Fossils of extinct mammoths and mastodons were first unearthed in the mid-18th century, and before long, other large, and more unfamiliar extinct vertebrates came to light. The Mylodon shown here was a giant ground sloth, a distant relative of the Megatherium that had been discovered in the late 18th century. This particular Mylodon was discovered by none other than Charles Darwin and sent back from the voyage of the Beagle (1831-36). It was given for analysis to Richard Owen, the most gifted comparative anatomist of his day. Owen not only described the animal for Darwin’s Zoology of the Beagle (1839-43), but he subsequently wrote an entire monograph on the beast: Description of the Skeleton of an Extinct Gigantic Sloth, Mylodon robustus (London, 1842). This image is unusual in that includes a living (and much smaller) tree sloth for comparison (photo and caption courtesy of the Linda Hall Library of Science, Engineering & Technology).
Welcome to the post-conference issue of Sci-Tech News! This issue is packed with conference-related reports, articles, news, and photos. For those of you who were able to attend the conference, I hope you find the information a helpful reminder of the sessions and meetings you attended, and perhaps also a peak at the sessions that you might have missed. For those of you who were unable to attend this year, hopefully this issue provides you with some of the highlights of the conference sessions and meetings. In addition to the conference coverage in this issue, I encourage you to follow the links provided by the division chairs for additional conference coverage posted on the division blogs and websites!

As a reminder, SciTech News is currently seeking submissions for its peer-reviewed section. Please send your submissions to Bonnie Osif, our review committee chair, or see the announcement on page 4 for more information. I am also always happy to answer questions or provide more information. Feel free to contact me via email or telephone. My contact information is below.

I hope everyone has a lovely fall!

Abby Thorne
abby.thorne@gmail.com
859-539-5810
**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.
SciTech Division Contributed Paper

The following paper was presented at the 2011 Special Libraries Association Annual Conference in Philadelphia, PA. Other contributed papers will appear in a later issue of SciTech News.

Planning for Data Curation

Presented by Sarah Oelker
Mount Holyoke

Introduction

Like libraries at many smaller schools, Mount Holyoke College’s (MHC) Library, Information, & Technology Services (LITS) has been supporting their faculty in all manner of pedagogical and research endeavours. Questions about the data management plan (DMP) requirements for NSF grant applications generated a spate of internal meetings within LITS as well as a process of reaching out to the MHC Sponsored Programs Office. Our meetings with faculty on this topic tended to have two parallel and related tracks: one was “can you help us write a DMP” and the other was “I have all this stuff, how can I store it/share it/access it/develop it?”

I. Who We Are

We are a small, all-female liberal arts college in western Massachusetts with approximately 2,500 students and about 250 faculty. Library, Information, & Technology Services (LITS) is a blended library/IT group that merged in 1996, and which currently has a staff of sixty-five people. We do not have one office or department specifically for data/scholarly publishing, nor do we have a data services librarian position. Our institutional repository is a DSpace installation called IDA (Mount Holyoke College, 2009); it currently contains one collection of research data from a faculty member’s NSF grant that expired in 2009.

MHC is part of the Five Colleges Inc., a consortium that includes Smith College, Hampshire College, Amherst College and the University of Massachusetts at Amherst. Thus, we have a built-in set of networks, committees, colleagues, and inter-institutional contact. Five Colleges, Inc. helps coordinate shared resources for teaching throughout the consortium; any student enrolled at any of the schools may take classes at any other school. We also maintain a shared library catalog and circulation policy, as well as a shared library depository. Initiatives are underway on many levels to expand our shared digital resources.

Mount Holyoke usually defines itself as a small liberal-arts women’s college, but on our campus we sometimes refer to ourselves as a “mini-Research I.” We share our focus on research and a high level of federal support with these larger institutions, and we maintain very well-equipped science facilities for an institution of our size. With no graduate students in the sciences and very few postdoctoral fellows, we nevertheless maintain very competitive research groups. Over the past ten years, more than fifty National Science Foundation (NSF) grants have been awarded to MHC faculty in various disciplines (M. Caris, personal communication, June 3, 2011). Mount Holyoke provides undergraduate research experience to a large number of undergrads each year, including intensive hands-on lab work in the curriculum, and it sends many of its students on to graduate work in the sciences. Unsurprisingly, MHC was founded by a chemist: Mary Lyon pioneered learning via lab experiments, instead of solely by lecture and rote learning. Between...
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1910 and 1969 Mount Holyoke college graduated more women who went on to obtain doctorates in the physical sciences and engineering than any other American institution (Tidball & Kistiakowsky, 1976). In chemistry, particularly, Mount Holyoke graduated 93 women between 1920 and 1980 who went on to obtain doctorates in chemistry, the most women to do so from any institution, single-sex or coeducational, in the United States for that period (Hall, 1985).

II. How We Started, Or, “The New Machine”

In March of 2010, a new LITS department was created, called Digital Assets & Preservation Services (DAPS), headed by Sarah Goldstein. This department was charged with centralizing the production of digital content, managing the campus repositories, and developing long-term digital preservation strategies for unique, archival, and scholarly digital materials. DAPS has four staff members, including Sarah Goldstein, a metadata and systems librarian, a digitization specialist, and a visual resources curator. Goldstein was new to the world of scientific data management, but identified it as an important part of her department’s fledgling mandate.

During the summer of 2010, LITS staff had internal meetings to discuss NSF’s data management plan requirements that were about to take effect. Sarah Goldstein and the LITS Director of Research and Instructional Services (RIS), Alex Wirth-Cauchon, met to discuss ways of supporting the requirement. Wirth-Cauchon’s RIS team included the subject liaisons, who were already familiar with many of the science faculty and their projects and could help provide Goldstein with the background and language necessary to develop data management plans. Wirth-Cauchon and Goldstein subsequently met with then-Associate Dean of Faculty for Sciences Craig Woodard, who works closely with the MHC Office of Sponsored Research. Their conversation covered data management plans, but also data storage. Some of science faculty were outgrowing their departmental storage solutions and other departmental resources and wanted LITS assistance with better solutions.

Around this time, Alex Wirth-Cauchon coined the phrase "building a new machine" to refer to the new DAPS department and the new collaborations within LITS necessary to manage digital assets. In the case of research data management and storage, this phrase seemed particularly apt. In our small college environment, there was simply no way that one person or even one department could hope to build the infrastructure to support meaningful research data management.

To understand the growing storage needs, we undertook an informal survey of digital research data within our institution. The LITS Liaisons reached out to faculty in the hard sciences departments1, asking the following questions:

1. Approximately how much digital research data (in any format, whether images, video, or quantitative data, in megabytes) do you currently have? (If you need to use larger units, please indicate the units you use)

2. In the course of your work, including any anticipated grant-funded projects, approximately how much data do you expect to generate between now and June of 2012?

3. Have you lost any information recently that wasn’t backed up?

We invited them to email or call with their responses and asked the Associate Dean of Faculty for Sciences to encourage participation. We compiled the answers in a spreadsheet and shared the results with Tom McAuley, the Director of Technology Infrastructure and Systems Support (TISS), the LITS group responsible for the campus network architecture.

1 It was agreed that the first round of surveying would be done with the natural and physical sciences, because these departments were expected to have the highest and most urgent needs, and that social sciences and humanities data would be collected later.
The results were enlightening and offered an interesting view into how our faculty were managing their data. Current data management practices at MHC were a hodge-podge of technology, people, and needs. Some faculty were making use of available network storage, some were purchasing extra hard drives, some were doing both. Many had done well on their own, but some wanted more assistance. While the survey did not unearth any emergencies, and our data management requirements are small compared to larger institutions, we are still required to provide long-term care for the data being produced. If we were in fact building a “new machine” of overall digital asset management, this was an excellent area for internal collaboration. Our survey gave us a sense of the direction we wanted to move in, and reinforced the work DAPS and the Networking group were already doing on developing the functionality of our repository tools (CONTENTdm and DSpace) as well as laying down practices and workflows for later digital preservation.

Around the same time, a meeting was held that included the Associate Dean of Faculty for Sciences and the sciences department chairs, along with Alex, Sarah, and Tom from the TISS group. The group from LITS wanted to get some feedback on how best to deploy resources and offer assistance. Help for faculty who were writing DMP seemed to be the most pressing topic, and the LITS group offered to work closely with any faculty PI (Principal Investigator) who had questions or concerns. Subsequently, we decided to approach the storage issues separately while our TISS group made improvements to the network architecture. We followed up our science chairs meeting with a LITS blog post (Goldstein, 2010) on data management plans and the NSF, including outside resources and places to find examples and templates. Sarah Oelker, a RIS team member and science liaison, was tapped to work with Sarah Goldstein to form our fledgling data management “response team.” Our internal collaborations were now in place and communication on longer term issues, such as improved network architecture, were ongoing and relatable to our overall digital curation goals.

### III. Learning On The Fly

The rest of the fall and winter passed quietly into Christmas, but one day in early January came requests for help from two MHC grant teams, one of Physicists, and another of Political Ecologists. Both needed a DMP written by the end of the day. Could the folks in LITS help write the plans? Did we have a template that could just be filled in? Unfortunately, we did not. Sarah Goldstein and Sarah Oelker decided the best thing to do was come up with a boilerplate set of text on how DAPS could support data management. This was given to the PIs to incorporate into their DMP. We also provided the PIs with examples of other DMPs available online, including templates posted by research institutions. Within a few hours, the PIs had crafted the plans, we all helped review and refine them, and they were added to the applications.

This exciting 24 hours spurred the development of some expanded LITS-based resources including a LITS web page (Mount Holyoke College, 2011) with links to DMP examples and templates. Following up on a request for a custom-made DMP template, we created one based on excellent templates from University of Chicago (University of Chicago, 2010) and the University of Virginia (University of Virginia Library). Still in the works are plans to archive and make available the DMPs of MHC faculty who agree to share them with colleagues, thus creating a “library” of browsable DMPs for other PIs to use.

This experience encouraged us to explore further efforts at external collaboration. We turned to colleagues at our Five Colleges institutions, in particular, our friends at UMass Amherst. As the local research university, there was already some specific groundwork in place for data management along with their successful IR, ScholarWorks. UMass had formed a Data Working Group in 2010 (University of Massachusetts Amherst Libraries, 2010), and they were more than happy to meet with us in March of 2011 and share what they had learned so far. It was heartening to find out that, save for being a few steps ahead and with more staff in place to respond, UMass was not yet too far ahead of MHC, especially in terms of information gathering, outreach to faculty, and resource development. We had each spent some time bringing together a cross-departmental team or task force, conducting informal surveys and interviews, analyzing the results, disseminating what we hoped was helpful information to target constituents, developing online resources, and assisting in the writing
of DMP. All of this was very heartening for a small liberal arts college to know: not only were we not hopelessly behind compared to a larger neighbor, we were not playing catch up in our overall strategy or awareness of good tools to share with faculty. It appeared that our smaller size and our merged Library-IT organization also provided us advantages, making it easier to get the right people talking to each other. The groups decided to meet again informally and to engage colleagues from the other three institutions to join us the next time. We left the meeting feeling a little more confident in our efforts thus far and reassured that we now had a larger and more local group to call upon with questions and initiatives.

During March 2011, we also surveyed some of our peer groups via their listservs, focusing on the Association of Research Libraries data sharing support group, the Oberlin Group Science Librarians list, and the Oberlin Group Directors list. We briefly described how our organization worked, the activity we had seen and the templates we had created, and asked them to share their own experiences with data curation and faculty outreach.

Figure 3: Responses from our colleagues in the Oberlin Group and the Association of Research Libraries

On each list, the responders were happy to hear from another small school on this topic. Many were at similar points in the process: they were looking to each other for templates, and many had suggestions about web resources and templates they had created, and asked them to share their own experiences with data curation and faculty outreach.

IV. Our Next Steps

We continue to work with our Office of Sponsored Research and the Associate Dean of Faculty for Sciences, as well as Tom McAuley in TISS, in approaching a strategic long-term approach to data storage and backup infrastructure. DAPS sends out a quarterly email reminder to the sciences chairs that help is available for NSF or other data management plan requirements. If the Office of Sponsored Research hears from a faculty member about getting a grant ready, they now make sure to cc DAPS and the appropriate RIS liaison and urge them to contact us and use our resources (we are currently assisting a third faculty PI on her NSF application). DAPS is also working with...
the staff in the TISS Networking group on improving our DSpace repository to ready it for any research data collections that come out of grant requirements. These are small steps to be sure, but they represent cohesion within the LITS departments on how to provide services.

One very important thing we learned was that requests for help almost always come last minute and must be accommodated. We are working to make sure that the DMP templates we are working on today are better than the DMP templates of three months ago or six months ago. Our initial failure to have a DMP template or boilerplate text ready when it was most needed was humbling and an excellent motivator to dive in, create those resources, and then work to make them better. DAPS is also working out a test model for a digital preservation workflow which will help inform our practices in archiving research data.

We intend to reconvene with our UMass Amherst colleagues late this summer or early fall and include a larger group from the other Five Colleges. We want to discuss options for bringing in outside experts to hold a future Five Colleges session on data management for faculty as well as staff. We hope that this will lead to even more shared efforts at helping faculty PIs better understand the role of the DMP and the importance of data curation. While an option for a shared repository is not yet viable, the sharing and preservation of digital collections is a current set of consortial initiatives being seriously discussed among our institutions.

Most importantly, we feel that we’re better prepared to respond to needs as they arise than we were at this point even just last year: additionally, we know we have the ability to reach out within our own school, our own consortium, and beyond with confidence. We also know that in many cases, there’s no need to recreate a small universe of resources and tools related to data management. Many things your faculty may find helpful are already online, easily accessible, and ready to be shared.

We know from our own experience that the disadvantages for a small college in dealing with data curation are still real: lack of experience among staff, lack of infrastructure or tools, “silos” of responsibility, budget shortfalls, etc. We imagined we might be hopelessly unprepared for providing assistance, and we weren’t even sure what kinds of assistance we could or should be offering. But by continually reaching out we discovered we were certainly not an outlier, and realized we either had expertise close by via a peer or colleague, or genuinely good prospects for longer-term planning and projects if we made the effort to collaborate. We also learned that no effort or attempt at outreach or communication to either a peer, a colleague, or a faculty PI was too small and was likely to be very appreciated.

V. Your Next Steps

We urge our colleagues at smaller schools to adopt a policy of cooperation and collaboration. Who would you talk to in your Office of Sponsored Research or similar office? How well connected are you with the people at your institution who manage networked storage solutions? This varies by institution, and we know that at MHC we are lucky to be part of the same division as our networking colleagues. Our survey of digital research data was a tool that helped continue a dialogue with our networking group, and it gave us a much better sense of how to plan for future allocations of storage, at least in the short-term. It may be helpful to create a list of the people who, in your community of professionals at peer schools, would be likely to have similar data curation concerns. It may be that each institution has complimentary staff skills; for instance, if School A has a metadata and systems specialist and School B has a research librarian with a needed subject expertise, perhaps there’s an opportunity to connect and help each other with DMP requests or how to deal with a specific dataset file type. Even if you can’t build a perfect storage solution or repository tool right away, opening up communication to faculty, administrators, and your peers may help you provide assistance to the most urgent needs first while gathering momentum for longer-term planning down the road.

At MHC the immediate proactive work will be in continually building a network of resources and people who can help in the just-in-time phase, while we expand and improve our repository tools and network capability at a more modest pace. This is not happening by accident: the National Science Foundation expects institutions to improve incrementally at managing our researchers’ data, and while they may not have directly intended libraries to strengthen their ties within their institutions, we can do that in
the process. In the longer term, we know that the "new machine" at MHC needs to grow into something that addresses the ever-growing need for reliable storage and backup, for scalable systems to manage access to data, and shared strategies for preservation. More importantly, when we are visible, collaborative, and communicative in this process we can, hopefully, reinforce the value of libraries, repositories, and data curation at our institutions.

References


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 sunny and warm Colorado. Right now, much of the United States is going through a heat wave, but I hope the heat wave subsides by the time you read this. I do know that we have readers from all over the world, so I hope you have fair weather and clear skies wherever you are.

If you were able to make it to the SLA Conference in Philadelphia, I hope you learned from and enjoyed the Sci-Tech Division sessions we sponsored and co-sponsored. If you were not able to make it out to Philadelphia, I hope you were able to glean some insights from the presentations that were posted on the Sci-Tech Division website. Many attendees also tweeted about the sessions, and their tweets are archived at http://twapperkeeper.com/hastag/sla2011.

I was able to post most of the presentations onto each day’s list of events.

- [http://scitech.sla.org/2011/05/monday-sessions-for-sci-tech-at-sla/](http://scitech.sla.org/2011/05/monday-sessions-for-sci-tech-at-sla/)
- [http://scitech.sla.org/2011/05/tuesday-sessions-for-sci-tech-at-sla/](http://scitech.sla.org/2011/05/tuesday-sessions-for-sci-tech-at-sla/)
- [http://scitech.sla.org/2011/05/wednesday-sessions-for-sci-tech-at-sla/](http://scitech.sla.org/2011/05/wednesday-sessions-for-sci-tech-at-sla/)

During the Monday morning business meeting, we were able to meet and hear from many of the award winners. [http://scitech.sla.org/2011/05/award-winners-are-announced/](http://scitech.sla.org/2011/05/award-winners-are-announced/)

- S. Kirk Cabeen Student Travel Stipend Award winner was Cynthia Cohen.
- Science-Technology Division Achievement Award winners were Debal Chandra Kar and Susan Fingerman.
- Bonnie Hilditch International Librarian Award winner was Dr. Harish Chandra.
- The Sci-Tech Division and the Arabian Gulf Chapter Award winner was Alaa Ridha.

I would also like to congratulate the Impossible Award winners.

- Sue Brewsaugh for organizing and working with a large group of committee members who developed the 2010 Strategic Plan. With great determination, she was able to steer the group to provide a concise document with vision and clarity.
- Carol Lucke for raising over $14,000 for the Division during a difficult economy. Even though she was not able to attend the 2011 conference, she was able to procure gifts for the vendors, provide signage, and complete these tasks well before the conference even started.

Thinking of Carol Lucke, she did a fantastic job of raising sponsorship funds for the Division this year. Unfortunately, she won’t be able to continue to chair the Vendor Relations Committee next year, so if you are interested in fundraising, contact me [jokraus@du.edu] or the Chair-Elect, Cheryl Hansen [cahansen@esi-il.com].

