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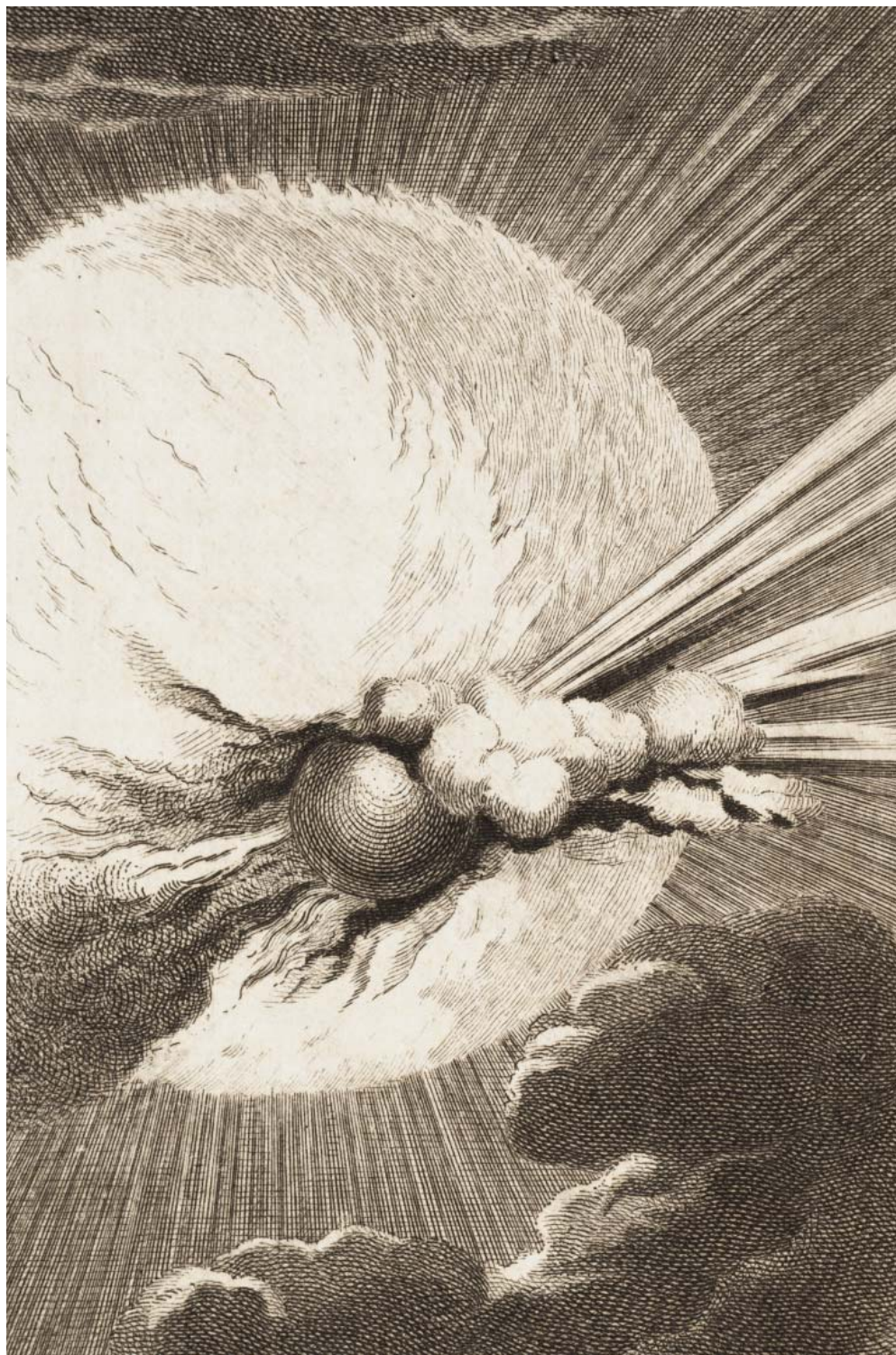
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SciTech News

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



Volume 65, Number 1 (2011)

ISSN 0036-8059

SciTech News

Ellis Mount, Editor Emeritus



On the Cover



Georges-Louis Leclerc, comte de Buffon, attempted in 1749 to explain why the solar system consists of planets that all move in the same direction, and in the same plane. Buffon proposed that, eons ago, the sun was struck by a comet which knocked out a number of molten blobs of solar stuff, and these in turn slowly cooled and condensed into planets. Buffon even worked out a timetable, estimating that the cooling process must have taken at least 75,000 years, which far exceed the conventional 6,000 years then assigned to the age of the world. Buffon did not illustrate the cosmic impact in the first edition of his *Histoire naturelle* (1749), but a later edition (published in Deux-Ponts, 1785-91) contains this marvelous engraving of the primordial comet smashing into the sun (*photo and caption courtesy of the Linda Hall Library of Science, Engineering & Technology*).

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From the Editor

Abby Thorne



Welcome to the first issue of *SciTech News* for 2011! I am delighted to welcome you to my first issue as Editor and look forward to providing our contributing units with an informative and useful publication for their members.

I am grateful to the contributing authors, division and section chairs, and our Business and Advertising Managers for their assistance and their contributions to the content for *SciTech News*. With their assistance, I am happy to say that the transition process has gone very smoothly. I also owe many thanks to my predecessor, James Manasco, for his advice and support as I took over the editorship in January.

In this issue you will find highlights from SLA Leadership Summit in January and previews of programs to be presented at SLA Annual Conference in Philadelphia this June. I highly encourage you to consider attending Annual Conference--in my opinion, SLA Annual Conference is THE BEST networking and professional development opportunity available for special librarians! If you are unable to make it to Philadelphia in June, a virtual component to

the conference will be offered again this year, so you don't have to miss out on what the conference has to offer.

I would also like to encourage members of our contributing units to submit articles for the refereed section of *SciTech News*. It is my goal as Editor to see peer-reviewed articles published in *SciTech News*. So, please send us your articles! Bonnie Osif, Review Board Chair, is ready and waiting to help you get published. More information about the peer-reviewed section of *SciTech News* is available on page 4.

And last but not least: If you have an idea for a column or article for *SciTech News*, please feel free to contact me at abby.thorne@gmail.com. As members of our contributing units, this is YOUR publication and I am here to help bring you content that is interesting and useful to you! ❖

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

SciTech News is looking for a few good authors!

If you have a research project, a new service in your library, a new instructional method, or other information you'd like to share with your colleagues, please consider writing for *SciTech News*. In addition to the regular articles, we now have a refereed section. Colleagues will review your article and provide feedback. Accepted articles will be published in the new electronic *SciTech News*. This is an excellent venue to get your research and ideas out to a group of interested readers and get that important refereed article for your dossier or annual review.

For additional information, contact Editor 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

Joe Kraus, 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.'



Hello from snowy Colorado! I am having a pretty good winter, and I hope you are doing okay as well. I will start off this report with some notes from the 2011 Leadership Summit in Washington, DC. If you would like to see the slides that were used for the presentations, they are available to members at: <http://www.sla.org/content/resources/leadcenter/LeadershipSummit/11leadsummit/handouts.cfm>.

One of the sessions at the Summit was led by Daniel Lee. He spoke on "SLA's New WordPress Web Hosting for Units." He has been trying to get many divisions, chapters and other units to convert their websites to WordPress for a number of good reasons. Our Division Webmaster, Margaret Smith, has been working with Daniel Lee and WordPress software for some time so that we can have a website that is more flexible, allows for multiple authors and contributors to provide content, and accepts social widgets so we can display RSS feeds, our Twitter feed, images, and more. By the time you read this, the new Website should be ready for public display at: <http://scitech.sla.org/>.

The Sci-Tech Division website is important as a vehicle for us to provide and exchange information with our members and the general public, so we want it to have a cohesive design and to be as functional as possible. Please let

me or Margaret Smith know if you find content on the website that needs to be modified.

We also had a board meeting at the Summit. We were able to address some of the questions I had concerning the 2011 SLA Conference in Philadelphia. Speaking of the conference, you can find our draft schedule on the SLA Wiki.

<http://wiki.sla.org/display/SLASCITECH/2011+Sci-Tech+Annual+Conference+Planning>

If you are a new member or are a first-time attendee of the SLA Conference, we invite you to attend our Newcomer's Lunch as our guest on Sunday morning from 11:30 a.m. to 1 p.m. If you live a good distance away from Philadelphia, please consider flying into town on Saturday evening so that you can attend the lunch on Sunday.

Registration is now open for the conference at: <http://www.sla.org/content/Events/conference/ac2011/index.cfm>.

I am really looking forward to spring and summer, and I hope to see many of you in Philadelphia. ❖

Joe Kraus
joseph.kraus@du.edu

In Remembrance of Diane K. Foster

Submitted by Joe Kraus, Chair, Sci-Tech Division



Diane K. Foster passed away on Tuesday, January 25th, 2011 following a brief respiratory illness. She was the current Chair of the Sci-Tech Division Public Relations Committee

in which she served with enthusiasm and intelligence. Please visit this webpage that Florida State University librarians made in her memory:

<http://guides.lib.fsu.edu/diane>

The Sci-Tech Division will be donating \$100 to the Turner Syndrome Foundation in her honor, and we are considering other ways to remember her service to SLA and the Sci-Tech Division. For more information about Diane, please visit <http://www.legacy.com/obituaries/tallahassee/obituary.aspx?n=diane-foster&pid=148107803> or <http://bit.ly/gkvJtp>.

She was loved dearly by her family, friends and colleagues and will be sorely missed. ❖

Science-Technology Division New Members

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

The Science-Technology Division welcomes its new members:

Julie Hillskemper
Albuquerque, NM
USA

I. R. Palmer
Santa Monica, CA
USA

Christine Simon
Woodbury, MN
USA

Erin Carrillo
Carrboro, NC
USA

Jacquelyn Erdman
Arlington, VA
USA

Rebecca Gallei
Fresh Meadows, NY
USA

Elizabeth Rinz
University Heights, OH
USA

Sci-Tech Division Vendor Sponsors for 2011

Carol Lucke, Vendor Relations Chair, Sci-Tech Division

The Sci-Tech Division would like to recognize our generous sponsor vendors for their financial assistance and support for the 2011 SLA Conference. Without them the Sci-Tech Division would not be able to offer the relevant, educational and interesting programs and networking opportunities our members count on and expect. This year our vendor supporters include, in alphabetical order:

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IEEE
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Knovel
SPIE
World Scientific

Please be sure to visit our sponsors at the Exhibitors Center and thank them for their support!

Science-Technology Division Member Spotlight

by Diane Foster, Chair, Public Relations Committee

Featured Member:

Roger Beckman



Tell us a little bit about your current position.

My current position is Head of the Indiana University Chemistry Library and Life Sciences Library on the Bloomington campus. I've been in charge of these two libraries since 2004. I became Head of the Life Sciences Library in 2000 and worked in the Chemistry Library in various positions beginning in 1988. Most of my time is spent on collection development, management, reference, schmoozing with faculty, attending some of the faculty members' public lectures, and some instruction.

What do you find most interesting about your work?

Getting the books and journals the students and researchers need, helping users navigate the bureaucracy of a large library, seeing the excitement of users when we show them all of our resources they were unaware of, and working with library science students (I have one intern each year) and seeing them find jobs.

What do you think is the most interesting issue in librarianship today?

There are so many right now. One on my mind right now is the perils and benefits of moving to large e-book packages instead of selecting titles individually. Will that mean that our users will come to our physical space even less often for their information needs? What kinds of roles should librarians play in managing data for researchers? With Google scanning the world's books and providing "indexing" that many students and faculty turn to first, what will the future of the librarian be in ten years?

What advice would you give a new member of SLA, new librarian, or someone starting out in science librarianship?

Marry a librarian who gives you good advice and support! Maybe everyone can't do that but having a good mentor or working with someone in an apprenticeship-type arrangement is useful too. All of those things worked for me. I think it is also important to broaden yourself in various science areas either through classes or reading. Explore new technology as much as possible but don't lose sight of the fundamentals of the profession. Joining and volunteering at all levels of the university and in library organizations opens so many doors. Don't burn your bridges. I've been tempted to burn a few in the past but sometimes that person turns around and is a big help a few years down the road.

What other organizations are you involved in?

SLA Sci-Tech Division is my main organization with some involvement with the Chemistry and Biomedical Divisions. I'm somewhat involved in the ACS Division of Chemical Information (CINF), Royal Society of Chemistry, and even the Indiana Native Plant Society.

What was your background before you became a science librarian?

I started out as a bricklayer and was an anthropology major as an undergraduate who took a few science classes too. After library school, I was a cataloger of Latin American materials at the Lilly Library (the rare book library at Indiana University), Head of the IU Optometry Library, consultant to the libraries at the University of Indonesia for a year, general reference librarian at IU, and cataloger on the Indiana Newspaper Project.

What Has Been Your Biggest Professional Challenge?

Shyness has always plagued me. My frugality is another challenge and it is always an annoyance that many of us have to provide so much of our own funding to attend conferences and meetings. But probably my biggest challenge is trying to find ways to continue to provide the best resources, instruction, and services to



our users in a library system that has reduced our staff so much recently in favor of librarian positions working with data and institutional repositories.

What are some of your interests outside of librarianship?

I still do a little brickwork from time to time. It was so much fun recently to help my neighbor who is a professor add four feet to his chimney so his fireplace would draw better. I don't get many opportunities to boss professors around. Furniture building is a passion although I don't produce many pieces. Then there is sitting in front of the fireplace, bird watching, and a little "flower" gardening, especially with daffodils and ferns (grown from spores). ❖



Table made by Roger Beckman.

News from the Chemistry Division

Chemistry Division

William Armstrong, Chair

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



One of the first things I'd like to do as the new Chair is to thank our outgoing Chair, Teri Vogel, for the wonderful job she did shepherding this august group during the course of this past year. In addition, I'd like to extend a special thanks to our outgoing Treasurer, Bob Buchanan, who also served this division in an exemplary fashion for the past two years. And to the Secretary, Lee Pedersen, and all our hardworking committees and committee chairs, a special thanks as well!

I'm excited about prospects for the division during this emerging year. The 2011 Conference Planning Committee, CE Planners, and Sponsorship Committee have been working hard to bring to fruition what we hope will be a rewarding conference for you in Philadelphia. An outline along with highlights can be viewed in the following article.

There will be fundamental changes to the web site in the next few months as we migrate to a new format being offered by SLA—one that should provide a great deal more flexibility. I will write more on this later.

We hope to get as many of you involved in

division activities as want to be; your inclusion and participation will help make our activities all the more relevant and meaningful to you, and that is pretty much the point of the division. It must be relevant to you, to all of us. Continued contributions and participation from the membership are crucial to our health as an organization.

Over the course of the coming months, I will try to communicate via our division listserv specific opportunities to help and to become involved. But please don't hesitate to contact me directly whenever an idea may strike you or an issue may emerge; don't wait for me. The best ideas are likely to come from you! I'll be happy to speak with each and every one of you about your ideas and/or concerns. This is OUR organization, not mine; you are an integral part of it.

I look forward to hearing from you as the year progresses, to communicating with you, and with a little luck, to seeing you in person at 2011 SLA Annual Conference in Philadelphia! ❖

Bill Armstrong, Chair
notwwa@lsu.edu

Chemistry Division Conference Preview

A complete schedule of Chemistry Division events can be found at <http://units.sla.org/division/dche/2011/index.htm>.

