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Nanotechnology in the Northwest

by Allen G. Taylor

The Micro Nano Breakthrough Conference 07 was held September 10-12 at the Doubletree Hotel in Portland, Oregon. The emphasis this year was on transitioning from science to commercialization, a characteristic of a field that is coming of age. Sponsored principally by ONAMI, the Oregon Nanoscience and Microtechnologies Institute, and the Washington Technology Center, this year's event drew 324 attendees, some from as far away as Japan. Special Guest Clayton Teague, Director of the Federal Government's National Nanotechnology Coordinating Office told me that he was very impressed by the

size and quality of the conference, considering its regional focus.

The first day consisted of short courses on the state of progress in the field and on what is being done in the way of commercialization of micro and nano technology. A special session on energy recovery and conversion discussed prospects for use of micro technology in those critical areas.

The second day saw plenary sessions in parallel tracks, labeled Red and Green. The Red track consisted primarily of presentations discussing inorganic aspects of nanotechnology, while the Green track was all about environmental uses of nanotechnology and the use of biological materials that have dimensions in the nano range. Third day sessions followed the same general lines.

Particularly noteworthy was the keynote address by Wade Adams, Director of the Richard E. Smalley Institute for Nanoscale Science and Technology at Rice University. His address, titled "Become a Scientist, Save the World" emphasized the importance of engaging America's youth in science and math, to prepare them to become future leaders in science and engineering. America's position in the world is threatened by young people's lack of interest in science and engineering careers.

Stan Williams of Hewlett-Packard Laboratories astounded audience members by announcing the realization of a fourth passive component to add to the resistor, the capacitor, and the inductor. This new device, dubbed a memristor was predicted and described by Leon Chua in 1971 in a paper that appeared in IEEE Transactions on Circuit Theory. However, it could not be constructed until the unusual behavior of materials at the nano level made it possible. The memristor behaves like a nonlinear resistor with memory, hence its name. It will be interesting to see what applications arise for this device that relates charge (q) with flux (φ).

What Every Engineer Needs to Know about Leadership and Management

Gary C. Hinkle

Eric's first week on the job as an engineer after graduating from college was full of leadership and management challenges – but he didn't realize this at the time. He was just getting the work done that he was told to do. Just ordinary work for an entry-level engineer.

On the surface, Eric's assignment didn't seem very challenging. He was asked to assist the lead engineer with the testing of a new product. A breakdown of Eric's tasks that first week, however, reveals the aspects of engineering work that are very much leadership and management oriented. His assignment included challenges such as:

- Negotiating with Manufacturing for delivery of test units
- Planning the flow of test units through the engineering lab
- Influencing external resources to serve his needs quickly
- Directing technicians regarding test procedures
- Estimating time for completing tasks
- Resolving conflicts and issues that were impeding progress

Eric was well-supported by the lead engineer, other senior staff members, and his manager. The senior engineers would take care of difficult issues related to Eric's work, but Eric was accountable for the fundamental tasks described here.

Skills such as negotiating, planning, and influencing are examples of leadership and management competencies. The technical skills that an engineer's job requires are really a small percentage of the competencies that are needed to be successful. Interpersonal competencies, business acumen, and yes – leadership and management skills – are all required in engineering work. As engineers advance in the profession, leadership and management competencies become more important, regardless of whether or not they are on the “management” track.

What is Management?

Two of the most fundamental definitions of management are “judicious use of means to accomplish an end,” and “the activity of getting things done with the aid of people and other resources.” Neither of these basic definitions of management is exclusive to people who hold jobs as managers.

“Management” includes the tasks we all do on the job to keep our work organized, on track, and efficient. Many competencies are required for successful management of work, and people serving in management roles need to be especially competent. A good manager of tasks must be good at:

- Organizing
- Planning
- Estimating
- Communicating / Documenting
- Prioritizing
- Self-management / Discipline
- Assessing and mitigating risks

When managing people to any degree is involved, these competencies come into play:

- Interpersonal skills
- Conflict resolution
- Mentoring
- Coaching

These are just some of the skills that fall into the category of management competencies that apply to virtually all engineers. These skills are all important, but not everyone can be good at all of them. Just staying sharp from a technical perspective is challenging for most engineers because technology is complex and advances rapidly. Do the best job you can balancing technical skills with other important competencies, and be grateful that people who are better-suited for management generally have the bulk of these responsibilities.

How Leadership is Different than Management

Just as all engineers need management competencies to get work done, an entirely different set of skills are also important – leadership skills. Leadership is entirely interpersonal, but at a different level than the interpersonal competencies that are described above as “management.” Leadership is about influencing and directing others for a positive outcome. Dozens of individual characteristics pertaining to leadership are important. We'll address a relatively short list here. The table below shows the general expectations for leadership competencies in engineering and technical management roles.

Leadership Characteristic	Engineer	Project Leader	Technical Manager	Executive Leader
Influential	√	√	√	√
Integrity	√	√	√	√
Interpersonal Skills	√	√	√	√
Develops Trust and Respect	√	√	√	√
Prioritizes	Tasks	Tasks	Objectives	Objectives
Team Player	√	√	√	√
Builds Consensus / Buy-In	√	√	√	√
Continuously Improves	√	√	√	√
Empowers Others		√	√	√
Attracts Followers		√	√	√
Emotional Intelligence		√	√	√
Builds Teamwork		√	√	√
Good Timing		√	√	√
Takes Calculated Risks		√	√	√
Helps Others Advance			√	√
Develops Other Leaders			√	√
Makes Sacrifices			√	√
Visionary / Strategist				√
Acts on Intuition				√
Builds Strong Relationships				√
Leaves a Legacy				√

These are generalized expectations, and shouldn't be viewed as being absolute. Engineers, for example, might

demonstrate several of the characteristics that aren't checked. Executive leaders don't all leave a legacy.

Who Can Possibly Be Good at All This?

Almost nobody. Unfortunately there is an expectation at many tech companies for people to be superhuman. Engineers are often expected to lead complex projects while doing technical work. Technical managers are expected to manage and lead, while remaining technically proficient. It's only reasonable to expect proficiency in a broad range of competencies to a certain point. The solution for covering all the necessary leadership and management functions is not to hire superhuman employees – the sensible solution is distributing the workload.

When this isn't naturally occurring under the guidance of upper management, middle managers and individual contributors need to take charge of ensuring that people aren't stretched too far above their abilities and that all the project responsibilities are covered by someone.

