**IEEE Southeastern Michigan**

**Electrical and Electronic Engineers Creating Our Future**

*Volume 54 – Issue 04*
*April 2014*

# Wavelengths

## Contents

## Section Chair's Message

Spring Conference is here. Oakland University is the place and the evening of April 24 is the day. Please check our SEM web site ( **www.ieee-sem.org** ) for the very latest information.

This conference brings together respected speakers from many chapter technical disciplines to broaden your perspectives and to increase your knowledge in areas of interest.

There are many ways you can assist in the success of this conference:

- Attend
- Tell others

- Print and post the conference announcement on your company and school bulletin boards (click on "Spring Conference" on the SEM Home page)

- Distribute electronic and printed announcements to colleges and friends

- Volunteer to assist the organizing committee (contact information is on the announcement) announcement by clicking on "Spring Conference" on the SEM Home page.

On a different topic, I have approached several times by for-profit companies that are offering products, services or events that could be of interest to our membership. My answer is always the same, "Please consider an advertisement in our Wavelengths Newsletter or a table display at our Spring Conference".

You, our membership, don't have to refer them to me or any other officer of our section because you may please feel free to offer the same answer.

I look forward to seeing as many of you as possible at our Spring Conference..

**Robert Neff**
IEEE SEM Section Chair
**RLNeff1@gmail.com**

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## Profile. Nevrus Kaja

### SEM Student Representative



**Nevrus Kaja** is an undergraduate student at University of Michigan Dearborn majoring in Computer Engineering. He is graduating this month and starting his Graduate Studies in Computer Engineering as well.

Although he is an undergraduate student, he has been very successful in the research arena. In 2013, under Computer Architecture Lab at University of Michigan Dearborn he was able to present his research on electronic nose for robots at a conference in China. Also, he has been presenting his research activities in other domestic conferences and symposiums such as the one that was sponsored from IEEE-Computer Society in Seattle, WA (TAPIA Conference).

Nevrus has been a member of IEEE since 2010. This is when he also moved to USA from his origin country, Albania. After transferring from Eastern Michigan University, Nevrus has been involved in many campus organizations and research activities. Since he started at UM-Dearborn he has held many leadership positions such as President of ACC-Junior, Co-Founder and President of NAPEC Professional Club and official of Robotics Club. Nevrus was elected as the Chair of IEEE-UM-Dearborn student branch and he was also nominated for Section Student Representative for the IEEE-SEM Section. He has been very active with the Section as well as with the branch.

Under the section he is working in collaboration with the Director of Student Activities (Nevrus is also training to take this position next year) on the Student Network Project. This project has turned out to be a success for our Section and the Region has expressed interest to fund it and implement it in other sections as well.

Under Student Branch Chair, Nevrus has organized two 2-week Seminars in Matlab and Simulink. These seminars have been a great introduction for the participants and have been very successful and helpful and this was shown by the number of students who attended them.

Nevrus is looking forward to develop a full career leading to a PhD in Southeast Michigan and at the same time he is promising to be active in IEEE for the rest of his career.

Each month we plan to present a personal profile of one or two of our Section Officers so that we all get to know our leaders 'on sight'. Introduce yourself to them when you meet them at the next IEEE gathering you are able to attend.

## What Happed to my Apps???

Many of us have been happy to adopt the Google Apps supplied as a member benefit along with our IEEE membership and fully utilize these tools to enhance our own operations. However, recently (February 21, 2014) some of us found that 'our' Google tools stopped functioning. Why?

In August of 2014 the new membership year for IEEE began. Between then and February 21, 2014 was the 'grace' period. When the "grace" period for renewing your IEEE membership ran out, so did your access to the Google tools, along with any IEEE e-mail alias you may have established.

Every member has an IEEE Account that can be used to sign in to renew. If you do not know your username and/or password, you can recover it from the login page.
**https://www.ieee.org/Loginforms/myIEEE/login.html**
Please do not create a new account, as it will not link to your membership or renewal bill.

Renew your IEEE Membership to continue developing your career, accessing essential networking opportunities, and receiving other exclusive IEEE benefits.
**http://www.ieee.org/go/renew**

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## Phase Delay

When I finished my first course in Electromagnetic Field Theory, I vowed to never have anything to do with that subject again. 2 years later I was in charge of our company's new "EMC" test lab and kept working in that technical niche for the next 30 years.

This history points out two items;
1. I am not good at predicting the future. (Which is why I don't by lottery tickets, or bet on sports games.) and
2. Our careers can take twists and turns that surprise us all.

Given that career shifts and changes are a common occurrence, it behooves us to keep aware of developing technology and the wide opportunities that abound in engineering. This is one of the reasons why IEEE technical Chapters conduct presentation meetings through each year. They give us all a chance to see what's new, what's coming and what's of interest.

So, how do you find out about these meetings?

Open the IEEE SEM Web Page at:
**http://sites.ieee.org/sem/**
Look at the left side bar of buttons labeled: **SEM Tools/Links**

Click on "**SEM Meetings List**"
(2nd from the bottom of the list) and voila, you get a complete list of all the meetings scheduled in the IEEE vTools system!

Each event title is actually a "Live" link to the vTools meeting page, so you can click on the title and be whisked to the complete description!

What could be easier?
…
See you at the next meeting!

## Fall Section Conference

IEEE Southeastern Michigan (SEM) Section welcomes interested members to lead and/or host the IEEE Southeastern Michigan Section 2014 Fall Conference.

This event is produced by the Southeastern Michigan Section with the intent to provide number of IEEE related opportunities.

Southeastern Michigan Section executive members will help the host to develop the technical program, speaker arrangements, arranging for posters, venue arrangements, marketing the event, managing registrations and publication of the Conference booklet.

Please take advantage of the hosting the 2014 Fall Conference which is a single place for wealth of intellectual and network resources.

