



Dallas Section

Direction

Volume 49, Number 6

February 2006

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From the Chair

by Kaijian Shi

We had a busy start in 2006. Besides 2005/2006 section officer transitions, our officers have already been working on the strategic plan we laid for IEEE Dallas in 2006.

We had successfully held the first Section and Chapter officer quarterly meeting. Officers of 11 chapters attended the meeting. It was very active meeting where officers shared successful experience, exchanged ideas, identified issues and brainstormed solutions. It is nice to see officers help each others cross chapter boundary to make IEEE Dallas more successful.

The first professional skill training "Fine Tune Your People Skills and Be More Successful at Work" will be held on February 9, thanks to Maura Schreier-Fleming (PACE Chair). If you have suggestions on topics and time frames of technical short courses and professional trainings we plan to offer, please contact Maura (maura@Bestatselling.com).

We have stepped up effort to engage and help professional activities and raise IEEE's visibility in Dallas. IEEE Dallas section will be the technical co-sponsor of two international conferences "Parallel And Distributed Computing And Systems" and "The Sixth Annual Emerging Information Technology Conference" which will be held in Dallas in 2006. We also co-sponsored "Future City" competition as a part of National Engineer Week program in Dallas and Fortworth. Dr. Kaijian Shi, representing IEEE Dallas Section, presented awards at the Future City competition award ceremony on January 28.

I am pleased to announce that an Education Society Dallas Chapter has been formed and chaired by Prof. Bill Riley. Congratulations! We also re-activated Industrial Application Society Dallas Chapter, thanks to John Cadick (Chair) and Dennis Neitzel (Vice Chair) of the chapter. Now, we have 17 active IEEE society chapters in Dallas Section. Mr. Ed Carrales has joined IEEE Dallas Section as Government Relation Officer. Welcome!

Looking forward, we shall be busy in February. We shall participate in the National Engineer Week Ceremony where we shall present "IEEE Dallas Engineer of the Year" and "IEEE Dallas Young Engineer of the Year" to two IEEE members. We shall complete section accounting transition to IEEE Concentration Banking system for efficiency and effectiveness. We shall organize an IEEE leadership training workshop in Dallas for our section and chapter officers. And there are more...

Finally, I'd like to thank all our section and chapter officers for volunteering their precious evenings and weekends to help IEEE Dallas and members like you. Please support them in anyway you can. Thank you!

DALLAS SECTION FEBRUARY 2006 MEETING

"LONG-TERM POTENTIAL OF MEMS"

Date: Tuesday, February 14th, 2006
Dinner: 6:30 PM – 7:00 P.M./ Program: 7:00 PM- 8:00 P.M.

Place: Holiday Inn Select, Richardson

Speaker: Linda Lee Bower, Director of Research, MegaTech Resources

MEMS will become as pervasive as the semiconductor and as important to the economy, if not more so. The historical development of the semiconductor industry is used as a guide to develop a quantitative model to forecast worldwide MEMS shipments. The potential is spectacular. The model forecasts \$2 trillion in worldwide MEMS shipments in 2025. The presentation has four main topics:

- ◆ **Concepts.** A brief definition of MEMS and their components.
- ◆ **The quantitative model.** The methodology, the regression analysis, and the quantitative forecast for MEMS through 2025.
- ◆ **Developing applications and market segments.** Market drivers that will bring about the huge potential.
- ◆ **Developments around the world.** Capabilities being established in major countries.

For additional information, please contact Will Lumpkins at (214) 543-0853 xillia@ieee.org Please RSVP for the Section Presentation

Aerospace And Electronics Systems (AES)

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Vice Chair Robert Eye (972) 994-5818

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Treasurer Karthikeyan Soundarapandian (972) 384-1084
Program Chair Carl Zhou (972) 995-2241

Aerospace & Electronic Systems

"Introduction to Subspace Tracking"

Date: Tuesday, February 28th, 2006
6:30: Meet & Greet; 7:00pm: program

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

All our society meetings are free of charge, and open to all interested in attending. Our programs start at 6:30 PM with a social, networking, snack and refreshment period, followed by the program at 7:00 PM. Please mark your calendars and be sure to attend our very informative programs.

