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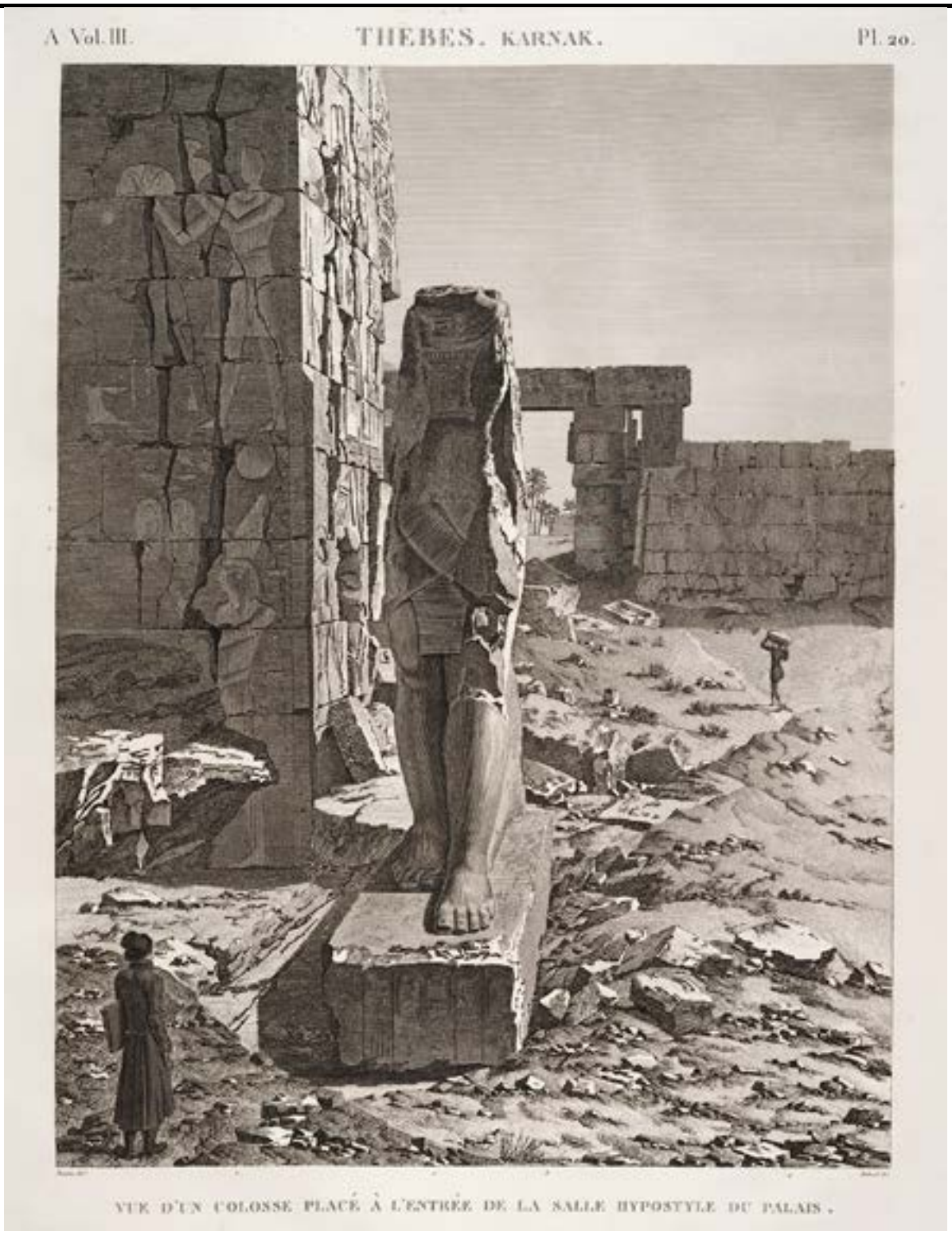
SciTech News

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



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SciTech News

SLA
Connecting People and Information

On the Cover

In 1798, Napoleon Bonaparte led an invasion of Egypt, and in addition to an army of conquest, he brought along over 150 scientists, engineers, and architects. The engineers were supposed to survey modern Egypt, but they were immediately fascinated by the ruins of ancient Egypt, and they sketched furiously to record the tombs and monuments during their short stay. When the scientists returned, they eventually published their observations in 23 volumes, including 837 engravings, many of them the largest ever printed, as Description de l'Egypte (1809-1828). We see in the engraving one of those engineers, admiring the remains of a colossus at Karnak *(photo and caption courtesy of the Linda Hall Library of Science, Engineering & Technology).*

Columns and Reports

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Reviews

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Copy Deadline

Issue Number 1 .....Feb 1
Issue Number 2 ..... April 1
Issue Number 3 ..... Aug 1
Issue Number 4 ..... Nov 1

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Manuscripts: The Editor solicits papers of interest to the community of science and technology-oriented special libraries. Manuscripts of articles should be sent via E-mail (Microsoft Word or Plain Text format) to abby.thorne@gmail.com.

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From the Editor

Abby Thorne

Welcome to the final issue of SciTech News for 2012! For those of us in the United States, Thanksgiving has just passed and I am still mindful of all of the many things for which I have to be thankful and the many people I owe my gratitude. I am thankful for the opportunity to be involved with the Special Libraries Association and that it is an organization dedicated to providing excellent educational and leadership opportunities for its members. I am also thankful for all of you—the colleagues with whom I have the opportunity to network and work alongside to serve the organization. I would like to thank my assistant editor Abby Bedford for all of her assistance this year. And finally, to all of the chairs of our contributing divisions and sections as well as everyone else who contributed content for our issues this year, thanks so much for all of your work on our behalf.

The end of the year is not without some changes in SciTech News for the coming year. This is the final issue for Hope Leman's "Science Today in Verse" column. Her column will be missed for its addition of science-related levity to each issue. We really appreciate all of Hope's contributions to SciTech News. In addition, Kathy Alshouse is retiring and she and her colleagues at the Linda Hall Library will no longer be providing the cover images everyone has enjoyed for a number of years. We truly appreciate the service of Kathy and her colleagues to SciTech News over the years and we wish her well in her retirement.

The end of the year also means new opportunities for 2013. SciTech News is looking for recommendations for new sources of cover images. We are also looking for individuals who are interested in writing columns such as the Web Reviews column and those interested in submitting papers (both peer-reviewed and non-peer-reviewed) for publication. Please feel free to contact me directly at abby.thorne@gmail.com if you have suggestions or are interested in the publication opportunities we offer.

I hope everyone has a happy and healthy holiday season!❖

Abby Thorne
abby.thorne@gmail.com

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 Abby Thorne (abby.thorne@gmail.com) or Review Board Chair Bonnie Osif (bao2@psu.edu). Articles for the refereed section may be submitted to the Review Board Chair at bao2@psu.edu.

News from the Science-Technology Division

Science-Technology Division Cheryl Hansen, 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.'

Fall greetings to Sci-Tech members. This is my last column as Chair of the Sci-Tech Division.

2012 has gone by quickly and now I am looking forward to handing my duties over to our incoming chair, Helen Josephine. Now that I have figured out what the chair does I get to learn about the things that the past chair handles. It is a continuum that reminds us that everything has a time and place and that the world does not stay the same.

My year as chair has been a good one; I have gotten to know and work with more members than I knew before. I have learned more of how our Association works for us and with us.

SLA is a fantastic resource for all of us, it brings us together through an ever broadening variety of ways to learn, to share and to meet each other and support each other.

Please consider volunteering a bit of time to help make the Sci-Tech Division and SLA strong.

It is for as much time as you want it to be, but whatever you do it will be a good experience. We are always looking for new people to come forward and share themselves and their time. This is really one of the greatest benefits that we can get for being a member of SLA.

This will be a short column as the year is winding down and the Chicago conference is past history at this point. But now, it all begins again as Helen is hard at work planning the 2013 Conference programs for the division and even as Helen is preparing San Diego, the new Chair-Elect will be starting to plan for Vancouver in 2014.

Congratulations go to Nevenka Zdravkovska who you recently elected Chair for 2014. Nevenka has been our treasurer for the last three years and will make a great chair. Congratulations are also in order for Thea Allen who will be Treasurer. Thea has been doing a great job heading our Student Relations committee.

I am also happy to announce that Ben Wedge, Vivienne Houghton, Jeremy Cusker and Simon Barron all won Amazon gift cards for participating in the program surveys. One winner was randomly chosen from those who had answered the survey questions for each of the four programs Sci-Tech was lead on.

Lastly, many thanks go to all those who have helped me this past year. I couldn't have done it without you. THANKS!! ❖

Cheryl Hansen,
2012 Chair, Sci-Tech Division
cahansen@esi-il.com

Science-Technology Division New Members

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

The Science-Technology Division welcomes its new members:

Julie Berg
Eustis, FL
USA

Karen Black
Ann Arbor, MI
USA

Libby Burke
Portland, OR
USA

Michael Cook
Kennewick, WA
USA

Shweta Dhingra
New Delhi
India

Mirta Guglielmoni
Philadelphia, PA
USA

Cynthia Kutka
Columbia, SC
USA

Talia Mathews
Bellingham, WA
USA

Lesley Maw
London, England
UK

Anne McFarlan
Boomington, MN
USA

Fiona Patrick
Ithaca, NY
USA

Alka Rai
Delhi
India

Will Thomas
Springdale, MD
USA

Tuyet Tran
Thuwal
Saudi Arabia

Susan Wainscott
North Las Vegas, NV
USA

Heidi Webb
Interlaken, NY
USA

Report from the Sci-Tech Division Nominations and Elections Committee

October 25, 2012

The Sci-Tech Nominations and Elections Committee takes great pleasure in announcing the results of the Division's 2012 elections.

Sci-Tech Division's new Chair-Elect is Nevenka Zdravkovska (currently serving as our Treasurer) and our New Treasurer is Thea Allen (currently serving as Chair of the Sci-Tech Student Relations Committee)! Both positions will begin in January 2013.

Many thanks to ALL candidates for their willingness to run and to serve our professional community!

2012 Nominations and Elections Committee:
Hilary Davis, Chair
Pam Enrici
Anna Ren
Christine Whitaker
Nancy Wilmes

News from the Engineering Division

Engineering Division — Pam Enrici, Chair

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

This is my last column as current chair of the Engineering Division. It has been a busy two years (the first as Chair-Elect) and then this year as as Chair and as "accidental" program planner. Next year will be less intense as past-chair but I'll still be around. First of all, I would like to thank the other members of the Executive Board for going above and beyond to perform their duties! Katherine Breininger, Past–Chair, Penny Sympson, Chair-Elect, Mary Whittaker, Treasurer, and Daureen Nesdill, Secretary. It has been a great pleasure working with the Aerospace Section Chair, Barbara Williams, Past-Chair, Adrienne Washburn, and chair-elect, Mary Strife. For the members of the Advisory Board, I can't heap enough praise for the incredible job they have done: (in alphabetic order) Patricia Aspinwall, Lynn Berard, Diane Brenes, Dale Copps, Sara Davis, Betty Edwards, Susan Morley, Bonnie Osif, Beth Thomsett-Scott, Abby Thorne, and Bob Tolliver. Congratulations and thank you for stepping up to Andy Shimp (who will become Chair-Elect of Engineering), Edna Paulson (who will become Chair-Elect of Aerospace), Giovanna Badia, our incoming Secretary. Sara Thomson has been our liaison with the SLA Board and had excellent words of advice. Without all of you, the Division could not have functioned!

Please watch for the next issue of Sci-Tech News, our listserv and the SLA website for news on next year's annual conference. It will be held in beautiful San Diego, California from June 9-11. The conference will be a day shorter than this year's and so there are going to be jam-packed days and evenings. Plan to come to San Diego for the conference: you'll be able to network, learn things, meet with various vendors and just have a good time while you are doing it. Planes, trains, and of course, cars, can get you to San Diego and back home again. Personally, I intend to fly there and then decompress by taking the train home.

SLA is a-changing. Every organization needs to change in order to become better. So when you see something about changes that SLA is proposing, let your voice be heard. Let your officers hear your viewpoint. Even the smallest sounding issue could have major ramifications. The more viewpoints we hear, the better. Do you have an idea? Let us know!

This is your Division, so if you have any questions, thoughts, praises or problems, let us know. Your Board normally meets once a month, so it is easy to get something into the agenda. As chair, Penny Sympson (psympson@wje.com) will be putting the agenda together.

The technology our profession uses has changed since I first began working in my high school library. From no computers (I think I pre-date OCLC) to almost everything online – our profession has changed. With all the electronic access that we have through SLA, we can take formal classes, attend a seminar, or get an update on a particular subject. We are really lucky that we can take advantage of all the technology. For those of us, like me, who are geographically isolated from our Chapter, this really makes it possible to learn more and interact with others, and yes, be chair of a Division.

Finally, I'd like to talk (yes, again) about volunteering. SLA, and obviously our Division, can't operate without volunteers. I realize that not everybody is in a position to volunteer hours of their time, but whether you have a few hours per year or much more time that you can spare out of your busy life (I know it rarely comes out of "just" work), please do volunteer. You can contact any board member to find ways that you can help. You will gain far more than you give. I don't think I am unique in that respect – I know I've gained far more than I've given. So thank you all!

