular graphs, ligand- and structure-based virtual screening, structure enumeration and sampling, computer-aided molecular design (inverse design and de novo design), reaction network generation, and machine learning-based bioinformatics algorithms and their application to chemicals.

QD181 2009-417439 978-0-87849-388-3
A study of ion cluster theory of molten silicates and some inorganic substances.
Title main entry. Ed. by Jiang GuoChang et al. (Materials science foundations; v.52-53)
Trans Tech Publications, ©2009 272 p. $166.00 (pa)
GuoChang (Shanghai University) presents recent research from Shanghai University on the microstructure of molten silicates and some inorganic substances, and the relationship between microstructure and macro properties. Contributors use advanced physical and chemical experimental technology and some theoretical computational approaches. The first part of the book begins with an overview of the significance of studying the molten state in metallurgy/ceramics/geometry and then reviews the development of high temperature Raman spectroscopy at Shanghai University. Some chapter topics include microstructure of diverse hierarchy in silicates and aluminates, SiOT models used to calculate the Raman spectroscopy of molten silicates, and Raman spectra of some inorganic glasses and compounds. The second part of the book consists of one long chapter on ion cluster theory in thermodynamics, with discussion of the SReM model and suggested criteria for checking self-consistency of sub-system parameters. There is no subject index.

QD383 2009-909687 978-0-615-32242-1
Silicone elastomer handbook; a guide to applied elastomer technology.
Brassard, David M.
Silicone Solutions, ©2010 349 p. $795.95
A chemist with a long career in silicones, Brassard here offers a guide to working with silicone elastomers. He covers unique properties of silicones; basic silicone chemistry;, raw materials; formulation; manufacturing, processing, and compounding; property modification; testing; a troubleshooting guide; and the future of silicones. Appendices list silicone constants, conversion factors, and suppliers. A glossary is also provided. The book is published by his own company, Silicone Solutions, 1670-C Parkway, Twinsburg, Ohio 44087.

QD481 2009-051486 978-1-4200-8227-2
Chiral recognition in the gas phase.
Title main entry. Ed. by Anne Zehnacker.
CRC Press, ©2010 225 p. $99.95
Chemists, and especially biochemists, explain procedures for distinguishing and separating right-handed and left-handed versions of the same species of molecule when they are in gas phase. The two enantiomers often display different characteristics, so there is considerable financial benefit to separating them cheaply. Among the topics are valence photoelectronic circular dichroism of gas phase enantiomers, the infrared and Raman detection of transient chirality recognition in the gas phase with ethanol as a case study, enantioselectivity in gas-phase ion-molecule reactions, equilibrium methods, deoxy oligonucliotides as chiral references for discriminating enantiomeric amino acids under mass spectrometry, solution-phase versus gas-phase chiral recognition by electrospray ionization mass spectrometry with a case study of two chiral selector classes.

QD502 978-0-87849-156-8
Reaction diffusion and solid state chemical kinetics.
Dybkov, V.I. (Materials science foundations; v. 67-68)
Trans Tech Publications, ©2010 312 p. $166.00 (pa)
For scientists, engineers, and graduate students involved in the study of solid-state processes and their applications, Dybkov (physical chemistry of inorganic materials, National Academy of Sciences of Ukraine) outlines a physico-chemical approach to the problem of solid-state growth of chemical compound layers and reaction diffusion in binary heterogeneous systems formed by two solids or a solid with a liquid or a gas. He shows how experimentally observed kinetic dependences of the layer thickness upon time can be derived from a single theoretical viewpoint. He discusses the reasons for the kinetic instability of the layers of chemical compounds that may result in their gradual degradation; a comparative analysis of growth kinetics of the same compound layer in various reaction couples; mathematical expressions relating the growth rate of the layer in one of the couples to that in the others; the formation of duplex structures in these couples; dissolution in the solid-liquid systems and evaporation in the solid-gas systems in determining the layer-growth rate; and the reasons for the difference in values of reaction and self-diffusion coefficients of the components of a chemical compound.

QD549 978-0-521-89600-9
Molecular forces and self assembly; in colloid, nano sciences and biology.
Ninham, Barry W. and Pierandrea Lo Nostro. (Cambridge molecular science)
Cambridge U. Press, ©2010 365 p. $78.00
Ninham (emeritus, applied mathematics, Australian National U., Australia) and Lo Nostro (chemistry, U. of Florence, Italy) describe recent developments in physical and colloid chemistry that they argue pose a fundamental challenge to the standard understandings of molecular forces and the self assembly of amphiphilic molecules. They argue that these developments provide the means to overcome "conceptual locks" concerning specific ion (Hofmeister) effects within theories of forces between surfaces; hydrophobic interactions; the role of dissolved gas and other solutes in interactions, liquid structure, and free radical production; and the cubic phases and the bicontinuous states of matter. In addition to describing these new directions in colloid theory, they address how they lead to new applications in the nano sciences and biology. Mathematics has been kept to a minimum.

BIOLOGY

QH506 2009942427 978-1-60761-578-1
Statistical methods in molecular biology.
Title main entry. Ed. by Heejung Bang et al. (Methods in molecular biology; 620)
Humana Press Inc., ©2010 636 p. $159.00
This text is intended for molecular biologists who perform quantitative analyses and for statisticians who work with molecular biologists and other biomedical researchers and aims to balance the needs of these two audiences by

progressively introducing basic to intermediate statistical methods and demonstrating their application to the various biological data generated from the field of molecular biology and the types of questions of interest to molecular biologists. The editors (of Weill Medical College of Cornell U. and Rockefeller University Press) present 23 chapters organized into sections on basic statistics, designs and methods for molecular biology, statistical methods for microarray data, advanced or specialized methods for molecular biology, meta-analysis for high dimensional data, and practical information on reporting of statistical design and analysis and using a statistical software package.

QP356 2009-025201 978-1-60741-831-3
Neurochemistry; molecular aspects, cellular aspects, and clinical applications.
Title main entry. Ed. by Anacleto Paços and Silvio Nogueira. (Neuroscience research progress)
Nova Science Publishers, ©2009 275 p. $129.00
Chemicals that affect the nervous system are explored along a number of dimensions as researchers in many countries report their research or review the technical literature. Among their topics are insulin receptor substrate signaling in the central nervous system from embryonic development to aging, G protein-coupled receptor hetero-dimerization as a molecular determinant of neuronal activity, the role of noradrenaline on interpersonal functioning, reversible immortalization for the expansion of neural cells, whether deficiency in striatal dopamine action is an omen for Parkinson's disease, and molecular mechanisms underlying the inhibition of axonal regeneration after central nervous system injury.

QP517 2009-047680 978-1-4200-7526-7
Molecular modeling basics.
Jensen, Jan H.
CRC Press, ©2010 175 p. $49.95 (pa)
Drawing from a course he taught on the subject at the U. of Iowa, Jensen (bio-computational chemistry, U. of Copenhagen) details the theory graduate students in chemistry, physics, biochemistry, and chemical engineering need to understand molecular modeling programs and research results. He covers the potential energy surface, calculating the energy, molecular properties and the condensed phase, illustrations of the concepts, and how he performed calculations using the GAMESS program and visualized data using the MacMolPlt program. The book is meant to supplement a textbook on the subject.

QP532 2009-053540 978-1-4200-5997-7
Cellular and molecular biology of metals.
Title main entry. Ed. by Rudolfs K. Zalups and James Koropatnick.
CRC Press, ©2010 430 p. $199.95
The role and effects of metal ions on cellular homeostasis in various organs are matters that engage the medical, biological, and physical sciences, and all are represented by researchers here who summarize the current understanding and the ongoing inquiries. Their topics include cellular inorganic chemistry concepts and examples, essential and toxic metal transport in the liver, the transport and biological impact of manganese, metallothionein and metal homeostasis, the regulatory and signaling functions of zinc ions in human cellular physiology, ionic and molecular mimicry and the transport of metals, heavy metal transport and detoxification in crustacean gastrointestinal and renal epithelial cells, metals and cell adhesion molecules, and metal influences on immune function.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R857 2009-052543 978-1-4398-1915-9
Digital microfluidic biochips; design automation and optimization.
Chakrabarty, Krishnendu and Tao Xu.
CRC Press, ©2010 199 p. $139.95
Based on results from several Duke University research projects on design automation for biochips, this book describes design tools and in-system automation methods in a design automation framework that addresses optimization problems related to layout, synthesis, droplet routing, and testing of digital microfluidic biochips. Emphasis is on practical issues such as defects, fabrication cost, physical constraints, and application-driven design. Real-life bioassays are used as examples to lay out an automated design flow for creating microfluidic biochips. Chapters cover defect-tolerant and routing-aware synthesis, pin-constrained chip design, testing and diagnosis, design-for-testability for digital microfluidic biochips, and applications in protein crystallization. B&w illustrations are included.

