Wavelengths

IEEE Southeastern Michigan Section

April 2008 | Volume 48 | Issue 2

IEEE/HKN Merger

Douglas Czinder
Chair

Robotics and Automation Chapter

The Eta Kappa Nu (HKN - Electrical and Computer Engineering Honor Society) has signed a non-binding Memorandum of Understanding with the IEEE that proposes a merger with IEEE. A final agreement has yet to be written, but the HKN Executive Committee has released some information pertaining to the proposal:

"Post-merger, HKN will become an Organizational Unit of the IEEE. It will no longer be incorporated separately, but will continue to be run, as it is now, by the Board of Governors of IEEE-HKN. The president of IEEE-HKN will sit on the IEEE Educational Activities Board (EAB) as a voting member of that board..." HKN will gain a stronger financial stance and corporate 'home' after the merger.

HKN will gain wider notoriety being associated with the IEEE name. HKN will also gain immediate access to 1,500 IEEE student branches in 140 countries.

The IEEE is primarily interested in retaining student members after graduation (converting them to professional members).

To that end, the IEEE will require all HKN members to be IEEE members. Furthermore, the IEEE has two honor recognitions for regular members – Senior Member and Fellow. By adding HKN, the IEEE will have an honor category for student members as well.

This summarization is based on the full **HKN Merger FAQ release >>**

In this Issue

IEEE-USA Congressional Visits Day 2008

IEEE-USA members recognize the influence that Congress has on research and development (R&D) policy and funding. IEEE-USA members know it is important to communicate their message to

Jack Cederquist
Electro-Optics Infrared Sensing
General Dynamics
Advanced Information Systems

Congress just as all other interest groups do. Therefore, they participate in the annual Science, Engineering, and Technology Congressional Visits Day. On 4 and 5 March 2008, 250 scientists and engineers from across the US came to Washington to meet with members of Congress and their staffs. I was one of the participants.

IEEE-USA President Lefevre presents Representative Bart Gordon (left) with the George E. Brown Jr. Science, Engineering, and Technology Leadership Award.

IEEE Washington staff greatly facilitated these visits by making appointments with the appropriate Senate and House offices for each IEEE member and providing a morning training session to learn how Congress formulates R&D policy and funding and how to conduct a visit. Later, IEEE members joined other scientists and engineers at the American Association for the Advancement of Science to hear briefings on current R&D policy issues and budgets. The day concluded with an evening reception and award ceremony, this year in the Rayburn House Building. The reception was addressed by Representatives Vernon Ehlers of Michigan, Rush Holt and Sherwood Boehlert (both Ph.D.'s in physics).

The next day was filled with visits to Congressional offices. As an IEEE member, you visit several offices including those of your senators and representative. IEEE provides suggestions for pro R&D messages but you are encouraged to personalize your visit with facts from your experience and congressional district. I found it a rewarding experience to address important issues in person to Congressional offices.

IEEE members in Michigan are privileged to have House and Senate members who have significant seniority and who chair, or are members of, important committees. The offices I visited (Senators Levin and Stabenow and Representative Dingell) are supportive of the importance of science and math education and R&D to the revitalization of the economy of Michigan. If you are interested in science public policy or in attending next year's Congressional Visits Day

(CVD), more information is available at **IEEE-USA Public Policy Website>>**, or at **IEEE-USA CVD Website>>.**

You may contact me at: **jack.cederquist AT gd-ais DOT com**. I'd like to have some IEEE SEM members with me at next year's CVD!

Student Volunteers Needed for the EMC 2008 Symposium

Kimball Williams
EMC 2008 Symposium Chair

The IEEE 2008 International Symposium on Electromagnetic Compatibility will take place in Detroit, from August 18 – 22, 2008. The Symposium hotel will be the Marriott Renaissance hotel, and the convention venue is Cobo Center.

The local Symposium organizing committee is seeking commitments from local South Eastern Michigan Student Branches for student volunteer workers who are willing to work with the organizing committee members to provide casual labor for a number of functions around the hotel, or at the convention center. These would include:

- Human Arrows - Hotel.
- Human Arrows - Cobo Center.
- Registration desk - monitor.
- Ticket takers - 'Social' events.
- Committee - monitor / runner.
- Technical paper monitor / runner.
- Exhibit floor monitor / runner.
- Workshops monitor / runner.
- Hospitality room guards.
- Signage placement.

