

SCV-CE - 11/29 | **Distributed HD IPTV and Audio over Power line** - no new wires and it works throughout the whole house ... [\[more\]](#)

SCV-LEOS - 12/6 | **Put Some "Spark" in Your Holidays** - fascinating history of radio and electronics with demonstrations ... [\[more\]](#)

SCV-IM - 12/7 | **Test and Measurement for ISO Compliance and Certification** - metrology terminology, issues, techniques.. [\[more\]](#)

SCV-EMS - 12/7 | **Building and Managing High-Performance Teams in a Large Company; and Power of the Dual-Vee Systems-Development Model** - foundations for high-performance teams, and the dual-vee for software development ... [\[more\]](#)

SCV-MTT - 12/8 | **Future Directions in Space Qualified LNA's** - requirements, applications, payload architectures, performance ... [\[more\]](#)

OEB-Comm - 12/8 | **Trusted Computing and Applications to Communications** - the aims, and technology standards being developed by the Trusted Computing Group ... [\[more\]](#)

SCV-EDS - 12/13 | **LEDs for Solid State Lighting and Other Emerging Applications: Status, Trends and Challenges** - LED technology, current applications, and trends ... [\[more\]](#)

SCV-AP - 12/13 | **Radiation of Impulse-Like Waveforms With Illustrative Applications** - radiated electric field spectrum fairly flat over two decades of frequencies ... [\[more\]](#)

SCV-CNSV - 12/13 | **Taxes ... What the Rich Do Differently** - legal strategies that may apply to you ... [\[more\]](#)

SCV-Comm - 12/14 | **802.16e: A Mobile Broadband Wireless Standard** - techniques for high speed mobility using various subchannelization schemes ... [\[more\]](#)

SCV-CPMT- 12/14 | **The Future of Printed Circuit Boards** - being replaced by silicon chips communicating through LEDs... [\[more\]](#)

SCV-CPMT&LEOS - 1/11 | **Enabling Technologies for Board-Level Optical Interconnects** - integrated polymer waveguides, waveguiding elements, 3D optical wiring schemes ... [\[more\]](#)

SCV-CPMT - 1/17 | **Semiconductor Equipment and Materials Outlook** - market forces affecting packaging, assembly, shipments, with predictions ... [\[more\]](#)

SCV-Mag - 1/17 | **Beyond the Limits of Magnetic Recording: an Itinerant Magnetician Looks at Hysterical Loops** - will we reach the ultimate limit of areal density? ... [\[more\]](#)

SF-PES - 1/18 | **Broadband over Power Lines - FCC Emissions Compliance Guidelines** - high-speed internet access with fixes for interference problems ... [\[more\]](#)

Upcoming Conferences

At the Consumer Electronics Show, Las Vegas:

Jan. 5: **Great Minds, Great Ideas: the People, the Products, and the Technologies That Will Change Our World** no-cost one-day program from EE TIMES; Presentation/panels, at the Sands Hotel [\[more\]](#)

Jan. 6 & 7: **The 2006 Storage Visions Conference**
- Las Vegas Convention Center
- Concurrent with the Consumer Electronics Show
- Admission to the CES Exhibits [\[more\]](#)

Mar 6-8: **Internationalization and Unicode Conference** Hyatt Regency Hotel, Burlingame [\[more\]](#)

Calls for Papers – Spring Conferences

Society for Information Display International Symposium, Seminar, & Exhibition [\[more\]](#)

- Paper Summary Deadline: **December 1, 2005**
- Location & Dates: San Francisco, June 11-13, 2006

IEEE Radio Frequency Integrated Circuits Symposium [\[more\]](#)

- Paper Summary Deadline: **January 2, 2006**
- Location & Dates: San Francisco, June 11-13, 2006

IEEE Symposium on Field-Programmable Custom Computing Machines [\[more\]](#)

- Abstracts Due **January 13**
- Loc & Dates: Napa Valley Marriott, April 24-26 2006

IEEE International Workshop on Mobile Commerce and Wireless Services [\[more\]](#)

- Abstracts Due **February 1**
- Location & Dates: San Francisco, June 26, 2006

Support our advertisers

MARKETPLACE – Services

[page 3](#)

Faculty Positions at UC-Santa Cruz

[page 5](#)

Conference Calendar

[page 22](#)

IEEE GRID

Your Networking Partner®

December 2005 • Volume 52 • Number 12

IEEE-SFBAC ©2005

Chairman

Julian Ajello

Finance Chair

Ron Kane

Editorial Board Chair

Annie Kong

OEB Director

Bill DeHope

SF Director

James Lekas

IEEE-SFBAC

PO Box 2110

Cupertino, CA 95015-2110

IEEE **GRID** is the monthly newsmagazine of the San Francisco Bay Area Council of the Institute of Electrical and Electronics Engineers, Inc. As a medium for both news and opinion, the editorial objectives of IEEE **GRID** are to inform readers in a timely and objective manner of newsworthy IEEE activities taking place in and around the Bay Area; to publish the official calendar of events; to report on IEEE activities of a national and international scope; and to serve as a forum for comment on areas of concern to the engineering community by publishing contributed articles, invited editorials and letters to the editor.

IEEE GRID is published as the **GRID** Online Edition residing at www.e-GRID.net, and in a handy printable **GRID.pdf** edition, and also as the **e-GRID** sent by email twice each month to more than 24,000 Bay Area members and other professionals.



Editor: Paul Wesling

IEEE **GRID**

12250 Saraglen Dr.

Saratoga CA 95070

Tel: 408 331-0114 / 510 500-0106 /

415 367-7323

Fax: 408 904-6997

Email: editor@e-grid.net

www.e-GRID.net

From the editor . . .

Sometimes the end-of-the-year period becomes a time of pressure. Job assignments target year-end for completion; the holidays (beginning with Thanksgiving) take us away from the office; and preparation for winter weather also demands some time. It seems there is never enough time for all we want to do!

With this in mind, the local Chapters have reduced the number of evening-meeting choices for the next few weeks – but check them out anyway. You'll see them picking up again in January, as the new Chapter officers begin serving their terms. Remember – each topical Chapter meeting presents two opportunities. First, you can learn something new from a local or world-wide expert. Second, you can network with your peers, for valuable interpersonal and technical relationships that might help you in your next project or even in your next career!

Some of you may have seen me hitting the early-bird specials on the day after Thanksgiving. After reviewing the "Black Friday" ads posted surreptitiously on the web on the previous weekend, I finalized my strategy when the actual ads arrived in the SJ Mercury-News on Wednesday and Thursday (though the Fry's ad didn't come until Friday – go figure!) I was angling for one of the deeply discounted laptops. A discussion thread seemed to give the nod to the Circuit City Toshiba model (what a deal!), but I decided to try for the Gateway unit at Best Buy, with the 15.4" hi-res screen and 1.5 GHz Celeron M. When I arrived at Best Buy at 4:30 AM in the drizzling rain, there were already 250 people ahead of me. Needless to say, I didn't get that one. So, I paid \$20 more for an Acer "weekend special" at Micro Center with the same Celeron M. Now, when I'm traveling, I'll have a fast, modern laptop with built-in networking and WiFi on which to edit the **GRID**. I also picked up a portable MP3 player that I really like.

Do you have any interesting tales from Black Friday?