How to Distribute Responsibilities

Managers should fully understand the leadership and management competencies that are needed to execute projects and objectives, and delegate responsibilities that are not the best fit for their own skills and interests. Team members should be open and honest about their interest level regarding opportunities for leadership and management responsibilities. Engineers need to keep in mind that leadership and management are part of their job, so not having these responsibilities is not really an option. What is optional, however, are the specific leadership and management characteristics they will be accountable for in their engineering roles.

When managers delegate responsibilities, team members should communicate issues and concerns when they are recipients of delegated assignments. Managers should be sensitive to any issues and concerns, and make appropriate adjustments. Sometimes negotiation is necessary. Yet another leadership competency!

If your job description sounds anything like Eric's, leading and managing is an important part of your role. Continuously developing leadership and management skills should be a high priority for all engineers.

UPCOMING EVENTS

For full details and latest postings, see www.ieee-or.org/events

Uncork-ED - 18th Annual Wine Tasting and Charity Gala to benefit TechStart Education Foundation



Uncork-ED - 18th Annual Wine Tasting and Charity Gala to benefit TechStart Education Foundation

Saturday, October 27, 2007 - Kridel Grand Ballroom, Portland Art Museum

Join TechStart on Saturday, October 27, 2007 at UNCORK-ED for an evening of discovery and enjoyment at the 18th annual wine tasting and charity gala.

You won't want to miss this evening at the Portland Art Museum where you will network with old friends and meet new ones, bid on our silent and oral auction, and enjoy amazing wines hand-selected by Portland's own Square Deal Wine Company. From this singular and special night, your philanthropy will benefit Oregon's students and teachers through instructional programs on technology. Together we will honor the 5th annual Technology Educator of the Year and award the first Student Technologist of the Year college scholarship of \$4,000, made possible by Microsoft.

TechStart helps Oregon students awaken to the exciting possibilities that await them with a proficiency in technology gained through high-quality pre-engineering, programming, information-technology and computer science classes in their schools. We do this by investing in our state's K-12 educators with professional development and curriculum training at programs such as SuperQuest.

For more information about gala sponsorship or event volunteering, or to reserve your tables or tickets contact John Ossowski by email or at 503-802-5211.

PACE Topic: Bridging the Gap Influencing Legislation that Affects Engineers

SPEAKER: Russ Harrison, IEEE-USA Legislative Representative

Wednesday, October 3, 2007

6:30 PM - 8:00 PM Doors open 6:00PM OGI School of Science and Engineering at OHSU's West Campus. Wilson Clark Center

FREE and open to the public (registration required).

Registration: See www.ieee-or.org/events for registration or go to <http://www.cpd.ogi.edu/course.asp?n=08-IEEE-1003>

Abstract: The reality is that our government will impact an engineer's career and this impact can be positive or negative. Learn how you can influence your government to protect and enhance your profession and career prospects.

Our elected leaders vote on legislation that will affect engineers all the time. For example, in 2007 the U.S. Congress voted on legislation that would:

- * Dramatically increase federal spending on basic research,
- * Create new scholarship programs for engineering students,
- * Invest in alternative energy sources,
- * Expand high-skilled immigration,
- * Reform the patent system, and
- * Expand and restrict NASA's manned mission to Mars (in the same bill.)

Join us for a discussion about these and other pieces of federal legislation that could affect you, your career and your profession. IEEE-USA Legislative Representative Russ Harrison will be here to discuss these and other things that Congress is trying to do for science and engineering. Then we will discuss ways that we can influence these decisions before the bills become law.

Speaker: Russell Harrison is the Legislative Representative for Grassroots Activities for IEEE-USA. In this capacity, he is responsible for helping members of IEEE-USA interact with, and ultimately influence, elected officials.

Prior to joining IEEE-USA, Mr. Harrison directed grassroots programs at the Institute of Scrap Recycling Industries and the American Iron and Steel Institute. During his tenure, he actively raised campaign contributions through both of the associations' political action committees. Mr. Harrison also represented the recycling and steel industries on Capitol Hill, and in state capitols on a variety of issues as a professional lobbyist.

Mr. Harrison has a BA in Political Science, with minors in History and Communications, from Allegheny College,

and a MS in Public Policy for the University of Maryland.

Directions to Oregon Graduate Institute (OGI):
The meeting will be held in the main dining room of the Wilson Clark Center on the OHSU's West Campus at the OGI School of Science and Engineering, 20000 NW Walker Rd., Beaverton, OR 97006 (503) 748-1219

See <http://www.ogi.edu/maps/> for a campus map.

For further information on the program, contact Ed Perkins at 503-612-9397 or e.perkins@ieee.org

EMC Society OR and SW WA Chapter Meeting - Sept. 26 and Short Course

The September Meeting will feature a talk on the European Union's Medical Equipment EMC Directive by Brent DeWitt of HP. For details:

http://ewh.ieee.org/r6/oregon/emc/September_2007_chapter_meeting.htm

Short Course

Date: Tuesday, October 9th, 2007

Location: Room 163 Buckley Center, University of Portland.

For details:

http://ewh.ieee.org/r6/oregon/emc/October_2007_Short_Course.htm

“Old Timers” get together!

To: IRE/AIEE/IEEE “Old Timers,” Friends & Old Timer Wannabees!

From: Your “Old Timers” Social Committee presently consisting of:

Russ Fillinger (503) 452-4114 Email: w71xr@aol.com

George Johnston (503) 245-5603 Email: johnstog@att.net

Chuck Shanks (503) 292-1029 Email: 2cks@att.net

Subject: Another Old Timers get together!

Where: Cider Mill Restaurant (same as last time – way back in 99) intersection of Vermont St. and Capitol Highway

When: Saturday, October 13, 11:30 AM until (you decide) Food at 12: 30 PM

Food: Fish and Chips or 3 piece chicken basket. Price \$12 including gratuity payable at door (but we still need to know your choice ahead of time)

Contact: Any of us by email to let us know your choice or George Johnston by phone (you may get his answering machine). Before October 10 please, so we can give the restaurant a head/meal-choice count!

Come prepared to hear/share your old timer reminiscences. Or you youngster wannabees (under 50) – you just listen!