Speaker: E. Scott Baker, Sr. Principal Engineer, L-3 Communications

Program Summary: In an era of digital technology, subspace tracking may be applied in a number of fields including signal processing for frequency estimation and array processing for direction of arrival estimation. Typically, subspace tracking algorithms are used to either estimate the parameters of a signal set or to extract the signal set itself from a noisy environment. In either case, subspace trackers can be thought of as time-varying eigenvalue decompositions of a correlation matrix or time-varying singular value decompositions of a data matrix. Subspace tracking algorithms seek novel ways to reduce the computational cost of such a time-varying problem. In this talk, a fundamental review of subspace tracking is given along with example applications.

Scott Baker is an electrical engineer at L-3 communications. He received his BSEE degree at South Dakota State University in 1987, his MSEE degree at The University of Texas at Dallas (UTD) in 1990 and his Ph.D. EE at UTD in 1998. His dissertation was in the area of subspace tracking. He was a senior lecturer and research scientist at UTD. After leaving UTD, Dr. Baker joined L-3 Communications as an algorithm designer for signals intelligence.

Visit the the IEEE AESS Dallas Chapter web site at
<http://ewh.ieee.org/r5/dallas/aes>

For information, please contact Tim D. Reichard (972) 344-7512
Tim_D_Reichard@raytheon.com, Boyd Gallatin (903) 457-6689
Boyd.Gallatin@L-3Com.com, or Mark Gober (903) 457 5122 Mark.D.Gober@L-3Com.com

Antennas & Propagation

For additional information visit our website at <http://ieeedallas-aps.org> For comments contact Ken Tallent, (972) 952-3702, ktallent@raytheon.com

Circuits & Systems

Please visit our Website listed below for latest updates, abstract of talk and seminar details <http://ewh.ieee.org/soc/cas/dallas/>

Communication & Vehicular Technology

Date: Tuesday, February 21st, 2006
Lunch/Chapter business: 11:00 AM – 12:00 P.M.
Program: 12:00 - 1:00 P.M.

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Hemant K. Sabat, General Manager of Telecom and High-Technology Business Unit

Program Summary: Describing customers' expectations from the next-generation wireless technologies, the Keynote describes how to grow profitable RFID businesses. It presents an investment business case for RFID technology that includes:

- What is RFID (overview of technology, standards, market, history);
- Why invest in it (drivers of adoption—push or pull; barriers—current and future; stakeholders benefits; current status of deployment; ripple effect of deployment; future developments);
- Where are the investment sweet spots with the highest ROI (value chain, technology, applications);
- Whom to partner with to build profitable RFID businesses (alliances, regulatory and technological standards bodies);
- What are the challenges and best practices (technological, business and regulatory); and
- A roadmap into the future (evolution of technology and market: short-term, long-term).

IEEE Dallas Section Direction/February 2006

The Keynote derives insights from industry assignments executed at multi-billion dollar companies. The Keynote is adapted from seminars presented to the senior executives at telecom service providers, vendors, venture capitalists and Universities in the U.S., the U.K. and Asia.

Hemant K. Sabat is the General Manager of Telecom and High-Technology Business Unit at Perot Systems Corporation. He serves as an Industry Advisor to telecommunications company boards in the U.S., the U.K. and Canada, and has been an Industry Keynote Speaker in the U.S. and Europe on how to transform and build next-generation telecom businesses. He has been invited to be a member of six Intellectual Property Rights (IPRs) review boards.

Meeting details for Communication & Vehicular Technology Dallas Chapter can be found on their web site. Visit <http://www.cvt-dallas.org/>

Computer

Remember to visit <http://chapters.computer.org/dallas/> for updates, to download presentations, or view upcoming calendar!