In exchange for a half day of work, each student will be eligible to attend a half day of the functions of the Symposium. These include:

- Technical Papers
- Technical Committee meetings
- Workshops
- Tutorials
- Demonstrations
- 'Social' events.

We will also be able to provide each student volunteer with a 'gift' from the Symposium to be a keepsake as a memory of the event.

Those interested in volunteering to help us with this Symposium should visit the **EMC2008 Symposium web site>>** and the **EMC-Society web site>>** to understand something about EMC in general to be sure that they will find the Symposium of interest and a rewarding experience. To sign up as a volunteer, please contact me at: **k.williams AT ieee DOT org.**

The Value of a Broad, Diverse Engineering Education

Mitchell Goodkin
Assistant General Counsel
Division of Research Development and Administration
University of Michigan

In the February edition of Wavelengths, our Section Chair Chris Mi suggested that the new economy requires the next generation engineers to be system engineers with multi-disciplinary skills. I found that this need has been true for a long time.

I obtained my engineering degrees from UCLA in the 60s. At that time, the undergraduate engineering degree had a multi-discipline, holistic approach. I had at least introductory courses in every field of engineering, along, of course, with the sciences and math. In addition, we were

required to take a series of courses outside of engineering. I took several courses in economics, and a course in philosophy.

I have found during the many years since then that the broad background has been extremely useful. In my first engineering job, I had the privilege of working on some electronics to send to the moon in the Apollo Lunar Surface Experiment Package program. That project involved heat transfer more than it involved more classic circuit design. Later, I did industrial automation work; and an understanding of many disciplines was essential. In management roles and in law, I also found the broad background very useful, particularly working with technology-based companies, intellectual property law, university technology transfer, and export legal issues.

A negative aspect that needs consideration was that I really felt I needed more depth before seeking my initial engineering employment and went straight through for a master's degree in engineering, with concentrations in computers and controls.

Chapter IV Report

Tayfun Özdemir, Ph.D.
Chair
Trident Chapter

Chapter IV held second of its MTT Distinguished Lecturer series with the University of Michigan Radio Club on April 3, 2008. Dick Snyder of RS Microwave presented his talk titled "Practical Aspects of Microwave Filter Development" at the University of Michigan campus, which was attended by over 40 professionals and students. The first seminar was held on February 21, 2008 and it featured James Rautio of Sonnet Software on the life of James Clerk Maxwell.

The Chapter plans to resume its seminar series with APS Distinguished Lecturer program and details will be made available on the Chapter website, which is accessible from the **section website>>**.

Chapter IV is always in need of volunteers to help with the logistics of the seminar series and find speakers. Please call Tayfun Özdemir at 734-222-4558 for volunteering opportunities.

IEEE Senior Member Grade

Mohamad Berri, Ph.D.
Director of Membership Activities

IEEE has more than 300 local IEEE sections, 1,300 technical chapters, and 300 annual IEEE conferences worldwide. As an IEEE member in Michigan, you'll have the opportunity to attend our IEEE Southeastern Michigan Section or one of its 14 chapters meetings, volunteer for leadership positions, or attend a conference to meet industry leaders and practitioners, encounter the latest research, and present your papers to an international audience.

The grade of Senior Member is the highest for which application may be made and shall require experience reflecting professional maturity. For admission or transfer to the grade of Senior Member, a candidate shall be an engineer, scientist, educator, technical executive, or originator in IEEE-designated fields for a total of 10 years. Individuals may apply for Senior Member grade **online>>**

Based on the requirements for the

Senior Member Grade, the IEEE criteria for elevation to Senior Member grade is that a candidate shall be an engineer, scientist, educator, technical executive or originator in IEEE-designated fields and the candidates shall have been in professional practice for at least ten years. Also, the candidates shall have shown significant performance over a period of at least five of those years. In addition, candidates for Senior Member grade must supply three references from current IEEE members holding the grade of Fellow, Senior Member, or Honorary Member.

