



WAVELENGTHS

## Technically Speaking: Taking Advantage of Opportunities

by Diane T. Rover, Director of Technical Activities

The 1997 IEEE/SEM Fall Section Meeting offered a potent set of technical sessions. The topics and speakers reflect a section that is at the forefront of addressing IEEE's grand challenges and emerging technologies. A web page maintained by the IEEE Technical Activities Board (TAB) highlights these technologies and challenges. The web page, called the IEEE New Technology On-line Library, is located at:

[www.ieee.org/tab/ieee\\_new\\_technology.html](http://www.ieee.org/tab/ieee_new_technology.html)

The web site contains a synopsis of the technical grand challenges as perceived by IEEE. These challenges are: allow easy access to knowledge and information; provide ready access to improved health; simplify the transactions of daily life; and allow mankind to live in dignity and comfort. Complementing these, there are brief reports (so-called one-liners) as well as society reports on emerging technologies. Many of the societies have filed reports on-line about key technological directions in their areas. IEEE TAB is keeping track of which societies have and have not submitted one-liners: 14 out of 37, or 38%, as of November 11, 1997. The Fall Section Meeting touched on a variety of emerging technologies. Through awareness of this resource, if it is well maintained by IEEE, our section may benchmark itself on a national scale.

While chapters have been successful in identifying excellent speakers, another resource that is available to us is the Distinguished Lecturers Handbook. The information in the Handbook is available, in various groupings, via e-mail. The e-mail version also contains updated information. It is not available on the World Wide Web through the IEEE home page. For a selection menu of the various information files available on e-mail related to the Distinguished Lecturers Program, send a blank message to the address [info.distlec@ieee.org](mailto:info.distlec@ieee.org). For a

complete listing of all society speakers programs, including the program coordinators, speakers and topics, send a message to the address:

[info.distlec.hbk@ieee.org](mailto:info.distlec.hbk@ieee.org).

To send a message (inquiry, request for information, etc.) related to the Handbook, use:

[society.lecturers@ieee.org](mailto:society.lecturers@ieee.org).

Through use of this resource, we may bring internationally recognized engineers to Southeastern Michigan.

The technical vitality of our section will also be enhanced through section sponsorship of conferences. Members can be proactive in attracting IEEE technical conferences to the area. Even without official section sponsorship and its financial benefits, the section membership prospers. As listed in the Technical Activities Guide web page ([engine.ieee.org/tag](http://engine.ieee.org/tag)) under Region 4, two conferences are currently scheduled in Southeastern Michigan in the next couple years, with one being sponsored in part by our section:

October 22-23, 1998: 1998 IEEE Workshop on Power Electronics in Transportation, Hyatt Regency, Dearborn, MI; Sponsors include the IEEE/SEM Section as well as IEEE PEL Society and the SAE.

May 10-15, 1999: 1999 IEEE International Conference on Robotics and Automation, The Westin Hotel, Detroit, MI; Sponsors include IEEE RA Society.

The section can be proud of its technical activities, but we must continue to take advantage of the many opportunities available to us.



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- IV Trident:** Electron Devices (ED-15), Microwave Theory & Techniques (MTT-17) and Antennas & Propagation (AP-03)
- V Computer:** Computer (C-16)
- VI Geoscience & Remote Sensing:** Geoscience & Remote Sensing (GRS-29)
- VII Power Eng. & Ind. Apps.:** Power Engineering (PE-31) and Industrial Applications (IA-34)
- VIII EMC:** Electromagnetic Compatibility (EMC-27)
- IX Power & Ind. Electronics:** Power Electronics (PEL-35) and Industrial Electronics (IE-13)
- X Engineering Management:** Eng. Management (EM-14)

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**COPY DEADLINE:** News items are due the first day of the month for an issue which is published the following month, e.g. April 1 is the deadline for the May issue.

### ADVERTISING RATES CIRCULATION OVER 4000

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1/8 page	\$525	\$85
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1 page	\$4000	\$650

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The newsletter of the Southeastern Michigan Section of IEEE, "Wavelengths", (USPS 878-660), is published monthly 8 times per year except June, July, August & December by the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47<sup>th</sup> Street, New York, NY 10017-2394. \$1.00 per member, per year (included in annual dues) is designated for each member of the Southeastern Michigan Section.

Periodicals Postage Paid at New York, NY and at additional mailing offices.