Thank you for supporting the IEEE Southeastern Michigan Section.

**Raju Brahmandhabheri,**
**bvraju212@yahoo.com**

**Chair, SEM Conference Committee**

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## Section Volunteer Options:

The **Technical Activities committee** is looking for experienced members who can become 'Mentors' to help guide and encourage Chapters in our Section to achieve their full potential.

Each of these new officer positions will work with several Units leadership as a mentor to ensure effective functioning and reporting. In essence, they will serve as a 'coach' for the Unit officers.

The breakdown of Units (Chapters and Affinity Groups) is shown below:

### 1-The 'Humanities' cluster:

- Consultants
- Life Members
- Women in Engineering
- Young Professionals
- Ch 10 Technology Management
- Ch 13 Education

### 2-Computers and Systems cluster:

- Ch 1 Signal Processing / Circuits & Systems / Informaton Theory.
- Ch 3 Aerospace & Electronic Systems / Communications.
- Ch 5 Computers
- Ch 14 Robotics & Automation
- Ch 16 Computational Intelligence / Systems, Man and Cybernetics.

### 3-Sensing Measurement Cluster:

- Ch 4 Antennas & Propagation / Electron Devices / Microwave Theory & Techniques / Photonics.
- Ch 6 Geosciences and Remote Sensing.
- Ch 8 Electromagnetic Compatibility
- Ch 11 Engineering in Medicine and Biology.
- Ch 17 Nanotechnology.

### 4-**Power & Energy Cluster:**

- Ch 2 Vehicular Technology
- Ch 7 Power Engineering / Industrial Applications.
- Ch 9 Industrial Electronics / Power Electronics
- Ch 12 Control Systems.

Each of these new positions, designated as: "Technical Activities Coordinator" is available and seeking candidates. Interested members should download the job description from the SEM On-Line Community at:. **http://sem.oc.ieee.org/committees/nominations_committee/sem-job-descriptions/technical_activities_coordinator_job_description**

and fill in the use the link below to indicate your interest, and the Nominations and Appointments Committee will contact you: **https://ieee.fluidsurveys.com/s/semcommittee/**

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## Windsor Meeting – April 15

Since the events of 9/11 active participation for Canadian members in Southeastern Michigan Section IEEE activities has become difficult at best. Leadership in both Region 4 and Region 7 expressed concerns and discussed alternatives. One possible action to alleviate this situation would be to realign Windsor and Essex County with Region 7.

Region 4 and 7 leadership requested a meeting to seek the direct input from Windsor and SEM members on this proposal. We will also discuss options and requirements needed to align the Windsor and Essex county IEEE membership with IEEE Canada as well as ways and means to provide continued support from Region 4 & Southeastern Michigan Section.
.
Please join us on April 15, 2014 between 1 PM and 3 PM for a discussion of the necessary elements.

**Location:**
**University of Windsor**
Center of Engineering Innovation
Room Number: 1101
401 Sunset Avenue
Windsor, Ontario
Canada ON N9B 3P4
**Date: 15-April-2014**
**Time**: 01:00PM to 03:00PM (2.00 hours) All times are: US/Michigan

To **Register**, for this meeting, please use the vTools form located at:
**https://meetings.vtools.ieee.org/meeting_view/list_meeting/25059**

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**EMC Summer 2014 Short Courses**



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## LearnEMC Short Courses for June 2014

### Electronic Systems Design for EMC Compliance
June 10-11, Detroit, Presented by Todd Hubing, *Early registration: April 7*

### Computer Modeling Tools for Electromagnetic Compatibility
June 12, Detroit, Presented by Todd Hubing, *Early registration: April 7*

**Information and registration: www.LearnEMC.com**

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### Electronic Systems Design for
### EMC Compliance *(June 10-11, Detroit)*
Printed circuit board layout is often the single most important factor affecting the electromagnetic compatibility of electronic systems. This two-day course stresses fundamental board design concepts and tools to help reduce or eliminate electromagnetic compatibility and signal integrity problems. In this course you will learn to properly place components and route traces, as well as design effective power distribution and grounding strategies for both digital and mixed-signal boards.

### Computer Modeling Tools for
### Electromagnetic Compatibility
*(June 12, Detroit)* This one-day course covers electromagnetic modeling codes, circuit solvers, rule checkers, analytical modeling tools, web-based calculators and apps. Examples are provided demonstrating the application of various modeling tools to real-world EMC design problems. Upon completion, you will be aware of available tools for EMC design and analysis of electronic systems and be able to make good decisions regarding appropriate tools for specific needs.

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**Dr. Todd Hubing** is the Michelin Professor of Vehicle Electronics at Clemson University and Director of the Clemson Vehicular Electronics Laboratory.

## For more information, please visit www.LearnEMC.com

https://meetings.vtools.ieee.org/meeting_view/list_meeting/24627

## SPRING CONFERENCE

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

Oakland UNIVERSITY

### Thursday Evening, April 24, 2014

**Oakland Center** (at Oakland University)
2200 N. Squirrel Road, Rochester, MI, US, 48309
Tel: +1 248 370 2020

**Meeting Agenda:**
4:00 PM – 5:30 PM  Registration
                   Display Tables / Student Posters / Networking
5:30 PM – 5:40 PM  Oakland University Welcome
5:45 PM – 6:30 PM  Panel Discussion
6:45 PM – 7:30 PM  Technical Sessions
7:30 PM – 8:00 PM  Poster Presentations and Student Competition
8:00 PM – 8:30 PM  Dinner and Entertainment
8:30 PM – 8:40 PM  Remarks by SECS Dean
8:40 PM – 8:45 PM  Keynote Speaker Introduction
8:45 PM – 9:30 PM  Keynote Presentation
9:30 PM – 9:45 PM  Awards and Recognition