Highlights of some programs the Chemistry Division will be leading are as follows:

CE Courses –

- Chemistry for the Non-Chemist Librarian (full-day course on Saturday, June 11).
- Chemical Information Sources, Request, and References (half-day course on Sunday, June 12).
- Extreme Structure Searching: Organics, Organometallics, Polymers, and Markush – a new half-day course on Sunday afternoon for searchers with intermediate level experience. Should be exciting!

Instructors for the CE Courses will be Judith Currano, Dawn French, Susan Cardinal, and Denise Callihan.

Academic & Corporate Roundtable Breakfasts – networking, breakfast, and exchanging ideas with colleagues. Topics to be announced.

Update on Materials Science Research & Resources – Join your colleagues for an overview of recent trends in materials science research and related resources.

Developments in Informatics – Come hear the latest developments in informatics in the fields of chemistry, biological sciences, and physics and astronomy. Dr. Steve Heller, Project Director of the InChI Trust; Dr. Diane Rein, Bioinformatics and Molecular Biology Information Resources librarian at the University at Buffalo; and Dr. Alberto Accomazzi, Project Manager of the NASA Astrophysics Data System, will be the featured speakers in these fields, respectively, promising an informative and exciting discussion of developments important to all information professionals working in these subject areas.

International Year of Chemistry: Perils and Promises of Modern Communication in the Sciences – A view of changes in communication in the sciences - promises and perils they may hold. Dr. Jean-Claude Bradley, Associate Professor of Chemistry and E-Learning

Coordinator for the College of Arts and Sciences at Drexel University, will detail some emerging trends in the dissemination and analysis of scientific information with an emphasis on chemistry. This includes Open Notebook Science - the public sharing of all experimental details in real time, post-publication review in the blogosphere, and the proliferation of web services to facilitate processing of scientific data in machine readable formats. His colleague at Drexel, Dr. Lawrence Souder, Associate Teaching Professor of Communication, will examine some modern pitfalls that may be emerging.

Tour of the Chemical Heritage Foundation

– Participants will enjoy a tour of the Chemical Heritage Foundation's museum and its Othmer Library of Chemical History. With its outstanding collections of instruments, fine art, photographs, papers, and books, the Chemical Heritage Foundation conveys the story of chemistry and its effect on and role in society across the centuries. It is within walking distance of the Convention Center. The tour is free.

In addition, we'll be co-sponsoring:

- **the All Sciences Poster Session and Reception**, always a favorite event with members.
- **Energy Issues in Libraries: Biofuels and other Alternative Energies.**
- **The Science of Ice Cream** – it will be summer, after all.
- **Collaborations Across Disciplines**, where one can hear speakers talk about Mendeley, Collexis, VIVO, and BibApp.
- a program on **data visualization**.

Many thanks are due the following individuals who have been instrumental in helping put these programs together:

- CE Course Planning: Ted Baldwin
- Planning Committee: Jim Martin and Mindy Peters
- Sponsorship Committee: Teri Vogel, Luray Minkiewicz, and Loren Mendelsohn
- Tour: Elsa Atson

It promises to be an exciting conference, and we sincerely hope to see you there! ❖

Bill Armstrong, Chair (notwwa@lsu.edu)

News from the Materials Research & Manufacturing Section

Materials Research & Manufacturing Section

Bing Wang, Chair

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

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

Rebecca Gallei
196-25 73rd Avenue
2nd Floor
Fresh Meadows, NY 11366-1808

Dr. Karen Salazar
Louisiana State University
Library and Information Science
3542 N. Bahin Ct.
Baton Rouge, LA 70816

News from the Engineering Division

\$1000 IEEE Continuing Education Stipend – Call for Applications

Stipend to attend the SLA Annual Conference in
Philadelphia, PA June 12-15, 2011

IEEE (Institute of Electrical and Electronics Engineers) is sponsoring for SLA Engineering Division members a travel stipend up to \$1000 toward payment of expenses incurred while attending any Continuing Education course offered at the annual SLA conference in Philadelphia, PA June 12-15, 2011.

The IEEE Stipend will be given to the qualified member who submits an essay, of three or fewer double-spaced typed pages, which is judged to be the best paper that addresses "How the member will benefit professionally from a continuing education course." Please email Diane F. Brenes (diane.f.brenes@boeing.com) for a list of Continuing Education courses offered during the SLA 2011 conference. The winner will also be required to submit an article to the Engineering Division newsletter (*SciTech News*) within twelve months of completion on how the course helped them in library applications.

Qualifications for Entering Award Competition:

Be a member of the SLA Engineering Division in good standing for at least one year as of January 1, 2010.

Special Instructions:

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

Revised Deadline for Submission: March 15, 2011.

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

Submit Entries for the Award to:

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

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

Award to attend the SLA Annual Conference in
Philadelphia, PA, 12-15 June 2011

Inspec is sponsoring for library school students the award of a \$1500.00 travel stipend toward payment of expenses incurred while attending the annual Special Libraries Association conference in Philadelphia, PA, June 12-15, 2011.

The Inspec Award will be given to the qualified student who submits an essay of three or less double spaced typed pages that is judged to be the best essay submitted describing the following scenario:

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

Qualifications for Entering Award Competition:

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

Special Instructions:

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

Revised Deadline for Submission: March 18, 2011.

Submit Entries for the Award to:

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

News from the Aerospace Section

Aerospace Section

Adrianne Jones Washburn, 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.



"The purpose of all knowledge is sharing."

— James Comey, former Vice President & General Council for Lockheed Martin

As your Aerospace Section Chair for 2011, this is my personal mission statement. As information professionals, I believe it is incumbent upon us to leverage every tool in our toolbox to ensure that information is available, accessible, and shared. I challenge information professionals to carry this mission into their daily work by pushing the boundaries of existing practices. What changes are you effecting in your organization to make new and existing information shared and more accessible? What single step could you take today that could make an everlasting impact on your organization?

With that in mind, let's turn our focus to this year's current and future SLA events. As you know, SLA is currently experiencing change like never before. I just returned from the 2011 Leadership Summit held in Washington, D.C., which promoted the theme, "Future Ready: Building Community."

Our 2011 SLA President, Cindy Romaine, believes the foundation of being "future ready" is built on four pillars: collaboration, alignment, adaptable skills, and community. You may be asking, "So, what does this mean?" It means we need to act! We need to reevaluate our profession to better understand what is working and what isn't so we can create a strategic vision that will bring value to our profession as well as our organizations.

As Romaine discussed change and being future ready, she said we would experience more change in the next five years than we have in the last fifty! To help us become future ready, Romaine launched a new blog on January 1st called FutureReady365. If you haven't had time to check it out, I highly recommend you do. Visit <http://futureready365.sla.org/> to read and share knowledge and ideas about SLA and

our profession as a whole. If you would like to contribute to the FutureReady365 blog, send an email to FutureReady365@sla.org with the topic you would like to discuss.

I am really excited about the 2011 Annual Conference in Philadelphia—it is going to be amazing! The Aerospace Section will be holding its Annual Meeting and Breakfast on Monday, June 13th from 8:00 a.m. to 9:30 a.m., where we will present the winner of the George Mandel Award, as well introduce the new 2012 Aerospace Section Chair-Elect, Barbara Williams. Williams has worked as the Aeronautics and Astronautics Librarian and Instruction Coordinator for Science and Engineering at the Massachusetts Institute of Technology (MIT) since 2008. Be sure to introduce yourself to Barbara at the annual meeting!

The Aerospace Section is also sponsoring the session "Tweets from Space" on Tuesday, June 14th from 10:00 a.m. to 11:30 a.m., where Jaime Scibelli from the NASA Glenn Research Center will discuss how NASA is using the latest social media tools to connect with the public and broaden support for its programs. Definitely check out this session! Other exciting events to attend include the keynote address by Thomas Friedman at the opening session and the keynote address by James Kane at the closing session. These are must-see events!!

I would like to thank Hema Ramachandran, 2010 Aerospace Section Chair; Gale Harris, 2009 Aerospace Section Chair; Kathryn Breining, 2011 Engineering Division Chair; Dee Magnoni, 2011 Leadership and Management Division Chair; Cynthia Eastman, 2011 Engineering Division Program Planner; as well as the SLA Engineering Division Board for all of their support and guidance. For anyone who is thinking of or considering running for a leadership position, I highly encourage you to do so—the support, the networking, and the opportunities to contribute

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to the future of SLA are numerous!

As you may have noticed, I am really jazzed about this year's conference and sessions. I encourage you to attend in person or virtually, and I sincerely hope you consider the questions I posed at the beginning of this article. Your actions today will impact the future of the information profession for years to come—don't wait for someone else to make the first move, act now! ❖

Adrianne Jones Washburn
adrianne.j.washburn@lmco.com

Web Reviews

Lisa R. Johnston



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

User Experience (UX) in Libraries: Web Design

In early 2011 SLA officially launched the User Experience (UX) Caucus¹ with a focus on how users experience their libraries. (Join the SLA discussion list at SLA-KUX@sla.lyris.net). UX Librarian at Rice University, Debra Kolah, will convene the first meeting of the caucus at SLA 2011 in Philadelphia with the goal to “permanently embed the user experience within the culture of librarianship. To accomplish this goal, the caucus will provide structure, advice and support for usability studies. The caucus will ultimately give its members clear strategies to search for, identify, and address areas in their own organizations where usability can be improved.”

In celebration of this exciting movement, this issue will feature tools and resources for UX engagement at the web design level. Rapid prototyping a web experience can be as simple as writing down some labels on a card and interviewing a coworker. But low-tech techniques, such as wireframing with a pen and paper, are just scratching the surface of the UX toolbox. These web sites take your ideas to the next level—without actually writing a line of code!

¹ SLA Blog (10 Jan 2011). UX Caucus Officially Open! Accessed February 1, 2011 at http://slablogger.typepad.com/sla_blog/2011/01/new-ux-caucus-officially-open.html

COMMUNITY

Library Journal Column on User Experience

<http://www.libraryjournal.com/article/CA6713142.html>

This new column of the *Library Journal* launched in early 2010. Columnist Aaron Schmidt is the resident Digital Initiatives Librarian for the District of Columbia Public Library and he writes about the ever changing world of UX for library patrons. One article featured the space-based experience that library users have when they enter a library. The reader photos give a sense that many libraries, public and academic, are embracing the future of user-centered building

design.

Usability Professionals' Association

<http://www.upassoc.org/>

Not specifically library oriented, this professional society brings together the experts of the world to discuss the latest techniques and products for usability and user-centered design. To get a taste of what this society has to offer, check out last year's annual conference report by Liza Zamboglou and Lorraine Paterson at <http://www.ariadne.ac.uk/issue64/upa-2010-rpt/>. The 2011 conference will be held June 21-24, 2011 in Atlanta, GA.

Magazines, Blogs, and Listservs

<http://www.uxbooth.com>

UX Booth is a blog covering topics and resources on usability, user experience, and interaction design.



<http://www.uxmatters.com/index.php>

UXmatters is a Web magazine that posts articles in issue format on topics ranging from Accessibility to Visual Design.

<http://www.uxmag.com>

UX Magazine delivers articles on design and user experience that take on a more (traditional) business focus.

<http://interactions.acm.org>

Web-based *interactions* is a bimonthly publication of the ACM that offers a technology focus on user experience topics.

<http://www.ala.org/ala/mgrps/divs/lita>

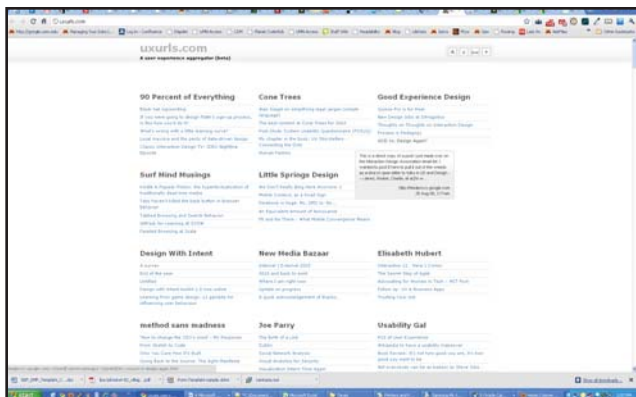
The ALA-based discussion group LITA provides a forum for library professionals to discuss issues of library and information technology.

SLA-KUX@sla.lyris.net

As mentioned in the intro, this new SLA caucus on user experience just kicked off. Their discussion group will shortly be followed by a web presence.

<http://uxurls.com>

What better way to browse the cutting edge knowledge on user experience and usability than a beautifully formatted blog aggregator!



DESIGN INSPIRATION

Social Bookmarking

Setting up a social bookmark account, such as Diigo (<http://www.diigo.com>) or Delicious (<http://www.delicious.com/>), to engage your staff and/or users to tag web sites and add descriptions of the features that they enjoy (ie. nice white space!), will not only give you some great design ideas but will help your stockholders feel involved in the process.

ARL Libraries

<http://www.arl.org/arl/membership/members.shtml>

Imitation is the sincerest form of flattery... and possibly the cheapest web design tool. Reuse the good ideas collected from the largest research libraries in America collected on this site.

A List Apart

<http://www.alistapart.com/>

This blog has a user focus that has long been a standard for what is new and current in web design.

Code{4}Lib

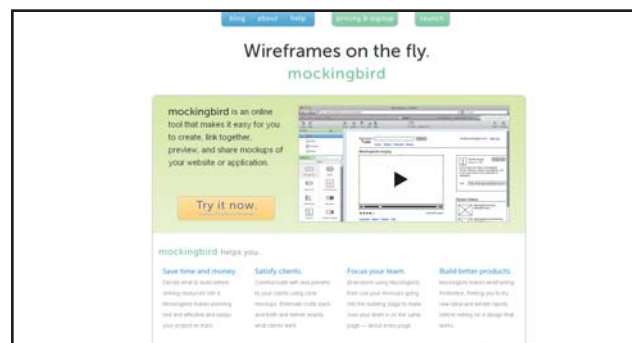
<http://journal.code4lib.org/>

Sometimes a good web experience is only held back by not knowing what is possible. Keeping up with the latest web programming trends in the library world will help you incorporate some incredible design elements that add function as well as usability to your site.

WIREFRAMES

Drawing a sketch of what your site will look like before you code will save you time and energy. Web mockup tools allow you to quickly lay out a possible version of your site using premade elements such as drop down boxes and tabs. Advanced design tools such as Microsoft Visio (<http://visioutilbox.com/2010/>) and Google Sketchup (<http://sketchup.google.com/>) can get the job done, but there is a steep learning curve. Here are three sites made specifically for wire framing that let you get started quickly.

- Mockflow, <http://www.mockflow.com>
- Balsamiq, <http://balsamiq.com>
- MockingBird, <https://gomockingbird.com>



USER FEEDBACK AND STATISTICS

For libraries, our web site is not just a communications vehicle, it is the backbone of our discovery systems and in many cases the primary tool used to access our information. Therefore, we need to communicate any changes to the web page, both to our staff and our users.

Ethnographic Interviews

<https://confluence.sakaiproject.org/display/UX/Ethnographic+Interviews+-+Interviewing+and+Observing+Users>

The Sakai Project team compiled a wealth of UX and usability information, and this section, Ethnographic interviews, provides valuable techniques and interview skills.

Two Distinguished Journals from AAAS/Science

Indexed in
MEDLINE/PubMed



Science Translational Medicine

Linking basic scientists and clinical researchers to improve patient care worldwide

Launched in 2009, the journal bridges the research-to-application gap by providing a platform for idea exchange in the emerging field of translational research.



ScienceTranslationalMedicine.org



Science Signaling

The leading resource for cell signaling

The journal publishes research that represents a major advance in cell signaling, including systems biology, computation and modeling of regulatory pathways, and drug discovery.