Signing off for the last time.❖

Pam Enrici, Chair
penrici@d.umn.edu

Standards Update 2012 - Tuesday, July 17, 2012

Jointly submitted by Sara Davis and Susan Morley

Moderator: Susan Morley, Chair, Engineering Division Standards Committee.

Presenters: Andy Knoff, SAE International; Betsy Kilmer, ASCE; Carolyn Fennell, Eastview; John Pace, ASTM International; Leanne Lowery, ANSI; Michael Rovins, ASME; Patti Ensor, CSA Group; Rosemary Mather, BSI Global; Steve Noth, IHS; Stuart Bowyer, SAI Global; Todd Fegan, Techstreet.

This year's session received 12 presentations in total, including 10 speakers plus 2 written submissions from various standards organizations. Here is a summary from each:

ANSI - Leanne Lowery - ANSI was established in 1918 and oversees the process of standards writing. They are currently working on energy efficiency standards and also representing the US to both ISO and the IEC. They would like to help get the word out about the needs for standards and their value and are working on sharing that information thru their standards portal.

ASCE - Betsy Kilmer - ASCE was established in 1852 and currently has around 140,000 members in the organization. They've got about 40 different committees working on standards and their Codes & Standards Committee is working on an overview of the state of standards. Their standards are available thru February, MADCAD, ANSI, IHS, & Techstreet. They will be launching e-book standards on their own platform later on this year.

ASME - Michael Rovins - ASME was established in 1880 and they are introducing an Intro to ASME Standards self-paced online course soon. You can currently see what it's about at their website. The big news is that the BPVC is going to move to a 2 year cycle with no addenda. The next issue of the BPVC will be in 2013. ASME does recommend that you keep the older versions of the Code that you have. They have now published B31.3, B31.8 and Section I of the Code in Spanish with more to come. They have a Training & Development business for you, both online and in person so come and check it out!

ASTM - John Pace - ASTM was established in 1898 and beginning next year will have no DRM attached to their product. They have begun to do Video Value Add to their standards and have done this with approx. 100 of their standards so far. They are available for custom training for corporations; they also have bundling of their training materials available. They are finishing up their XML conversion project, which means HTML on the front end with a pdf back end. Their taxonomy is now complete and they are translating it into both Spanish and Portuguese. They are also working on translating their standards into Spanish & Russian. The launch of green engineering standards is a new project for them along with 2 new journals coming later this year.

BSI Global - Rosemary Mather - BSI is the UK national standards body and are pan disciplinary in nature. They have somewhere between 31,000 to 55,000 standards in their collection. They offer pdf retail thru IHS, Techstreet and ANSI. They have had some staff changes this year so there is now a representative for BSI on both the East Coast of the US and on the West Coast. Euro codes are available on an XML platform which allows for comparison with former codes. Perinorms (database) jointly maintained with AFNOR (France) & DIN (Germany) is available and can be used for discovery and equivalencies.

CSA Group – Patti Ensor - CSA has been around for 92 years now and this past March, they introduced a new brand, new logo and new tagline for CSA, come to the website and check it out. They are beginning an XML conversion project but this will not include retrospective conversion. And they are only doing English versions currently but will be doing French conversions at some point in time. They are heavily involved in a carbon neutral program which involves approxi-

mately 54 different programs. In 2012, the Canadian Electrical Code changed to a 3 year revision cycle. And finally, they provide eSATS materials which help apprentices pass their exams.

Eastview - Carolyn Fennell - Eastview supplies Russian standards plus industry norms for all state bodies. Some have machine translated abstracts and Eastview will supply translations, if the translation is not already available.

SAE International - Andy Knoff - They are approx. 100 years old and provide standards for the automotive and aerospace industries. They currently have about 10,500 current and 15,000 historical standards available. Their Digital Library is their flagship product but they will be moving to a new Global Technology Library. They will be introducing topic products. They currently provide standards only in pdf format with additional content as needed. Their #1 project right now is looking at XML conversion. They are also looking into apps but are not fully there yet and are also exploring the academic world for new customers.

SAI Global - Stuart Bowyer - Established in 1949, they are a 3rd party aggregator, based out of Australia. Several years ago they purchased ILI Infodisk, and their database now contains over a million standards in it. Technology is impacting the consumption of standards and they are looking at content management for use in the digital age. New platform to be announced later 2012.

Techstreet - Todd Fegan - They were originally established in 1994 and then purchased by Thomson Reuters in 2004. They are also a 3rd party aggregator providing standards and tools to help with those standards. New standards organizations to Techstreet include the Laser Institute, ITU, IEST, CEA, American Dental Assoc, IMO, D&B, and the Steel Door Institute. The also provide services to the SDOs including e-commerce. They have added redlines to ASHRAE, AWS, IEEE, MSS, and TAPPI. Their latest platform news is the launch of a new platform for subscriptions that includes enhanced tools for searching, use of filters, enhanced alerts and a new home page for administrators. They also use DRM for tracking how the standard is used.

IHS - Steve Noth - June 21 was the launch of Standards Expert 5.0 which included changing the search engine completely, added "did you mean" feature, increased searching speed and provide new administrative tools. 5.0 also works on the iPad and iPhone. They have introduced new redlines offline and new profile management tools along with changes to their historical packages. They have added 12 new societies; INOR, CLSI, CEI, etc and are using intrasource as new intranet content. They have opened Customer Care centers in both the UK and Malaysia. And finally have purchased global Spec, Cyber Regs, & Invention Machine.

IEEE - could not attend due to other obligations, but submitted the following information. "IEEE 3000 Standards Collection™ : Each of the different IEEE Color Books deals with a different aspect of electrical power production, distribution, and utilization in industrial and commercial power systems. The IEEE Color Books have been renamed & reorganized into the IEEE 3000 Standards Collection.™ This approach splits up the 13 Color Books into smaller, more narrowly focused technical standards. The revision, balloting, and approval process will be more timely and power engineers will be able to more quickly zero in on the relevant information they need. IEEE Introduces Groundbreaking Standard for Body Area Networking: IEEE 802.15.6™ 2012 helps enable a next generation of intelligent implantable devices, and provides a variety of new opportunities in healthcare and personal entertainment.
Now on iTunes- IEEE Standards "Power and Energy Dictionary" & "Wireless Dictionary" Apps. Power & Energy Dictionary provides access to over 3,500 IEEE power & energy standards terms and definitions with complete source citations. The Wireless Dictionary app provides an opportunity to gain in-depth understanding of IEEE wireless standards terms & definitions, not found in any other single source! Compatible with iPhone, iPod Touch, iPad and Android. "Submitted by Michael J. Spada, Director of Strategic Marketing, IEEE.

New to the industry & Standards Update session is U.K. firm **Catalysts Ltd**., They are in the process of creating a website of new product and safety standards / regulations. "Catalysts have identified a need for an online service providing access, on a single website, to information about new product and safety standards and standards under modification. The need lies with designers, manufacturers, importers, distributors and retailers. The website content will be split into separate areas and these will be as follows: SEARCHING for STANDARDS ; SEARCHING for information about STANDARDS being amended; STANDARDS ALERTING SERVICE ; STANDARDS ADVISORY SERVICE; STANDARDS NEWS SERVICE" Submitted by Nigel Phelps, Managing Director - Catalysts Ltd.

Standards Technology group, MADCAD, Standards.org were also present at the session, however did not present.

Several comments/requests from the audience present included a request to provide a membership category to librarians that would provide a discount on standards purchased from that organization, help in getting Brazil to understand that their standards need to be translated into English.

SDO who's who:

Acronym	Full Name	Web site
ANSI	American National Standards Institute	www.ansi.org
ASCE	American Society of Civil Engineers	www.asce.org
ASME	American Society of Mechanical Engineers	www.asme.org
ASTM	ASTM International	www.astm.org
BSI	British Standards Institution / BSI Global	www.bsigroup.com
CSA	CSA Group	www.csagroup.org
IEEE	Institute of Electrical and Electronics Engineers	www.ieee.org
SAE	SAE International	www.sae.org

Aggregators/Resellers Who's Who

Acronym	Full Name	Web site
Catalysts	Catalysts Ltd	www.catalysts-ltd.com
Eastview	Eastview Information Services	www.eastview.com
IHS	IHS (Information Handling Services)	www.ihs.com
SAI Global	SAI Global Standards Infobase	www.saiglobal.com
Techstreet	Thomson Reuters Techstreet	www.techstreet.com

News from the Aerospace Section

Aerospace Section — Barbara Williams, 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.

Where did the time go? It seems like only yesterday I was taking the reins of the Aerospace Section from Adrianne Washburn, and now its time to turn them over to Mary Strife, our 2013 Aerospace Chair who hails from West Virginia University. It was such an enjoyable experience planning the session: Mobilizing the Message: It takes a village to recruit creative problem solvers. I expect that the messages Dr. Jeffrey Hoffman, MIT Professor of the Practice of Aerospace Engineering, and Gail Dundas, Director of Education & Workplace at Intel delivered during the Aerospace Session, will continue to gather momentum as we set about spreading the word about what engineers do. At the end of the day we all have a vested interest in having what engineers do, and the contributions they make to society as universally understood and acknowledged as what doctors, lawyers, and teachers do. I look forward to our collective continued stride towards that endeavor.

I am excited about the activities for the 2013 annual conference in San Diego that Mary has been busy planning for. The SLA Annual Conference in June will be reduced by one day for 2013, therefore, sections can now only have one program during the conference. Mary Strife agreed to combine our annual breakfast with our annual program slot thus creating a breakfast with an attached program to it for the Aerospace Section conference activity. The Aerospace Breakfast will be on Tuesday, the last day of the conference at 8:00 a.m. The program is titled "Combined Information Impact from Student to Faculty and Beyond." Ending the conference one day early may mean that attendance for the Tuesday sessions are up or at least I hope that is a result of this change.

The annual SLA Leadership Summit will take place in Dallas, Texas from February 6-9, 2013. The Summit is composed of the SLA Board of Directors, headquarters staff, and current and future SLA leaders. Training, knowledge, and networking opportunities abound, which can assist one in becoming a successful SLA leader or an informed Association participant. What I particularly found helpful throughout the Summit was engaging in the small informal group interactions which emerged from formal conversations, these interactions typically allow for follow up questions and an more in-depth discussion. I am told that some of the feedback from the 2012 Summit has been incorporated into the 2013 gathering and, from what I can gleam from the 2013 schedule, I think participants are in for a productive session. Also, it is never too early to start contemplating names of colleagues and acquaintances deserving of being nominated for the 2013 George Mandel Memorial Award so put those thinking caps on.

Thanks to everyone who voted in the recent SLA Engineering Division Aerospace election. Congratulations to Edna Paulson, the 2013 Chair-Elect. Edna is employed by Chugach Federal Solutions, Inc., at the NASA Center for AeroSpace Information in Hanover, Maryland. As my term as Aerospace Chair draws nigh, I pause to reflect on the informative opportunities I have had over the past year to learn more about the structural organization of SLA. The more I learn about our Association the more inspired I am to stay involved as one form of service to our profession. I would encourage members of the Aerospace session to consider volunteering for either leadership positions or SLA committee work. There were so many people that gave me helpful tips, and provided me with useful information during my time as Aerospace Chair and Chair-Elect, and for that I am most appreciative.

I would like to again thank this year's contributors IEEE Xplore Digital Library and AIAA for their continued support of our programming. Looking forward to seeing as many of you as possible at the 2013 SLA Conference, which will be held in San Diego, California from June 9th – 11th. Happy Holidays!❖

Barbara Williams, Chair
barbaraw@mit.edu

Science Today in Verse

Hope Leman, Samaritan Health Services

Nobel Prize in Physics 2012

Single quantum particles
    are fragile little articles.
Scientists spent countless days
    in cleverly designing ways
To measure them with great precision
    though they cannot be envisioned
Since they are too small to see--
    a factor that inhibits me,
As I dutifully strain
    to force my puny tired brain
To grasp these feats beyond my ken,
    although I try to, now and then.

Nobel Prize in Chemistry 2012

How brilliant to investigate
    how human cells communicate!
'Twas once a subject for debate;
    And now, some progress! That is great!!

Nobel Prize in Physiology or Medicine 2012

Now we've made some cells become
    specialized, and different from
What they were before they got
    changed to something they had not
Been, and turned to greater good;
    presumably, they will—and should.

