



# Wavelengths



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Chapter

## Executive Committee Column

By John Shen, Director of Education Activities

Automotive systems represent one of the fastest growing areas of power electronics. The main applications range from control of traditional actuators to emerging electric and hybrid drivetrain technologies. The eighth IEEE Workshop on Power Electronics in Transportation (WPET 2004), co-sponsored by IEEE Southeastern Michigan Section and IEEE Power Electronics Society, will be held in Detroit on October 21 and 22, immediately following the conclusion of the Vehicle Electronics Convergence Conference. The workshop will focus on various aspects of power electronics in automotive systems, including but not limited to Electric and hybrid electric drivetrains, Fuel cell technology, Motor drive and motion control, Advanced battery and management systems, Electric energy storage components/systems, Inverters and converters, onventional load control, Control systems, On-board power management, 42V PowerNet, Power semiconductors, CAD/CAE, EMI/EMC, Thermal management and power packaging, and Other related topics. For more information, please check the workshop website.



## 2004 Spring Section Conference Wednesday, March 24, 2004

The IEEE SEM Section Meeting has morphed into the Section Conference. Please join us for an evening of socializing and technical sessions.

### Location

bps Training and Conference Center  
31301 Evergreen Road (near 13 Mile Road)  
Beverly Hills, MI 48025

### Registration

You can register online or by fax or e-mail.

### Schedule of Events

5:00 pm - Registration  
5:45-6:45 - Chapter Technical Sessions  
7 Technical sessions running concurrently (see schedule)  
6:45-7:15 - Student and Vendor Exhibits  
University Showcases

Cash Bar

7:15-8:00 - Dinner

8:15-9:00 - Keynote Address

### Technical Presentations

Keynote Address: Engineering Education in the 21st Century: Priorities and Challenges  
Speaker: Pieter A. Frick, Dean of the School of Engineering and Computer Science, Oakland University

### Chapter Presentations

Chapter I - Circuits and Systems, Information Theory, and Signal Processing

Chapter III - Communications and Aerospace Electronics.

Title: Re-Interpreting the MOS Transistor for the 21st Century: Generalized Methods and Their Extension to Nanotechnology

Speaker: Dr. Daniel Foty, President of Gilgamesh Associates, VT

Chapter II - Vehicular Technology

Title: Total System Engineering, Challenges and Prospects, With Examples

Speaker: David Peck, Mgr. Advanced Products & Process R&D, Trico Products Corp.

Chapter IV - Trident

Title: Mechatronics Epistemology Using Educational Robotics: A Primer On Circuits to Mechanical Interface Rapid Prototyping Techniques  
Speaker: Don Wilcher



Chapter V - Computer

Title: Managing IT BPO Risks With MDA

Speakers: John (Jian) Wei and Venkat

Alladi, Ciber, Inc.

Chapter VII- Power Engineering and Industrial Applications

Title: Electrical Safety in the Workplace

Speaker: Ronald Fesl, Cooper Bussmann

Chapter VIII - EMC

Title: International Automotive Transient Immunity Standards

Speaker: Thomas Moyer, Amplifier Research

Chapter IX - Power and Industrial Electronics

Title: Hybrid Vehicles

Speaker: Dr. Chris Mi, University of Michigan-Dearborn

Chapter X - Engineering Management

Chapter VI - Geoscience and Remote Sensing

Title: Maximizing Human Capital

Speaker: Jim Morgenstern

Chapter XI - Bio-Engineering

Title: Signal Processing for a Capacitive BioMEMS

Speaker: DARRIN M. HANNA, Ph.D.

Chapter XII - Control Systems

Title: Designing a Controller for a Brushless DC Motor using Matlab-Simulink-StateFlow, a Comparative Simulation of Several Controllers.

Speaker: Dr. Suleiman Barada, Trico Technical Center, Rochester Hills, Michigan

Student Track

Title: Creative Leaders

Speaker: Hassan Hassan, PhD, PE., Lawrence Technological University

Professional Track

Title: COMMUNICATING FOR CAREER AND PROFIT

## Chapter X Profile

IEEE-SEM has twelve chapters that sponsor activities and further the professional development of their members. This month, we spotlight Chapter X, Management. Mark Ciechanowski, P.E. of Ford Motor Company, Chapter X Chair, graciously answered my questions about this chapter.

**Q.** What is the mission of your chapter?

**A.** We learn techniques and improve our skills by studying, discussing & sharing information on relevant topics, and sponsoring informative speakers.

Our meetings are informal. We have a topic that is the focus of the discussion. Generally one member presents ideas for the group to discuss. The meetings last about an hour depending on the interest and time constraints of the members.

Much of the interest and fun in the meetings is finding out how others view and do similar job. Most of us face the same problems in only slightly different environments. Join us and add your expertise and experience to our chapter.

We come from many underlying disciplines. The common thread is that we manage technical people to achieve goals within an engineering context. This includes managing ongoing sections or departments as well as projects or programs.