R857 2009-038011 978-1-4398-0628-9
Handbook of photonics for biomedical science
Title main entry. Ed. by Valery V. Tuchin. (Series in medical physics and biomedical engineering)
CRC Press, ©2010 815 p. $149.95
Tuchin (optics and biophotonics, Saratov State U., Russia) presents a collection of 30 papers,

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written by 110 international academics and researchers, summarizing and analyzing recent achievements, new trends, and perspectives on advanced photonics methods and techniques used effectively in biomedical science and clinical studies. The text offers researchers, practitioners, professionals and students, in a single text, an overview of recent, significant findings previously published in numerous professional books and journals. Coverage includes Finite-Difference Time-Domain simulation of light interaction with cells; fabrication, optical properties, and biomedical applications of plasmonic nanoparticles; transfection by optical injection; novel modalities of photon ballistic, multidimensional fluorescence, Raman, CARS, and other nonlinear spectroscopic microscopies providing molecular-level cell and tissue imaging; PDT, low-intensity laser, and photothermal therapies; the use of nanoparticle photonic technologies for cancer treatment and human organism protection from UV radiation; and advanced spectroscopy and imaging of a variety of normal and pathological tissues, such as embryonic, eye, skin, brain, and gastric tissues.

R857 2009-049510 978-0-8493-3366-8
Sensors for chemical and biological applications.
Title main entry. Ed. by Manoj Kumar Ram and Venkat R. Bhethanabotla.
CRC Press, ©2010 378 p. $129.95
Researchers in chemical and biological sensors describe the latest understanding of the field, particularly efforts to increase the surface area of sensing interfaces through the use of nanotechnology. Also addressed are issues associated with cost, synthesis, and testing of new low-cost materials for sensor applications. Coverage encompasses sensing principles for chemical, electrical, chromatographic, magnetic, biological, fluidic, optical, ultrasonic, and mass sensing systems. Specific topics include conducting polymer nanocomposite membranes, the role of tetrapyrrole pigment-oriented thin films in the detection of volatile organic compounds, electronic noses and tongues, and applications of sensors in food and environmental analysis. Ram is a consultant in the private sector. Bhenthanabotla is affiliated with the Department of Chemical Engineering at the University of South Florida.

R858 2009-048608 978-1-4398-0978-5
Healthcare informatics; improving efficiency and productivity.
Title main entry. Ed. by Stephen Kudyba.
CRC Press, ©2010 259 p. $79.95
This work summarizes theory and recent applications in healthcare informatics. The first group of chapters provides background on the current healthcare system and describes theoretical underpinnings, with chapters on information and knowledge management, project management, and strategic initiatives. Some example project implementations are included. The second half of the book focuses on actual applications that have been implemented by healthcare organizations, and discusses corresponding strategic management issues involved in these projects. These applications include e-commerce, the creation of digital data, business intelligence, and high-end analytics initiatives. The book includes numerous checklists and task tables. Kudyba teaches graduate and executive MBA courses in the Management Department at the New Jersey Institute of Technology.

INTERNAL MEDICINE, PSYCHIATRY

RC971 2009-280874 978-0-309-12758-5
Systems engineering to improve traumatic brain injury care in the military health system; workshop summary.
Title main entry. Ed. by David Butler et al.; National Academy of Engineering and Institute of Medicine of the National Academies.
National Academies Press, ©2009 174 p. $43.50 (pa)
This book compiles the results of a workshop sponsored by the Department of Defense to examine the potential for applying operational systems engineering principles and tools to military health care, beginning with the diagnosis and care of patients with traumatic brain injury (TBI). Discussions center around the medical aspects of TBI, TBI and the military health system, and examples of relevant operational systems engineering applications. Editors are Butler (senior program officer, Board on Military and Veterans Health, Buono (Policy and Global Affairs Division, The National Academies), Erdtmann (director, Board on Military and Veterans Health and Medical Follow-up Agency), and Reid (director, NAE Program Office).

TECHNOLOGY (GENERAL)

T49 2009-040710 978-1-61520-901-9
Trust and technology in a ubiquitous modern environment; theoretical and methodological perspectives.
Title main entry. Ed. by Dominika Latusek and Alexandra Gerbasi.
Information Science Reference, ©2010 364 p. $180.00
Contributors in management theory, sociology, organizational psychology, information science, and marketing outline theoretical approaches to trust and technology and explore trust and technology in interpersonal and organizational contexts. The themes explored are inspired by two streams of research: the tradition that focuses on trust through democratizing access to information and the tradition that argues that technology undermines trust as it increases monitoring. Some specific areas discussed include Internet trust and online banking, the computers-are-social-actors paradigm, mobile phone use among poor urban youth in Bangladesh, and anonymous work blogging. Latusek is affiliated with Kozminski University, Poland. Gerbasi is affiliated with California State University-Northridge.

T56 2009-044678 978-1-4398-0995-2
The project manager's communication toolkit.
Jha, Shankar.
CRC Press, ©2010 182 p. $59.95
Jha, a former project and program manager who provides training on project management topics, details methods for effective communication for project managers to use when creating day-to-day plans, reports, messages, and presentations; charts, graphs, and diagrams; and tables and matrices. He explains their components and how each should be used in different situations. There is no bibliography.

T58 2009-036872 978-1-61520-625-4
Enterprise information systems and implementing IT infrastructures; challenges and issues.
Title main entry. Ed. by S. Parthasarathy.
Information Science Reference, ©2010 475 p. $180.00
Parthasarathy (Thiagarajar College of Engineering, India) compiles information on the design, development, and implementation of various enterprise information systems (EIS), such as enterprise resource planning (ERP), supply chain management (SCM), and customer relationship management (CRM). The book will help researchers and practitioners develop strategic, tactical, and operational policies for EIS. A section on challenges and issues addresses software engineering approaches and methods for information systems, with chapters on topics including requirements in cross-organizational ERP projects, agile software development for customizing ERPs, and designing a CRM. The next section, on creating supply chain management systems using information technology and mathematical modeling, deals with the application of mathematical modeling in SCM, design of an information technology-enabled SCM system, and application of fuzzy concepts to logistics.

T58 978-90-8790-877-5
International handbook of research and development in technology education.
Title main entry. Ed. by Alister Jones and Marc de Vries. (International technology education series)
Sense Publishers, ©2009 708 p. $89.00 (pa)
Fifty-three international academics, researchers, and consultants contribute 56 chapters reporting on research and development in "technology education"—the area of education focusing on teaching humans about the technologies we can use to change our environments to better suit our needs and wants. Coverage includes an introductory overview of what technology education is and its worldwide development over the past 20-30 years; country-specific technology education case studies from England, France, Finland, the US, Canada, Australia, New Zealand, India, China, and South Africa; philosophical perspectives on the nature of technology; students' and teachers' psychological perceptions of technology; designing technology education to help *all* students understand science in its social, cultural, economic, and political contexts; learning and teaching technology; authentic assessment methods; technology teacher education; and theoretical and practical approaches to research. For graduate students, academics, researchers, curriculum developers, professional development providers, policymakers, and practitioners.

T58 978-1-84564-482-6
Pervasive systems and ubiquitous computing.
Genco, A. and S. Sorce.
WIT Press, ©2010 141 p. $150.00
Pervasive systems and ubiquitous computing use wireless technology and mobile devices to

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combine Internet services with real-world open environments. This book outlines fundamentals of pervasive systems theory and problems associated with pervasive systems, and includes examples of pervasive applications based on Bluetooth technology. Some chapter topics include technological elements of augmented reality and the virtual world, concepts of human-computer interaction, and wireless technologies for pervasive systems, in addition to positioning in pervasive systems, security in ubiquitous computing, and service discovery and disk and server scheduling algorithms. The book will be of interest to graduate students in engineering and practitioners in the field of pervasive and ubiquitous computing. The US office of WIT Press is Computational Mechanics. Genco and Sorce are affiliated with the University of Palermo, Italy. Also available as an e-book under ISBN 978-1-84564-483-3.

T58 2010-010973 978-1-4398-1630-1
Project management tools and techniques for success.
Tayntor, Christine B.
CRC Press, ©2010 270 p. $69.95
After introducing the concepts and tools of Six Sigma, this book walks through the initiation phase, the planning phase, and the execution phase of a business project. A fictional case study illustrates how to define a project, manage expectations, evaluate potential risks, choose the project team, calculate costs, draft a schedule and specifications, develop a communication plan, and monitor the project. The appendices provide a sample, project charter, functional process map, failure modes and effects analysis, and metric reliability assessment spreadsheet.