Beyond the Chemistry Web

Bob Buchanan, Chemistry Librarian, Auburn University

Published three times per week **xkcd** is a "webcomic of romance, sarcasm, math, and language." Topics vary, but the most common are mathematics, programming, computer science, and romance (usually of a geeky sort). You probably have seen one Randall Munroe's stick figure cartoons before – they are that popular. Warning: Some content is best suited for adults.
http://xkcd.com

Ask a Manager is a refreshing, no-nonsense blog about managing, hiring and firing. If you want to better understand your boss, or be a better boss yourself, then take a look. The blog is keyword searchable and organized into sensible categories. Most of the content is responses to reader questions but there are also links to brief articles in the Money section of *U.S. News & World Report* (which are also written by Ask a Manager author Alison Green).
http://www.askamanager.org/

The **Scholarly Kitchen** is an active, multi-author blog on scholarly publishing and communication. Sponsored by the Society for Scholarly Publishing, this blog reports and analyzes research in scholarly publishing. Recent blog entries include "Open Access Embargoes – How Long Is Long Enough?," "Is PubMed Central Complementing or Competing with Journal Publishers?," "Publishers! What are they good for?," and "The open access price wars have begun".
http://scholarlykitchen.sspnet.org/

Confessions of a Science Librarian by John Dupuis, head of the Science & Engineering Library at York University, is an active blog that should be of interest to science librarians, especially those in academia. Of special note is Around the Web which is a collection of roughly fifteen links compiled every couple of days on a wide range of topics of interest to science librarians. There are also original blog entries, including Friday Fun with its offbeat topics such as six superheroes who got their powers from being lousy scientists.
http://scienceblogs.com/confessions/

Part of what makes **ChemBark** different from other blogs about chemistry and chemical research is that it is written by a student in the mainstream of academia. Paul Bracher started this blog in 2005 while earning a Ph.D. with George Whitesides (Harvard) and continued it as a post doc with Harry Gray (Cal Tech). ChemBank has received praise from *Chemical & Engineering News*, *Nature*, and *Nature Chemistry*. Recent entries have discussed the ACS journal cancellation at SUNY-Potsdam, the horrific fatal t-butyl lithium fire at UCLA, teaching evaluations, and questions to ask ACS President-elect candidates.
http://blog.chembark.com/

In **Expanding Sci-tech librarianship beyond the core duties**, Bill Jacobs and the Sci-Tech Public Relations committee have put together a list of non-standard or unusual duties of science librarians along with a rationale for their value and why a science librarian is the right person for the job.
http://scitech.sla.org/beyond-the-core-duties/

Down for everyone? lets you know if a site is currently down or if the problem is with your local network.
http://www.downforeveryone.com/

The Physics of Spilled Coffee won the 2012 IgNobel prize for Fluid Dynamics. Not surprisingly, the physics of walking with a cup of coffee is more complicated than one might expect (bottom line: don't overfill and avoid acceleration).
http://scim.ag/spilledcoffee ❖

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

BF39 9789814277457
Discovering cognitive architecture by selectively influencing mental processes.
Schweickert, Richard et al. (Advanced series on mathematical psychology; v.4)
World Scientific, ©2012 420 p. $118.00
Schweickert (Purdue U.), Donald L. Fisher (U. of Massachusetts-Amherst), and Kyongje Sung (medicine, Johns Hopkins U.) describe a technique used in cognitive psychology to learn how mental processes are organized. Readers are assumed to be familiar with probability and statistics, and the later chapters use calculus. Among the topics are process schedules, selectively influencing processes in task networks, critical path models of dual tasks and locus of slack analysis, modeling with order of processing diagrams, and the selective influence of interdependent random variables.

MUSEUMS

CD971 9781931666435
How to manage processing in archives and special collections.
Hackbart-Dean, Pam and Elizabeth Slomba.
Society of American Archivists, ©2012 147 p. $69.95 (pa)
Primarily directed at beginning archivists, and those working at colleges with limited professional staff or even a sole employee, this book includes material useful in a variety of settings. It has a strong management focus, but also gives space to adapting to standards and relatively new innovations such as Web 2.0. But the overall goal of any special collection is to provide useful material to patrons as quickly as feasible, while having in place solid protective measures--and this work never loses that focus. Written by Hackbart-Dean (Special Collections Research Center, Southern Illinois U.) and Slomba (archivist, U. of New Hampshire), it closes with a bibliographic essay on subjects like book processing costs and backlog management. An appendix providing sample forms for preparing one's own processing work plan is also included.

HYDROLOGY, OCEANOGRAPHY

GB400 9780444534460
Geomorphological mapping; methods and applications.
Smith, Mike J. et al. (Developments in earth surface processes; 15)
Elsevier, ©2011 612 p. $205.00
This text explains the concepts, characteristics, makers and users of, and trends in, how modern geomorphological mapping can be applied to solve complex problems in land management, including landslide risk assessment, resource location, and changes in landforms. Following a historical overview of trends in field-based geomorphological mapping, Smith (geography, geology, and the environment, Kingston U., UK) and colleagues in the UK and the Netherlands present new digital tools and techniques, e.g., remote sensing, WebGIS, that have resulted in the use of 'non-subjective' mapping in applied research that now informs cartography, geographic information systems, and terrain analysis. The handbook includes international case studies illustrated with diagrams and color plates that exemplify the diverse applications, current limitations and potential of this methodology.

ENVIRONMENTAL SCIENCE, ECOLOGY

GF23 9781420082876
Statistical geoinformatics for human environment interface.
Myers, Wayne L. and Ganapati P. Patil. (Chapman & Hall/CRC applied environmental statistics)
CRC Press, ©2013 213 p. $79.95
Departing from conventional concepts of both space and interface regarding human/environment, Myers and Patil (both Pennsylvania State U.-University Park) treat space as a pattern of proximities or vicinities, with the pattern being a square grid and the vicinities being centrally referenced with regard to the placement. Their topics include statistical geoinformatics of human linkage with environment, intensity images and map multimodels, semi-synchronous signals and variant vicinities, regression relations for spatial stations, and shifting spatial structure.

PRODUCTION, INDUSTRY, LABOR

HD30 9781466619692
Knowledge management innovations for interdisciplinary education; organizational applications.
Title main entry. Ed. by Sheryl Beverly Buckley and Maria Jakovljevic.
Information Science Reference, ©2013 456 p. $175.00
Nineteen papers examine the importance of knowledge transfer activities between universities and other stakeholders, link knowledge management as a field of education to innovative learning, and assess the impact of applying knowledge management on the innovation of an organization. The contributors propose a model of creativity, invention, and innovation for entrepreneurial engineers, an education-based categorization of vocational workers, and wikis as a tool for collaborative product design. Other topics include the knowledge-centric capabilities of Fundamo financial services, knowledge management performance metrics, innovation policies in the Israeli higher education system, and tools for communities of practice. Buckley teaches at the University of South Africa and Jakovljevic teaches at the University of Zadar.

HD62 9781466618367
Managing dynamic technology-oriented businesses; high tech organizations and workplaces.
Title main entry. Ed. by Dariusz Jemielniak and Abigail Marks.
Business Science Reference, ©2012 315 p. $175.00
International contributors in business and management investigate issues of high-tech work environments, such as managerial pressure, and seek to understand software professionals' career identities and perceptions. One study introduces a narrative approach to technology studies and applies it to the case of a failed software project. Another study proposes a new material-discursive understanding of technology in the form of 'material storytelling,' while a third study uses storytelling to examine stakeholders and imaginary scenarios in the truck manufacturing industry. Other topics addressed include management of virtual teams, video game designers and unpaid overtime, gendered roles in technology-based organizations, and middle managers' deterioration as a source of organizational decline. Jemielniak is affiliated with Kozminski University, Poland. Marks is affiliated with Heriot-Watt University, UK.

HD9661 9780857090676
Manufacturing techniques for polymer matrix composites (PMCs).
Title main entry. Ed. by Suresh G. Advani and Kuang-Ting Hsiao.
Woodhead Publishing, ©2012 497 p. $265.00
Mechanical engineers describe common and emerging processes for manufacturing materials that are composed of particles or fibers embedded in polymer matrices. They also explain the underlying physics, the corresponding models and scientific understanding, and common issues and various approaches. The topics include compression molding in polymer matrix composites, processing polymer nanocomposites, the filament winding process in thermoplastics, vacuum assisted resin transfer modeling, and autoclave processing for composites.

SCIENCE (GENERAL)

Q172 9783527409310
The complexity of dynamical systems; a multi-disciplinary perspective.
Title main entry. Ed. by Johan Dubbeldam et al.-
Wiley-VCH, ©2011 246 p. $120.00
Physical scientists, engineers from a range of disciplines, and mathematicians investigate complexity from a perspective that combines statistical physics and dynamical systems research. Covering first applications then fundamental aspects, they consider such topics as long-lived transients in transitional pipe flow, symbolic dynamics in genetic oscillation patterns, monodromy and complexity in quantum systems, and synchronization on the circle.

Q180 9780470195154
Statistical and machine learning approaches for network analysis.
Title main entry. Ed. by Matthias Dehmer and Subhash C. Basak. (Wiley series in computational statistics; 707)
John Wiley & Sons, ©2012 331 p. $115.00
As the editors note in their preface, network analysis has become an emerging trend in several scientific disciplines. This work brings together a number of theoretical disciplines like graph theory, machine learning, and statistical data analysis to examine complex networks with an interdisciplinary approach using machine learning tools. Topics include a survey of computational approaches to reconstruct and partition biological networks, modeling for evolving biological networks, the structure of an evolving random bipartite graph, and network-based information synergy analysis for Alzheimer disease. The well-illustrated book includes extensive references, and while technical, the writing is direct. Editors are Dehmer (Institute for Bioinformatics and Transformational Research, U. for Health Sciences, Austria), and Basak (Natural Resources Research Institute).

Q181 9780838986196
The busy librarian's guide to information literacy in science and engineering.
Title main entry. Ed. by Katherine O'Clair and Jeanne R. Davidson.-
Am. Library Association, ©2012 143 p. $32.00 (pa)
O'Clair, the agricultural and environmental sciences librarian at California Polytechnic U., and Davidson (academic program services, Arizona State U.) offer an eight-chapter guide for librarians responsible for science,

engineering, and technology information literacy instruction to understanding and applying the Information Literacy Standards for Science and Engineering/Technology in curriculum design and instruction. Academic librarians and professors from US universities outline information literacy standards for engineering, life and health sciences, chemistry, human nutrition, patents, interdisciplinary science courses, and community colleges, and the characteristics and unique aspects of each discipline, strategies for integrating information literacy through active learning, challenges and opportunities, and information helpful to librarians without formal education or experience in the fields.

Q325 9781466619005
Diagnostic test approaches to machine learning and commonsense reasoning systems.
Title main entry. Ed. by Xenia Naidenova and Dmitry Ignatov.
Information Science Reference, ©2013 301 p. $195.00
Taking commonsense reasoning as a process of thinking that reveals causal connections between objects, their properties, and their classes, mathematicians and computer scientists--most of the them Russian--explore the role it can play in machine learning and intelligent computer systems. After setting out theoretical models of logical inference, they explore some new and original direction in artificial intelligence, machine learning, Internet data analysis, and creating intelligent computer systems. Then they demonstration applications of machine learning, knowledge elicitation, and knowledge organization in different problem domains, among them predicting new inorganic compounds and their properties, evaluating the organism's functional state of individuals depending on their immune reactivity, and business intelligence in corporate governance.

Q325 9780769547213
Intelligent human-machine systems and cybernetics; proceedings: 2v.
Int'l Conference on Intelligent Human-Machine Systems and Cybernetics (4th: 2012: Nanchang, Jiangxi China)
Computer Society Press, ©2012 754 p. $297.00 (pa)
In some 180 papers, selected from over 400 submitted, researchers and practitioners share findings and ideas concerning the technology. Among the topics are adaptive pinning synchronization in complex dynamical networks with a novel adaptive law, a hybrid differential evolution algorithm with opposition-based learning, a space tether net system for capturing and removing debris, a reliable scene matching approach based on the fusion feature of correlation peak, barcode recognition based on multiform algorithms, modeling the interpersonal relationship network of rumor spreading, applying fuzzy control strategy in automatic parking path planning, predicting the secondary structure of proteins using new ways of classification, and visualizing a decision-making model of four objectives based on the balance of space vector. The two volumes are paged separately, and each has its own author index.

Q325 9780470919996
Reinforcement and systemic machine learning for decision making.
Kulkarni, Parag. (IEEE series on systems science and engineering; 1)
John Wiley & Sons, ©2012 285 p. $115.00
A researcher in information technology, Kulkarni specializes in machine learning, knowledge management, and systemic management. Here he sets out a new paradigm of systemic machine learning using elaborate case studies. He begins by introducing reinforcement and systemic machine learning and reviewing fundamentals of whole-system, systemic, and multi-perspective machine learning. Then he covers reinforcement learning, systemic machine learning and model, inference and information integration, adaptive learning, multi-perspective and whole-system learning, incremental learning and knowledge representation, a machine learning perspective on knowledge augmentation, and building a learning system.

MATH, COMPUTERS

QA76.585 9781118177013
Reliability and availability of cloud computing.
Bauer, Eric and Randee Adams.
John Wiley & Sons, ©2012 323 p. $79.95
Cloud computing is promoted as an efficient and economical alternative to the traditional data center-based model for delivering information services to end users. Bauer and Adams, members of the Software, Solutions and Services Group of Alcatel-Lucent, define the basic terms and concepts of this new paradigm; apply analyses of risk to service reliability and availability, explain how these differ from reliability diligence for traditional applications; and make recommendations for maximizing such via virtualization and cloud deployment. They discuss budgetary aspects of moving to the cloud; a case study illustrates key architectural design points. The text includes supporting figures, tables, and equations, a list of abbreviations, and references.

QA76.59 9781466619395
Strategy, adoption, and competitive advantage of mobile services in the global economy.
Title main entry. Ed. by In Lee.
Information Science Reference, ©2013 429 p. $190.00
In this work for researchers and industry practitioners, international contributors in business information systems, economics, and telecommunication engineering report on the latest research, theories, and practical experiences related to business models in mobile services. Section 1, on human factors in mobile services, examines consumers' service

acceptance models, trust, and psychological perspectives on mobile services. Topics include adoption of mobile video-call services, and consumer adoption of mobile phones in Malaysia. Section 2 addresses user characteristics, specific technology factors, and attitudinal and behavioral perspectives on new mobile technologies. Research is presented on topics such as adoption of mobile reading devices in the book industry, and factors affecting mobile phone use among undergraduates in Turkey. Section 3 discusses business aspects of mobile services management, with chapters on topics such as mobile services as resources for consumer integration of value in a multi-channel environment, and justifying RFID investment to enable mobile service applications in manufacturing and supply chains. Lee is affiliated with Western Illinois University.