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Card Sorting

http://rosenfeldmedia.com/books/cardsorting/blog/card_sorting_software_tools/

http://www.boxesandarrows.com/view/card_sorting_a_definitive_guide

One of the most useful tools in the UX arsenal is also one of the easiest. This first link takes you to some web-based tools and software. But I'd recommend the cheap way (actually cards) and this guide "Card sorting: a definitive guide" by Donna Spencer and Todd Warfel, has some great DIY instructions.

Usability Testing

There are many ways to test how usable your site is: from sitting down a patron with specific tasks and observing their behavior or through high-tech cameras tracking the minute eye movements of your site visitors. Here are a sample of some of these tools:

- Usabilla, <http://usabilla.com/> - Fast, easy way to test your site. The results are collected and analyzed in the tool.



- Navflow, <http://navflow.com> - Going one step further, this tool has the option of opening up your usability tasks to their testing community for feedback.



- GazeHawk, <http://www.gazehawk.com/> - Remote eye tracking tool that collects data using your built-in web camera.
- Protonotes, <http://protonotes.com> - Lets you add sticky notes to a wireframe to collect feedback from your group and co-workers.
- Mocklinkr, <http://www.mocklinkr.com/> - Creates a web version of your wireframe mockup to share as a linked web-demo page.

Use Statistics

Nothing says useful like hard evidence that your site gets used. Web use tracking software has advanced to include not only the number of "hits" to a web page, but also give you usability information about where geographically those hits are coming from, which terms they searched for to arrive on your site, what browser they use, and more.

- Google Analytics, <http://www.google.com/analytics> - Integrates with other Google products such as Urchin software for web use analysis and AdSense.



- StatCounter, <http://statcounter.com/> - A free counter that can be invisibly added to any web page with one line of code. ❖

Science Today in Verse


Hope Leman, Samaritan Health Services



Today's Top Science News

Bioelectric signals do something key
And affect things substantially
Doing something very few
Anticipated they could do
Meanwhile, we've had some news
Of quite unprecedented views
Of the sun that parallel instabilities
In earth's oceans and its seas
Astronomers conclude early-type red
Galaxies are more or less as good as dead
But that those with gases at their core
Can last 80 million years or more
Dermatologists lament the blight
That is ultraviolet light
And warn us to beware its rays
Even on chilly, cheerless, cloudy days
Boys give each other the flu
But your children give it not to you

The government suggests it
would be best
Seldom mercury to ingest
Breathing smoke from burning
wood
For your lungs is not good
Surgical molecular navigation
Is a desirable innovation
Unemployment for morale is bad
And the jobless are often sad
Evidence of the ancient past
Confirms Neanderthals didn't last
Female docs fall behind on pay
Probably not good, authors say
Australian lake glows in the dark
Weight loss but walk in park
And that's the news that you get
Of science from the Internet ❖

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Beyond the Chemistry Web...

Bob Buchanan, Chemistry Librarian, Auburn University



Thanks to Midge Coates for suggesting websites. Feel free to send recommendations to me at buchara@auburn.edu.

At the end of each year the journal *Environmental Microbiology* selectively publishes comments from reviewers. Comments are chosen for their humor value. An example from **Referees' quotes – 2010** reads: "This paper is desperate. Please reject it completely and then block the author's email ID so they can't use the online system in the future." Access requires a subscription to *Environmental Microbiology*.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1462-2920.2010.02394.x/full>

Visual aids can be effective ice breakers in instruction sessions. Here are a few that deal with the scientific method. David Ng, who runs a science literacy lab at the University of British Columbia, offers two perspectives – **The Scientific Method with Aliens Slide** (pedagogically humorous) and **The Scientific Method Slide** which offers a profound restatement of the scientific method:

"1. See something. 2. Think of a reason why. 3. Figure out a way to check your reason. 4. And? 5. Now, everyone gets to dump on you. 6. Repeat until consensus formed."

Jorge Cham's long running (since 1997) comic strip *Piled Higher and Deeper* on graduate student life offers a traditional and a cynically humorous view of the **Scientific Method**.

<http://www.scq.ubc.ca/dnghub/?p=84>

<http://www.scq.ubc.ca/dnghub/?p=150>

<http://www.phdcomics.com/comics/archive.php?comid=761>

The Order of the Science Scouts of Exemplary Repute and Above Average Physique, or O.O.T.S.S.O.E.R.A.A.A.P. for short, was previously

reviewed, but so many new Science Scout badges have been added by David Ng and colleagues that it is worth another visit.

<http://www.scq.ubc.ca/sciencescouts>

Poster Presentations – Designing Effective Posters provides a summary of print and online resources on how best to present scientific and technical information in the poster format. Fred Stoss, site author and SUNY Buffalo Biology Librarian, has a long-held passion for helping students and scientists create good posters. The site quotes Mary Helen Briscoe from her book *Preparing Scientific Illustrations*: "It takes intelligence, even brilliance, to condense and focus information into a clear, simple presentation that will be read and remembered. Ignorance and arrogance are shown in a crowded, complicated, hard-to-read poster."

<http://library.buffalo.edu/libraries/asl/guides/bio/posters.html>

It is hard to imagine a better blog for students and teachers of organic chemistry than **Master Organic Chemistry**. Written by "James," a Ph.D. organic chemist who is also an online tutor, this blog seeks the most effective methods for learning and teaching organic chemistry. This blog is remarkable for its willingness to take chances (e.g., using cats to illustrate stereochemistry, which is not always successful) and its honesty about learning organic chemistry (e.g., the manifesto). This active blog includes an index which makes it easy to find specific topics.

<http://masterorganicchemistry.com>

<http://masterorganicchemistry.com/2010/12/24/on-cats-part-8-moe-the-meso-cat>

<http://masterorganicchemistry.com/manifesto>



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

BF323 2009-041100 978-1-60623-673-4

Handbook of implicit cognition; measurement, theory, and applications.

Title main entry. Ed. by Bertram Gawronski and B. Keith Payne.

Guilford Pr., ©2010 594 p. \$85.00

For social psychologists, researchers, graduate students and advanced undergraduates, Gawronski (social psychology, U. of Western Ontario, Canada) and Payne (psychology, U. of North Carolina at Chapel Hill) bring together psychologists from North America, Europe, and Australia who present, in 29 chapters, the key findings, theories, and practical applications of implicit social cognition research. Each chapter focuses on a specific area, with an overview of its key findings, unanswered questions, and future directions. Coverage includes automatic and controlled processes; methods and procedures in the field; the connection between social cognition and topics like consciousness, cognitive plasticity, child development, prediction of behavior, judgment and decision making, cognitive consistency, and goal pursuit; and the roles of social cognition in attitudes, prejudice and intergroup relations, self-concept and self-esteem, interpersonal relationships, and the meanings of implicit processes for issues of social justice. The book ends with practical implications for real-world issues like mental and physical health, forensics, consumer behavior, and political behavior.

BF327 2010-012687 978-1-84872-908-7

The psychology of attitudes and attitude change.

Title main entry. Ed. by Joseph P. Forgas et al. (The Sydney Symposium of Social Psychology series; v.12)

Psychology Press, ©2010 302 p. \$75.00

Forgas (U. of New South Wales) et al. present this survey of research looking into the psychology of attitudes and attitude change and the behavior

associated with it. Due to the complexity of this topic, the book is organized into four sections dealing with topics such as: basic issues in attitude research, cognitive and affective processes, persuasion, attitude change, and applications for research. This book serves as a comprehensive overview of attitude research in regard to recent developments and will be of interest to those studying social psychology.

BF482 2009-054455 978-1-4338-0839-5

Cognitive fatigue; multidisciplinary perspectives on current research and future applications.

Title main entry. Ed. by Phillip L. Ackerman.

American Psychological Assn., ©2011 333 p. \$79.95

Mental health researchers, many of them with the US Air Force, explore how the concepts and findings regarding mental fatigue that have been accumulating since the late 19th century are undergoing a significant change among people who experience ubiquitous stimulation through electronic devices or longer working hours. After reviewing the century of research, they cover sleep and fatigue; neurological and physiological aspects of fatigue; motivation, personality, and subjective fatigue; and work and other applications. Among the topics are sleep loss and the ability to self-monitor cognitive performance, the temporal dynamics and underlying mechanisms of cognitive fatigue, a motivational control theory of cognitive fatigue, and the role of psychological detachment in recovery from fatigue. The 14 papers are from a May 2009 conference in Atlanta, Georgia.

BF575 2010-005100 978-1-4338-0859-3

Human aggression and violence; causes, manifestations, and consequences.

Title main entry. Ed. by Phillip R. Shaver and Mario Mikulincer. (The Herzliya series on personality and social psychology)

American Psychological Assn., ©2011 422 p. \$79.95

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*2009 Journal Citation Report (Thomson Reuters 2010)

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Psychologists mostly from the US sample current thinking and debates concerning human aggression, intimidation, and violence from perspectives of theory, genetic and environmental determinants, psychological and relational processes, aggression at the societal level, and the victim perspective on consequences of aggression. Among their topics are the influence of violence and aggression on children's psychological development, an existential perspective on violent solutions to ethno-political conflict, evolved mechanisms for revenge and forgiveness, social information processing patterns as mediators of the interaction between genetic factors and life experiences in the development of aggressive behavior, and a behavioral systems perspective on power and aggression.

GEOGRAPHY

G109 978-1-59693-301-9

GNSS for vehicle control.

Bevly, David M. and Stewart Cobb. (Artech House GNSS technology and applications series)

Artech House, ©2010 266 p. \$89.00

Bevly (mechanical engineering, Auburn U.) and Cobb, who makes global positioning system (GPS) receivers and pseudolites (pseudo satellites—ground stations sending satellite-like signals), explore how GPS and other global navigation satellite systems (GNSS) are increasingly being used to control ground vehicles from automatically steered farm tractors to automated mining equipment as well as unmanned military ground vehicles. After surveying GNSS and other navigation sensors, they discuss vision aided navigation systems, vehicle modeling, navigation systems, vehicle dynamic estimation using GPS, GNSS control of ground vehicles, and pseudolites for vehicle navigation.

KF27 2010-925578 978-1-60750-536-5

Terrorism and the internet; threats—target groups—deradicalisation strategies.

Dienel, Hans-Liudger. (NATO science for peace and security series; v.67)

IOS Press, ©2010 223 p. \$196.00

Dienel (Technische U. Berlin, Germany), Sharan (Tel Aviv U., Israel), Rapp (Zurich U. of Applied Sciences, Switzerland) and Ahituv (Tel Aviv U., Israel) present 19 papers from a series of workshops on the Internet and terrorism conducted under the auspices of the NATO Programme: Science for Peace and Security. The papers are organized around six themes: overview on the use of the Internet by terrorist

and extremist organizations, the Internet as a tool for radicalization and deradicalization processes, women and children as target groups (and other gender aspects), geographical case studies, technical innovations for web analysis, and dialogical countermeasures. Reflecting the support of NATO for the proceedings, the primary concern of the volume is Islamist-based terrorism.

KF3133 2010-000195 978-0-471-78243-8

The chemist's companion guide to patent law.

Miller, Chris P. and Mark J. Evans.

John Wiley & Sons, ©2010 329 p. \$99.95

Miller, a medicinal chemist and patent lawyer in the Boston area, and Evans, a scientist in the pharmaceutical business now working in regulatory affairs around Philadelphia, help chemists understand elements of patent law that could be important in their work. They take the approach used in law school, which combines explanations surrounding a given topic coupled with discussions centered on actual US court opinions. Their topics are the patent process, prior art and the chemical invention, inventorship, patent claims, utility, novelty, non-obviousness, written description, enablement, and best mode.

SCIENCE (GENERAL)

Q172 2010935407 978-0-7695-4247-8

Chaos-fractals theories and applications; proceedings. (CD-ROM included)

International Workshop on Chaos-Fractal Theories and Applications (2010: Kunming, China)

Computer Society Press, ©2010 500 p. \$266.00 (pa)

The conference is designed to report on research worldwide, but especially in the Asia-Pacific region, on chaos and fractals and their applications in engineering contexts. The 102 peer-reviewed papers cover chaos synchronization, chaos-based control and optimization, chaos-based cryptography and secure communications, chaotic dynamics, complex systems, and fractals theory and applications. Among the topics are impulse synchronization for a reaction-diffusion system, monotone traveling wave solution for delayed reaction-diffusion equations, irrational-based cryptosystems, one-dimensional cellular automata with nearest-nearest neighborhoods, chaos and control in nonlinear dynamic models of ecological systems, and fractal characteristics of the particle-size distribution function for modified brown coal. Only authors are indexed.

MATH, COMPUTERS

QA76 2010-0009624 978-1-4398-1192-4

Introduction to high performance computing for scientists and engineers.

Hager, Georg and Gerhard Wellein. (Chapman and Hall/CRC computational science)

CRC Press, ©2011 330 p. \$69.95 (pa)

Hager and Wellein (computer science, U. of Erlangen, Germany) introduce students and scientists in computer science and computational engineering to the architecture and programming of high performance computers, with an emphasis on performance issues. They discuss current mainstream computer architecture, dominant parallel programming models, and optimization strategies for scientific high performance computing, including the architecture of modern cache-based microprocessors and their performance limitations and general optimization strategies for serial code. Parallel computer architectures of the shared-memory and distributed-memory type and relevant network typologies, parallel computing on a theoretical level, OpenMP and performance problems, ccNUMA-specific optimization techniques, and distributed-memory parallel programming with the Message Passing Interface (MPI) and writing MPI code are also discussed. They do not provide alternative algorithms or discuss very recent developments like modern accelerator technologies, or high performance input-output.

QA76.58 2010-923473 978-1-60750-529-7

Parallel computing; from multicores and GPU's to petascale.

Title main entry. Ed. by Barbara Chapman et al. (Advances in parallel computing; v.19)

IOS Press, ©2010 739 p. \$261.00

The editors (of the U. of Houston, US; Grand Equipement National de Calcul Intensif, France; TU Clausthal, Germany; Philips Research, the Netherlands; and Institut National de Recherche en Informatique et en Automatique, France) present 85 selected and refereed papers from the international Parallel Computing conference held at the Ecole Normale Supérieure in France in September of 2009. The papers address new hardware concepts, associated software development issues, and applications for high speed parallel systems. Two invited talks are presented on future architectures in exascale computing and on security and scalability for multi-cores. The remaining papers are presented in sections on numerical algorithms, bio-informatics, image processing and visualization,

GRID and cloud computing, programming, GPU and cell programming, compilers and tools, parallel input/output, communication runtime, benchmark and performance tuning, fault tolerance, adaptive parallel computing, DEISA (the Distributed European Infrastructure for Supercomputing Applications, parallel computing with field-programmable gate arrays, parallel programming tools for multi-core architectures, and programming heterogeneous architectures.

QA76.7 2010-026229 978-0-321-71294-3

Domain-specific languages.

Fowler, Martin.

Addison-Wesley, ©2011 597 p. \$54.99

Intended to provide both a theoretical framework and practical examples this volume provides an interesting discussion on the creation and uses of domain specific languages (DSL) to solve problems of complexity and efficiency at the nexus of computer programming and software use. The volume opens with several chapters of narrative discussion and continues into a technical reference with extensive practical code examples. Fowler is a computer consultant and the author of several programming books.

QA76.76 2010-030530 978-0-07-171791-5

Practical software project estimation; a toolkit for estimating software development effort & duration.

Title main entry. Ed. by Peter R. Hill.