## Visit the following IEEE World Wide Web sites:

Section: [www.ieee.org/regional/section/se\\_michigan](http://www.ieee.org/regional/section/se_michigan)  
Computer Chapter: [www.egr.msu.edu/ieeesem/chapv/](http://www.egr.msu.edu/ieeesem/chapv/)  
IEEE: [www.ieee.org](http://www.ieee.org)  
IEEE Region 4: [www.ieee.org/regional/r4/](http://www.ieee.org/regional/r4/)



## Calendar of Events

Thursday January 1	Event: Sponsor: Contact:	<b>Deadline for IEEE/SEM Award Nominations</b> IEEE/SEM Dave Horvath, DAHorvath@aol.com
Monday January 5	Event: Sponsor: Contact:	<b>1998-9 IEEE/SEM Officer Nominations Deadline</b> IEEE/SEM Dave Horvath, DAHorvath@aol.com
Tuesday January 6	Meeting: Time: Location: Sponsor: Contact:	<b>Executive Committee</b> Dinner at 6:00 p.m., meeting 6:30 p.m. Eaton Corp., 26201 Northwestern Highway, Southfield IEEE/SEM Kimball Williams, 248-354-2845
Wednesday January 28	Topic: Time: Location: Sponsor: Contact:	<b>Simultaneous Hardware &amp; Software Modeling &amp; Simulation</b> 3 p.m. Lawrence Tech. University, Engineering Building, 21000 West Ten Mile Road, Southfield, Michigan Chapter V: Computer Professor Nabil Hachem, 248-204-2537, HACHEM@LTU.EDU
Thursday January 29	Event: Location: Contact: Comment:	<b>Detroit Regional Future City Competition</b> Henry Ford Museum, Dearborn Maureen Simari, ESD at 248-355-2910 x112 Volunteer judges are needed.
TBD February	Event: Contact: Comment:	<b>Graduates of the Last Decade (GOLD) Meeting</b> Sandy Hunter, 248-588-0355, s.e.hunter@ieee.org The Feb. meeting will be a professional development topic such as how to build a network of contacts or business finance 101. Keep an eye on the section's web site and the Feb. <i>Wavelengths</i> issue for details.
Wednesday February 11	Event: Location: Time: Sponsor: Contact:	<b>Measurement Systems for Assessment of Engineering Capability</b> GM Technical Center, Warren, Michigan 6:30-8:15 p.m. Engineering Management Chapter Contact Prakash Shrivastava, 810-986-2206, lnustc1.lz1nyj@gmeds.com, for meeting venue.
Sunday-Saturday February 22-28	Event: Sponsor: Contact: Comment:	<b>National Engineers Week (NEW)</b> National Engineers Week Committee, made up of U.S. engineering societies and corporate sponsors See article on page 7.
Wednesday April 1	Event: Location: Time: Contact:	<b>Science Fair</b> Cobo Hall, Detroit 8-11 a.m. Don Bramlett, 313-235-7549, d.bramlett@ieee.org
Thursday April 2	Event: Contact: Comment:	<b>IEEE/SEM Spring Section Meeting</b> K.C. Liu, 248-265-6964 Mark your calendar.

## Management Chapter Update

by Prakash Shrivastava, Chair

This year saw the debut of the Engineering Management Society, the 10th chapter of the Southeastern Michigan section. In its first full year of operation, the society held three technical meetings. It also held a session at the Fall Meeting. Judging from the number of attendees in the session and other activities, this chapter has certainly had a very successful year. But it's only the beginning. In 1998, the chapter will hold technical meetings covering such topics as "Relevance of Research and Development during Corporate Downsizing," "Implementing Robust Design Principles" and "The Next Generation of Quality Improvements in Manufacturing." The chapter will hold meetings on second Wednesdays of even months from 6:30-8:15 p.m. Meeting venues will rotate to encourage participation from all parts of Southeastern Michigan.

The chapter will also establish a web site. Please share your suggestions for the design and content. Members are encouraged to suggest discussion topics for future meetings and propose venues. Direct all inquiries to Prakash Shrivastava, Chair, Engineering Management Chapter, at 810-986-2206,

LNJUSTC1.LZ1NYJ@GMEDS.COM.

The first meeting of 1998 will be held on February 11 from 6:30-8:15 p.m. at the GM Technical Center in Warren, Michigan. The topic is "Measurement Systems for Assessment of Engineering Capability." For directions, please call Prakash Shrivastava at 810-986-2206.

