



Wavelengths



November/
December 2004

Vol. 44, No. 3

Wavelengths is a publication of the Southeastern Michigan chapter of the Institute of Electrical and Electronic Engineers (IEEE).

CONTENTS

- Fall Conference Draws 150
- On Frequency: The Beauty of the Vacuum Tube
- Increase Your ROI in IEEE
- Student Conference Focuses on Leadership
- Become a Future City Mentor
- Events Calendar
- Executive Committee
- Chapter Info
- Advertising Info

Editor:
Dan Romanchik
734-930-6564
danr@
ieee-sem.org

© copyright
2004, IEEE
Southeastern
Michigan
Chapter

Fall Conference Draws 150

By Maurice Snyder, Past Chair

The Fall 2004 Conference was held on Wednesday, November 10, at the bps Training Center, Beverly Hills, MI. 150 people attended, and there were seven vendor tables, seven company-sponsored student tables, and 6 university showcases.

Thanks to all those who helped make it a success!

Flyers	Aisha Yousuf
Sponsor and student tables	Adel Marzougui
Registration	Scott Lytle, Angela Kwan, Lisa Anneberg
Program layout	Mark Ciechanowski
Program printing	Don Bramlett, Sat Basu
Membership table	Mohamad Berri
Chapter speakers	Subra Ganesan and all chapter chairs
Treasurer	Chuck Albrecht
Chapter chair packets	Mark Ciechanowski
Attendee Survey	Mohamad Berri
Speaker Certificates	Don Bramlett, Mohamad Berri
Master of Ceremonies	Arman Moein



Gitanjali McRoy talked to students on leadership skills.



Sam Barada and Mo Berri join Jesse Grizzle, who talked to Chapter 12 attendees.



Dr. Andrew Brown, Jr., Executive Director of Engineering Competency, DTI/Research Labs gave the keynote speech, "NexTech Innovations in Transportation"

On Frequency The Beauty of the Vacuum Tube

By Dan Romanchik, *Wavelengths* Editor

An article recently appeared in the Toronto Star extolling the virtues of the vacuum tube. If you look at one, you'll see what an amazing device it really is.

Tubes are an important part of our history. Without tubes, there is no radio. Nor are there any computers. At least not as early as we had them. Tubes were the first devices to give the control over electron flow that engineers needed to make both radio and computers possible.

Tubes are also an interesting example of how the discovery of a basic physical phenomenon can lead to the development of an entire technology. In developing the light bulb, Edison noted that when you stuck a metal strip into an incandescent light bulb, the metal strip attracted electrons given off by the hot filament. Even though this property was noted by physicist Frederick Guthrie several years earlier, we now call this the Edison effect.

What's interesting about this is that Edison didn't realize the importance of the phenomenon. The reason he didn't is that he was trying to increase the life of a light bulb and not invent electronics. It may have been an interesting effect, but since it did not significantly help him make better light bulbs, he wasn't very interested in the effect.

It was up to John Fleming, a British scientist, and American inventor Lee de Forest to realize how important this was and to develop practical devices that used the Edison Effect. Fleming invented a "valve" by placing a metal tube around the filament inside the bulb. The Fleming Valve acts as a diode. When the voltage between the filament and the tube, or plate, is positive electrons flow; when the voltage is negative no electrons flow. Fleming used his valve as a rectifier in a detection circuit.

de Forest inserted a third element into the tube. Called the grid, this element allows the designer of a circuit to control the flow of electrons between the filament and the plate. With a grid, you can not only get an electron tube to rectify a signal, but also to amplify it. A small voltage on the grid controls a large flow of electrons through the tube.

What's perhaps more amazing is how far we've come in 100 years. In the last century, we've gone from a device that's inches across to putting hundreds of millions of electron control devices (transistors) in the same space. It couldn't have been done however, without the tube.