McGraw-Hill, ©2011 289 p. \$99.95

Designed as a practical guide to estimation techniques for software developers and project managers, this volume details methods for accurately predicting the time and money necessary and the the likelihood of successful completion, of complex software projects. Many of the techniques described in this volume revolve around the use of the International Software Benchmarking Standards Group's (ISBSG) software project history data, a collection of information about the development of over 5,000 completed software projects. Several methods of project size evaluation are discussed as well as differences in evaluating projects created in the agile development methodology. Hill is the CEO of the ISBSG.

QA76.9 2010-005496 978-1-4398-3626-2

Human-computer interaction and operations performance; optimizing work design with activity theory.

Title main entry. Ed. by Gregory Z. Bedny and Waldemar Karwowski. (Ergonomics design and management; theory and applications)

CRC Press, ©2011 443 p. \$89.95

Sixteen articles by experts in neuroergonomics, systems engineering and informatics discuss contemporary scholarship in the fields of activity theory (AT), applied activity theory and systemic-structural activity theory. The basis of a large body of psychological scholarship during the mid-twentieth century in the former Soviet Union, activity theory posits that interaction with an environment, especially work, produces tools that are "exteriorized" manifestations of psychological processes and that these tools are a method of culturally communicating those processes. This volume examines the nexus of AT with computer technology and covers such topics as the optimization of human-computer interaction by adjusting the psychophysiological state of the operator, microgenetic principles in the study of computer based tasks and analysis of student's functional states during computer training, as well as several topics related to aviation technology. The work will be of interest to ergonomic engineers, computer programmers and designers, as well as training professionals.

QA76.9 2008-940895 978-1-58603-947-9

Identity-based cryptography.

Title main entry. Ed. by Marc Joye and Gregory Neven. (Cryptology and information security series; v.2)

IOS Press, ©2009 263 p. \$145.00

The Internet allows the sharing of information worldwide. However, not all information is meant to be shared with everyone. Cryptographers are kept occupied devising methods by which the keys to encrypted information can be exchanged. Joye and Neven present articles on identity-based cryptography as an alternative to public-key methods. The following, highly technical articles discuss various possibilities for doing this and possible pitfalls. The authors, an international group of experts, describe both ways to access the key and ways to keep it from being compromised. This is an important contribution to an ever-growing concern.

QA76.9 2010-030739 978-1-61692-000-5

Pervasive information security and privacy developments; trends and advancements.

Title main entry. Ed. by Hamid Nemati.

Information Science Reference, ©2011 428 p. \$180.00

Scholars of business management and of information systems explore approaches and methods for providing information to some people all the time and other people none of the time. Among their topics are a Canadian perspective of the impact of privacy legislation on patient care,

protecting patient information in out-sourced tele-health services, safeguarding the privacy of electronic medical records, privacy inference disclosure control with access-unrestricted data anonymity, architectural support for enhancing critical secrets protection in chip-multiprocessors, the life cycle pattern of malicious codes, trust-based usage control in collaborative environments, computer security practices and perceptions of the next generation of corporate computer users, designing and implementing a framework for assured information sharing across organizational boundaries, and a decentralized security framework for web-based social networks.

QA76.9 2010-024436 978-1-60566-697-6

Principles and applications of distributed event-based systems.

Title main entry. Ed. by Annika M. Hinze and Alejandro Buchmann.

Information Science Reference, ©2010 512 p. \$270.00

The subject is very hot as "smart" systems are finding applications in many enterprises, including finance, risk management, fraud detection, supply chain management, environmental monitoring and warning systems, marine security, health care, cars and homes, traffic control, information dissemination, and network management, among others. This book begins with an extended preface addressing the need for standardization of terminology and some sorting out of acronyms and jargon in a multifaceted field that derives from and must integrate so many other fields. Following are chapters discussing event models and generic system architectures; quality-of-service aspects of publish-subscribe middleware and event-based messaging systems; novel architectures (knowledge-based networking, parallel clusters, service-oriented architectures, dynamic adaptive systems); approaches to mobile and ubiquitous systems; and solutions for mobile ad-hoc networks. Editors Hinze and Buchmann are affiliated respectively with the U. of Waikato, New Zealand and Technische U. Darmstadt, Germany); the 19 contributed chapters are from teams based in about 12 countries, including the US.

QA76.9 2010-001082 978-1-4398-1628-8

Process-centric architecture for enterprise software systems.

Seshan, Parameswaran.

CRC Press, ©2010 313 p. \$89.95

Writing for architects, programmers, information technology managers, and students, Seshan,

who has worked in information technology as a researcher, educator, architect, and programmer, reviews the analysis and design principles used in business process-centric architecture (PCA) and how to create architect and design enterprise systems based on the business processes in an organization. The book covers the architectural aspects of business process management, the evolution of information technology systems in enterprises, the importance of a business process focus, the role of workflows, business rules, enterprise application integration, and business process modeling languages like WS-BPEL and BPML. Also discussed are service-oriented architecture, a case study, implementation considerations, and the standards, technology, and infrastructure behind PCA.

QA76.9 2009-040713 978-1-61520-893-7
Soft computing methods for practical environment solutions; techniques and studies.

Title main entry. Ed. by Marcos Gestal Pose and Daniel Rivero Cebrián.

Information Science Reference, ©2010 427 p. \$180.00

The chapters of this volume offer a wide range of areas where the technology of soft computing, fuzzy logic, neural networks, evolutionary computation, and probabilistic reasoning are applied, including medicine, bioinformatics, natural resource management, and industry. Individual chapters detail specific projects and approaches, written in clear language that explains the background of the technology and the specific project, the terminology and methodology used, a description of the model or models, and the specific application, results, and conclusions. A sampling of chapter topics includes GA-based data mining applied to genetic data for the diagnosis of complex diseases, improving ontology alignment through genetic algorithms, evolutionary Lagrangian inverse modeling for PM10 pollutant dispersion, and LVQ neural networks in color segmentation. The majority of the contributors, like the editors, are based in Spain—others are elsewhere in Europe, Mexico, India, and the US. They teach and carry out research in mathematics, physics, computer science, chemistry, or engineering.

QA76.9 2009-049085 978-1-61520-631-5
Virtual technologies for business and industrial applications; innovative and synergistic approaches.

Title main entry. Ed. by N. Raghavendra Rao.

Business Science Reference, ©2011 249 p. \$180.00

International contributors in computer science, engineering, and computer-aided manufacturing provide an overview of virtual reality concepts and technologies being used in sectors such as manufacturing, healthcare, marketing, and business. The audience for the book includes students and professionals in computer science and software design. Business models in virtual environments are demonstrated in areas such as soft-touch haptics modeling of dynamic surfaces. Augmented reality for collaborative assembly design is one of the virtual technologies described in the manufacturing sector. The book also examines virtual reality at work in the service sector, such as neuroimaging technologies. The last part of the book looks at virtual modeling and static images, with material on virtual modeling of prehistoric sites and use of topological capture techniques for modeling virtual reality. Rao is affiliated with VIT University, India.

QA278 2009-054242 978-0-470-28639-5
Bias and causation; models and judgment for valid comparisons.

Weisberg, Herbert I. (Wiley series in probability and statistics)

John Wiley & Sons, ©2010 348 p. \$94.95

A consultant who specializes in applying statistics to various business and legal issues, Weisberg explains approaches to bias and causal inference, a realm statisticians have avoided until recently because it requires intuitive skills beyond the pale of mathematics. He writes for practicing researchers and methodologists and for students with a reasonably solid grounding in basic statistics and research methods. The mathematics are nothing special, he says, just the medium in which the concepts are manifested. His topics include causality and comparative studies, varieties of bias, confounding, intermediate causal factors, information bias, and contending with bias.

QA401 2009-499140 978-3-527-40758-3
Mathematical modeling and simulation; introduction for scientists and engineers.

Velten, Kai.

Wiley-VCH, ©2009 348 p. \$120.00 (pa)

Velten (mathematics, U. of Applied Sciences, Germany) offers an introduction to mathematical modeling and simulation intended for both undergraduate students and practitioners. Mathematical modeling and simulation is essential in both science and engineering disciplines, and the author draws from his experience in those fields and from his experience as a consultant. Topics include: definitions and classification of mathematical models, linear regression, neural



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networks, experiment design, mechanistic models, numerical solutions, finite difference and finite element methods, and more. Readers should have basic knowledge of calculus and linear algebra. The text is well-written and the book is formatted for convenience and emphasis.

ASTRONOMY

QB51 2010-934176 978-1-58381-746-9

Library and information services in astronomy; 6: 21st century librarianship, from new ideas to action.

Library and Information Services in Astronomy Conference (6th: 2010: Maharashtra, India) Ed. by Eva Isaksson et al. (Astronomical Society of the Pacific Conference series; v.433)

Astronomical Soc./Pacific, ©2010 359 p. \$77.00

The place of libraries and librarians in astronomy is considered by 54 papers on the future of librarianship, metrics, training, open access, data curation and preservation, virtual communities, and use and access. Specific topics include the role of a virtual library in the coming decades, supporting the public communication of science as part of the library mission, creating a database of scientific papers that use observational data, electronically accessible astronomy resources, novel features of a small open-access astronomical journal, copyright issues in managing the contents of the Indian Institute of Astrophysics Archives, astronomy education and outreach in a large urban university, and a librarian's perspective on the use of electronic journals in astronomy and astrophysics libraries and information centers in India. The proceedings are not indexed.

PHYSICS

QC1 2010-278392 978-981-4287-32-6

Recent developments in theoretical physics.

Title main entry. Ed. by Subir Ghosh and Guruprasad Kar. (Statistical science and interdisciplinary research; v.9)

World Scientific, ©2010 423 p. \$107.00

The editors (both of the Indian Statistical Institute, India) bring together review articles and original research papers exploring an array of recent developments in theoretical physics. The 20 chapters are related to five broad areas of theoretical physics: relativity, gravitation, and astro-particle physics; high energy physics, nuclear physics, and quantum mechanics; condensed matter phenomena; nonlinear dynamics; and quantum information.

QC168 2010-015478 978-0-470-82576-1

Applied gas dynamics.

Rathakrishnan, Ethirajan.

John Wiley & Sons, ©2010 643 p. \$150.00

Suitable for introductory and advanced level classes as well as for professional reference, this text covers the basics and the applied aspects, the theory and the practicalities. Rathakrishnan (aerospace engineering, Indian Institute of Technology Kanpur) is known internationally for research on high-speed jets and, among other distinctions, has contributed his name to the limit for the passive control of jets (called Rathakrishnan limit). He begins this single-authored text with basic facts: definitions, supersonic flow, speed of flow, temperature rise, Mach angle, thermodynamics of fluid flow, and so on. Subsequent chapters address steady one-dimensional flow, normal shock waves, oblique shock and expansion waves, compressible flow equations, similarity rule, and two-dimensional compressible flows, among other topics, ending with chapters on ramjet, and jets. Each chapter concludes with a summary and exercise problems.

QC173 2009-019348 978-0-470-22893-7

Physical properties of macromolecules.

Belfiore, Laurence A.

John Wiley & Sons, ©2010 801 p. \$125.00

In a broad reference to the properties of the various types of polymers, Belfiore (chemical engineering, Colorado State U.) covers glass transitions in amorphous polymers, semi-crystalline polymers and melting transitions, mechanical properties of linear and cross-linked polymers, and the solid state dynamics of polymeric materials. Among specific topics included are ligand field stabilization and glass transition temperature enhanced in macromolecule-metal complexes, basic concepts and molecular optical anisotropy in semi-crystalline polymers, the kinetic analysis of molecular weight distribution functions in linear polymers, and magnetic spin diffusion at the nanoscale in multi-phase polymers and molecular complexes.

QC242 2010-003321 978-0-470-68875-5

Underwater acoustics; analysis, design, and performance of sonar.

Hodges, Richard P.

John Wiley & Sons, ©2010 353 p. \$165.00

A physicist with a company that advises the US Navy, Hodges also teaches new sonar analysts. In 2004, he noticed that all the textbooks he used were out of print, so started writing his own. He steers a middle path between

theoretical and highly mathematical texts and popular non-mathematics treatments, and in addition to graphical results, includes equations that can be used to develop models. Very fine details he leaves with the original sources, and tells readers where to find them. His topics include the sonar equations, active sonar sources, transmission loss, ambient noise, active target strength, statistical detection theory, methodology for calculating the recognition differential, variability and uncertainty, the cumulative probability of detection, and designing and evaluating sonars.

QC318 2010-005252 978-1-84816-247-1

Free energy computations; a mathematical perspective.

Lelièvre, Tony et al.

Imperial College Press, ©2010 458 p. \$124.00

Applied mathematicians Lelièvre, Gabriel Stoltz (both INRIA Rocquencourt) and Mathias Rousset (INRIA Lille) could find no textbook suitable to teach numerical problems from the perspective of computational statistical physics, so offer this to fill the gap. The readers they have in mind are mathematicians and scientists from the applied communities such as physics and biology who use free-energy techniques as one tool among many to study the complex systems of their field. They did, however, try to make the treatment accessible to graduate students as well as researchers. After an introduction, they cover sampling methods, thermodynamic integration and sampling with constraints, nonequilibrium models, adaptive methods, and selection. Distributed in the US by World Scientific.

QC385 2010-021193 978-0-8194-8332-4

Applied prismatic and reflective optics.

Vanderwerf, Dennis F. (Press monograph; 200)

SPIE, ©2010 287 p. \$76.00 (pa)

With over 35 years experience in optics and optical engineering in contexts of cancer, aerospace, and manufacturing, Vanderwerf here deals primarily with the optics of refracting and reflecting planar surfaces in the form of prismatic refracting and reflecting components, and the design, analysis, and applications of these components. In this text, he covers general prisms and reflectors; polarization properties of prisms and reflectors; specialized prism types; prism and mirror system design, analysis, and fabrication; a selection of prism applications; projection displays; micropismatic arrays; and Fresnel lenses. The applications addressed in the book include, among others, a LADAR

guidance system using prism pairs, aplanatic prism spectrography, a reflecting wedge prism for an optical reader, and inversion prisms for range finders.

QC581 2010-013501 978-0-470-66074-4

Power definitions and the physical mechanism of power flow.

Emanuel, Alexander Eigeles.

John Wiley & Sons, ©2010 264 p. \$105.00

Emanuel (Worcester polytechnic Institute, Massachusetts) has been taking part in the ongoing debate over the definition of apparent power, which began over a century ago but has become more critical recently as increasingly wily electric consumption meters are being contemplated and designed. Here he explains the physical mechanism that governs the flow of electric energy in single-phase and three-phase, sinusoidal and non-sinusoidal, and balanced and unbalanced systems. He also proposes and promotes recently developed power definitions that are not mathematical artifacts but expressions that describe actual events and interactions between energy sources, loads, equipment, and environment; and compares the two main standards for defining electric power: IEEE standard 1459-2010, and DIN 40110-2:2002-11.

QC762 2009-499134 978-3-527-32008-0

Magnetic resonance microscopy; spatially resolved NMR techniques and applications.

Title main entry. Ed. by Sarah L. Codd and Joseph D. Seymour.

Wiley-VCH, ©2009 534 p. \$225.00

This reference is for materials scientists, spectroscopists, chemists, physicists, and medicinal chemists. It covers hardware and methods of spatially resolved magnetic resonance and describes materials science applications as well as microfluidic, biomedical, physiochemical, and dental applications. Polarization enhancement and transport phenomena are also covered. Some areas investigated are high-performance shimming with permanent magnets, NMR of liquid crystals confined in nano-scaled pores, MRI of fluids in strong acoustic fields, and multiple-echo magnetic resonance. Material originated at a 2007 meeting in Heidelberg. Codd and Seymour are affiliated with Montana State University.