OGI School of Science & Engineering (SoSE) Classes Fall 2007

Department of Computer Science and Electrical Engineering

www.ogi.edu/register

Class Number	Fall 2007 SCHEDULE OF CLASSES	Days	Time
CS 560/660	Artificial Intelligence	M W	4:30 PM - 5:59 PM
CS 564/664	Introduction to Human-Computer Interaction	S	2:00 PM - 4:59 PM
EE 550/650	Introduction to Electronics and Instrumentation	T R	5:00 PM - 6:59 PM
EE 561/651	Analog Integrated Circuit Design	M W	7:00 PM - 8:59 PM
EE 564/664	High Speed Interconnect Design	M W	5:00 PM - 6:59 PM
EE 570/670	Advanced Logic Design	M W	5:00 PM - 6:59 PM
EE 573/673	Computer Organization and Design	T R	5:00 PM - 6:59 PM
EE 580/680	Signals and Linear Systems	T R	4:00 PM - 5:29 PM
EE 584/684	Introduction to Image Processing	T R	12:00 PM - 1:30 PM
OMSE 500	Principles of Software Engineering	T	6:00 PM - 8:50 PM
OMSE 513	Professional Communication Skills for Software Engineers	W	6:00 PM - 8:50 PM
OMSE 535	Software Implementation Testing	M	6:00 PM - 8:50 PM

Portland Wiz Kids

Portland Wiz Kids, is a new organization that offers engineering and invention programs for kids in the Portland area.

This Fall, Portland Wiz Kids is offering four fun and engaging programs (outlined below) at various school and community sites in SW Portland, Beaverton, West Linn, and Lake Oswego.

Registration for Fall programs will begin in late August.
Playful Inventor's Workshop - for Grades 3-6

The PicoCricket Kit is designed for making artistic creations with lights, sound, music, and motion. It is a tiny computer that can make things spin, light up, and play music. You can plug lights, motors, sensors, and other devices into a PicoCricket, then program them to react, interact, and communicate. This course will combine technology and artistic creativity to allow students to create playful inventions to amaze their friends and family. The PicoCricket is easy to learn, fun to explore, and sets no limits on the creative process. Learn more...

TOY Challenge Inventor's Workshop - for Grades 5-8

Toys are a great way to learn about science, engineering, and the design process! As girls and boys create a toy or game, they experience engineering as a fun, creative, collaborative process, relevant to everyday life. This course will introduce the engineering design process from start-to-finish by studying the process at toymaker Hasbro and will allow students to develop and build a new toy or game of their own. Learn more...

Gateway to Engineering for GIRLS - for Grades 3-5

This course introduces girls to the fun and excitement of engineering through hands on engineering projects in themes such as Sports Engineering, Toy and Game Engineering, Engineering in Music, Cosmetic and Perfume Engineering, and Environmental Engineering. Each project has a connection to a real life engineering problem and offers girls the opportunity to work on a tangible engineering solution of their own design to take home every week. Learn more...

Intro to Computer Animation - for Grades 2-6

These days, kids have access to an incredible variety of interactive games, stories, animations, simulations, and other types of dynamic, interactive media on their computers today. But, for the most part, these programs are a one-way street: you can only browse and click what others have created; you can't design and create your own. This course will teach students how to design and

program their own animated clips or games by combining graphics, photos, music, and sound into interactive creations. Learn more...

Portland Wiz Kids

<http://www.portlandwizkids.com>

Toll Free: 1-800-WIZ-KID1

IEEE News

NEW IEEE BUSINESS MANAGEMENT SYSTEM LAUNCHES

The new IEEE Business Management System (BMS) launched on schedule on 6 August 2007. Individuals can now join the IEEE and its societies; renew their memberships; buy conference proceedings, standards, education courses, and other products; and subscribe to IEEE publications in one online session through the shopping area. Progress has continued toward the next goal, which is to launch the 2008 renewal cycle by the middle of September.

Other planned updates to the initial release will take place later this year and in 2008. Training will be scheduled later this month for the updated SAMIEE application.

The BMS upgrade consolidates more than two dozen databases, ranging from member information to online product catalogs. The system can now provide IEEE with a comprehensive view of operations, members and customers, and sets the stage to enable more timely and thorough service for all who interact with IEEE. To provide feedback on the new system, use the online form at <http://www.ieee.org/web/aboutus/help/feedback.html>.

2007 IEEE ANNUAL ELECTION PERIOD OPENS

Ballots for the 2007 IEEE Annual Election have been mailed to all eligible voting IEEE members via first class. Ballot materials may be accessed electronically at <https://www.directvote.net/ieee/>.

The annual election candidate biography booklet was provided to members who are eligible to vote for the first time in the annual election, those who have been elevated to Member or Graduate Student membership grades on/or before 30 June 2007, and those members who voted by paper ballot in the 2006 election. Members who transmitted their ballot electronically or did not vote in the 2006 election, will not receive the candidate biography booklet.

However, access to these materials will be available electronically via the IEEE Annual Election Web site at <http://www.ieee.org/elections>. All eligible voting members will receive a paper ballot and postage paid reply envelope in their ballot package.

To assist all voting members in making an informed decision, a moderated Roundtable Q&A video/audio session with the three President-Elect candidates answering questions asked by members, and a video/audio of the annual President-Elect candidates' debate, hosted by the IEEE Philadelphia Section, are also available on the IEEE annual election Web site. These videos are accessible at <http://www.ieee.org/elections> or directly from IEEE.tv.

All ballots must be received by the election vendor by 1 November 2007 at 12 noon, Central Time USA (17:00 Greenwich Mean Time) to be counted.

For additional information about the IEEE Annual Election, please contact: corp-election@ieee.org.

IEEE "EXPERT NOW" PILOT PROGRAM ENABLES MEMBERS TO EARN FREE CONTINUING EDUCATION UNITS

IEEE Expert Now courses are available for use by IEEE Regions, Sections, and Chapters interested in participating in the IEEE Expert Now Section-Chapter Program. The program, which began as a pilot in 2006, helps local IEEE volunteers organize an event where attendees can view one or more IEEE Expert Now course(s) and discuss the materials with a local expert on that topic. There is no charge for participating in this program in 2007, and IEEE Regions, Sections and Chapters who do participate this year will have the ability to award Continuing Education Units (CEUs) to event participants free of charge.

IEEE Regions, Sections and Chapters interested in participating will work directly with IEEE Educational Activities (EA) Staff to organize the event. IEEE EA Staff provides access to the selected course(s), can make recommendations or provide "best practices" for organizing the event, can provide surveys for attendees' feedback and CEUs to attendees who return completed surveys. For more information visit the IEEE Expert Now Section-Chapter Program Web site at http://www.ieee.org/web/education/Expert_Now_IEEE/sc_program.html or send a message to expertnowinfo@ieee.org.

IEEE XPLORE TOOLBAR NOW AVAILABLE

The IEEE Xplore digital library can now be instantly accessed through a customized toolbar, enabling users to easily search IEEE journals, magazines, conference proceedings, standards and books directly from their browser. This feature became available as part of the IEEE Xplore 2.4 Release which went live 4 August. It can be accessed through the tools section of the IEEE Xplore Guide or directly via: http://ieeexplore.ieee.org/guide/toolbar/g_tools_toolbar.jsp.