Paul Wesling editor@e-grid.net

NOTE: This PDF version of the IEEE GRID – the **GRID.pdf** – is a monthly publication and is issued a few days before the first of the month. It is not updated after that. Please refer to the Online edition and Interactive Calendar for the latest information: www.e-GRID.net



Device Thermal Characterization
Package Thermal Characterization
Thermal Test Boards
Thermal Test Equipment & Fixtures

Bernie Siegal

Thermal Engineering Associates, Inc.
650-961-5900

info@thermengr.com www.thermengr.com



Electronics Design Services

- Analog and Digital circuit design
- VHDL/Verilog coding and synthesis
- ASIC/FPGA from concept to production

(650) 966-1835

ishakour@shax-eng.com www.shax-eng.com

Mixed-Signal IC Development

- From Inception to Production Transfer
- Turnkey, Design Services & Consulting
- Design Reviews & Troubleshooting

Mixel, Inc.

Excellence in Mixed Signal Design

(408) 274-2736

sales@mixel.com

www.mixel.com



**ANSYS
Channel
Partner**

- Multiphysics, Multidisciplinary Engng
- CFD, Stress, Heat Transfer, Fracture
- Fatigue, Creep, Electromagnetics
- Dynamics, Design Optimization
- Linear/Nonlinear Finite Element Analyses

Ozen Engineering (408) 732-4665

info@ozeninc.com www.ozeninc.com



Professional Consulting Services to assist clients in developing & executing any and all elements of Reliability throughout an Organization & Product Life Cycle.

- Assessments
- MTBF Pred
- HALT/HASS
- CAPA/CLCA
- Goals
- FMECA
- DVT/V&V
- DoE
- Benchmarking
- EOL Assessment
- Rel. Demo. Tests
- Training/teaching
- Reliability Prog. Plans
- Warranty Analysis
- Software Reliability
- RoHS/WEEE Transition

OPS ALACARTE pioneered Reliability IntegrationSM - using multiple tools in conjunction to increase the power and value of any Reliability Program.

(408) 472-3889 info@opsalacarte.com www.opsalacarte.com

Board Logic Systems

Complete Product Solutions Provider™

Experienced consultants in the fields of:

- Board & Verilog Design
- Signal Integrity
- Power Electronics
- Software Development
- Debug and Test
- EMI
- Layout
- Documentation

www.boardlogics.com

info@boardlogics.com (650) 867-0869

Patent Agent

Jay Chesavage, PE
MSEE Stanford

3833 Middlefield Road, Palo Alto 94303

info@file-ee-patents.com

www.File-EE-Patents.com

TEL: 650-619-5270 FAX: 650-494-3835

Digital Chip Design Services

ASIC Design • EDA Evaluation • Verilog HDL
• Synthesis • Design for Visibility • Timing • Scan
• Verification • Low Power techniques • Power
Analysis • BIST • DFT • ATPG • Silicon Debug
Testable logic for high-volume
production with low DPM

Contact Mahesh Siddappa
ME (CS, India), MS (EE, SUNY at Stony Brook)

m.siddappa@ieee.org 408-981-6612

GRID.pdf

Do you provide a service?

e-GRID

Would you like more inquiries?

- Access 25,000 engineers and managers
- IEEE Members across the Bay Area
- Monthly and Annual Rates available

[Visit our Marketplace \(page 3\)](#)

Download Rates and Services information:

www.e-grid.net/docs/marketplace-flyer.pdf



January 6-7, 2006
Las Vegas Convention Center

**Includes Exhibits pass to the
Consumer Electronics Show**

STORAGE VISIONS[®] 2006 CONFERENCE

Concurrent with the Consumer Electronics Show

Hear the latest on digital content technology from industry leaders – those who matter in the entertainment value chain – and find out how current and coming trends can benefit your company, from the experts at Turner Broadcast, Seachange, Microsoft, Scientific Atlanta, Seagate, Maxtor, Samsung Semiconductor, M-Systems, Agere Systems, Marvell, ST Microelectronics, HP, Atmel, Sonic Solutions, Silicon Image, Toshiba, and many others.

The Storage Visions™ 2006 Conference and the Consumer Electronics Association (CEA) are partnering to promote digital storage and the entertainment content value chain. Find out how digital content will be created, protected, and stored, from the executives, analysts, and professionals at the forefront of digital technology.

Sessions: – Storage and Content Creation, Editing and Distribution – Home Network Storage – Integration of Storage in CE Devices – Mobile CE Storage Products – Optical Storage – Storage and CE Analyst Session – Financial Analyst and VC Session

Keynote Speakers:

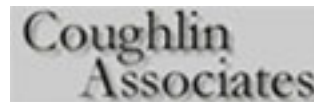
Clyde Smith, Sr. VP, Turner Broadcasting
Brodie Keast, Seagate Technology
Mike Alexenko, Maxtor

For **complete information** on Storage Visions 2006, please see the website:

CLICK!

www.storagevisions.com

Or call Kathleen locally at Storage Visions, 408-871-8808, to register orally for the Conference and CES Show Exhibits.



Also at the International Consumer Electronics Show:

Great Minds, Great Ideas: the People, the Products, and the Technologies That Will Change Our World

- **Free One-Day Program**
- **Thursday, January 5, 2006**
- **Sands Hotel, Las Vegas**

9:00 AM: Disruptive Innovation

Woodward Yang, Professor of Engineering, Harvard University

10:30 AM: Game Theory – critique of next-generation videogame consoles (Microsoft, Nintendo and Sony); ideas for ideal games machines

1:00 PM: New Frontiers - visions of the future of wireless technology & next big opportunities

2:30 PM: Innovation Generation - the future of innovation in America and suggestions for how companies can do a better job fostering it

4:00 PM: Digital Media - ubiquitous digital media in the future: connectivity, plug and play, long battery life, DRM

EETIMES



This one day program, hosted by the editors of **EE Times**, begins with a one hour lecture delivered by Harvard Engineering Professor Woodward Yang describing how companies can use **frameworks of disruptive innovation** to build better businesses. A series of panel discussions will tackle issues in digital media, wireless and other technology areas related to consumer electronics. Plan to attend!

Review the **“Great Minds” Program**

Review and register for all CES events:

CLICK!

www.cesweb.org



Internationalization & Unicode Conference 29

March 6-8, 2006
Hyatt Regency Hotel
Burlingame
(S.F. Airport)
Tutorials 3/6; Sessions 3/7-8

If you are involved in implementing the Unicode Standard or working on internationalization, this is a must-attend conference – the only industry event focused on the Unicode™ Standard. The conference features a variety of tutorials and conference sessions that cover current topics related to Unicode, the web, software and internationalization. Unicode experts, implementers, clients and vendors are invited to attend this unique conference. Exchange ideas with leading experts, find out about the needs of potential clients, or get information about new and existing Unicode-enabled products.

Visit the website to sign up for email updates about Unicode'06 and its tutorials and sessions.

Organized by the Object Management Group, a not-for-profit consortium that produces and maintains computer industry specifications for interoperable enterprise applications, including MDA®, UML®, CORBA®, MOF™, XMI® and CWM™.