We are planning a virtual conference in October or November of 2011. This year, I’ve tried to facilitate the discussion of changes going on in scholarly communication and open access issues on the discussion list and at the Annual Conference. Since Open Access Week is October 24-30th this year, we will shoot for that time period for the webinar.

The Membership Chair, Sarah Oelker [soelker@mtholyoke.edu], is doing a great job recruiting...
new members and retaining current Division members. She has some awesome thoughts concerning how the committee could be more productive. If you are interested in helping out, please contact me or Sarah.

The newish Chair of the Public Relations Committee, Bill Jacobs [billjac@miami.edu], is starting up a round of discussions concerning new and innovative ways the Division can communicate with public constituencies. Please be on the lookout for more discussion list messages from Bill.

Lastly, the Division gave $8,000 from our reserve funds to SLA for IT support as part of the Unit Sponsorship Program. SLA Treasurer Daniel Trefethen requested divisions and other units to “provide support that helps to stabilize our association for this year so that we can continue to realign SLA for the future.” We will receive a report that shows what equipment or software was purchased from the gift to SLA Headquarters. With this support, the staff at HQ will be able to work more efficiently. The Board is confident that this gift will benefit all SLA members in the long run.

Joe Kraus
joseph.kraus@du.edu
Science-Technology Division Award Winners

Susan Fingerman, Winner of the Science-Technology Division Achievement Award

Debal C. Kar, Winner of the Science-Technology Division Achievement Award

Alaa Ridha, Winner of the Science-Technology Division and Arabian Gulf Chapter Student Award

Cynthia Cohen, Winner of the S. Kirk Cabeen Student Travel Stipend Award
The Science-Technology Division welcomes its new members:

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Sci-Tech Candidates for Chair-Elect and Secretary for 2012
Submitted by Pam Enrici, Nominating Committee Chair, Science-Technology Division

This year’s Nominating Committee (Debal Chandra Kar, Anna Renn, Christine Whitaker and Nancy Wilmes) is delighted to present two candidates for Sci-Tech Division’s Chair-Elect position and one for Secretary. No additional nominations were received from the floor at the Division’s annual business meeting or by petition. The election will be conducted electronically, with balloting to take place in September 2011. For those that do not have access to e-mail, a paper ballot will be sent. Instructions will be sent to Division members via email (or snail mail) before the election takes place.

Candidates are listed below in alphabetical order under each position.

**Chair-Elect**

**Jeffrey Bond**

*Background & Experience:*

Jeff Bond has undergraduate degrees in mathematics and in music education from Kansas State University. After a short career teaching music, Jeff started his library career at his local public library before getting his MLS from Emporia State University in 2006. He stayed at ESU for one year as a reference librarian, and then moved to Fort Worth, Texas, where he took his current position at Texas Christian University. At TCU, Jeff serves as the Science Reference Librarian, which includes being a liaison to eight departments in the College of Science and Engineering. Jeff was recently honored with the TCU Library Staff Recognition Award, which is awarded to only one librarian each year. Jeff is nearing completion of his MS in mathematics at Texas Christian University.

Jeff has been a member of SLA since 2006, and is a member of the Sci-Tech, Physics-Astronomy-Mathematics, and Academic Divisions. In 2008, Jeff presented a poster at the All-Sciences Poster Session on instant messaging. Also in 2008, Jeff began serving on the PAM Publisher Relations Committee, and recently finished an 18-month term as chair of that committee. Starting in 2010 and continuing to the present, Jeff serves as the Sci-Tech Parliamentarian. At the 2011 Annual Conference, Jeff moderated the PAM-wide Roundtable along with Donna Thompson. Jeff also is a member of the ACRL Science and Technology Section.

*Issues for the Future of Sci-Tech:*

First, I believe it is really important to listen to our members’ needs. This would be accomplished through a variety of channels, including not only our email discussion lists and social media, but also through concentrated methods such as surveys. It is important that the division leadership be fully attuned with our members, so that when it comes time to make important decisions, such as conference planning, members see value in joining and participating with our programs. Second, I feel that it is important to involve as many members as possible in the division. When people are involved, they take personal ownership in the division. Lastly, in addition to our annual conference programs, I believe that the division should be more active in providing stimulating programs throughout the year. I look forward to the opportunity to serve the Sci-Tech Division in the Chair-Elect role, and look forward to hearing from the membership as we work together to improve our division.

**Secretary**

**Helen Josephine**

SciTech News
Published by Jefferson Digital Commons, 2011
Background & Experience:

Helen Josephine has a BA in English Literature from Monmouth College, Monmouth, IL and earned her professional degree at the University of California, Berkeley. She also holds the Project Management Professional (PMP) certification from the Project Management Institute. She is currently Head of the Engineering Library and the liaison to the Stanford University School of Engineering departments of Electrical Engineering, Aeronautics and Astronautics and Management Science and Engineering. Helen has more than 25 years experience as an information professional, including six years at Intel, where she was Manager of the Information Management Group and a member of the library management team responsible for long-term library services strategy and program planning. Prior to joining Intel, Helen was the Account Development Manager for the Corporate Division of the Gale Group, the Business and Collection Development Librarian at Menlo College, the Manager of the External Services Program at the University of Hawaii, the Manager of FIRST (Fee-based Information and Research Services Team) at Arizona State University, and the Director of Research for Information on Demand in Berkeley.

Helen has been a member of SLA since 1994 and active in the Silicon Valley Chapter serving as Program Director for two years (2003-2004), President-Elect/President/Past President (2005-2008) and is currently Chair of the Hospitality Committee for the chapter. At the Division Level, Helen has served as the organizer and moderator for the Standards Update session for the Engineering Division (2009-2011) and as a member of the Awards Committee (2009-2011) and the Vendor Relations committee (2009-2011) for the Division. For the Sci-Tech Division, she served as the Sci-Tech representative to the joint program (PAM, Sci-Tech, Chemistry) on data curation for the 2010 conference. She also contributed to the SLA Future Ready 365 Blog with a March 11, 2011 posting on the new Engineering Library at Stanford where online content is king.

Five things about Helen:

1. In every job she has had, she invented or reinvented her position.

2. She has wanted to be a librarian since she was 10 years old.

3. Her other professional passion is Project Management and she earned the Project Management Credential from the Project Management Institute in 2007.

4. She has been around the world once and she would love to do it again.

5. She was interviewed for NPR’s Morning Edition on the ‘bookless’ library at Stanford University.

Issues for the Future of the Sci-Tech Division:

There are several big issues the Sci-Tech Division is focusing and working on. These include providing interesting, informative and educational programming at the Annual Conference, developing programs and initiatives that are important to our current members and that will help us recruit new members and leveraging the new social media tools provided by SLA to continue the conversation and connections between members “online.” I have learned from my experience with program planning on the local and division level, that the best program ideas and speaker suggestions come from the members, so I welcome your ideas and participation in all program planning efforts. I will continue to use social media and online forums to extend the annual conference programs and educational opportunities to those who cannot attend the conference in person. These tools and opportunities need to be “hassle” free, so that learning a new technology is not a barrier to participation. SLA is exploring new models for continuing education sessions and conference programs so this is a time for the Sci-Tech Division members to think creatively about both the content of the programs and workshops and how they are delivered. Your ideas and participation will make these new opportunities available to all members and help the Sci-Tech Division grow.

Secretary

Margaret Smith

Margaret Smith is the Physical Sciences Librarian at New York University. In this role, she supports research and instruction related to physics, chemistry, and the history and social studies of science and technology. Margaret also serves as the Archivist for UbuWeb, an online educational resource for avant garde texts.
sound, and moving images. Her research interests include the history of classification, social information-seeking behavior, and “analog” preservation methods for digitally born objects. Margaret has been a member of SLA for 4 years, and has served as Webmaster for the Sci-Tech Division since January 2010. She also serves as one of SLA’s WordPress “Super Admins”, helping other Webmasters configure their Division/Chapter’s new SLA WordPress template and migrate content over to the new platform. In these roles, she has greatly enjoyed getting to meet and interact with other Sci-Tech members, especially, and SLA members more generally. She is excited at the opportunity to become more involved with the Division as Secretary, and at the chance to give back to SLA, as these have benefited her very much as a member.
Let me begin this message by thanking all those who helped make this year’s Chemistry Division programs at SLA Annual in Philadelphia a success. Among those instrumental in helping put together this year’s event were the Planning Committee, consisting of Jim Martin and Mindy Peters; the Sponsorship Committee, with Teri Vogel, Loren Mendelsohn and Luray Minkiewicz; and the Professional Development Committee, headed by Ted Baldwin. In addition, as always, we had some wonderful volunteers who pitched in during the sessions in Philadelphia to make sure things ran smoothly and to report on activities. These included Louise Deis, Marty Rhine, Denise Callahan, Valerie Tucci, Theo Jones-Quarty, Mindy Peters, Meghan Gamsby, and Margarite Bower. There were others, as well, who graciously offered to assist in activities.

I would like to single out our teachers who always make the CE Courses such successful events and did a wonderful job in Philadelphia. This year’s instructors were Judith Currano, Sue Cardinal, Denise Callihan, and Dawn French who, in various combinations, taught three separate courses, including a new one this year for advanced searchers entitled, Extreme Structure Searching. We had very good attendance at all three and are looking forward to offering another set of outstanding CE courses in Chicago.

We wish to thank our sponsors, without whom this conference would not be possible. We value our partnership with them, not just in these events, but throughout the year as we all work towards improving the production and dissemination of scholarly information through sharing of ideas, problems, and solutions. Our generous sponsors for this year’s Annual were: ACS Publications; The Royal Society of Chemistry; Elsevier-Reaxys; Springer; Knovel; Chemical Abstracts Service; ASTM; IHS; John Wiley & Sons; and Global Language Translations and Consulting, Inc.

Our programs were well attended and sparked some good discussion. Summaries of some of these programs appear later in this newsletter. I would like to call your attention to the two awards that were presented at the Division’s Business Meeting and Breakfast. One was the Sparks Award, presented to Courtney Hoffner; the other was the brand new Wiggins-Roth Award, bestowed upon Grace Baysinger from Stanford University. Please see the separate write-ups on these awards appearing in this edition of SciTech News.

Our sincere thanks go to Elsa Atson, who provided an excellent tour of the Chemical Heritage Foundation the final day of the conference. It is a fascinating place and Elsa and crew have done an excellent job in organizing and cataloging their extensive resources. If you have not toured the museum yet, by all means, do so next time you are in Philly. You won’t regret it. (Additional note of interest to Division members: our archives are located there.)

Marie Fraties-Block, Chair-Elect, and Norah Xiao, Planning Committee Chair for 2012, are busy putting together another exciting program for next year’s conference. If you have any ideas, suggestions, comments, please contact either Marie or Norah.

Other events/activities/items of interest:

Earlier this year a revision and update comprising the second edition of “Information Competencies for Chemistry Undergraduates: the elements of information literacy” was completed and is posted on the SLA Chemistry Division website (http://units.sla.org/division/dche/il/cheminfolit.pdf). Marion Peters spearheaded this effort, joined by Grace Baysinger and Cory Craig as co-editors. Members of the Division reviewed the document during its revision, providing helpful comments.

This second edition is a joint publication of the SLA Chemistry Division and the American Chemical Society Division of Chemical Information (CINF). We are indebted to Marion, Grace, and Chuck Huber for their efforts in securing the endorsement of ACS-CINF and look forward to more joint projects in the future.
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Our web master, Linda Maddux, is currently hard at work developing a model for the Chemistry Division’s new website which will use WordPress. The new site should offer better functionality and flexibility along with increased interactive capabilities, which we hope will make the site more useful and relevant to our membership in the coming years. We will keep you posted regarding progress and actual migration date.

Though final arrangements have not yet been completed, we do hope to hold another Fall web conference featuring the posters at the All Sciences Poster Session in Philadelphia. Announcements about this will be forthcoming as details are finalized.

As always, the Chemistry Division Board welcomes and encourages input and involvement from its membership. As thoughts occur to you about activities you feel the Division should be engaged in, or ways in which you would like to help, please contact me or any of the Board members (listed on web site). And be persistent! We all get bogged down in our regular job activities from time to time and so can’t always respond immediately; and despite our best efforts, some things inevitably fall through the cracks. But we will do our best to help you get involved at whatever level of activity is possible for you.

I look forward to hearing from you and to bringing you updates regarding Division news as the year progresses.

Bill Armstrong, Chair
notwwa@lsu.edu
The SLA Chemistry Division was delighted to honor Grace Baysinger at the 2011 SLA Annual Conference as the first winner of the Wiggins-Roth Award for Outstanding Service. The Wiggins-Roth Award recognizes outstanding contributions to the field of chemical information and is named in honor of Gary Wiggins and Dana Roth. Not only was this the first time this award has been presented, but the recipient has the distinction of having been nominated by both individuals for whom the award is named, a singular honor and well deserved.

The presentation ceremony took place during the Chemistry Division’s annual Business Meeting and Breakfast on June 14th. On behalf of the Chemistry Division, the Chair, Bill Armstrong, presented Grace with a check for $1,000 and a certificate of achievement. Assisting in the presentation was Dr. James Phimister, representing our generous sponsor for this award, Elsevier-Reaxys.

About the Award Winner

Grace is currently the head librarian at the Swain Library of Chemistry and Chemical Engineering at Stanford University. She began her career as a chemistry librarian in 1985, as the head of the University of Michigan, Chemistry Library.

Grace is known for her bright outlook, well-thought-out opinions, and significant contributions to academic libraries, chemical information, and chemical publishing. Throughout her career, Grace has developed significant contributions to chemical information reference, these include: web guides, tutorials, slides, and other materials. She has generously shared these materials with the larger community of chemical information professionals. The entire chemical information community has benefited from Grace’s effectiveness in making the case for changes and improvements in chemistry-related databases, software, and printed products.

Grace’s contributions also include extensive service to American Chemical Society (ACS) including significant roles in the Chemical Information Division (CINF), National Chemistry Week, Chemists Celebrate Earth Day, and major ACS Committees including: ACS Joint Board-Council Committee on Chemical Abstracts Service (CCAS); Chair of the ACS Joint Board Council Committee on Publications from 2005-2007 (member 2001-2009); and Chair of the Copyright Subcommittee from 2005-2009 (member 2001-2009). Grace was the first librarian to be appointed Chair of ACS JBCCP. She was awarded the Stanford University Marshall D. O’Neill Award in 1996, and the ACS CINF Meritorious Service Award in 2004.

Grace is one of only two U.S. librarians currently serving on the Editorial Board of XCITR (Explore Chemical Information Teaching Resources). Grace was nominated for this award by Gary Wiggins and Dana Roth.
The SLA Chemistry Division (DCHE) awarded the 2011 Marion E. Sparks Award for Professional Development to Ms. Courtney Hoffner at the 2011 SLA Annual Conference in Philadelphia.

Ms. Hoffner has been a librarian at the UCLA Science & Engineering Library since November 2010. She obtained her master’s degree in Library Science from UCLA in 2008. DCHE presented Ms. Hoffner with a $1,500 check and award certificate to support her attendance at the 2011 SLA Annual Conference in Philadelphia.

The Sparks Award is named to honor Marion E. Sparks, a pioneering and influential chemistry librarian who worked at the University of Illinois from 1913 through 1929.
With the help of the Marion E. Sparks Award for Professional Development, I enjoyed an informative and engaging SLA conference as a first-time attendee. This travel award allowed me to connect with colleagues, attend relevant conference sessions, and learn about innovative trends in science and academic librarianship.

My first SLA started off with the Sunday preconference CE course “Chemical Information Sources, Requests, and Reference” taught by Judith Currano (University of Pennsylvania) and Dawn French (Millennium Inorganic Chemicals Library). As a new chemistry librarian, this course gave me a great background in the basics of chemistry librarianship. I gained knowledge of the structure of chemical literature and channels of information used by chemists, learned techniques for chemical information retrieval, worked through examples of chemical information queries, and was introduced to substructure and sequence searching. After the preconference course, I took advantage of a few free hours to explore the city before the opening keynote speaker with lunch at the Reading Terminal Market and a trip to the Philadelphia Museum of Art, one of the largest art museums in the United States. My first day concluded with a thought-provoking keynote address by Thomas Friedman, Pulitzer Prize winner and columnist for the New York Times, where he spoke on the importance of creativity in a globalized society.

The next two days of the conference were filled with informative sessions that covered a range of topics that matched the diversity of my professional duties here at UCLA. I attended sessions ranging from library design and user experience to science visualization and collaboration. A few sessions that I particularly enjoyed included the spotlight sessions “Collaborations Across Disciplines” and “Design Thinking for Better Libraries.” In the “Collaborations Across Disciplines” session, representatives from Mendele, VIVO, BibApp, and Elsevier spoke about their efforts in developing collaborative tools for faculty and researchers. A few of these are open-source products that allow for researchers at an institution to connect with each other and also allow one to view scholarly communications and publications patterns within an institution. As a result of this session I have started conversations with my colleagues at UCLA about hosting a similar dynamic tool for our own faculty and researchers. In “Design Thinking for Better Libraries,” Stephen Bell of Temple University gave an overview of design theories and emphasized how design thinking can be a catalyst for improving user experience in the library. A few ideas I learned from this session that I hope to explore further include how to create our libraries experiential brand statement, the totality of library user experience and how it all works together (e.g. the website, circulation, reference, the OPAC, etc.), and creating emotional user connections with the library.

A few other highlights of my SLA experience included the Chemistry Division Business Meeting and Breakfast and the All-Sciences Poster Session. At the Chemistry Division Business Meeting and Breakfast, I was exposed to my first professional association business meeting and most importantly it gave me the opportunity to connect with my chemistry librarian colleagues. I especially valued meeting my fellow UC and other California librarians. Everyone was welcoming and extended insightful advice. The All-Sciences Posters Session allowed me to catch a glimpse of cutting-edge trends in science libraries. I was especially interested in UC Irvine’s pilot project on using QR codes in the stacks as the use of this technology in public service has been a topic of conversation here at UCLA. Not only did I take away ideas about how to connect users with e-books and mobile databases through the use of QR codes, but also was interested to learn about their techniques in promoting the service.