Links

- IEEE Virtual Museum - Fleming Valve 1904 (http://www.ieee.org/organizations/history_center/fleming.html)
- Marconi Calling - Fleming's Thermionic Valve (<http://www.marconicalling.com/museum/html/objects/photographs/objects-i=1006.189-t=1-n=0.html>)
- About.Com - The History of Vacuum Tubes (<http://inventors.about.com/library/inventors/blvacuumtubes.htm>)

Increase Your ROI in IEEE by Subscribing

By Mark Ciechanowski, P.E., 2004 Section Secretary, mark.ciechanowski@ieee.org



You can greatly increase your return on investment (ROI) in your IEEE membership by volunteering. The opportunities are tremendous, both in the technical chapters, and also in the geographical section. You can do as much, or as little, as you like -- as a volunteer, you decide. How do you get started? The best way to start is to try it. Volunteer a little. Take on a small task once in a while. That way, you can find out what you like to do. And the best way to find tasks is on the volunteers' email lists.

The volunteers' email lists are where all the volunteers constantly exchange information about volunteer and officer activities. This is your first step: Join the lists. By joining, you will receive all the email information that all the volunteers and officers receive. You will find volunteer tasks that need to be done. The chapters and the section always need assistance such as: Section Conference planning, choosing speakers, deciding on technical presentation topics, event judging, etc. When you find something you would like to do, just send an email to the contact person. By reading the email lists and getting involved a little, you will also learn more about all the services and benefits available to members.

The Southeast Michigan Section maintains a LISTSERV list. (LISTSERV is software for email list management.) The name of the list is "semichigan-officers". You don't need to be an IEEE officer to join list, it is open to all IEEE members. To join, simply send an email message containing the command "subscribe semichigan-officers" (without the quotes, of course) to listserv@ieee.org. You will receive a welcome message.

If you want more information about the list, you can get a LISTSERV guide called "FAQ and Guide For IEEE Mailing List Subscribers" at <http://listserv.ieee.org>. The guide explains how you can maintain your personal list information online yourself. The first time you want to use the LISTSERV web system, you need to signup by establishing a password. For your convenience, you can find all these links in one place at <http://www.ieee-sem.org/admin.html> on the link "Officers and Volunteers Email List Information".

The twelve technical chapters in our section also maintain their own email lists for their respective chapters. They use these email lists to communicate volunteer activities to officers and volunteers for their specific chapter. To join one of these email lists, contact the chapter chair of the chapter you are interested in joining, or visit the chapter's web page.

See you on the email list!

Student Conference Focuses on Leadership

By Aisha Yousouf, UM-Dearborn Student Branch Chair

The 2004 IEEE Student Leadership Conference was held at Purdue University, West Lafayette, IN, on October 16-18, 2004

The three day conference focused on improving the leadership skills of the current and future officers of the regional IEEE student branches. The conference featured two S-PAC sessions as well as multiple S-PAC training sessions. The third day of the Conference was spent touring GM's Allison Transmission Plant. A tour of the Purdue campus and self-funded activities, including bowling or shopping, were also an option for the participants after the end of the conference everyday.

Total attendance was 46 students not including the volunteers from Purdue University. Following Universities were part of the conference: University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Michigan-Dearborn, University of Minnesota-Minneapolis, Wayne State University, Rose-Hulman Institute of Technology-Terre Haute, Valparaiso University-Valparaiso, Northern Illinois University, University of Michigan-Ann Arbor, DeVry University Chicago, Ferris State University-Big Rapids, Milwaukee School of Engineering, Michigan Technological University-Houghton, Minnesota State University-Mankato, University of Minnesota-Mankato, University of Illinois at Chicago, Michigan State University-East Lansing, Dordt College, Calvin College, Lake Superior State University-Sault Ste. Marie, Michigan Tech. University-Houghton, WCTC Waukesha, Iowa State University-Ames, University of Minnesota-Duluth, Saint Cloud State University-St. Cloud, University of St. Thomas-St. Paul, and University of Windsor.

The conference encouraged student participation by offering the most active individual student participation award and the most active student branch participation award. Also recognized at the conference was the region 4 student representative who will be graduating next fall.