### Keynote Presentation:
## Microsystems to Nanosystems:
## Meeting the Challenges of the 21st Century
### Kensall D. Wise

William Gould Dow Distinguished University
Professor Emeritus Electrical Engineering and Computer Science

Progress in the miniaturization of microelectronic functions has far exceeded anything imagined in the early years of integrated circuits and has revolutionized data processing, communications, control, transportation, and access to information. Although its impact on areas such as health care, security, sustainable energy, and the environment has so far been muted, it is now poised to transform these areas as well, merging very low-power integrated circuits with wireless connectivity and sophisticated sensing technologies. Employing nanotechnology, energy scavenging, heterogeneous integration, and wafer-level packaging, these wireless integrated microsystems will be key in solving some of the most challenging problems of the 21st century. Today, microsystems 1mm3 in size and dissipating less than 1nW are being realized, while in the future, nanosystems the size of single cells operating at pW levels may be possible. This talk will highlight several emerging devices, including chromatography-based microsystems capable of rapidly analyzing complex gaseous mixtures with sensitivities in the parts-per-trillion range, chronically-implantable neural microsystems for the treatment of deafness, blindness, epilepsy, Parkinson's disease, and perhaps paralysis, and an intraocular microsystem for continuously monitoring eye pressure to improve the treatment of glaucoma.

### This Conference supported by:
**Oakland University School of Engineering and Computer Science**

CAS

### Conference Website: www.ieee-sem.org/spring

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## Panel Discussion

# Industry Advancing Technologies for Humanity

(Followed by Technical Presentations, Dinner and Keynote Address)

Moderator: Dr. Hoda S. Abdel-Aty-Zohdy, J. F. Dodge Chair Professor, Oakland University

Panelists:

**Dr. Hussein Dourra**, Technical Fellow, CHRYSLER.LLC
*"Utilizing Virtual Tools; Physics Based Solutions; Achieving Optimum Results"*

**Dr. Subhendu Guha, Former VP of Uni-Solar**
*"Solar Energy – Coming of age"*

**Ms. Delia Rodi,** CEO, Owner NIAGARA MURANO ARCHITECTURE
*"Lightning Technology and how it applies to Humanity."*

**Dr. Anthony Cooprider,** Senior Technology Leader, Ford Motor Company
*"Embedded Electronics in Automotives"*

**Dr. Hoda S. Abdel-Aty-Zohdy**, J. F. Dodge Chair Professor, Oakland University
*"Bio-Inspired Integrated Systems Applications"*

## Technical Presentations (after Panel Discussion)
### Parallel Presentations Followed by Dinner and Keynote Address

### The Importance of Electromagnetics in the Automotive Industry as a Result of Telematics and Infotainment

Wireless technologies have proliferated onto automotive platforms as part of infotainment, telematics and active safety initiatives. These wireless solutions present engineers design challenges in the area of applied electromagnetics in terms of antenna design, antenna placement, electromagnetic compatibility and wave propagation. The Applied EMAG and Wireless Lab at Oakland University possesses an outdoor vehicle-level antenna range (80 MHz - 6,000 MHz) and full-wave electromagnetic field solvers with high end computers to solve these issues. A background will be provided on the wireless technologies on automotive platforms followed by past industry relevant research in these areas relating to antenna design, antenna measurement and antenna placement.

**Dr. Dan Aloi**
Professor, Chair
ECE Department,
Oakland University

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## Technical Presentations (after Panel Discussion)

### Parallel Presentations Followed by Dinner and Keynote Address

### Using Cyber-Physical Systems to Explore Ancient Sites Underneath Lake Huron With Cultural Algorithms

**Robert Reynolds**
Professor
Computer Science
Wayne State University

Most of the Grand Challenge questions that remain about human evolution can only be addressed by accessing sites that are now under water. In this talk we discuss a Cyber-Physical System developed in conjunction with the University of Michigan-Ann Arbor Museum of Anthropological Archaeology and the Department of Oceanographic and Atmospheric Engineering. The system is used to help identify and explore ancient occupational sites currently found in over 100 feet of water underneath Modern Lake Huron. The contribution of Virtual World modeling and Machine Learning using Cultural Algorithms will be highlighted. The potential for applying such techniques to explore other ancient sites will be explored.

### Model Based Control Application to Powertrain Applications

**Dr. Gouming (George) Zhu**
Professor, Mechanical Engineering and Electrical and Computer Engineering
Michigan State University

With the growing concern of global warming and energy crisis, many new technologies are used in modern powertrain and engine systems. Variable valve-train, electronic throttle, exhaust-gas-recirculation, variable geometry turbo and waste gate, super charger, new after-treatment systems, and hybrid powertrain system add additional degrees of freedom to powertrain and engine control systems. The conventional single-input-single-output control technique cannot provide precise powertrain and engine control under either steady state or transient operations and model-based multi-input-multi-output control becomes a necessity. This talk presents some model-based control applications to powertrain and engine system at the Energy and Automotive Research Lab of the Michigan State University, which includes crank-resolved engine model for hardware-in-the-loop (HIL) simulations, hybrid powertrain HIL simulation and control, model-based combustion mode transition control, gain-scheduling control for the bio-fuel after-treatment system, linear parameter varying (LPV) control of engine throttle and cam phasing system, and so on.

### Cloud based Mobile Application Testing

**Rajkumar Bhojan**
Test Architect
Wipro Technologies

As mobile applications are becoming increasingly sophisticated, they significantly increase the requirement for functional and non-functional tests. Academicians and testing experts have to come up with effective verification techniques to ensure reliability of these mobile applications. One of the ways to test mobile applications is Cloud based mobile application testing which helps to develop and execute automation scripts on real devices. This seminar focuses on mobile testing, multiple/cross device execution and parallel execution.