New applicants applying directly for Senior Member grade should submit this elevation form along with an IEEE Member application and your dues payment. Three **reference forms>>** from current IEEE Senior Members or Fellows have to be submitted to support the application unless the applicant has been nominated by a Senior Member or Fellow in which case only two other references are required (See **Nomination Information>>** below). For assistance on the reference forms please contact me **mberri AT ieee DOT org** and I will assist in providing the information. To verify that your application has been received and for any questions relating to the Senior Member application, please e-mail **senior-member AT ieee DOT org** OR you may check the status of your application and any reference forms received at **Status of SM Applications Website>>**. Printable versions of the application form are also available: **Senior Member Application - Word Format>>** and **Senior Member Application - PDF Format>>**

The ten years of professional experience will count the years you have been in professional practice. Your educational experience is credited toward that time as follows:

- 3 years for a baccalaureate degree in an IEEE-designated field
- 4 years if you hold a baccalaureate and masters degree
- 5 years if you hold a doctorate

The following are examples of significant performance that would serve to qualify an individual for elevation to Senior Member. In each case, we are assuming that three qualified references were provided. In the 1st case, there was an applicant/nominee with a Bachelor's degree and seven additional years of professional experience beyond graduation in an area encompassed by one of IEEE's technical Societies, which meets the requirement of ten years of professional experience. Significant performance can be demonstrated by describing substantial job responsibilities (e.g., team leader) for a period of at least five years. His application was approved. Another case, there was an applicant/nominee with bachelor's, master's, and doctoral degrees in an IEEE-designated field. Five years of significant performance in academia, industry, or government beyond the doctoral degree are demonstrated (e.g., a faculty member with five years beyond the doctorate and promotion to associate professor). His application was approved too. For more cases please **IEEE Senior Member Webpage>>**.

The Benefit of Senior Membership is that you will get professional recognition, a Senior Member Plaque, a US$25 Coupon, and a Letter of Commendation from IEEE. This is in addition of having Leadership Eligibility and ability to Refer Other Candidates. Most of this information is available on the **IEEE website>>**. Please feel free to contact me if you need further information or assistance: **mberri AT ieee DOT org**.

IEEE SEM Contribution to the SWE Detroit Conference

Angela Sodan, Ph.D.
Chair
Women in Engineering
Affinity Group

Our IEEE section supported the SWE (Society of Women Engineers) Detroit conference on career development "Knowledge for Growth" which was held on April 19th at the GM Technology Center in Warren. With about 200 participants, the conference was very well attended. SWE had enlisted Joyce Weiss as keynote speaker to talk about work/life balance on the basis of her book "Take the Ride or Your Life". Sixteen other speakers were invited in the areas of management and career development and in the area of green technologies. IEEE contributed two speakers: Marlin Ristenbatt and Dr. Angela Sodan. Ristenbatt is a Research Scientist Emeritus from the University of Michigan, and among his career achievements is his contribution to the IEEE-USA Guidelines for Professional Employment. At the conference, he talked about "Assessing the Health of Your Career". Sodan, Associate Professor at the University of Windsor, talked about "Being Feminine and Professional". The main message of her presentation was that women need to learn how to play the (male) game and develop all necessary skills but, though potentially difficult in male-dominated fields, also learn to contribute more of their genuinely feminine strengths in order to develop their full power and their full benefit to the field.

Chapter XIV Report

Douglas Czinder
Chair

Robotics and Automation
Chapter

The R&A Chapter had a very successful Spring Conference. We were fortunate to have two excellent speakers: Dr. G. Edzko Smid and Mr. Justin Tesmer. Dr. Smid, President of JADI, discussed "Robotic Simultaneous Localization and Mapping". Specific topics included GPS, laser-guidance, ultra-wide band RF, ultra-sonic ranging, magnetic referencing, and vision. Dr. Smid explained Simultaneous Localization and Mapping (SLAM) which is a technique used by autonomous robots to build up a map within an unknown environment while keeping track of it's current position. Dr. Smid gave a demo using some of JADI's latest localization technology.

Mr. Justin Tesmer, lead engineer for hardware and embedded systems at Mobile Intelligence Corp., presented a talk on "Hardware Implementation of Localization and Mapping." Mr. Tesmer brought the Smart Badger, equipped with Mobile Intelligence's Perch Robot Controller. The Badger includes rotary shaft position sensors, a GPS receiver, MEMS gyroscopes, accelerometers and magnetometers. Mr. Tesmer spoke of statistically fusing data from these sources to produce usable robot pose data for localization.

In March I gave a morning session on Lego RCX programming and an afternoon session on Lego NXT programming at Lawrence Technological University. This was an accelerated version of the workshops created by Dr. Chung of LTU. We are currently planning Lego RCX and NXT workshops for teachers and coaches to be conducted over the summer. These will be day-long workshops focusing on transferring basic RCX and NXT programming skills to educators.