T173 2010-007206 978-0-13-705515-9
Innovate the future; a radical new approach to IT innovation.
Croslin, David.
Prentice Hall, ©2010 281 p. $29.99 (pa)
For executives, strategists, entrepreneurs, and other business leaders, Croslin, who advises technology firms, investors, and start-ups and is associated with a consultancy specializing in customer, product, and market innovation, describes how to use disruptive innovation to create inventions and products that transform the marketplace. He explains types of inventions, transformative value, the innovation life cycle and how to disrupt it, business and technical life cycles, and how to apply an innovation checklist to the company, including innovating from scratch, IT solutions, market domination, and market disruption, with illustrative case studies. There is no bibliography.

T173 2009-034472 978-1-60566-864-2
Manufacturing intelligence for industrial engineering; methods for system self-organization, learning, and adaptation.
Zhou, Zude.
Engineering Science Reference, ©2010 395 p. $180.00
Manufacturing intelligence (MI) is a new discipline of manufacturing engineering, focusing on technologies for developing, integrating, and processing intelligent activities in the process of manufacturing. This work explains scientific foundations, theories, and key technologies of MI. It is intended for senior undergraduate and graduate students in mechanical, electro-mechanical, and industrial engineering programs, and will also be useful to practicing engineers and other professionals. After an introduction to the development of MI and major concepts and methods in the field, the book describes applications in areas such as intelligent agents and multi-agent systems, data mining and knowledge discovery, computational intelligence, business process modeling and information systems modeling, sensor integration and data fusion theory, and intelligent product design. The final chapter offers a summary and compares MI technologies to traditional manufacturing technologies. Zhou is affiliated with Wuhan University of Technology, China.

T339 2009-280192 978-981-283-420-1
Fundamentals of patenting and licensing for scientists and engineers.
Ma, M.Y.
World Scientific, ©2009 265 p. $68.00
No prior knowledge of intellectual property law is required to understand this reference for all types of inventors, including those employed in corporations, scientists in academia, and independent inventors. The book covers basic concepts of patent law and patent preparation in plain language, and introduces basics of patent licensing and related business aspects. It supplies advice on all phases of patent filing, prosecution, and licensing, and describes tactics for overcoming rejection. Case studies illustrate the importance of broad claims, the clarity of patent specification, and the clarity of prosecution history. Appendices of patent country codes and patent kind codes are included. The book will also be useful to corporate patent managers and intellectual property business leaders. Ma, a registered

US patent agent, holds numerous patents. He teaches at Northeastern University, China.

T1747 2010-009455 978-0-8194-8075-0
Nanotechnology; a crash course.
Martín-Palma, Raúl J. and Akhlesh Lakhtakia. (Tutorial texts series; v.TT86)
SPIE, ©2010 138 p. $51.00 (pa)
This work introduces the subject of nanotechnology to an audience entirely unfamiliar with the field. In keeping with the style of the Tutorial Texts series, graphical and illustrative material are used extensively to present introductory material, as well as tabular reference data and practical examples. Following the introduction, chapters cover low-dimensional structures, properties of nanostructures, nanofabrication, characterization of nanostructures and nanomaterials, nanomaterials and applications, and future prospects. In order to aid those who wish to further their studies in specific aspects of the field, each chapter includes references and a bibliography.

ENGINEERING (GENERAL, CIVIL)

TA119 978-0-87849-277-0
Energy and environment engineering and management.
Title main entry. Ed. by Paulo Sérgio Duque de Brito and José Gañán Gómez. (Advanced materials research; v.107)
Trans Tech Publications, ©2010 164 p. $124.00 (pa)
These 23 selected, peer-reviewed papers originally were presented during the 3rd International Congress of Energy and Environment Engineering and Management held in Portalegre, Portugal, in November 2009. The 63 contributors address a wide variety of topics, including: sustainable manufacturing in the aerospace industry, surface wave energy capture systems, interface potential modeling in a finite crystal, ecological design in projects engineering, and computer simulation and depth profiling of light nuclei by nuclear techniques. Editors are de Brito (Portalagre Polytechnic Institute, Portugal) and Gómez (Extremadura U. Spain).

TA168 2009-050496 978-1-4398-2013-1
System management; planning, enterprise identity, and deployment, 2d ed.
Grady, Jeffrey O.
CRC Press, ©2010 590 p. $119.95
This desk reference provides techniques for creating the infrastructure of an organization. Written for system engineers and program managers, the book can also be used as a text in a system development certificate program, or in a first course in systems engineering. The book could also serve as a basis for a class team project to write a system engineering manual or a system engineering management plan. The central theme of the book is that an enterprise should have a well-defined identity in terms of its written internal procedures, and these procedures should be repeated from program to program. After an introduction to foundations of system development, the book covers the system development process and program organizational structures. Further sections are devoted to program planning, implementation, and system engineering assessment and improvement. This second edition offers new chapters highlighting the marriage between specific program planning and a company's generic identity. A companion web site contains work cataloging systems for program planning projects. Grady is a systems engineering consultant with background in the aerospace industry.

TA168 2009-050498 978-1-4398-1961-6
System synthesis; product and process design.
Grady, Jeffrey O.
CRC Press, ©2010 538 p. $119.95
For design and system engineers, Grady, a system engineer who is associated with a consulting and training company and teaches at companies and universities, examines the three activities that occur in the development of any system between the completion of requirements work and verification: design, material procurement, and manufacturing. He explores integration work as it relates to the three synthesis activities; optimization and coordination of program, product, and process design; and managing and technically integrating each. He discusses the fundamentals of integration, generic process integration, the program planning process and its implementation, product and product use process integration, and the fusion of enterprise and program processes. The book was originally conceived as a companion to his volume, *System Requirements Analysis*, and is part of a four-book series covering the system engineering work over the system development life cycle time frame in an enterprise.

TA169 2009-277980 978-981-283-901-5
Computational methods for reliability and risk analysis.
Zio, Enrico. (Series on quality, reliability and engineering statistics; v.14)
World Scientific, ©2009 340 p. $82.00

Zio (Polytechnic of Milan, Italy) explains a number of methods for computing the reliability and risk characteristics of complex technological systems. They are Markov reliability and availability analysis, Monte Carlo simulations, Markov Chain Monte Carlo analysis, the basics of genetic algorithms, dependent failures, importance measures, and basic concepts of uncertainty and sensitivity analysis. The book could serve as a text for a graduate or senior undergraduate course, or as a reference for researchers and practitioners in reliability and risk analysis.

TA347 2009-277983 978-981-283-498-0
Basic control volume finite element methods for fluids and solids.
Voller, Vaughan R. (IISc research monograph series; v.1)
World Scientific, ©2009 170 p. $54.00
Voller (U. of Minnesota) introduces a common framework for the Control Volume Finite Element Method (CVFEM) solution, which combines the physics of Control Volume Methods with the geometric flexibility of Finite Element Methods, so that it can be applied to the solution of equations related to the behavior of both fluids and solids. Focusing on two-dimensional problems utilizing linear elements, he explains the basic and essential aspects in CVFEM and basic constructions in the context of solving fundamental problems in both solids and fluids.

TA347 2010-001101 978-0-521-19424-2
Differential equations for engineers.
Xie, Wei-Chau.
Cambridge U. Press, ©2010 550 p. $95.00
Xie (civil and environmental engineering and applied mathematics, U. of Waterloo, Canada) systematically introduces ordinary differential equations to engineering students and practitioners. The discussion of the various types of differential equations is determined by engineering applications, with step-by-step analysis provided on how to model practical engineering problems using differential equations from physical principles presented first and explanations of how to solve the differential equations using the easiest possible method presented next. Chapters cover first-order and simple higher-order differential equations and applications, linear differential equations and applications; the Laplace transform and applications, systems of linear differential equations and applications, series solutions of differential equations, numerical solutions of differential equations, partial differential equations, and solving ordinary differential equations using *Maple* (a software package for symbolic computation).

TA418 2009-046139 978-1-60692-963-6
Bulk materials; research, technology and applications.
Title main entry. Ed. by Teodor Frías and Ventura Maestas. (Chemical engineering methods and technology series)
Nova Science Publishers, ©2010 439 p. $129.00
Chemists and materials scientists report on a number of characteristics of a number of materials in bulk form, as well as a number of processes used to formulate or alter them to desired ends. The longer papers consider radio-frequency electrodynamic properties of bulk lanthanum manganites, sinter-alloying and properties of manganese steels, surface treatment effects on bulk material fatigue resistance, developing controllable chemical synthetic routes to elemental selenium and some metal chalcogenides as bulk materials and thin films, and unusual properties of laser-processed strontium ruthenates. Shorter papers explore such topics as research on combinatorial friction materials; grain-size dependent thermal, electrical, and mechanical properties of bulk nanocrystalline materials; and effective-mass theory of narrow-gap semiconductors.