Introducing the student branches to all the resources available for students through IEEE was the main purpose of the conference. The possibility of starting the micro mouse robotics competition in region 4 was discussed at the conference. The next student conference for Region 4 was also announced and will be held in May 2005 at University of Nebraska. Region 4 is also in search of a new Student representative to take the position after the graduation of the current RSR.

For participation, region 4 fully reimbursed only one student from every student branch. Purdue University student branch made hotel accommodations for all students in three hotels about 40 minutes away from the main campus. Transportation to and from the campus and the hotels, as well as, from Airport was also provided by the Purdue University through Lafayette Limo Inc.

Each individual student branch report and list of activities was also discussed so the newly established student branches may learn about IEEE activities from well-established branches. The conference enhanced the contacts between student branches and allowed a lot of individual networking. And as a result of successful regional conference, the participating SEM student branches are actively participating in activities while maintaining strong branch contacts.

Become a Future City Mentor

Are you looking for an immensely rewarding experience that will help prepare 7th and 8th grade students for life in the real world and have a positive impact on the future of engineering as a profession?

In September, middle school students began work on the Future City Competition, a national program sponsored each year by the National Engineers Week Committee. The Engineering Society of Detroit (ESD) is the coordinator for the Michigan Regional Competition.

The Future City Competition challenges students to design a fully functioning city located in a time and place in the future - and have fun doing so. Each team will create a city displaying residential, commercial and industrial areas, power plants, transportation systems, communication systems, etc. Students will also address important issues such as pollution, traffic density, taxes and budgets.

The Future City Competition is a team-based program consisting of students, a teacher and an engineer mentor. The engineer mentor is a key part of this program. The mentor acts as a technical advisor, working with the team through all phases of the competition-computer design, essay, abstract, model construction and presentation. It is very important that the students conceptualize and develop the city themselves. Students develop problem-solving skills, learn how to conduct research, work as a team and hone their presentation skills-all skills they will need for life in the real world. By working with an engineer mentor, students learn first hand how engineers turn ideas into reality.

Since the Future City Competition can be integrated into the curriculum or be run as an after school activity, team size varies greatly. There must be at least three students on the team but the whole class can participate. The time of day that teams work on their city also varies. It can be during the school day or after school. As a mentor, you would work with the teacher to find a time that works for both of you. You should also be available via phone and/or email to answer questions. Mentors typically spend approximately 40 hours over a four-month period advising their team.

Mentoring can also be done by a team of two or three engineers, making it possible for an engineer to be available more often to assist the students and reducing the amount of time each engineer devotes to the project.

Schools in Ann Arbor, Birmingham, Detroit, Flint, Mayville, Holly, Kimball, Lapeer, Oak Park, South Lyon and St. Clair Shores are currently in need of mentors.

When you become a mentor, you receive a CD describing the competition and a handbook that gives you detailed requirements, forms, judging guidelines and much more. You can also contact Nancy Strodl via phone or email with your questions and concerns.

For additional information or to volunteer as a mentor, contact ESD's Nancy Strodl at 248-353-0735 x4152, Fax: 248-353-0736 or nstrodl@esd.org. Visit www.futurecity.org to learn more about the Future City Competition.

Events

DECEMBER

Mon, Dec 6th

6:00 PM

Executive Committee (XCOM) Meeting

Univ. of Michigan, Dearborn Professional Education Center
Bldg. map

All are invited to attend.

6:00pm - Dinner

6:30pm - Meeting

Contact: Suleiman Barada, 248-371-1700 ext 8692,

sbarada@ieee.org

Mon, Dec 6th

6:00 PM

Section Conference Planning Committee Meeting

Univ. of Michigan, Dearborn Professional Education Center
Bldg. map

Planning committee meeting for the Spring 2005 Section Conference and Dinner.

Contact: Mark Ciechanowski, 248-755-4477, mark.

ciechanowski@ieee.org

JANUARY

Tue, Jan 4th

6:00 PM

Section Conference Planning Committee Meeting

Univ. of Michigan, Dearborn Professional Education Center
Bldg. map

Planning committee meeting for the Spring 2005 Section Conference and Dinner.