## St. Clair Student Branch Report

by Brian Waalewyn, Newsletter Editor

St. Clair College's IEEE student branch continues to prosper for another year, its 14<sup>th</sup> since inception in 1963. We continue our tradition of offering a variety of fund raisers, social events, and expanding our membership. Any activity in which we are involved benefits electrical/electronic students and also non-profit organizations.

One new activity this year was the annual challenge cup. This is a fund raiser for Cancer and the Hiatus House of Windsor, where teams compete in "oddball" events. To continue our efforts, we will be holding the third annual Technology and Trades Job Fair. The job fair has proved to be a success in the past, thus it will continue to be a prized event for our branch as well as for the college.

We will continue to hold other fund raising activities such as selling chocolate bars and pop, conducting raffles and football pools, and selling toolboxes and laboratory supplies to the electronics students in collaboration with the Electrical/Electronics department. This year we are continuing to plan tours to industry.

After surviving a recent Internet loss, we have reestablished our connection with the college's servers. A web page will be established on St. Clair's upcoming student associations web site. (This time for certain!)

We have been recognized by the Southeastern Michigan chapter as the "Outstanding Student Branch of the Year" for the last two consecutive years. We hope to repeat our success for yet another year, and thrive as a branch that continues to develop throughout the years.

## Chapter X: Engineering Management

### Change Management Meeting Report

by Divakar Rajamani, Contributor

On September 30, 1997, the Engineering Management Chapter held a technical meeting at ERIM International in Ann Arbor. Martin Biancalana hosted the meeting and shared his experience on how to manage change in a not-for-profit organization. Using the framework from Daryl Conners' book, "Manage at the Speed of Change," Martin related his experiences and observations of familiar situations. The main challenge in

change implementation lies in minimizing undue fears or anxiety among the workforce. Bringing a sense of urgency and making employees own the change process are key factors in change management. Martin concluded by outlining a step-by-step process for change management. Other participants in the meeting also shared their personal experiences in the constantly changing and downsizing corporate world.

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## Simultaneous Hardware/Software Modeling and Simulation Meeting

by Nabil Hachem, Vice Chair Membership

The Computer Chapter will have a technical meeting on Wednesday, January 28 at 3 p.m. The meeting will be held in the Engineering Building at Lawrence Technological University, 2100 West Ten Mile Road, in Southfield. Dr. Asaad M. Makki of TRW Automotive Electronics will discuss "Simultaneous Hardware and Software Modeling and Simulation."

Simultaneous hardware and software modeling and simulation are increasingly necessary to achieve improved quality and productivity in the design of automotive electrical and electronics dynamic systems. System interaction and integration can be only studied after the first development units have been built. With today's complex automotive circuits and competitive time to market pressure, performing a cycle of design, fabricate, and test is very difficult. Thus performing system and component level modeling and simulation in the early stages of the design cycle is becoming a high priority for the automotive industry. Dr. Makki will present methodologies for achieving and advantages of performing simultaneous hardware and software simulation.

Asaad Makki received B.S.E.E. (Summa Cum Laude) and M.S.E.E. degrees from the University of Detroit in 1988 and 1989 respectively. He also received the Ph.D. degree in Electrical and Computer Engineering from Wayne State University in 1993. He is currently a Staff Engineer at TRW Automotive in Farmington Hills, Michigan, where he has worked since 1993.

Contact Professor Nabil Hachem for more information by phone, 248-204-2537, or e-mail, hachem@l.tu.edu.

## Joint Seminar Report

by Nizar Al-Holou, Computer Chapter Chair

Chapters V and I jointly hosted a talk titled "Nonlinear Control Systems with Applications to Robot and Power Systems," presented by Dr. Tarek Lahdhiri of the University of Windsor. Dr. Nizar Al-Holou, the Computer Chapter Chair, and Dr. Hoda S. Abdel-Aty-Zohdy, the Circuits and Signal Processing Vice Chair, organized the session. The Nov. 17 presentation was held at Oakland University, and 18 people attended.