QA76.76 9780132810135
Disciplined agile delivery; a practitioner's guide to agile software delivery in the enterprise.
Ambler, Scott W. and Mark Lines.
IBM Press, ©2012 513 p. $54.99 (pa)
This guide for agile practitioners and senior IT managers explains how to use IBM's Disciplined Agile Delivery (DAD) process framework for implementing agile practices in large, complex IT projects. The book outlines an end-to-end agile delivery lifecycle, describes common agile practices and how they fit into the lifecycle, and offers insight on how agile teams work in the overall enterprise. The first two sections introduce DAD and set out DAD team roles and responsibilities. The next three sections follow a DAD project from initiation to release; each of these sections includes a case study. A final section addresses DAD in the enterprise. The guide contains numerous bullet points, summary tables, key point boxes, and process diagrams. Ambler is an agile consultant and Lines is an agile coach. The authors are moderators of the DAD community website.

QA76.76 9781439876626
Effective methods for software and systems integration.
Summers, Boyd L.
CRC Press, ©2012 163 p. $99.95
Summers, a software engineer for an aerospace company, explains how to select and apply a software development life cycle that promotes effective and efficient software and systems integration in military and aerospace programs and software industries. He explains program and project planning; systems design; software requirements, design, implementation, and integration; software and systems integration and delivery; subcontractor roles and responsibilities; and product evaluation.

QA76.76 9780471751601
Mobile agents in networking and distributed computing.
Title main entry. Ed. by Jiannong Cao and Sajal K. Das. (Wiley series in agent technology; 3)
John Wiley & Sons, ©2012 331 p. $79.95
Contributors whose fields are not identified investigate how mobile agents can be used to simplify development and improve system performance in networking and distributed computing applications. They cover principles of applying mobile agents, techniques and applications based on them, and design and evaluation. Among specific topics are mobile agent communications, distributed security algorithms for mobile agents, network routing, resource and service discovery, distributed databases and transaction processing, and evaluating the performance of mobile agent platforms and comparison with client-server technologies.

QA76.76 9781466608979
Software reuse in the emerging cloud computing era.
Title main entry. Ed. by Hongji Yang and Xiaodong Liu.
Information Science Reference, ©2012 331 p. $195.00
The 12 papers in this collection describe different approaches for reusing software across multiple architectures, platforms, services, and cloud applications. The opening chapters propose techniques for migrating a legacy system to the cloud and a model expansion method for evolving hierarchically composed designs with model composition graph schema. Other contributions explain the benefits of cloud computing, challenges to adopting a service-oriented architecture, transaction models for dependable cloud computing, and tools for social customer relationship management.

QA76.9 9781614990499
Agents and ambient intelligence; achievements and challenges in the intersection of agent technology and ambient intelligence.
Title main entry. Ed. by Tibor Bosse. (Ambient intelligence and smart environments; v.12)
IOS Press, ©2012 329 p. $145.00
Editor Tibor Bosse (VU University Amsterdam, The Netherlands) points out in the preface that the concepts of intelligent agents and of ambient intelligence have evolved in parallel, and yet these two areas have many overlapping components that invite combined study. This volume presents 12 contributions pertaining to the development of agent-based ambient intelligent systems. Arrangement is in four thematic sections on ethical and philosophical issues, methods for development, efforts toward more intelligent and adaptive systems, and applications of agent-based AmI systems. More specifically, chapters address multi-agent based social simulation applied to validation of location services, automated activity interventions to assist with activities of daily living, an access-control agent-based security system, and a multi-agent humor-equipped conversational system, among other topics.

QA76.9 9780124160446
Principles of data integration.
Doan, AnHai et al.
Morgan Kaufmann Pub., Inc., ©2012 497 p. $79.95
The days of enterprises/organizations depending on a single, closed database have given way to a Web-dominated world in which multiple databases must interoperate and integrate. Doan (computer science, U. of Wisconsin, Madison) and colleagues at Google and the University of Pennsylvania address how database ideas have broadened to accommodate external sources of structured information, distributed aspects of the Web, and issues of data-sharing. Part I treats topics and techniques for data queries, integration, and warehousing covered in a database course. Part II discusses extended data representations that capture properties not present in the standard relational data model. Then they present novel architectures for, and trends in, addressing specific integration problems, e.g., of Web sources. Includes an extensive bibliography.

QA276 9781466504257
Interval-censored time-to-event data; methods and applications.
Title main entry. Ed. by Ding-Geng Chen et al.- (Chapman & Hall/CRC biostatistics series)
Taylor & Francis, ©2013 405 p. $99.95
Biostatisticians and related researchers describe time-to-event interval-censored analysis methods and their applications. Their topics include various models for interval-censored data, regression analysis for current status data, Bayesian inference of interval-censored survival data, adaptive decision making based on interval-censored data in a clinical trial to optimize the rapid treatment of stroke, and practical issues on using weighted logrank tests.

QA276 9780470977156
Survival analysis; models and applications.
Liu, Xian.
John Wiley & Sons, ©2012 446 p. $99.95
Liu (Uniformed Services U. of the Health Sciences and Walter Reed National Military Medical Center) introduces many specialized facets of survival analysis, drawing on his own multidisciplinary background to sample applications in medicine, biostatistics, demography, mathematical biology, sociology, and epidemiology. He leans heavily on the celebrated Cox model, using it in almost all the applications. Professionals, academics, and graduate students who have some prior experience in survival analysis might benefit from the descriptions of concrete applications.

QA278 9781439830031
Ensemble methods; foundations and algorithms.
Zhou, Zhi-Hua. (Chapman & Hall/CRC machine learning & pattern recognition series)
CRC Press, ©2012 222 p. $79.95
Zhou (computer science and technology, Nanjing U., China) notes in his introduction that a primary task of machine learning, pattern recognition and data mining is to develop good models from data sets. He provides details of this topic and more in his discussions, including basics for readers unfamiliar with machine learning, ensemble techniques such as combination methods and diversity as well as boosting and bagging, ensemble pruning, and a number of advanced topics. Each chapter contains suggested additional reading and references are extensive.

QA280 9780444538581
Time series analysis, methods and applications.
Title main entry. Ed. by Tata Subba Rao et al. (Handbook of statistics; v.30)
Elsevier, ©2012 755 p. $250.00
Referring to earlier volumes in the venerable series *Handbook of Statistics*--v.3 (1983) and v.5 (1985)--the three editors preface this 30th volume by describing the explosion of developments since those books were published. Initial chapters cover topics that were in their infancy 25 years ago, including bootstrap methods and tests for linearity of a time series. Following is coverage of methods of modeling nonlinear time series, functional data and high-dimensional time series, applications to biological and neurological sciences, nonstationary time series, spatio-temporal models, continuous time series, and spectral and wavelet methods for the analysis of signals, among other topics. The editors are affiliated as follows: Tata Subba Rao (U. of Manchester, UK), Suhasini Subba Rao (Texas A&M U., US) and C.R. Rao (U. of Hyderabad Campus, India).

QA321 9781439880838
A functional analysis framework for modeling, estimation and control in science and engineering.
Banks, H.T.
Chapman & Hall/CRC, ©2012 268 p. $79.95
Banks (mathematics, North Carolina State U.-Raleigh) has assembled material from his lecture notes for a second course in functional analysis. He presents functional analysis as a basis of modern partial and delay differential equation techniques. He considers it a tool to be used in understanding and treating distributed parameter systems, rather than a sub-discipline of its own. His topics include semigroups and infinitesimal generators, analytic subgroups, weak formulations for second-order systems, inverse or parameter estimation problems, and families of approximate control problems.

ASTRONOMY

QB86 9780819483669
Basic optics for the astronomical sciences.
Breckinridge, James B.
SPIE, ©2012 425 p. $86.00
Advances in optics technology are driving the current revolution in the field of astronomy. After introducing optical science as the study of the generation, propagation, control, and measurements of optical radiation, Breckinridge

(who has taught optical engineering in the CALTECH applied physics and aeronautics departments for many years) presents the theoretical background needed to understand how optical systems for the latest telescopes and instruments are designed and built. Topics include area comparison of ground and space measurements, image formation, and interferometry. The text contains explanatory figures, equations, and photographs.

QB462 9781583818008
Numerical modeling of space plasma flows; proceedings.
International Conference on Numerical Modeling of Space Plasma Flows (6th: 2011: Valencia, Spain) Ed. by Nikolai V. Pogorelov et al. (Astronomical Society of the Pacific conference series; v.459)
Astronomical Soc./Pacific, ©2011 381 p. $77.00
Scientists from different branches of the plasma simulation community explore a wide range of research topics, all of which are essential for performing high-resolution simulations of physical phenomena in space physics and astrophysics. The 57 papers discuss such topics as software packages for modeling and analyzing plasma flows; advanced numerical methods for space, astrophysical, and geo-physical flows; large-scale fluid-based, kinetic, and hybrid simulations; turbulence and cosmic ray transport; and magneto-hydrodynamics. Among the applications are cosmology and galaxy formation, supernova explosions, and the interstellar medium and star formation. There is no subject index.

QB791 9783110258547
Paths to dark energy; theory and observation.
Byrd, Gene et al. (De Gruyter studies in mathematical physics; 2)
De Gruyter, ©2012 403 p. $154.00
A team of four astronomers present an overview of the observations and theory of dark energy. They do not suppose advanced knowledge of astronomy, so present basic mathematical concepts used on modern cosmology in a simple but rigorous way. Dark energy is generally studied in the very large scale universe, but they show how its effects can also be detected in smaller systems. Their topics include tests of general relativity, finite versus infinite universe in space and time, dark energy discovered, baryonic matter, and cosmological inflation.

PHYSICS

QC174 9789814316392
Applied Bohmian mechanics; from nanoscale systems to cosmology.
Title main entry. Ed. by Xavier Oriols and Jordi Mompart.
Pan Stanford Publishing, ©2012 566 p. $149.95
Bohmian mechanics explains quantum phenomena in terms of point particles guided by waves; the notion is that one object cannot be a wave and a particle simultaneously, but two can by splitting the task. Louis de Broglie posited the idea then dropped it, but David Bohm picked it up during the 1950s, dusted it off, and showed that Bohmian (not Broglian!) mechanics agrees with all quantum experiments done up to now. The theory is little known, but the mathematics are simple for anyone with a basic knowledge of classical and quantum mechanics. In this volume, physicists begin with an overview of the theory, but then focus on practical applications. The topics include hydrogen photo-ionization with strong lasers, the role of trajectories in quantum chemistry and chemical physics, beyond the eikonal approximation in classic optics and quantum physics, and a subquantum accelerating universe. Distributed in North America by CRC Press.

QC176 9781605113296
Titanium dioxide nanomaterials; proceedings.
Symposium GG, "Titanium Dioxide Nanomaterials" (2011: San Francisco, CA) Ed. by Xiaobo Chen et al. (Materials Research Society symposium proceedings; v.1352)
Materials Research Society, ©2012 159 p. $113.00
The synthesis, properties, and applications of the materials are examined in 22 papers selected from more than 160 presentations. The invited papers discuss (green) photocatalytic synthesis employing nitroaromatic compounds, and the photodeposition of metal sulfide quantum dots on titanium (IV) dioxide and its applications. Other topics include a first-principles study of oxygen deficiency in rutile titanium dioxide, fabricating three-dimensionally ordered macroporous and mesoporous titania monoliths by a dual-templating approach, the ellipsometric characterization of thin nanocomposite films with tunable refractive index for biochemical sensors, rational designs with nanocomposites based on titanium dioxide for solar photocatalytic purification, and high efficiency front-illuminated nanotube-based dye-sensitive solar cells. Co-published with Cambridge University Press.

QC385 9781118018996
Introduction to adaptive lenses.
Ren, Hongwen and Shin-Tson Wu. (Wiley series in pure and applied optics)
John Wiley & Sons, ©2012 274 p. $110.00
Ren (polymer-nano science technology, Chonbuk National U., South Korea) and Wu (optics and photonics, U. of Central Florida) explain various types of adaptive lenses to optical engineers, research scientists, graduate students, and advanced undergraduates. They introduce conventional solid lenses and the human eye, then discuss elastomeric membrane, electrowetting, dielectrophoretic, and other adaptive liquid lenses, as well as liquid crystal lenses, and their basic operation principles, device structures, fabrication methods, actuation approaches, and optical performances.

QC446 9780857092328
Quantum optics with semiconductor nanostructures.
Title main entry. Ed. by Frank Jahnke. (Woodhead Publishing series in electronic and optical materials; no.28)
Woodhead Publishing, ©2012 577 p. $290.00
The two fields of quantum optics and semiconductor nanostructures were both successful on their own, but their merging has also become an important research area. Here physicists describe recent developments in single quantum dot systems, nanolasers with quantum dot emitters, interaction between light and matter in semiconductor nanostructures, semiconductor cavity quantum electrodynamics, and ultrafast phenomena. Among the topics are quantum optics with single quantum dots in photonic crystal cavities, emission properties of photonic crystal nanolasers, photon statistics and entanglement in phonon-assisted quantum light emission from semiconductor quantum dots, all-solid-state quantum optics employing quantum dots in photonic crystals, femtosecond quantum optics with semiconductor nanostructures, and coherent optoelectronics with quantum dots.