I am extremely grateful to the SLA Chemistry Division for this opportunity to attend the 2011 SLA Conference in Philadelphia. The conference proved to be an inspirational and educational experience. As my career as a science librarian grows I expect to participate more in the SLA organization and hope to see you all at future SLA conferences!
Chemistry Division Academic Roundtable & Breakfast
Monday, June 13, 2011
Moderators: Sue Cardinal, University of Rochester; Linda Galloway, Syracuse University
Sponsor: ACS Publications
Reported by: Linda Galloway, Syracuse University

The DCHE Academic Roundtable was a well-attended and enjoyable event. After our stellar breakfast, we broke into discussion groups to talk about aligning library services with institutional needs. The discussion topics included: facilitating partnerships with chemistry faculty, InChI, Discovery platforms, embedded librarianship, budgetary concerns, e-books, mobile technologies and data curation.

After lively conversations and ample networking time, moderators Sue Cardinal and Linda Galloway wrapped up the Roundtable by asking a member of each group to briefly report on the topic discussed. All participants were then able to hear about the various discussion topics and learn about potential solutions. This program was a great start to the 2011 SLA Annual Conference.

Developments in Informatics
Tuesday, June 14, 2011
Moderator: William Armstrong, Louisiana State University
Division Sponsors: Chemistry; Physics-Astronomy-Mathematics; Sci-Tech Divisions
Vendor Sponsors: ACS Publications; ASTM International; IET Inspec; OSA – Optical Society of America

Reported by: Thurston Miller, University of Notre Dame

I. Cheminformatics

Dr. Steve Heller, Project Director of the InChI Trust spoke about InChI, the IUPAC International Chemical Identifier (InChI), which is a freely available, non-proprietary identifier for chemical substances that can be used in electronic data sources allowing easier linking of information from many different data compilations.

Dr. Heller explained that InChI was needed because there are too many existing and competing chemical identifiers from structure diagrams to connection tables (MolFiles, SMILES, etc.) to index names (IUPAC, CAS 9th CI Name, etc.) to index numbers (EINECS, Bielstein and CAS Registry Numbers, etc.). InChI offers the ability find existing information and data that is housed in diverse sources more easily and more accurately.

He estimated that 99% of the compounds indexed in computer databases can be described with InChI. However, there are some areas of chemistry that are not yet covered, such as Organometallics, Electronic States, Inorganics, and InChI for reactions (RInChI).

What are the advantages?
- Freely available and non-proprietary.
- More advanced and complete presentation of chemical information than other codes.
- Unambiguous, e.g., caffeine has one InChI and 172 SMILES.
- Indexed by major search engines such as Google (InChI Key).
- All the major structure drawing programs (ChemDraw, ISIS Draw, Jmol, etc.) now have the ability to generate an InChI. The standard InChI proved to be too long to easily search so InChI Key was created. The InChI Key is a shortened version of the standard InChI.

InChI Trust is a not-for-profit organization that oversees current and future developments. Organizations may decide to become dues paying members of the Trust thereby allowing them to influence the direction, priority, and speed of Trust activities. One can also become a non-paying supporter of the Trust. Contact Steve Heller for an application.


II. Bioinformatics

Dr. Diane Rein (University of Buffalo) spoke about Bioinformatics, beginning with a brief history of the field. In 1865, the field of Genetics was created and, in 1871, the field of DNA
was created. By 1950, the two separate fields were combined when Watson & Crick discovered the double-helix structure of DNA. GenBank was created in 1982 as a location for supporting material. The Human Genome Project was proposed at a workshop in 1985 and the projects started in 1990, ending in 2003. GenBank records are divided into many different databases.

Now there is a 1,000 Genomes Project that will sequence the genomes of a large number of people to provide a resource on genetic variation. The information can be used to create personalized drugs for medical ailments. All of the data associated with these sequences is publicly available.

In addition, there has been an explosion in the amount of local data that needs to be managed. The NSF now requires a data management plan to be included in grant applications.

Who practices bioinformatics? – Biologists, Chemists, Physicists, Civil Engineers, Pathologists, Forensics, Biomedical, Psychologists, Anthropologists, etc.

Bioinformatics was done previously at the bench, but now it is being done at computers. It is a predictive information science that is discovery-driven. Someone searching databases is, in fact, doing research. As a result, it is easy for librarians to embed themselves in research groups. Bioinformaticians are divided into two groups – Researchers (‘at the bench’) and Bioinformaticians (creators of databases/discovery tools).

Presentation slides: Unfortunately, Dr. Rein’s presentation slides are not at the moment available due to externally imposed copyright restrictions.

III. Astroinformatics

Dr. Alberto Accomazzi (NASA Astrophysics Data System) spoke about Astroinformatics.

Astronomy is government funded. There is little to no commercial interest and the literature is published in behalf of non-profit societies.

“Astroinformatics is the formalization of data-intensive astronomy and astrophysics for research and education.” (Kirk Bourne, et al. 2010)

The first conference in Astroinformatics, “Practical Semantic Astronomy,” was February 2008 at Caltech.

We are at the beginning of a data deluge. The Sloan Digital Sky Survey released 49.5 terabytes of data to the public in January 2011. The Large Synoptic Survey Telescope is projected to create 15 petabytes (15,000 terabytes) of data when the survey is completed in 2015.

Fourth Paradigm: Data-Intensive Scientific Discovery by Jim Gray.

The fourth paradigm of discovery will be based on data mining and visualization. There is not enough bandwidth to transfer data to one location, so data processing will go to the data. The data archives are the “new telescope” and the software to mine the data can be called the “new instrument.” Gray calls for the establishment of digital libraries and funding for the development of new authoring tools and publication models.

Some examples of digital libraries in astronomy include: ASD, Simbad, VAO in US, VizieR, Observatories.

Examples of authoring tools in astronomy are: Open Access (ScienceWISE), ArXiv curation workflow (CDS), Crowdsourcing (Galaxy Zoo), VAO & Data Conservancy, VAO and ADS.

Data Curation and Libraries and Preservation Principles:

- Scientific research requires repeatability.
- The lifecycle of a research project should be documented by capturing all artifacts.
- Data, Processes, Results need to be properly described, accessible, and linked together.
- Provenance information should be attached to curated metadata throughout the process.

ADS Labs created an improved method for searching the literature using semantic interlinking concept. Some examples from the ADS beta search were shown.

Dr. Accomazzi’s parting thought was that Librarians have a major role to play in the curation of metadata, both bibliographic and observational.

Presentation slides: (will be made available on
International Year of Chemistry: Perils and Promises of Modern Communication

Tuesday, June 14, 2011
Moderator: William Armstrong, Louisiana State University
Sponsors: ACS Publications; The Royal Society of Chemistry

Reported by: Louise Deis, Princeton University

The two speakers for this event were Dr. Lawrence Souder, Associate Professor of Communication; and Dr. Jean-Claude Bradley, Associate Professor of Chemistry and Learning Coordination for the College of Arts & Sciences. Both are professors at Drexel University.

Professor Souder spoke first, his talk entitled, “Rhetoric of Science: How to adapt messages to audiences.” He gave several recently revealed examples of published scientific mistakes, shoddy research, or fraud and special interest (Vioxx). Grant writers have been known to withhold ideas. Double-blind studies have revealed discrimination against women authors/researchers. (He has compiled an extensive bibliography that is enlightening and will be made available on the Chemistry Division’s web site.)

“Much of our knowledge rests on the trust in the ethics and morals of those practicing [science].” He gave examples of mistrust of peer review, and of retraction by a journal because the article was also published elsewhere. He mentioned the power of blogs, using the example of the panning of the “research” that erroneously made a case for the use of arsenic in place of phosphorus in a microbe.

Souder spoke of citizen (collaborative) science, and of Craig Venter, who had the wherewithal to sequence the human genome on his own – so to speak.

Trust is extremely important in science and in the communication of science for the benefit of society. How long does it take for errors to be purged? Perhaps misinformation can be corrected in less time than in the past, with such a proliferation of communication channels.

He is optimistic about the adoption of scientific networks and collaborations and the paradigms of open source, open access, and open peer review.

Talk: http://www.scivee.tv/node/31170


Bibliography: will be made available on the Chemistry Division’s web site.

Professor Bradley then spoke on “Trust in Science and Open Melting Point Collections,” discussing the role of trust in science research, in scientific data, in day-to-day situations. He and his students from the Fall 2010 Chemical Information Retrieval class at Drexel performed a case study by compiling melting point data from several traditional trusted sources, including: CRC Handbook, Merck Index, chemical vendor catalogs, and peer-reviewed journals. They obtained 567 measurements for 24 compounds. Their faith in the “trusted sources”, including SciFinder results, was, as a result, shaken: “No dataset was immune to errors.” Peer review doesn’t cover data. But technology is promising for the future. Wikipedia will become our new trusted source model.

Bradley’s blog can be found at http://useful-chem.blogspot.com/2011/01/chemical-information-validation-results.html

Bradley is a pioneer in Open Notebook Science (ONS). Open Notebook Science is conducive to sharing data. ONS is defined in Wikipedia which also provides links to ONS resources. Resources from Bradley’s ONS site can be found at http://usefulchem.wikispaces.com/All+Reactions.


Bradley quipped that there are “no facts in chemistry, only measurements embedded with assumptions.” “Trust becomes proof.” He urged the use of free hosted tools like Wikispaces and Google spreadsheets for calculations. Science will make faster progress with open resource collaboration on the web. “Make research transparent and discoverable,” he said.

“Rochester Institute of Technology finds great value in the SPIE Digital Library’s multidisciplinary nature.”

Linette Koren, Librarian, RIT
Chemistry Division Corporate Roundtable & Breakfast
Wednesday, June 15, 2011
Theme: “Communicating Value through Strategic Alignment.”
Moderator: Mindy Peters, Carpenter Technology Corporation
Sponsors: The Royal Society of Chemistry; Global Language Translations and Consulting (GLTaC)


This event was well attended and discussion was lively. Each of the three tables of participants was given a list of topics to discuss and report on.

**Topic 1: How do you convey the relevance of the library, its resources, and staff to your organization?**

Table A: Constantly obtain feedback from customers. Recognize that people want self-service, they come in when they need help in using resources. Provide the right resources; teach/coach them how to use them and help with complicated searches. Become the go-to person. Use library branding (e.g., “brought to you by the library”). Make sure to show that the library has an input to the bottom line. It’s a continuum of services and showing value.

Table B: Use professional seminars (with vendors) to promote services; also webinars, email announcements, library announcements on company websites, and work with library “champions” to spread the word. Use ROI studies (tracking usage/value over time), whitepapers, and case studies to demonstrate value.

Table C: Publish newsletters, annual reports (containing, mission, strategic plan, metrics/usage stats, and success stories), and use case studies.

**Topic 2: Does the word “library” communicate the value of the services and quality of the library staff to your organization? How do you feel about name changes and the emerging trend of not using the term “library”?**

Table A: It’s up to us to change the perception of what the library is.

Table B: We have names other than “library” such as Research Information Services and North American Information Center. There is a decline in physical “library” space but we are still referred to as the “library.” Knowledge or Resources in the name helps. Use of “Information,” however, makes people think “IT.” While we dislike the association, we must have rapport with IT to facilitate systems.

Table C: We have many names: RIC, Information Services, TIS, Knowledge Center, and also Library. We report into a variety of areas including Legal, IT and HR. The best is R&D.

**Topic 3: How do you market services and resources to your organization? How are new databases and resources launched? How do you determine the target audience?**

Table A: Use focus groups, training newsletters and bulletin board postings. Contact new employees by email; work with HR to provide them with library leaflets; present at orientations (some people are not included in their company orientations); and get in on sales/marketing meetings to make presentations. There is a need to get creative with email messages about library services; many users delete or do not pay attention to them and then seem ignorant about changes and training that has occurred.

Table B: Use of e-Readers with books on them. Concerns include limited access time and how to market this. The IT relationship is important to get prominence on the intranet.

Table C: Have email taglines, publish news features on the company website, and use survey tools.

**Topic 4: Do metrics play a role in communicating your value? Do you utilize case studies? Which is more effective and what benefit does it bring?**

Table A: Do a case study to show, for example, how you helped the R&D department accomplish XYZ. Use metrics to show you are contributing to the bottom line. Make sure your goals are in line with that of the company.

Table B: Capture metrics and success stories. Knovel did some case studies which can be used in your own marketing. Do anecdotal poll-
ing and usage reporting. Publishers are keen to get usage feedback to demonstrate the value of their products; share this with your customers.

Table C: Use metrics to justify value; ours and new products.

**Topic 5:** In public library circles there is often talk of running your library like a business. What about a corporate library? Is this also a business within a business? Do you charge for services? Do you offer any services to the public? Does this mentality help or hurt your library?

Table A: No discussion.

Table B: Yes, it is a business; market and track like a business for better metrics. Do not offer services to the public except for ILL.

Table C: Charge for services and obtain better metrics through tracking.

**Topic 6:** Where will corporate libraries be 10 years from now? Growing, closing, evolving? What is the future of this specialized environment?

Table A: The younger, tech-savvy generation tends to do their own research and only request assistance when they cannot find what they're looking for. They use IM even when only a few doors away.

Table B: Research now goes to China and may come back in 10 years.

Table C: Libraries are changing, shrinking in physical space but not going away. We are needed to acquire, manage collections – chemists do not want to do that. We need to become better at content management, vendor relations, enforcing policies. Vendors could profile libraries and highlight them in vendor marketing which can be used to promote users' support and enthusiasm.
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

Mr. Guy Beland  
Rio Tinto Alcan  
1955, Mellon Blvd. Building 110  
Arvida R&D Centre - Technical Information Centre  
P.O. Box 1250  
Jonquiere, QC G7S4K8

Ms. Sharon Fogarty  
Director Business Development  
Technical Language Services, Inc.  
1825 Village Center Circle  
Suite 110  
Las Vegas, NV 89134

Ms. Paula Diaz  
Membership Director, SLA  
4771 W Braddock Rd  
Apt 101  
Alexandria, VA 22311

Mr. Robert Schufreider  
Special Library Sales Manager  
Sage Publications  
2455 Teller Road  
Thousand Oaks, CA 91320
SLA 2011 Conference Report from the Engineering Division

What a fantastic conference in the City of Brotherly Love! Philadelphia is a beautiful city, amazing me with its combination of modern and historic ambiance residing together. The vision of Independence Hall with sky scrapers to either side of the block will be a favorite memory, as will the memory of visiting the Liberty Bell, Benjamin Franklin’s Court, and the view of the City Hall at night with lights shining on that impressive facade. The conference itself holds many memories, as well as new ideas and learning from the speaker presentations and interactions, networking with colleagues I have not seen for a year, and making new connections.

The Engineering Division was sponsor for several great sessions again this year. Here are a few short notes:

Monday morning was the Aerospace Annual Meeting and Breakfast. The George Mandel Award was a highlight at the meeting, where Gale Harris, of Lockheed Martin Aeronautics was honored as this year’s award recipient. Gale has been a librarian for over 34 years, promoting librarianship and contributing to the profession as well as to the aerospace industry in her role as a librarian over the past 28 years. Congratulations Gale!

We had a virtual speaker for the session “Veni, Vidi, Wiki – I Came, I Saw, I Collaborated,” presented by Adrianne Jones Washburn, who was unable to attend in person due to the pending birth of her son! Adrianne did an excellent job taping the session ahead of time so it would be ready to go, with one small glitch in technology. Her enthusiasm for her topic came across in her talk as she walked us through collaboration tools and applications. She moved the material along at a good clip with many examples to share with us.

Tuesday morning we heard from Jaime Scibelli, NASA Glenn Research Center, on the topic “Tweets from Space, NASA and Social Media Tools.” Jaime shared with us some of the tools NASA, as well as the astronauts, use to communicate. Some of the tools are internal to NASA, but there are sites and collaboration tools that can be followed and used by the public as well. The thought of tweets coming to us from the Space Station is to me amazing. Just think of how collaboration and communication has changed around the world in the last 10 years, and now we can have interactions with our astronauts as they circle the Earth from Space as well!

Our Engineering Division Annual Business Meeting and luncheon was on Tuesday afternoon, and was very well attended. The Executive Board and Advisory Board members were introduced to the membership. Our Executive Board members are: Chair, Kathryn Breininger, The Boeing Company; Chair-Elect, Pam Enrici, University of MN, Duluth; Secretary, Cheryl Cove, Raytheon; Treasurer, Mary Whittaker, The Boeing Company.

Daureen Nesdill reported on our membership for the Division and encouraged people to consider volunteering for the Chair-Elect position for 2012. Bonnie Osif introduced our first mentee, Tomoko Kurahashi, who received her MLIS in May and also has a degree in Mechanical Engineering. Mary Whittaker gave the Treasurer’s report from our May bank statement, with a total of $63,797.86 in the bank. She also sent all bank statements from 2010 through Jan 2011 to SLA in compliance with their audit.

I announced the decision reached by the Engineering Division Executive Board to fund the SLA Building Systems at the Platinum level of $10,000. This decision was made following several long and thoughtful discussions in several joint Executive and Advisory Board meetings. Other announcements included a listing of the Engineering sponsored sessions, and acknowledgement and special thanks to our generous and supportive sponsors. We could not provide the conference programming and sessions without their support. We look forward to continuing our relationships with our vendor spon-
Nature Publishing Group
Covering the spectrum of the physical sciences

Nature Publishing Group (NPG) has a strong tradition in the physical sciences, having published many leading papers in physics, materials science and chemistry throughout the years.

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

Polymer Journal, the official journal of The Society of Polymer Science, Japan (SPSJ), publishes Original Articles, Notes, Rapid Communications and Reviews on all aspects of polymer science from anywhere in the world.

Site licence access to these titles
NPG offers a flexible option for providing online access to these journals. With a NPG site license, librarians and information scientists can select the titles that are most appropriate for their users be it one or all of the journals.

For further site license enquiries, or to request a free trial visit:
www.nature.com/libraries
sors in the coming years to bring additional thought-provoking and informative sessions to our members! Remember to mark your calendars for the SLA 2012 conference in Chicago, IL, July 15-18 (note the month change from when we have had conference in the past) and the Leadership Summit in Atlanta, GA, January 19-22. Diane Brenes presented the following awards:

1. Bonnie Hilditch International Science-Technology & Engineering Divisions Travel Award awarded to: Dr. Harish Chandra (not present).