**Q.** What IEEE technical societies are included in your chapter?

**A.** Engineering Management Society (IEEE number EM-14)

**Q.** How many members does your chapter have?

**A.** 62

**Q.** What have been some of the significant meetings and events that your chapter has sponsored recently?

**A.** Recent meetings included talks by

- Randal C. Gaeremynck of TACOM, who spoke on "Leadership and Philosophy,"
- Bob Lusardi, whose presentation was titled "Using Balanced Scorecards," and
- Steve Kishok, who led the lively discussion on telework.

**Q.** What are your plans for future events?

**A.** Meetings are scheduled for:

- Jun 7, 2004
- Aug 3, 2004
- Oct, 2004
- Dec 7, 2004

Except for the October meeting, the meetings will take place in the Ford Sustainable Mobility Technologies Lab II (SMTL) building, conference room 16, 15000 Commerce Drive North, Dearborn.

**Q.** Who should members contact if they wish to get involved with your chapter?

**A.** Mark Ciechanowski, P.E. mark.ciechanowski@ieee.org

# Visit our website at

# <http://www.ieee-sem.org>

## XCOM Forms Affinity Group, Two Committees

### Zohdy to Head Women's Group

At its March 2nd meeting, the IEEE-SEM Executive Committee (XCOM) formed a Women in Engineering Affinity Group. Dr. Hoda Abdel-Aty Zohdy was appointed interim chair. Dr. Zohdy is a professor at Oakland University and chair of Chapter I (Circuits & Systems, Signal Processing, and Information Theory). If you're interested in taking part in the activities of the group, contact Dr. Zohdy at [zohdyhsa@oakland.edu](mailto:zohdyhsa@oakland.edu).

### Gates to Lead IEEE-SEM Minorities in Engineering Committee

Sam Barada, IEEE-SEM Chair, recently announced the formation of the Minorities in Engineering" Committee and appointed Mr. Freeman Gates as Interim chair. This appointment was approved XCOM at the April meeting. Mr. Freeman is currently a vice-Chair of Chapter II, Vehicular Technology. If you are interested in working with this committee, you can reach Gates by e-mailing him [fgates@ford.com](mailto:fgates@ford.com).

### New Committee to Tout IEEE-SEM

Barada also announced that IEEE-SEM is forming a Public Relations Committee. Dr. Imad Makki of Ford Motor Company is to chair this committee and lead its activities. This appointment was also approved at the April XCOM meeting. Dr. Makki's academic and industrial experience is sure to be put to good use in improving public awareness of IEEE and its activities in southeast Michigan. Dr. Imad Makki can be reached at [imakki@ford.com](mailto:imakki@ford.com).

## Chapter XII Formed

by Sam Barada, IEEE-SEM Chair

The Control Systems Chapter for IEEE-SEM has been finally approved by the IEEE Main Office. Thanks to all of you who contributed to this effort. Now, the real work begins!

You are cordially invited to participate in activating this new chapter. The two interim co-chairs are:

- Dr. Mohamad Berri ([mberri@ieee.org](mailto:mberri@ieee.org))
- Dr. Suleiman Barada ([sbarada@ieee.org](mailto:sbarada@ieee.org))

They will jointly run the chapter until the section elections are held in September-October 2004. In this interim period, until the end of the year 2004, Dr. Mohamad and I are requesting that an Interim Executive Committee (flexible in number) and an Advisory Board (flexible in number) be immediately formed to run the activities of the chapter.

The current Interim Executive Committee includes:

- Dr. Xiang Chen, University of Windsor
- Mr. Kevin K.S. Fischbach, Visteon Corp.

## Student Chapter Reports

### University of Michigan - Dearborn

Aisha Yousuf, the UMD IEEE chair reports that the IEEE student branch there was inactive last semester, but has held or planned several events this semester, including:

- a general membership meeting;
- an informational meeting for the incoming freshmen;
- an 'Indoor Engineering Picnic' to celebrate National Engineers Week, enlisting the help of five other engineering organizations at UM-D to help sponsor the event;
- a tour of Army Research Center; and
- a resume-writing workshop.

The student branch officers include:

Aisha Yousuf – Chair

Krystle Laja – Treasurer

Emily Limchoa – Web Designer

Faculty Advisor - Dr. Paul Richardson

### Wayne State University

Antonio Mazzorana, president of the Wayne State University student branch reports that his group is still one of the most active engineering organizations at WSU. He notes that  $\frac{3}{4}$  of the student branch officers graduated and have taken jobs with well known companies such as Motorola, Ford, GM and Microsoft. They credit their education and activities at Wayne State with helping them land their dream jobs.

Most of the branch's new officers have either a fulltime co-op or other responsibilities that take up most of their time. Despite busy schedules, they managed to successfully participate in many events such as a food drive for the Capuchin Soup Kitchen, Christmas caroling, and donation of warm clothes during the season of winter. More recently some of our members have participated in Blood Drive, YES program for future female engineers, and the Big Brother/Sister program.

At the same time, they kept busy raising money for computer repairs/replacement and buying new printer and computer accessories. They successfully replaced two computers, but are hoping to raise enough money to purchase two more by participating in the open house activities for Wayne State.