The goal is to empower educators to keep their robotics curriculum going strong with little reliance on outside support. If you are interested in attending one of these workshops, please contact me via email.

This spring we will also be conducting a joint tour with the Computational Intelligence Society Chapter. Mobile Intelligence Corp. has graciously agreed to give a tour of their facilities. Watch the SEM Online Community for details [SEM R&A members will be notified of the details via email].

To join our email list, please send an e-mail to **chair AT semrobotics DOT org** with 'subscribe' in the subject. You will be kept informed of more summer events that we are currently planning.

Collaborate with IEEE Online Communities

Mark Ciechanowski, P.E.
Jr. Past Section Chair

These days, your professional success depends on your ability to collaborate. This is true for all IEEE members -- student members, members in the middle of their career, was well as life members. As a benefit of being an IEEE member, you have access to powerful collaboration tools that IEEE has been running successfully now for over three years. IEEE calls these tools the "Online Communities". This article will introduce you to the Online Communities, including our very own community for our Section. If you are new to the Online Communities, or if you have not yet visited the Section Online Community, you will find here all the information you need to get started collaborating.

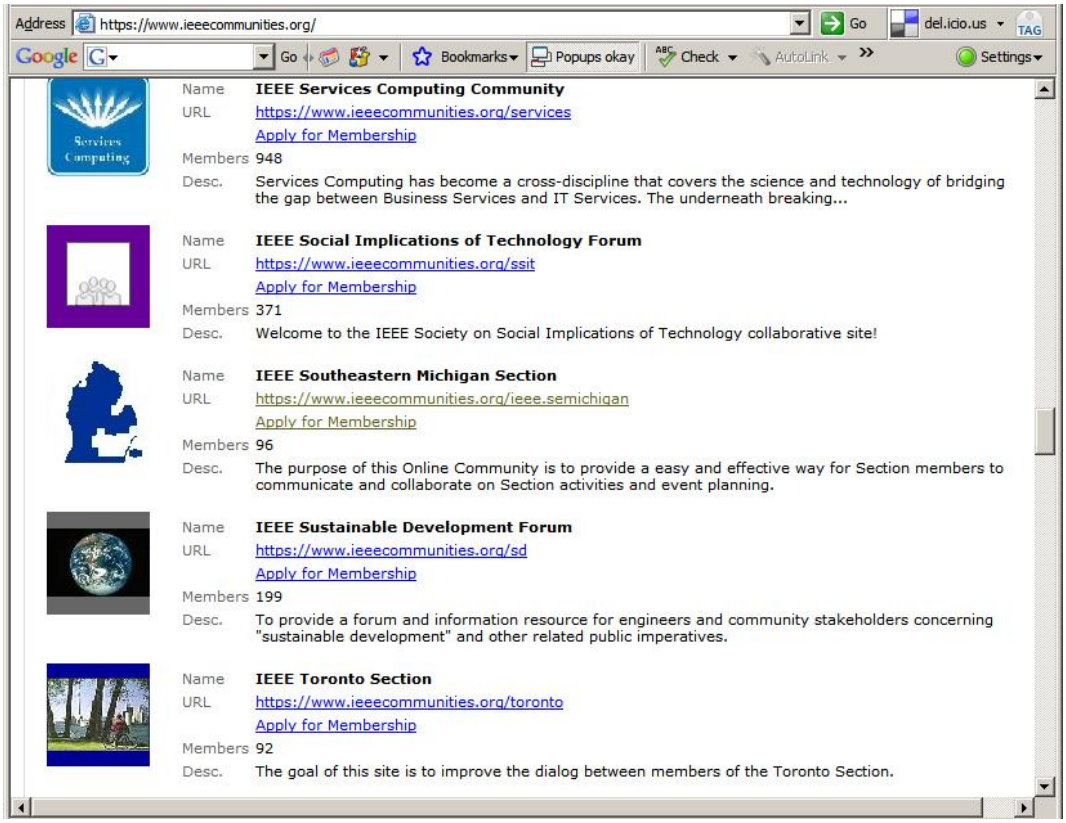

Figure 1: IEEE Online Community Main Page

What are the IEEE Online Communities?