2. INSPEC Travel Stipend Award awarded to: Gregory McMurray.

3. IEEE Continuing Education Travel Stipend awarded to: Daureen Nesdill.

4. SLA Engineering Librarian of the Year Award sponsored by IHS awarded to: Randy Reichardt.

(Please see her article in this *SciTech News* issue for additional details).

We wrapped up the business meeting with a raffle of donated items. We raised $155.00 through the raffle, which was donated to the Food Trust in Philadelphia.

“Designing a Physical Space in the Digital Age” provided several different approaches to incorporating space, high activity areas, and quiet areas to provide a library center that would meet the needs of the users. How the space would be used, who uses it, and what the needs are of the users are key to developing a physical space that will provide the atmosphere as well as the resources that are needed.

The Standards Update session was Wednesday morning. The timing for this session was unfortunate in that it was after the exhibits had closed, so attendees were not able to visit the vendors for additional information after the Standards Update Session. Sara Davis shares her notes: Standing room only for the session, yet again! Helen Josephine and Susan Morley moderated the session, which included several standards developing organizations.

- ANSI – announced that they are developing a completely brand new website and are in need of testers. If interested, contact them.

- ASCE – now has eBooks available – coming soon on their website is DRM free materials – they will now allow you to search for a series of titles – and there will be a new version of ASCE 7 coming out in 2012, breaking the 3 year update schedule for updating 7 in the past.

- ASTM International – soon will be able to access on your iPad – working on developing videos on their test methods.

- BSI – will be publishing Eurocodes, possibly this coming Sept.

- CSA – new ZED (that is what I heard but may not be the actual name of the std, Susan Morley can confirm or correct) 320 is coming – it is CSA’s commissioning standard – also a new Canadian Electrical Code will be out in June 2012.

- IEEE – new NESC coming in Aug with the handbook and with elearning/training available for it – their dictionary is now available thru iTunes with an app for the Android coming soon.

- IHS – added standards from the Standard Methods for the Examination of Water and Wastewater – also adding administrative management of usage statistics.

The session included a lively discussion on Digital Rights Management. Please see Helen Josephine’s article on the Standards Update for additional information on that thought provoking session.

Betty Edwards and Mary Whittaker, both Engineering Division members, presented papers at the Contributed Papers sessions. Betty’s paper was titled “Curated Industry News Delivery – a Marketing Approach” and Mary spoke on “Facilitating Knowledge Sharing via an In-House, Online Scholarly Publication.”

I hope you all enjoyed the conference as much as I did, and are marking your calendars now for the Chicago conference in July next year. Thank you all for the support, help, and volunteering that made this a great success again this year!

On a final note, please carefully consider volun-
teering for a committee, or for a position in the Division. We are still looking for an Engineering Division Chair-Elect for 2012, and we have opportunities open to assist with several committees. Holding a position or chairing a committee is a great way to gain leadership experience, meet new friends, learn from each other, and have fun as well!

Kathryn Breininger, Chair
kathryn.r.breininger@boeing.com
The Engineering Division was pleased to present the following awards during the Engineering Division Luncheon & Business Meeting, held Tuesday, June 14, 2011 in Philadelphia, PA.

Randy Reichardt is the recipient the of the 2011 SLA Engineering Librarian of the Year Award. This $1500 award sponsored by IHS, highlights the accomplishments and contributions of SLA Engineering Division members to the engineering librarian profession.

Randy Reichardt is Research Services Librarian (Engineering) at the Science & Technology Library, University of Alberta, in Edmonton. He has worked there since September 1983, and has focused specifically on engineering since 2000. His subject areas include chemical, materials, and mechanical engineering, engineering management, nanotechnology, and space science and technology. His responsibilities include collection development, reference and consultation service, instruction, and liaison.

Randy studied at the University of Manitoba (BSc in Mathematics, 1975) and the University of Alberta (MLS, 1978). He worked in the Edmonton Public Library system for 4 years before moving on to the University of Alberta in 1983. Early on, his subject areas included mathematics, entomology, and civil engineering. In 1993, he was asked to join the Engineering Information Scope and Coverage Committee. He was a member for six years, and chaired the Committee from 1996-1998. He also chaired the Committee when it reformed briefly in the mid-2000s. He was a member of the Materials Research Society Library Advisory Board from 2007-2010, and is a member of similar advisory boards for Knovel, CRC Press, Begell House, and SPIE. He joined SLA in 1984, and was the Standards Chair of the Engineering Division from 2003-2007.


Away from work, Randy is a part-time professional guitarist, and has appeared on at least ten recordings produced in Edmonton. He loves
travelling to NYC and Cambridge MA, and is an avid fan of good quality television and film. He will always root for the Montreal Canadiens in hockey, and the Jays, Twins, and Red Sox in baseball.

Daureen Nesdill is the recipient of the 2011 IEEE Continuing Education Stipend.

This $1000 travel stipend sponsored by IEEE, is awarded to Engineering Division members attending any Continuing Education course offered at the annual SLA conference.

Daureen Nesdill started her career working in medical research, but moved on to study behavioral and chemical ecology at Auburn University, Alabama. A graduate library assistantship supported Daureen through her MS and PhD programs. It also piqued her interests in information science and prompted her alter her career choice. Daureen earned a MLIS from the University of Alabama, Tuscaloosa in 2001. Her MLIS was supported by a graduate assistantship through Lister Hill Library of Health Science from the National Library of Medicine.

Daureen has been working as a science and engineering librarian at the J. Willard Marriott Library, University of Utah for eight years and was the Interim Head of Science and Engineering Library until reorganization. She received tenure in 2010. Her new position, Data Curation Librarian involves all subject areas; in fact she attended the 2009 University of Illinois Summer Institute on Data Curation in the Humanities.

Daureen presently serves on the Steering Committee and is Coordinator of the Communications Working Group of TRAIL, Technical Report Image and Archive Library. TRAIL is a task force of engineering and government documents librarians from a growing number of institutions nationwide working with Hathi Trust and Google to digitize legacy federal technical reports. Daureen is also working on an IMLS grant studying how libraries can offer publishing services to their communities.

Daureen was the Liaison for the ASEE Engineering Libraries Division and the SLA Engineering Division. She was elected Chair of the SLA Engineering Division in 2007. As part of her duties to plan for the 2008 conference, Daureen organized a symposium on cyberinfrastructure. Daureen may be presently living in Salt Lake City after attending school in Alabama, but she was born in San Francisco and grew up in New York City and has not determined when or where to retire.

Gregory McMurray is the recipient of the 2011 Inspec Stipend Award. Inspec sponsors this $1500 travel stipend award for Engineering Division library school student members attending the annual Special Libraries Association conference.

Gregory McMurray was born in Montclair New Jersey, but grew up in Canton, a small town in
Upstate New York. He attended Nazareth College, graduating with a degree in History, and also attended Vietnam’s Hanoi University of Social Sciences and Humanities. He is currently enrolled in Long Island University’s Palmer School for Library Science. Mr. McMurray has also been accepted to The University of London’s Rare Book School, which he will attend this summer. He plans on having earned his Masters by the winter of 2011.

While his concentration will be in Rare Books and Manuscripts, his wider interests lay in the library landscape itself, which he sees as increasingly homogeneous. Specialty Libraries, and particularly engineering and science libraries, should remain retain their distinctiveness in the face of a growing movement to conform to standards adopted by college main-branch libraries. This is the topic of his contribution to this year’s SLA/INSPEC Student Award, which is Mr. McMurray’s first such prize.

He is currently building and managing the Faculty Publications database at Touro College, and works as a cataloguer at the Center for Book Arts, and at The New York Public Library’s Berg Collection for English and American Literature. He lives in Brooklyn with his girlfriend, where he reads, writes, and plots to live in Manhattan.
In 2008, the filmmaker Michel Gondry, in partnership with Deitch Media, embarked on a project where anyone, free of charge, was allowed time in a gallery space outfitted with cameras, a backlot of 15 sets, and projection equipment. Participants had free reign for two hours, using the space and equipment to produce a film of their own creation. This remarkable installation is possibly revolutionary for libraries because of something else that Gondry did. After each group finished making their films, after they had screened them and taken home a copy of their own, Gondry catalogued the films, set them on a shelf, and allowed anyone who wished, to rent the material created by their peers. He created a film library.

In fact the whole project gives one the feeling of a library system: open access by users to materials, a shared space used for a common purpose, and a collected body of work intended to educate, inform, and inspire. The key to this new library though, was the principle of “in-house generated material,” where a library becomes not simply a source for scholarship, but a space in which the advancement of scholarship is taking place at a significant and innovative level, all the while being catalogued, all the while remaining open.

So what does this mean for engineering libraries? In order to answer that question, we must first look at the changes that current engineering libraries are making, and in what direction they believe their libraries will be going in the years to come.

In scanning the websites of some of the country’s most prestigious engineering schools, one invariably comes across a section entitled: “Where Our Library Is Heading.” The startling information presented in such sections is that most engineering libraries intend to undergo the same transformation that their university’s main libraries have been working towards: less books, more space, better wi-fi, tasty coffee, et cetera, et cetera...

The following is an impressive sampling from these sites:

From Cornell University: “Thinking beyond traditional library models,” they begin, “the library’s electronic collections should be enhanced...with more group and individual study space...computer access should be provided [to all]...the role of librarians should be expanded to better support the research and information needs of faculty and students.” Then going further still to say that the “physical collections [should be] relocated and integrated with material at other campus libraries or the Annex.” (Cornell, 2010)

From MIT’s website: “Barker [library] offers a premier engineering collection,” with “qui-et study space...a newly remodeled reading room...and group study spaces.” (Gabridge & Silver, 2011)

Now from Stanford: “Our new library is set to open with a decrease [of physical material] of more than 85 percent from the old library. Stanford library director Michael Keller found that the vast majority of the collection hadn’t been taken off the shelf in five years.” Then in an NPR article Keller gushes: “That’s what we’re so [excited about], the idea of actually offering more services, offering more workshops, offering more one-on-one time with students.” (Sydell, 2010)

What is going on here? Where is the grand future predicted for these engineering libraries at top educational institutions? Their nearly identical statements belay a growing homogenization of libraries as a whole.

I don’t believe that the generalizations quoted above are the answer to where our engineering libraries are headed. To get such an answer, we must ask other questions. WHY do you need more room? WHY less books, and what will you add in their place? Why this stress on bibliographic instruction? What good will that do a graduate student at a top research institution? To most universities’ main libraries, increased student use staves off the budget hatchet; if you provide a more comfortable library, students will become increasingly regular patrons, demonstrating the usefulness and importance
of the service. But how much content is sacrificed for the sake of atmosphere, and are our engineering libraries really in such peril?

There is a reason we have separate libraries: they fill different functions. In today’s atmosphere, it seems as though all libraries are meant to go the same route. In agricultural terms, the American library landscape would form a monoculture, an ecosystem totally lacking in differentiation, and one more susceptible to blight and famine: essentially an academic dust bowl. This is a real danger for any library system, and any Svengoli trying to sell a "modern library" is probably referring only to a more generic one. We must face the truth though: adding a coffee bar to an engineering library won’t make better engineers, they’ll just be chattier.

Let’s pause here briefly and return to Monsieur Gondry and his film library. As a result of Gondry’s project, a collection was set up, capable of being constantly replenished by original material produced in-house, that was both a draw for patrons and a center of interest for outside parties. No lounges, no coffee bars—all resources, all content. Engineering libraries, and all those fearing the hatchet, must take notice of this experiment.

It could be said that there are two ways to appreciate art: appreciation of the ideas expressed, and appreciation of the methodology employed. Engineering as perceived by other engineers, to me, is almost completely fixated on the appreciation of another’s methodology, and a library that stresses this interaction, is a library that will best serve it’s students.

Engineering students should have full access to the work of their peers. They should be able to observe the methodology at work, thousands of miles away if they wish, as the results come in. Even now, there are online databases that publish failed experiments and studies, because the academic community knows that research—successful or not—fuels further research. Why not have that in real time and in the trusted womb of academia?

Engineering libraries must become more specialized, not less. In order for research to advance, students must work within the strictures of an academic library stripped of pretensions and replete with resources. Move the libraries to the labs or the labs to libraries. Unscrew the drawers on the card catalogues, unscrew the classification system from the records themselves! The librarians in such institutions would need to act less as ambassadors of knowledge, and more as ‘keepers of the flame.’ Results would be instantly posted on a database or bound on a shelf—instantly catalogued, instantly made available. Visiting researchers, whether on the web or in person, would be able to interact with ongoing tests, able to review institution-specific data enfolded in the larger community.

These libraries, dotted throughout the country, would act as relay points for ongoing research at multiple universities. An intrepid library staff, documenting, cataloging, and streaming results, would provide a network of innovation.

If that radical open-access approach seems frightening to some, then limit your policy only to students and faculty of sister-universities, or only to those researchers or professionals in the field who obtain special permission. Open-access is nothing to be afraid of. Grants for research will still be procured, results will continue to be credited to those who produced them. To quote the recent movie, The Social Network: “If you were the inventors of facebook, you would have invented facebook.”

If we truly want to better serve the needs of our engineer-populations, we have to get more specific, more creative. By integrating the laboratory with the database, the lecture hall with library, we will better meet the demands of a diverse but rabidly inquisitive base, and better tend to our engineering programs throughout the country.

Bibliography


2011 Standards Update Report
Submitted by Helen B. Josephine, Chair, Engineering Division Standards Committee

Wednesday, June 15, 2011  8:00 am session
Presented by: Engineering Division

Sponsored by: IEEE, Techstreet, ASCE, ASTM International

Moderator and reporter: Helen Josephine, Head of the Engineering Library, Stanford University, Stanford, CA (helenj@stanford.edu)

Organizers: Helen Josephine, Stanford University (helenj@stanford.edu) and Susan Morley, Manager, Information & Knowledge Management, CSA International (susan.morley@csa-international.org)

Standards Update 2011 drew 75 attendees. Ten organizations representing both standard developing organizations (SDOs) and distributors presented concise updates from their organizations. Thanks to Susan Morley and her enthusiastic organization of the event, one additional standards developing organization participated this year, CSA (Canadian Standards Association). In addition, a new standards distributor MadCad (www.madcad.com) was exhibiting at the conference and they were asked to join the session.

VENDOR UPDATES

ANSI—Leanne Lowry [llowry@ansi.org] http://www.ansi.org

Leanne highlighted the new website, new access to committees and update functions available in NNSN (National Search Engine for Standards) www.nnsn.org hosted and developed by ANSI. RSS feeds and news updates are now available as well as the option to e-mail links.


ASCE—Will Farnam [wfarnam@asce.org] http://www.asce.org

Will Farnam announced that a new edition of ASCE 7 is coming in 2016. All books and standards are available from ASCE and other vendors such as, IHS, Madcad, SAI Global, ebrary, Techstreet. The ASCE website has improved browsing capabilities for series and topics.

ASTM—John Pace [jpace@astm.org] http://www.astm.org

John Pace announced that the ASTM digital library is a combined platform for both the 12,000 standards and test methods and the digital library of Special Technical Publications, monographs, manuals and, journal articles. Using XML technology the content will be more versatile. MARC records are now available and usage data is Counter compliant. ASTM has also add 50 data sets, improved search functions and launched new test methods videos as part of the ASTM Digital Library. New areas of coverage include biofuels and homeland security.

BSI—Stuart Radcliffe [stuart.radcliffe@bsigroup.com] http://www.bsigroup.com

Stuart Radcliffe described the work of BSI Global with the development and distribution of Eurocodes and Publicly Available Specification or PAS. PAS is a sponsored fast-track standard driven by the needs of the client organizations and developed according to guidelines set out by BSI. http://shop.bsigroup.com/Navigate-by/PAS/

There are 10 Eurocodes made up of 58 parts that will be adopted in all EU Member States. They replace existing British Standards which were withdrawn on 31 March 2010 when full implementation of the Eurocodes took place. Eurocodes Expert is a website devoted to information on Eurocode adoption. http://www.eurocodes.co.uk/
Over the next year, CSA will be focusing on growing its core business – the development of standards – including the following subject areas:

Electric Vehicles, Smart Grid, Mobile Fuel Cells, LED Lighting; Uranium Mines and Mills Safety, Upstream Oil and Gas Safety, Technology Neutral Nuclear; Home Care Safety Guides, Standard Operating Procedures for Health Care; Oil Sands, Sustainable Products, Environmental Labels, Green Mark.

New and Coming Soon

Currently under development - the world’s first standard for Underground Storage of Carbon Dioxide – aiming to provide essential guidelines for regulators and industry involved with scientific and commercial carbon capture and storage (CCS) projects.

July 2011 launch of CSA Registered Carbon Neutral TM Program. This new CSA label is based on the ISO 14064 series of greenhouse gas management standards and will recognize third-party verification of a building or an organization’s carbon neutral claims.

CSA / ISO 50001 - Energy Management Systems, a voluntary international standard to transform businesses of all types and sizes into highly efficient energy users through continual improvement leading to reducing energy use, energy costs and related emissions.

January 2012 – 22nd edition of the Canadian Electrical Code (C22.1). This Code is adopted across Canada as regulation for the installation and maintenance of electrical equipment and is now on a three year cycle.

Sustainable Product Standards for Appliances. CSA in collaboration with Association of Home Appliance Manufacturers (AHAM) and UL is developing a series of sustainability standards for home appliances such as refrigerators, freezers and floor care products, which will be pilot tested over the next twelve months.

Check out all updates, and sign up for eNewsletters, at their online store www.ShopCSA.ca.

Michael Spade announced that there are over 2000 IEEE standards available via the IEL and other suppliers. Published exclusively by IEEE, the National Electrical Safety Code (NESC) 2011 sets the ground rules for practical safeguarding of persons during the installation, operation, or maintenance of electric supply and communication lines and associated equipment. Both a handbook for the code and e-learning courses on NESC will be available from the IEL. Redlined versions of the IEEE standards are now available via IEL as well as the Standards Dictionary. New areas include 54 active standards on smart grid technologies. The IEEE Standards Organization (http://standards.ieee.org/) has an online newsletter and updating service—Standards Wire—for the latest on IEEE standards and related products.

Erdem Dedebas explained that Madcad is a cloud-based provider of standards with HTML versions of standards available anywhere including on mobile devices. The latest information or revisions to standards are pushed to the user, solving the problem of older or out-of-date standards being used for current projects. Both concurrency models and single-user licenses are available as well as usage statistics. Madcad has been in business for 5 years, but this was the first time they exhibited at an SLA conference. Current standards include those from ASCE, ASHRAE, AME, ASTM, BHMA, COMBO, IAPMO, ICC, IEEE, NFPA, SMACNA and many state standards.