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## Technical Presentations
### Parallel Presentations Followed by Dinner and Keynote Address

### Getting arms around Big Data with Systems Thinking

**Satyendra Rana**
Visiting Professor
College of Engineering
Wayne State University

Whether we like it or not, we are all deluged with data. Furthermore, we are obligated to respond to concerns and hopes that accompany data deluge. This talk will describe a systems thinking based framework to get arms around Big Data. This framework serves as a guidance system to make the most out of Big Data efforts regardless of Big Data maturity level or role or whether the context is that of an individual or an organization.

### Electric Vehicle Charging

**Rich Scholer**
Chair, SAE/JAE Task
Force

This presentation will identify the requirements and progress on Plug-in Electric Vehicle (PEV) charging. It will provide an overview of the current Utility Grid and on how this will evolve as the population of PEVs continue to expand. Existing tools employed by utilities and proposed new tools being evaluated for effectiveness are presented. Combining these will provide a seamless approach for additional loads while maintaining existing Grid distribution and transformer loading

### IEEE Power & Energy Society Scholarship Plus Program

**Kevin Taylor**
Chair, SEM IEEE PE/IA

Power and energy engineers work with some of today's most exciting technologies, developing solutions to problems that affect our lives and lifestyles. The PES Scholarship Plus Initiative provides scholarships and real world experience to undergraduates interested in power and energy engineering careers.

### Performance Analysis of Adders over Fp for Cryptographic Applications

**Dr. Fayez Gebali**
Professor and Chair,
ECE Department
University of Victoria

Cryptographic applications require fast finite field arithmetic operations. FIPS 186-2 and NIST recommend ten fields for elliptic curve cryptography, five are prime Fp where the number of bits m needed to represent the prime span the range m = 192, 224, 256, 384, and 521. The prime moduli p are chosen of a special type of numbers called generalized Mersenne numbers. This report provides a comprehensive study of several performance requirements such as area, delay, static and dynamic energy consumption.

### Reverse Power Flow (RPF) in the SG environment with applications

**Albert Ancona**
Vice President
Operations and Owner.
Ancona Controls Inc.

There is an increasing interest with smart grid (SG) preservation within the US and Globally. There are a number of problems associated with future power loading without the use of observing the grid in a SG mentality. It is important that electric supply to customers is optimize and maintain a low cost of operation. One of the problems with SG is the development of Plug in Electric Vehicles (PEV).

The Electric Vehicle Supply Equipment (EVSE) is a concept that will help supplement in the protection of the power infrastructure and shield the network thru smart grid technologies. The grid is a power disbursement network; once it is produced it is consumed immediately. There is no way at this time to hold it economically for a later moment when the demand increases. With the smart grid, we are able to manage it and maintain a level absent from overloading. The demand for power is only going to increase with the push for (PEV). The Government is pushing this as part of the Green initiative, so demand for more power is not going away, it is already here. This is why the EVSE can be an asset that shows promise in giving back.

### Conference Website: www.ieee-sem.org/spring

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## Call for Posters

All research faculty, professionals and students are invited to participate.

- Conference highlights the cutting edge research activities being pursued in Southeastern Michigan
- Showcase your research and network with people from Industry/Academia.
- Best poster awards for top posters presented as judged by the review committee.
- Poster topics related to any of the chapters/societies represented in the IEEE Southeastern Michigan Section (chapters tab at www.ieee-sem.org) are encouraged.
- Authors wishing to participate in the poster session must submit a poster title and abstract (less than 150 words) to Chaitanya Setti (sck@computer.org) by no later than April 20, 2014.
    - Suggested poster size should be less than 4 feet by 3 feet.
    - Authors will present their posters during the poster session from 4:00 PM to 5:30 PM and the Poster Presentation and Student Competition from 7:30 PM to 8:00 PM

## Registration

Register at the conference web site www.ieee-sem.org/spring

Conference Attendee Fees (Early Registration/Late Registration):
Students/Retired/Unemployed (Members)............................. $25/$35
IEEE Members ....................................................................... $45/$60
Non Members ....................................................................... $60/$70
Student Dinner Table Sponsor (10 Students) ..........................$250
Corporate Table Sponsor (8 Guests)........................................$360

Registration closes midnight April 20, 2014 (early registration ends April 10, 2014)

## Questions?

### Conference Committee Contacts

Dr. Hoda Abdel-Aty-Zohdy, Conference Chairman ....zohdyhsa@oakland.edu
Raju Brahmandhaberi ............................................... bvraju@gmail.com
Kevin Taylor ............................................................. k2356@aol.com
Scott Lytle ...............................................scott.lytle@us.yazaki.com
Subra Ganesan...........................................ganesan@oakland.edu
Basil Sherlund ...........................................bsherlund@yahoo.com
Rajeev Verma ...........................................rajeevverma@eaton.com

## Conference Website: www.ieee-sem.org/spring

## EMCfest 2014

The Southeastern Michigan EMC Chapter Proudly Presents:

**EMC*Fest* '2014**

# Novel and Practical Approaches to EMC Design and Troubleshooting

**A Tutorial and Exhibition**
With Honored Guest Speaker
**Doug Smith**
**EMC Consultant**
**Thursday, May 8, 2014**
**At**
**Canton Summit on the Park**
**Canton, Michigan**
46000 Summit Parkway
Canton, Michigan 48188
(734) 394-5480

*IEEE Electromagnetic Compatibility (EMC) Society.*
EMCFest'2014 Home Page:
**http://www.emcfest.org**
**Register On-Line!**