TA418 2010-920245 978-1-60761-577-4
Carbon nanotubes; methods and protocols.
Title main entry. Ed. by Kannan Balasubramanian and Marko Burghard. (Methods in molecular biology; 625)
Humana Press Inc., ©2010 254 p. $119.00
Balasubramanian and Burghard (Max-Planck-Institut für Festkörperforschung, Germany) compile 20 protocols on the application of carbon nanotubes in molecular biology-related fields. Researchers in nanomedicine, neurosurgery, neuroscience, chemistry, engineering, and other scientific fields in the US, Europe, Asia, and Israel cover chemical functionalization approaches for using carbon nanotubes in biology and medicinal chemistry; toxicity studies; intracellular trafficking; modified carbon nanotube networks as scaffolds for cell growth; and carbon nanotube-based biosensors, with emphasis on amperometric detection principles. Included are lists of materials and reagents, step-by-step protocols, and notes on troubleshooting and pitfalls.

TA418 978-0-87849-305-0
Ductility of bulk nanostructured materials.
Title main entry. Ed. by Yonghao Zhao and Xiaozhou Liao. (Materials science forum; v. 633-634)
Trans Tech Publications, ©2010 723 p. $345.00 (pa)
Bulk nanostructured materials usually have very poor ductility. This work gathers 58 invited papers from 20 countries to report on advances in improving the ductility and optimizing the performance of bulk nanostructured materials. Papers are in sections on deformation mechanisms of bulk nanostructured materials, modeling and experiments in ductility of bulk nanostructured materials, and processing and microstructural advancements. Other major themes are ductility of thin films and nano-layers, ductility of metallic glass and composites, and recovery and grain growth. Some specific topics covered include the effect of grain size on defect density and internal stresses in sub-microcrystals, ultrahigh strength and ductility of Cu-Nb nanolayered composites, nanostructured Ti2448 biomedical titanium alloy, and the effect of aging on strength and ductility of ultrafine grained Al 6061 alloy. B&w images are included. Zhao is affiliated with the University of California-Davis. Liao is affiliated with the University of Sydney.

TA418 2010-012224 978-1-61668-009-1
Gold nanoparticles; properties, characterization, and fabrication.
Title main entry. Ed. by P.E. Chow. (Nanotechnology science and technology series)
Nova Science Publishers, ©2010 343 p. $145.00
This work sheds light on current techniques in the properties, characterization, and fabrication of gold nanoparticles (AuNPs), which are used in applications in physics, chemistry, biology, medicine, and materials science. Some chapter topics include AuNPs as antigen carriers and adjuvants, laser synthesis of AuNPs, and fabrication and applications of bionic-function interfaces and films based on biomacromolecule of cell AuNPs. Other subjects include femtosecond laser ablation of AuNPs, potential uses of AuNPs in emerging infectious diseases, and nanotechnologies in biological research and the role of biological knowledge in their development. B&w and color images and graphs are included.

TA418 2009-035164 978-1-60741-940-2
Nanopowders and nanocoatings; production, properties, and applications.
Title main entry. Ed. by V. F. Cotler. (Nanotechnology science and technology)
Nova Science Publishers, ©2010 224 p. $145.00
Nanopowders are agglomerates of ultrafine particles, nanoparticles, or nanoclusters, but you cannot make a nanocoating by dumping a bunch of nanopowder into a can of paint. Rather nanocoating is synthesized using molecular engineering techniques to create a nanostructured polymer or coating. Researchers in physical, biological, and environmental sciences and engineering report and review various aspects of the two. Xinhua Zhu (physics, Nanjing U., China) begins by explaining the synthesis, characterization, properties, and applications of perovskite nanopowders. Other topics include electrochemical nanocoatings on titanium for biomedical applications, magnetic materials as sorbents for removing contaminants, the chemical vapor synthesis of inorganic nanopowders, nanostructural and micro-structural silicon powders in synthesizing and storing hydrogen, and the electrochemical synthesis of the tungsten carbide nanopowders and carbon nanotubes.

TA418 2009-041996 978-1-60876-627-7
Nanomaterials; properties, preparation and processes.
Title main entry. Ed. by Vinicius Cabral and Renan Silva. (Nanotechnology science and technology series)
Nova Science Publishers, ©2010 412 p. $145.00
The three longest papers in this collection investigate the magnetic pulsed compaction of nanosized powders, phase selective and morphology controllable synthesis of titania nanocrystals, and nanoparticle synthesis by thermal plasmas. Other topics of the 11 chapters include the mechanical principles of protein nanomotors, stiffness prediction of polymer-based nanocomposites, functional surface development by nano-plastic forming, and size-controllable synthesis of wide band gap semiconductor oxide nanoparticles. Black and white images are provided.

TA418 978-1-84735-138-8
Practical guide to adhesive bonding of small engineering plastic and rubber parts.
Goss, Bob.
ISmithers, ©2010 181 p. $80.00 (pa)
This guide for designers of plastic engineering

components details the adhesive bonding of 30 of the most commonly used generic families of thermoplastics and thermoset plastics as well as commonly used rubbers and elastomers. It covers cure mechanisms, the performance benefits of four types of engineering adhesives (cyanoacrylates, epoxies, two-part acrylics, and UV-curing adhesives), joint design, dispensing systems, the surface preparation for difficult plastics, durability and environmental testing, and troubleshooting. The book is not intended for the packaging industry or for the bonding of composite materials and does not address mechanical clips, ultrasonic welding, or other plastic joining methods; focus is on small part bonding.

TA418 2009-042040 978-1-4200-9019-2
Shape-memory polymers and multifunctional composites.
Title main entry. Ed. by Jinsong Leng and Shanyi Du.
CRC Press, ©2010 373 p. $149.95
Shape-memory polymers (SMPs) undergo significant deformation when exposed to external stimuli such as heat or light. This book presents recent work describing the structural, chemical, thermo-mechanical, and electrical properties of SMPs and looks at their applications in areas such as aerospace, the automotive industry, and biomedicine. Coverage includes thermomechanical behavior and modeling approaches, SMP composites, and SMP foams and textiles. Illustrated with b&w images, photos, and diagrams, the book will be useful as a reference for engineering researchers and graduate students. Leng and Du are affiliated with the Harbin Institute of Technology, China.

TA418 978-0-87849-301-2
Trends in composite materials and their design.
Title main entry. Ed. by Mohamed A. Taha et al. (Key engineering materials; v.425)
Trans Tech Publications, ©2010 284 p. $193.00 (pa)
Papers from a recent conference, 14 in all, shed light on the latest research on composite materials. While focus is on polymer matrix composites, there is also coverage of metal matrix composites, polymer composite-grid-reinforced concrete, and a metal-polymer sandwich hybrid system. Specific topics include numerical optimization of the structure of fiber reinforced composites, modeling of fiber jamming phenomena during processing of fiber reinforced composite parts, performance of non-crimp fabric composites in shear, and testing of rubber nanocomposites. Other subjects are vibration damping behavior of fiber reinforced composites, and a press joining rolling process for hybrid systems. The book is illustrated with b&w images. The editor is affiliated with Ai-Shams University, Egypt.

TA654 2009-053742 978-1-4398-1798-8
Modeling and control of vibration in mechanical systems.
Title main entry. Ed. by Chunling Du & Lihua Xie. (Automation and control engineering)
CRC Press, ©2010 312 p. $129.95
Du (Data Storage Institute, Singapore) and Xie (Nanyang Technological U., Singapore) provide a comprehensive reference focusing on vibration control for professionals working with high-precision systems. Topics include: mechanical systems and vibration, modeling of disk drive systems and vibration, Stewart platform modeling, an introduction to optimal and robust control, classical vibration control, blending control for multi-frequency disturbance rejection, nonlinearity compensation and nonlinear control, quantization effect on vibration rejection and its compensation, and adaptive filtering algorithms for active vibration control.

TA1520 2010-014711 978-0-07-160608-0
Photonics and laser engineering; principles, devices, and applications.
Sennaroglu, Alphan.
McGraw-Hill, ©2010 665 p. $115.00
This text provides an introduction to principles and some main areas of photonics and laser engineering. To make the book useful to a wide audience, there are two extensive background chapters on classical electromagnetism and elementary quantum mechanics. This allows the book to be self contained and enables readers from diverse technical fields to grasp concepts. Coverage progresses from electromagnetic wave theory of light to geometrical optics, laser beams and resonators, light-matter interactions, and semiconductor lasers, as well as anisotropic media and modulation of light, noise and optical detection, dielectric waveguides and optical fibers, and nonlinear optics. Learning features include chapter problems, detailed equations, worked examples, and a complete list of symbols. An appendix provides background on hermite polynomials and a reference on fundamental constants. Sennaroglu teaches physics and electrical/electronics engineering at Koc University, Turkey.