Todd Fegan discussed both the transaction side of Techstreet and the subscription side. Subscription services allow for reference linking of standards for course reserves, work group sharing via e-mail and other forms of communication. The transaction service has a new “preview” option to see the context of the standard, the related standards and keywords. Techstreet hosts the “Standard Store” for other organizations such as ASME, ASHRE, and IEEE. Coming
soon will be SAE PDF standards as well as enhancements to the subscription platform.

**IHS**—Steve Noth [steven.noth@ihs.com](http://www.ihs.com)

Steve Noth announced the new IHS acquisitions including Chemical Week ([http://store.chemweek.com/](http://store.chemweek.com/)), Energy Daily ([http://www.theenergydaily.com/subscribe/](http://www.theenergydaily.com/subscribe/)), iSuppli ([http://www.isuppli.com](http://www.isuppli.com)), and EIATrack ([www.eiatrack.org](http://www.eiatrack.org)) for environmental regulations and legislation. IHS is adding metadata to the standards collections to help with equivalences and relationships between standards. IHS online standards tools are now in 13 languages.

**DISCUSSION**

After the presentations we had about 20 minutes for comments and discussion from the audience. The audience driven focus was digital rights management, but other topics did arise.

**Digital Rights Management**

- Reasonable prices for single user access with option of purchasing additional copies, as demand warrants.
- Renting content is not the preferred option.
- Need ‘lifespan’ access to protect users/purchasers against situation when aggregator license expires. Main reason for the later happening is that the aggregator terms change or the supplier (SDO) changes its agreement with aggregator.
- Annoyed with definition of site license, of which there is no uniformity. Can’t all SDOs and their resellers agree?
- Transfer download license from one computer to another – i.e. ASHRAE.
- Naming purchaser on document. Should be COMPANY name NOT individual name. In most situations the purchaser is buying on behalf of their employer, NOT for themselves.
- Participants from the Libraries/Librarians DRM challenge program held earlier in the conference provided this discussion point—librarians identities should not be on docu-

- All these topics raise issues with copyright, security and digital resources.
- One option - use digital documents 1 at a time, much like print publications, and keep usage secure.
- There are too many DRM & licensing restrictions.
- MADCAD has a feature of allowing temporary increase to number of users.

**Access, Acquisition, Technology Issues & Usage**

- Tracking downloads requires using specific technologies or use of Cloud/Live access.
- Firewall issues – notable problems occur when attempting to retrieve updates and download them. Why can’t technology get around this issue?
- PDF is a great archiving tool for frozen files, but not easy to update once the file is released. Some members of the audience commented that they’ve experienced this with vendors.
- Categories of usage – better reporting or more consistent “standard” across vendors/publishers.
- One option to reduce purchase prices - Read Only license for users, with full access for Librarian/Administrator.
- Hybrid views using combined PDF HTML option?
- Sara Davis – new release announcement is often misleading – whether from Aggregator, Reseller or Publisher. Be clear of availability and date. ASME & SAI Global cited as worst offenders.
Sharing our pain on DRM and purchase access to standards.

- Stuart Radcliffe requested that SLA invite vendors to participate in future discussions, regardless of what form they may take.

- Helen – suggested options might be mid-year webinar on DRM. Also will ask for this to be a topic at SLA 2012.

Please mark your calendars now for the 2012 Conference, July 15-18 in Chicago, Illinois. Details on the day and time of the 2012 Standards Update, will be available soon and we have requested that the time be on Monday or Tuesday when the exhibits are still open. If you have topics to discuss or would like to suggest additional vendors or standards organizations, please contact Helen Josephine or Susan Morley. Thanks!
Web Reviews

Reviews of web resources of interest to SciTech News readers.

See the Science: SciTech Image Databases

The traditional written research paper is out. Visual communication is in! At least for many lucky students who are a part of the increasing movement toward paper alternative assignments using posters, presentations, and video to present their scitech research. Communicating science and technology concepts visually using graphics, images, artwork, and diagrams is not only an important learning tool, but also a common practice among researchers who share their breakthroughs through presentations, and also new media like blogs, websites, and Twitter.

These web resources house massive collections of science and technology photos that can be used, with proper citation, to enrich your next powerpoint presentation and revive your conference poster!

Emilio Segre Visual Archives
http://photos.aip.org/

The American Institute of Physics archive hosts 7,000 historical lithographs, photographs, engravings, slides and other illustrative resources of 20th century physicists and astronomers. The photos are available for purchase from $10 for a web download to $52 for the larger prints. Individual donations of images that “give science a human face” are also encouraged.

SpringerImages
www.springerimages.com

SpringerImages is a searchable database of scientific images that contains over 2.8 million images, including graphs, histograms, figures, and tables. Only about 300,000 images are available freely, and the bulk are available through library subscription. The images include their original captions from the articles they were stripped from, which should raise some interested conversations with library patrons about their author’s rights when publishing with a journal.

NASA Image Exchange
http://www.nasa.gov/multimedia/imagegallery/

NASA has several image collections that are available for public reuse and searchable in their online interfaces. The NASA Image Exchange (Space NIX) provides a single entry point to all of NASA’s collections, including an Image of the Day feature. Some collection highlights include:

- JSC Digital Image Collection: 9,000 images from NASA’s Johnson Space Center press release photos from the Apollo, Gemini, Mercury, Skylab, and Shuttle missions.
- KSC Shuttle Photo and Video Archive (NASA): Images and video from the Kennedy Space Center, from spacecraft launches to crew training.
- NASA Life Sciences Data Archive (LSDA): contains over 1000 images and data from human and non-human space flight experiments.
- Apollo Image Atlas: a collection of Apollo-Saturn mission photography from the Lunar and Planetary Institute, including 25,000 lunar images, both from orbit and from the moon’s surface, as well as photographs of the earth, astronauts and mission hardware.
- Astronomy Picture of the Day (APOD) has been presenting amazing celestial images and informative captions written by professional astronomers since 1995!
Hubble Gallery
http://hubblesite.org/gallery

View Hubble Telescope images from the Space Telescope Science Institute through this public facing site. Search for images can be searched by term or browse by categories including galaxies, solar system, nebulae, stars, the universe, and more.

Earth Resources Observation and Science (EROS) Image Gallery
http://eros.usgs.gov/imagegallery/

The U.S. Geological Survey’s EROS image gallery includes Landsat and Shaded relief images of U.S. States and images from their “Earth as Art” displays.

USGS Photographic Library
http://libraryphoto.cr.usgs.gov/

The U.S. Geological Survey has a collection of over 400,000 photos taken by geologist in the process of doing field research in the United States and U.S. territories from 1868 to the present.

NOAA Photo Library
http://www.photolib.noaa.gov

Includes weather and space images ranging from the Earth’s shores and coastal seas to NOAA scientists in action. These collections are also part of the US government’s federated image search (http://search.usa.gov/images) powered by Bing.

Lockheed Martin Photographs
http://www.lockheedmartin.com/news/photo

Hundreds of images are available for non-commercial use on Lockheed Martin’s Flickr stream, including photos of aircraft, ground systems, and simulations/training.

Built in America
http://memory.loc.gov/ammem/collections/habs_haer/index.html

These architecture, design and engineering prints and photographs are among the most heavily used collections of the Library of Congress, and part of the American Memory program (http://memory.loc.gov/ammem/index.html). Collections include the Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER) and Historic American Landscapes Survey (HALS).

Cool Image Search Tools

Google Image Search
http://www.google.com/imghp

Using an existing image, you can search Google for photos that resemble yours in both content and representations style (eg. sketch drawing). This is also an excellent way to identify the name or photographer of an existing image. Google Image Search also allows you use their advanced features to perform a web search of images that are available for public reuse (limit by “Usage Rights” in advanced search).

Creative Commons Images
http://search.creativecommons.org/

Some authors have indicated rights for reuse with their images by attaching Creative Commons licenses. Creative Commons has a beta web that can provide an alternative interface to Google Images.

Tiny Eye
http://www.tineye.com/

This reverse image search allows you to give it an image and the results will tell you where the image is being used on the web.

retrirvr
http://labs.systemone.at/retrievr/
retrievr allows you to search by sketch or search by image. The sketch search is not very practical (unless you are amazing at using “Paint” on your computer) but the flicker results that have an uncanny resemblance to your scribbles are interesting and amusing.
**Science Today in Verse**
Hope Leman, Samaritan Health Services

**Today’s Science News July 26, 2011**
I surfed the Web to learn what’s new,
And here is what I found for you.

Warriors engaged in strife
Experienced loss of limbs and life
It’s been determined beyond doubt
That wearing armor wore them out,
And being bushed and out of breath
Left fighters prey to early death.
We now know it’s hard to wield
Weapons on the battlefield
With any notable success
When one is armored to excess
And that is why in English lore
The Frenchmen lost at Agincourt

A big surprise, reported here,
From Saturn’s frigid atmosphere
A fume of water that somehow
Escaped detection until now.

For heart attacks we’ve found some traits
That influence survival rates:
NIH advises that
We should avoid becoming fat.
If you want to be robust,
Consuming fiber is a must.
The brains of mice demand deep sleep
If memories they are to keep.
Research shows that deep sea slugs
Assist mankind by eating bugs.

A human at the age of three
Is kinder than a chimpanzee,
But humans at the age of two
Resemble creatures in a zoo.
Still, that may be an artifact
And not the way your children act.

High above us midst the stars
Exploring Jupiter and Mars,
A spaceship by the name of Dawn
Resolutely rambles on,
Confidently self-propelled
Puffs of xenon gas expelled

I am very pleased to find
That fourteen nations have combined
To study the potato’s genes.
Just think what this joint effort means!
The genome’s secrets that they find
May be of help to all mankind!!

Antarctica in ’62:
An undersea volcano blew.
This huge event still has no name,
But it sure happened, all the same.

The ship that carries crews in space
Is quite a cramped and smelly place.
Studying snow leopards has taught
Researchers they’re hard to spot

And on that note I’m off to bed
With all that science in my head.
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**

BF241 2010-049713 978-1-56881-465-0  
*Visual perception from a computer graphics perspective.*  
Title main entry. Ed. by William B. Thompson et al.  
*CRC Press*, ©2011 526 p. $69.95  
Computer scientist Thompson (U. of Utah) and psychologists Roland W Fleming (Justus-Liebig-U. Giessen, Germany), Sarah H. Creem-Regehr (U. of Utah), and Jeanine K. Stefanucci (College of William & Mary) introduce students or professionals working in computer graphics to human visual perception. Because of the unusual perspective, the material might also interest cognitive scientists and visual neuroscientists. The book ties together image generation and the resulting perceptual phenomena, explores topics rare to introductions such as the perception of material properties and spatial cognition, and emphasizes visual performance and biological mechanisms in specific situations. It can be used in a graduate or advanced undergraduate course in computer graphics or related fields.

**SOCIAL SCIENCES (GENERAL), STATISTICS**

H61 2010-027609 978-1-4398-2860-1  
*Applied concept mapping; capturing, analyzing, and organizing knowledge.*  
Title main entry. Ed. by Brian Moon et al.  
*CRC Press*, ©2011 339 p. $59.95  
Contributors from academia, the US Environmental Protection Agency, militaries of various countries, and companies engaged in various activities, explain the current status of concept mapping now that the first generation of computer-savvy people who have been using it in school are on the threshold of the workforce. Among their topics are concept maps as tools to enhance executive and team effectiveness, a concept mapping approach to semi-automated definition integration, concept maps within the product design process in engineering, and virtual collaboration environments.

**GEOGRAPHY**

G70 2010-051815 978-1-60960-192-8  
*Geospatial web services; advances in information interoperability.*  
Title main entry. Ed. by Peisheng Zhao and Liping Di.  
*Information Science Reference*, ©2011 530 p. $180.00  
Researchers and practitioners in the large overlap between geographical and computer sciences describe services that are designed to use web service technology to deal with spatial information over the network, and their potential for interoperability for distributed heterogeneous geospatial data and applications. They cover standards, design and implementation, registry and discovery, the semantic web, distributed computing, workflows, and applications. Among the topics are enabling quality in geospatial web services, using distributed semantic catalogs for discovering information on spatial data infrastructures, ontological and semantic technologies for geospatial portals, geospatial service composition in grid environments, and using geospatial web services holistically in emergency management.

**LANGUAGE, LITERATURE**

P53 2010-043163 978-1-60960-141-6  
*Academic podcasting and mobile assisted language learning; applications and outcomes.*  
Title main entry. Ed. by Betty Rose Facer and Mohammed Abdous.  
This work for faculty, librarians, and instructional designers presents best practices for planning, designing, and producing effective podcasts.
for second-language learning and acquisition. Academics mainly working in the US explore the benefits of academic podcasting technology and mobile assisted language learning (MALL). While the book provides enough technical information to enable the production of podcasts, it also offers pedagogical and philosophical underpinnings for the use of podcasting in language learning. Material is in sections on MALL and language acquisition, student centered projects, MALL and study abroad, and MALL and ESL. Some specific areas explored include benefits and challenges of using these technologies, students’ perceived learning gains, and economic perspectives. Facer directs the Language Learning Center and Abdous directs the Center for Learning Technologies at Old Dominion University.

SCIENCE (GENERAL)

Q121 978-0-470-14680-4
Dictionary of scientific principles.
Marvin, Stephen.
John Wiley & Sons, ©2011 631 p. $195.00
This is quite an unusual reference. Marvin (reference coordinator, West Chester U., Pennsylvania) has worked, taught, and consulted as a librarian in Latin America and China. He undertook this collection clearly as a labor of love, striving to assemble “all known rules or laws commonly called principles”--offering definitions and applications. Approximately 2,000 principles --from math, medicine, and the sciences, as well as psychology, management, philosophy, and art --are arranged alphabetically, with cross references when there are multiple names. Entries range in length from a few sentences to several paragraphs. They are referenced to their sources in footnotes for those seeking further information. Internet searching of course might serve students trying to find information about particular principles, but this collection offers the benefits of concision and the convenience of a bound volume with a consistent approach.

Q325 2010-043659 978-1-4398-2127-5
Support vector machines and their application in chemistry and biotechnology.
Liang, Yizeng et al.
CRC Press, ©2011 201 p. $119.95
For chemists and biologists, Liang (analytical chemistry and chemometrics, Central South U., China) et al. explain support vector machines and their applications in chemistry and biology. They first address theoretical aspects, including classification and regression, kernel methods, and ensemble learning, then applications in the quantitative structure-activity relationship, near-infrared spectroscopy, traditional Chinese medicine, and genomics, proteomics, and other OMICS studies.

MATH, COMPUTERS

QA76 978-1-4398-0626-5
Mining software specifications; methodologies and applications.
Lo, David et al. (Chapman & Hall/CRC data mining and knowledge discovery series)
CRC Press, ©2011 442 p. $89.95
Computer scientists explain methods for determining specifications for existing and heritage software when no or inadequate documentation is available. Among their topics are mining finite-state automata with annotations, adaptive grammar inference techniques for mining state machines, static specification mining using automata-based abstractions, automatic inference and the effective application of temporal specifications, path-aware static program analyses for specifications, and the lightweight mining of object usage.

QA76.58 2010-046367 978-0-470-88799-8
Cloud computing; principles and paradigms.
Title main entry. Ed. by Rajkumar Buyya et al. (Wiley series on parallel and distributed computing; 82)
John Wiley & Sons, ©2011 637 p. $120.00
Researchers and practitioners in computer and information describe a new business model in which vendors offer computation, storage, and applications-hosting services, and provide coverage in several continents. It is an extension of traditional data centers, but
charges for use rather than a flat subscription rate, so is more like a utility. They cover foundations, infrastructure as a service, monitoring and management, applications, and governance and case studies. Among specific topics are migrating into a cloud, secure distributed data storage, a workflow engine for clouds, an architecture for federated cloud computing, massively multi-player online game hosting on cloud resources, and organizational readiness and change management in the cloud age.

Cloud, grid and high performance computing; emerging applications.
Computer scientists, software engineers, and other basic and application researchers explore approaches to computing that have emerged from distributed systems and exploit the ubiquity of computers and computing power on networks. In sections on basics, scheduling, security, and applications, they consider such topics as porting high performance computing applications to grids and clouds, the speculative scheduling of parameter sweep applications using body behavior descriptions, the adaptive control of redundant task execution for dependable volunteer computing, and persistence and communication state transfer in an asynchronous pipe mechanism.

Pervasive computing and communications design and deployment; technologies, trends, and applications.
The 15 contributions in this volume propose frameworks for building pervasive computing systems and address the challenges posed by pervasive communications, context awareness, security, privacy, and assessment. The opening chapter classifies query processing according to execution frequency and compares the classification scheme to existing query taxonomies. A pair of papers from Monash University identify the factors influencing satisfaction with mobile portals and modify the traditional balanced scorecard tool to evaluate aged care services. Other topics include self-addressing for autonomous networking systems, level crossing sampling for energy conservation in wireless sensor networks, secure electronic healthcare record distribution, and interactive use of multimedia content on mobile devices. Malatras is a lecturer with the pervasive and artificial intelligence research group at the University of Fribourg.

API design for C++.
Reddy, Martin. Morgan Kaufmann Pub., Inc., ©2011 441 p. $59.95 (pa)
Intended for programmers with intermediate to advanced skills in the C++ programming language, this guide to the building of useful and robust application programming interfaces (APIs) provides practical instruction for software engineers developing systems on which downstream software engineers depend. The work provides a methodical approach to API design covering solution based API design, performance, versioning, documentation, testing, scripting, extensibility and libraries. The work includes numerous illustrations and code examples and access to additional online resources is provided. Reddy is a software development consultant.

iPhone application development; strategies for efficient mobile design and delivery.
Hahn, Jim. (Chandos information professional series) Chandos Publishing, ©2011 158 p. $75.00 (pa)
Directed at librarians, this small guide to iPhone application development provides a user driven approach to creating context-aware interactive web apps for college library use. Using the Apple’s Dashcode development application, the work uses sample applications such as RSS readers, a podcast aggregator and a library tour video program to demonstrate key programming concepts and to showcase sample projects that might be of use for library application developers. The work includes numerous screen shots as well as appendices documenting iPhone and iOS features. Hahn is a librarian at the University of Illinois Urbana-Champaign and the vice-chair of the Emerging Technologies Interest Group at the American Library Association. Distributed by Neal-Schuman.