Dr. Lahdhiri began by talking about the problem of controlling nonlinear systems and reported several controller designs. The first class of controller is designed using linear control methodologies. However, this solution may not be suitable because the validity of the linear approximate model ceases whenever the system exhibits large variations. The second class of controller designs is based on Lyapunov's methods. The main difficulty facing this design approach is that in general there is no systematic procedure for constructing Lyapunov-functions. (The exception is a class of mechanical systems where the total energy serves as a good candidate Lyapunov-function.) The third class of controller designs uses the concept of feedback linearization and pseudo-linearization. This approach has emerged as a promising technique for controlling nonlinear systems. Its



## Chair's Report

by Robert G. Onstott, Chair

I want to take this opportunity to describe planned chapter activities. I anticipate a chapter-sponsored meeting to be held about every 4 weeks. Meetings will be held in association with the EECS or the AOSS Departments of the University of Michigan, or the Environmental Research Institute of Michigan, International. Meetings at U of M will typically be scheduled for 4-5 p.m.; while those held at ERIM are scheduled for noon to 1 p.m. For the meetings at ERIM, please inform me if you plan to attend, and plan to arrive 10 minutes before the meeting. This time is needed to facilitate check in. Meeting notification will be made via e-mail. Flyers will also be placed at strategic U of M and ERIM locations the day before the meeting. To insure that you are on the notification list, please provide a current e-mail address. Send information to onstott@erim-int.com.

Recent topics have included: "Synthetic Aperture Radar Remote Sensing - Image Processing Techniques" by Leland Pierce (U of M) and "Using the Electron Microscope for Snow Crystal Images" by Edward Joshberger (USGS).

The intent of these meetings is to allow investigators to present their most recent work, to inform people of ongoing research activities, or to provide tutorials. If you are interested in giving a talk, don't hesitate to e-mail.



benefits have made this control approach very attractive, and several applications have been reported.

The scope of this seminar was to provide an overview some of the commonly used nonlinear control methodologies and introduce the concept of exact feedback linearization. The application of this concept was illustrated using two practical examples: robot and power systems. Also, a discussion about the extension of the concept of feedback linearization to stochastic systems was presented.

Tarek Lahdhiri was born in Mahdia, Tunisia, in 1966. He received BS and MS degrees in Telecommunications from Ecole Nationale d'Ingenieurs de Tunis, Tunisia in 1989 and 1991, respectively. He received the Ph.D. degree in Electrical Engineering from Tennessee Technological University in 1995. From September 1995 to September 1996, he was a Research Associate at the Center for Electrical Power, Tennessee Tech. University. In September 1996, he joined the Intelligent Manufacturing Systems Center at the University of Windsor, Canada, where he is currently a Research Associate. From September-December 1996, Dr. Lahdhiri held the position of Adjunct Professor at the University of Detroit Mercy.

Dr. Lahdhiri has been involved in several research projects funded by the Naval Warfare Center, Natural Sciences and Engineering Research Council of Canada, and Material Manufacturing Ontario. His areas of interest include nonlinear control systems, stochastic control, and target tracking.

## Truckers, Fat Ladies, and EMI at the Gas Pump — A Discourse

by Scott Lytle, Vice Chair

The 1997 Fall Section Meeting Technical Session for EMC featured an entertaining presentation by the IEEE EMC Society Distinguished Lecturer Thurman (Bill) Ritenour from EMC



Compliance, LLC. in Boulder, Colorado. Bill presented his definitely non-politically correct, but mildly humorous discourse on Electromagnetic Interference (EMI) effects in a present day filling station. He detailed

three electromagnetic interference problems that Herman, a greatly put-upon gas pump, encountered during a typical workday. The problems ranged from Electrostatic Discharge due to a “generously proportioned” human sliding out of a car on a cold day to RF interference from a 500 watt illegal CB mounted on a large commercial conveyance. The speaker reviewed the basic electromagnetic concepts associated with the various events; explained how each electromagnetic effect causes electronic upsets (CPU halts) within poor Herman’s microprocessor; and finally outlined the

mitigation techniques used to eliminate each effect. At the conclusion of the discourse, an extraordinary but non-lethal — and true — electromagnetic event was described that provides Herman a humorous revenge on the humans who had plagued him during the day. Bill entertained numerous technical questions after his presentation until it was time for dinner.

This fall’s EMC Section VIII event was attended by 14 members plus one guest. Bill Ritenour can be reached at [emccomply@aol.com](mailto:emccomply@aol.com).

## Chapter Report

by Timothy Grotjohn, Chair

Greetings to all the Trident Chapter members. My name is Tim Grotjohn, and I was elected chair of the Trident Chapter in 1997. I wish to extend my thanks on behalf of the chapter to Joe Burns who has served as the Chapter Chair for several years. Even though Joe is no longer the chair, he is still active in our chapter as the Secretary/Treasurer. The third officer for our chapter is Lisa Anneberg of Lawrence Tech. University, who serves as the Vice Chair.