QC454 9781614990581
Vibrational spectroscopy in diagnosis and screening.
Title main entry. Ed. by Feride Severcan and Parvez I. Haris. (Advances in biomedical spectroscopy; v.6)
IOS Press, ©2012 421 p. $218.00
For scientists and graduate students in academia and industry, Severcan (biology, Middle East Technical U., Turkey) and Haris (health and life sciences, De Montfort U., UK) compile 15 chapters that detail recent developments in the application of vibrational spectroscopic techniques--Fourier transform infrared, near infrared, Terahertz, and Raman spectroscopy--in the diagnosis and screening of pathological conditions by monitoring molecular changes in a sensitive, rapid, and automated manner. After a chapter on historical background and application trends, scientists working in biology, public health, chemistry, biomedical engineering, and related fields in Europe, the US, and Canada discuss the background to methodological approaches from experimental to computational analysis in vibrational spectroscopy and microspectroscopy; the analysis of protein structure and the screening of proteins in cells and tissues; the characterization of single molecules in complex biological fluids; uses in neurodegenerative protein-misfolding diseases like prion, Alzheimer's, Parkinson's, and Huntington's diseases; the characterization of stem cells; applications in the diagnosis and screening of cancer and diabetes, in imaging breast cells and tissues, and the characterization of bone, cartilage, and dental tissues; and uses in aquatic environments, forensic research, and feed and food quality.

QC496 9781848213470
Digital color imaging.
Title main entry. Ed. by Christine Fernandez-Maloigne et al.
ISTE/Wiley, ©2012 352 p. $145.00
Fernandez-Maloigne (U. of Poitiers, France) et al. assemble nine chapters on recent developments in the field of automatic processing and analysis of digital color images, for researchers and students. Scientists working in France address topics in computational color imaging such as color filtering and segmentation, image regularization, linear prediction, region segmentation, color texture characterization, color invariants for object recognition, and color and motion analysis.

QC912 9781439851890
Solar and infrared radiation measurements.
Vignola, Frank et al. (Energy and the environment)
CRC Press, ©2012 394 p. $119.95
Physicists Vignola (U. of Oregon) and Joseph Michalsky (US National Oceanic and Atmospheric Administration--NOAA), and aerospace engineer Thomas Stoffel (US Department of Energy) explain that the obscure science of measuring solar and infrared radiation has suddenly become quite important to the renewable energy and climate change research communities. By happy coincidence, recent changes in radiometry, measurement systems, and information dissemination make an updated guide timely. They provide information to professionals in the field and students about to enter it on such matters as solar resource definitions and terminology, diffuse irradiance, rotating shadowband radiometers, infrared measurements, and setting up a solar monitoring station. A battery of appendices contain technical data and identify resources.

CHEMISTRY

QD39 9781926895239
Chemoinformatics; advanced control & computational techniques.
Title main entry. Ed. by Hossein G. Gilani et al.
Apple Academic Press, ©2013 204 p. $119.95
Writing for academics, researchers, and practicing engineers, chemical and mechanical engineers explain computational techniques used to process chemical and biological structured data. In some cases they introduce new techniques, and in others reveal novel applications of existing methods. Among the topics are a mathematical model to control the liquid-liquid equilibrium data, potential applications of artificial neural networks for thermodynamics, controlling the liquid membrane separation process, a mathematical approach to controlling the water content of sour gas, and optimizing and controlling the laboratory production of ethanol. Distributed in the US by CRC Press, a member of the Taylor & Francis Group.

QD96 9783527328376
Molecular fluorescence; principles and applications.
Valeur, Bernard and Mário Nuno Berberan-Santos.
Wiley-VCH, ©2012 569 p. $185.00
Physical chemists Valeur (emeritus, Conservatoire National des Arts et Métiers, Paris) and Berberan-Santos (Instituto Superior Técnico, Lisbon) offer students and researchers a guide to molecular fluorescence as an analytical tool, with particular reference to applications in physical, chemical, material, biological, and medical sciences. Looking in turn at principles, techniques, and applications, they consider such topics as characteristics of fluorescence emission, environmental effects on fluorescence emission, excitation energy transfer, time-resolved fluorescence techniques, evaluating local physical parameters with fluorescent probes, and autofluorescence and fluorescence labeling in biology and medicine. The first edition was published in 2002.

QD96 9781439821718
VCD spectroscopy for organic chemists.
Stephens, Philip J. et al.
CRC Press, ©2012 360 p. $149.95
Stephens, Frank J. Devlin (both U. of Southern California), and James R. Cheeseman, with a Connecticut company, explain how vibrational circular dichroism (VCD) can be used to determine the chiral state of molecules, which is important to organic chemists and pharmaceutical chemists. They cover the experimental measurement of vibrational absorption and vibrational circular dichroism spectra, the theory of infrared and VCD spectra, *ab initio* methods, conformational analysis, analyzing the infrared and VCD spectra of conformally rigid molecules, and applying VCD spectroscopy to organic chemistry.

QD181 9783527327898
Supramolecular chemistry of fullerenes and carbon nanotubes.
Title main entry. Ed. by Nazario Martín and Jean-Francois Nierengarten.
Wiley-VCH, ©2012 403 p. $165.00
Twenty-five years after the awarding of the 1987 Nobel Prize in Chemistry to three developers of supramolecular chemistry, this volume presents 14 chapters covering important developments in the hybrid field of supramolecular/fullerene research. Coverage encompasses carbon nanostructures, hydrogen-bonded fullerene assemblies, receptors for pristine fullerenes, biomimetic motifs toward the construction of artificial reaction centers, fullerene-containing micelles and gels, fullerenes on solid surfaces, carbon nanotubes, and experimental determination of association constants involving fullerenes, among other topics. The two editors are affiliated as follows: Nazario Martin (University Complutense of Madrid, Spain) and Jean-Fran<,c>ois Nierengarten (University of Strasbourg, France).

QD262 9783527319527
Modern gold catalyzed synthesis.
Title main entry. Ed. by A. Stephen K. Hasmi and F. Dean Toste.
Wiley-VCH, ©2012 402 p. $200.00
In addition to all the properties that have made gold valuable in centuries past, scientists have now discovered that it can play a crucial role as a catalyst in chemical reactions. Chemists survey some of the reactions, emphasizing homogeneous reactions, but also including some heterogeneous ones. Among the topics are the hydrochlorination of acetylene catalyzed by gold, gold-alkyne complexes, gold-catalyzed aldol and related reactions, gold-catalyzed oxygen-atom transfer to alkynes, and applications of gold-catalyzed reactions to natural product synthesis.

QD341 9783527329984
Aryl diazonium salts; new coupling agents in polymer and surface science.
Title main entry. Ed. by Mohamed Mehdi Chehimi.
Wiley-VCH, ©2012 335 p. $185.00
The salts are used in the synthesis of a large series of organic compounds, so much has been written about them. However, there has been little study of their surface and intersurface chemistry despite the growing interest in surface chemistry generally. Here, chemists and related scientists begin to fill that gap by exploring such aspects as attaching organic layers to material surfaces by reducing diazonium salts, analytical methods for characterizing aryl layers, electrografting conductive oligomers and polymers, electronic properties of silicon surfaces modified by aryl diazonium compounds, and various electrochemical strategies for grafting electronic functional molecules to silicon.

QD381 9783527318537
The plasma chemistry of polymer surfaces; advanced techniques for surface design.
Friedrich, Jörg.
Wiley-VCH, ©2012 466 p. $160.00
Friedrich (chemistry, Technical U. of Berlin, Germany) considers plasma processes and the reactions in the polymer body from the chemical and polymer chemical perspective, for physicists, engineers, chemists, and polymer researchers. He presents several variants of surface techniques with monotype functional groups, such as chemical post-plasma reduction, pulse-pressure plasma polymerization, underwater plasma and glow discharge electrolysis, and deposition of functionalized prepolymers and oligomers by aerosol and electrospray. He describes the interaction between plasma and polymers; plasma and its state, characteristics, advantages and disadvantages of modification of polymer surfaces, and other aspects; chemistry and energetics in classic and plasma processes; the kinetics of polymer surface modification; bulk, ablative, and side reactions; metallization of plasma-modified polymers; accelerated plasma-aging of polymers; and atmospheric-pressure plasmas.

QP517 9780470643716
Advancing theory for kinetics and dynamics of complex, many-dimensional systems; clusters and proteins.
Title main entry. Ed. by Tamiki Komatsuzaki et al. (Advances in chemical physics; v.145)
John Wiley & Sons, ©2011 252 p. $195.00
The simple molecular dynamics used to describe small molecules and chemical kinetics prove insufficient when applied to large, complex molecules such as those found in biology or nanoscale materials. Japanese and US molecular biologists, chemists, and physicists present some of the theoretical and computational methods that have been developed recently to address the challenge. They discuss non-Markovian theory of vibrational energy relaxation and its applications to biomolecular systems; basic concepts and computational methodologies of protein functional motions; non-Brownian phase space dynamics of molecules, the nature of their vibrational states, and non-RRKM (Rice-Ramsperger-Kassel-Marcus) kinetics; dynamical reaction theory based on geometric structures in phase space; and ergodic problems for real complex systems in chemical physics.

QP801 9781926895161
Natural polymers, biopolymers, biomaterials, and their composites, blends and IPNs.
Title main entry. Ed. by Sabu Thomas et al. (Advances in materials science; v.2)
Apple Academic Press, ©2013 422 p. $149.95
Chemists, materials scientists and engineers, and other researchers report recent findings regarding polymeric biomaterials, including interpenetrating polymer networks (IPM), a form in which two or more networks are at least partially interlaced but not covalently bonded. Their topics include maize-natural fiber as reinforcement with polymers for structural applications, jute/polyester composites, spider-silk production and biomedical applications, synthesizing and characterizing alkyd resin microcapsules, and environmental recovery by magnetic nanocomposites based on castor oil. Distributed in the US by CRC Press.

QT37 9781118423851
Integrated biomaterials for biomedical technology.
Title main entry. Ed. by Murugan Ramalingam et al.-
Scrivener/Wiley, ©2012 413 p. $195.00
For students, researchers, scholars, and industrial specialists in biomaterials, materials science, engineering, and related fields, Ramalingam (biomaterials and tissue engineering, U. of Strasbourg, France) et al. compile 12 chapters on all aspects of biomaterials that have a wide range of biomedical applications such as medical implants and devices, stem cell and tissue engineering, protein and drug delivery, and regenerative medicine. They focus on the basic science involved in materials in biomedical technology and their structure and properties, techniques and technological innovations in material processing and characterizations, and applications. Specialists in biomaterials in the US, Asia, and Europe address different types of nanobiomaterials, how to generate porous biomaterials for tissue engineering, calcium phosphate-based biomaterials intended for mineralized tissue regenerative applications, the nanocrystalline form of calcium phosphates, the design and fabrication of silicon dioxide nanoparticles, new kinds of titanium alloy implants, an injectable growth factor system based on bone morphogenetic proteins, impedance sensing of biological processes in mammalian cells, hydrogels-based implantable glucose sensors, the molecular design of multifunctional polymers for gene transfection, hydrogels and their potential biomedical applications, and hybrid biomaterials with high mechanical and biological properties.

MEDICINE (GENERAL)

R857 9781439879252
Biomaterials and stem cells in regenerative medicine.
Title main entry. Ed. by Murugan Ramalingam et al.
CRC Press, ©2012 546 p. $149.95
For graduate students, biomedical researchers, professors, and industrial experts working in biomaterials, stem cells, and tissue engineering, Ramalingam (biomaterials and tissue engineering, U. of Strasbourg, France) et al. assemble 25 chapters exploring applications for biomaterials and stem cell therapy and recent research on suitable cell scaffolds and substrates for tissue repair and reconstruction. Researchers working in engineering, regenerative medicine, biomaterials, chemistry, materials science, medicine, and other areas in Europe, the US, and Asia describe polymeric systems for stem cell delivery; the potential of membranes and porous scaffolds in tissue repair, including myocardial, peridontal, ophthalmic, and bone tissues; the optimization of the interaction between stem cells and biomaterial substrates; the source nature of stem cells for tissue engineering applications; and the clinical translation of stem cell-based tissue engineering for regenerative medicine.

R857 9781439804049
Biomaterials science; an integrated clinical and engineering approach.
Title main entry. Ed. by Yitzhak Rosen.
CRC Press, ©2012 309 p. $149.95
Like Rosen himself, many of the contributors are researchers with the Institute of Soldier Nanotechnologies at the Massachusetts Institute of Technology. Others are in obstetrics, and gynecology, orthopedic surgery, and other medical specialties at various universities. This book differs from others on biomaterials by emphasizing an integrated clinical and engineering approach Among the topics are principles of clinical and engineering integration in hemocompatibility, nanoparticles for cross biological barriers, neurosurgical applications of materials science, biomaterials in obstetrics

and gynecology, and tissue engineering in the musculoskeletal system.