Advanced database query systems; techniques, applications and technologies.
This collection of fourteen articles on database queries showcases advanced scholarship in the searching of a variety of database systems. Topics discussed include automatic categorization in web database query results, concept-oriented query language, fuzzy approaches to flexible database querying, pattern based schema mapping, relational techniques for storage and querying and graph database queries. Individual papers include abstracts, illustrations, notes and references and a volume-wide compilation of reading resources is provided. Contributors include academics in computer science and informatics fields from universities around the world.

Good, Phillip I.
*Analyzing the large number of variables in biomedical and satellite imagery.*
John Wiley & Sons, ©2011 185 p. $64.95
A consultant specializing in statistical solutions for private and public organizations, Good here presents material from a course he teaches on the specialized techniques required to analyze the very large data sets that arise in the study of medical images such as EEG, MEG, MRI, PET, ultrasound, and X-rays and from microarrays and satellite imagery. Some students are biomedical research workers and others are statisticians, he says, so the course has to explain much about statistics to the former and much about the biological context to the latter. He covers very large arrays, permutation tests, the biological background, multiple tests, the bootstrap, classification methods, and applying decision trees. Links are provided to the many software packages available on the Internet.

Bennett, Kevin B. and John Flach.
*Display and interface design; subtle science, exact art.*
CRC Press, ©2011 484 p. $99.95
Cognitive psychologists Bennett and Flach (both Wright State U., Ohio) present a textbook on interface design and cognitive systems engineering for students in human factors and related disciplines. They begin by laying a theoretical foundation for approaching cognitive systems that integrates across situations, representations, and awareness; then suggest how to apply them for particular purposes. Among the topics are a framework for ecological interface design, semantic mapping versus proximity compatibility, configural graphics for process control, metaphor to leverage experience, visual momentum, and evaluating interfaces.

Joshi, R. C. and Anjali Sardana.
*Honeypots; a new paradigm to information security.*
Science Publishers, Inc., ©2011 328 p. $139.95
This comprehensive guide to the theory and practical use of honeypots for the collection and study of network attacks provides students, network administrators and security professionals
with a collection of useful strategies and illustrative case studies for implementing a variety of useful security traps. Topics discussed include built and commercially available honeypots, honeynets, static, virtual and dynamic honeypots, wireless honeypots, deployment and applications, anti-honeypot technologies and network forensics. The work includes numerous illustrations and code examples as well as chapter review exercises. Distributed by CRC Press.

QA76.9 978-1-4398-2499-3
Security patch management.
Nicastro, Felicia M.
CRC Press, ©2011 270 p. $79.95
For network and IT managers, this guide to developing an effective software patch management system provides practical advice on securing network and infrastructure resources against software and hardware vulnerability exploits. Topics discussed include general security management, vulnerability management, tools and testing of patches and developing and implementing a robust patching process. The work includes specific example processes and several network diagrams. Nicastro is the director of the Ethical Hacking Center of Excellence at BT Global Services.

QA274 978-1-4200-7941-8
Handbook of Markov chain Monte Carlo: methods and applications
Title main entry. Ed. by Steve Brooks et al. (Chapman & Hall/CRC handbooks of modern statistical methods)
CRC Press, ©2011 592 p. $99.95
This is a reference not a textbook, but there is enough introductory matter that graduate students and researchers new to Markov Chain Monte Carlo (MCMC) statistical methods can become acquainted with the basic theory, algorithms, and applications. The first half looks at the foundations, methodology, and algorithms; the second half samples practical applications in a number of fields. Among the topics are reversible jump MCMC, MCMC using Hamiltonian dynamics, estimating with confidence, spatial point processes, an MCMC-based analysis of a multilevel model for functional magnetic resonance imaging data, statistical ecology, educational research, fisheries science, and analyzing rural-urban migration in Thailand.

QA278 978-1-4398-6223-0
Data clustering in C++; an object-oriented approach. (CD-ROM included)
Gan, Guojun. (Chapman and Hall/CRC data mining and knowledge discovery series)
CRC Press, ©2011 496 p. $89.95
This practical guide to data clustering provides information on using object oriented programming to implement a variety of sorting algorithms. While intended for experienced C++ programmers, the volume none the less provides extremely straightforward explanations of all code examples and clearly presents each new class in detail. The work begins with an overview of data clustering and applicable C++ review and covers the creation of a C++ data clustering framework as well as providing numerous data clustering algorithms. Numerous code examples, diagrams and equations are provided throughout and a companion CD-ROM contains sample applications and configuration files. Gan is the co-author of Data Clustering: Theory, Algorithms and Applications.

QA312 2010-031105 978-0-470-69945-4
Statistical methods for fuzzy data.
Viertl, Reinhard.
John Wiley & Sons, ©2011 256 p. $99.95
Viertl (Vienna U. of Technology, Austria) explains how to perform statistical analysis of data that is inherently imprecise. He describes the necessary foundations of fuzzy models and basic statistical analysis methods for fuzzy samples, both generalized classical statistical procedures and generalized Bayesian inference procedures. Among his topics are fuzzy numbers and fuzzy vectors, empirical correlation for fuzzy data, a law of large numbers, generalized confidence regions, fuzzy predictive distributions, classical regression analysis, and stochastic method in fuzzy time series analysis.

QA372 2010-034587 978-0-470-71549-9
The Duffing equation; nonlinear oscillators and their behaviour.
Title main entry. Ed. by Ivana Kovacic and Michael J. Brennan.
John Wiley & Sons, ©2011 369 p. $135.00
Mechanical and civil engineers, and allied researchers consider the nature, variations, and applications of the nonlinear equation describing an oscillator with a cubic nonlinearity, named after German engineer Georg Duffing, who introduced it in 1918. It is one of the simplest equations that describes chaotic behavior of a system, so has become popular with researchers in chaos since the 1970s. The topics include examples of physical systems described by the Duffing equation, analysis techniques for its various forms, the forced harmonic vibration of a Duffing oscillator with different damping mechanisms, and the forced harmonic vibration of an asymmetric Duffing oscillator.
PHYSICS

QC185  2010-051904 978-0-07-175184-1
The diffusion handbook; applied solutions for engineers.
Thambynayagam, R. K. Michael.
McGraw-Hill, ©2011 1911 p. $199.00
This reference presents approximately 1,000 solutions to boundary-value problems associated with Dirichlet, Neumann, and Robin boundary conditions. Coverage includes integral transforms and their inversion formulae, infinite and semi-infinite continua, bounded continuum, infinite and semi-infinite lamella, rectangle, quadrant layer and octant layer, cuboid, infinite and semi-infinite cylindrical continua, bounded cylindrical continuum, wedge-shaped infinite and semi-ion finite continua, wedge-shaped bounded continuum, and wedge. All semi-analytic solutions are accompanied by prescriptions for numerical computation. The diffusion coefficient and the initial and boundary conductions apply to fluid flow in a porous medium. All solutions can be applied to problems in heat conduction and mass transfer.

QC371  978-1-4398-2906-6
Applied optics fundamentals and device applications, nano, MOEMS, and biotechnology.
Mentzer, Mark A. (Emerging technologies in optical engineering)
CRC Press, ©2011 354 p. $129.95
A scientists with the US Army, Mentzer launches the series he edits with a volume surveying interactions between the various fields the series will encompass. It can serve as a reference for practitioners or a textbook in any of the disciplines. He covers electro-optics; acousto-optics, optical computing, and signal processing; fiber-optic sensors; integrated optics; optical diagnostics and imaging; and micro-electro-mechanical and micro-opto-electro-mechanical systems and nano- and bio-nano-technologies.

QC689  978-1-4200-8937-0
Fundamentals of attosecond optics.
Chang, Zenghu.
CRC Press, ©2011 519 p. $89.95
Attosecond optical pulses are a laser-like light that is redefining ultra-fast physics and chemistry. Chang (physics and optics, U. of Central Florida) introduces the emerging field to graduate and senior undergraduate students and scientists. He emphasizes the fundamental concepts and techniques, but also surveys recent research, including that by his own group. The topics include the quest for attosecond optical pulses, poky old femtosecond driving lasers, the semi-classical model, phase matching, attosecond pulse trains, single isolated attosecond pulses, and applications. Solutions are provided for selected problems.

CHEMISTRY

QD79  978-1-4398-0753-8
Hydrophilic interaction liquid chromatography (HILIC) and advanced applications.
Title main entry. Ed. by Perry G. Wang and Weixuan He.
CRC Press, ©2011 589 p. $169.95
The technique is a variation of normal-phase chromatography that can examine organic solvents that are miscible in water. It uses polar materials such as amino cyano, diol, and silanol as its stationary phase, so is sometimes called reverse reversed-phase or aqueous normal phase. Chemists in various fields describe the technology, which was introduced in 1990, and provide detailed information and discussion on advanced applications in such fields as environmental sciences, food analysis, clinical chemistry, pharmaceutical research, and biotechnology. An underlying theory has yet to jell, and commercial equipment is still hard to find, so there is a chance to be the first on your block.

QD96  2010-038209 978-1-4398-1324-9
Ion mobility spectrometry-mass spectrometry; theory and applications. (CD-ROM included)
Title main entry. Ed. by Charles L. Wilkins and Sarah Trimpin.
CRC Press, ©2011 357 p. $159.95
Ion mobility spectrometry goes back some 40 years, under the name plasma chromatography, but only recently, and conjoined with mass spectrometry, is it being applied in the real world, and instruments are hitting the shelves. Here researchers and practitioners discuss fundamentals, instrumentation, and applications. Their topics include measuring ion mobility in a gas jet formed by adiabatic expansion, a cryogenic-temperature ion mobility mass spectrometer for improved ion mobility resolution, multiplexed ion mobility spectrometry and ion-mobility-mass spectrometry, metabolomics by ion mobility-mass spectrometry, profiling and imaging tissues, deciphering carbohydrate structures with applications in biological features related to carbohydrate chemistry and biology, and the conformational landscape of biomolecules.
Metallic systems; a quantum chemist’s perspective.
Title main entry. Ed. by Thomas C. Allison et al.
*CRC Press*, ©2011 403 p. $149.95
Being quantum chemists, the contributors are interested in calculating the properties of the metals and metal-containing molecules using first principles methods, and are more frequently in molecular properties as opposed to properties of extended solids, that is interested in the chemistry that takes place at the surface of metals. Their topics include carbohydrate and trivalent iron ion interactions in the gas phase and in aqueous solution, a first-principles perspective on the structure of liquid metal surfaces, computational investigations of metal oxide surfaces, density functional theory calculations on cobalt and platinum transition metal clusters, and exploring borderlands between physics and chemistry with theoretical methods in the study of atomic clusters.

Carbon dioxide thermodynamic properties handbook; covering temperatures from -20 degrees to 250 degrees C and pressures up to 1000 bar.
Anwar, Sara and John J. Caroll.
*John Wiley & Sons*, ©2011 568 p. $295.00
Anwar and Caroll, with a gas engineering company in Calgary, Canada, have compiled the most comprehensive collection of data on the thermodynamic properties of carbon dioxide ever published. The substance is one of the most well studied in the world, they point out, and will certainly become even better studied as it continues to be a factor of political and economic issues. In tabular form, they set out the density, enthalpy, entropy, and heat capacity of saturated carbon dioxide, and as a function of temperature and pressure.

Complex macromolecular architectures; synthesis, characterization, and self-assembly. (online access included)
Title main entry. Ed. by Nikos Hadjichristidis et al.
*John Wiley & Sons*, ©2011 832 p. $175.00
Written by an international group of specialists, the chapters of this outstanding resource present an in-depth description of the state of research, current applications, and future outlook for 26 complex macromolecular structures, including new entrants in the field, such as structures from living alkene polymerization. A small sample of the individual chapter topics includes arborescent polymers with a mesoscopic scale, living polymerization of ylides, highly branched functional polymer architectures using click chemistry, and precision polyolefins. Though appealing to specialists, the material is presented with adequate description to be accessible to researchers in other fields. Each chapter concludes with a list of references. The contributors are chemists with research institutions in Europe, North America, Taiwan, and Japan.

Biological chemistry of arsenic, antimony and bismuth.
Title main entry. Ed. by Hongzhe Sun.
*John Wiley & Sons*, ©2011 383 p. $175.00
The three elements are in Group 15, along with nitrogen and phosphorus, all of which are directly or indirectly related to life. Biochemists and other chemists report findings from recent research into their role in medicine and biology. The topics include arsenic’s interactions with macromolecules and its relationship to carcinogenesis, the biological chemistry of antimony and bismuth, arsenic in traditional Chinese medicine, metalloid transport systems, *Helicobacter pylori* and bismuth, application of arsenic trioxide therapy for patients with leukemia, radio-bismuth for therapy, and genetic toxicity in arsenic and antimony.
MEDICINE (GENERAL)

R856 2011-006351 978-1-4398-4995-8 Biological and biomedical coatings handbook; processing and characterization.
Title main entry. Ed. by Sam Zhang. (Advances in materials science and engineering)
CRC Press, ©2011 441 p. $139.95
This book is volume 1 of a two-volume handbook. It contains nine chapters focusing on processing and characterization of biological and biomedical coatings, covering sol-gel methods, thermal spraying, hydrothermal and physical or chemical vapor deposition, and other methods. The book is illustrated with b&w images and can serve as an introduction to the field and as a reference for experts. Chapters are written by international contributors and describe materials such as bone-like mineral coatings, synthesis and characterization of hydroxyapatite nanocoatings, hydroxyapatite and other biomedical coatings by electrophoretic deposition, and nanostructured titania coatings for biological applications. Other subjects covered include bioceramic coatings on titanium, layer-by-layer assembled polyelectrolyte film coatings, and bioactive glass-based coatings and modified surface strategies for manufacture, testing, and clinical applications in regenerative medicine. The book will interest those in academia, research, and industry. Zhang is professor in the School of Mechanical and Aerospace Engineering at Nanyang Technological University, Singapore.

THERAPEUTICS, PHARMACOLOGY, NURSING

RM301 2010021925 978-0-470-48407-4 ADMET for medicinal chemists; a practical guide.
Title main entry. Ed. by Katya Tsaioun and Steven A. Kates.
John Wiley & Sons, ©2011 498 p. $125.00
The acronym stands for absorption, distribution, metabolism, excretion, and toxicity. They, along with efficacy, are critical properties in determining whether a new molecular entity will become a clinical candidate and subsequently, another drug on the market. ADMET can also stand for the process of determining the properties, or the discipline that focuses on that process. Contributors from European and US drug companies, along with a university here and there, explain how to determine the properties and translate the measurements into predictions for commercial success. Among their topics are pharmacokinetics for medicinal chemists, in vitro approaches to genetic toxicity, preclinical candidate nomination and development, and fragment-based drug design.

TECHNOLOGY (GENERAL)

T55 2010-047225 978-0-470-76771-9 Conduct of operations and operational discipline; for improving process safety in industry.
Title main entry. Center for Chemical Process Safety.
John Wiley & Sons, ©2011 207 p. $120.00
This volume delineates management practices to help organizations have strong process safety management performance and operational excellence, with a focus on the design and implementation of conduct of operations and operational discipline systems, as well as correcting and improving existing systems. It also covers how to determine whether a program is needed, the benefits of these systems, leadership’s role and commitment, the importance of human factors, and each system’s key attributes. The book is meant to complement the more comprehensive guidelines books from the Center for Chemical Process Safety, which published this volume in alliance with the American Institute of Chemical Engineers.

ENGINEERING (GENERAL, CIVIL)

TA151 2010-031086 978-0-470-43841-1 Civil engineer's handbook of professional practice.
Hansen, Karen Lee and Kent E. Zenobia.
John Wiley & Sons, ©2011 714 p. $135.00
Intended as both an advanced undergraduate or graduate level textbook and as a reference for professional engineers, this comprehensive volume outlines best business and professional practices for civil engineers. Topics discussed include professional ethics, the roles of engineers in projects, client relationships and business development, legal aspects of professional practice, and the engineer’s relationship to globalization, sustainability and emerging technology. The work includes numerous illustrations and tables and a series of appendices provide numerous sample documents. Hansen is a professor of civil engineering at California State University, Sacramento and Zenobia is an engineer for the California Department of Water Resources.
Design decisions under uncertainty with limited information.
Nikolaidis, Efstratios et al. (Structures and infrastructures series; v.7) 
*CRC Press*, ©2011 521 p. $149.95
Mechanical engineers Nikolaidis (U. of Toledo, Ohio), Zissimos P. Mourelatos (Oakland U., Michigan), and Vijitashwa Pandey explore theories and tools to represent uncertainty using both data and expert judgment, and the use of the resulting models to make informed choices when there is limited or no data. They begin by summarizing decision making in engineering and business, and surveying and comparing tools for representing uncertainty. Then they look at objective probability and long-term frequency, and present a structured approach to making decisions that are consistent with the decision makers’ estimates of uncertainty and risk attitude. Among the topics are constructing probabilistic models from observations, the probabilistic analysis of dynamic systems, and multi-attribute considerations in design. There is no index.

Visualization of fields and applications in engineering.
Tou, who is not further identified, has gleaned information from scattered sources into a single-volume tutorial and reference on basic techniques for tensor field visualization and mapping from an engineering approach. Emphasizing fundamental aspects of post-processing digital database and applications, he explores existing theories and their integration in tensor field visualization, transformation, and analysis. His examples range across several fields of engineering.

Advanced Kalman filtering, least-squares and modeling; a practical handbook.
Gibbs, Bruce. P. *John Wiley & Sons*, ©2011 605 p. $145.00
Gibbs spent over 40 years applying estimation and control theory to applications for a number of US government agencies as well as private companies before turning consultant. Though there are many books on Kalman filtering and least-squares estimation, he says, they do not analyze model structure carefully, nor describe options for improving the performance of an estimation. Those are the matters he emphasizes here. One of the techniques he explains is exploratory data analysis to define model structure in cases when it is difficult to determine the best model structure *a priori*. His topics include system dynamics and models, fundamentals and solution techniques of linear least-square estimation, advanced filtering topics, and empirical modeling.