The current Advisory Board members are:

- Dr. Ka C. Cheok of Oakland University
- Dr. Le Yi Wang of WSU
- Dr. Feng Lin of WSU
- Dr. Michael Polis of Oakland University
- Dr. Imad Makki of Ford Motor Company

The Control Systems Chapter needs your contribution! Let us work together!

Please respond by indicating whether you want to be on the Interim Executive committee or the Interim Advisory Board.

## EMCers to Fest May 6

Proudly presented by the IEEE-SEM EMC Chapter, EMC Fest 2004 will take place on Thursday, May 6, 2004 at the Dearborn Inn, 20301 Oakwood Boulevard, Dearborn, Michigan. The honored guest speaker will be Dr. Tom Van Doren, Professor of Electrical and Computer Engineering, University of Missouri - Rolla, who will present a tutorial entitled, "EMI Coupling Mechanisms and Diagnostic Techniques."

Dr. Van Doren is a Fellow of the IEEE, and for the past 23 years, has specialized in electromagnetic compatibility education and research. Over 18,000 engineers and technicians have attended his short courses on "Grounding and Shielding of Electronic Systems" and "Circuit Board Layout to Reduce Electromagnetic Emission and Susceptibility."

Reducing electromagnetic interference (EMI) involves a thorough understanding of what path currents take, what is self and mutual inductance, how to contain electric and magnetic fields, and the reasons for grounding electrical circuits. Incorrect concepts such as; currents go ground taking the path of least resistance, a single straight wire has self inductance, and the reason for grounding is to return currents to their sources, are the cause of many EMI problems. Most engineers and technicians using or designing electronic systems have not had any formal education concerning electromagnetic compatibility (EMC) principles and design techniques. Learning how to solve EMC problems on the job can be very expensive for the employer and frustrating for the engineer. Most of the electromagnetic and circuit principles involved are very simple. However, the complexity of many systems masks the logic and simplicity of possible solutions



to

The costs are as follows:

- IEEE Members, Registered before April 15 - \$180
- IEEE Members, After April 15 and at Door - \$200
- Non IEEE Member Additional Charge - \$50
- Full -time Students with copy of valid Student I.D., Registered by May 1 - \$30
- Tutorial CD ROM, with advance registration - Free
- Tutorial CD ROM, additional copies ordered by April 15 - \$25

For more information and to register online, go to the EMC Society website (<http://www.emcsociety.org>).

*Introducing*  
**New EMC Practical Applications Seminar/Workshop**  
*by Donald L. Sweeney and Roger Swanberg*  
*April 29-30 & May 3-4, 2004*  
*Hilton Hotel, Northbrook, IL*

During three days of class before the workshop, students will study EMC design techniques and the calculations required to design a product to meet compliance regulations.

**In the Workshop:**  
Using an example of a real life product and following typical design principals, students will:

1. Develop a block diagram.
2. Determine the product's parameters.
3. Calculate the probable emissions and immunity of the:
 

a. Circuit boards
c. I/O lines

b. Power supply
d. Enclosure
4. Determine if there are EMC concerns.
5. Find cost effective mitigating steps while product is still on paper.

When you leave this class, you should be ready to lead a design team with a high degree of confidence that your products will meet the EMC requirements.



**Special Offer:**  
Students who have previously taken both D.L.S.'s "Introduction to EMC Design Practices" and "Design Techniques for Controlling Radiated Emissions" will receive a special discount on this workshop.

Workshops will also be held in July, Oct. & Jan.

**Call 847-537-6400** for a brochure or find us on line at [www.dlsemc.com](http://www.dlsemc.com).





## Executive Committee

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## IEEE/SEM Chapters

Chapter I- Circuits and Signal Processing  
Chapter II - Vehicular Technology  
Chapter III - Communications and Aerospace Electronics  
Chapter IV - Trident  
Chapter V - Computer  
Chapter VI - Geoscience and Remote Sensing  
Chapter VII - Power Engineering and Industrial Applications  
Chapter VIII - EMC  
Chapter IX - Power Engineering and Industrial Electronics  
Chapter X - Engineering Management

## Advertising in Wavelengths

Wavelengths is published eight times a year and sent to more than 3,500 members. These readers are responsible for specifying and purchasing a wide range of electronics components, equipment, and services.

There is no extra charge for color. Special placements can be requested, and will be accommodated if possible. Payment must accompany insertion order.

For more information, contact Dan Romanchik, Wavelengths Editor, phone 734-930-6564, e-mail: danr@ieee-sem.org.

### RATES

Equivalent Print Ad	Size in Pixels (max)	Annual Rate (8 issues)	Single Issue Rate
<b>Full Page</b>	540W x 720H	\$4000	\$650
<b>Half Page</b>	270W x 720H	\$2000	\$325
	540W x 360H	\$2000	\$325
<b>Third Page</b>	180W x 720H	\$1500	\$250
	540W x 240H	\$1500	\$250
<b>Quarter Page</b>	270W x 360H	\$1000	\$175
<b>Eighth Page</b>	270W x 180H	\$500	\$90