TA1637 2009-053741 978-1-4398-0329-5
Rough fuzzy image analysis; foundations and methodologies.
Title main entry. Ed. by Sankar K. Pal and James F. Peters. (Chapman Hall/CRC mathematical and computational imaging sciences)
CRC Press, ©2010 --- p. $89.95
This work explains how to use rough sets, fuzzy sets, and near sets, separately or together in hybridizations, to solve a variety of problems in image analysis, such as image understanding, image pattern recognition, and mathematical morphology. A brief consideration of Cantor sets provides a backdrop for discussion of several recent types of sets useful in image analysis. A rough-fuzzy clustering algorithm for segmentation of brain MR images is described, and a downloadable near-set evaluation and recognition (NEAR) system is provided. Other topics include applications of fuzzy rule-based systems in medical imaging, a perceptual systems approach to measuring image resemblance, and rough-fuzzy measures in image segmentation and analysis. The book is illustrated with b&w and color photos and images. Pal is affiliated with the Indian Statistical Institute. Peters is affiliated with the Computational Intelligence Laboratory at the University of Manitoba, Canada.

ENVIRONMENTAL TECHNOLOGY

TD192 2009-941061 978-1-58829-166-0
Environmental biotechnology.
Title main entry. Ed. by Lawrence K. Wang et al. (Handbook of environmental engineering; v.10)
Humana Press Inc., ©2010 975 p. $179.00
This text/reference is written at the tutorial level for undergraduate and graduate students, and will also be useful to scientists, researchers, and designers of water and wastewater treatment systems. It introduces the mechanisms of environmental biotechnology processes, explains different microbiological classifications useful for environmental engineers, and overviews the microbiology, metabolism, and microbial ecology of natural and environmental engineering systems. Other areas covered are microbial ecology and bioengineering of isolated life support systems, classification and design of solid-state processes and reactors, value-added biotechnological products from organic wastes, design of anaerobic suspended bioprocesses and reactors, and environmental control of the biotechnology industry. B&w photos and detailed illustrations of equipment are included. Wang is affiliated with the Lenox Institute of Water Technology.

TD196 2009-009688 978-1-4051-7634-7
Environmental and human health impacts of nanotechnology.
Title main entry. Ed. by Jamie R. Lead and Emma Smith.
John Wiley & Sons, ©2009 435 p. $129.95
In this detailed volume meant for researchers in nanoscience and nanotechnology, environmental science, materials science, and biology, as well as scientists in industry, regulators, and policy makers, Lead (environmental nanoscience, U. of Birmingham, UK) and Smith (environmental chemistry, U. of the West Indies, Barbados) compile chapters that assess the environmental and health impacts of nanotechnology. European, Australian, and American researchers working in medicine and health, geosciences, environmental and other sciences consider the properties, preparation, and applications of nanomaterials; the characterization and analysis of manufactured nanoparticles; the fate and behavior of nanomaterials in aquatic, terrestrial, and atmospheric environments; ecotoxicology and human toxicology of manufactured nanoparticles; occupational health and exposure; and risk assessment and global regulatory and policy responses.

TD879 2009-034965 978-0-8412-6992-7
Environmental applications of nanoscale and microscale reactive metal particles.
Title main entry. Ed. by Cherie L. Geiger and Kathleen M. Carvalho-Knighton. (ACS symposium series; 1027)
American Chemical Society, ©2009 306 p. $150.00
This resource for chemists and engineers in academia, industry, and government describes how researchers around the world are using nanoscale and microscale metal particles to break down environmentally harmful compounds. The book is composed of papers from a symposium organized by the editors under the support of the Division of Industrial and Engineering Chemistry, plus additional papers. An overview chapter reviews environmental applications of nanoscale and microscale reactive metal particles. The next section covers lab and mechanistic studies in areas such as arsenic removal by nanoscale zero-valent iron. Subsequent chapters report on field simulation studies of methods such as electrokinetically enhanced removal and degradation of subsurface pollutants using nanosized Pd/Fe slurry. Technology demonstrations and field applications are also described, such as a study on iron nanoparticles for *in situ* groundwater remediation of chlorinated

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organic solvents in Taiwan. Geiger is affiliated with the University of Central Florida. Carvalho-Knighton is affiliated with the University of South Florida-St Petersburg. The book is distributed in the US by Oxford University Press.

TD885 2009-663019 978-92-64-07316-6
Transport, energy and CO_2; moving toward sustainability.
International Energy Agency.
OECD, ©2009 414 p. $135.00 (pa)
As one of several new International Energy Agency (IEA) end-use studies, this report examines the role of technologies and policies in transforming the way energy is used to be more sustainable. Because transport accounts for roughly 25 percent of carbon dioxide emissions worldwide and energy use is growing in this sector, the IEA has set a target of a 50 percent improvement by 2030 in CO_2 emissions for new light-duty vehicles. The agency emphasizes that such a reduction requires technological advances in engine and non-engine components as well as improved urban transit systems. Chapters include energy use scenarios, trend data, cost-benefit analyses, and color illustrations. The IEA was established within the framework of the Organization for Economic Co-operation and Development in 1974.

TD897 2009-047368 978-1-4200-7144-3
The science and technology of industrial water treatment.
Title main entry. Ed. by Zahid Amjad.
CRC Press, ©2010 516 p. $149.95
This reference covers fundamentals and practical aspects of industrial water treatment. It will aid researchers in biology, chemistry, dentistry, geology, chemical engineering, environmental engineering, and medicine. The book will also be of interest to process and design engineers, operations personnel, and plant managers working in the water treatment industry, as well as researchers working in areas where purity processes are important, such as pharmaceuticals, food and beverage production, and semiconductors. The book begins with an overview of water chemistry and characteristics of common mineral scales. The next ten chapters address the formation and control of different scales in various systems, including cooling, geothermal, oil field, and waste-water systems. Later chapters cover new developments in membrane-based separation processes, reverse osmosis systems, scale control in thermal distillation processes, and corrosion control. Further chapters are devoted to microbiological fouling in cooling and membrane-based systems, with coverage of bacterial species, mechanisms of biofouling, and criteria for selecting biocides for water treatment applications. There is also material on analytical approaches for identifying mineral scales and deposits and for monitoring operational parameters and treatment chemicals. B&w images and illustrations are included. Amjad is a technical consultant in industrial water treatment.

BUILDING CONSTRUCTION

TH437 2009-035158 978-1-60566-928-1
Handbook of research on building information modeling and construction informatics; concepts and technologies.
Title main entry. Ed. by Jason Underwood and Umit Isikdag.
Information Science Reference, ©2010 715 p. $295.00
This handbook of research on building information modeling (BIM) and construction informatics explores the problems involved in information integration and interoperability in the life cycle of a building, from development and design and through demolition and recycling. It includes both comprehensive coverage of current research as well as defining discussions of the most significant issues, concepts, trends, and technologies. General topics include adoption of BIM, standards, applications, green building, spatial applications, expectations and the state of the art, education and training, and case studies. The book will interest students, educators, and researchers as well as professionals working in BIM and integrated project delivery. Editors Underwood (U. of Salford, U.K.), Isikdag (Beykent U. Turkey), and 47 co-authors contributed to the book.

TI74 2010-009454 978-1-4129-6987-1
Encyclopedia of nanoscience and society; 2v.
Title main entry. Ed. by David H. Guston.
Sage Publications, ©2010 960 p. $265.00
Whether the impact will be revolutionary, or less dramatic, very small scale technology involves incredible potential as well as risks—and it all could get incredibly out of control before governments and regulatory agencies catch up, which is a subject that merits profound attention. In this well-conceived reference, two volumes contain 500 alphabetically-arranged entries pertaining to nanotechnology—not to the technical aspects, but rather to the societal implications insofar as these implications are being anticipated, seriously studied, and seriously

hyped or inadvisably dismissed. A Reader's Guide groups entries according to theme, among them: economics & business, environment & risk, ethics & values, and history & philosophy; also included are organizations, companies, regulatory agencies, and individuals. Supporting materials include an intriguing introductory essay, a chronology that offers enlightening context, a glossary, a resource guide, and an appendix (occupying a quarter of the second volume) presenting the 2003 Congressional hearings on the societal implications of nanotechnology. Editor Guston (politics & global studies, Arizona State U.) is deeply involved in the field, writes extensively, and among other affiliations is a director of the Center for Nanotechnology in Society (also at Arizona State U.), funded for 10 years (2005-15) by the National Science Foundation. To prepare the entries he has enlisted expert contributors, many of whom also have NSF affiliations, but they express their own opinions concerning controversies and are not necessarily representing their sponsors.