Nonsmooth mechanics and convex optimization.
Kanno (mathematical informatics, U. of Tokyo) explains how to use theory and algorithms of optimization to treat problems in applied mechanics, the terms nonsmooth and convex signaling how the methodology he discusses diverges from conventions in applied and computational mechanics. He covers the broad areas of convex optimization over a symmetric cone, cable networks as an example in nonsmooth mechanics, numerical methods, and problems in nonsmooth mechanics. Among his topics are optimality and duality, principles of potential energy for cable networks, algorithms for conic optimization, masonry structures, and frictional contact problems.

Biosensor nanomaterials.
Scientists and engineers from chemistry, materials, pharmaceuticals, and medicine explore how nanotechnology is being used in biosensors to detect small amounts of harmful agents against a noisy and often changing background. They consider new micrometer and nanometer technologies for electrochemical biosensor development, advanced nanoparticles in medical biosensors, smart polymeric nano fibers resolving biorecognition issues, fabricating and evaluating nanoparticle-based biosensors, the synthesis and applications of enzyme-based biosensors, energy harvesting for biosensors using biofriendly materials, *in vitro* and *in vivo* sensing and imaging of carbon nanotubes, the lipid nanoparticle-mediated detection of proteins, nanomaterials for optical imaging, semiconductor quantum dots for electrochemical biosensors, functionalized graphene for biosensing applications, electrochemical biosensors using chitosan nanocomposites, nanomaterials as promising DNA biosensors, and nanocomposites and their biosensor applications.
Mechanical and materials engineers examine systems strategies for concurrent robust design of materials and systems, along with elements of distributed modeling and simulation environments. They show how several primary disciplines or endeavors that have traditionally been distinct can combine to serve as a foundation of modern materials design. They are systems-based engineering design, computational materials science and engineering, robust system design, and information technology. Among their topics are critical path issues in materials design, decision making in engineering design, mathematical tools for decision making in design, integrated and concurrent design of materials and products, and distributed collaborative design frameworks.

The authors concentrate on providing a method for modeling real crack propagation from the initial stage to final fracture. The new X-FEM method they discuss does not, they explain, have the shortcomings of the traditional finite element methods. The book also covers elementary concepts of fracture mechanics, representation of fixed and moving continuities, non-linear problems and crack growth by fatigue, and numerical simulation of crack growth. The book, intended for the solid mechanics community, is concisely written and includes numerous illustrations. Authors are Pommier (Ecole Normale Supérieure de Cachan and LMT-Cachan Laboratory, France), Gravouil (INSA and LaMCoS Laboratory, France), Combescure (INSA, France), and Moës (Ecole Centrale de Nantes, France).

Composites with the tubes and polymers show promise of a range of useful mechanical properties and other characteristics, say Ma (Liebnitz Institute of Polymer Research, Germany) and Kim (Hong Kong U. of Science and Technology), but there are major problems, primarily getting the disparate materials to mix evenly then hold on to each other. To help overcome these problems, they address how the tubes are functionalized and their surface functionalities controlled to enhance the interfacial interactions with a polymer matrix, and how they are incorporated into polymers when agglomerates are broken down into individual tubes. They describe a number of conventional and novel techniques for dispersing and functionallyizing the tubes for polymer reinforcement; and systematically present the principles, theories, and technical practices involved.

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Chemists and materials scientists from many countries offer a broad reference to porous polymers, describing the fundamentals, the current state of the art, and possible futures. Covering in turn synthesis, characterization, and applications, they explore such topics as porous polymers from self-assembled structures, colloidal templating, the nondestructive evaluation of critical properties of thin porous films, microscopy characterization, biomedical devices, and polymer-supported reagents and catalysts.

Based on a project and a research program
in the Czech Republic, this volume discusses models of the thermal conductivity of nanocrystalline ceramics, taking into account the grain size dependence of the Young’s modulus. To simplify calculations, it considers only monodisperse systems as two-phase composites. This compact book includes a variety of graphs and figures, occasionally in color.

**Moving loads; dynamic analysis and identification techniques.**

Law, Siu-Seong and Xin-Qun Zhu. (Structures and infrastructures series; v.8)  
*Routledge*, ©2011 306 p. $149.95  
Law (civil and structural engineering, Hong Kong Polytechnic U.) and Zhu (structural engineering, U. of Western Sydney) take the vehicle-bridge system as an illustration of the moving load problem, and present analytical methods for estimating interaction forces using modern computer power for the numerical analysis. The commercial packages available for such analysis are very expensive and not very effective, they say. First they set out the moving load problems of the dynamic response of multi-span continuous beams and orthotropic plates under moving loads, and applying vehicle-bridge interaction dynamics. Then they consider moving load identification in a variety of contexts, among them the frequency-time domain, state space, and finite element formulation.

**Thermal infrared sensors; theory, optimisation and practice.**

Budzier, Helmut and Gerald Gerlach.  
*John Wiley & Sons*, ©2011 302 p. $115.00  
For design and optical engineers, technicians, technical managers, equipment suppliers, and users of infrared sensors and cameras, Budzier and Gerlach (Dresden U. of Technology, Germany) explain the basic physical and photometric fundamentals of thermal infrared sensors, technological requirements and issues, and applications to the solution of specific tasks. They discuss the origin and propagation of electromagnetic radiation; the photometric basics including mapping the radiation source area to the area of the sensor or sensor array; the characteristics of infrared optical sensors and sensor arrays; noise sources; the structure and characteristics of thermal infrared sensors; and applications in pyrometry, thermal imaging cameras, passive infrared motion detectors, gas analysis, and spectrometry. Classical optical elements such as lenses, grating, and filters are excluded. The book is based on lectures on infrared measuring technology by the authors at Dresden U. of Technology.

**High power laser handbook.**

Title main entry. Ed. by Hagop Injeyan and Gregory D. Goodno.  
*McGraw-Hill*, ©2011 591 p. $150.00  
Physicists and engineers in military, academic, and commercial environments explain the current status of every technical area of high-power lasers. They provide an intuitive and practical understanding, and leave the detailed derivations to the specialized literature they refer to. The areas covered are gas, chemical, and free-electron lasers; diode lasers; solid-state lasers; fiber lasers; and beam combining. Among specific topics are excimer lasers, semiconductor laser diodes, thin-disc lasers, and high-power fiber lasers for industry and defense.

**ENVIRONMENTAL TECHNOLOGY**

**Biophysico-chemical processes of anthropogenic organic compounds in environmental systems.**

Title main entry. Ed. by Baoshan Xing et al. (Wiley-IUPAC series in biophysico-chemical processes in environmental systems)  
*John Wiley & Sons*, ©2011 572 p. $199.95  
Scientists from a wide range of disciplines focus on the myriad physical, chemical, and biological interfacial interactions that govern how synthetic organic chemicals, many of them toxic, move through the environment. They consider in turn fundamental biological, physical, and chemical processes of the compounds; their occurrence and distribution in air, water, and soil and their global cycling; the current sampling methods and analytical, biological, spectroscopic, and microscopic techniques for monitoring and studying them; and the restoration of natural environments contaminated by organic pollutants. Among specific topics are the role interactions between organic matter and minerals play in the sorption of organic contaminants, pharmaceutical and personal care products in soils and sediments, biosensors for environmental analysis, and the phyto-remediation of soils contaminated with organic pollutants.

**Environmental anaerobic technology; applications and new developments.**

Title main entry. Ed. by Herbert H.P. Fang.  
*Imperial College Press*, ©2010 404 p. $149.00
Boasting the advantages of energy savings, reduced sludge yield, and production of biofuel, anaerobic technology has applications in the treatment of wastewaters from food, beverage, brewery, and distillery industries, as well as the potential for use with municipal wastewater systems, chemical industries, and agriculture. Although first applications were in the 1860s, the techniques for anaerobic waste and wastewater treatment fell out of favor for many years in relation to aerobic processes. The 1960s saw their return in the United States, and then major developments began to emerge from the Netherlands. This book brings together state-of-the-art processes and applications and emerging research from an international roster of contributors. Editor Herbert H.P. Fang is affiliated with the U. of Hong Kong. Distributed by World Scientific.

**BUILDING CONSTRUCTION**

TH7478 978-1-4398-4523-3

Heat pipe design and technology; a practical approach.

Bahman, Zohuri.

*CRC Press*, ©2011 472 p. $119.95

Having survived many years in semiconductor and defense companies to become a consultant engineer, Bahman characterizes the heat pipe as one of the most remarkable achievements in thermal physics and in heat transfer engineering during the 20th century. He briefly introduces heat pipe technology, then describes its basic applications for passive thermal control. He reviews the relevant heat and mass transfer theory, then develops mathematical models for calculating heat transfer limitations in high-temperature and low-temperature heat pipes, and compares the results with experimental data from various sources. His topics include operating limits, when to consider a heat pipe, computer codes for designing heat pipes, piping stress analysis software, applications in nuclear power plants and space vehicles, manufacturing heat pipes, and various types of heat pipes.

**MECHANICAL ENGINEERING & MACHINERY**

TJ211 2010-281145 978-981-4307-41-3

Adaptive control of robot manipulators; a unified regressor-free approach.

Huang, An-chyau and Ming-Chih Chien.

*World Scientific*, ©2010 262 p. $99.00

Authors An-Chyau Huang and Ming-Chih Chien (National Taiwan U. of Science and Technology, Taiwan) state in their preface that they have written this text for postgraduate students in an advanced course pertaining to the control of robot manipulators, and for researchers and practicing engineers "who currently employ the regressor-based algorithms but would benefit significantly from the use of the regressor-free strategies.” Robot manipulators involved with slow-motion operations are not uncommon as of the last few decades, but getting fast performance requires a completely different level of complexity and advanced control strategies. This work considers actuator dynamics, joint flexibility, and system uncertainties that are assumed to be time-varying, with unknown variation bounds. "The main tool used in this new design is the function approximation technique which represents the general uncertainties in the robot model as finite combinations of basis functions weighted with unknown constant coefficients.”

**ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING**

TK1005 978-1-4398-4953-8

Intelligent automatic generation control.

Bevrani, Hassan and Takashi Hiyama.

*CRC Press*, ©2011 290 p. $149.95

Automatic generation control (AGC) is one of the important problems in designing and operating interconnected power systems, say Bevrani (U. of Kurdistan) and Hiyama (Kumamoto U.), and rapid changes in the power business mean that they must be intelligent and flexible in order
to maintain a balance between generation and load following serious disturbances. They explain the fundamentals of power system AGC to engineers and operators planning and running a power system, and to researchers and students in electrical engineering. They also introduce several new schemes using intelligent control methodologies to minimize system frequency deviation while simultaneously adjusting tie-line power to match the total generation and load demand, which is required to operate interconnected systems successfully.

TK2391 2010-010789 978-0-470-16768-7
Applications of high temperature superconductors to electric power equipment.
Kalsi, Swarn Singh.
Drawing on more than 40 years in superconducting magnet technology and electrical engineering with some large US companies, Kalsi offers a reference on designing power equipment with the high-temperature superconductors developed during the late 1980s. The technology is in its infancy and still developing, he warns, but the design and analysis approaches he discusses are from his actual experience. He writes for electrical and mechanical engineers and senior or graduate students who are familiar with the fundamentals of design and analysis of conventional power equipment like motors and generators, transformers, power cables, and electromagnets. Among his topics are cooling and thermal insulation systems, synchronous alternative current homopolar machines, fault current limiters, and maglev transport.

TK4058 2010-051061 978-0-470-82633-1
Chaos in electric drive systems; analysis, control, and application.
Wiley-IEEE Press, ©2011 318 p. $149.95
Chau (U. of Hong Kong) and Wang (Southeast U., China) gather and synthesize the considerable research that has been conducted on chaos on electric drive systems, the results of which are published in widely scattered sources. After an introduction, they look at analysis, control, and application. Among their topics are chaos theory and electrical drive systems, chaos in alternating-current and direct-current systems, stabilizing and stimulating chaos, and applying chaotic modulation and motion.

TK5102 2010-033601 978-0-470-74505-2
Modulation and coding techniques in wireless communications.
Title main entry. Ed. by Evgenii Krouk and Sergei Semenov.
John Wiley & Sons, ©2011 662 p. $115.00
Recent major achievements in the field of wireless communications has led many manufacturers to mass-produce wireless devices. International standards on communications are the solution to problems of device compatibility, but modern standards on communications comprise a large number of sometimes cumbersome specifications. This book aims to help wireless communications professionals bridge the gap between the high-level technical detail of standard specifications and real-world communications theories, trends and implementation. The first part of the book (Chapters 1-9) provides a review of the basis of communication theory, and part 2 (Chapters 10-12) a review of modern wireless communications standards. Contributors include Russian and Finnish academics in communications, information technology, and aerospace instrumentation, as well as several Noika representatives.

TK5103 2011-000933 978-0-470-18235-2
Broadband optical access networks.
Title main entry. Ed. by Loenid G. Kazovsky et al.
John Wiley & Sons, ©2011 283 p. $99.95
This volume on optical networking and broadband delivery technologies showcases the work of the Stanford University Photonics and Networking Research Laboratory research group over the last decade. Outlining the state of the art of optical networking research, the chapters in this volume, provide an overview of core technologies and architectures that will be important factors in the transition to more efficient broadband delivery so important to emerging consumer demand for networked services. Topics discussed include broadband access technologies, optical communications components and systems, passive optical networks, next-generation broadband optical access networks and hybrid optical wireless access networks. Kazovsky is a professor of electrical engineering at Stanford University. Cheng, Shaw, Gutierrez and Wong are all graduates of Stanford University working for major firms in networking and communications.
This collection of sixteen articles on Service Oriented Architecture (SOA) presents current scholarship in data and service interoperability and discovery in business complex, distributed computer architectures. The work is divided into three sections covering service level agreements (SLAs), service composition and reliability and fault tolerance and individual articles address such topics as flexible and dynamic SLA management in service oriented architectures, service directories, selective querying, aggregating functional and non-functional properties for service identification and model based methodologies for assessing business process availability. Papers include abstracts, illustrations, notes and references and a volume-wide compilation of reading resources is provided. Contributors include academics in computer science fields from universities in the US, Europe, South America and Australia.

TK5105 2010-042272 978-1-60960-040-2
Handbook of research on methods and techniques for studying virtual communities; paradigms and phenomena; 2v.
Title main entry. Ed. by Ben Kei Daniel.
$475.00
This two volume collection, featuring over forty academic papers, showcases current scholarship in the study of online communities and social networks. The work is divided into six broad sections beginning with an overview of the study of virtual communities and covering social networks and data mining, tools and techniques for building online communities, data and user modeling, metrics for evaluation and study. Volume two concludes with a collection of case studies and unique problems. Chapters discuss such topics as communications and emergent social practices in online communities, semantic social network analysis, using virtual learning communities for research in technical writing, modeling diversity of user behaviors and methods for measurement and visualization of social networks. Individual papers include abstracts, illustrations, notes and bibliographies and a collection-wide compilation of bibliographic resources is provided. Contributors to this set include academics and researchers in computer science and related fields from around the world.

TK5105 2010-043008 978-1-60960-625-1
Ontology learning and knowledge discovery using the Web; challenges and recent advances.
Title main entry. Ed. by Wilson Wong et al.
$180.00
Converting today’s onslaught of information into usable knowledge is one of the main challenges facing us in the modern era. This volume covers a wide range of topics, from ontology learning to data mining of comparable patents and is edited by three faculty members at the University of Western Australia. Each chapter ends with paragraph-long definitions of the key terms considered.

TK5105 2010-054441 978-1-61520-921-7
Semantic web personalization and context awareness; management of personal identities and social networking.
Title main entry. Ed. by Miltiadis Lytras et al.
$180.00
This collection of thirteen articles on knowledge management and the semantic web presents current scholarship in a variety of areas related to the next generation of personalization technologies for social networking and online identity management. Topics discussed include semantic recommendation systems for digital libraries, standardization of visual objects, the evolution of ontology-based user modeling.
and collaborative filtering and inference from the interactive web. Individual papers include abstracts, illustrations, notes and references and a volume-wide compilation of reading resources is provided. Contributors include academics in computer science and information technology fields from universities in the US and Europe.

**TK6553 2010-035687 978-0-470-68871-7**

*Communications, radar and electronic warfare.*
Graham, Adrian W.
*John Wiley & Sons*, ©2011 378 p. $120.00

Graham, an independent consultant in the UK, offers a guide for operators, designers, and managers to the principles of radio communication for both civilian and military applications, with a focus on the applications of radio propagation and prediction. He introduces the basic theory of radio prediction in a simplified way, then explains how this theory can be translated into real-life applications and how they work in practice. He focuses on aspects over which operators and developers have some control, such as selected frequency, antenna, location, and system configuration, and discusses spectrum management; the radio channel; effects of noise, interference and deliberate jamming; radio-controlled improvised explosive devices (RCIEDs) and countering them; the performance of jamming, detection, and intercept systems; predicting high-frequency radio and radio propagation at VHF (very high frequency) and above; data requirements; planning and optimizing radio links; coverage; and communications and non-communications electronic warfare.

**TK6564 2011-010656 978-0-07-162289-9**

*Waveform diversity; theory & applications.*
Title main entry. Ed. by Unnikrishna Pillai et al.

Four electrical engineers explain how to exploit the shape of transmitter and receiver waveforms to improve signal detection and suppress interference and noise across various disciplines such as radar, sonar, and communications that routinely use waveforms. Their topics are waveform design and matched filtering, new methods for optimum transmitter and receiver design, constant envelope transmit signals, optimum waveform design, discrete-time waveform design, and sparsity-based receivers. They write for senior and graduate students and professional engineers who have a basic understanding of linear systems and radar fundamentals.

**TK6565 2010-047251 978-0-470-82446-7**

*Antenna design for mobile devices.*
Zhang, Zhijun.
*John Wiley & Sons*, ©2011 280 p. $130.00

For a decade or so, Zhang (electronic engineering, Tsinghua U., China) alternated between designing antennas to sell to companies, and buying antennas from designers for companies, so knows both sides of the transaction well. During that time he collected bits of lore, insights, tips, and experience that he here compiles into a broad handbook for student and intermediate engineers designing antennas that move around. He covers antenna matching, external and internal antennas, antenna measurement, and regulations related to antenna engineers.