Consultants Network

"Telecom and High-Technology Services: Consulting Opportunities"

Date: Monday, February 13th, 2006,
Social/Networking/Dinner 6:15 pm Program 7:00 pm.

Cover: \$5 for IEEE Members, \$15 for non-IEEE Members/Guests (includes light supper buffet)

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Hemant K. Sabat, General Manager of Telecom and High-Technology Business Unit

Hemant K. Sabat is the General Manager of Telecom and High-Technology Business Unit at Perot Systems Corporation. He serves as an Industry Advisor to telecommunications company boards in the U.S., the U.K. and Canada, and has been an Industry Keynote Speaker in the U.S. and Europe on how to transform and build next-generation telecom businesses. He has been invited to be a member of six Intellectual Property Rights (IPRs) review boards.

Also please note, February 9th, we will have speaker Jo Anna Couch, M.S. speaking on "[Business is about People: Fine Tune Your People Skills and Be More Successful at Work.](#)" This two hour seminar will be from 11:30 am- 1:30 pm at the Holiday Inn Select of Richardson. *This 2 hour seminar with handout and excellent restaurant lunch buffet is \$10 for IEEE members and \$20 for non IEEE members.*

Contact information: Maura Schreier-FLEMing 972 380 0200 or
info@bestatselling.com

Consumer Electronics

"Digital World: Technologies Transforming Our Lives"

Date: Tuesday, February 14th, 2006
Lunch/Chapter business: 11:30 AM – 12:00 P.M.
Program: 12:00 - 1:00 P.M.

Cover: \$5 for IEEE Members, \$10 for non-IEEE Members/Guests (includes Lunch buffet) *IEEE Student Chapter members Free*

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Hemant Sabat, General Manager, Communications & High-Technology Business Unit, Perot Systems Corporation

Program Summary: Widespread adoption of digital technology is transforming our lives. This Keynote provides a snapshot of the top technologies from all walks of life including:

- Home entertainment
- Mobile computing and communication
- Audio and video
- Radio frequency and wireless

- Consumer networks
- Automotive entertainment and information
- Security and rights management

Hemant K. Sabat is the General Manager of Telecom and High-Technology Business Unit at Perot Systems Corporation. He serves as an Industry Advisor to telecommunications company boards in the U.S., the U.K. and Canada, and has been an Industry Keynote Speaker in the U.S. and Europe on how to transform and build next-generation telecom businesses. He has been invited to be a member of six Intellectual Property Rights (IPRs) review boards.

For additional information, please contact Will Lumpkins at (214) 543-0858 xillia@ieee.org or Sam Broyles at (214) 480-3232 sam.broyles@ti.com. To download presentations, view upcoming calendar, etc. check out our web site at: <http://www.DallasCES.org>

Electromagnetic Compatibility

"Propagation and Detection of Signals Before, During, and After a Building Implosion"

AND

"A Discussion on Double Negative Materials, Transition Boundary Conditions, Controllable Surfaces, and Design of a New Class of Metamaterials"

Date: Tuesday, February 21st, 2006
Refreshments 6:00 -- Program 7:00 P.M.
RSVP to Bill Paschetag, bpaschetag@IEEE.org

Place: TBD

Speaker: **Christopher Holloway, Ph.D. National Institute of Standards and Technology, US Department of Commerce, Boulder-Laboratories Boulder, CO**

RSVP Requested by February 19th (so we can have adequate food)

For more information, visit the Dallas IEEE/EMC Chapter Website <http://www.DallasEMC.org>, or contact Bill Paschetag, bpaschetag@ieee.org

Electron Devices

For program information please contact Zeynep Celik-Butler, (817) 272-1309, zbutler@uta.edu

Engineering Management

On March 10th, speaker Mr. Morris Westerhold will talk on the topic of "Engineering Management: Lessons from the Telecom Boom and Bust." This should be relevant to various members of your EMS regardless of whether they work in telecom. Mr Westerhold is the founder of TPC Consulting, previously at Ameritech, AT&T, and Bell Laboratories.