Contact: Mark Ciechanowski, 248-755-4477, mark.

ciechanowski@ieee.org

Tue, Jan 4th

6:00 PM

IEEE SEM XCOM Meeting

Univ. of Michigan, Dearborn Professional Education Center
Bldg. map

All are invited to attend.

6:00pm - Dinner

6:30pm - Meeting

Contact: Suleiman Barada, 248-371-1700 ext 8692,

sbarada@ieee.org

Want to have your event listed here?

Fill out and submit the Event Submission Form at
<http://www.ieee-sem.org/?q=eventform.html>

Why come to a
NARTE Certified EMC Test Facility?



Highly educated, well trained NARTE certified engineers test your product.



Has large test chambers 36' x 25' x 20'.



Tests to 40 GHz @ 200 V/m for:
MIL STD 461
RTCA DO-160
Naval Degaussing Simulator




DLS
EMC & Product Safety
Testing • Consulting

1250 Peterson Drive
Wheeling, IL 60090

**Click on www.dlsemc.com
Call 847-537-6400 today.**

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:

Dr. Ramas Ramaswami, MDR
ramaswamis@comcast.net
734-971-5410

Executive Committee

Officers

Chair

Suleiman Barada
313-561-5747
s_barada@msn.com

Vice Chair

Dr. Hassan Hassan (acting)
248-380-1650
h.hassan@ieee.org

Secretary

Mr. Mark Ciechanowski, P.E.
248-755-4477
mark.ciechanowski@ieee.org

Treasurer

Mr. Chuck Albrecht
734-632-1192
calbrecht@patrickengineering.com

Junior Past Chair

Dr. Maurice Snyder
734-973-1300
snyder@adi.com

Administrative Activities

Section Advisor

Mr. Don Bramlett
313-235-7549
d.bramlett@ieee.org

Student Activities

Dr. Hassan Hassan (acting)
248-380-1650
h.hassan@ieee.org

Professional Activities

Dr. Adel Marzougui
519-256-2350
adel_mar@hotmail.com

Technical Activities

Dr. Subra Ganesan
248-370-2206
ganesan@oakland.edu

Educational Activities

Dr. John Shen
313-593-5525
johnshen@umich.edu

Membership

Dr. Mohamad Berri
313-999-3358
mberri@ieee.org

IEEE/SEM Chapters

Chapter I- Circuits and Signal Processing

Dr. Hoda Abdel-Aty-Zohdy, Oakland University
Zohdyhsa@oakland.edu, 248-370-2243

Chapter II - Vehicular Technology

Mr. Arman Moein, TRICO Technical Center, arman.
moein@tricoproducts.com

Chapter III - Communications and Aerospace Electronics

Mr. Robert Desoff, Ameritech (retired), r.desoff@ieee.org

Chapter IV - Trident

Dr. Lisa Anneberg, Lawrence Tech University
anneberg@ltu.edu, 248-204-2539

Chapter V - Computer

Dr. Subra Ganesan, Oakland University, ganesan@oakland.edu,
248-370-2206

Chapter VI - Geoscience and Remote Sensing

Mr. Robert G. Onstott, Veridian, onstott@erim-int.com, 734-
994-1200 ext 2544

Chapter VII - Power Engineering and Industrial Applications

Mr. Chuck Albrecht, Patrick Engineering
calbrecht@patrickengineering.com, 734-632-1192

Chapter VIII - EMC

Mr. Scott Lytle, Yazaki North America, s.r.lytle@ieee.org, 734-
983-6012

Chapter IX - Power and Industrial Electronics

Dr. Chris Mi, Univ. of Michigan - Dearborn
chrismi@umich.edu, 313-583-6434

Chapter X - Engineering Management

Mr. Mark Ciechanowski, P.E., Ford Motor Company
mark.ciechanowski@ieee.org, 248-755-4477

Chapter XI - Engineering in Medicine and Biology Society

Dr. David K. Stiles, Oakland University, dkstiles@oakland.edu,
248-568-7341

Chapter XII - Control Systems

Dr. Suleiman Barada, TRICO Technical Center
sbarada@ieee.org, 248-371-1700 ext 8692