CHEMISTRY

QD39 2009-054321 978-1-61520-911-8

Chemoinformatics and advanced

machine learning perspectives; complex computational methods and collaborative techniques.

Title main entry. Ed. by Huma Lodhi and Yoshihiro Yamanishi.

Medical Information Science Reference, ©2011 400 p. \$245.00

Lodhi (computing, Imperial College London, UK) and Yamanishi (Kyoto University, Japan) compile 17 chapters of current research in machine learning and applications to chemoinformatics tasks to study and solve complex chemical problems using computational tools and methods. Researchers in computational biology, chemoinformatics and chemometrics, computer science, and other scientific and computer-related fields in Europe, the US, and Japan discuss methods for computing similarity in chemical spaces; methodologies that combine graph mining and machine learning techniques; important elements of chemoinformatics, including statistical and Bayesian techniques and partial least square methods; the integration of ideas from fields like chemoinformatics, bioinformatics, and systems biology for the development of methods to solving chemical problems; and machine learning for chemical genomics that requires useful computational approaches to investigate the relationship between chemical space of possible compounds and genomic space of possible genes or proteins. Intended audiences are researchers, scientists, and specialists in fields ranging from chemistry and biology to machine learning, and those at pharmaceutical, agrochemical, and biotechnology companies.

QD96 2010-010781 978-0-470-38204-2

Raman, infrared, and near-infrared chemical imaging.

Title main entry. Ed. by Slobodan Sasic and Yukihiro Ozaki.

John Wiley & Sons, ©2010 317 p. \$125.00

Chemical imaging based on vibrational spectroscopy has become operational only during the past decade, and is used more in academic than commercial contexts and more for exploration than routine analysis. Here chemists from both realms look at spectroscopic theory for chemical imaging, hardware, biomedical applications, pharmaceutical applications, applications in food research, applications in polymer research, and special methods. Among specific topics are data analysis and chemometrics for hyperspectral imaging, near-infrared in vivo spectroscopic imaging in biomedical research and clinical applications, Raman and infrared imaging of foods, and linear

and nonlinear Raman microspectroscopy from a molecule to single living cells.

QD172 2010-000191 978-0-470-82485-6

Rare earth coordination chemistry; fundamentals and applications.

Title main entry. Ed. by Chun-Hui Huang.

John Wiley & Sons, ©2010 575 p. \$210.00

Chemists and related scientists assemble the first volume devoted to the coordination chemistry of the group of chemicals known as rare earths. They cover rare earth complexes with carboxylic acids, polyaminopolycarboxylic acids, and amino acids; nitrogen-based rare earth complexes; rare earth polyoxometalate complexes; the coordination chemistry of rare earth alkoxides, aryloxides, and hydroxides; rare earth metals trapped inside fullerenes: endohedral metallofullerenes; the organometallic chemistry of the lanthanide metals; lanthanide-based magnetic molecular materials; gadolinium complexes as magnetic resonance imaging contrast agents for diagnosis; electroluminescence based on lanthanide complexes; near-infrared luminescence from lanthanide (III) complexes; and luminescent rare earth complexes as chemosensors and bioimaging probes.

QD262 2009-499131 978-3-527-31996-1

Iridium complexes in organic synthesis.

Title main entry. Ed. by Luis A. Oro and Carmen Claver.

Wiley-VCH, ©2009 396 p. \$225.00

Although still not widely used within the chemicals industry, the usefulness of iridium in organic chemical reactions is coming to be increasingly recognized. This volume, edited by Oro (inorganic chemistry, U. of Zaragoza, Spain) and Claver (inorganic chemistry, U. Rovia I Virgili, Spain), presents 15 papers demonstrating some of these applications, covering transformations such as hydrogenation, hydroamination, hydroboration, C—C bond formation, carbonylation, and cycloadditions, as well as recent catalytic system using iridium nanoparticles and the use of relevant ligands as carbenes and pincer ligands.

QD400 2010-286529 978-3-527-32036-3

Asymmetric synthesis of nitrogen heterocycles.

Title main entry. Ed. by Jacques Royer.

Wiley-VCH, ©2009 409 p. \$200.00

Finding no book or review article offering an overview of methods used in preparation of nitrogen heterocycles in their asymmetric form, Royer (University Paris Descartes) tackled the project, enlisting contributions from some colleagues with special expertise. The

presentation is for synthetic chemists involved with natural products, pharmaceuticals, and agrochemical industries who want to prepare chiral nitrogen heterocycles. The volume offers a clearly structured, compact presentation in two sections. The first is on asymmetric synthesis of heterocycles containing only one heteroatom and is organized into chapters according to the size of the ring: aziridine, azetidine, pyrrolidine, piperidine, azepine and larger rings. The second section focuses on more than one heteroatom and is organized similarly.

QD412 2010-020783 978-0-470-46611-7

Silver in organic chemistry.

Title main entry. Ed. by Michael Harmata.

John Wiley & Sons, ©2010 402 p. \$110.00

Silver has long played an important role in chemistry, and has become especially prominent with the rise of nanoscale processes, but study of it has mostly been in the context of broader studies on coinage metals in chemistry. Here chemists from around the world offer a reference specifically on silver and its salts in organic chemistry, emphasizing synthesis. Among their topics are cycloaddition reactions, sigmatropic rearrangements and related processes promoted by silver, silver(I)-mediated electrocyclic processes, cycloisomerization reactions catalyzed by silver, silver carbenoids, aldol and related processes, coupling reactions promoted by silver, the supramolecular chemistry of silver, and a critical comparison of the three coinage metals.

QD505 2010-286592 978-3-527-32040-0

Synthesis of solid catalysts.

Title main entry. Ed. by Krijn P. de Jong.

Wiley-VCH, ©2009 401 p. \$215.00

Chemists and other scientists offer an introduction for students and newcomers to the field, and a reference for experienced researchers to synthesizing catalysts that can be used in energy, chemical, and environmental processes. First setting out the principles and tools, then citing case studies, they explore such topics as interfacial chemistry, impregnation and drying, deposition precipitation, clusters and immobilization, high-throughput experimentation, concepts for preparing zeolite-based catalysts, hydrotreating catalysts, and gold catalysts. Many color illustrations are included.

QD576 978-0-87849-155-1

Carbon based nanomaterials.

Title main entry. Ed. by Nasar Ali et al. (Material science foundations; v.65-66)

Trans Tech Publications, ©2010 322 p. \$166.00

(pa)

Being one of the most flexible elements, carbon draws a lot of attention in most areas of science, and the 10 extended studies here show how it is figuring in the science of materials manipulated at the nanometer scale. They cover diamondoid hydrocarbons; carbon nanotubes as electron sources; nanocrystalline diamond coatings for advanced acoustic devices; depositing nanocrystalline diamond by Ar/H₂/CH₄ microwave discharges; the growth, properties, and applications of thick self-standing blocks of multi-walled carbon nanotubes; chemical vapor deposition as a route to microcrystalline, nanocrystalline, ultrananocrystalline, and single-crystal diamond films; the synthesis, atomic structures, and properties of carbon nanostructured materials; chemical vapor deposited diamond for thermoplastic injection molds; composites of carbon nanotubes and polymers for biomedical applications; and nanostructured coatings. There is no index.

BIOLOGY

QH324 2009-049470 978-1-4200-7017-0

Bayesian modeling in bioinformatics.

Title main entry. Ed. by Dipak Dey et al. (Chapman & Hall/CRC biostatistics series; 34)

CRC Press, ©2011 440 p. \$89.95

Specialists explore the development and application of Bayesian statistical methods in medical research, particularly research related to cancer and other diseases, and to molecular and structural biology. The main focus is on data sets arising from the high-throughput experiments microarray gene expression and phylogenetic analysis. The topics include estimation and testing in time-course microarray experiments, Bayesian robust inference for differential gene expression, sparsity priors for predicting interaction between proteins, and Bayesian methods for detecting differently expressed genes.

QH324 2010003953 978-1-4398-1488-8

Bioinformatics; high performance parallel computer architectures.

Title main entry. Ed. by Bertil Schmidt. (Embedded multi-core systems)

CRC Press, ©2011 356 p. \$129.95

For researchers, and scholars of high-performance computing and bioinformatics, Schmidt (computer engineering, Nanyang Technological U., Singapore) brings together 14 chapters that explain how to use bioinformatics applications and algorithms with modern parallel architectures in high-performance computing. After background

chapters on important algorithms, general-purpose graphic processors, and massively threaded programming and reconfigurable computing with field-programmable gate arrays, researchers in the field present recent approaches to parallelize bioinformatics applications on a variety of parallel architectures, including pairwise and multiple sequence alignment, the basic local alignment search tool, motif finding, pattern matching, sequence assembly, hidden Markov models, proteomics, and evolutionary tree reconstruction.

QH438 2010-013135 978-0-470-45224-0

Biomarkers; in medicine, drug discovery, and environmental health.

Title main entry. Ed. by Vishal S. Vaidya and Joseph V. Bonventre.

John Wiley & Sons, ©2010 602 p. \$149.95

Researchers in medicine, pharmacology, and physics, and contributors from drug regulating agencies survey characteristics that when measured can provide information about normal or pathological biological processes. They cover tools for discovering biomarkers, biomarkers for injury or disease, technology for detecting biomarkers, and hot topics in biomarker research. Among their topics are proteomics for biomarker discovery, biomarkers of Alzheimer's and Parkinson's Diseases, lung injury biomarkers, in search of biomarkers for drug-induced vascular injury, biomarkers in obstetric medicine, techniques based on immunoassays for measuring biological materials used for biomarker discovery and translational research, nanoscale techniques for quantifying biomarkers, biomarkers for environmental exposure, and regulatory perspectives for biomarker qualification from the US Food and Drug Administration. Color plates are provided on 16 pages.

QP517 2010-013122 978-0-470-16935-3

Biophysical chemistry of biointerfaces.

Ohshima, Hiroyuki.

John Wiley & Sons, ©2010 547 p. \$135.00

Seeking an analogy for the colloid and interface science that considers phenomena in non-biological interfaces, Ohshima (pharmaceutical science, Tokyo U. of Science) sets out a set of tools for discussing various phenomena at biological interfaces—such as cell surfaces—in terms of biophysical chemistry. He covers potential and charge at interfaces, interaction between surfaces, and electrokinetic phenomena at interfaces. Among specific topics are potential distribution around a non-uniformly charged surface and discrete charge effects, free energy

of a charged surface, force and potential energy of the double-layer interaction between two charged colloidal particles, Derjaguin's approximation at small separations, the electrophoretic mobility of concentrated soft particles, the effective viscosity of a suspension of soft particles, and membrane potential and Donnan potential.

MEDICINE (GENERAL)

R119 2009-052755 978-1-61692-010-4

Grid technologies for e-Health; applications for telemedicine services and delivery.

Title main entry. Ed. by Ekaterina Kldiashvili.

Medical Information Science Reference, ©2011 265 p. \$245.00

Grid is used to characterize high-speed network technologies as an analogy to a power grid, which is designed to provide consistent, pervasive, dependable, and transparent access. This reliability of connection is crucial if a surgeon in one corner of the world is operating on a patient in another. Researchers from the medical and the technological dimensions of telemedicine report on such aspects as applying virtual organizational technology, health and health care grid services and delivery integrating electronic health and telemedicine, grid technology in telepathology and personalized treatment, applications of computational grids in neuro-oncology as a model for cancer sub-specialties, a grid for post-operative care through wireless sensor networks, and a secure teleradiology grid.

R857 2009-038060 978-1-4200754-6-5

Nanomedicine and nanorobotics.

Title main entry. Ed. by Klaus D. Sattler. (Handbook of nanophysics; 7)

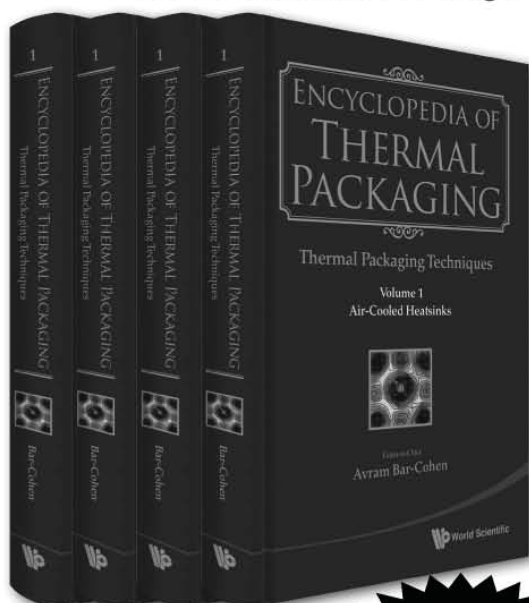
CRC Press, ©2010 --- p. \$139.95

This is the seventh volume of a seven-volume handbook, and it joins the previous two volumes in its focus on applications. (Earlier volumes dealt with theory and methods, and the fundamental physics of nanoscale materials and structures.) The handbook as a whole has the dual purpose of providing an introduction to established fundamentals and covering some significant areas of recent research and application. As stated in the preface, contributions (from an impressively international roster of authors) are written in a "tutorial style, which means that state-of-the-art scientific content is enriched with fundamental equations and illustrations...." Arrangement is in sections on nano-bio interfacing, nanotoxicology, clinical significance of nanosystems, medical imaging, drug delivery, response to nanomaterials, cancer therapy, quantum engines and nanomotors, and

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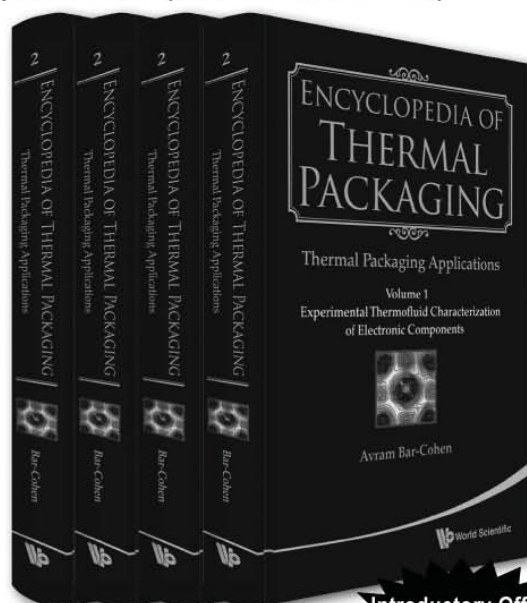
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Successful thermal packaging is the key differentiator in electronic products, as diverse as supercomputers and cell phones, and continues to be of pivotal importance in the refinement of traditional products and in the development of products for new applications. The Encyclopedia of Thermal Packaging, compiled into four multi-volume sets (*Set 1: Thermal Packaging Techniques*, *Set 2: Thermal Packaging Applications*, *Set 3: Thermal Packaging Tools*, *Set 4: Thermal Packaging Configurations*), will provide a comprehensive, one-stop treatment of the techniques, applications, tools, and configurations of electronic thermal packaging.

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The books included in “Set 2: Thermal Packaging Applications” focus on the unique considerations which guide the design and operation of electronic systems in various distinct applications and address the thermal management requirements, operating environments, and best available thermal solutions for these applications. Volumes offered in Set 2 of the Thermal Packaging Encyclopedia will deal with solid state lighting, data centers, power electronics, photovoltaic arrays, and experimental measurement techniques.

nanorobotics (e.g. atomic-force-microscopy-based nanomanipulation systems, MRI-guided nanorobotic systems for drug delivery). An innovator in the field, Sattler is affiliated with the physics department at the U. of Hawaii. His current work focuses on nanomaterials and solar photocatalysis with nanoparticles for the purification of water.