The Engineering Management society will meet the second Friday of each month at 11:30 am. Our meeting will take place at the Holiday Inn of Richardson and all inputs are welcome.

For program information please contact Bob Bishop, 903.482.5320 or r.bishop@ieee.org

Industry Applications

If you are interested in this society please contact Dr. Tim Ozugur at (972) 477-2737 Tim.Ozugur@alcatel.com

Lasers & Electro-Optics

Details for IEEE-LEOS Dallas Chapter seminar series are listed on our website at <http://www.engr.smu.edu/leos/>

Microwave Theory & Techniques

Program information for the Microwave Theory and Techniques Dallas Chapter can be obtained by e-mailing either Bob Eye (rey@tqtx.com) or Bob Coats (rcoats@flash.net).

Power Engineering [Fort Worth, TX]

For Program information please contact Julio Chavarria at jchavar1@txued.com, or telephone number 214-743-6681.

Reliability

"Bond Failures Related to the Plating Rework Process"

Date: Tuesday, February 21st, 2006, 6:30 P.M.

Place: UTD Engineering and Computer Science Building, Room 3.503, Richardson, TX

Speaker: **Jodi A. Roepsch, Raytheon Failure Analysis Lab**

Program Summary: An investigation of non-stick gold bonds was carried out to determine root failure cause. During thermasonic bonding of a gold bond wire to a gold pad, non-sticks were occurring. This resulted in the gold plating pulling up, exposing the underlying electroless nickel plating. The plating stack-up is electroless nickel, immersion gold followed by electroless gold. The immersion gold provides a good surface on which the electroless gold can plate. During this study, two vendors of similar boards were compared. The techniques used for this investigation include Scanning Electron Microscopy (SEM), Energy Dispersive Spectroscopy (EDS), Raman Microscopy, and Gas Chromatography/Mass Spectroscopy (GCMS).

Jodi Roepsch is a Senior Failure Analysis Engineer with honors for Raytheon NCS Shared Services Failure Analysis Lab. She has been with Raytheon, formerly Texas Instruments, since 1996. She has a Masters Degree in Materials Science from the University of North Texas and a BS degree in Chemistry. She has also been certified as a Six Sigma Specialist. In recent years, Jodi has contributed to many publications/presentations pertaining to the preparation and characterization of aerogels for use in the semiconductor industry, failure analysis of components, solder joints, PWB's and materials. Jodi also holds the position of Safety Coordinator/Chemical Hygiene Officer. She holds memberships to ASM, EDFAS, SMTA, MSA and TSM. She currently is Program Chair for the Texas Society for Microscopy.

All attendees are welcome. Refreshments will be served.

For Program information please contact please contact Lon Chase (972) 952-3138.

Signal Processing

"Bond Failures Related to the Plating Rework Process"

Date: Tuesday, February 28th, 2006, 4:00 P.M.

Place: UTD Engineering Building South (ECSS), Room 2.102 (T1 Auditorium), Richardson, TX

Speaker: **Mr. Jeff Bier, President of Berkeley Design Technology, Inc.**

Program Summary: Today, the rapid growth of signal processing applications has motivated DSP processor vendors to introduce a slew of new processors. In this presentation, we examine and address the challenges of predicting processor performance for signal processing applications; along with several benchmarking approaches and highlight key strengths and weaknesses of each. We examine three approaches: algorithm kernel benchmarks, synthetic task benchmarks, and standards-based benchmarking. Next, we explain the limitations of benchmarking and the careful analysis required to apply results to a specific application. Finally, we explore ways to avoid common benchmarking pitfalls.