## Program Agenda

| | |
|------|--------------------------|
| 7:30 | **Register & Breakfast** |
| 8:30 | **General lab measurements** |
| 10:00 | **Break & Exhibits** |
| 10:30 | **Quick bench top emissions** |
| 12:00 | **LUNCH** |
| 1:00 | **Switching Circuit Noise** |
| 2:30 | **Break 7 Exhibits** |
| 3:00 | **Electrical Resonances** |
| 4:30 | **Reception** |
| 5:00 | **Close of EMCFest** |

**Novel and Practical Approaches to EMC Design and Troubleshooting**

**Mr. Smith held an FCC First Class Radiotelephone license by age 16 and a General Class amateur radio license at age 12. He received a B.E.E.E. degree from Vanderbilt University in 1969 and an M.S.E.E. degree from the California Institute of Technology in 1970. In 1970, he joined AT&T Bell Laboratories as a Member of Technical Staff.**

**He retired in 1996 as a Distinguished Member of Technical Staff. From February 1996 to April 2000 he was Manager of EMC Development and Test at Auspex Systems in Santa Clara, CA.**

**Mr. Smith currently is an independent consultant specializing in high frequency measurements, circuit/system design and verification, switching power supply noise and specifications, EMC, and immunity to transient noise. He is a Senior Member of the IEEE and a former member of the IEEE EMC Society Board of Directors.**
**His technical interests include high frequency effects in electronic circuits, including topics such as Electromagnetic Compatibility (EMC), Electrostatic Discharge (ESD), Electrical Fast Transients (EFT), and other forms of pulsed electromagnetic interference. He has been granted over 15 patents, several on measurement apparatus.**

### FEE SCHEDULE

| | |
|-----------------------------------|-------|
| Members, before April 24 | **$40** |
| Non Members, before 24 | **$50** |
| Full –time Students | **$25** |
| Unemployed / Retired Member | **$25** |
| CEU Certificate Only | **$25** |
| Registrations after April 24th | **$100** |

Register On-Line!

The registration fee includes one copy of the tutorial record, continental breakfast, lunch, and reception. The organizing committee reserves the right to substitute speakers, restrict size, or to cancel the tutorial. In the event EMC Fest 2009 is canceled by the organizing committee, registration fees only will be fully refunded. Individuals canceling their registration prior to April 24 will receive a full refund.

No refunds will be made to individuals who cancel their registration after April 24.

Attendance is limited. Registration will be confirmed on a first come, first served basis.

## www.emcfest.org

**HAMPTON INN & Suites** in Canton is offering reduced room rates for reservations. Special Room rates of $139.00 are available (standard room), plus tax. Internet, Lifetime Fitness exercise pass and breakfast are free. There are a LIMITED number of hotel rooms at this price. You must mention **"EMC"** to get this special rate and reserve your room by April 27. After which rooms and rates are subject to availability. The Canton Comfort Suites Hotel is located 11 miles from Detroit Metropolitan Airport. From I-275 take exit #25 (Ford Road/Mi-153) West. Travel approximately 1/4 of a mile to Haggerty Road. Turn left on Haggerty Road and proceed approximately 400 yards. Hampton Inn will be on the left .

Contact 734-844-1111 to make arrangements. Airport shuttle is available every 60 minutes 24/7 for FREE through the hotel. Call 734-844-1111 for pickup at ground transportation. A free Hotel shuttle will also be available to and from the Summit.

## April Fool's - EMC Guidelines

In honor of this time of the year when we celebrate the tendency for us humans to engage in "reduction ad absurdum" we offer the following for anyone gullible to take it all in:

## A Practical Guide to EMC:
1. Put everything in metal boxes… no, lead boxes – two lead boxes, in fact.
2. Don't make anything electric, use steam.  But not for the European market because of the Simple Pressure Vessel Directive.
3. Don't make anything with wires which connect to anything else. Communication should be by semaphore, hydraulics, or string.
4. If you must use electricity, ground everything – even signal lines.
5. Use metal connectors, metal shells, metal switches, metal fasteners; solder them all together and ground everything.
6. Put ferrite on everything, even string.
7. Don't use electric motors.  Use mice in little cage wheels.  Put ground straps on the mice.
8. Don't have any ventilation holes. They allow RF energy in and out of the enclosure.  I know it's bad for the mice, but, we live in a disposable age.
9. Bond everything to a ground plane – portable devices have the potential to generate way too much interference anyway.
10. Don't have any removable parts – they compromise the integrity of the enclosure.  Mice should be sealed in at the time of manufacture.  This stops pooh from getting everywhere too.

## Robofest 2014

IEEE SEM and Region 4 are sponsoring the 15th anniversary **Robofest** 2014 which is in full swing. Over 1,600 students in six countries and ten US States are working hard to compete at **Robofest**, started in Michigan. All the students are receiving the prestigious IEEE SEM and Region 4 medal shown on the bottom of the page. IEEE has been sponsoring Robofest participation medals since 2004.

**Robofest** is a competition of autonomous robots. Feed-back loop control is required and dead-reckoning is discouraged in **Robofest** categories. Teams compete in the junior division (grades 5-8) or senior division (grades 9-12), using a variety of computer programming languages.

This year's game mission, AMD (Avoid Melt-Down) is to develop an autonomous robot to cool down a nuclear power plant by dropping off three tennis balls and an egg, representing water containers, into a troubled nuclear reactor box. In addition, the robot needs to measure and report the volume of the box in cubic centimeters. The challenge directly connects math concepts to robotics.

In addition to the game, there will be a science fair-style exhibition competition, which will demonstrate the imagination and creativity of the students through hands-on computer-programed robotics.

The events are open to the public and **admission is free**.