When I look at the names of the many chapters in IEEE/SEM, all the chapters have titles reflecting their technical area except the Trident Chapter. For those IEEE members not familiar with our name, the Trident

Chapter exists as the combined local chapter for three IEEE Societies including Antennas and Propagation Society, Electron Devices Society, and Microwave Theory and Techniques Society.

Each of these societies has a number of local chapters distributed worldwide. The Antennas and Propagation Society has 79 chapters, the Electron Devices Society has 86 chapters with 11,000 members, and the Microwave Theory and Techniques Society has 80 chapters with 9000 members.

A valuable resource for the Electron Devices Society and the Microwave Theory and Techniques Society local chapters and members which I find useful are the world

wide web home pages for these societies. The Internet addresses for these sites are:

Electron Devices Society  
<http://www.ece.neu.edu/eds/EDShome.html>

Microwave Theory and Techniques Society  
<http://www.mtt.org/>

The planning is underway for 1998 Trident Chapter activities, and I encourage the Trident Chapter members to contact me with their suggestions and ideas. I can be easily reached via e-mail at [grotjohn@egr.msu.edu](mailto:grotjohn@egr.msu.edu) or by phone at 517-353-8906.

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## Getting Involved — Finding a Connection

by Don C. Bramlett, Section Advisor



Believe it or not, there is more to IEEE than paying your dues each Fall and receiving *Spectrum*, *The Institute* and, possibly, one or more technical society publications. I have heard it said, and I believe it, that for many if not most IEEE members, the local section is IEEE. The local section provides the most opportunity for IEEE members to see a face that represents IEEE; not just words on a page, e-mail, or a distant voice on the phone.

The section, along with local chapters of technical societies, provides local IEEE members the opportunity to attend technical or professional programs to advance their knowledge. You can meet and network with professionals in different companies and various industries. Additionally, you can become involved in a technical organization dedicated to serving the technical and professional needs of its members. The IEEE/SEM section serves Southeastern Michigan and Essex County, Ontario.

The ten local chapters, which are entities of the section, represent the interests of 18 of the 37 technical societies in IEEE. The section tries, as best it can, to represent the interests of the remaining 19 technical societies as well as support members' professional growth.

I know that when one, who has not previously been involved in the section or attended local programs, reviews the material in the *Wavelengths* newsletter; the member can feel intimidated about coming to the first program or becoming involved in the organization of the section or a local chapter. The section officers want to make you feel welcome. We would like to see all members, at one time or another, attend a section or chapter activity.

One should not feel uneasy that if you come, someone will pressure you into assuming a time-consuming role that will impact your family and workplace. We realize that of the 3000 plus working IEEE members in our section, only a certain percentage will attend meetings, much less serve in a leadership role. We do like to see members come to a program for the first time and, possibly return for other activities. That gives us a sense that we are meeting the needs of the local section members. We readily invite section members to come and attend programs for their technical and professional development.

If you want to become involved in the operations of the section or a chapter, but not serve as an officer quite yet, the section has many opportunities. You can help at a meeting or program, spend one morning as a judge at the Science Fair, or serve as a member of a committee of interest to you. You will be glad you made that first step.

If you have any questions concerning the section, its programs or its activities, I invite you to contact me at 313-235-7549 during normal weekday business hours or via e-mail at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org).

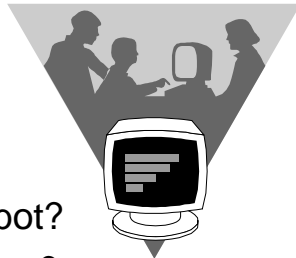
### Student Branches Take Note!

What could you do with a 486 PC?

Maintain your web site?

Program a robot?

Start a museum?



Tell us how you would use a computer. IEEE/SEM will award one used 486 PC to the branch with the best proposal.

Deadline for proposals:

January 26, 1998

Contact: Don Bramlett, 313-235-7549

[d.bramlett@ieee.org](mailto:d.bramlett@ieee.org)

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## National Engineers Week 1998

by Don C. Bramlett, IEEE/SEM Section Advisor

National Engineers Week (NEW) is February 22-28, 1998. NEW was founded in 1951 by the National Society of Professional Engineers (NSPE). The purpose of NEW is to increase public awareness and appreciation of the engineering profession. The theme of NEW, "Engineers: Turning Ideas Into Reality" highlights the fact that engineers are practical problem solvers who use the laws of science to better the existence of mankind. This occasion allows us to heighten the stature of engineering as a career and profession. IEEE/SEM encourages section members to become involved with NEW.