CALL FOR SPEAKERS – IEEE SECTIONS CONGRESS

The Sections Congress 2008 Program Committee is now accepting nominations for session speakers. Sections Congress 2008 will be held 19 – 22 September at the Quebec City Convention Center in Quebec City, Canada. The theme of the event is "Celebrating Volunteer Achievements Worldwide." The three program tracks are: Membership; Section Management; and Section/Chapter Activities. To nominate a speaker, visit <http://www.ieee.org/sc2008> and click on "Nominate a Speaker." The deadline for submitting speaker nominations is 1 November 2007.

IEEE FOUNDATION GRANTS AWARDED FOR 2007

The IEEE Foundation awarded grants to a variety of initiatives in 2007. Highlights include the creation of a new exhibit at the Women at Work Museum in Attleboro, Massachusetts, USA, to showcase the achievements of women engineers throughout history; the production of the pilot episode of "Nerd Girls", a television documentary aimed at encouraging a young female audience to consider entering engineering-related fields; the creation of the "Museum of the Future", a non-profit organization that aims to promote science and engineering among the public, especially those that are victims of the digital divide in Portuguese-speaking countries around the world; and providing resources to launch a Turkey-wide Web site contest in which pre-college students will compete to design and develop the best school website. In total, nearly US\$250,000 was presented to support initiatives from IEEE branches around the world. For more information, visit <http://www.ieee.org/organizations/foundation/2007grants.html>.

NEW IEEE APPLICATIONS & PRACTICE MAGAZINE ACCEPTING SUBMISSIONS

IEEE APPLICATIONS & PRACTICE MAGAZINE, a new IEEE eZine and print supplement to IEEE COMMUNICATIONS MAGAZINE, is intended to be a source of timely, significant, technically-reviewed articles, application notes, and technical papers for engineering practitioners in all areas of communications technology. A special issue focusing on optical communications is planned for January 2008. Submissions for this special issue should provide information that will be useful to engineering practitioners at all levels of experience. Technical papers, tutorials, application notes, and other formats are welcomed in numerous general areas.

Abstract submissions are due 15 September 2007 and final papers are due 1 November 2007. Papers should be no longer than 4,500 words and contain no more than six figures. Please contact Jack Howell at j.howell@comsoc.org with any questions or visit <http://www.comsoc.org/headlines/2007/Optical%20Comm>

[unications%20CFP,%20final1.doc](#) (MS Word, 36KB) for additional information.

IEEE SEEKS PROGRAM EVALUATORS FOR ACCREDITING ENGINEERING AND ENGINEERING TECHNOLOGY PROGRAMS AT U.S. UNIVERSITIES

IEEE, the largest member of ABET, Inc. (formerly known as the Accreditation Board for Engineering and Technology), is responsible for the peer-review evaluation of more than 700 college and university programs. To aid IEEE and ABET in its accreditation process, the IEEE Educational Activities Board (EAB) is seeking engineering professionals from industry, government and academe to serve as program evaluators.

Applications for the 2007 - 2008 academic year will be accepted through 15 November 2007. In addition to lending their valuable expertise to the accreditation process, program evaluators have the opportunity to keep abreast of the latest engineering and technology teaching methods and can meet individuals who will soon be entering the profession. Additionally, program evaluators will learn how to conduct an objective evaluation of the educational process using established criteria.

Selected applicants will attend a training seminar on the IEEE/ABET accreditation process, which will be scheduled in several locations throughout the U.S. in 2008. After training, program evaluators are dispatched in teams to visit engineering and engineering technology departments at colleges and universities across the country on behalf of the IEEE and ABET.

Evaluation sessions are held during the fall and usually run two to three days. Information packages, including the application and nomination forms, are available at: <http://www.ieee.org/web/education/apc/ceaa/eacinfo.html> for engineering programs and <http://www.ieee.org/web/education/apc/ctaa/tacinfo.html> for engineering technology programs.

For more information, contact eab-accred@ieee.org.

IEEE PUBLISHES FOUR NEW JOURNALS IN IEEE XPLORE

Inaugural issues of four new publications have been recently published in IEEE Xplore covering biomedical, signal processing, industrial electronics, and network management technologies.

IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS focuses on microelectronic issues in a wide variety of applications found in life sciences, physical sciences, and engineering.

IEEE JOURNAL OF SELECTED TOPICS IN SIGNAL PROCESSING discusses the theories and applications of signals by digital or analog devices and techniques. This includes filtering, coding, transmitting, estimating, detecting, analyzing, recognizing, synthesizing, recording, and reproducing signals.

IEEE INDUSTRIAL ELECTRONICS MAGAZINE deals with the theory and application of electronics, controls, communications, instrumentation, and computational intelligence to industrial and manufacturing systems and processes.

IEEE TRANSACTIONS ON NETWORK AND SERVICE MANAGEMENT publishes peer-reviewed, archival quality papers advancing the state-of-the-art and practical application of network and service management in an online-only format.

LEADERPOINT EXECUTIVE EXPERIENCE PROGRAM AVAILABLE TO IEEE MEMBERS AT A DISCOUNT THROUGH EDUCATION PARTNERS PROGRAM

LeaderPoint, a company specializing in executive and management development sessions and newest member to the IEEE Education Partners Program, is offering members a 10 percent discount on its Executive Experience session. The session, a five-day, comprehensive development program designed to advance leadership and management skills, is held in Kansas City, Mo. The Executive Experience will help participants:

- Build cooperation in seizing opportunity and gaining greater commitment
- Practice using systematic tools for strategic planning
- Diagnose and correct dysfunctional group dynamics
- Focus personal development in specific areas
- Develop a management mindset for improving business results

Each session has an assessment component which provides a summary of LeaderPoint's observations, the participant's comments, and specific recommendations. Participants can contact LeaderPoint at any time for follow-up work, questions, and concerns. For more information on LeaderPoint visit <http://www.leaderpoint.biz/ieee.htm>. For general information on the IEEE Education Partners Program visit <http://www.ieee.org/partners>.

IEEE in the News

The IEEE, its members and its products and services are mentioned frequently in journalists' reports on technology and the engineering profession. Here are just a few recent references.