The Online Communities are web sites where members get (and share) useful information. Each Online Community has a theme. For example, the "Automotive EMC" Community centers around automotive EMC issues. The "Employment & Career Strategies Forum" Community has job postings and discussions about employment and careers. The list includes dozens of communities including technical topics, IEEE conferences, IEEE Sections, and IEEE membership and volunteer activities.

When you scroll down the initial page for the **Online Communities>>**, **Figure 1**, you will see the list of all of the public communities. The icon showing the state of Michigan is our Section Online Community. Click on a community and login using your IEEE web login. (All IEEE members can get free **web accounts>>**. You can also use your web account for myIEEE, the IEEE Shop, IEEE Xplore, the IEEE job site, and membership renewal.)

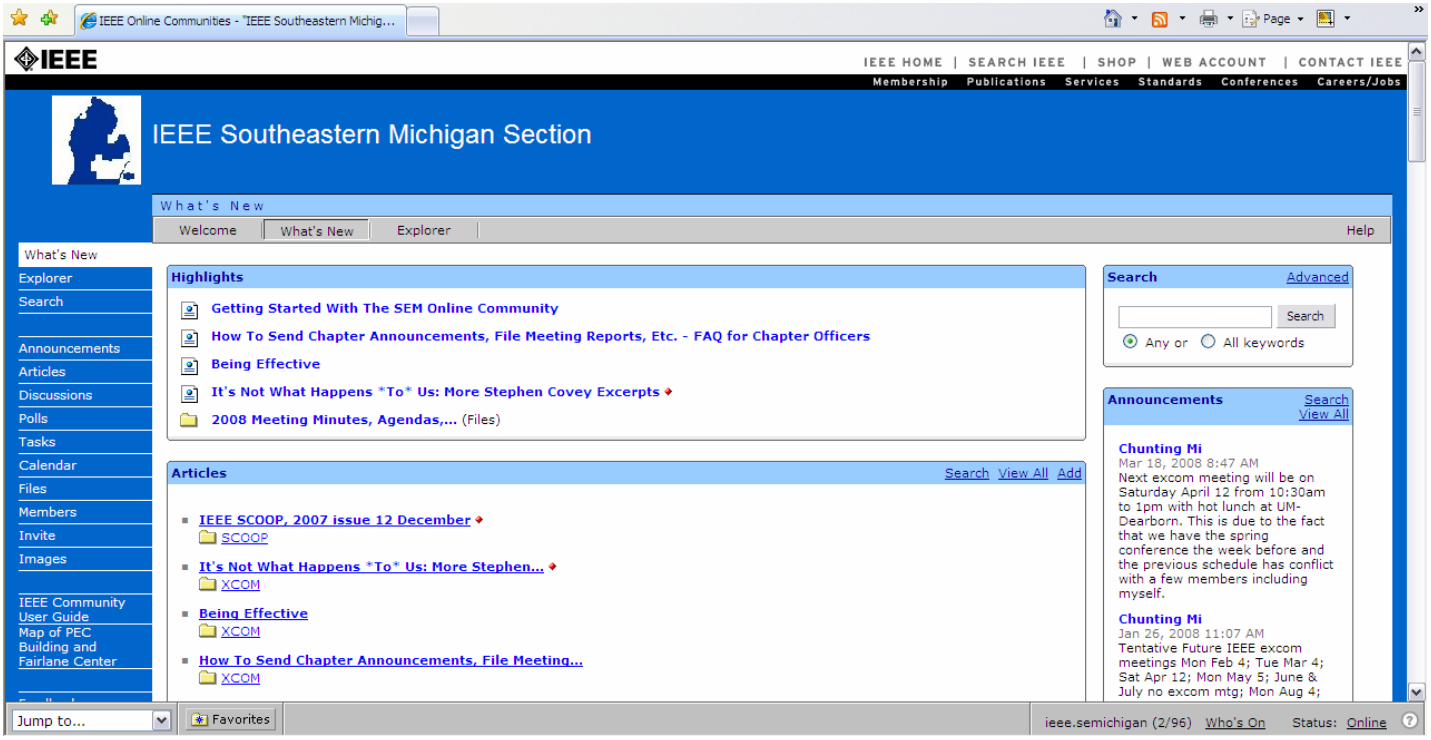

Figure 2: "What's New" page

Our Section Online Community

The purpose of our Section Online Community is to provide an easy and effective way for Section members to communicate and collaborate on Section activities and event planning. Our Section Community now has 96 members, which is nearly double from last year.