In Michigan, we have the following nine local qualifying competitions in March and April.

| | | |
|---|---|---|
| **Mar 21** | **5 PM ~ 9 PM** | **University of Detroit Jesuit High School and Academy,** 8400 S Cambridge, Detroit |
| **Mar 22** | **9 AM ~ 1 PM** | **International Academy East,** 1291 Torpey Drive, Troy |
| **Mar 29** | **9 AM ~ 1 PM** | **Bethany Christian School,** 2601 John R Road, Troy |
| **Apr 1** | **1PM ~ 5 PM** | **Emerson Elementary,** 18420 Huntington Rd, Detroit |
| **Apr 5** | **1PM ~ 5PM** | **Center for Engineering and Computer Technology, Baker College,** 1050 W. Bristol Rd, Flint |
| **Apr 5** | **9AM ~ 1 PM** | **Canton Charter Academy,** 49100 Ford Road, Canton |
| **Apr 5** | **9AM ~ 1PM** | **Macomb Christian Schools,** 28501 Lorraine, Warren |
| **Apr 12** | **9AM ~ 1PM** | **Achieve Charter Academy,** 3250 Denton Rd, Canton |
| **Apr 19** | **9AM ~ 1AM** | **Charles H. Wright Museum of African American History,** 315 East Warren, Detroit |



60 teams will be selected from the above qualifiers to compete at the Michigan Championship on Saturday, May 3 at Lawrence Technological University, 21000 West 10 Mile Road, Southfield.

**Robofest** World Championship will be held on Saturday, May 17, from 9 a.m. to 4:30 p.m. in the Ridler Field House at LTU. Teams competing in the Robofest World Championship are from Michigan, California, Indiana, Ohio, Minnesota, Texas, Florida, Missouri, Washington, Hawaii, Canada, India, Korea, Mexico, France, and South Africa.

**IEEE members are invited to be Judges at any of the competition sites.**

For more information about **Robofest** programs, events, or volunteering, please contact robofest@ltu.edu, visit **www.robofest.net**, or call **248-204-3568**.

## Executive Committee

**The SEM Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2014 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on either the first <u>Wednesday (Even numbered Months)</u> or first <u>Thursday (Odd numbered months)</u> at Noon. The meeting times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: **http://sites.ieee.org/sem/** Click on the 'Calendar' button in the top banner on the Website first page.

If you wish to attend, or just monitor the discussions, please contact David Mindham, the Section Secretary at: **dmindham@ieee.org** and request a copy of the agenda and minutes.

More meeting details are available on the next page of this newsletter.

**Other Meetings:**
Most of our members maintain memberships in one or more of the IEEE Technical Societies, which automatically makes them members of the local Chapter which is affiliated with that Society. As a result, they should receive notices of those meetings each month.

However, most of our members are not 2-dimensional beings, with only one focused interest. That means that they would likely find meetings of the other Chapters also of interest. In 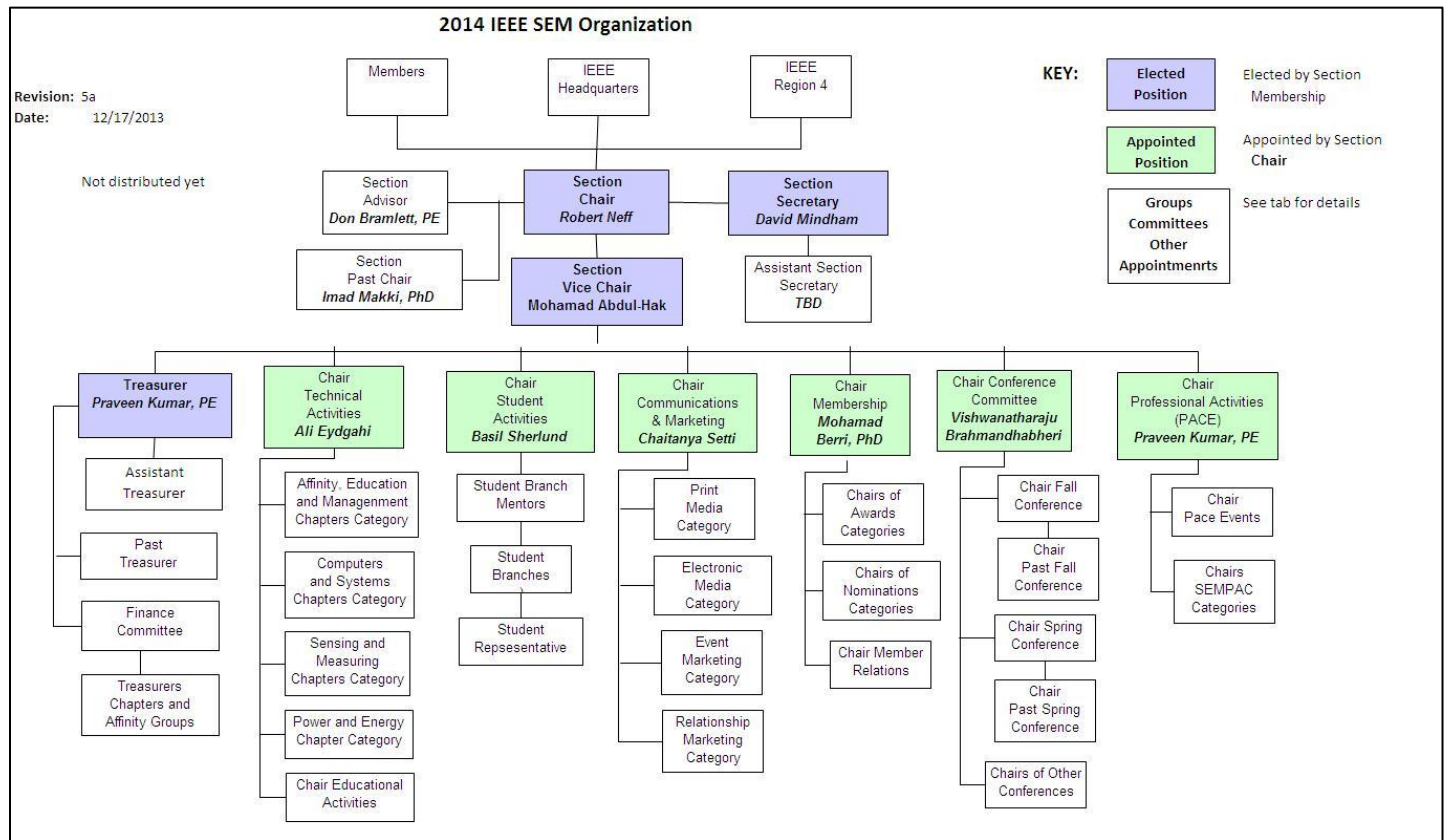order to communicate those options to our members and facilitate their attendance we ask each of our Chapters to send their meeting information to our Webmasters who post the meeting information on the Website Calendar.