Conference topics:

- Web internationalization
- Security and phishing
- Enterprise software in a global environment
- Web services, SOA and Internationalization
- Language tags and locales: implications for developers
- Making scripts and languages accessible
- Global development best practices
- What's new with Unicode 4.0; Successful Implementations
- Internationalized Domain Names/Resource Identifiers
- Tips, tricks and traps in developing international software
- Globalizing your product: business cases and technical issues
- Text and data mining
- New and upcoming technologies

Early-bird registration rates through January 23 – multi-attendee discounts. For more information and to register:

www.unicodeconference.org/ieee

For information on exhibiting or other questions, visit the website or contact Kevin Loughry at loughry@omg.org, +1-781-444 0404

The Unicode Consortium is a non-profit organization founded to develop, extend and promote use of the Unicode Standard and related globalization standards.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ COMPUTER ENGINEERING Assistant and Associate Professor

The Computer Engineering Department, UC Santa Cruz, invites applications for **two faculty positions**.

Position #488: Tenure track (Assistant Professor): applicants whose research interests are in the area of Assistive Technology including sensory augmentation, human-machine interface, wearable computers, prosthetic devices, and technology for the elderly and the disabled.

Position #63/63T: Tenure track (Assistant Professor) or tenured (Associate Professor): applicants in Computer System Design, including VLSI design, FPGA design, VLSI CAD, system-on-a-chip design, and related areas.

The campus is especially interested in candidates who can contribute to the diversity and excellence of the academic community through research, teaching, and service. UCSC is the UC campus nearest to Silicon Valley and has close research ties with this local industry. Submit: CV, statement of research and teaching plans, URLs of selected reprints, and ensure that at least 3 confidential letters of recommendation are sent directly to the search committee by **Jan. 2, 2006**. We prefer electronic applications: www.soe.ucsc.edu/jobs/faculty/apply. All letters will be treated as confidential documents (www2.ucsc.edu/ahr/policies/confstm.htm). Alternatively, applications may be mailed to: Computer Engineering Search Committee, University of California, 1156 High Street MS: SOE3, Santa Cruz, CA 95064.

Clearly indicate position: #488 (Assistant Professor, Assistive Technology), #63 (Assistant Professor, Computer System Design) or #63T (Associate Professor, Computer System Design).

For further details about the Baskin School of Engineering at UCSC, see www.soe.ucsc.edu

TUESDAY NOVEMBER 29

Distributed HD IPTV and Audio over Powerline

Speakers: Victor Dominguez, Chair of ETSI PLT and a founder of DS2 and Director of Strategy and Standardization; and

Chano Gomez, VP of Technology and Strategic Partnerships, ETSI PLT

Time: 6:30 PM for pizza and drinks; 7:00 PM for Presentation

Cost: none

Place: Maple room at HP Cupertino, at Wolfe and Pruneridge (off 280)

RSVP: by email to scv.ce@ieee.org

Web: www.ewh.ieee.org/r6/scv/ce

200 Mbps Powerline Communications (PLC) transceivers have been in production since 2004 and are in commercial deployments for both in-home video distribution of IPTV and Broadband over Powerline (BPL) access services. Competition between Telcos and Cable operators together with the arrival of HD TV in thinner flat-panel formats is driving the demand for in-home video (and audio) distribution with whole-house coverage. PLC technology implements both these applications and more with many advantages of performance and convenience.

Chano Gomez is Vice President for Technology and Strategic Partnerships for DS2 and heads the North America operations. He joined DS2 in 1999 as a Design Engineer in the System Architecture Group. His pioneering work in Powerline Technology has led to several patents. He holds a degree in Telecommunication Engineering from Valencia, Spain.



Professional Consulting Services to assist clients in developing & executing any and all elements of Reliability throughout an Organization & Product Life Cycle.

- Assessments
- Goals
- Benchmarking
- Reliability Prog. Plans
- MTBF Pred
- FMECA
- EOL Assessment
- Warranty Analysis
- HALT/HASS
- DVT/V&V
- Rel. Demo. Tests
- Software Reliability
- CAPA/CLCA
- DoE
- Training/teaching
- RoHS/WEEE Transition

OPS ALACARTE pioneered Reliability IntegrationSM - using multiple tools in conjunction to increase the power and value of any Reliability Program.

(408) 472-3889 info@opsalacarte.com www.opsalacarte.com

TUESDAY DECEMBER 6

**Put Some "Spark" in
Your Holidays: The Early Days
of Radio, Electronics**

Speaker: Prof. Ken Pedrotti, UC-Santa Cruz
Time: Networking and Pizza Social at 7:00 PM,
Presentation at 8:00 PM
Cost: none
Place: National Semiconductor Credit Union, 955
Kifer Road, Sunnyvale
RSVP: by email to rsvp-scv-leos@ieee.org
Web: ewh.ieee.org/r6/scv/leos

The early and fascinating history of radio spawned what we know today as the electronics industry. This story will be told via live working demonstrations of an early spark-gap apparatus inspired by Tesla, Oliver Lodge's important but forgotten syntonic spark system, and numerous radio relics. The story then leads us full circle to the ultra-wide-band radio systems proposed for the future, throwbacks to the distant past, and on to a glimpse of what the future might hold.

Ken Pedrotti Ph.D. EE, Stanford University, 1985. MS EE and BS, University of California Berkeley, 1979. Currently he is a professor at the University of California at Santa Cruz where his interests include devices and circuits for optical communication networks, imaging, RF and VLSI clocking applications. From 1998 to 2000 he was with the Rockwell Science Center in Thousand Oaks, CA working on mixed signal VLSI for visible and IR imaging. Prior to that he worked from 1997-1998 for Conexant Systems in Newbury Park, CA on commercialization of integrated circuits for optical communications. From 1985 to 1997 he was with the Rockwell Science Center, his research activities there included the development of integrated optoelectronic devices and circuits, high speed circuit development using HBTs, systems research for WDM optical networks, optical modulators, and MOCVD crystal growth. Dr. Pedrotti has served on the board of governors of the IEEE Solid State Circuit Society and has authored over 50 papers and holds 8 patents. In his spare time he has been known to collect old radios, is a lapsed member of the Southern California Antique Radio Society and teaches, among other topics, a survey of electrical engineering course for non-majors at UCSC.

| | |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|  | Device Thermal Characterization Package Thermal Characterization Thermal Test Boards Thermal Test Equipment & Fixtures |
| Bernie Siegal | |
| <i>Thermal Engineering Associates, Inc.</i> | |
| 650-961-5900 | |
| info@thermengr.com www.thermengr.com | |

WEDNESDAY DECEMBER 7

Building and Managing High-Performance Teams in a Large Company; and Power of the Dual-Vee Systems-Development Model

Speakers: Munir Palla, Senior Manager, Cisco Systems; and Hal Mooz, co-founder, Center for Systems Management (Virginia)

Time: Forum at 6:00 PM, Dinner at 7:00 PM, after-dinner presentation at 7:45 PM

Cost: by Dec 2nd: \$25 (IEEE member), \$30 (non member), \$5 IEEE Student member. \$5 surcharge thereafter

Place: Country Inn & Suites (former Prime Hotel and Wyndham), 1300 Chesapeake Terrace, Sunnyvale - off Lawrence Expressway/Caribbean Drive at Hwy 237

RSVP: through the website

Web: www.ieee-scv-ems.org

The Santa Clara Valley Engineering Management Society special November-December meeting features a before-dinner forum on leading a productive team in a climate for maximum collaboration in a healthy team environment. Following networking and a sit-down dinner, the after-dinner topic will be on managing development of complex systems and in mentoring others in modeling such development.