MEDICINE (PUBLIC ASPECTS)

RA577 2010-023846 978-1-4398-0144-4

Sick building syndrome and related illness; prevention and remediation of mold contamination.

Title main entry. Ed. by Walter E. Goldstein.

CRC Press, ©2011 230 p. \$129.95

For consumers, construction experts, scientists, engineers, physicians, and environmental groups, Goldstein, a consultant in chemical engineering and biotechnology, assembles 10 chapters that discuss sick building syndrome and related health problems, with a focus on serious contaminants causing mold. A group of scientists from the US discuss mold genetics and biology, negative health consequences, possible treatments, measuring and understanding infestation, epidemiology and health effects in moisture-damaged damp buildings, a mathematical model of mold propagation and product formation, mold and other contaminant particles, remediation, and repair.

RA652 2009-279487 978-981-279-749-0

Dynamical modeling and analysis of epidemics.

Title main entry. Ed. by Zhien Ma and Jia Li.

World Scientific, ©2009 498 p. \$156.00

Aiming for deep understanding of epidemic dynamics, mathematical modeling is "...based on the occurrence and progressions of diseases and the surroundings [and aims] to characterize the infectious agents, to describe the transmission processes, to analyze origins of the diseases and factors involve in the transmissions, and to predict the prevalence of the diseases and their patterns." This presentation provides a solid foundation for newcomers to the field as well as more advanced investigation for those interested in the frontiers. Coverage begins with the fundamentals and then proceeds to modeling with ordinary differential equations, delays and spatial heterogeneity, and impulsive effects, followed by a chapter on structured epidemic models. The final chapter deals with three diseases—SARS, HIV, and TB—and the specifics of applying the models. Jia Li (U. of

Alabama, USA) is a guest professor at China's Xi'an Jiaotong University, where Zhien Ma heads the mathematical biology group and has been working on the mathematical modeling of infectious diseases and epidemic dynamics since 1995; this book includes their writing and editing as well as contributions from four other China-based mathematicians.

TECHNOLOGY (GENERAL)

T65 2009-053465 978-1-61520-659-9

Web-based engineering education; critical design and effective tools.

Title main entry. Ed. by Donna L. Russell and A.K. Haghi.

Engineering Science Reference, ©2010 235 p. \$180.00

Written by international contributors in engineering and information management, this work will be of interest to professionals in digital training and industrial engineering. It examines web-based engineering education in university and industrial contexts, surveying the development of digital engineering education, its current status, and prospects for the future. Each chapter includes a walk-through of a case problem-solving exercise in a virtual company environment, allowing readers to think critically and approach problems analytically. Some specific areas discussed include a 3D virtual learning environment for engineering students, mobile learning in web-based instruction, designing animated simulations for education in electrical engineering, and the use of living systems to teach basic engineering concepts. Russell is affiliated with the University of Missouri. Haghi is affiliated with the University of Ottawa, Canada.

T174 978-0-87849-252-7

Current application of polymers and nano materials.

Title main entry. Ed. by Amir Al-Ahmed. (Materials science forum; v.657.)

Trans Tech Publications, ©2010 248 p. \$138.00 (pa)

For this special topics volume, 39 specialists from the international scientific community were invited to report their efforts to apply polymers and nanometer-scale materials in such areas as solar cells, fuel cells, catalysis, coating, ion-exchange, and sensors. Their topics include polyurethanes containing metal, characterizing polyaniline-cellulose ester composite membranes with x-ray photoelectron spectroscopy, synthesizing and characterizing titanium dioxide nanotubes for the photocatalytic degradation of aqueous nitrobenzene in the presence of sunlight, a novel

single-site catalyst for olefin polymerization, amorphous and nc-Si:H intrinsic thin films for solar cell applications, and the electrochemical and spectroscopic dynamics of nanostructured polynuclear sulphonic acid-doped poly(2,5-dimethoxyaniline). The information could interest chemists, physicists, materials scientists and engineers, device makers, and others.

T174 2009-278815 978-981-4241-30-4

Excitonic and vibrational dynamics in nanotechnology; quantum dots vs. nanotubes.

Kilina, Svetlana V. and Bradley F. Habenicht.

Pan Stanford Publishing, ©2009 188 p. \$129.00

Using quantum-chemical calculations, Kilina (postdoctoral fellowship at Los Alamos National Laboratory) and Habenicht (postdoctoral fellowship in Chemical and Biomolecular Engineering, U. of Tennessee), investigate excitonic effects in semiconductor quantum dots (QDs) and single-walled quantum nanotubes (SWCNTs). This allows them to obtain descriptions of atomic-level mechanisms that are extremely difficult to measure experimentally. This volume contains the latest research from recent doctoral graduates in physical chemistry and includes a color index.

T174 2010-010146 978-1-61692-006-7

Nanotechnology and microelectronics; global diffusion, economics and policy.

Title main entry. Ed. by Ndubuisi Ekekwe.

Information Science Reference, ©2010 507 p. \$180.00

As the founder of the US-based nonprofit African Institution of Technology, Ekekwe (PhD, electrical and computer engineering, Johns Hopkins U.; founder,) is particularly interested in what has been called the nano-revolution as a driver of global but unequal economic growth. He presents an overview of economic trends, the science involved, and the ethical challenges of their innovative applications. In focusing on the diffusion, economic and policy aspects of these transformative technologies, international contributors to 25 chapters discuss topics including the development of nanofactories that integrate nanotechnology with molecular manufacturing, methods for accelerating innovation and technology transfer, and policies relating to safety and environmental protection. Case studies illustrate how these technologies and policies are transforming industries. Lessons are drawn from agriculture on technological innovation penetration in developing nations.

ENGINEERING (GENERAL, CIVIL)

TA166 2010-004245 978-0-470-48676-4

The economics of human systems integration; valuation of investments in people's training and education, safety and health, and work productivity.

Rouse, William B. (Wiley series in systems engineering and management)

John Wiley & Sons, ©2010 362 p. \$110.00

Human systems integration (HSI) is focused on the effective integration of human behavior and performance into complex systems with the expected economic returns of reduced operating costs, increased profits from greater sales, and increased profits from production efficiencies, but of course it also comes with costs associated with personnel, implementing HSI recommendations, and systems operations and it can therefore be unclear as to whether benefits outweigh costs in any particular situation. In this volume, Rouse (computing and industrial and systems engineering, Georgia Institute of Technology) presents 16 chapters exploring the economics of HSI in the system operational context (e.g., commercial airline and military aircraft operations) and the system engineering context (e.g., commercial development and government procurement). Opening chapters provide overviews of these contexts and reviews of human capital economics, labor economics, defense economics, and engineering economics. Later chapters present discussion of methods and tools, including parametric cost estimation, multistage real options, and organizational simulation of economic assessment. Finally, five case studies are presented.

TA168 2010-286606 978-3-527-40781-1

Agent-directed simulation and systems engineering.

Title main entry. Ed. by Levent Yilmaz and Tuncer Ören. (Wiley series in systems engineering and management)

Wiley-VCH, ©2009 520 p. \$200.00

The use of agents in simulation modeling and systems engineering has unfortunately been limited, according to Yilmaz (computer science and engineering, Auburn U., US) and Ören (emeritus, computer science, U. of Ottawa, Canada), to the development of models that use agents as design metaphors. They call for and explain a broader use of agents in what they call agent-directed simulation, which includes simulation for agents (i.e. "simulation of agent systems in engineering, human and social dynamics, military applications, etc."), agent-supported simulation (which "deals with the use

of agents as a support facility to enable computer assistance in problem solving, experimentation, or enhancing cognitive capabilities”), and agent-based simulation (which “focuses on the use of agents for the generation of model behavior in a simulation study”). Through such an approach, they argue, the synergy between systems engineering, simulation modeling, and agent technologies can lead to the mutual advancement of all areas. They provide an overview of the three areas; describe principles, methods, tools, and environments; and discuss application in such areas as testing and evaluation, process performance analysis, decision support, and organization and work system engineering.

TA168 2010-012611 978-1-4200-7666-0
Engineering mega-systems; the challenge of systems engineering in the information age.

Stevens, Renee. (Complex and enterprise systems engineering)

CRC Press, ©2011 226 p. \$89.95

Stevens, a systems engineer for the MITRE Corporation, a non-profit defense and aeronautics think tank, presents a discussion of mega-systems and the special challenges involved in their planning, implementation and maintenance. Mega-systems, such as an inter-continental air defense program, are ultra-complex synergistic systems that often share a few common traits. They are often made up of sub-systems that are complete in their own right and that may be owned or managed by separate authorities. The component parts of the mega-system may often be created or acquired separately at different times and by different methods. This volume details the fundamental framework of mega-system engineering and provides case studies that illustrate key concepts.

TA168 2010-005490 978-1-4200-7329-4
Enterprise systems engineering; advances in the theory and practice.

Title main entry. Ed. by George Rebovich, Jr. and Brian E. White. (Complex and enterprise systems engineering)

CRC Press, ©2011 457 p. \$89.95

Loosely coming out of a focus group at the MITRE Corporation, this volume is intended to expand traditional systems engineering to the overall situation of enterprises. Systems development projects are often over budget and out of date upon actual deployment, and this book attempts to incorporate the ideas of complexity science and adaptive systems toward engineering solutions that can better handle ever increasing unpredictability. Examples in the book most often come out of MITRE’s work with

the United States Air Force on command and control systems. Most of the pieces are written by employees of MITRE and the volume is edited by Rebovich and White (the present and former directors of the Systems Engineering Practice Office at MITRE Corporation). Contains a useful list of acronyms at the end of each chapter with cross-references provided in the index as well.

TA168 2010-026751 978-1-4398-0630-2
Reverse engineering; technology of reinvention.

Wang, Wego.

CRC Press, ©2011 331 p. \$139.95

Wang, a technical instructor and researcher in mechanical engineering who works in parts manufacturer approval and engine certification programs, describes the principles, methodologies, and other aspects of reverse engineering. He covers the proper measurements and analyses required to duplicate, reproduce, or repair an original equipment manufacturer part and discusses using the process in industries such as aerospace, automotive, and medical device manufacturing, as well as in academic research, accident investigation, and legal and forensic analyses. He also explains geometric measurement, part evaluation, materials identification, manufacturing process verification, data analysis, system compatibility, intelligent property protection, and regulations and legal precedents.

TA169 2010-027597 978-0-87389-796-9
The power of deduction; failure modes and effects analysis for design.

Anleitner, Michael A.

ASQ Quality Press, ©2011 194 p. \$70.00

A consultant engineer with a background in friction materials and devices, Anleitner explains that failure mode and effects analysis is a formal process or study in which a subject is examined in detail and risk is assessed. It can be used to help inform the design of components, whole products, or processes. He discusses the right way to use it, defining the project, understanding function, deducing failure modes, effects and severity, causes and occurrences, controls and detection, assessing and addressing risk, and using the process constructively.

TA170 2010-928632 978-1-58829-439-7
Environmental bioengineering.

Title main entry. Ed. by Lawrence K. Wang et al. (Handbook of environmental engineering; v.11)

Humana Press Inc., ©2010 867 p. \$179.00

Like its companion predecessor (volume 10: Environmental Biotechnology) in the Handbook

of Environmental Engineering series, this volume is intended as a both textbook and reference for advanced undergraduate and graduate students, designers of biotechnology and bioengineering systems, and researchers. The preface lays out the editors' belief that engineers need to understand fundamental principles, be aware of differences among systems and solutions, and be flexible and creative in their application. Twenty-three contributed chapters address in detail the treatment and disposal of biosolids, ultrasound pretreatment of sludge for anaerobic digestion, kitchen refuse fermentation, phytoremediation of heavy metal contaminated soils and water using vetiver grass, and wetlands for wastewater treatment, among other topics. The four editors are affiliated as follows: Lawrence K. Wang (Lenox Institute of Water Technology, US), Joo-Hwa Tay and Stephen Tiong-Lee Tay (Nanyang Technological U., Singapore), and Yung-Tse Hung (Cleveland State U., US).

TA174 2009-280674 978-981-283-676-2
Service science; design for scaling and transformation.

Hsu, Cheng.

World Scientific, ©2009 302 p. \$77.00

The service economy is not just post-industrial revolution, says Hsu (Rensselaer Polytechnic Institute, US), it is also post-knowledge economy; it is more than answering phones and flipping burgers, but the seed crystal for an economy—and society—built around the concept of service. The idea and practice of service will have to be deeper and broader, of course, so he presents a theory of service scaling and transformation that he calls digital connections scaling. Within this framework, he identifies some of the research that must be conducted to support the transition to a truly service economy. His topics include defining the interdisciplinary nature of service science, a population oriented paradigm and cyber-enabled knowledge system design, a design methodology for service co-creation enterprise information systems, and a market paradigm for collaboration by independent massively distributed information resources.

TA404 2010-015277 978-1-84821-193-3
Mechanical characterization of materials and wave dispersion; instrumentation and experiment interpretation.

Title main entry. Ed. by Yvon Chevalier and Jean Tuong Vinh.

ISTE/Wiley, ©2010 458 p. \$225.00

Editors Chevalier (emeritus, Institut Supérieur de Mécanique de Paris, France) and Vinh (emeritus,

mechanical engineering, U. of Paris VI, France), and six co-authors offer a collection of what are essentially scientific papers on mechanical characterization of materials and wave dispersion. The text begins with discussions of mechanical set-ups and is followed by discussion of practical considerations as they relate to different types of practical and realistic conditions. Some specific subjects addressed include: exciters and excitation signals, transducers, measurement of structural damping, torsion test benches and ultrasonic benches, and longitudinal vibration of rods. While technical, the book is clearly written and includes clear, meaningful illustrations.

TA418 2009-049316 978-0-470-72135-3
Mechanics and physics of porous solids.

Coussy, Olivier.

John Wiley & Sons, ©2010 281 p. \$140.00

Coussy (U. Paris-Est) explores the unusual characteristics and behavior of various kinds of solids with pores of differing size, suggesting but not describing to any extent their possible engineering potential. In many cases, the interesting features involve interactions of porous solids with fluids, and even more when the fluid changes phase—as when a liquid freezes or a vapor condenses within the porous solid. He covers fluid mixtures, the deformable porous solid, the saturated poroelastic solid, fluid transport and deformation, surface energy and capillarity, the unsaturated poroelastic solid, unconfined phase transition, phase transition in porous solids, and the poroplastic solid.

TA418 2010-012624 978-1-84821-151-3
Nanomaterials and surface engineering.

Title main entry. Ed. by Jamal Takadom.

ISTE/Wiley, ©2010 354 p. \$135.00

Takadom (micro-nano sciences and systems, National Engineering Graduate School of Mechanics and Microtechnologies, France) presents twelve chapters focusing on a variety of particular problems and aspects relevant to the development, characterization, or production of nanomaterials. Specific topics include architecture of thin solid films by the GLAD technique, transparent polymer nanocomposites as a new class of functional materials, nanostructures by ion irradiation, microencapsulation, decorative PVD coatings, microwave chemistry and nanomaterials, aluminum-based nanostructured coatings deposited by magnetron sputtering for corrosion protection of steels, nanolayered hard coatings for mechanical applications, plating of nanocomposite coatings, nanostructured coatings, characterization of coatings, and

high temperature oxidation resistance of nanocomposite coatings.

TA418 2010-005168 978-0-470-74585-4

Nanostructured conductive polymers.

Title main entry. Ed. by Ali Eftekhari.