The "What's New?" page, **Figure 2**, gives you a summary of the latest items. For a description of the tools on the left-hand menu, see the article "Getting Started with the SEM Online Community," which is linked in the "Highlights" section at the top of the page.

IEEE SEM Science Fair Awards

Don Bramlett, P.E.
Section Advisor

The 51st Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD) was held from March 10 through March 14, 2008 in the Michigan Hall of the Cobo Conference Exhibition Center in downtown Detroit. Judging of student projects was performed on Wednesday, March 12. This year the SEFMD again had nearly 1300 projects on display in two Divisions, the Junior Division (Middle School students) and the Senior Division (High School students). Exhibits are classified into 13 general categories for judging; including engineering, computer science, physics, and environmental science.

For the fourteenth straight year the IEEE SEM Section has provided a team of volunteer judges to evaluate student projects associated with electrical, electronic, and computer engineering related subjects. The Section would like to express its appreciation to the IEEE Section members who volunteered to be members of the IEEE judging team and served in other roles this year.

The Section wishes to thank the four IEEE members, and their companies/institutions, for taking the time to volunteer and help to make the Science Fair a more pleasurable and meaningful experience for the middle school and high school students who participated.

The IEEE SEM judging team was composed of the following two volunteers:

- **Don C. Bramlett, PE, SMIEEE**
  Detroit Edison (DTE Energy)
- **Laurence G. Dishman, Ph.D.**
  Wayne State University

Other IEEE SEM Section members served in other capacities at the SEFMD, such as:

- **Paul Ostrowski, Ph.D., CCE, SMIEEE**
  (General Category Judge Coordinator)
  John Dingell Veterans Administration Medical Center
- **Dave Morris, Ph.D.**
  (General Category Judge)
  ElectroDynamic Applications, Inc

The judges had the opportunity to view and evaluate a number of exhibits, especially some interesting projects in areas pertinent to IEEE-related fields. The judges and the high school students in the Senior Division had the pleasure to interface and discuss in depth some of the principles, scientific techniques, engineering approach, experimental results and applications pertinent to the projects.

The IEEE SEM Section, based on the evaluations of the panel of judges, awarded one First Place Grand Award consisting of a personalized certificate and a check for $100. This award was presented to:

Kuan Ting Chen, (Senior Division) a junior at ***Cranbrook Kingswood Upper School*** in Bloomfield Hills, for his project entitled, “Evaluation on Laser Display Projector”.
The panel of judges also determined that the IEEE SEM Section would provide an Honorable Mention Award to one other noteworthy project in the Junior Division. The Honorable Mention Award consisted of a personalized certificate for the

awardee. This award was presented to:

Uzair A. Khan, an eighth grade student at ***Huda School & Montessori*** in Franklin, for his project entitled, "Go Solar, Go Green".

For further information on the Science Fair judging, awards, and project abstracts visit the **SEFMD website>>**.

The IEEE SEM Section plans to continue to staff other panels of special awards judges at both the Michigan Regional Future City Competition and the SEFMD in 2009, and in subsequent years. These are just a couple of pre-college education programs that the IEEE SEM Section promotes.

IEEE SEM Electro-Technology Award Michigan Regional Future City Competition

Don Bramlett, P.E.
Section Advisor

The Future City Competition is held each year in association with the annual Engineers Week, this year the week of February 17-23, 2008. The winners from the 31 regional competitions participated in the finals in Washington D.C. during Engineers Week.

The 15th Annual Michigan Regional Future City Competition, coordinated by the Engineering Society of Detroit (ESD) and sponsored by the DTE Energy Foundation, the Ford Motor Company Foundation, and the Skillman Foundation, was held on Tuesday January 22, 2008 at the Rock Financial Showplace in Novi. Teams of students from 35 middle schools in Michigan participated in the Michigan regional competition with their future city design projects this year. Judging of student projects was performed in the morning and early afternoon by a record number of volunteer judges.

This is the thirteenth year that IEEE SEM Section members have served as Mentors/General Category Judges for the regional competition. This is the tenth year that the IEEE SEM Section has provided a dedicated special team of volunteer judges to specifically evaluate student projects for attributes associated with electrical, electronic, and computer engineering related subjects. The Section sponsors the Electro-Technology Award, intended to recognize the design project that exhibits the best application of the theory and practice of electrical, electronics and computer engineering and related sciences and technologies to promote the sustainable development of the future city.