Munir Palla holds a Masters degree in computer science and has 17 years of experience. He is currently employed at Cisco Systems as a Senior Manager in the Automated Regression Facility. Munir has previously held management positions at Maxtor, Oak Technology and Systems Industries.

Hal Mooz specializes in Project Management, System Engineering, Proposal Management, and related processes, techniques, and skills essential to achieving predictable project performance. Mr. Mooz draws on 25 years of industry experience, consulting to both government and industry clients. These

(continued, next page)

Before-Dinner Forum - Key Foundations to Successfully Build and Manage High Performance Teams in a Large Company

Building a high performance team is a challenging task to set a business on the right track, but managing such a team is even more challenging to execute the business on the fast track and in the right direction in a leading position, especially in the large enterprise environment. Building and managing a high performance team in a large scale operation requires both essential and sufficient conditions of teamwork, collaboration, process, metrics, and policy. Maintaining the climate for maximum collaboration in a healthy team-work environment provides the essential elements. Creating and ensuring the proper processes, metrics and policies provide the sufficient conditions. Munir Palla's presentation brings insight into the making of a high performance team at Cisco Systems. The team achieved a twelve-times productivity gain with only two-times increase in head count, all within a 4 year time frame. We applied cross-functional, cross-business-unit team work and collaboration on a well established process, with proper policy in an information-sharing and individual-recognition environment.

After-Dinner presentation - Power of the Dual Vee Systems Development Model

Anyone executing development projects has options of applying the Waterfall, Spiral, or Vee Development Models. Each has certain short comings that hinder its effective application. The Dual Vee Model is a model to guide complex systems development. The Dual Vee has been developed to correct the short comings, and provides a model for concurrent architecture and architecture entity development.

Recently Spiral Evolutionary modeling has led to confusion in the development of complex systems. The Dual Vee model eliminates this confusion.

Anyone interested in the development of complex systems and in mentoring others in this regard should find the presentation meaningful. The NSA has adopted this model as their standard.

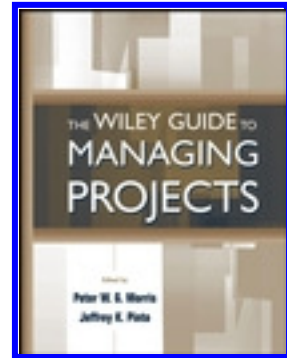
include AT&T, Lucent Technologies, GTE, Colgate, Dial, Kaiser Permanente, TRW, ESL, Argo Systems, Lockheed-Martin, and several US government agencies, including NASA.

Mr. Mooz is co-founder of the Center for Systems Management, headquartered in Vienna, VA, a leader in integrating systems engineering, project management and process improvement. Prior to that he was the founder of Consulting Resources International, providing training and consulting to government and industry clients in both project management and system engineering. He enjoyed a fast track career at Lockheed Missile and Space Company in satellite programs. He was an early member of the Corona Project, America's first reconnaissance satellite.

Mr. Mooz is the co-author of the books Visualizing Project Management (1996, 2000, and 2005, J. Wiley & Sons), addressing the growing importance of integrating project management and systems engineering, and **Communicating Project Management** (2003, J Wiley & Sons). Mr. Mooz is also a contributing author of The Wiley Guide To Managing Projects (2004 J Wiley & Sons)

Mr. Mooz was awarded the CIA Agency Seal Medallion for excellence in Project Management training, and in recognition of his pioneering efforts in the field of Project Management. He was co-awarded the Pioneer Award for INCOSE (International Council of System Engineering) (2001) - presented annually to one who contributed uniquely enhancing society or its needs. He has published many articles in referred journals and proceedings and presented papers at PMI Symposiums and INCOSE conferences

Mr. Mooz is a graduate of the ME Stevens Institute of Technology and the Lockheed Executive Management Program. He is a Certified Project Management Professional PMI – PMP and a Certified Systems Engineering Professional (INCOSE), one of the first 37 people certified worldwide. He is on the Adjunct Faculty, American University, University of California, and Santa Clara University.



SHAX Engineering and Systems

Electronics Design Services

- Analog and Digital circuit design
- VHDL/Verilog coding and synthesis
- ASIC/FPGA from concept to production

(650) 966-1835
ishakour@shax-eng.com www.shax-eng.com

WEDNESDAY DECEMBER 7

Test and Measurement for ISO Compliance and Certification

Speaker: Dr. David Rivkin, President, Global Consulting and Patents Intl
Time: 7:30 PM for social/networking;
8:00 PM for Presentation
Cost: none
Place: Cogswell College, Room 197, 1175 Bordeaux Drive, Sunnyvale
RSVP: by email to David Rivkin,
david.rivkin@ieee.org
Web: www.ewh.ieee.org/r6/scv/ims

The presentation is an educational event designed to help design and quality assurance engineers and managers understand the basic metrology terminology, issues and techniques including documentation needs for ISO 9000:2000 and ISO13485:2003 compliance and certification. We will cover basics requirements for ISO9000/13485 standards for test and measurement equipment, fundamentals of metrology, Linear and Angular Measurements, Temperature Measurements, Mass Measurements, Force Measurements, Pressure Measurements, Electrical measurement standards and Uncertainty In Metrology. We will also touch on some of the metrology issues for nanotechnology.

David Rivkin, PhD is the former VP of Engineering for SciEssence Int'l, a leading manufacturer of scientific instrumentation. He is currently President of Global Consulting and Patents Int'l, providing business and technology consulting to firms worldwide. He is Chairman of the IEEE SCV IMS Chapter, Chairman of the IEEE Instrumentation and Measurement Society's Technical Committee 34 "Nanotechnology in Instrumentation and Measurement", and Chairman of the Science and Technology Institute's "Emerging Technologies SIG". With 20 years of scientific systems design, development and management, David Rivkin holds several degrees from top universities worldwide in Chemistry, Nuclear Engineering, EECS, Applied Mathematics and a PhD in Engineering Management. He also holds several certifications in Program Management and in the field of Quality Assurance.

Mixed-Signal IC Development

- From Inception to Production Transfer
- Turnkey, Design Services & Consulting
- Design Reviews & TroubleShooting

Mixel, Inc.

Excellence in Mixed Signal Design

(408) 274-2736

sales@mixel.com

www.mixel.com

Trusted Computing and Applications to Communications

Speaker: Dr. Thomas Hardjono, Chief Technology Officer, SignaCert
Time: 6:30 PM social/pizza; 7:00 PM Presentation
Cost: none
Place: Bishop Ranch 1, 6101 Bollinger Canyon Road (off 680), San Ramon
RSVP: Please send a note by Dec. 6 to oeb@comsoc.org to allow us to order the correct number of pizzas.
Web: www.comsoc.org/oeb

Trusted Computing is a growing field of security which will have dramatic impact on various other aspects of computing. Currently, over 10 million Trusted Platform Module (TPM) hardware units have been incorporated and shipped within laptops and desktops, with projections of over 20 million units shipped by 2H2006. In the current presentation we describe the aims of trusted computing, some technology standards being developed by the Trusted Computing Group (TCG), its various working groups and the organization aspects of the TCG. In addition, the presentation will provide some background on the Mobile Phone Working Group within the TCG and describe its current activities.