5 September – CNN.COM, USA TODAY – An Associated Press article describing a new wireless technology that could transfer high definition videos and other large files in seconds reported the important role that the IEEE could have in making the technology a reality. "The technology could get a big boost if the IEEE... decides to create a standard for the spectrum. The group is weighing the decision now and could decide by next year." To read the full story, visit <http://edition.cnn.com/2007/TECH/biztech/09/03/faster.wireless.ap/index.html>. The story appeared in numerous other local news Web sites.

3 September – BUSINESSWEEK – The article "The Road to WiMax" outlines the history of the technology and mentions the role that IEEE played in developing the IEEE 802.16 standard. To read the full story, visit

http://www.businessweek.com/magazine/content/07_36/b4048401.htm?chan=search.

2 August – PC WORLD – IEEE-USA President John Meredith was quoted in a story on the U.S. Congress passing a bill intended to pump up math and science education in research. The article, also posted on THE WASHINGTON POST Web site, outlines a series of programs that will be established under the act. The nation's "ability to compete with emerging nations will greatly benefit from this legislation," Meredith said. To read the full story, visit <http://www.washingtonpost.com/wpdyn/content/article/2007/08/02/AR2007080202569.html>.

13 August – SILICON REPUBLIC.COM – An article that was published by Ireland's technology news service previewed the IEEE P2P2007 conference which focused on peer-to-peer technologies and social networks. To read the full story, visit <http://www.siliconrepublic.com/news/news.nv?storyid=single8986>.

Computer Society Digital Library Update

The IEEE Computer Society announces the following additions to the Digital Library.

This update is also available online at http://www.computer.org/portal/pages/ieeecs/publications/CSDL_update.html

Center for Professional Development Seminars

OGI School of Science & Engineering, Oregon Health & Science University

Public Seminars (most at no cost and in the evening unless noted)

Sep 27 Thursday ABPMP: Discovering Structure (Mark Wilczewski, Bonneville Power Administration)

Oct 3 Wednesday Management in Science & Technology: Information Session for Prospective Students

Oct 3 Wednesday IEEE PACE: Bridging the Gap - Influencing Legislation that Affects Engineers (Russell Harrison, IEEE-USA)

Oct 9 Tuesday SPIN Seminar: And You Thought You Could Estimate? (Niels Malotaux) This event will be held at the Oregon Convention Center.

SATURDAY ACADEMY

Adventures for the Curious: Saturday Academy has a full schedule of classes for your 4th-12th graders. These classes are for anyone who wants to explore new topics and who likes to learn by doing. The classes are small, informal and project-oriented. Students can explore a multitude of topics from science, engineering and technology to humanities and the arts. Find out more at the Saturday Academy website.

Eye on Washington

CAPITOL HILL WATCH

Patent Reform! - Of utmost importance this week is the House activity on the 2007 Patent Reform bill. Although the legislation has united lawmakers who are often ideological foes, it still faces significant opposition from a coalition of manufacturers, a few large research universities and the biotechnology industry. IEEE-USA voiced opposition in a letter to both chambers on August 27th. Please go to the IEEE-USA Legislative Action

Center and voice your opinion about the 2007 patent reform bill.

www.ieeeusa.org/policy/lac

For the latest news on the patent reform act, go to <http://www.ieeeusa.org/policy/eyeonwashington/2007/07eow09.asp>

REPORTS, SPEECHES & DOCUMENTS OF NOTE

The Business Value of Intellectual Property - Access the August 2007 NGO World Growth report, Economic Effects of Intellectual Property---Intensive Manufacturing in the US, by Robert Shapiro and Nam Pham.
<http://www.the-value-of-ip.org>

Reverse Brain-Drain Threatens Competitiveness - Download the report, "Intellectual Property, the Immigration Backlog, and a Reverse Brain-Drain." At
<http://www.kauffman.org/items.cfm?itemID=906>

CONFERENCES, FELLOWSHIPS, PROGRAMS & INTERNSHIPS FOR ENGINEERS, and STUDENTS & SCHOLARS OF ENGINEERING

Sloan Fellowship Announcement - The Sloan Foundation is seeking nominations of qualified academic candidates for the Sloan Industry Studies Fellowships. These Fellowships provide support and recognition for junior faculty conducting research in industry studies.

Latest IEEE-USA & IEEE Activities

Plug-In Hybrids: Accelerating Progress 2007 - Omni Shoreham Hotel, Washington DC- September 19, 2007. IEEE-USA would like to invite you to join us in a one-day symposium, Plug-In Hybrids: Accelerating Progress 2007" on 19 September 2007 at the Omni Shoreham Hotel in Washington D.C. Our goal is to focus on current needs and how progress can be accelerated.

FYI - Recent IEEE-USA Letters to Congress

27 Aug. 07 Letter to House and Senate Leaders and Judiciary Committee members opposing adoption of the Patent Reform Act of 2007 (S. 1145/H.R.1908)

27 Aug. 07 Letter to Sponsors of the America Competes Act (H.R. 2272, Public Law 110-69) thanking them for their leadership.

IEEE-USA News

Building Your Career

August TE Online: So What Do You Do?

Oh, for the good old days when your neighbor knew exactly what you did when you told him you were an electrical engineer! The mid-century EE was either a power engineer or a communications (electronics) engineer. No matter. You could be either, and your neighbor was confident you would fix his TV when it acted up. Don Christian reflects on what it means to be an EE today. Read this story and more in the latest edition of IEEE-USA Today's Engineer Online at:

<http://bmsmail3.ieee.org:80/u/6865/23896>

IEEE-USA Produces IEEE.tv Segment on Entrepreneurship (Member Access)

Watch Guy Kawasaki, former Apple Fellow and Managing Director of Garage.Com, share his unique thoughts about what it is to be an entrepreneur and how to raise money. Hear from experienced entrepreneurs, venture capitalists and angels about how to raise money during the startup period and beyond. Watch on IEEE.tv at:
<http://bmsmail3.ieee.org:80/u/6866/23896>

New E-book Available: Personal Positioning for Engineers

Learn more about employment options for engineers (direct/contract/consulting/starting a business) and how they might work for you. Personal Positioning for Engineers considers a series of questions on each of these options, and also looks at such career opportunities as moving into management versus staying technical, working for a large company versus a small company, and private industry versus government agencies.