MECHANICAL ENGINEERING & MACHINERY

TJ223 2010-010207 978-1-4398-2108-4
Reinforcement learning and dynamic programming using function approximators.
Title main entry. Ed. by Lucian Busoniu et al. (Automation and control engineering)
CRC Press, ©2010 270 p. $89.95
Dynamic programming is an approach to optimal control designed for situations in which a model of the system to be controlled is available; when no model is available, reinforcement learning divines control policies solely from the knowledge of transition samples or trajectories that are collected beforehand or by online interaction with the system. Otherwise, the two are pretty similar, and Busoniu, Robert Babuska, Bard De Schutter (all systems and control, Delft U. of Technology, the Netherlands), and Belgian researcher Damien Ernst consider them together. They cover their application in large and continuous spaces, approximate value iteration with a fuzzy representation, approximate policy iteration for onlining learning and continuous-action control, and approximate policy search with cross-entropy optimization of basis functions.

TJ808 2009-037489 978-1-60876-263-7
Handbook of sustainable energy.
Title main entry. Ed. by W.H. Lee and V.G. Cho. (Energy science, engineering and technology)
Nova Science Publishers, ©2010 803 p. $245.00
This handbook contains 27 chapters on research in the study of sustainable energy, including monitoring sustainable energy development, the use of methane, energy and territory, biodiesel production, electrochemical hydrogen storage, and environmental policies around the world. Other chapters discuss the analysis of energy technologies and their appropriateness, rapid economic growth and environmental degradation, products that address energy concerns like an enhanced ceiling fan, alternative fuels in the form of non-edible oils, the economic impact of emission reduction, and other topics. Contributors work in engineering, energy science, technology, economics, and other fields around the world. One chapter has many grammatical errors.

TJ820 2009-943185 978-1-84564-205-1
Wind power generation and wind turbine design.
Title main entry. Ed. by Wei Tong.
WIT Press, ©2010 725 p. $596.00
Presented by Tong (Kollmorgen Corp.), the 21 chapters presented in this volume are intended to provide engineers and researchers in the wind power industry, national laboratories, and universities with comprehensive, up-to-date, and advanced design techniques and practical approaches for wind power generation and wind turbine design. The first five chapters cover the basics of wind power generation, including fundamentals of wind energy, wind resources and site assessment, aerodynamics and aeroelastics of wind turbines, structural dynamics of wind turbines, and wind turbine acoustics. The next section discusses the design and development of modern wind turbines and covers megawatt wind turbines, small wind turbines, vertical-axis wind turbines, direct drive superconducting wind generators, intelligent wind power unit with tandem wind rotors, offshore wind turbines, and new small turbine technologies. The focus then shifts to turbine components in chapters discussing testing and design of blade materials, implementation of the "smart" rotor concept, optimized gearbox design, tower design and analysis, and design of support structures for offshore wind turbines. The remaining chapters examine the issues of power curves for wind turbines, wind turbine cooling technologies, wind turbine measurements and

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abatement methods, and wind energy storage technologies. The US office of WIT Press is Computational Mechanics. Also available as an e-book; ISBN: 978-1-84564-388-1

TJ1075 2009-048848 978-0-8247-5832-5
Tribology of interface layers.
Heshmat, Hooshang.
CRC Press, ©2010 440 p. $139.95
Heshmat (Mohawk Innovative Technology) describes the functions and characteristics of different interface layers capable of acting as tribological films, and proposes a continuum of lubrication processes from dry contacts through fluids and gases to granular films. Experimental results define the particle size, density, effective viscosity, traction, flow, and damping properties of powders, and report how powder films perform as sliders, bearings, dampers, and piston rings. The text also provides mathematical methods for solving powder lubrication problems, particularly bearings and seals in which debris particles supply a lubricant layer considerably affecting the dynamics of the machine. Black and white images are provided.

TJ1185 2010-015375 978-0-07-163517-2
Thermal deformation in machine tools.
Ito, Yoshimi.
McGraw-Hill, ©2010 214 p. $125.00
Thermal deformation of machine tools is an old but enduring technological challenge. Ito (emeritus, Tokyo Institute of Technology, Japan) and contributing colleagues examine current issues in reducing thermal deformation in machine tools. Six chapters address the design of lightweight structures that allow less thermal deformation than heavyweight structures, the basics of thermal deformation, analytical expressions and design data for the estimation of the magnitude of heat generated and determination of the thermal boundary condition, remedies to reduce thermal deformation from the perspectives of structural design and NC compensation technology, and computational methods in the evaluation and estimation of thermal behavior.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK1087 2009-046419 978-1-4200-7674-5
Nanotechnology for photovoltaics.
Title main entry. Ed. by Loucas Tsakalakos.
CRC Press, ©2010 436 p. $119.95
Editor Tsakalakos (Micro & Nano Structures Organization, General Electric Global Research Center) and 39 co-contributors give an overview of issues in increasing efficiency and reducing costs in photovoltaic devices used to harness solar energy. The book provides an overview of how devices are used, thin films, properties of nanostructured materials as they relate to photovoltaics, and nanoscale optoelectronic device physics and performance. It also covers solar cells based on hybrid organic-inorganic nanocomposites, quantum wells, nanowires and tubes, and quantum dots. The book will interest professionals working in the field of advanced photovoltaics.

TK2931 2009-045645 978-1-4398-0678-4
Proton exchange membrane fuel cells; contamination and mitigation strategies.
Title main entry. Ed. by Hui Li et al. (Green chemistry and chemistry engineering)
CRC Press, ©2010 417 p. $139.95
Li (PEMFC Contamination Consortium, National Research Council of Canada Institute for Fuel Cell Innovation) et al. assemble nine articles that provide an overview of all aspects of the impacts of contamination and contamination mitigation strategies to improve the performance and durability of proton exchange membrane fuel cells (PEMFC). A group of fuel cell scientists and engineers from North America and China cover the nature, sources, and electrochemistry of contaminants; their effects on fuel cell performance and lifetime; the mechanisms of contamination; research studies; and tools and methods for diagnosing various contamination phenomena and strategies for mitigating adverse effects.

TK5103 2009-940061 978-1-84564-416-1
Broadband power-line communication systems; theory and applications.
Anatory, J. and N. Theethayi.
WIT Press, ©2010 174 p. $150.00
For both developing and developed nations, implementing broadband power-line communications (BPLC) systems is a challenge. Anatory (informatics and virtual education, U. of Dodoma, Tanzania) and Theethayi (electrical systems engineer, Bombardier Transportation, Sweden) introduce advances in BPLC technology that have made it possible for broadband services to be used to link urban and rural areas efficiently and economically utilizing a readily-available, largely distributed power-line infrastructure for multi-service data transmission, high-speed internet access, and Voice Over Internet Protocol. The theoretical bases of this technology, classical transmission line theory and communication and networking theories, are explained in detail with equations and diagrams for students and BPLC

systems planners and engineers. Also Available as an e-book; ISBN 978-1-84564-416-1. The US office of WIT Press is Computational Mechanics.

TK5103 2009-053747 978-1-4200-7775-9
Cognitive radio networks; architectures, protocols, and standards.
Title main entry. Ed. by Yan Zhang et al.
CRC Press, ©2010 466 p. $99.95
Cognitive radio is believed by editors Zhang (Simula Research Laboratory, Norway), Zheng (Southeast U., China), and Chen (National Cheng Kung U., Taiwan) to be a high-potential technology to address issues of efficient spectrum usage in wireless communication systems and networks. Still in the early stages of research and development, it aims for systems that are aware of context and are capable of reconfiguring themselves with respect to changing demands and needs of spectrum, traffic load, congestion, network topology, and wireless channel propagation. This is a technical guide to the technology that covers introductory concepts, fundamental techniques, recent advances, and unresolved issues. The guide's 14 chapters are organized into sections addressing physical layer issues, protocols and economic approaches, and applications and systems.

TK5103 2010-006627 978-1-4200-5325-8
Nanotechnology for telecommunications.
Title main entry. Ed. by Sohail Anwar et al.
CRC Press, ©2010 435 p. $99.95
As featured biological examples show, nature has long exploited novel properties at the nanoscale. Nanotechnology-produced nanomaterials holds promise for further advances in telecommunications and information processing. Anwar (electrical engineering, Pennsylvania State U., Altoona) introduces 17 chapters that present technical information and research toward innovative applications. Following an introduction to the evolution of the field and its revolutionary impact in various application areas, international contributors describe components based on the microelectromechanical (MEMS) and nanoelectromechanical (NEMS) systems; processing methods; and applications, e.g., in optical switching, and display and memory storage devices. The text concludes with a discussion of factors facilitating and impeding nanotechnology's commercialization, and a glossary.