Dr. Thomas Hardjono has over 15 years of experience in the security space. Previous to SignaCert, Thomas spent five years as Principal Scientist and Security Architect at VeriSign Inc. His broad industry experience includes security-related roles at a defense research organization, a Telco company (NTT in Japan), an IP network vendor (Bay Networks), and leading roles at a couple of start-ups in the area network security.

Dr. Hardjono is well known in a number of standardization bodies through his leadership in establishing standardization communities and groups. These include chairing three groups in the IETF (Secure Multicast group, Internet-DRM group, and IP Multicast Security group), co-founding a DRM group in OASIS (Rights-Language Technical Committee), and co-chairing the Infrastructure Working Group within the Trusted Computing Group (TCG). Thomas is also author of a number of key specifications in these standardization organizations.

Thomas is also a prolific author, publishing over fifty technical papers on security in various conferences and journals. In addition, he has co-authored three books in security and cryptography. These are "Fundamentals of Computer Security" (Springer-Verlag, 2003) which is a classic from the 1980's recently revised, "Multicast and Group Security" (Artech House, 2004) which is the only book of its kind on IP multicast security, and "Wireless LAN and MAN Security" (Artech House, 2005). Thomas also holds over a dozen patents in the areas of network and communications security. He is a member of the ACM and the IEEE.

Internationalization & Unicode Conference
March 6-8, 2006
Sessions, tutorials & exhibits focused on the Unicode™ Standard, Internationalization
- Web internationalization
- Text and data mining
- Language tags & locales
Earlybird rates thru January 23rd

Digital Chip Design Services

ASIC Design • EDA Evaluation • Verilog HDL
• Synthesis • Design for Visibility • Timing • Scan
• Verification • Low Power techniques • Power Analysis • BIST • DFT • ATPG • Silicon Debug
Testable logic for high-volume production with low DPM

Contact Mahesh Siddappa
ME (CS, India), MS (EE, SUNY at Stony Brook)
m.siddappa@ieee.org 408-981-6612

THURSDAY DECEMBER 8

Future Directions in Space-Qualified LNA's

Speaker: Jim Sowers, Space Systems/Loral
Time: 6:00 PM social/networking;
6:30 PM Presentation
Cost: none
Place: Intel Corp. SC12-Auditorium, 3600 Juliette
Lane, Santa Clara
RSVP: not required
Web: www.mtt-scv.org

Jim Sowers is a Senior Engineer with GigaBeam Corporation responsible for RF-Microwave/Millimeter Wave circuits, subsystems, test systems, and packaging. Previously he was the Section Manager for Repeater Subsystems Electrical Engineering at Space Systems/Loral (SS/L) responsible for the design and development of RF active payload components from C-Band through Ka-Band including LNA's, Receivers, Linearized Channel Amplifiers, Local Oscillators and MMICs. Prior to that Mr. Sowers was with Lockheed Martin/Martin Marietta/GE Aerospace and was responsible for the design and development of microwave and millimeter-wave MMICs and components for advanced radar and communications systems. Mr. Sowers received his BSEE from Cornell University and his MS from Stanford University. Mr. Sowers is a Senior Member of the IEEE, has served on the Technical Program Committee of the IEEE Compound Semiconductor IC Symposium (formerly known as GaAs IC Symposium), is currently on the committee of the IEEE MTT Society -Santa Clara Valley Chapter and the publications chair for the IMS2006 Symposium to be held in San Francisco.

A key component in a satellite communication system is the Space-Qualified Low Noise Amplifier. Not only is their demanding electrical performance requirements, but also it must be designed to withstand the harsh environment of outer space. This talk will discuss briefly satellite communication systems and the requirements that drive current and future LNA performance including applications, payload architectures, and satellite performance parameters. Subsequently, the talk will cover design and manufacture of space-qualified LNA's including definitions, design, qualification, environmental & screening requirements, and give a Ka-Band example. Finally, the talk will cover some thoughts on future directions for these products.



Patent Agent

Jay Chesavage, PE
MSEE Stanford
3833 Middlefield Road, Palo Alto 94303

info@file-ee-patents.com

www.File-EE-Patents.com

TEL: 650-619-5270 FAX: 650-494-3835

LEDs for Solid State Lighting and Other Emerging Applications: Status, Trends and Challenges

Speaker: M. George Craford - LumiLeds Lighting
Time: Pizza social at 6:00 PM;
Presentation at 6:15 PM
Cost: none
Place: National Semiconductor Corp. Building 31
Large Auditorium, 955 Kifer Road,
Sunnyvale
RSVP: not required
Web: www.ewh.ieee.org/r6/scv/eds/

M. George Craford obtained a Ph.D. degree in physics from the University of Illinois in 1967. Craford began his professional career as a research physicist at Monsanto Chemical Company. He advanced to the level of Technical Director of the Electronics Division, before joining the Hewlett Packard Company in 1979. He is currently the Chief Technology Officer of LumiLeds Lighting, a joint venture of Agilent Technologies and Philips Lighting. Craford's research has been mainly focused on the development of visible LED's using a variety of compound semiconductor materials. He developed nitrogen-doped GaAsP technology in the early 1970's, which became one of the dominant commercial LED technologies. At Hewlett Packard, Craford's group pioneered the development of AlInGaP LED's, and has developed AlGaAs and InGaN products. Craford is a fellow of the IEEE and a member of the National Academy of Engineering. He has received technical achievement awards from a variety of organizations and received the 2002 National Medal of Technology from the President of the United States.

LEDs have been commercially available since the 1960's, but in recent years there have been remarkable improvements in performance. These technology developments have enabled the use of LEDs in a variety of colored and white lighting applications. Colored LEDs have already become the technology of choice for traffic signals, much of interior and exterior vehicle lighting, signage of various types often as a replacement for neon, and other areas. LEDs are expected to become the dominant technology for most colored lighting applications. LEDs are penetrating white lighting markets such as flashlights and localized task lighting. With further improvement LEDs have the potential to become an important technology for large area general illumination. White LED products already have performance of over 40 lumens/watt which is about 3x better than incandescents. Laboratory results of over 80 lumens/watt have been reported. LEDs have the potential to achieve a performance of over 150 lumens/watt which would be roughly 2x better than fluorescents. White LEDs with outputs of more than 100 lumens are already available commercially, and higher power devices can be expected in the near future. LEDs can be used as point sources, or can be used with light guides of various types to provide distributed illumination. Backlighting for LCD displays is one example of an emerging application of this type. Televisions with LED backlighting have recently been introduced commercially. Compact projectors with red, green, blue, LED light engines have also been recently introduced. LEDs save energy, are environmentally friendly, and provide a variety of other features, including long lifetime, compact size, and programmable color control, which enable design options for new approaches to lighting. This presentation will cover an overview of LED technology. The current applications, and trends will be described, and LEDs will be compared to conventional lighting technologies. Developments that will need to occur for LEDs to be viable for large area general illumination will be discussed.