John Wiley & Sons, ©2010 776 p. \$255.00

Eftekhari (chemistry, Ohio Institute of Technology) assembles 19 chapters that introduce the connected fields of nanotechnology and conductive polymers, beginning with chapters on conductive polymers and nanostructured conductive polymers and surface studies. An international group of researchers in the fields then discuss a variety of nanomaterials made of conductive polymers, their properties, and methodology, including electrospinning, composites and carbon nanotubes, inorganic-based and metallic-based nanocomposites, spectroscopy, atomic force microscopy, single conducting-polymer nanowires, micro and nanocontainers, and conjugated polymer solar cells. The final section covers applications of conductive polymers that have evolved due to nanotechnology, including chemical and electrochemical sensors, polymer-based actuators, electroactive conducting polymers, electrocatalysis, biomaterials, and nanofillers.

TA418 2009-004990 978-1-60692-162-3

Nanotechnology; nanofabrication, patterning and self assembly.

Title main entry. Ed. by Charles J. Dixon and Ollin W. Curtines. (Nanotechnology science and technology)

Nova Science Publishers, ©2010 643 p. \$139.00

Recent activity at the scale of atoms and molecules is discussed in research and review articles by materials scientists and related researchers. Among the topics are nanotechnologies for cancer diagnostics and treatment, the mechanical characterization at nanometric scale of ceramic superconductor composites, fabricating electrical contacts on individual metal oxide nanowires and novel-device architectures, the sequential nucleation and growth of complex nanostructures using a two-step strategy, the fabrication and enhanced photoluminescence of nanoshell arrays, nanocrystalline superhard titanium nitride film in multi-arc ion plating, and nanofinishing cotton textiles.

TA418 2010-019516 978-0-470-62592-7

Polymer nanotube nanocomposites; synthesis, properties, and applications.

Title main entry. Ed. by Vikas Mittal.

John Wiley & Sons, ©2010 460 p. \$175.00

Scientists and engineers both from materials

science and from fields where advanced materials are used, assemble from the technical literature information on the properties of nanotubes and how they influence the properties of polymer materials they are incorporated into. Their topics include new microscopy techniques for understanding polymer/nanotube composite properties better, polymer nanocomposites with clay and carbon nanotubes, properties of polyurethane/carbon nanotube nanocomposites, the synthesis and properties of vinyl polymer/carbon nanotube nanocomposites prepared by suspension polymerization, polylactide-based carbon nanotube nanocomposites, elastomers filled with carbon nanotubes, effects of structure and morphology on the tensile properties of polymers, and promises and current challenges. Co-published with Scrivener Publishing, LLC.

TA418 978-0-87849-257-2

Thermal and thermodynamic stability of nanomaterials.

Title main entry. Ed. by Suresh Chandra Parida. (Materials science forum; v.653)

Trans Tech Publications, ©2010 152 p. \$138.00 (pa)

Containing only invited peer reviewed papers, this volume explores how thermal stability both affects the size of nanomaterials during synthesis and the appropriate applications of the results. The high surface to volume ratio of nanomaterials can result, for instance, in key differences between them and their bulk counterparts in thermo-physical properties, such as melting points and the amount of heat required for formation. Most of the papers come from researchers in India, and quality in editing and translation varies. Contains very short keyword and author indices.

TA455 2010-005494 978-1-57444-780-4

Polymer melt fracture.

Koopmans, Rudy et al.

CRC Press, ©2010 319 p. \$169.95

Chemist Koopmans and physicist, mathematician Jaap den Doelder (both with a giant chemical company), and Jaap Molenaar (applied mathematics, Wageningen U., the Netherlands) address the problem that when polymer is extruded at a fast enough rate to make a satisfactory profit, it is often distorted, a phenomenon called melt fracture. Their topics include pictures of polymer melt fracture through optical microscopes and scanning electron microscopes, polymer characteristics, polymer rheology, polymer processing, melt fracture experiments, variables, understanding melt fracture, modeling it, and preventing it.

TA487 2009-018837 978-1-60741-789-7

Shape memory alloys; manufacture, properties, and applications.

Title main entry. Ed. by H.R. Chen. (Materials science and technologies)

Nova Science Publishers, ©2010 546 p. \$295.00

The metals can be distorted, then heated to return them to their original shapes, and have potential as a lightweight, solid-state alternative to conventional actuators. Materials scientists from many countries report their own research or review the literature on such matters as fabrication and surface modification of porous nickel-titanium shape memory alloy for bone grafts, interaction between Martensitic transformations and defects during thermal and pseudoelastic cycling in CuAlNi single crystals, the shape memory effect in anti-ferromagnetic alloys, the dependence of transformation temperatures of shape memory alloys on the number and concentration of valence electrons, and the micromechanical modeling of shape memory alloy composites.

TA658 2010-018870 978-1-4398-2003-2

Optimization of finite dimensional structures.

Ohsaki, Makoto.

CRC Press, ©2011 425 p. \$129.95

Providing a bridge between the communities of structural optimization in mechanical engineering and the researchers and engineers in civil engineering, Ohsaki (Hiroshima U., Japan) introduces methodologies and real-world applications related to optimizing frame structures such as trusses, building frames, and long-span structures. He covers various formulations of structural optimization, design sensitivity analysis, optimizing the topology and configuration of trusses, optimizing building frames, and optimizing spatial trusses and frames. Mathematical details are provided in appendices.

TA1632 2010-008437 978-0-470-74962-3

Holographic data storage; from theory to practical systems.

Title main entry. Ed. by Kevin Curtis et al.

John Wiley & Sons, ©2010 420 p. \$155.00

Reminding readers that the field of digital information storage is more than 50 years old, Curtis and his colleagues at InPhase Technologies, Longmont, CO, have compiled this volume timed to coincide with the release of the first commercial product using a new holographic approach to storage technologies: a professional archive storage drive using removable disk

media. Unlike optical storage technologies (CDs, DVDs, Blue-ray disks) that stream data one bit at a time, holographic devices write data in three dimensions. Contributors explain the design, components, and functioning of such devices, hoping that others may use this book as a blueprint for developing similar products to meet the growing need for archival storage capacity. InPhase Technologies is a spin off of Bell Laboratories.

TA1650 2009-052794 978-1-61520-991-0

Advances in face image analysis; techniques and technologies.

Title main entry. Ed. by Yu-Jin Zhang.

Medical Information Science Reference, ©2011 382 p. \$245.00

Computer scientists, electrical engineers, and others engaged with computer imaging survey results so far in the computer recognition and analysis of faces from moving or still images. They consider facial feature extraction, feature dimensionality reduction, face recognition, facial expression classification, and invariance techniques. Among the topics are face searching in large databases, transform-based feature extraction and dimensionality reduction techniques, sparse representation for view-based face recognition, facial expression analysis by machine learning, and pose and illumination invariance with compound image transforms. Medical Information Science Reference is an imprint of IGI Global.

ENVIRONMENTAL TECHNOLOGY

TD193 978-1-4200-6915-0

Manual of environmental analysis.

Aery, N.C.

CRC Press, ©2010 413 p. \$129.95

Aery (botany, Mohanll Sukhadia U., Udaipur) offers a single-volume compendium of techniques for environmental analysis that are regularly used in environmental impact assessment, monitoring, and control. He intends it as a laboratory manual for teaching managers and planners in the various environmental sciences. Among his topics are the physical and chemical examinations of water and waste water, the microbiological examination of soil, environmental radioactivity monitoring, bioassay, analyzing plant material, analyzing air, measuring noise, the effect of pollutants on plants, biomonitoring, environmental impact assessment, environmental auditing, and statistics in environmental sciences.

MECHANICAL ENGINEERING & MACHINERY

TJ211 978-0-470-48417-3

Robotic micro-assembly.

Gauthier, Michaël and Stéphane Régnier.

John Wiley & Sons, ©2010 306 p. \$110.00

With contributions by researchers from around the world, this volume edited by Gauthier (Centre National de la Recherche Scientifique) and Régnier (head, micromanipulation team, Institut des Systemes Intelligents et Robotique) covers state of the art techniques for the assembly of microelectromechanical systems (MEMS) through the use of robots. Adhesion and surface forces are of greater concern at the micro-level and thus receive attention in the first part of the book, followed by sections on handling strategies and micro-design and assembly. Co-published with the IEEE Press.

TJ220 2010-019543 978-1-4398-3522-7

Reliable control and filtering of linear systems with adaptive mechanisms.

Yang, Guang-Hong and Dan Ye. (Automation and control engineering)

CRC Press, ©2011 252 p. \$119.95

This book presents the authors' original research on designing reliable controllers and filters for linear systems. Examples demonstrate how adaptive mechanisms can be introduced into traditional reliable control/filters for linear systems. The book focuses exclusively on reliable control/filtering in the framework of the indirect adaptive method and linear matrix inequalities (LMI) techniques. After an opening chapter reviewing linear matrix inequalities, the book covers adaptive reliable control and filtering against actuator faults and sensor faults, and adaptive reliable control for time-delay systems, actuator saturation, and nonlinear time-delay systems. Case studies come from the aerospace industry. Yang and Ye are affiliated with Northeastern University, China.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2931 2010-034661 978-0-470-41029-5

Fuel cell science; theory, fundamentals, and biocatalysis.

Title main entry. Ed. by Andrzej Wieckowski and Jens K. Nørskov. (The Wiley series on electrocatalysis and electrochemistry; 4)

John Wiley & Sons, ©2010 618 p. \$149.95

Chemists, physicists, and materials scientists from across the industrial world discuss some essential topics in the science of fuel cell

electrocatalysis, demonstrating the increased importance of theory and modeling in the field, and the emergence of the subspecialty bioelectrocatalysis. Among their topics are hydrogen reactions on nanostructured surfaces, designing palladium-based alloy electrocatalysts for hydrogen oxidation reaction in fuel cells, biocathodes for dioxygen reduction in biofuel cells, the importance of enzymes as benchmarks for electrocatalysts, an approach to microbial fuel cells and their applications, fuel cells with neat proton-conducting salt electrolytes, the electronic structure and reactivity of transition metal complexes, understanding electrocatalysts for low-temperature fuel cells, and the operando X-ray absorption spectroscopy of polymer electrolyte fuel cells,

TK2943 978-1-60807-104-3

Battery management systems for large lithium-ion battery packs.

Andrea, Davide.

Artech House, ©2010 290 p. \$139.00

With the boom in hybrid-electric automobiles and advances in solar and other battery intensive technologies, new systems for the management of lithium-ion batteries are in demand. Andrea, an experienced battery systems expert, presents this guide for engineers designing, deploying or maintaining lithium-ion battery management systems (BMS). Outlining battery types and functions, BMS design, procurement, production and deployment, this volume includes step-by-step technical information as well as circuit diagrams and illustrations. Access to additional and updated information, online tools and a discussion forum is included.

TK2960 978-1-4398-0866-5

Dye-sensitized solar cells.

Title main entry. Ed. by Kuppuswamy Kalyanasundaram. (Fundamental sciences; chemistry)

CRC Press, ©2010 604 p. \$129.95

Artificial photosynthesis may be the key to energy independence. Kalyanasundaram (Swiss Federal Institute of Technology, Lausanne) introduces the rapidly-evolving technology of dye-sensitized solar cells (DSCs) in the context of other technologies that convert sunlight to electricity in photovoltaic solar cells. In 13 chapters, international scientists overview the material choices and performance features of key components of DSCs, and experimental techniques, physical models, and theoretical/computational methods for understanding the parameters that control the performance of solar cells. The monograph also includes chapters treating issues faced in commercial

applications of the technology, e.g., large-area solar panels.

TK5102 2010-007107 978-1-4398-3055-0
Signals and systems laboratory with MATLAB.

Palamides, Alex and Anastasia Veloni.

CRC Press, ©2011 549 p. \$79.95

Palamides, with the European Space Agency's European Space Research and Technology Center in the Netherlands, and Veloni (electronic and computer systems, Technological Education Institute of Piraeus, Athens, Greece) present a textbook for the laboratory part of a signals and systems course or as a companion to a standard textbook. It includes all the necessary theory, they say, so it can also be used alone by engineers, scientists, and students. After an introduction to the MATLAB software, they discuss signals, systems, time domain system analysis, the Fourier series and transform, the Fourier analysis of discrete-time signals, frequency response, the Laplace transform, the z transform, and the transfer function. Each chapter includes solved problems and homework problems.

TK5103 2010931711 978-0-7695-4169-3
Fault diagnosis and tolerance in cryptography; proceedings.

Workshop on Fault Diagnosis and Tolerance in Cryptography (7th: 2010: Santa Barbara, CA) Ed. by Luca Breveglieri et al.

Computer Society Press, ©2010 105 p. \$176.00 (pa)

Eight of the papers of this proceedings were first presented at the Seventh International Workshop on Fault Diagnosis and Tolerance in Cryptography, held in Santa Barbara, Calif. in August 2010, with topics such as differential fault analysis against AES-192 and AES-256 with minimal faults, optical fault masking attacks, and fault injection resilience. The remaining two are invited papers: Generic analysis of small cryptographic leaks, by Itai Dinur and Adi Shamir (both at The Weizmann Institute, Rehovot, Israel) and Multi-fault laser attacks on protected CRT-RSA, by Elena Trichina (STMicroelectronics, Rousset, France) and Roman Korkikyan (Institute EURECOM, Sophia-Antipolis, France). Author indexed only.

TK5103 978-1-59693-309-5
Modern communications receiver design and technology.

Drentea, Cornell. (Artech House intelligence and information operations series)

Artech House, ©2010 462 p. \$149.00

This textbook and reference on the subject of radio frequency receivers (RF) presents the history and design of several types of RF units. Chapters include discussions on superheterodyne receivers, dynamic range, mixers, frequency synthesizers, automatic gain control and beat frequency oscillators and additional sections cover advanced topics like digital signal processing and software radio as well as electronic warfare receivers. Intended for electrical engineering students or serious RF hobbyists this volume contains numerous schematics and illustrations. Drentea is an electrical engineer with over forty years experience and has worked for Honeywell and Hughes/Raytheon.

TK5103 2010-005593 978-0-470-68173-2
Personal networks; wireless networking for personal devices.

Jacobsson, Martin et al. (Wiley series in communications networking and distributed systems)

John Wiley & Sons, ©2010 208 p. \$115.00

This work discusses recent scholarship in the field of personal networks and their place in the cutting edge electronics concept of the "Internet of things." Based on the idea that in the near future personal electronic devices such as mobile phones, cameras, computers and even medical monitoring devices or automated home services will exist in an interconnected wireless network, this volume presents an overview of the technologies available now and discusses existing prototypes and future advances. Intended for network and hardware engineers and graduate students in network communications this volume covers such topics as network architecture, cluster formation and routing, inter-cluster tunneling, foreign devices, application management and network security. An appendix of related web resources is provided. Jacobsson, Niemegeers, and Heemstra de Groot are associated with the Delft University, Netherlands.

TK5103 2009-051702 978-0-521-11403-5
Wireless communication systems; from RF subsystems to 4g enabling technologies.

Du, Ke-Lin and Swamy, M.N.S.

Cambridge U. Press, ©2010 985 p. \$95.00

Du and Swamy (Center for Signal Processing and Communications, Concordia U., Canada) provide a comprehensive textbook on the major enabling techniques for current and next-generation cellular communications and wireless networking systems. Covered technologies include CDMA, OFDM, UWB, turbo and LDPC coding, smart antennas, wireless ad hoc and sensor networks, and cognitive radios. The text also includes

an introduction to the properties, design, and selection of RF subsystems and antennas, as well as an introduction to speech coders and video coders in wireless systems. The book also will interest researchers in wireless communications and wireless and telecom engineers. While the subject is very technical, the writing is clear and concise.