More detailed information on meetings may be found by using the IEEE meetings site. This may be found through the IEEE SEM Website: **http://sites.ieee.org/sem/** and clicking on the **SEM meetings list** button near the bottom of the left hand banner.

You may also set up automatic e-mail notifications of web updates by using the "**Email Notifications**" button at the top of the **SEM Tools/Links** side banner.

**David Mindham** - SEM Secretary

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2014 IEEE SEM Organization

## Section Mission & Goals

# Section Focus:

The IEEE SEM Senior Officers of the Section have reaffirmed the overall Mission and Goals of the Section, which align with the overall objectives of IEEE worldwide and with the guidance provided by our leadership in Region 4.

You have probably seen the Mission and Goals before. However, it is important to keep these clearly in mind and remind ourselves often that this is what we are about and what we are trying to accomplish.

### Section Mission
Inspire – Enable – Empower and Engage Members of IEEE at the local level.
For the purpose of:
- Fulfilling the mission of IEEE (…**foster technological innovation and excellence for the benefit of humanity**.)
- Enhancing the members' growth and development throughout their life cycle
- Providing a professional home

### Section Goals
- Increase member engagement,
- Improve relationships with and among members,
- Increase operational efficiency and effectiveness, within the section and its interfaces,
- Enhance collaboration – serve as the local face of IEEE to the community,
- Increase membership,
- Ensure the collection of appropriate information necessary to assist the IEEE to become a data driven organization.

It is now the task of the Section leadership to guide and coach all Section officers and elements to focus their activities on achieving those goals.

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## SEM ExCom Meetings

# Scheduled Meetings:

The regular meetings of the SEM 'Leadership' ExCom (Executive Committee) are scheduled well in advance to allow everyone to place them in their personal planning calendars, and then defend those dates against encroachment. (*Not always possible.*)

Two types of ExCom meetings are normally scheduled:
**Monthly Teleconference / WebEx** as well as:
**Quarterly Face-to-Face**.(See Below)

**Note:** All IEEE meetings are 'Open' for all members to attend.
The only caveat is that you please register using the specific meeting form found at:
**https://meetings.vtools.ieee.org/main**

This is to ensure we have sufficient space, refreshments and support for everyone who attends.

**Teleconference Schedule
(held from 12-1 PM):**
- Wednesday, May 7th
- Thursday, June 5th
- Thursday, August 7th
- Wednesday, September 3rd
- Wednesday, November 5th
- Thursday, December 4th

**F2F Meeting Schedule:**
- **Thursday, April 3rd**
- Wednesday, July 9th
- Thursday, October 2nd

**The April IEEE Southeastern Michigan Section ExCom Face 2 Face** will be held **Thursday April 3** , from 5-8 PM.
Please register online at
 **https://meetings.vtools.ieee.org/ meeting_view/list_meeting/23587**
•
Location:
Building: Fairlane -North Center
Campus U of M Dearborn
Room Number: 120
19000 Hubbard Drive
Dearborn, Michigan
United States 48126

More information for the f2f meetings will be sent out as the dates are approached. Keep in touch via the SEM Web site (**http://sites.ieee.org/sem/**) or use the links to the SEM Facebook or LinkedIN pages on the SEM Web page.

**vTools Schedule:**
All the normally scheduled meetings of each of the other Section 'units' are listed each month in the vTools area of our SEM website at:
**http://ewh.ieee.org/r4/se_michigan/ calendar1.php**

These announcements refer to:
 Standing Committee Meetings:
 Affinity Group Meetings:
 Technical Chapter Meetings:
 University Student Branch Meetings:

**Calendar Schedule:**
Meetings are also announced on the SEM Web page Calendar
 **http://sites.ieee.org/sem/**
(Select the "SEM Calendar" **button** in the top row.)
**Note:** Often meetings of the 'Executive Committees' of Chapters and Affinity Groups (and standing committees, of course) are listed only in the 'SEM Calendar' page, since it is felt that most members would not wish to sit through the 'administrative' meetings. However, if this type of meeting is just your 'cup of tea', then contact the officers of the unit that is conducting the meeting, and ask to be 'linked' into their teleconference, SKYPE, Google Hangout, or WebEx meeting. They would be happy to have you as a participant.

Many volunteers get interested in Section activities when they get a chance to attend an ExCom meeting and 'peek under the hood' to find out how the machinery of the Section actually runs. It can be a rewarding experience.

**David Mindham**
SEM Section Secretary.
**dmindham@ieee.org**

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## Editors Corner

This is the 4th 2014 issue of the Wavelengths newsletter.

Earlier editions in this series may be found on the IEEE SEM Web page at: http://sites.ieee.org/sem/. Click on the "Wavelengths" button in the top row of selections.

Comments and suggestions may be sent to the editor at k.williams@ieee.org. We also recommend a cc to the Chair of the Communications and Marketing Committee, Chaitanya Setti at: chaitanyagini@ieee.org.