SID'06 CALL FOR PAPERS
Society for Information
Display Int'l Symposium,
Seminar and Exhibition
June 4-9, 2006
Moscone Center, S.F.
Deadline: Dec. 1, 2005

TUESDAY DECEMBER 13

Radiation of Impulse-Like Waveforms With Illustrative Applications

Speaker: Dr. D. V. Giri, Pro-Tech
Time: 6:00 PM pizza and soda;
Presentation at 6:30 PM
Cost: none
Place: Cogswell College (Boardroom), 1175
Bordeaux Dr., Sunnyvale
RSVP: not required
Web: ewh.ieee.org/r6/scv/aps

Parabolic mirrors are useful in radiating impulse-like waveforms. The antenna subsystem consists of a paraboloidal-reflector illuminated by a pair of conical transmission lines. Because of the spherical TEM feed, this antenna is non-dispersive. For an applied fast-rising voltage function, the radiated electric field spectrum is fairly flat over two decades of frequencies. Some fundamental differences between frequency independent antennas (ex: log-periodic dipoles) and the present non-dispersive time-domain antennas will be discussed. Familiar concepts such as antenna gain, radiation pattern need to be redefined for time-domain antennas. Design, fabrication, working principles and performance of this class of antennas could be discussed. Such a radiating system has resulted in an emerging technology with many military and civilian applications, some of which will also be discussed.

Dr. D. V. Giri has over 30 years of work experience in the general field of electromagnetic theory and its applications in NEMP (Nuclear Electromagnetic Pulse), HPM (High-Power Microwaves), Lightning, and UWB (Ultra Wideband). He obtained the B.Sc., Mysore University, India, (1964), B.E., M.E., Indian Institute of Science, (1967) (1969), M.S., Ph.D., Harvard University, (1973) (1975), Certificate, Harvard Introduction to Business Program, (1981). Dr. Giri has taught graduate and undergraduate courses in the Dept. of EECS, University of California, Berkeley campus. Since 1984, he is a self-employed consultant as Pro-Tech, in Alamo, CA, doing R&D work for U.S. Government and Industry. From May 1978 to September 1984, he was a staff scientist at LuTech, Inc. Prior to his association with LuTech, Inc., Dr. Giri was a Research Associate for the National Research Council at the Air Force Research Laboratory (AFRL), Kirtland AFB, New Mexico, where he conducted research in EMP and other aspects of electromagnetic theory. Dr. Giri is a Senior Member of the IEEE Society of Antennas and Propagation, a Charter Member of the Electromagnetics Society, and Associate Member of Commission B, URSI and Member of Commission E, URSI. He has served on the editorial board of the Journal of Electromagnetics, published by the Electromagnetics Society. He has also served as an Associate Editor for the IEEE Transactions on Electromagnetic Compatibility. He was elected to the grade of FELLOW by the awards committee of Summa Foundation in 1994 for his contributions to EMP simulator design and HPM antenna design. He has coauthored a book on High-Power Microwaves, and also authored a book on High-Power Electromagnetic Radiators - Nonlethal Weapons and Other Applications, published by Harvard University Press in November 2004. He has also published over 100 papers, reports etc.

TUESDAY DECEMBER 13

Taxes ... What the Rich Do Differently

Speaker: John Peplowski, Certified Senior Advisor,
American Investors Company
Time: 7:00 PM networking;
Presentation at 7:30 PM
Cost: none
Place: Keypoint Credit Union, 2805 Bowers
Avenue, Santa Clara
RSVP: not required
Web: www.ieee-sv-consult.org

Would you like to know how the rich save money on taxes (legally)? Some of their strategies may apply to you. Come and hear John Peplowski -- and maybe you can apply some of his wisdom to your own financial situation. John is an experienced speaker on wealth accumulation during our working -- that is consulting -- years.



John M. Peplowski, Certified Senior Advisor and Investment Advisor Representative with American Investors Company and owner of Golden Years Financial, has a long-standing dedication toward helping clients build, protect and preserve their wealth. He achieves this through comprehensive financial planning based on quality investment and insurance products. His focus is on estate, retirement and financial planning for a clientele of retirees and pre-retires.

A dedicated financial professional since January 1971, John speaks of his work, with enthusiasm. "My mission is to help my clients achieve three key financial goals; wealth accumulation during their working years, security and independence in their retirement, and the reduction or elimination of estate taxes when their accumulated wealth is passed on to their beneficiaries." As a result of his outstanding service and commitment, he has built a solid base of clients, largely through referrals.

A firm believer in the value of ongoing career-related education for the benefit of his clients, John stays current in his field through attendance at professional workshops and seminars and from the study of industry and government publications. He has achieved the professional designation of Certified Senior Advisor and Registered Health Underwriter and is a member in good standing of several professional organizations including the American Association for Long-Term Care, National Association of Health Underwriters, and the Society of Financial Services Professionals.

Generous with his time, John holds weekly financial seminars for seniors throughout Northern California. He has also conducted specialty seminars over the past 25 years on such topics as long-term care, annuities, disability income, and finances for various organizations, including the Golden State Mobile Homeowners League, the Bay Area Buyers Network, AARP, Rotary and Kiwanis.

Away from his profession, John enjoys traveling and outdoor activities. He and his wife, Carole, enjoy country living in Grass Valley and spending time with their two daughters, Julie and Jennifer and grandson Jack.



WEDNESDAY DECEMBER 14

The Future of Printed Circuit Boards

Speaker: Robert Tarzwell, Director of Technology, Sierra Proto Express
Time: Seated dinner at 6:30 PM; presentation at 7:30 PM
Cost: \$25 if reserved by Dec 10; \$30 at the door; presentation-only is free
Place: Ramada Inn, 1217 Wildwood Ave (Fwy 101 frontage road, between Lawrence Expy and Great America Pkwy), Sunnyvale
RSVP: Please reserve and pay in advance using our PayPal on-line system or email Janis Karklins at Karklins@ieee.org
Web: www.cpmt.org/scv

Bob Tarzwell is working to introduce new bleeding-edge advanced circuit technology like lead-free, high reliability electronics, heat sinking technology and ultra fine lines. Since selling his company in 2000, Bob has disseminated PCB high-tech to many companies as a consultant, and has written ten books on PCBs and on car racing. He has three patent-pending applications in fine lines, high reliability and outer-space PCBs. He is currently semi-retired in the Bahamas, spending his free time writing books, working on antique cars and deep sea fishing.

I see a bleak future for the printed circuit board -- no through holes or large boards, only micro-miniature substrates. Replacing them will be silicon chips with complete system integration on board, communicating with the outside through laser LEDs or radio beams. Silicon chips are being combined on ceramic or organic packages to form the entire circuit. It's now possible to make transistors on the chip simulate a capacitor, resistor or inductor, eliminating one of the main jobs the printed circuit presently is used for: a component support platform. The printed circuit board is dying and, sadly, most manufacturers cannot see it coming.

As volume decreases, and our desire for neat, small electronic gadgets increases, the size of the phone, cameras, DVD players and computers decreases. As the future size of the printed circuit decreases, the technology will change. A smart printed circuit board shop owner will embrace R&D, learn to make newer, different technologies, or he will fade away.