Jeff Bier is co-founder and President of Berkeley Design Technology, Inc. (BDTI). Mr. Bier oversees BDTI's benchmarking and competitive analysis of chips, tools, and other technology. He is also the editor of BDTI's respected technology analysis reports, including "Buyer's Guide to DSP Processors," now in its sixth edition, and the Editor-in- Chief of the "Inside DSP" series of quarterly supplements to EE Times. Mr. Bier earned B.S. and M.S. degrees from Princeton University and U.C. Berkeley.

For more information on the Dallas Chapter and Directions to UTD, please refer to: <http://www.utdallas.edu/~kehtar/ieee-sp/ieee-sp-index.htm>

Solid State Circuits

For more information please contact society chair.

Announcements



The Dallas Section of the **Institute of Electrical and Electronic Engineers (IEEE)** for the benefit of its members publishes **Direction** monthly from September through May. Articles and information for publication should be submitted to: Biron Pickens, Editor, 5015 Moss Point Rd., Dallas, TX 75232, Phone (972) 824-8284, Fax (972) 263-6710, Email: drbtimothy@sbcglobal.net. Special announcements must first be submitted to Gerry Burnham, Administrative Chairman, Phone (972) 883-6755, Email: burnham@utdallas.edu, and will be published on a space-available basis. Deadline for submission of materials is no later than the first of the month prior to the month of publication.

Advertising: **Direction** is distributed to approximately 7,200 members in the Greater Dallas area. Camera-ready copy must be submitted by the first of the month prior to the month of publication to the Editor at the above address.

Invoicing and/or contractual agreements for advertising are administered by Biron Pickens, Editor, and Gerry Burnham, Administrative Chairman. All ad insertions must be cleared through Biron Pickens or Dr. Gerry Burnham before being submitted for publication. Advertising rates are as follows:

Full Page \$800.00	<u>Per Insertion</u>	Quarter Page \$200.00
Half Page \$400.00		Bus. Card \$120.00

SEMI-THERM[®]

Semiconductor Thermal Measurement, Modeling, and Management Symposium

March 14-16, 2006
Intercontinental Hotel
Dallas, TX USA

SEMI-THERM is the premier forum for the exchange of information between the industrial and academic communities on topics related to semiconductor thermal measurement, modeling and management. Using a unique combination of technical paper presentations, tutorial(s), short course(s), exhibits, vendor workshops, topic tables and invited luncheon speakers, this symposium provides a continuous stream of information exchange over three conference days and two short course days. Attendees and exhibitors come from all over the world to participate in an informal atmosphere conducive to maximum exposure to leading technologies and the people behind the technologies.

SEMI-THERM is sponsored by:

- o Institute of Electrical and Electronics Engineers (IEEE)
- o IEEE Components, Packaging and Manufacturing Technology (CPMT) Society
- o National Institute of Standards and Technology (NIST)
- o American Society of Mechanical Engineering (ASME)

In its 22nd year, SEMI-THERM will include Topic Sessions, Invited Speakers, an Evening Tutorial, and a Short Course program to address key issues highlighted by attendees at the last symposium. Technical workshops, tutorials and vendor exhibits -- for which SEMI-THERM is well known -- are also a large part of the technical program.



Semi-Therm 22 Preliminary Program				
Tuesday March 15, 2005	Wednesday March 16, 2005		Thursday March 17, 2005	
High-Performance Air Cooling Solutions	Impingement, Spray Cooling, and Refrigeration Implementations		Packaging and Testing of Power LED Assemblies	
Thermal Interface Materials	Poster Papers		Thermoreflectance and Characterization	
Thermal Interface Material Testing and Characterization	Thermoelectric Implementation for High Flux Spreading	Thermal Materials Developments I	Thermo/Mechanical Challenges in Stacked Die Packages	Thermal Materials Developments II

Among the evening events will be a tour of the Texas Instruments DLP Show room along with an overview of the technology. For more details, including short courses, vendor exhibitions and tutorials, see the [SEMI-THERM](http://www.semi-therm.com) website.