**TK6570 2011922546 978-1-60750-721-5**

*Radio frequency identification system security; proceedings.*
RFID Sec’11 Workshop (Wuxi, China: 2011) Ed. by Tieyan Li et al. (Cryptology and information security series; v.6)
*IOS Press*, ©2011 157 p. $138.00

The invited paper describes the passive black-box cryptanalysis of an ultra-light protocol after eavesdropping one authentication session. Nine other papers explore such topics as radio frequency identification (RFID) mutual authentication protocols with universally composable security, attacks and improvements to a new RFID authentication protocol, an RFID electronic visa with personalized verification, and a memory-efficient distance bounding protocol with error detection.

**TK6590 978-1-60807-190-6**

*Phased array antennas with optimized element patterns.*
Skobelev, Sergei P. (Artech House antennas and propagation series)
*Artech House*, ©2011 261 p. $139.00

This comprehensive text for engineers involved in the creation of phased arrays provides detailed information on the design of large scale directional antennas. Topics discussed include phase array concepts and relations, arrays with beam-forming networks, coupled dual-mode waveguides, reactively loaded radiators, protruding dielectric elements and arrays with strip, disk and wire structures. Chapters include copious diagrams and equations and two appendices provide a selection of relevant calculations. Skobelev is a phased array expert working for the Russian company Radiophyzika, formerly a research institute for the Soviet Union.
Video encryption technology and application.
Xu, Zhengquan and Jing Sun. (Media and communications; technologies, policies and challenges)
Novinka Books, ©2010 99 p. $43.00 (pa)
Video encryption technology is a combination of cryptography and video technology. This book introduces several aspects of video encryption related to research methods and technology solutions. It describes video encryption techniques, performance requirements, and principles for designing a secure video encryption algorithm, and presents the primary encryption algorithms. It also describes novel applications and discusses security issues, open problems, and potential areas for further research in the field. Color and b&w images are included. Information on the authors is not given.

Video tracking; theory and practice.
Maggio, Emilio and Andrea Cavallaro.
John Wiley & Sons, ©2011 266 p. $115.00
Maggio (computer vision scientist, Vicon, UK) and Cavallaro (multimedia signal processing, Queen Mary U., UK) offer a reference designed to help researchers and practitioners create techniques and solutions from the potential of video tracking applications. The authors discuss design and implementation issues, algorithm implementation, and evaluation methods. Some specific topics include: feature extraction, target representation, localization, fusion, multi-target management, and context modeling. While technical, the text is clearly written and supported by exceptional illustrations.

Lead-free solder process development.
Title main entry. Ed. by Gregory Henshall et al.
This is a practice-oriented introduction to issues of lead-free soldering technology. It includes ten chapters covering topics associated with environmental regulatory and voluntary efforts in electronics products spurring the development of lead-free soldering; challenges of lead-free surface mount technology, wave-soldering, and rework; research results on various lead-free alloys for ball grid array/chip scale packaging components; tin whisker growth and mitigation strategies; testability of lead-free soldered printed circuit assemblies; board-level solder joint reliability under mechanical loading; and reliability of lead-free electronics in aerospace, military, and automotive environments.

ESD; design and synthesis.
Voldman, Steven H. (EDS series)
John Wiley & Sons, ©2011 270 p. $110.00
Writing for semiconductor chip architecture team lead floorplan engineers, circuit designers, design layout support, ESD (electrostatic discharge) engineers, and computer aided design integration teams, Voldman explains ESD chip design for a semiconductor chip, and demonstrates step-by-step how to provide ESD protection to a semiconductor chip. He also surveys the growing number of architectures and concepts being discussed, and delves into areas rarely considered by similar textbooks, such as power bus architecture, guard rings, and floorplanning. His treatment could also serve as a textbook for a graduate or undergraduate course involving the design of ESD devices, chips, and systems.

Diffusion in semiconductors, other than silicon; compilation.
Title main entry. Ed. by D.J. Fisher. (Defect and diffusion forum; v.308)
Trans Tech Publications, ©2010 168 p. $138.00 (pa)
Summary reports of 337 experiments provide information on the diffusion of matter and heat in 31 materials used in semiconductors. Most of the compounds are based on cadmium, gallium, indium, lead, and zinc. Mercury telluride is included however, as is silicon carbide for some reason. Each article is thoroughly referenced to the authors and publication number, date, and page. The arrangement is alphabetical by semiconductor material. Indexes cover authors, hosts, and diffusants.

Non-standard antennas.
Title main entry. Ed. by Francois Le Chevalier et al.
ISTE/Wiley, ©2011 462 p. $195.00
French physicists and engineers survey new designs for antennas that respond to new materials and technologies, new algorithms and increased speed for signal processing, and new requirements and applications. They cover emerging concepts, technologies, detection and localization, and ultra-wideband. The topics include acoustic antennas for biomedical and industrial ultrasonic imaging, terahertz broadband micro-antennas for continuous wave imaging, the airborne high precision location of radiating sources, and the co-design of antennas with low noise amplifier for ultra-wideband applications.
Self-organized organic semiconductors; from materials to device applications.

Chemists and chemical engineers introduce graduate students and researchers in fields concerned with making or using semiconductors to a selection of topics relating to organic, self-organized semiconductors such as large pi-conjugated liquid crystals and conjugated block copolymers. Among their topics are crystal engineering organic semiconductors, charge-carrier transport and its modeling in liquid crystals, self-assembling carbon nanotubes, high-efficiency organic solar cells using self-organized materials, and selective molecular assembly for bottom-up fabrication of organic thin-film transistors.

Nano-lithography.

Scientists and engineers specializing in microelectronics, most associated with CEA, Grenoble, France, describe various methods for printing microcircuits for the benefit of colleagues new to the field. The topics include fundamentals and applications of X-ray lithography, NanoImprint lithography, lithography techniques using scanning probe microscopy, lithography and manipulation based on the optical properties of metal nanostructures, patterning with self-assembling block copolymers, and metrology for lithography.

Tools for signal compression.

Moreau, Nicolas.

An instructor at Télécom ParisTech for over 30 years, Moreau specializes in audio and multimedia signal processing, with a particular emphasis on audio coding and watermarking. He describes the standard tools for signal compression, focusing on the theoretical problem of minimizing the mean squared error. Then he cite examples of how they are applied in compressing speech and musical audio signals, attending to the more concrete matter of trying to minimize the bit rate while respecting the psychoacoustic constraints. A final section presents MATLAB programs for a speech coder and a music coder. Signal compression involves eliminating not only all redundant parts of the original signal, he explains, but also the inaudible parts. The techniques are not his own, but are the standards that have been developed over the past few decades.

Biometrics; methods, applications and analyses.

Biometrics is a method for recognizing particular individuals using one or more intrinsic physiological traits such as fingerprint, face recognition, DNA, iris recognition, or odor/scent; using one or more behavioral trait such as typing rhythm, gait, and voice; or one or more of each. Specialists from either the technical side or the biological side consider such aspects as biometrics in marine benthic ecology, improving the performance of color spaces for face recognition by color space normalization and rotation, problems and solutions for improving accuracy, estimating the initial population size from removal data, black coding schemes designed for biometrical authentication, and statistical methods for handling complex categorical data.

Design and test technology for dependable systems-on-chip.

Computer scientists, electrical engineers, and related researchers explore aspects of system design and efficient modeling, but also introduce various fault modes and fault mechanisms associated with digital circuits integrated into systems-on-chip (SoC), including versions for multi-processors and networks. They write primarily for practitioners and researchers already working in SoC, but also for graduate and undergraduate students with a basic understanding of electronics and computer engineering who can get comfortable designing dependable system from not-so reliable base components. They cover design, modeling, and verification; faults, compensation, and repair; fault simulation and fault injection; test technology for systems-on-chips; and test planning, compression, and compaction.

Thin-film organic photonics; molecular layer deposition and applications.

Developing artificial materials with atomic or...
molecular-level tailored structures is the goal of material/device scientists and engineers for improving material performance and generating new photonic and electronic phenomena. Yoshimura (computer science, Tokyo U. of Technology) describes the properties of organic thin-films; assembling techniques for improving their properties via electron wavefunction control, e.g., scanning tunneling microscopy, molecular beam epitaxy, and atomic layer deposition; materials featuring conjugated polymers with multiple quantum dots; and proposed applications including optical interconnects in computers, solar energy conversion systems, and biomedical photonic devices using the self-organized lightwave network (SOLNET). He also presents the theoretical basis for predictions of electro-optical effects in polymer wires. Illustrations show examples of such technologies as integrated photoluminescence analysis chips and molecular recognition chips.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL885 2010-054208 978-0-470-68791-8
Spacecraft reliability and multi-state failures; a statistical approach.
Saleh, Joseph Homer and Jean-Francois Castet.
John Wiley & Sons, ©2011 206 p. $125.00
By multi-state failures, Saleh and Castet (both Georgia Institute of Technology, US) mean failures of mechanical or electronic systems to different degrees of severity. Their topics include the non-parametric reliability analysis of spacecraft failure data, the statistical analysis of spacecraft reliability by orbit and mass categories, time to anomaly and failure of spacecraft subsystems, and toward survivability analysis of spacecraft and space-based networks.

CHEMICAL TECHNOLOGY

TP155 2010-048940 978-1-84735-455-6
Update on undertaking extractable and leachable testing.
Feilden, Andrew. (Smithers Rapra update)
John Wiley & Sons, ©2011 168 p. $135.00
Feilden explains methods for extracting a substance from a substrate, and analyzing the extracted material. The processes is important in such fields as pharmaceutical container closure systems, environmental sciences, and pesticide research. In his introduction he discusses preparing samples, general extraction principles, and how small a sample can be accurate. Whole chapters are then devoted to extraction techniques, liquid extraction techniques, general analysis, gas chromatography, high-performance liquid chromatography, and analyzing inductively coupled plasma-metal compounds.
selection and sensor array optimization, noise and repeatability of odorant gas sensors in an electronic nose, odor reproduction with movies and its application to tele-olfaction, statistical gas distribution modeling using kernel methods, an electronic nose approach to monitoring the health of tomato plants, and improved gas source localization with a mobile robot by learning analytical gas dispersal models from statistical gas distribution maps using evolutionary algorithms.

TP159 978-1-4398-1387-4

**Semiconductor device-based sensors for gas, chemical, and biomedical applications.**

*Title main entry. Ed. by Fan Ren and Stephen J. Pearton. CRC Press, ©2011 312 p. $149.95*

Contributors from physics, chemistry, and materials report on recent developments in the sensors, for graduate and senior-undergraduate students and researchers in those fields. They present original theoretical and experimental research in basic physics, device physics, novel materials and device structures, processes, and systems. Among the topics are wide-bandgap semiconductor biological and gas sensors, hydrogen gas sensor technology and implementation in wireless sensor networks, zinc oxide thin-films and nanowire-based sensor applications, and optical chemical sensors based on micro-electro-mechanical systems.

TP248 978-1-4398-1699-8

**BioMEMS; science and engineering perspectives.**

Badilescu, Simona and Muthukumaran Packirisamy.

*CRC Press, ©2011 329 p. $99.95*

Badilescu (mechanical engineering, U. of Moncton, New Brunswick, Canada) and Packirisamy (mechanical and industrial engineering, Concordia U., Canada) introduce the field of bio-micro-electro-mechanical systems, often shortened to biomicrosystems, balancing the engineering and bioscience perspectives that are both crucial to it. They cover substrate materials used in devices, the structure and properties of biomolecules and complex biological entities, the engineering of bioactive surfaces, methods for studying and characterizing surface-modified substrates, biosensing fundamentals, fabricating devices, microfluidics, and applications in life sciences. Review questions are provided for classroom use.

TP248 2010-039787 978-0-470-47235-4

**Engineered carbohydrate-based materials for biomedical applications; polymers, surfaces, dendrimers, nanoparticles, and hydrogels.**

*Title main entry. Ed. by Ravin Narain. John Wiley & Sons, ©2011 401 p. $125.00*

Chemists and materials scientists survey the current status of how synthetic materials based on carbohydrates are being used in biomedical applications. Taking the five areas of the subtitle in turn, they consider such topics as the synthesis of glycopolymers, cationic glycopolymers, new nano-materials for biological applications, glycodendrimers and their biological applications, hydrogels and microgels derived from carbohydrates, and modified natural polysaccharides as nano-particulate drug delivery devices.

**PHOTOGRAPHY**

TP594 2010-029148 978-1-56881-719-4

**Advanced high dynamic range imaging; theory and practice.**

Banterle, Francesco et al.

*A K Peters Ltd., ©2011 260 p. $59.00*

High dynamic range (HDR) imaging is the latest stage in the effort to teach machines to see as well as humans, particularly in the wide range of lighting levels. Four computer scientists offer a practical guide to the technology in order to help spread its adoption. Using the MATLAB numerical software package, they explain light, human vision, and color spaces; the HDR pipeline; tone mapping; expansion operators for low dynamic range content; image-based lighting; evaluation; and HDR content compression.

UG1242 978-1-4398-5095-4

**Guidance of unmanned aerial vehicles.**

Yanushevsky, Rafael.

*CRC Press, ©2011 358 p. $179.95*

Yanushevsky, a veteran of the aerospace industry, presents analytical results taken from his research, which can be used for analysis and design of guidance and control systems in unmanned aerial vehicles (UAVs). The author explains UAV applications and presents computational algorithms behind missile guidance laws he has developed. These algorithms are tested in applications to the surveillance problem, the refueling problem, and the motion control of UAV swarms. The procedures for choosing and testing the guidance laws are also considered in an example of a future generation of airborne interceptors launched from UAVs. The book includes a glossary and 15 pages of appendices.
Ice navigation.
Kjerstad, Norvald.
Tapir Academic Press, ©2011 169 p. $76.00 (pa)
Kjerstad (ice navigation, U. of Tromso, Norway) offers a comprehensive introduction and description of ship operations in polar and ice-covered waters. He addresses geography, technology, environment, routing, and regulations. Some specific topics include: a description of open waters and navigational conditions, ice mechanics, technology for arctic shipping, and operation of ships in arctic regions. The book also includes a large number of photographs and other illustrations. It will interest professionals involved in ship operations and planning operations in remote and ice-covered regions. Distributed in the US by ISBS.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z669 978-1-84334-619-7
A librarian’s guide on how to publish.
Jelusic, Srecko and Ivanka Stricevic. (Information professional series)
Chandos Publishing, ©2011 152 p. $80.00 (pa)
Arguing that the relationship between librarians and publishers should be closer, Jelusic and Stricevic (international relations, publishing, and library and information studies, U. of Zadar, Croatia) detail the basic principles of publishing for students and librarians of all levels and settings who want to understand the field or publish, especially those at the managerial level. They describe the history of publishing, the role of technology in library publications, various fields, and the publishing process, production, timetable, and financial planning. They explain relevant professions, the tasks of various libraries, and co-publishing. Distributed by Neal-Schuman.

Z678 2011-000967 978-0-8389-8576-2
Using qualitative methods in action research; how librarians can get to the why of data.
Title main entry. Ed. by Douglas Cook and Lesley Farmer.
Am. Library Association, ©2011 252 p. $60.00 (pa)
Cook, an instruction/reference librarian at Shippensburg U. of Pennsylvania, and Farmer (librarianship, California State U. Long Beach) compile 16 chapters that outline the basic principles of qualitative research methods for librarians to use to understand user interaction with library services and collections and conduct action research projects. After an overview of the process, a group of library, education, and other faculty from US universities describe useful methodologies and research projects such as narrative inquiry, discourse analysis, observation, content analysis, focus groups to understand user needs, and rubrics, and common problems and topics like information and visual literacy, library instruction, decision making, library tutorials, virtual reference services, and collection development, with examples of research and assessment.

Z711 2010-043518 978-0-8389-1086-3
The librarian as information consultant; transforming reference for the information age.
Murphy, Sarah Anne.
Am. Library Association, ©2011 106 p. $48.00 (pa)
Noting that reference librarians are competing with other sources of information in today’s society, Murphy (research and reference, Ohio State U. Libraries) helps them transform their function into library and information consultants. She bases her ideas on the fundamentals for sustaining a successful consulting practice and argues that librarians must embrace this new role by recognizing their traditional advisory function in matching information needs with resources and adapting the business model and practices of consultants. She enumerates these practices, including building and maintaining client relationships, service marketing and brand identity, managing employee service roles and customer demand, and using quality improvement frameworks like Lean, Six Sigma, and the Baldrige National Quality Program.

Z711 978-1-84334-580-0
Numeric data services and sources for the general reference librarian.
Kellam, Lynda M. (Chandos information professional series)
Chandos Publishing, ©2011 229 p. $80.00 (pa)
For general reference librarians and managers in academic libraries, Kellam (data services and government librarian, U. of North Carolina at Greensboro) details how to set up and sustain numeric data services. Focusing on social science data sources, she explains key terms and background; different types of data compilation; the creation and growth of data services; techniques for marketing; virtual and physical presences like Web 2.0; assessing data services; patron interactions, including the reference
interview and using statistics and numeric sources in instruction; experiences of data librarians from the US and other countries; and three current areas of data librarianship: data visualization, preservation, and citation. One chapter is by Katharin Peter (social sciences data librarian, U. of Southern California), who outlines major data vendors for use in acquisitions and search strategies for finding data, as well as international, US, Canadian, and British sources. Distributed in North America by Neal-Schuman.

Z711 2011-000461 978-1-59158-801-6  
Science and technology resources; a guide for information professionals and researchers.  
Bobick, James E. and G. Lynn Berard. (Library and information science text series)  
Libraries Unlimited, ©2011 285 p. $50.00 (pa)  
This work is intended as a guide and resource for librarians, information specialists, library science students, and library science educators, as well as engineering and science professionals interested in understanding science and technology collections. The book begins with an overview of the nature of science and technical literature and an overview of the information seeking behavior of scientists and engineers within the context of the research information cycle. Next, the authors give advice on getting familiar with your collection, the types of resources, materials, and publishers in the field, and how to assist clients with their research. Separate chapters are devoted to specific formats including journals, specialized databases, Web 2.0 tools, conferences and society meetings, dictionaries and encyclopedias, patents, and technical reports. These format chapters showcase specific examples and representative resources in current practice. The book also includes an appendix of 29 subject bibliographies for the science and engineering fields, which will help sci-tech library administrators develop and maintain an effective science, technology and engineering collection. Bobick is the former head of the science and technology department at the Carnegie Library of Pittsburgh. Berard is a principal librarian in the science libraries at Carnegie Mellon University.
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