R857 9781926895178
Nanomedicine and drug delivery.
Title main entry. Ed. by Mathew Sebastian et al. (Advances in nanoscience and nanotechnology; v.1)
Apple Academic Press, ©2013 300 p. $149.95
In this first volume of a new series, international contributors in nanobiology, applied physics, biochemistry, and clinical pharmacology shed light on recent advances in nanomedicine and drug delivery. Covering the promise and potential of nanomedicine as well as possible dangers, they consider the full range of nanomedical applications which employ molecular nanotechnology inside the human body. Some specific topics examined include colloidal delivery systems for phytochemicals, nanoparticles as adjuvants for mucosal vaccine delivery, and biosynthesis of silver nanoparticles and their antimicrobial activity. Other subjects are gold peptide nanoparticle activation of macrophages, capsules based on lipid vesicles, and effects of intranasal interferon-alpha on rat behavior. The book includes b&w images and illustrations. Sebastian is affiliated with the Ayurveda and Vein Clinic, Austria. The book is distributed in the US by CRC Press, a Taylor & Francis Group.

TECHNOLOGY (GENERAL)

T14 9781439870198
Advances in social and organizational factors.
Title main entry. Ed. by Peter Vink.- (Advances in human factors and ergonomics series-)
CRC Press, ©2012 825 p. $79.95
Engineers in a number of fields address issues that have been identified as the greatest challenges for the near future. They cover the perception and design of spaces; ergonomics in industrial quality; human factors in terrorism; enterprise information and communication technology and work; learning and training; flexible work forces and work schedule; adapting for special groups; ship design; changes at the organizational level; new ways of work; and user experience, comfort, and emotion. Only the authors are indexed.

T50 9781439855980
Measuring shape.
Neal, F. Brent and John C. Russ.
CRC Press, ©2012 420 p. $139.95
Neal (materials science researcher, Milliken Research) and Russ (image analysis consultant and trainer) offer a handbook on the practical applications of shape measurement. They address a broad range of topics, including the meanings of shape, the role of computers, two-dimensional measurements, three-dimensional shapes, and classification, comparison, and correlation. The book is amply illustrated and includes numerous examples in addition to applications. It will interest readers involved in industrial quality control, research, security, and related fields.

T55 9781466506923
Safety and human error in engineering systems.
Dhillon, B. S.
CRC Press, ©2013 242 p. $99.95
Because engineering systems are such an important component of the world economy, their safety and failure have become more important than ever in light of the growing number of accidental deaths and their associated cost, Dhillon (engineering management, U. of Ottawa, Canada) explains in his preface. The author's intent is to combine discussions of both safety and human error into a single definitive source of information. A chapter on mathematical concepts needed to understand the material is included, but the book is written in such a way that a reader with no previous knowledge will be able to comprehend the contents. A few topics include transportation systems safety, methods for performing safety and human error analysis in engineering systems, mining equipment safety, and human error in healthcare systems and mining equipment. Chapters include problems and references.

T58 9781118100349
Service-learning in computer and information sciences; practical applications in engineering education.
Title main entry. Ed. by Brian A. Nejmeh.
Wiley-IEEE Press, ©2012 572 p. $115.00 (pa)
Service-learning is a pedagogical model that actively integrates community service with learning outcomes in a credit-bearing academy course or co-curricular project. It has rarely been used in the computer and information sciences, but it is the purpose of this volume to help change that. Contributors from those disciplines and other scientific and technical fields provide a framework, organizational and pedagogical models and approaches, case studies of service-learning projects, and lessons learned. Among the topics are The Humanitarian Free and Open-Source Software Project, service learning and project management, a computer literacy service-learning project in Brazil, leveraging local resources to implement community-oriented sustainable computer education projects in Los Angeles, educational impacts of an international service-learning design projects on project members and their peers, and asking whether the community partner is satisfied.

T174 9781466509542
Microelectronics to nanoelectronics; materials, devices & manufacturability.
Title main entry. Ed. by Anupama B. Kaul.-
Taylor & Francis, ©2013 407 p. $139.95
Electrical and mechanical engineers and physicists survey technology at micrometer and nanometer scales, some of it still in early research and some already in commercial production. The topics include scaling and radiation effects in silicon transistors, silicon micro-electro-

mechanical resonators for timing applications, nanoscale electro-mechanical devices enabled by nanowire structures, viral-templated materials and devices, the heterogeneous integration of carbon nanotubes on complementary metal oxide semiconductor circuitry and sensing applications, and nanoscale effects in multiphase flows and heat transfer.

ENGINEERING (GENERAL, CIVIL)

TA166 9781439870310
Advances in applied human modeling and simulation.
Title main entry. Ed. by Vincent G. Duffy.- (Advances in human factors and ergonomics series-)
CRC Press, ©2012 566 p. $79.95
Researchers in ergonomics and various fields of engineering set out models and simulations of humans that can be dropped into various studies. They cover human model fidelity and sensitivity; problem solving applications; information processing and intelligent agents; human surface scan, data processing, and shape modeling; student models in adaptive modern instructional settings; developments in modeling for user-centered design; validation for human interaction in various consumer, ground transport, and space vehicle applications; cognitive and social aspects: modeling, monitoring, decision, and response; and new methods and modeling in future applications.

TA168 9781848213630
Industrial use of formal methods; formal verification.
Title main entry. Ed. by Jean-Louis Boulanger.
ISTE/Wiley, ©2012 298 p. $145.00
French, British, and Brazilian scholars explain formal analysis programming techniques that let developers analyze behavior of a software application that can deal with huge commercial software projects. They cover SPARK: a language and tool set for high-integrity software development, automatically generating test cases using the Markov chain model, analyzing the safety of embedded systems with the AltaRica approach, Polyspace, Escher Verification Studio Perfect Developer and Escher C Verifier, partial applications of formal methods, and Event-B and Rodin.

TA340 9780470688694
Monitoring and control of information-poor systems; an approach based on fuzzy relational models.
Dexter, Arthur L.
John Wiley & Sons, ©2012 313 p. $140.00
In a book that is suitable for a graduate course or for practicing control engineers, Dexter (engineering science, U. of Oxford) describes an approach to monitoring and controlling information-poor systems that is based on fuzzy relational models that generate fuzzy outputs. He covers information-poor systems from the perspectives of analyzing their behavior, control, online learning, and some example applications. The topics include describing and propagating uncertainty, accounting for modeling errors in fuzzy models, incorporating fuzzy inputs, adaptive model-based and model-free control, controlling thermal comfort, and measuring spatially distributed quantities.

TA409 9783527333578
Refinery engineering; integrated process modeling and optimization.
Chang, Ai-Fu et al.
Wiley-VCH, ©2012 497 p. $120.00 (pa)
Citing a growing tide of retiring industry professionals and the prohibitive costs of test runs, Chang (Chevron Phillips Chemical Company), Pashikanti (Chevron Phillips Chemical Company) and Liu (chemical engineering, Virginia Polytechnic Institute and State U.) note a need for readily reproducible methods of modeling and optimization of petroleum refinery processes. To that end, they present a methodology using the commercial software tool Aspen HYSYS from Aspen Technology (although other process simulation software or custom software can also be used) for the integrated modeling and optimization of key reaction and fractionation processes in the modern refinery. They address catalytic reaction processes, such as fluid catalytic cracking, catalytic reforming, and hydroprocessing, together with upstream fractionation units, such as atmospheric distillation unit and vacuum distillation unit, as well as downstream fractionation units following the catalytic reaction processes.

TA417 9781439836637
Ultrasonic and electromagnetic NDE for structure and material characterization; engineering and biomedical applications.
Title main entry. Ed. by Tribikram Kundu.
CRC Press, ©2012 875 p. $149.95
Most books on non-destructive evaluation (NDE) are either elementary explanations of the fundamental equation derivatives or advanced descriptions of specialized applications. A 2004 book covered both, but is now out of date; many of the mechanical and other engineers who contributed to that one return here. Both newcomers and old hands should find helpful information. The topics include the mechanics of elastic waves and ultrasonic nondestructive evaluation, guided waves for plate and pipe inspection, characterizing materials with nonlinear ultrasonic techniques, the theory and applications of scanning acoustic microscopy and scanning near-field acoustic imaging, and fiber-optic sensors for monitoring structural health.

TA418 9781439854150
Characterization of nanostructures.
Myhra, Sverre and John C. Riviére.
CRC Press, ©2013 314 p. $149.95
Specialists in imaging technology, Myhra (materials, U. of Oxford) and Rioviére, retired from a British technology company, describe techniques and methods for characterizing nanostructures, and applications of the

techniques to structures of different dimensions and functions. The information would be known to specialists, they say, but they write for generalists who work with or interact with the specialists. Among their topics are electron-optical analytic techniques, techniques and methods for the nanoscale analysis of single particles and ensembles of particles, quantum dots and related structures, carbon nanotubes and other tube structures, and graphene and other monolayer structures.

TA418 9780857092069
Defect structure in nanomaterials.
Gubicza, Jeno.
Woodhead Publishing, ©2012 358 p. $245.00
The relationship between the production methods, the lattice defects, and the physical properties in nanomaterials is very important, says Gubicza (physics, Eötvös Lorand U., Hungary), both for understanding the fundamental science involved and for the practical application of the materials. He synthesizes the knowledge of lattice defects formed in nanomaterials either in their production or during subsequent straining and storage. Among his topics are processing methods for nanomaterials, defect structure in low stacking fault energy nanomaterials, correlation between defect structure and mechanical properties of nanocrystalline materials, the thermal stability of defect structures, and relationships between microstructure and hydrogen storage properties in nanomaterials.

TA455 9781926895154
Polymer processing and characterization.
Title main entry. Ed. by Sabu Thomas et al. (Advances in materials science; v.1)
Apple Academic Press, ©2013 154 p. $99.95
Chemists, physicists, and materials scientists and engineers report the results of their research into polymers and possible commercial application of their findings. Among their topics are chelating ion-exchange properties of copolymer resins, high performance shear stable viscosity modifiers, crack grown rates of rubber vulcanizates, the effect of nanoparticles on complexed polymer electrolytes, and synthesizing and characterizing zinc sulfide nanocrystals and zinc sulfide/polyvinyl alcohol nanocomposites for luminescence applications.

TA459 9781615038275
ASM handbook; materials for medical devices; v.23.
Title main entry. Ed. by Roger J. Narayan.
ASM International, ©2012 384 p. $279.00
This handbook describes the properties of metals, ceramics, polymers, and composite materials used for implants in medicine and dentistry. It also considers the degradation of biomaterials and cell-material interactions, noting that many biomaterials operate under very demanding and highly corrosive conditions. After introductory chapters, the sections cover corrosion and biocompatibility, biotribology and implant wear, medical implant materials, and implant evaluation. Among the topics are microjoining in medical components and devices, the biocompatibility of ceramics, friction and wear in medical implants and prosthetic devices, dental composite resins, and medical device failure analysis.

TA712 9780123971685
Underground infrastructures; planning, design, and construction.
Goel, R.K. et al.
Butterworth-Heinemann, ©2012 335 p. $99.95
Goel (Central Institute of Mining & Fuel Research, India), his long-time collaborator Bhawani Singh, and Jian Zhao (Ecole Polytechnique Federale de Lausanne, Switzerland) provide a broad guide to underground elements of cities for city planners, civil and mining engineers, architects, military engineers, administrators, and municipal authorities. Among their topics are the classification of underground space, the underground storage of water, underground metro and road tunnels, civil facilities underground, and contractual risk sharing.

TA1145 9781848213777
Advanced mobility and transport engineering.
Title main entry. Ed. by Slim Hammadi and Mekki Ksouri.
ISTE/Wiley, ©2012 246 p. $125.00
A network of French engineers that grew out of the International Campus on Safety and Intermodality in Transport have assembled a broad reference to transport engineering and high-technology mobility. It covers agent-oriented road traffic simulation, an agent-based information system for searching and creating mobility-aiding services, inter-vehicle services and communication, modeling and controlling traffic flow, and criteria and methods for interactive system evaluation with application to a regulation post in the transport domain.

TA1520 9783527410545
The photophysics behind photovoltaics and photonics.
Lanzani, Guglielmo.
Wiley-VCH, ©2012 212 p. $99.95
In an era of climate change and global warming, alternative, clean, and safe energy sources are critical--and so is understanding them and how they work to make them as effective as possible. Lanzani (Center for Nano Science and Technology, Italian Institute of Technology, and physics, Politecnico di Milano, Italy) offers a basic and practical understanding of material photophysics for planning, implementing, and interpreting spectroscopy experiments. Topics include molecular exiton, excited states in solids, photoexcitation dynamics, the photophysics toolbox, vibrational spectroscopy, charge transfer and transport, and pump probe and other modulation techniques. The book is technical, but clearly written and illustrated.

TA1632 9780769547749
Frontiers in handwriting recognition; proceedings.
International Conference on Frontiers in Handwriting Recognition (13th: 2012: Bari, Italy)
Computer Society Press, ©2012 840 p. $291.00 (pa)
In addition to 84 poster papers, 48 papers were selected for oral presentation. They examine topics in word spotting, digit recognition, a codebook for handwriting recognition, segmentation techniques for flowchart recognition, word segmentation, multilingual recognition, character classification, bank check processing and postal automation, mathematical expression, signature recognition, writer identification, forensic applications, and historical documents. Among the topics of poster papers are Persian signature verification based on fractal dimension using testing hypothesis, a novel naive Bayes voting strategy for combining classifiers, and a neural scheme for procedural motor learning of handwriting. There is no subject index.