The newsletter does not have a staff of reporters to 'investigate' what is going on in the Section and write up informative articles.
We rely on our Officers and Members to provide the 'copy' that we finally present to our readers as the newsletter.

The **Wavelenghts – Focus Plan and Personal Profiles** plan shown in the matrix below is conceived as a method to ensure a reasonable coverage of normally expected Section activities and events.

We try to finish each issue assembly by the week before the first of each month to allow time for review and corrections. If you have an article or notice, please try to get it to us on time, or early if possible.

The plan below relies on the contributions of our members and officers, so please do not be shy. If you have something that should be shared with the rest of the Section, we want to give you that opportunity.

**Letter to the Editor:**

We would like to see "Letters to the Editor" as a regular column but, of course that means that someone must send an e-mail to the editor…hint!

**Co-Editors:**

I am selfishly looking for someone interested in helping to edit the newsletter along with me who can learn the process, share in the duties, and help keep the newsletter alive and lively by providing an alternative point of view.

If you feel you might be that person, or would like to train to become that person, please let me know.

k.williams@ieee.org

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### Wavelenghts – Focus Plan:

| Month | AG's | Ch's | Ch's | SB's | Specal Notice | Reporting Events | Monthly Focus | Awards |
|-------|------|------|------|------|---------------|------------------|---------------|--------|
| Jan | | 1 | | U/D-M | Future Cities Judges | Election Results | Resolutions | |
| Feb | Cons | 2 | | MSU | Science Fair Judges | Officer's Welcome | Surviving Winter | Future Cities |
| Mar | | 3 | 13 | U/M-AA | Spring Conf. Flyer | Spring Conference | Spring Conference | Science Fair |
| Apr | | 4 | | WSU | National Engrs Wk. | Future Cities | Chapter Focus | GOLD Award |
| May | Life | 5 | 14 | LTU | Outstanding Eng Awd | Science Fair | Humanatarian | New Fellows |
| Jun | | 6 | | SCC | IEEE-USA Apmts. | ESD Banquett | Leadership Skills | SEM Awards |
| Jul | | 7 | 15 | U/W | Nominations Call | MD-Webcasts | Students Issues | Region 4 |
| Aug | WIE | 8 | | OU | MGA - Apmts. | Tech-Webinars | Womens Issues | |
| Sep | | 9 | 16 | EMU | Region 4 Apmts. | Engineers Day | Professional Skills | |
| Oct | | 10 | | ITT | Fall Conf. Flyer | | Fall Conference | |
| Nov | YP | 11 | 17 | U/M-D | ELECTIONS! | | | |
| Dec | | 12 | | | IEEE-Com Apmts. | Fall Conference | Happy Holidays | |

### Wavelenghts – Personal Profiles:

| Month | Profiles | Profiles | Committees |
|-------|----------|----------|------------|
| Jan | Chair | New Officers | |
| Feb | V-Chair | Secretary | Communications |
| Mar | Treasurer | Sect-Adviser | Conference |
| Apr | Stud-Rep | | Education |
| May | | Sr Officers | Executive |
| Jun | | | Finance |
| Jul | | | Membership |
| Aug | | | Nominations |
| Sep | | | PACE Activities |
| Oct | | | Student Activities |
| Nov | | | Technical Activities |
| Dec | | Editor-WL | |



IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

# Web & Social Sites

## SEM Website
### http://sites.ieee.org/sem/

## Each of the sites below may be accessed through the SEM Website:

## Section Website Event Calendar
(Select the "SEM Calendar" button - top row.)

## SEM Facebook Page
(Select the " f " button under the top row.)

## SEM LinkedIN Page
(Select the " in " button under the top row.)

## SEM Officers:
For a complete listing of all - Section - Standing Committee - Affinity Group - Chapter and Student Branch **officers**, see the SEM Officers Roster on the SEM web page under the "About SEM" button and select "Current Officers".

## SEM On Line Community
### http://sem.oc.ieee.org/

## 'ExCom' Officers

**Section Chair**
Robert Neff

**Section Secretary**
David Mindham

**Section Vice-Chair**
Mohamad Abdul-Hak

**Section Treasurer**
Praveen Kumar

**Section Adviser**
Don Bramlett

**Chair Communications & Marketing**
Chaitanya Setti

**Chair Conferences**
Raju Brahmandhabheri

**Chair Educational Activities**
Chaomin Luo

**Chair Finance**
Bassel Atallah

**Chair Membership**
Mohamad Berri

**Chair Nominations**
Chaitanya Setti

**Chair Professional Activities**
Praveen Kumar

**Chair Student Activities**
Basil Sherlund

**Student Representative**
Nevrus Kaja

**Chair Technical Activities**
Ali Eydgahi

**Past Section Chair**
Imad Makki

IEEE Southeastern Michigan

**Visit Us on the Web at:**
**http://sites.ieee.org/sem/**

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## Leadership Meetings

### All IEEE members are welcome to join us at any regularly scheduled meeting:

**SEM Executive Committee Monthly Teleconferences:**
- 1st Thursday of Each Month @ Noon
- Check the Section Web Calendar at:
  **http://sites.ieee.org/sem/**
  (Select the "SEM Calendar" button in the top row.)

**SEM Executive Committee Face-to-Face Meetings:**
- 1/Qtr. Usually held at U/M-D Fairlane Center
- Registration at:
  **https://meetings.vtools.ieee.org/main**

**SEM Standing Committee Meetings:**
**SEM Affinity Group Meetings:**
**SEM Technical Chapter Meetings:**
**SEM University Student Branch Meetings:**
- Meeting schedules are announced on SEM Web Calendar
  **http://sites.ieee.org/sem/**
  (Select the "SEM Calendar" button in the top row.)

- Registration for all at:
  **https://meetings.vtools.ieee.org/main**