TK5103 2009-051226 978-1-4200-8824-3
Orthogonal frequency division multiple access fundamentals and applications.
Title main entry. Ed. by Tao Jiang et al. (Wireless networks and mobile communications)
CRC Press, ©2010 644 p. $89.95
The book introduces basic concepts, issues, research results, and applications of orthogonal frequency division multiple access (OFDMA), a new access technology for wireless networks. It will be useful as an overview for graduate students and as a manual for researchers and practical engineers who work with OFDMA and other multi-user communication systems projects. Coverage encompasses various techniques of effective resource management for OFDM/OFDMA-based wireless communication systems, including allocation of radio resources and utilization of scarce spectra. Other topics include adaptive modulation, training sequence design in multi-user OFDM systems, MIMO beamforming schemes for multi-user access in OFDMA-SDMA, and OFDMA-based mobile WiMAX. Jiang teaches at Huazhong University of Science and Technology, China.

TK5103 2009-053599 978-1-4200-6711-8
Underwater acoustic sensor networks.
Title main entry. Ed. by Yang Xiao.
CRC Press, ©2010 333 p. $89.95
Addressing fundamental aspects of underwater acoustic communication, this collection presents recent advances in clustering, topology control, routing, fault tolerance, time synchronization, medium access control, software, hardware, and channel modeling. The contributors propose architectures for 2D and 3D underwater sensor networks, assess MAC protocols, and describe a hardware/software co-design of low-cost sensor nodes for deployment in a shallow underwater environment. Editor Xioa (U. of Alabama) is co-author on four of the 12 papers.

TK5105 978-1-4398-0612-8
Cloud computing; technologies and strategies of the ubiquitous data center.
Chee, Brian J.S. & Curtis Franklin.
CRC Press, ©2010 270 p. $69.95
Chee (research, U. of Hawaii School of Ocean and Earth Sciences and Technology) and Franklin (writer, specializing in technologies, computing products, networking) define cloud computing and its functions from a manager's perspective. Topics cover introductory information, scientific computing and its contribution to clouds, the distinction between virtualization and the cloud, applications for clouds, business and strategies,

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cloud providers, issues and security, and a look at the future. While written for managers, the book will interest any reader who wants to learn more about this major technological shift.

TK5105 2009-040563 978-1-61520-791-6
Intelligent quality of service technologies and network management; models for enhancing communication.
Title main entry. Ed. by Pattarasinee Bhattarakosol.
Information Science Reference, ©2010 380 p. $180.00
Bhattarakosol (computer science, Chulalongkorn University, Thailand) presents international research on theories, models, and practice in quality of service (QoS) technologies and network management in a variety of research fields. Material is in sections on QoS, network management models, and integration of QoS and network management models. Of special interest are case studies of national and international research and academic networks. Other topics covered include QoS in wireless sensor networks, a traffic controller for handling service quality in a multimedia network, QoS routing and management in backbone networks, and a model based approach for QoS constrained communication and data integration among multiple agents. The book's audience includes QoS administrators, developers, graduate students, and researchers.

TK5105 978-1-60750-488-7
Relation based access control.
Zhang, Rui. (Studies on the semantic web)
IOS Press, ©2010 114 p. $73.00 (pa)
Access control, an issue in security domains, refers to the control of access to digital web resources. This book describes a new model for access control, known as relation-based access control (RelBAC), designed to fit the need to control access in dynamic web environments. An important feature of the model is that it represents permission naturally as binary relations and formalizes them as DL roles. The theory and algorithms of lightweight ontologies are applied on RelBAC to represent the structured knowledge about users, resources, and permissions. Semantic matching techniques are used to find semantic similarities among the knowledge of users, resources, and permission. New ways are proposed to use these semantic similarities in design and reuse access control policies. The work described here was done as part of the author's PhD thesis at the Department of Information Engineering and Computer Science at the University of Trento. There is no subject index. Zhang is affiliated Jilin University.

TK5105 2010-017138 978-1-4398-1593-9
Transmission techniques for emergent multicast and broadcast systems.
Marques da Silva, Mário et al.
CRC Press, ©2010 295 p. $119.95
Marques da Silva (Universidade Autónoma de Lisboa) et al describe recent advances in transmission techniques and receiver designs using multiresolution schemes for broadband wireless systems and discuss emergent services that will allow increasing the bit rate per user and the capacity of digital cellular radio networks due to improved spectral efficiency. Although the transmission, detection techniques, and schemes are relevant to many digital communication systems, the book places a special focus on multimedia services using multicast and broadcast techniques. The final chapter provides a system-level evaluation of the multimedia broadcast and multicast service using different transmission techniques.

TK6570 2010-008210 978-1-4398-0439-1
Thin air; how wireless technology supports lean initiatives.
Maurno, Dann Anthony and Louis Sirico.
CRC Press, ©2010 231 p. $59.95
Maurno (business and technology journalist) and Sirico (founder, The RFID Network) provide a view of the advantages of integrating wireless technology into the Lean business philosophy of continuous improvement of processes and operations. The authors discuss Lean wireless and the Lean value stream, Lean wireless and the cost of doing business, Lean wireless missions, Lean wireless in health care, return on investment, and a glimpse into the immediate future. The book also includes Lean and wireless glossaries, and standards used in wireless enterprises.

TK6575 978-1-59693-364-4
Cognitive radar; the knowledge-aided fully adaptive approach.
Guerci, Joseph R. (Radar series)
Artech House, ©2010 175 p. $99.00
Based on the author's career in developing radar systems with the Air Force Research Laboratory (AFRL) and the Defense Advanced Research Projects (DARPA), this volume offers specialists the first in-depth introduction to the theory and practice of cognitive radar, where knowledge-aided processing is employed in conjunction with multi-input, multi-output (MIMO) radar. The first two chapters detail optimum and constrained

optimum multidimensional transmit signal design and how its used in adaptive case radar using simultaneous channel estimation and signal design in MIMO radar applications. Knowledge-aided methods of various types are then described, including intelligent training and filter techniques and Bayesian covariance blending. The concepts are brought together in the concluding chapter, with examples on how knowledge of the terrain can be built in to substantially increase the accuracy of radar surveys.

TK7870 2009-049063 978-1-59370-125-3
Portable consumer electronics; packaging, materials, and reliability.
Canumalla, Sridhar and Puligandla Viswanadham.
PennWell Books, ©2010 439 p. $125.00
This work offers an overview of industry practices for assembling portable electronic products and analyzing reliability and failure. Readers should understand fundamentals of physics, chemistry, and engineering. Coverage includes packaging challenges, printing wiring board technology and assembly, and packaging of component and interconnect technologies. After giving background on reliability statistics, the book discusses reliability of electronic assemblies, failures, and prevention, and concludes with a look at future trends in portable electronic products. Appendices provide standards and specifications, acronyms and abbreviations, and a list of recommended books. B&w photos, images, and illustrations are also included. The book will be useful for engineers, product development managers, technologists, and designers involved in the electronics industry. Canumalla is affiliated with Microsoft's Entertainment and Devices Division. Viswanadham is recently retired from Nokia Research Center.

TK7872 2009-049255 978-0-470-74373-7
Transflective liquid crystal displays.
Ge, Zhibing and Shin-Tson Wu.
John Wiley & Sons, ©2010 230 p. $115.00
Sunlight readable transreflective liquid crystal displays (LCDs) are used in devices such as cell phones and portable media players. This book examines fundamentals of transreflective LCD technologies and compares them to alternatives such as OLED displays. Coverage encompasses both pure and transmissive and reflective LCDs, as well as design considerations and performance issues when combining both into small mobile displays. Chapter topics include device physics and modeling, light polarization and wide viewing angle, wide-view transreflective LCDs, and color sequential mobile LCDs. The final chapter offers a perspective on the role of transreflective LCDs and emerging touch panel technology. The book can serve as a graduate text or a reference for display engineers, scientists, developers, and technicians. The editors are affiliated with the College of Optics and Photonics at the University of Central Florida.

TK7874 2009-049450 978-1-4398-0656-2
Organic spintronics.
Title main entry. Ed. by Zeev Valy Vardeny.
CRC Press, ©2010 335 p. $129.95
A summary of the experimental and theoretical aspects of organic spintronics is provided by physicists and material scientists in Europe and the US. They track the three directions the field has taken since it was born in 2002. One is spintronic devices, such as organic spin valves, where spin injection, transport, and manipulation have been demonstrated. Another is magnetic field effects in organic light-emitting diodes (OLED), where both conductivity and electroluminescence have been shown to depend strongly on the magnetic field. The third is optically and electrically detected magnetic resonance effects, where coherent spin control has been obtained in organic electronic devices. The seven chapters cover spin-polarized transport in organic semiconductors, modeling spin injection and transport in organic semiconductor structures, magnetoresistance and spin transport in organic semiconductor devices, spintronic applications of organic materials, magnetic field effects in *pi*-conjugated systems, investigating spin-dependent processes in organic semiconductors, and sensor and memory applications.