TK5105 2010-020562 978-1-4398-0315-8

Cloud computing and software services; theory and techniques.

Title main entry. Ed. by Syed A. Ahson and Mohammad Ilyas.

CRC Press, ©2011 442 p. \$99.95

This comprehensive guide to cloud computing provides a state of the art overview of systems and software that deliver data storage and management and software services in today's networked computing environment. Beginning with an overview of cloud computing infrastructure and covering such topics as large scale data-processing, parallel computing, transparent cross-platform access and QoS in cloud networks, this volume, directed towards system designers and researchers, is intended as a reference guide to current scholarship on the subject. All articles are extensively notated and contain numerous illustrations and code examples. Contributors include academics in computer science, informatics and engineering from universities around the world.

TK5105 2010-018872 978-1-4398-3453-4

Cloud computing strategies.

Chorafas, Dimitris N.

CRC Press, ©2011 340 p. \$79.95

Chorafas (consultant in strategic planning, risk management, computers and communications systems, internal controls) offers guidance for information technology professionals and departments, consultants, and company managements considering cloud computing. The author asks readers to draw their own conclusions after reading his assessment of the strengths and weaknesses of cloud computing. Topics include the cloud computing market, what it has to offer, user organizations, open architecture, Internet cloud security, and reliability, fault tolerance, and response time. Case studies on cloud computing applications also are included.

TK5105 2009-052437 978-1-61520-973-6

Developing advanced web services through P2P computing and autonomous agents; trends and innovations.

Title main entry. Ed. by Khaled Ragab et al.

Information Science Reference, ©2010 268 p. \$180.00

Stand-alone chapters in this book look at autonomous peer-to-peer web services models and emerging technologies. Major themes are multi-agent systems development, context searching, framework design, and web service applications. Some specific subjects examined include a mode for adaptive, ensemble, multi-agent based intrusion detection, techniques for request-driven cross-media content adaptation, a self-organized structured overlay network for video streaming, and web services for quality-of-service based charging. The book's readership includes researchers and academics working in the fields of peer-to-peer computing, web and grid services, and agent technologies. Ragab is affiliated with King Faisal University, Saudi Arabia.

TK5105 2009-504190 978-3-598-25179-5

Folksonomies; indexing and retrieval in Web 2.0.

Peters, Isabella. (Knowledge & information; studies in information science)

De Gruyter Saur, ©2009 443 p. \$84.00

This book is a comprehensive look at folksonomies—systems of organizing digital information that rely on user-created "tags" rather than pre-existing classification criteria. In this volume, Peters (information science, Heinrich-Heine-Universität Düsseldorf) examines the ways in which folksonomies can be used to represent and retrieve information, and looks at the strengths and weaknesses of these systems. The author also provides guidance for transferring existing systems of information organization and retrieval that can be transferred to folksonomies.

TK5105 2009-044837 978-1-61520-839-5

Visual knowledge modeling for semantic web technologies; models and ontologies.

Paquette, Gilbert.

Information Science Reference, ©2010 473 p. \$180.00

The author credits some contributors, but he has essentially shaped the whole presentation, which is based on almost two decades of work at the LICEF research center at Télé-université, Canada's oldest distance university. Modeling was the primary tool for investigating the complexities of teaching and learning at a distance—to understand and improve the design, production, and delivery of material in the interests of transmitting knowledge. Such activities of course, have plenty of applications outside the context of universities, and the

research project became linked with large companies and professional organizations for further development. The premise is that the visual representation of knowledge is key to enhanced use of the Internet for learning, by individuals and organizations. Appropriately, in the introduction Paquette charts the chapters of the books and identifies pathways for various readers: those who want an overview, those who are more technically inclined and interested in ontologies and the semantic web, those interested mainly in educational applications of visual modeling, and those interested mainly in knowledge management applications.

TK5105 2010-003319 978-0-470-72197-1
WiMAX security and quality of service; an end-to-end perspective.

Title main entry. Ed. by Seok-Yee Tang et al.

John Wiley & Sons, ©2010 383 p. \$120.00

This collection of articles about the popular WiMAX wireless broadband standard examines contemporary topics in the areas of wireless network security and QoS. Due to the complexities of this growing technology and the specific ad hoc nature of the connections in the protocol, special attention must be paid to the distribution of bandwidth among competing services and the security of the information passed through WiMAX connections. The work includes an introductory overview of the WiMAX architecture as well as a section on advanced topics. Intended for engineers and communications technology researchers, contributors include electronics engineers and computer scientists and communications academics from universities around the world.

TK6570 2010-003318 978-0-470-74602-8
RFID systems; research trends and challenges.

Title main entry. Ed. by Miodrag Bolic et al.

John Wiley & Sons, ©2010 552 p. \$145.00

This volume presents current research on RFID systems and the obstacles to their widespread adoption. Integral to the "Internet of things" concept of a near future where consumer goods and other objects are interconnected by wireless networks, RFID technology faces several technological hurdles in the areas of interference, reliability and standards adoption across manufacturing sectors. Divided into four sections covering the components of RFID systems, TAG identification protocols, reader infrastructure networking and advanced topics such as cryptography and self-powered systems, the work is intended for engineers and high level

electronics engineering students. Contributors represent industry leaders such as Intel and Tektronix and universities from around the world.

TK7871 2010-011811 978-1-4398-2694-2

Radiation effects in semiconductors.

Title main entry. Ed. by Krzysztof Iniewski. (Devices, circuits, and systems)

CRC Press, ©2011 415 p. \$149.95

Academic and corporate scientists and engineers in the US and Europe analyze the impact of radiation on matter in order to understand the degradation effects observed in semiconductor devices, circuits, and systems when they are irradiated. The main concern is in space, where radiation is ubiquitous and shielding expensive. Their topics include the effects of hydrogen on the radiation responses of field-oxide field-effect transistors and high-K dielectrics, radiation-hard voltages and current references in standard CMOS technologies, characterizing the real-time soft error rate of advanced SRAMs, autonomously detecting and characterizing radiation-induced transients in semiconductor integrated circuits, and fault-injection techniques for analyzing dependability.

TK7875 978-1-60807-043-5

MEMS-based integrated navigation.

Aggarwal, Priyanka et al. (Artech House GNSS technology and application series)

Artech House, ©2010 197 p. \$109.00

Specifically focused on the use of microelectromechanical systems (MEMS) for navigation of land vehicles, this volume both attempts to fill large gaps in the literature and focuses on the underlying theory. These relatively new, low-cost inertial sensors are gaining increasing use and their initial alignment and possible errors in use receive attention. It also includes forays into artificial neural networks and particle filters. The authors all met while pursuing doctoral degrees at the University of Calgary, with Dr. El-Sheimy as their primary professor. Includes an appendix offering specific equations for extended Kalman filtering (EKF) implementation.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL563 2010-019966 978-1-60086-762-0

Multiple scales theory and aerospace applications.

Ramnath, Rudrapatna V. (AIAA education series)

Amer. Inst. of Aeronautics & Astronautics, ©2010 587 p. \$99.95

A consultant mostly in Asia working at the intersection of technology, business, and education, Ramnath writes here for aerospace engineers working with sophisticated flight vehicle systems such as aircraft, missiles, and space vehicles. He introduces the concepts and techniques of multiple scaling as a general approach to the dynamic analysis and control of modern high-performance scientific and engineering systems. The approximations approach is founded on asymptotic analysis and perturbation theory, which deal with the study of applied mathematical systems in limiting cases.

TL574 2010-016490 978-1-84821-141-4

Handbook of compressible aerodynamics.

Délery, Jean.

ISTE/Wiley, ©2010 744 p. \$195.00

This is an introduction to compressible flow aerodynamics in the context of non-viscous fluid approximation, illustrated by concrete applications, for doctoral students and young engineers that is based on a course given at the Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, U. of Versailles-Saint-Quentin and Ecole Polytechnique, France. The material is presented in three parts that present basic notions in classic aerodynamics and related areas of thermodynamics, the theory of the one-dimensional steady flows and the theory of discontinuities (shock waves and slip lines), and the theory of characteristics and its applications to the study of steady two-dimensional supersonic flows and one-dimensional unsteady flows.

TL718 2009-054381 978-0-470-05819-0

Unmanned aircraft systems; UAV design, development, and deployment.

Austin, Reg. (Aerospace series)

John Wiley & Sons, ©2010 332 p. \$125.00 (pa)

This text by aeronautics consultant Austin demonstrates clearly the wide variety of engineering disciplines that are integrated in the design, development, and deployment of unmanned aerial vehicle systems (UAVs). Rather than going into specific detail of each field Austin stresses the systems nature of the subject, making this a thorough overview of the subject, with chapters on all aspects of the vehicles' design. He addresses the components and sub-systems that need to be considered in the design of the vehicles, issues of ground testing and in-flight testing, and deployment in military and civilian roles.

CHEMICAL TECHNOLOGY

TP155 2010-019527 978-1-4398-2473-3

Green chemistry for environmental sustainability.

Title main entry. Ed. by Sanjay Kumar Sharma and Ackmez Mudhoo. (Sustainability; contributions through science technology)

CRC Press, ©2011 432 p. \$159.95

Green chemistry, as editors Sharma (chemistry and environmental engineering, Institute of Engineering and Technology, India) and Mudhoo (chemical and environmental engineering, U. of Mauritius) explain in their introduction, is not significantly different from regular chemistry except for the integration of such principles as the prevention of waste, the incorporation all materials into the final product, minimization of toxicity, design for energy efficiency, use of renewable feedstocks, reduction of derivatives, preference for catalytic versus stoichiometric reagents, development of methodologies for real-time analysis for the reduction of hazardous substances, and reduction of risk of chemical accidents. In this volume, they present 16 papers discussing various topics within the field, examples of which include smart biomaterials for the decontamination of toxic metals from wastewater, green chemistry as an expression of environmental ethics, phytoremediation of arsenic-contamination in the environment, the influence of nitrates from agricultural mineral fertilizers on erythrocyte antioxidant systems in infants, microwave-assisted organic reactions, policies promoting green chemistry in Europe, and microbes as green and eco-friendly nanofactories.

TP156 2009-054000 978-1-4398-2745-1

Industrial photoinitiators; a technical guide.

Green, W. Arthur.

CRC Press, ©2010 288 p. \$89.95 (pa)

Green, an industrial chemist with more than 30 years experience working with photoinitiators, provides a technical guide for product developers—both newcomers to the field and experts. The author examines relevant theory, products, applications, and the work itself. Topics include: a description of UV light and the types of commercial lamps available, photoinitiator structure and the mechanism that creates a reactive species, the groups of photoinitiators and their various structures, and curing factors and processes.

TP248 2010-022384 978-0-470-28624-1

Enzyme technologies; metagenomics,

evolution, biocatalysis, and biosynthesis.

Title main entry. Ed. by Wu-Kuang Yeh et al. (Clinical biology of enzymes for biotechnology and pharmaceutical applications; v.1)

John Wiley & Sons, ©2010 368 p. \$125.00

Biochemists, biomolecular engineers, bacteriologists, and other scientists, about half from universities and half from drug and gene companies, explore how enzymes can be manipulated to help develop new drugs. Their topics include functional metagenomics as a technique for the discovery of novel enzymes and natural products, principles of enzyme optimization for the rapid creation of industrial biocatalysts, enzyme catalysis in the synthesis of active pharmaceutical ingredients, enzymatic processes for producing pharmaceutical intermediates, drug discovery and development by combinatorial biosynthesis, and pathway and enzyme engineering and applications for glycodiversification. The other two volumes in the series treat enzyme technologies in drug discovery, and the design of enzyme inhibitors for therapeutics.

MILITARY & NAVAL SCIENCE

UA990 2010-014727 978-0-415-87094-8

Modern military geography.

Title main entry. Ed. by Francis A. Galgano and Eugene J. Palka.

Routledge, ©2011 437 p. \$195.00

Galgano (a professor of geography at Villanova U. and a former Army officer) and Palka (geography, US Military Academy at West Point) present 23 contributed chapters that explore contemporary and historical military subjects from the perspective of the military geographer. The text opens with chapters introducing fundamental military and geographic concepts to non-military professionals and non-geographers, respectively, and reviewing the history, scope, and recent developments within military geography in the US, including new thinking on the relationships between environmental security and regional stability and between climate change and potential regional instability in the Arctic. Classic historical and contemporary case studies are then presented exploring geographic factors of military operations. The remaining chapters address emergent issues such as military lands as spatial analogs for the army, Aeolian processes (such as dust storms) and military operations, infrastructure vulnerability and disaster response to a possible catastrophic earthquake on the Oregon coast, Vietnam and the long-term impacts of warfare on the physical landscape, stability operations and competing

land claims in "post-conflict" Afghanistan and Iraq, the strategy and reality of China's growing economic and military power upon Taiwan, and ungoverned space in western Pakistan and the "Global War on Terror."

UG485 978-1-59693-337-8

Battlespace technologies; network-enabled information dominance.

Deakin, Richard S.

Artech House, ©2010 510 p. \$139.00

Part of the Artech Intelligence and Information Operations Series, a collection of works for military professionals on subjects related to electronics, computers and intelligence gathering, this volume provides an outline for non-electronics professionals on the principles, planning and deployment of network-enabled capability (NEC) battlefield technologies. The volume is designed as a textbook and includes sections detailing the history of network-enabled warfare, NEC techniques and technologies, and future applications, as well as several appendices detailing current use of NEC among western coalitions, as well as technical specifications of modulation methods and frequency classifications. Deakin is the CEO of the National Air Traffic Services (UK) and an aeronautic engineer.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z286 2010-399246 978-1-84334-490-2

Scientific publishing; from vanity to strategy.

Title main entry. Ed. by Hans E. Roosendaal et al. (Chandos publishing series. Chandos information professional series)

Chandos Publishing, ©2010 174 p. \$95.00 (pa)

This short treatise examines the nexus of research and publishing, emphasizing the recursive effects of technological advances in the field of scientific publishing on the methodologies of researchers. Roosendaal (U. Twente, Netherlands) a specialist in strategic knowledge and information management, Geurts (research methodology, U. Twente, Netherlands) and Hilf (Carl von Ossietzky U., Germany) a research methodologist and scientific information management expert, provide a synthesis of several previously published papers arguing that the business model of scientific publishing should evolve to serve scientific research and that advances in communication will continue to shape the way scientific research is constructed.

Z6675 2010-020401 978-1-55570-727-9

The Medical Library Association guide to finding out about complementary and alternative medicine; the best print and electronic resources.

Crawford, Gregory A. (Medical Library Association guides)

Neal-Schuman, ©2010 265 p. \$85.00 (pa)

Crawford (Pennsylvania State U. Harrisburg Library) combines his expertise as a university library director, training as a naturopathic doctor, and experience as a client of complementary and alternative medicine (CAM) in creating a guide to resources on the fastest-growing sector of American health care. The text is designed to assist librarians answering basic reference

questions on CAM, and for library patrons and general readers. Coverage includes an opening chapter on general resources, followed by 23 chapters focusing on major therapies, from homeopathy to meditation, naturopathy to tai chi and qigong, traditional Chinese medicine, acupuncture, and yoga. Each chapter contains general information on the specific type of CAM, its history, its use, and practitioner training, followed by an annotated, selected listing of books, websites, and periodicals; all resources listed are in English, the majority published in the U.S., UK, and Canada. The appendix provides tips for discussing CAM with a physician. ❖

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