One way to participate is to make "Discover E" (E for Engineering) presentations at middle and high schools. This popular NEW program is in its ninth year and is the largest engineering outreach program of its kind. Engineers typically visit local schools, put on plant open houses, and sponsor extracurricular events to expose middle and high school students to the engineering profession. "Discover E" also stresses the importance and fun of studying math, science and computer subjects. IEEE/SEM has materials, such as videos, guide booklets and handouts, for section members to use in making presentations.

We would also like to encourage IEEE/SEM members and student branches to:

- \* schedule interviews on morning radio shows in their area
- \* conduct industrial tours/open houses for the public, with an emphasis on engineering
- \* submit promotional articles (with pictures) for publication in local newspapers
- \* interface with local governments to obtain proclamations recognizing NEW
- \* coordinate promotional booths or informational programs in local shopping malls
- \* encourage engineering schools to hold open houses for high school students
- \* initiate any of a number of other good promotional activities with public exposure

Another program is NEW's most visible public awareness event, the "Future City Competition," which is in its sixth year. Teams of middle school students from fifteen selected metropolitan areas, including Detroit (any Michigan middle school may enter), design cities of the future using SimCity 2000 software. Aided by the counsel of a teacher and an engineer, the students are introduced to practical engineering attributes such as analytical problem solving using technology, teamwork and design. Each team must produce a CAD presentation of the future city, build a scale model of a section of the city, make presentations on the merits of their design, and prepare an essay on a selected subject. The final competition for the fifteen regional winners is in Washington, DC during NEW.

The winner in the 1996 Detroit regional competition, Middle Years Alternative Middle School in Ann Arbor, also won the 1996 national competition. The team of three students, the teacher and the engineer were awarded a week stay at the Space Camp in Huntsville, Alabama.

In 1998, the Detroit regional Future City competition will be held prior to NEW on Wednesday, January 21, at the Henry Ford Museum. ESD-the Engineering Society of Detroit is coordinating the competition. We invite any interested IEEE/SEM members to attend the local competition on January 21; you will find it a very stimulating experience. There will be a record number of 54 middle schools represented in the local competition.

Another simple way to participate in NEW is to use your wit. Similar to David Letterman's Top 10 Reasons for whatever, on his late night show; please offer your suggestions for the "Top Ten Reasons to Participate in National Engineers Week." Provide your suggestions to Don Bramlett by Friday, January 2, by phone at 313-235-7549, by fax at 313-235-5180, or by email at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org). Members submitting each of the ten reasons selected will receive a special prize!!

Any other inquires about NEW or promotional materials for Discover E presentations may also be directed to Don Bramlett.

Editor's Note: The National Engineers Week web site has examples of engineering achievements, additional suggestions for local involvement, and NEW contests. See [www.eweek.org](http://www.eweek.org).

### Get on track with Lawrence Tech's graduate engineering programs!

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### Science Fair Judges Needed for April 1st!!!

*by Don C. Bramlett, IEEE/SEM Advisor*

For the fourth year, IEEE/SEM will provide dedicated judges and awards for projects related to electrical, electronics and computer engineering subjects at the Science and Engineering Fair of Metropolitan Detroit (SEFMD). Judging for the 41st annual Science Fair will be conducted on Wednesday, April 1, 1998, in the Oakland Hall, on the street level or concourse level of Cobo Hall. Judging will be from 8 to 11 a.m. Coffee and donuts are usually available in the morning for the judges. This pleasurable and fulfilling task only takes half a day, and you are done by lunch.

IEEE/SEM provides judges and awards in both the Junior (middle school) Division and the Senior (high school) Division. IEEE/SEM provides two Grand Awards, consisting of certificates and money, and several Honorable Mention certificates. Several positions on the team of eight judges are available.

I encourage anyone who has an interest in the science and math education of our youth or an interest in student outreach programs to consider being a judge at the Science Fair. As a judge in previous years, I have found the experience of talking with the students, finding out their interests and observing their projects and presentations to be very rewarding. So come out and spend the morning with us as we meet with some of the potential engineers, scientists and Nobel Prize winners of the future.

For more information about being a judge for the IEEE/SEM professional awards, contact Don Bramlett at 313-235-7549 during normal weekday business hours, at home at 313-525-5422, or by email at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org).

The SEFMD web site, [www.sefmd.org](http://www.sefmd.org), has general information about the Science Fair and last year's Grand Award Winners.

If you are interested in being an individual general judge for the Science Fair organization, contact Carol Dendler at the SEFMD office at 313-832-2066.



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