TK7882 2009-047140 978-1-56881-473-5
Interactive data visualization; foundations, techniques, and applications.
Ward, Matthew et al.
A K Peters Ltd., ©2010 496 p. $89.00
Political scientists Ward (Worcester Polytechnic Institute, Massachusetts) and Georges Grinstein (U. of Massachusetts-Lowell) and Daniel Keim (information and visualization and data analysis, U. of Konstanz, Germany) present the theory, details, and tools necessary to build visualizations and systems involving the visualization of data, including relevant algorithmic and software engineering issues. The emphasis is on broad theory and principles that can be adapted and applied to many different visualizations and techniques. Readers are assumed to be conversant with some programming language and to have some

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understanding of algorithms. The topics include data foundations, visualization techniques for spatial data, text and document visualization, interaction concepts, comparing and evaluating visualization techniques, and research directions.

TK7895 2009-051515 978-1-4398-1161-0
Multi-core embedded systems.
Title main entry. Ed. by Georgios Kornaros. (Embedded multi-core systems)
CRC Press, ©2010 471 p. $139.95
For researchers, industry engineers, graduate students, and professionals, Kornaros (applied informatics and multimedia and electronic and computer engineering, Technical Educational Institute of Crete and Technical U. of Crete, Greece) compiles 12 chapters on topics related to multi-core embedded systems, and the technical challenges associated with the integration of processors and multiple cores. Coverage encompasses architectures and interconnects, embedded design methodologies for multi-core systems, mapping of applications, hardware/software development, tools and verification, and programming paradigms and models of computation on multi-core embedded systems. Other topics addressed by the group of researchers and engineers from Europe, Taiwan, North America, and India include debugging, topologies, optimization of memory, power management, the picoArray architecture, and Network Processing Units.

TK9180 2009-051391 978-1-4398-0385-1
Semiconductor radiation detection systems.
Title main entry. Ed. by Krzysztof Iniewski. (Devices, circuits, and systems)
CRC Press, ©2010 388 p. $149.95
Aimed at practicing engineers with some electronics or radiation background, this volume contains 15 articles describe state-of-the art applications of semiconductor detector and integrated circuit design. The focus is primarily within the context of medical imaging using ionizing radiation, but applications for x-ray detection, computer tomography, bone dosimetry, and nuclear medicine are also discussed, as are some applications within the field of security that utilize x-rays and gamma-rays.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL221 978-1-4398-2972-1
Materials, design and manufacturing for lightweight vehicles.
Title main entry. Ed. by P.K. Mallick. (Woodhead publishing in materials)
CRC Press, ©2010 369 p. $209.95
Mallick (mechanical engineering, U. of Michigan, Dearborn) and nine co-authors offer a resource for engineers that describes materials used in the manufacture of lightweight vehicles and comparisons of their properties and characteristics. Topics include advanced steels, aluminum alloys, magnesium alloys, thermoplastics, thermoset-matrix composites, manufacturing processes for light alloys, joining for lightweight vehicles, recycling and life cycle issues, and crashworthiness design issues. The book is illustrated and includes extensive references.

TL798 2010-008249 978-1-4398-3685-9
Dynamics of tethered space systems.
Title main entry. Ed. by A.P. Alpatov et al. (Advances in engineering)
CRC Press, ©2010 223 p. $99.95
This resource for advanced students and researchers combines theory, simple and more complex examples, and experimental approaches to examine the mechanical, physical, and mathematical modeling approaches involved in the field of tethered space systems (TSS). An introductory chapter covers basic features and areas of application, physical models of TSS, and related mathematical modeling and physical effects. Four more chapters cover equations of motion in TSS, analysis of the motion of TSS, use of resonance for motion control, and deployment of TSS. Alpatov is affiliated with the Institute of Technical Mechanics NAS & NSA of the Ukraine.

MINING ENGINEERING

TN693 2009-039827 978-1-60876-151-7
Titanium alloys; preparation, properties, and applications.
Title main entry. Ed. by Pedro N. Sanchez. (Materials science and technologies)
Nova Science Publishers, ©2010 501 p. $195.00
This work highlights the latest developments in titanium alloys. Some specific topics are biomedical applications of laser induced surface modification of titanium alloys, nondestructive evaluation of material imperfections in

titanium alloys, and influence of protective coatings on properties of near-alpha titanium alloys, as well as bioactive titanium surfaces, ultrasonic machining of titanium alloys, and thermal formidability of titanium tailor-welded blanks. Information on the editor is not given.

TN870 978-2-7108-0945-6
The oil and gas engineering guide.
Baron, Hervé.
Editions Technip, ©2010 200 p. $66.00 (pa)
This guide offers a detailed overview of activities carried out during the engineering of oil and gas facilities, such as refineries, oil platforms, and chemical plants, covering the entire design cycle. Each engineering task is described and illustrated with drawings, diagrams, and text documents from actual engineering deliverables used on real projects, with a total of 250 b&w photos and plans and color illustrations. The book's two-color layout features key terms and illustration notes highlighted in red. Coverage includes plant layout, equipment, health and safety, piping, instrumentation and control, electrical, matching the construction schedule, and controlling information. An appendix provides a typical engineering schedule. Baron is an engineering manager. The book is distributed in the US by Enfield.

CHEMICAL TECHNOLOGY

TP248 2009-051865 978-1-4200-4781-3
Biomaterials; a nano approach.
Ramakrishna, Seeram et al.
CRC Press, ©2010 350 p. $99.95
Ramakrishna (National U. of Singapore) co-authored this textbook with three other accomplished scientists: Murugan Ramalingam (Tohoku U., Japan), T.S. Sampath Kumar (Indian Institute of Technology, Madras) and Winston O. Soboyejo (Princeton U.). Written as a textbook for advanced undergraduate and beginning graduate students in material science and engineering and the fields of biomaterials, as well as specialists in biomaterials and related industries, the volume presents a much needed basic approach to the field. Each chapter is clearly organized and well-illustrated with drawings and photos of principles and devices, and each concludes with a glossary of terms from the chapter, list of study questions and exercises, and list of references. The chapters provide an introductory overview of biomaterials and the basics of human biology, discussion of degradation and corrosion, failure and tribology, and nanoscale phenomena, followed by chapters on the various types of biomaterials, and concluding with those used for tissue regeneration.

TP248 2009-038670 978-1-60876-388-7
Cellulose; structure and properties, derivatives and industrial uses.
Title main entry. Ed. by Arnaud Lejeune and Thibaut Deprez. (Biotechnology in agriculture, industry and medicine)
Nova Science Publishers, ©2100 528 p. $165.00
Cellulose, the main component of plant cell membranes, is the most common organic polymer found in nature. This book collects work on the structure of cellulose allomorphs and the potential of cellulose as a renewable raw material. Major themes covered include biochemical conversion of biomass materials into cellulosic ethanol, biofuel production from cellulosic biomass by cell surface engineering, natural and accelerated aging of cellulose, and principles of cellulose oxidation chemistry and different products of reactions. The book describes applications of oxidized celluloses in medicine, cosmetics, and food, and looks at applications of bacterial cellulose in paper, odontology, and pharmaceuticals. Information on the editors is not given.

MILITARY & NAVAL SCIENCE

U260 2009-042517 978-1-61520-855-5
Network science for military coalition operations; information exchange and interaction.
Title main entry. Ed. by Dinesh Verma.
Information Science Reference, ©2010 317 p. $180.00
Editor Verma (IBM Thomas J. Watson Research Center) and 46 co-authors stress the importance of collaboration and interoperability between multiple independently developed networks in modern military coalition operations. The author addresses: coalition communication and information networks, security and policy technologies, and human and cognitive issues. The authors also note that an understanding of properly functioning coalition operations is not only useful in military applications, but in any instance in which advanced, stable networks are required.

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ZA4080 2009-036022 978-1-61520-767-1

Developing sustainable digital libraries; socio-technical perspectives.

Title main entry. Ed. by Tariq Ashraf et al. *Information Science Reference*, ©2010 362 p. $180.00

Ashraf (University of Delhi, India) unites international contributors, many in India, to explore issues related to digital libraries. Several chapters address issues related to empowerment of the masses with digital information and efforts to overcome the digital divide. Major themes include scholarly communication on the context of digital technologies, technological aspects of digitization, blogging as an outreach tool for academic libraries, and social web approaches to digital libraries. Other subjects are information preservation and information services, digital repositories in India, intellectual property rights, and preserving cultural heritage by digitizing information. ❖

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