For more information, visit:

<http://bmsmail3.ieee.org:80/u/6867/23896>

IEEE-USA in Action

Congress Passes Landmark Legislation, America COMPETES Act

On 2 August, Congress passed landmark legislation designed to enhance U.S. competitiveness and innovation by increasing funding for basic research and improving science, technology, engineering and math (STEM) education. President Bush signed the bill into law on 9 August. Read more about this important legislation in the latest edition of IEEE-USA Today's Engineer Online at:
<http://bmsmail3.ieee.org:80/u/6868/23896>

Conferences and Symposia

Register Now for PHEV Symposium

IEEE-USA is co-sponsoring a one-day symposium, "Plug-In Hybrids: Accelerating Progress," on 19 September 2007, at the Omni Shoreham Hotel, Washington D.C. The symposium will cover: plug-in hybrids on the road today; fuel economy; efficiency and economics of plug-in hybrids; technology challenges; the electric grid and plug-in hybrids; legislative needs; and more. For more information and to register, visit:
<http://bmsmail3.ieee.org:80/u/6870/23896>.

Conference to Examine Role Technology Can Play in Managing Health Care Costs

The role technology can play in helping the United States manage health care costs by advancing the diagnosis, treatment and prevention of disease will be examined in a conference at the National Institute of Standards and Technology in Gaithersburg, Md., on 25 September. For

more information on this event, co-sponsored by the Bio-technology Council, NIST and IEEE-USA, visit:
<http://bmsmail3.ieee.org:80/u/6871/23896>

Conference to Explore Innovation Policy in the Global Context

IEEE-USA will co-sponsor the upcoming Atlanta Conference on Science, Technology and Innovation Policy, which is set for 19-20 October 2007 in Atlanta, Georgia. Organized by the Georgia Institute of Technology, the conference will explore how the innovation landscape is shifting globally and how governments are responding. Speakers and sessions will focus on a variety of topics, including: globalization's implications for the science and engineering workforce; government policies for encouraging knowledge-based economies; the globalization of research and development; and comparative intellectual property regimes for supporting innovation. The conference is aimed at researchers, policy analysts and decision-makers involved in science, technology and innovation. The deadline for early registration is 21 September. For more information, visit:
<http://bmsmail3.ieee.org:80/u/6872/23896>

IEEE-USA Seeks Nominations for 2007 Awards & Recognitions

IEEE-USA's Awards and Recognition Committee is seeking nominations for its 2007 awards for professionalism, technical achievement, and literary contributions to public awareness and understanding of the engineering profession. Due to technical difficulties with our Web site earlier in the year, the deadline for nominations has been extended to 14 September 2007. For more information, visit:
<http://bmsmail3.ieee.org:80/u/6873/23896>

The Business of Engineering

An Assessment of the Small Business Innovation Research Program at the National Science Foundation

The Small Business Innovation Research (SBIR) program was created in 1982 through the Small Business Innovation Development Act. As the SBIR program approached its twentieth year of operation, the U.S. Congress requested the National Research Council (NRC) of the National Academies to "conduct a comprehensive study of how the SBIR program has stimulated technological innovation and used small businesses to meet Federal research and development needs," and to make recommendations with respect to the SBIR program. Mandated as a part of SBIR's reauthorization in late 2000, the NRC study has assessed the SBIR program as administered at the five federal agencies that together make up some 96 percent of SBIR program expenditures. The agencies, in order of program size, are: the Department of Defense, the National Institutes of Health, the National Aeronautics

and Space Administration, the Department of Energy, and the National Science Foundation.

For more on this report, visit:
<http://bmsmail3.ieee.org:80/u/6874/23896>

Raising Public Awareness of the Profession

IEEE-Technology-Related News Stories Aired in More Than Two-Dozen U.S. TV Markets

Beginning in 2005, in collaboration with the American Institute of Physics (AIP) and other technical professional organizations, IEEE-USA has helped to underwrite almost 300 local TV news stories on engineering and science. Since January 2006, more than two-dozen stories about IEEE-related technologies aired in 23 different U.S. TV markets, including New York, Chicago, Philadelphia, San Francisco, Tampa-St. Petersburg, Phoenix and Miami. Stations airing the IEEE technology-related spots were ABC, CBS, NBC, Fox, Univision, cable and independent affiliates. The average number of household views for the 23 markets combined is estimated at more than 70-million. Recent IEEE technology-related stories included: "Preparing for Disaster"; "Movie Magic"; "Engineers Invent Doppler-Based Stethoscope"; "RFID-Based Recycling Technology Makes Philadelphia Greener"; and "Automotive Engineers Team Up to Improve Energy-Saving Technology." A limited number of DVDs of the TV spots can be obtained

by sending an e-mail to p.mccarter@ieee.org. To view the latest 90-second stories as well as archived spots, go to <http://bmsmail3.ieee.org:80/u/6875/23896>.

Member Benefits

New Issue of FAP FYI Now Online

The latest edition of IEEE Financial Advantage Program's newsletter "FYI" is now available.

To read the latest news about IEEE Financial Advantage benefits available to members in the United States, visit:
<http://bmsmail3.ieee.org:80/u/6876/23896>

Learn About IEEE President-Elect Candidates

IEEE President-Elect Candidates Address Computer Society Concerns, Computer magazine, September 2007,

http://www.computer.org/portal/site/computer/menuitem.eb7d70008ce52e4b0ef1bd108bcd45f3/index.jsp?&pName=computer_level1&path=computer/homepage/Sept07&file=pres_elect.xml&xsl=article.xsl&jsessionid=GdvdYtT7hzWg4W0WHwwP64VcPsQK5TzJl1Nk3NGWtxkTpp10MYQDl1629183661

TAB MEETINGS: The unapproved minutes for the June 2007 Technical Activities Board (TAB) Meeting are now available at http://www.ieee.org/portal/pages/tab/meetings/board/2007_jun_tab_minutes.html. Please note: access to the TAB minutes is open to everyone but access to the supporting documentation is limited.

The next TAB meeting will take place on Saturday, 17 November 2007 (2007-11-17), at The Westin Copley Place, in Boston, MA, USA. The preliminary meeting agenda will be posted on or about Friday, 19 October

2007 (2007-10-19). Guidelines for agenda item submission are available at <http://www.ieee.org/portal/pages/tab/meetings/guidelines.html>. Approval of the June 2007 TAB Meeting minutes will take place during this meeting.

JULY MEMBERSHIP HIGHLIGHTS: IEEE membership reached 349,406 in July 2007, an increase of 2.0 percent compared to July 2006. Specifically, higher grade memberships are up 1.3 percent, student memberships have increased 4.5 percent and society memberships have decreased 1.6 percent.

Complete details are available in the Membership Development Report at <http://www.ieee.org/mdprogreport>. In order to access this site, you must use your IEEE Web Account. If you do not have an IEEE Web Account, please go to <http://www.ieee.org/portal/pages/web/accounts/index.html>

The 2008 IEEE Membership Development Kits were shipped to 39 IEEE Societies recently. The kits contain the newly designed membership collateral. For each Society, these materials were addressed to the Membership Development Officer, if one was on record. If not, they were sent to the Society President. Upon receipt of these materials, please discard any remaining 2007 (or older) IEEE applications and use only the 2008 materials going forward.