OZEN ENGINEERING, INC.
ANSYS Channel Partner

- Multiphysics, Multidisciplinary Engng
- CFD, Stress, Heat Transfer, Fracture
- Fatigue, Creep, Electromagnetics
- Dynamics, Design Optimization
- Linear/Nonlinear Finite Element Analyses

Ozen Engineering (408) 732-4665
info@ozeninc.com www.ozeninc.com

: 802.16e: A Mobile Broadband Wireless Standard

Speaker: Jose Puthenkulam, WiMAX Standards Manager, Intel Corporation
Time: Pizza social at 6:00 PM;
Presentation at 6:30 PM
Cost: \$1 donation to cover food costs
Place: National Semiconductor Corp. Building 31,
955 Kifer Road, Sunnyvale
RSVP: please email to rsvp@comsocscv.org
Web: www.comsocscv.org

Jose Puthenkulam is responsible for WiMAX Standards in the Broadband Wireless Division. He joined Intel in 1998, and has worked on multimedia communication protocols, information management, wireless protocols and security related technologies. He is currently the assistant editor of the IEEE 802.16e Mobile Broadband Wireless Standard and the Chief Technical Editor of the upcoming IEEE 802.16g Air Interface Management Project. He has won several awards including the 2004 Intel Achievement Award for efforts on Broadband Wireless Standardization, 2003 GSM Association CEO Award for WLAN Authentication efforts, 1995 Motorola India Individual Performance Award for his work on H.320 Multimedia Communication Protocol based system implementation. He has an M.Tech (1994) in Electronics Design and Technology from Indian Institute of Science, Bangalore and B.Tech (1992) in Electronics and Communication, from College of Engineering, Trivandrum, Kerala. His areas of interest include wireless network architectures, MAC layer protocols and electronic system designs.

802.16e is the mobile amendment to the 802.16-2004 Fixed Broadband Wireless standard. It defines OFDMA PHY layer techniques for high speed mobility using various subchannelization schemes, Channel quality feedback, Hybrid ARQ link adaptation and MIMO transmission schemes.

Digital Chip Design Services

ASIC Design • EDA Evaluation • Verilog HDL
• Synthesis • Design for Visibility • Timing • Scan
• Verification • Low Power techniques • Power
Analysis • BIST • DFT • ATPG • Silicon Debug
Testable logic for high-volume
production with low DPM

Contact Mahesh Siddappa
ME (CS, India), MS (EE, SUNY at Stony Brook)
m.siddappa@ieee.org 408-981-6612

WEDNESDAY JANUARY 11

Enabling Technologies for Board-Level Optical Interconnects

Speaker: Dr. Alexei Glebov, Fujitsu Laboratories of America
Time: Seated dinner at 6:30 PM; presentation at 7:30 PM
Cost: \$25 if reserved by Jan 8; \$30 at the door; presentation-only is free
Place: Ramada Inn, 1217 Wildwood Ave (Fwy 101 frontage road, between Lawrence Expy and Great America Pkwy), Sunnyvale
RSVP: Please reserve and pay in advance using our PayPal on-line system or email Janis Karklins at Karklins@ieee.org
Web: www.cpmt.org/scv

Dr. Alexei Glebov is a research project manager in the Advanced Optoelectronics Technology Department at Fujitsu Laboratories of America in Sunnyvale. His main research focus is on board-level optical interconnects, optical switches and other planar photonic device fabrication and packaging technologies. He received his Diploma in Physics from University of St. Petersburg, Russia, and Ph. D. in Physics with Honors from University of Göttingen, Germany. Prior to joining Fujitsu Laboratories in 2000 he worked at the Max Planck Institute in Göttingen and Bell Laboratories, Lucent Technologies, in Murray Hill, NJ. Dr. Glebov published about 45 papers in peer-reviewed journals (citation index 400+), co-authored more than 40 conference contributions, made over 30 invited and regular presentations at international meetings and seminars, and has ~20 patents issued or pending. He is a senior member of IEEE LEOS and CPMT, and is a member of OSA and SPIE.

Facing approaching speed, bandwidth, density and scalability limitations in high-speed printed circuit boards, optical interconnects (OI) emerge as a viable alternative. Many industrial and governmental organizations project that board-level OI will evolve for commercial applications in this decade. The 4-5 year product development cycle suggests that complete prototypes of the modules should become available in several years. Among possible solutions for board-level OI, the planar waveguide approach shows to be more competitive in terms of cost, passive element integration, component alignment tolerances, and manufacturability.

This talk will review various topics and technologies of board-level OI. A strong emphasis will be given to elementary technologies enabling fabrication of OI prototype modules. The talk will cover integrated low loss polymer waveguides with vertical routing capabilities, microoptic and waveguiding elements, 3D optical wiring schemes, in- and out-of-plane light coupling, optical connectors, etc. The prototype optical backplane operation at 10+ Gbps will also be presented.

Board Logic Systems

Complete Product Solutions Provider™

Experienced consultants in the fields of:

- Board & Verilog Design
- Debug and Test
- Signal Integrity
- EMI
- Power Electronics
- Layout
- Software Development
- Documentation

www.boardlogics.com

info@boardlogics.com (650) 867-0869

TUESDAY JANUARY 17

Semiconductor Equipment and Materials Outlook

Speaker: Dr. Dan P. Tracy, SEMI
Time: Buffet lunch at 11:45 AM;
presentation at 12:15 PM
Cost: \$15 if reserved by Jan 14; \$20 at door;
vegetarian available
Place: Ramada Inn, # 1217 Wildwood Ave (Fwy
101 frontage road, between Lawrence Expy
and Great America Pkwy), Sunnyvale
RSVP: using our PayPal link, or by email to John
Jackson, Analog Devices, at
john.jackson@analog.com
Web: www.cpmt.org/scv

Though contracting in 2005, the semiconductor capital equipment market will record billings at the third highest level in history. While the industry remains cautious, positive growth is anticipated in 2006 given the strength in the 300mm production ramp. There are 11 new 300 mm fabs expected to begin production in 2006 and a possible 12 new 300mm fabs in 2007. Paralleling the 300mm fab investment is the integration of new materials into the wafer fabs and into semiconductor packages. Both the fab and packaging materials grew in 2005, and growth is forecasted for 2006.

Dr. Dan P. Tracy is responsible for developing and executing a global strategy for SEMI industry research and statistics products and services and information products. Current market statistic monthly and quarterly programs cover capital equipment, materials and component markets, with in-depth annual reports on a variety of topics such as packaging materials, the China market and nanoelectronics. Tracy is responsible for preparing market reports and presenting on trends impacting the electronic materials and equipment markets globally. In addition, Tracy is also responsible for managing market statistics partnerships globally.

Prior to joining SEMI in 2000, Tracy was a research associate with Rose Associates, where he focused on packaging materials market research. Prior to this, Tracy served in the Package Technology Group at National Semiconductor.

Tracy has a Ph.D. in Materials Engineering from Rensselaer Polytechnic Institute, a masters of science in Materials Science & Engineering from Rochester Institute of Technology and a bachelors of science in Chemistry from the State University of New York (SUNY) College of Environmental Science and Forestry. Tracy has authored numerous market research studies and articles in industry trade publications. He is also the author of the monthly SEMI Book-to-Bill report.