TA1634 9780470890844
Color in computer vision; fundamentals and applications.
Gevers, Theo et al. (Wiley IS&T series in imaging science and technology)
John Wiley & Sons, ©2012 366 p. $110.00
Computer scientists at the Intelligent Systems Laboratory at the University of Amsterdam, and the Free University of Barcelona, present color theories, representation models, and computational methods that are essential for image understanding from a color perspective in computer vision. They cover color fundamentals, photometric invariance, color constancy, extracting color features, and applications. Among specific topics are color image formation, photometric invariance from color ratios, color constancy using low-level features, evaluating color constancy methods, color image segmentation, and object and scene recognition.

TA1750 9780470517505
Silicon photonics; fundamentals and devices.
Deen, M. Jamal and P.K. Basu. (Wiley series in materials for electronic and optoelectronic applications)
John Wiley & Sons, ©2012 433 p. $195.00
Deen (electrical and computer engineering, McMaster U., Canada) and Basu (radiophysics and electronics, U. of Calcutta, India) have been working for a decade on this textbook introducing the troubled place of silicon in photonics. It is targeted to senior and graduate students, practicing engineers and technologists, and beginners in photonics who need to know the basic principles and overall development. Among the topics are basic principles of silicon, quantum structures, light emitters in silicon, silicon photodetectors, guided lightwaves, and waveguides for dense wavelength-division multiplexing systems. Chapter-end problems are provided.

ENVIRONMENTAL TECHNOLOGY

TD172 9781439892381
Environmental contamination; health risks and ecological restoration.
Title main entry. Ed. by Ming H. Wong.
CRC Press, ©2013 499 p. $139.95
This reference includes research from 62 scientists focused on the remediation of contaminated land. In addition to a number of illustrative case studies, the book also covers health impacts of toxic chemicals and health risk assessment, current problems and trends, emerging chemicals and electronic waste, bioremediation, phytoremediation, environmentally friendly and sustainable solutions, and other types of pollution control and management. The book will interest both professionals and students in related fields, policy makers, scientists and researchers, and others concerned about the issues involved in remediation. Editor is Wong (environmental and resource sciences, Zhejiang Agriculture and Forestry U., China).

TD193 9780470972014
Handbook of green analytical chemistry.
Title main entry. Ed. by Miguel de la Guardia and Salvador Garrigues.
John Wiley & Sons, ©2012 546 p. $180.00
Editors de la Guardia and Garrigues (both: U. of Valencia, Spain) emphasize in their introduction that clearly the time has come to put principles into practice and make environmentally friendly processes prevail at every step in every environment where chemical analysis is performed. They wrote the first two chapters--on concepts and on education. Following are contributions on the analytical process (e.g. sampling techniques, direct analysis of samples, sample preparation, capillary electrophoresis, chromatography, atomic spectrometry); strategies (energy savings, miniaturization, micro- and nanomaterials based detection systems applied in lab-on-a-chip technology); and fields of application (bioanalytical chemistry, infrared spectroscopy in biodiagnostics, environmental and industrial analysis). Contributions are from chemists based in Spain, Italy, Brazil, and a half dozen other countries.

TD353 9781926895222
Advances in control and automation of water systems.
Title main entry. Ed. by Kaveh Hariri Asli et al.
Apple Academic Press, ©2013 178 p. $119.95
Asli (National Academy of Science, of Azerbaijan), Hossein Hariri Asli (Applied Science U., Iran), Reza Khodaparast Haghi (U. of Salford, Britain), and Faig Bakhman Ogli Naghiyev (Baku State U., Azerbaijan) explain the main computational techniques used in the control and automation of water systems. They introduce the theoretical background of several techniques, examine general data analysis techniques and their application in commercial settings, and set

out current practices and research results. The information could be useful to academics, researchers, and engineers in hydraulic and mechanical engineering and related fields. The topics include the mathematical modeling of hydraulic transients in simple systems, improved numerical modeling for perturbations in homogeneous and stratified flows, and a computational approach to heat and mass transfer in binary mixtures. Distributed in the US by CRC Press, a member of the Taylor & Francis Group.

TF507 9781848213623
Formal method; industrial use from model to the code.
Title main entry. Ed. by Jean-Louis Boulanger. (Industrial implementation of formal methods series)
ISTE/Wiley, ©2012 357 p. $145.00
Formal analysis programming techniques are used to analyze the behavior of software applications, and the studies here provide concrete examples of the use of formal techniques in business applications. They discuss migrating from classic languages to formal methods, the first complex application of formal methods in the railway sector, the B method and B tools, model-based design using Simulink, proving global properties with the aid of the SIMULINK DESIGN VERIFIERS proof tool, implementation and applications of SCADE, the GATeL V&V platform for SCADE models, and ControlBuild as a development framework for control engineering.

BUILDING CONSTRUCTION

TH437 9780470658017
Mobile and pervasive computing in construction.
Title main entry. Ed. by Chimay Anumba and Xiangyu Wang.
Wiley-Blackwell, ©2012 269 p. $155.00
Mobile and pervasive computing is playing an increasingly important role in architecture and construction, but until now there has not been a book-length reference on the application. Architects, civil engineers, and computer scientists consider such aspects as the mobile and semantic web-based delivery of context-aware information and services in construction, a framework for designing mobile virtual training systems through virtual modeling technology, ubiquitous user localization for pervasive context-aware construction applications, a person-oriented mobile information system that enhances engineering communication in construction processes, computer vision and pattern recognition technologies for construction, and monitoring structural health using wireless sensor networks.

MECHANICAL ENGINEERING & MACHINERY

TJ163 9783037853801
Mechatronics and applied mechanics; proceedings; 2v.
International Conference on Mechatronics and Applied Mechanics (2012: Hong Kong) Ed. by Jing Guo. (Applied mechanics and materials; vs.157-158)
Trans Tech Publications, ©2012 1714 p. $414.00 (pa)
In the peer-reviewed papers from a December 2011 conference compiled in this two-volume set, researchers, engineers, academicians, and industry professionals reveal the latest research results and development activities in the field. Volume 1 contains sections on manufacturing technology and processing, mechatronics and automation, and mechatronics and embedded system applications. Some subjects explored include English-Chinese machine translation, localization issues in underwater senor networks, and geometric and material nonlinear analysis of a bioprosthetic heart valve. Volume 2 contains sections on applied mechanics, materials machining, control system modeling, and intelligent mechatronics. Paper topics include long-term voltage stability enhancement by model predictive control, a service component model for semiconductor test equipment, a mathematical modeling and optimization approach for trajectory planning of robot manipulators, and research on the application of wireless communication technology in earthquake rescues. B&w photos and images are included.

TJ211 9789814327978
Emerging trends in mobile robotics; proceedings.
International Conference on Climbing and Walking Robots (13th: 2010: Nagoya, Japan) Ed. by Hideo Fujimoto et al.
World Scientific, ©2010 1360 p. $298.00
The International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2010), held in Japan, August-September 2010, was the 13th such conference. This proceedings volume contains 164 highly technical presentations by authors from 29 countries (five continents). Clearly, the topic is hot. Arrangement is thematic, according to broad themes such as autonomous robots, biologically-inspired systems and solutions, manipulation and gripping, flexible mechanisms and maneuvering systems, innovative design, locomotion, parallel kinematic machines, sensing and actuation, personal assistance robots, planetary exploration, and service robots, among other topics. Indexing is by author, but not by subject.

TJ211 9781608074822
Robotic navigation and mapping with radar.
Adams, Martin et al.
Artech House, ©2012 346 p. $139.00
Robotics engineers Adams (U. of Chile), John Mullane, and Ebi Jose (both with a Singapore company) and tracking specialist Ba-Ngu Vo (U. of Western Australia) seek to bridge the gap

between the robotics and radar communities by showing how to apply radar to robotic vehicle navigation. They cover fundamentals of radar and robotic navigation, radar modeling and scan integration, robotic mapping with known vehicle location, and simultaneous localization and mapping. Among specific topics are detection theory, reducing detection errors and noise with multiple radar scans, grid-based robotic mapping with detection likelihood filtering, and feature-based robotic mapping with random finite sets.

TJ810 9781848213562
Solar energy at urban scale.
Title main entry. Ed. by Benoit Beckers.
ISTE/Wiley, ©2012 363 p. $165.00
This research work is intended to be considered a complete reference on solar energy and the urban environment--not solar energy as a source of sustainable renewable energy but solar energy in the sense of solar radiation. The book is arranged in four primary parts: measuring and modeling solar radiation, its effects on the urban climate, light and heat modeling, and urban planning in the sense of taking solar radiation into account in the processes of regulation and planning in different climate zones. Growing urbanization, the depletion of cheap energy (fossil fuels), and worries about global warming have elevated the city to the status of extremely important problem. The authors recommend a multidisciplinary approach to dealing with solar radiation in urban environments that includes elements of meteorology, geography, architecture, and urban engineering systems. The book will interest a variety of professionals ranging from urban planners to policy makers and those working in the sciences listed. Editor is Beckers (urban systems engineering, Compiègne U. of Technology, France).

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2896 9781848213579
Energy autonomous micro and nano systems.
Title main entry. Ed. by Marc Belleville and Cyril Condemine.
ISTE/Wiley, ©2012 370 p. $165.00
Scientists largely from the French Atomic Energy Agency survey the current state of energy autonomous micro and nano systems, discussing methods of development of tiny devices and systems that can produce as much energy as they need to operate. Their topics include toward energy autonomous medical implants, energy harvesting by photovoltaic effect, thermal energy harvesting, ultra-low-power sensors, ultra-low-power radio frequency communications and protocols, and energy management in an autonomous microsystem.

TK2931 9783527330126
Fuel cell science and engineering; materials, processes, systems and technology; 2v.
Title main entry. Ed. by Detlef Stolten and Berd Emonts.
Wiley-VCH, ©2012 1242 p. $330.00
Stolten and Emonts (Institute of Energy Research-Fuel Cells, Research Center Jülich, Germany) compile 41 chapters by US and European engineers in academia, industry, institutions, and government who explore specific fuel cells within and beyond mainstream development and materials and production processes for solid oxide fuel cells (SOFCs) and low-temperature fuel cells, analytics and diagnostics, modeling and simulation, and balance of plant design and components. In the first volume, they discuss the technical advancement of fuel-cell research and development; single-chamber, molten carbonate, alkaline, micro, microbial, and regenerative fuel cells; micro-reactors for fuel processing; SOFC electrode fabrication by infiltration; sealing technology; phosphoric acid for fuel cells; materials and coatings for metallic bipolar plates in polymer electrolyte membrane fuel cells; and other topics. The second volume covers analytical, stochastic, and numerical modeling; computational fluid dynamic simulation using supercomputer calculation capacity; modeling SOFCs from the macroscale to the nanoscale; modeling of molten carbonate and high-temperature polymer electrolyte fuel cells and electrolyte membrane fuel-cell components, fuel cells, and stacks; systems engineering; system technology; desulfurization; design criteria and components; hybridization; off-grid power supply and premium power generation; demonstration projects and market introduction; and knowledge distribution and public awareness.

TK2931 9780123869364
Polymer electrolyte fuel cell degradation.
Title main entry. Ed. by Matthew M. Mench et al.
Academic Press, ©2012 460 p. $130.00
Now that fuel cells are in commercial production--in the rest of the world if not in the US--one of the questions that remain is the long-term durability of fuel cell systems. Here researchers review the current understanding of the durability of polymer electrolyte fuel cells. Among their topics are the status and targets of durability, electrochemical degradation: electrocatalyst and support durability, gas diffusion media and their degradation, freeze damage, advanced high-resolution characterization techniques for degradation studies, and computational modeling aspects. Academic Press is an imprint of Elsevier.

TK2941 9781439850664
Next-generation batteries and fuel cells for commercial, military, and space applications.
Jha, A.R.
CRC Press, ©2012 386 p. $79.95
Jha, an engineer with a very broad background and author of 10 high technology books, provides a technical but readable examination

of new technologies and systems for extremely reliable rechargeable batteries for commercial, military, and space applications. The book is certainly timely in that electric vehicle manufacturers are on a constant quest for more powerful and reliable batteries, not to mention the military's increasing focus on a variety of alternative and emerging technologies to meet its changing needs, growing interest from the medical community, and the anticipation of a shortage of oil in the future. The author addresses the current status of rechargeable batteries and fuel cells, the key technologies and their characteristics, as well as issues related to longevity, safety, and cost.

TK5102 9780123809186
Network coding; fundamentals and applications. (online access included)
Title main entry. Ed. by Muriel Médard and Alex Sprintson.
Academic Press, ©2012 315 p. $89.95
Computer scientists, electrical engineers, and related professionals provide a tutorial introduction and survey of practical applications of network coding in various areas of networking and distributed computing. They write for researchers, practitioners, and graduate students who have a general background in networking but no prior exposure to network coding techniques or applications of network coding. The topics include harnessing network coding in wireless systems, network coding in the real world, network coding and user cooperation for streaming and download services in long term evolution networks, bounds and algorithms for secret and reliable communications, and network coding in disruption tolerant networks. Academic Press is an imprint of Elsevier.