PARTICIPANTS NEEDED FOR IEEE-SPONSORED ONLINE IDEA JAM COMPETITION ADDRESSING TECHNOLOGY CHALLENGES IN CITY OF BOSTON:

IEEE is one of the sponsors of the FutureBOSTON IdeaJAM Online Competition - a six week, interactive symposium which utilizes social networking to create novel solutions to challenging urban problems facing the city of Boston, Mass.

IEEE members and volunteers worldwide are invited to join in the competition, which enables participants to post, receive feedback and collaborate with experts on solu-

tions in three key challenge areas - health, design and sustainability.

From now through 15 October, visitors to the Site will have the opportunity to vote for the best ideas. Idea winners will have the opportunity to meet face to face with expert panelists and venture capitalists to explore the advancement of their proposal in the real world.

For full details and rules, visit <http://www.zude.com/futureboston>.

2007 IEEE ANNUAL ELECTION PERIOD OPENS: Ballots for the 2007 IEEE Annual Election have been mailed to all eligible voting IEEE members via first class. Ballot materials may be accessed electronically at <https://www.directvote.net/ieee/>.

The annual election candidate biography booklet was provided to members who are eligible to vote for the first time in the annual election, those who have been elevated to Member or Graduate Student membership grades on/or before 30 June 2007, and those members who voted by paper ballot in the 2006 election. Members who transmitted their ballot electronically or did not vote in the 2006 election, will not receive the candidate biography booklet.

However, access to these materials will be available electronically via the IEEE Annual Election Web site at <http://www.ieee.org/elections>. All eligible voting members will receive a paper ballot and postage paid reply envelope in their ballot package.

To assist all voting members in making an informed decision, a moderated Roundtable Q&A video/audio session with the three President-Elect candidates answering questions asked by members, and a video/audio of the annual President-Elect candidates' debate, hosted by the IEEE Philadelphia Section, are also available on the IEEE annual election Web site. These videos are accessible at <http://www.ieee.org/elections> or directly from IEEE.tv.

CALL FOR SPEAKERS, IEEE SECTIONS CONGRESS:

The Sections Congress 2008 Program Committee is now accepting nominations for session speakers.

Sections Congress 2008 will be held 19 - 22 September at the Quebec City Convention Center in Quebec City, Canada. The theme of the event is "Celebrating Volunteer Achievements Worldwide." The three program tracks are: Membership; Section Management; and Section/Chapter Activities.

To nominate a speaker, visit <http://www.ieee.org/sc2008> and click on "Nominate a

Speaker." The deadline for submitting speaker nominations is 1 November 2007.

The Institute Online

1. Candidates Take On Six Key Issues

What do Marc Apter, Pedro Ray, and John Vig--the three candidates for 2008 President-Elect--have to say about the issues of importance to you and the IEEE? Find out at <http://bmsmail3.ieee.org:80/u/6993/05229885>

And don't forget, it's time to vote. The annual election ballot is due to arrive in members' mailboxes this month. For more information, visit <http://bmsmail3.ieee.org:80/u/6994/05229885>

2. Symposium Explores Plug-In Hybrid Cars

With gas-electric hybrid vehicles enjoying record sales, the next logical step is to develop automobiles that get power directly from an electric outlet. Learn about this technology at an IEEE-sponsored one-day symposium, "Plug-in Hybrids: Accelerating Progress 2007" on 19 September in Washington, D.C. Read on at <http://bmsmail3.ieee.org:80/u/6995/05229885>

And check out six other upcoming conferences focusing on global telecommunications, engineering education, photovoltaics, microwave theory, consumer electronics, and health informatics at <http://bmsmail3.ieee.org:80/u/6996/05229885>

3. Scientists Press to Save Memorial at Radio Astronomy's Birthplace

It's the very place where, in 1931, physicist Karl Guthe Jansky set up the world's first radio telescope and to his surprise recorded signals from beyond our solar system. Now, a monument commemorating the place where it happened at the Bell Telephone Laboratories campus in Holmdel, N.J., is in danger. Read on at <http://bmsmail3.ieee.org:80/u/6997/05229885>

4. Initiative Pays Off With Over 75 000 New Members

Recruiting and retaining members is a perpetual problem for most organizations. It is especially challenging at not-for-profits such as the IEEE, where recruiting new members is handled by unpaid volunteers.

Read about a group of volunteers who took on the challenge and made 2006 membership skyrocket at <http://bmsmail3.ieee.org:80/u/6999/05229885>

5. Marketplace of Ideas: Deciding on the First Engineering Degree

The IEEE is considering following the recommendations of several other professional bodies by declaring that a master of science or master of engineering be an engi-

neer's first professional degree. Find out why at <http://bmsmail3.ieee.org:80/u/7000/05229885>

Should the first professional degree in engineering be a bachelor's or a master's degree? Weigh in at <mailto:institute@ieee.org>

And check out the responses to June's question, "Does Your BlackBerry Chain You to Work?" Some disparage the smartphones as electronic tethers while others say they're great, if not used in excess. See members' responses at <http://bmsmail3.ieee.org:80/u/7001/05229885>

6. Spotlight on IEEE Societies

Get the latest on five societies: Electromagnetic Compatibility, Solid-State Circuits, Industrial Electronics, Power Electronics, and the Society on Social Implications of Technology at <http://bmsmail3.ieee.org:80/u/7002/05229885>

7. Student Branches Spur Growth

IEEE student membership in 2006 ended at an all-time high, with a record 80 491 members. Working to help this number grow are IEEE student branches that hold fun events to get students interested in the institute. Read about three newly formed branches and learn how to start a student branch at your own school at <http://bmsmail3.ieee.org:80/u/7004/05229885>

8. World Travel Takes Over From IEEE Travel Services

Because of a significant decline in revenue from airline ticket sales, IEEE Travel Services will cease operation on 28 September. Instead, starting 1 October, all travel-related business--including airline, train, and hotel reservations--will be handled by the IEEE's long-time travel partner, World Travel Inc., in Douglassville, Pa. For more information, visit <http://bmsmail3.ieee.org:80/u/7005/05229885>

9. IEEE.tv Adds Five Programs

Five new programs debuting on IEEE.tv cover World War II-vintage communications, entrepreneurship, telecommunications, the Ethernet, and VLSI. Learn about the programs at <http://bmsmail3.ieee.org:80/u/7006/05229885>