TUESDAY JANUARY 17

Beyond the Limits of Magnetic Recording: an Itinerant Magnetician Looks at Hysterical Loops

Speaker: Mason L. Williams, Hitachi Global Storage Technologies (Retired)
Time: Cookies & Conversation at 7:30 PM, Presentation at 8:00 PM
Cost: none
Place: KOMAG, 1710 Automation Parkway, San Jose
RSVP: not required
Web: www.ewh.ieee.org/r6/scv/mag

Mason L. Williams received a B.S. in Engineering in 1964 from the California Institute of Technology, and the M.S.E.E. degree in 1966 and a PhD in Electrical Engineering with Physics minor in 1970 from the University of Southern California

In 1970, Dr. Williams joined IBM in San Jose, initially in a Manufacturing Research department. In his first year he was assigned to work with R. Larry Comstock on characterization and testing of experimental magnetite film media. That collaboration led to the so-called "Williams-Comstock" analytical model of digital magnetic recording. In 1982, he joined the Magnetic Recording Institute and managed an investigation of perpendicular magnetic recording. In 1985 he became manager of Advanced Recording Heads at the IBM Almaden Research Center in San Jose. In that role he managed the development of micro-magnetic modeling for magneto-resistive head elements and the first building of spin-valve head test structures to verify biasing techniques. In 1992, Dr. Williams became the IBM representative to the Ultra-High Density Magnetic Recording Head project of the National Storage Industry Consortium, aimed at 10 Gb/sq in technology. In 1996, he became part of the Extremely High Density Recording Strategy Team at INSIC. In 1999, he was elected to the IEEE grade of Fellow. In 2001, he was selected as an IBM Master Inventor, and holds several recording head patents. At the end of 2002, Dr. Williams retired from IBM and joined Hitachi Global Storage Technologies. He worked on novel perpendicular head approaches and then focused again on recording physics and integration modeling until retiring from Hitachi in 2005.

For several decades there have been declarations that digital magnetic recording as we know it is about to reach the ultimate limit of areal density. Technological advances have enabled steady progress primarily through simultaneous scaling of dimensions and tolerances over several orders of magnitude and use of materials with larger energy densities. In the 1990's it became clear that then current approaches would be limited to about 40 Gb/sq. in. by the combined requirements that individual grains have reversal barriers of above 40 kT for long term data retention and that a bit cell contain 100 or more grains for adequate media signal-to-noise. Recent areal density demonstrations at about 6 times that limit have been possible with perpendicular recording and improved materials, but perhaps we are again nearing the ultimate physical limits, unless a novel idea comes along. In addition to perpendicular recording, technologies suggested to extend the limits include patterned media, thermally-assisted writing and tilted media. We'll discuss the potential advantages and challenges of these approaches. Areal density is primarily limited by write head materials and fabrication tolerances, while data-rate is limited by sensor technology which must provide several times kT of signal energy (and low noise levels) to detect a bit. Sensors have evolved from inductive heads to anisotropic magneto-resistive



heads to in-plane giant magneto-resistive (GMR) devices with CPP (current across the gap) GMR devices with spin-tunneling sensors also under consideration. We'll discuss the attributes of these technologies and the anticipated requirements. Powerful error correction codes will also be required if we are to reach 1 Tb/sq. in, so attention must be paid to writing, reading and arithmetic.



**Broadband over Power Lines -
FCC Emissions Compliance
Guidelines**

Speaker: Jerry Ramie, NCT, ARC Technical Resources, Inc.
Time: Noon
Cost: \$6.00 (includes lunch) or Free (no lunch)
Place: PG&E Building, 77 Beale St. Room 307, San Francisco
RSVP: by Jan 17 to Julian Ajello j.ajello@ieee.org (415) 703-1327, or Chuck Magee cm1@cpuc.ca.gov (415) 703-4683.
Web: ewh.ieee.org/r6/san_francisco/pes

By using ordinary power lines, Broadband over Powerlines (BPL) can provide high-speed internet access to subscribers without the need to install additional wiring. It provides competition for existing broadband providers such as Cable TV, Telephone and satellite and can be used for distribution automation and remote meter reading. BPL has a bad reputation for radio interference yet there are many fixes for interference problems. There is no excuse for BPL radio interference except ignorance.

Mr. Ramie will give us a snapshot of the state of BPL, and will go into some of the requirements and standards to prevent radio interference. He will also describe some of the equipment and techniques for enforcing those requirements.

Jerry Ramie is the President and founder of ARC Technical Resources, Inc. which provides training, equipment, systems and services for Electromagnetic Compatibility (EMC). He is a member of the IEEE EMC Society, the dB Society and is a NARTE (National Association of Radio and Telecommunications Engineers) certified EMC technician. He can be reached at (408) 263 6486. Mr. Ramie has over 23 years experience in EMC and founded ARC Technical Resources, Inc. in 1989. Mr. Ramie authored an article on BPL Certification requirements in the August 2005 issue of Conformity.

Mixed-Signal IC Development

- From Inception to Production Transfer
- Turnkey, Design Services & Consulting
- Design Reviews & TroubleShooting

Mixel, Inc.

Excellence in Mixed Signal Design

(408) 274-2736

sales@mixel.com

www.mixel.com

CONFERENCE CALENDAR

The **CONFERENCE CALENDAR** is a service to our IEEE Members. It outlines upcoming IEEE workshops and conferences in the Bay Area. Please submit items to the GRID Editor: editor@e-grid.net.

Conferences are also encouraged to purchase display space in the **GRID.pdf** and publicize their events on our website and in our **e-GRID** email notification service. For the Conference Publicity flyer, please download:

www.e-grid.net/docs/conf-flyer.pdf

Internationalization and Unicode Conference

- March 6-8, 2006
- Hyatt Regency Hotel, Burlingame (SF Airport)
- Tutorials: Monday, March 6
- Sessions: Tuesday-Wednesday, March 7-8

Unicode experts, implementers, clients and vendors are invited to attend this unique conference on the Unicode Standard and internationalization. Exchange ideas with leading experts, find out about the needs of potential clients, or get information about new and existing Unicode-enabled products.

See www.unicodeconference.org/ieee for more details

Int'l Consumer Electronics Show:

The 2006 Storage Visions Conference

- January 6 & 7, 2006
- Las Vegas Convention Center
- Concurrent with the Consumer Electronics Show
- Admission to the CES Exhibits

Hear the latest on digital content technology from industry leaders -- those who matter in the entertainment value chain -- and find out how current and coming trends can benefit your company.

See **Page 4**
For more details

Calls for Papers

June 11-13, 2006 – SID '05:

Society for Information Display International Symposium, Seminar, & Exhibition

- - Paper Summary Deadline: **December 1, 2005**
- - Location: San Francisco, June 11-13, 2006

SID'06 will have 250+ exhibitors and 7,500+ attendees - display scientists, engineers, manufacturers, entrepreneurs, marketers and end-users with original papers on all aspects of research, engineering, application, evaluation, and utilization of displays.

Go to www.e-grid.net/docs/sid06.pdf to download the Call for Papers

June 11-13, 2006 – SID '05:

IEEE Radio Frequency Integrated Circuits Symposium

- Paper Summary Deadline: **January 2, 2006**
- Location: San Francisco, June 11-13, 2006

RFID'06 is part of Microwave Week in San Francisco. Check out the Call for Papers for topics.

Go to www.e-grid.net/docs/rfic06.pdf to download the Call for Papers