TK5103 9780769548340
Fault diagnosis and tolerance in cryptography; proceedings.
Workshop on Fault Diagnosis and Tolerance in Cryptography (9th: 2012: Leuven, Belgium) Ed. by Guido Bertoni and Benedikt Gierlichs.
Computer Society Press, ©2012 115 p. $177.00 (pa)
Researchers and engineers examine the effect of faults, either accidental or malicious, on integrated circuits that are implementing cryptographic algorithms. The invited papers discuss equipment, techniques, and experimental results for electromagnetic fault injection; and fault attacks on symmetric cryptography. Another 10 papers cover fault injection and simulation, differential fault analysis, fault analysis, and countermeasures. Among the topics are circuit simulation for fault sensitivity analysis and its application to cryptographic LSI, differential fault analysis on lightweight blockciphers with statistical cryptanalysis techniques, combined fault and side-channel attacks on the AES key schedule, the need for randomness in fault attack countermeasures, and random active shield.

TK5103 9781466619814
Mobile services industries, technologies, and applications in the global economy.
Title main entry. Ed. by In Lee.
Information Science Reference, ©2013 348 p. $190.00
The 18 papers in this collection examine competition and dynamics within the mobile service industries, technologies and standards for new mobile services, and the state-of-the art in mobile applications. The contributors discuss whether the diffusion of mobile service is an evolutionary process, the relationship between fixed wire and mobile broadband, the smartphone market in China, runtime discovery of web services in mobile environments, and HTML 5. The application chapters describe recommendation systems for online articles, location-based social networks, near-field communication adoption factors, and RFID systems for delivering healthcare.

TK5105 9781578088034
Embedded systems and wireless technology; theory and practical applications.
Title main entry. Ed. by Raul Aquino Santos and Arthur Edwards Block.-
CRC Press, ©2012 442 p. $99.95
Computer scientists and related professionals in Mexico, Morocco, Romania, elsewhere in Europe, and Canada survey embedded systems within larger wireless systems, mostly for remote sensing and control. The topics include a software engineering view of orchestrating mobile applications, indoor and outdoor event detection for embedded wireless sensors, image processing applied in agriculture, application management in low power distributed embedded systems, and an embedded system using GNU/Linux for automating low Earth orbit satellite tracking.

TK5105 9783898386661
A method for reusing and re-engineering non-ontological resources for building ontologies.
Villazón-Terrazas, Boris. (Studies on the semantic web; v.12)
IOS Press, ©2012 275 p. $73.00 (pa)
Villazón-Terrazas (information, Polytechnic U., of Madrid, Spain) introduces a novel method for building ontology networks by reusing knowledge and drawing resources from ontology. The scenario he describes emphasizes re-engineering knowledge resources for building ontologies that are connected with other ontologies in the ontology network. Among his topics are the state of the art, research methodology, a pattern-based re-engineering method, patterns for re-engineering thesauri, technological support, and evaluation.

TK7825 9781845699369
Laser growth and processing of photonic devices.
Title main entry. Ed. by Nikolaos A. Vainos. (Woodhead Publishing series in electronic and optical materials; no.27)
Woodhead Publishing, ©2012 467 p. $265.00
Contributors from various physical sciences outline the use of lasers in making both materials and devices for photonics, and review the fundamental interactions between lasers and materials that underlie the applications. They cover the laser-induced growth of materials and surface structures, laser-induced structuring at the micrometer and nanometer scales, and the laser fabrication and manipulation of photonic structures and devices. Among the topics are emerging pulsed laser deposition techniques, fabricating periodic photonic microstructures by the interference of ultrashort pulse laser beams, the laser-induced soft matter organization and microstructuring of photonic materials, laser-assisted polymer joining methods for photonic devices, and femtosecond-laser-induced refractive index modifications for photonic device processing.

TK7871 9781119993674
Antennas for global navigation satellite systems.
Title main entry. Ed. by Xiaodong Chen et al.
John Wiley & Sons, ©2012 218 p. $115.00
This reference work is intended to acquaint readers with the most significant elements of global navigation satellite systems (GNSS) technology. It also includes case studies that illustrate how antenna design can be adapted for practical user devices, as well as the management of possible adverse interactions between antennas and their platforms. Specific topics include the fundamentals and uses of antennas in GNSS, antenna requirements and types deployed, terminal antennas and multimode and advanced terminal antennas, and interaction of the human body on GNSS mobile terminal antennas. The book, which is clearly written and very well illustrated, will interest antenna designers, system engineers, researchers and postgraduate students in relevant fields, and others. Authors are Chen, Parini, and Rehman (Queen Mary U. of London, UK), Collins (Antenova Ltd., UK), and Yao (Beijing U. of Posts and Telecommunications, China).

TK7871 9781118235294
Coupled-oscillator based active-array antennas.
Pogorzelski, Ronald J. and Apostolos Georgiadis. (JPL deep-space communications and navigation series; 11)
John Wiley & Sons, ©2012 357 p. $140.00
Pogorzelski (spacecraft antenna, Jet Propulsion Laboratory) and Georgiadis (active antennas and antenna arrays, Centre Tecnològic de Telecommunicacions de Catalunya, Barcelona) compile results of research over the past two decades into applying groups of oscillators coupled in various configurations, to the excitation of phase-array antennas. The point of the research was to find a way to provide beam agility at electronic speed that is simpler than the conventional method of placing a phase shifter at each element or module then controlling them in a coordinated manner. They write primarily for designers of phased-array antennas and the associated electronics, but suggest that the information about oscillator arrays could be put to other purposes, such as the distribution of timing signals or phase locking in general.

TK7872 9781439874523
Networked multisensor decision and estimation fusion; based on advanced mathematical methods.
Zhu, Yunmin et al.
CRC Press, ©2013 417 p. $99.95
This book departs from the many others on multisensor/multisouce information fusion by considering emerging real-world problems and utilizing mathematically based descriptions for more skillful processing, which can greatly promote further research on this topic and broaden prospective applications. They also consider information fusion problems with non-ideal and uncertain frameworks, which in fact are a lot more significant in the real world and more difficult to study than most of the literature acknowledges. It covers parallel statistical binary decision fusion, general network statistical decision fusion, some uncertain decision combinations, convex linear estimation fusion, Kalman filtering fusion, and robust estimation fusion.

TK7872 9781845699895
Ultrasonic transducers; materials and design for sensors, actuators and medical applications.
Title main entry. Ed. by K. Nakamura. (Woodhead Publishing series in electronic and optical materials; no.29)
Woodhead Publishing, ©2012 722 p. $305.00
Electrical engineering, information processing, and various medical specialties are among the perspectives contributors bring as they describe devices and technologies for converting electricity to ultrasonic waves and vice versa. The focus here is on piezoelectric approaches and medical applications. Covering in turn materials and design, modeling and characterizing, and applications, they consider such topics as piezoelectric ceramics for transducers, one-dimensional models of ultrasonic transducer performance, laser Doppler vibrometry for measuring vibration, transducers for non-destructive evaluation at high temperatures, and therapeutic ultrasound with an emphasis on applications to the brain.

TK7882 9781848213852
Signal and image processing for biometrics.
Title main entry. Ed. by Amine Nait-Ali and Régis Fournier.-(Digital signal and image processing series)
ISTE/Wiley, ©2012 315 p. $145.00
Criminologists and other researchers, most from the francophone world, examine some of the technical aspects of biometric identification and authentication techniques used for security purposes. Among the topics are two-dimensional and three-dimensional face recognition, facial

soft biometrics for person recognition, iris biometrics, voice biometrics for verifying and identifying a speaker, evaluating the performance of biometric systems, data cryptography, visual data protection, and biometrics in forensics.

TK8322 9781466619272
Advanced solar cell materials, technology, modeling, and simulation.
Title main entry. Ed. by Laurentiu Fara and Masafumi Yamaguchi.
Information Science Reference, ©2013 336 p. $195.00
This work considers a new paradigm in photovoltaic conversion, using quantum confinement as well as light and thermal management. Chapters by international photovoltaic scientists shed light on the latest materials, technology, modeling, simulation, and device and system designs for different types of advanced solar cells. The first part of the book reviews new trends in solar cells and discusses the physical limitations of photovoltaic conversion. Later sections deal with quantum well solar cells, hybrid and polymer solar cells, high efficiency solar cells, and luminescent solar concentrators. Some specific topics explored include phononic engineering for hot carrier solar cells, quantum dot solar cells, and quantum confinement modeling and simulation for quantum well solar cells. The book's readership includes researchers, engineers, and advanced students in engineering, physics, chemistry, materials science, and optical and electrical engineering. Fara is affiliated with Polytechnic University of Bucharest, Romania. Yamaguchi is affiliated with Toyota Technological Institute, Japan.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL900 9781845699963
Spacecraft thermal control.
Meseguer, José et al.
Woodhead Publishing, ©2012 382 p. $265.00
Meseguer, A. Sanz-Adrés (both aerospace engineering), and I. Pérez-Grande (thermodynamics, all U. Politénica de Madrid, Spain) have sifted through the voluminous literature and assembled the basic knowledge needed to understand how the thermal control subsystem of a spacecraft works. Their goal is to provide a basic guide for aerospace engineering graduate students, for engineers new to the field, for engineers in neighboring fields, and for specialists in other spacecraft subsystems. Among the topics are space environment, thermal radiation heat transfer, phase change capacitors, thermoelectric cooling, and thermal mathematical models.

UG485 9781608072071
Introduction to modern EW systems.
De Martino, Andrea.
Artech House, ©2012 417 p. $159.00
The chief technical officer at an Italian electronics company, De Martino explains technical dimensions of electronic warfare (EW) systems. He covers scenarios, the evolution of signal emitters and sensors, radio frequency band sensor systems, radio frequency direction-finding and emitter location techniques, electronic countermeasure systems, and electronic countermeasure techniques and sensors.

CHEMICAL TECHNOLOGY

TP155 9780080971742
Chemical and process plant commissioning handbook; a practical guide to plant system and equipment installation and commissioning.
Killcross, Martin.
Elsevier, ©2012 285 p. $124.99
This handbook for new and experienced commissioning engineers, project managers, and operations managers offers a methodology for commissioning chemical and process plants, which can be used when commissioning a new plant, or for modified equipment in an existing facility, or in a turnaround or overhaul scenario. The handbook takes the approach that commissioning is a series of checks and counter-checks to confirm that the newly constructed chemical plant is fit for purpose and suitable for ongoing operation. The book is divided into sections on preparation, implementation, and close-out, with much information in bullet list format. For each step of the process, the handbook offers worked examples, checklists, and guidance on paperwork. The book also includes about 70 pages of sample blank documents, which can be used to creation commissioning manuals, plus 40 pages of schematics and engineering drawings especially designed to illustrate info in the handbook. Killcross is a commissioning consultant.

TP156 9780470711187
Hot-melt extrusion; pharmaceutical applications.
Title main entry. Ed. by Dennis Douroumis.
John Wiley & Sons, ©2012 364 p. $180.00
Hot-melt extrusion is an emerging continuous processing technology for developing various solid dosage forms and drug delivery systems that has attract increasing attention in both academic and commercial settings for the past 20 years. Here chemists review the theory, instrumentation, and wide spectrum of applications. Among their topics are principles of single-screw extrusion, solubility parameters for predicting drug/polymer miscibility in hot-melt extruded formulations, taste masking using hot-melt extrusion, laminar dispersive and distributive mixing with dissolution and applications to hot-melt extrusion, and devices and implant systems by hot-melt extrusion.

TP156 9780080453293
Supercritical fluids and organometallic compounds; from recovery of trace metals to synthesis of nanostructured materials.
Erkey, Can. (Supercritical fluid science and technology; v.1)
Elsevier, ©2011 233 p. $260.00
Erkey (Ko<,c> U., Istanbul) explores applications of supercritical fluid that involve using metal complexes consisting of organometallic compounds and chemical complexes. Writing for scientists and engineers who are working with supercritical liquids, or who would like to, he discusses coordination compounds, fundamental aspects of supercritical fluids, the thermodynamics of mixtures of metal complexes with supercritical fluids, the thermodynamics and dynamics of adsorption of metal complexes on surfaces from supercritical solutions, the synthesis of nanostructured composites of metals, extracting metals using supercritical fluids, homogeneous catalysis in supercritical fluids, preparing powders by arrested precipitation processes using reactions of metal complexes in supercritical fluids, and future research needs.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z699 9781466618213
Planning and implementing resource discovery tools in academic libraries.
Title main entry. Ed. by Mary Pagliero Popp and Diane Dallis.
Information Science Reference, ©2012 732 p. $175.00
For librarians and administrators, Popp, a resource and discovery librarian at Indiana U. Bloomington, and Dallis, a dean for academic library services there, bring together 40 chapters by librarians from US and Canadian universities on planning and implementing resource discovery tools to meet the needs of users for a simple search and the desires of librarians to present scholarly research in ways appropriate for today's user, who is used to simple web search engines. They first review information seeking among academic users, the federated search as a precursor to discovery tools, and issues involved in planning, implementation, use, and maintenance of discovery tools. Then, through case studies of various universities, they describe how to evaluate tools; user behavior and expectations; user teaching and user-centered design in implementing discovery solutions, with discussion of EBSCO Discovery Services, Primo from ExLibris, and Serials Solutions Summon; implementation issues, including resource selection and configuration of the public interface and the development of an in-house discovery tool; embedding the tool within environments such as a learning management system and enterprise portal or a consortium environment; supporting organizational buy-in; marketing; the impact on collection use and cataloging maintenance; experiences in selecting and implementing products like Encore Strategy, Primo Central, and WorldCat Local; and problems of next generation search tools and the challenges and opportunities of the metadata environment in the context of discovery tools, as well as tools for music researchers. ❖

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