The Section wishes to thank seven IEEE members and their companies/institutions, for taking the time to volunteer and help to make the Michigan Regional Future City Competition a more pleasurable and meaningful experience for the middle school students who participated.

The IEEE SEM judging team was composed of the following four volunteers:

- **Don C. Bramlett, PE, SMIEEE**
  Detroit Edison (DTE Energy)
  (also Judging Orientation Coordinator for the Michigan Regional Future City Competition)
- **Laurence G. Dishman, Ph.D.**
  Wayne State University
- **Charles J. Cohen, Ph.D.**
  Cybernet Systems Corporation
- **Bill Quinlan**
  American Axle Manufacturing

Other IEEE SEM members served in other volunteer capacities:

- **James Morgenstern**
  (General Category Judge)
  Image Mining, Inc
- **Christopher Mushenski**
  FCS Brigade Combat Team
- **Paul Ostrowski, Ph.D., CCE, SMIEEE**
  (General Category Judge)
  John Dingell Veterans Administration Medical Center

The judges had the opportunity to view and evaluate some outstanding futuristic design projects; in particular they viewed some very interesting applications of current and predicted technologies pertinent to IEEE-related fields. The judges and the students had the pleasure to interface and discuss in depth some of the design principles applied, problems encountered, and teamwork principles used.

The IEEE SEM team of judges awarded the Electro-Technology Award to **Power Middle School** of Farmington Hills. Power Middle School also took third place this year in the overall Michigan Regional Future City Competition. Don Bramlett presented the award trophies to the team of three presenting students, accompanied by the teacher and the engineer-mentor at the Awards Ceremony that afternoon.

Power Middle School Team with their Future City project

Announcements

Section WIE Affinity Group Formation

The formation of the IEEE Women in Engineering (WIE) Affinity Group has been officially approved by the IEEE. The group is always looking for more active members to participate in WIE events. If you would like more information or would like to volunteer, please contact Angela Sodan at: **acsodan AT uwindsor DOT ca.**

Advertising in Wavelengths

Wavelengths is published six 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.

Rates:

Size	Rate
Full Page	$500
Half Page	$250
Third Page	$165
Quarter Page	$125
Eighth Page	$65

There is no extra charge for color. For more information, contact Aisha Yousuf at **ayousuf AT ieee DOT org**

Upcoming Events

End of School Year Party for Student Members
Sunday, May 4, 2008 10:00 AM – 4:00 PM

The IEEE Southeastern Michigan Section will be hosting the end of the year student branch party for all the IEEE Student members, especially aimed towards graduating students. This event will be held on Sunday, May 4, 2008 from 10:00 AM - 4:00 PM at the University of Michigan – Dearborn fairlane center.

The event will feature some speakers, socializing session, and giveaways. Lunch will also be provided 12:00 - 1:00 PM and there is no charge for the event. The seating, however, is limited.

If you need more information, or would like to attend, please e-mail Aisha Yousuf at **ayousuf AT ieee DOT org** no later than Wednesday, April 30, 2008. Please include the following information in the e-mail:
Name
Contact Information
IEEE Student Member Number
University Name
Meal Preference (Regular or Vegetarian)

For a complete list of section events, please visit the **Section Online Community >>**

SYMPOSIUM & EXPOSITION

emc Detroit 2008

IEEE International Symposium on Electromagnetic Compatibility

August 18 - 22, 2008
Cobo Center, Detroit, Michigan

Education and Information:

- Automotive, Personal, Military and Aviation Electronics
- 300+ Exhibits (100,000 sq.ft.)
- Technical Sessions, Workshops and Demos
- Global EMC University - Tutorials with CEU's
- NARTE Workshops
- Committee Meetings, Networking, Tours and More!

IEEE

FOR MORE INFORMATION:
www.emc2008.org

EMC SOCIETY®

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Section Secretary	Randy Stevenson
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Section Junior Past Chair	Mark Ciechanowski, P.E.
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Section Webmaster	Scott Lytle
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Women in Engineering Committee Chair	Angela Sodan, Ph.D.
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Chapter XIV Chair (Robotics and Automation)	Douglas Czinder
Chapter XV Chair (Systems, Man, and Cybernetics)	Oleg Gusikhin
Chapter XVI Chair (Computational Intelligence)	Aisha Yousuf

Contact Information for the officers can be found on the **section website >>**