10. Robert Lang: The Physics of Folding Paper

Trains, trees, boats, and bees; IEEE Member Robert Lang can make just about anything out of paper. The 46-year-old physicist turned artist has designed and folded some of the most difficult origami patterns in the world. And he's developed software that figures out patterns for all sorts of animals, objects, and plants. Read how he moved from physics to become a full-time folder at <http://bmsmail3.ieee.org:80/u/7008/05229885>

11. Recent Releases from IEEE-Wiley Press

Electric power systems, digital signal processing, and network security are three of the topics covered by five new Wiley-IEEE Press books. Learn more about these new releases and read an interview with author and power system expert Steve Blume at <http://bmsmail3.ieee.org:80/u/7009/05229885>

12. Leveraging Multiphysics Solutions Webinar

As companies strive to produce innovative products, simulation continues its importance in the design of electronic and electromechanical devices. On 20 September learn about the critical simulation issues facing designers of semiconductors, MEMS, power electronics, and PCB boards. Register now for this IEEE Spectrum Tech Insider Web seminar: "Leveraging Multiphysics Solutions for Cost-Effective and Successful Electronic Design," sponsored by ANSYS Multiphysics, at <http://bmsmail3.ieee.org:80/u/7010/05229885>

IEEE International Conference on RFID 2008 Preliminary Call for Papers

www.ieee-rfid.org/2008

The IEEE International Conference on RFID – IEEE RFID – is the premier international conference series bringing together leading researchers, developers, integrators, and visionaries to discuss and expand their knowledge of technologies, systems, networks, algorithms, and applications that support the development and adoption of RF-based wireless communications and identification systems. IEEE RFID 2008 is the second annual conference dedicated to addressing the technical and policy challenges in the areas of radio frequency identification (RFID) technologies, their supporting large-scale distributed information systems, and their applications.

IEEE RFID 2008 is a highly selective conference focusing on wireless identification and sensing systems, security features and approaches appropriate for these systems, technical and policy-related research and solutions on the technologies, design, manufacture, deployment, and application of RFID systems and their supporting information systems and application infrastructures. This conference is ideal for addressing the challenges facing the design, manufacture, deployment, use, and fundamental limits of wireless identification and sensing systems.

The conference will feature keynote speeches from leading visionaries, presentations of groundbreaking technology advances, panel discussions on pressing topics, poster sessions reporting preliminary results and works in progress, and, of course, benefits from our co-location with the RFID Journal Live! 2008 tradeshow and conference.

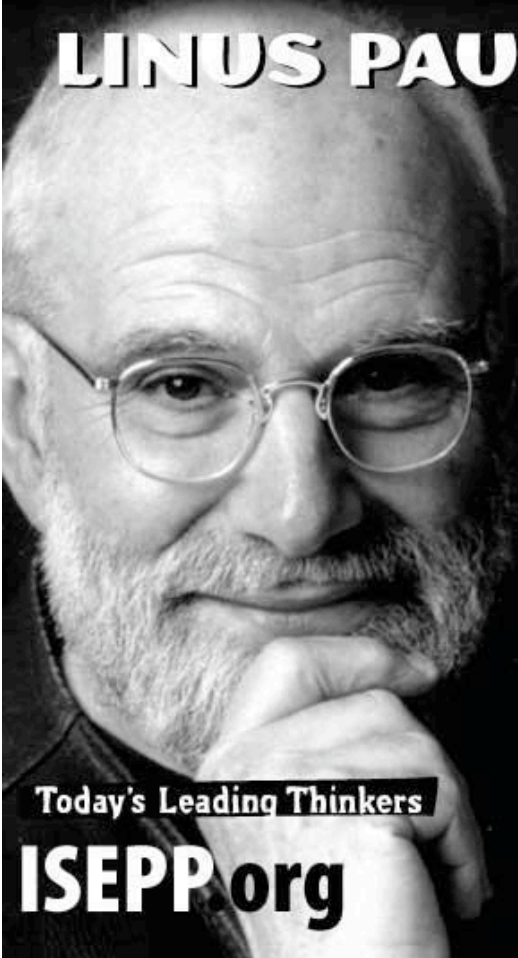
Authors are invited to submit full 8-page papers in the IEEE conference format presenting new research, innovations, and implementations related to the theory and practice of RFID systems, sensor technologies, and related information system support. All submissions must describe original work not previously published or currently under review for publication in another conference or journal. Papers must be submitted by December 19, 2007. Topic areas of interest include, but are not limited to:

- Antennas and Propagation: Antenna theory and designs, channel measurements and modeling
- Circuits, Devices, and Sensors: Building block system components, integrated sensors, energy harvesting, low-power design, non-silicon-based structures
- RFID System Architecture and Implementation: Novel system designs for mobile devices, reader system architecture, scalable deployment technologies, system architectures
- Deployment: System deployment and operation, ranging and localization
- Security: Features for security, system security solutions
- Policy & Regulatory Issues: Spectral management, data access and privacy issues, co-existence of RFID systems, government oversight, social implications of RFID technology

Application Issues & Concerns: EMC/RF radiation, testing, reliability, interoperability; issues in patient safety, system-on-a-chip, and frequency

Accepted and presented papers will be published in the IEEE conference proceedings and in IEEE Xplore. A Best Paper Award, sponsored by ODIN Technologies, Inc., will be awarded to the best technical paper accepted and presented at the conference. Visit the conference website for complete submission instructions and current information on the program and activities: www.ieee-rfid.org ONE AUTHOR PER PAPER MUST BE A FULL REGISTRANT OF THE CONFERENCE.

Linus Pauling Memorial Lectures - IEEE Savings



LINUS PAULING MEMORIAL LECTURES
2007-08 Science, Technology and Society Program

WHY THE BRAIN LOVES MUSIC
DR. OLIVER SACKS - Columbia University
Thursday, Oct 18 2007
Author of the best seller *The Man Who Mistook His Wife for a Hat*.
"We humans are a musical species no less than a linguistic one."

TECHNOLOGY AND CULTURE | Thur, Nov 1 2007
DR. HENRY PETROSKI - Duke University

DECODING LIFE | Thur, Nov 15 2007
DR. J. CRAIG VENTER - Venter Institute

IS IT SIGNAL OR NOISE? | Thur, Jan 31 2008
DR. BART KOSKO - University Southern California

COSMOLOGY AT THE FRONTIER | Thur, Feb 28 2008
DR. BRIAN GREENE - Columbia University

WHAT SCIENTIST KNOW? | Thur, May 1 2008
DR. STEVEN GOLDMAN - Leigh University

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