Wavelengths

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Volume 58 – Issue 4

Contents

Section Chair's Message

SEM Event:
Southeastern Michigan Section's Spring Conference "Government Regulation and Engineering" is happening on Saturday, May 5 in Troy. Please see the details on page 2.

IEEE International Events:
The SE Michigan chapter of the IEEE Computer Society (aka Chapter 5) and Region 4 are presenting the 18th edition of Electro/Information Technology Conference (EIT 2018) at Oakland University in Rochester, Michigan, from May 3 through May 5. More information is on page 3. Also see http://www.eit-conference.org/

We have an anniversary of a major IEEE International Technical Milestone right here in our Detroit area. See pages 14 through 15 for more details.

Chapter Meetings and Events:
Many Chapter events can be seen on the SEM calendar at http://sites.ieee.org/sem/sem-calendar/

Inter-chapter activities and participation is encouraged. Often there are technology or general interest overlaps for our members. Please feel free to invite non-IEEE members. It's a great recruiting opportunity and offers the ability to network with others outside of IEEE. Vehicle Technologies Society (VTS) aka Chapter 2, Chair Larry Baczkowski recently publicized a workshop being put on by Sharan Kalwani for his Chapter 5 (Computer Society) that could be of interest to his VTS members. The Electromagnetic Compatibility Society (EMC) or Chapter 8, routinely invites non-members to their monthly technical meetings and EMC Fest. These are wonderful examples of our Chapters working together and promoting the value of IEEE to industry and non-members.

Student Branches:
Our Student Branches, http://sites.ieee.org/sem-sa/, are one of our most valuable assets. Our student branch leaders will be graduating this spring and moving on with their lives. Please encourage them to remain active with our section and individual chapters, and/or also join the IEEE SEM Young Professionals Organization. Planning for the new leadership of these branches for the coming Fall should begin right now.
I look forward to hearing from you and seeing you at our events. As always, your ideas and suggestions are encouraged and welcome.

Robert Neff
IEEE SEM Section Chair
RLNeff1@gmail.com

Spring Conference

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

2018 SPRING CONFERENCE

Saturday, May 5

GOVERNMENT REGULATION AND ENGINEERING

Location

Troy Community Center
3179 Livernois, Troy, Michigan 48083

Conference Agenda

09:30 AM	*10:00 AM*	*Registration / Networking*
	(coffee, tea, and a light breakfast provided)	
10:00 AM	*12:00 PM*	*Speakers*
12:00 PM	*01:00 PM*	*Lunch*
12:30 PM	*01:00 PM*	*IEEE Section Awards*
01:00 PM	*02:00 PM*	*Keynote Speech*
02:00 PM		*Closing Remarks*

Registration

https://events.vtools.ieee.org/meeting_registration/register/160622
Early Online Registration ends April 20
Late Online Registration ends May 3 (deadline for meal orders)
Day-Of / In-Person Registration - Credit Cards Only (No Cash or Checks)

Conference Attendee Fees:	**Early / Late**
Students/Retired/Unemployed (Members)	*$25 / $35*
IEEE / ESD / SWE Members	*$45 / $60*
Non Members	*$60 / $80*
Technical Sessions Only	*$30*
Primary Poster Authors	*$0*
Additional Poster Author	*$25*
Student Table Sponsor (8 students)	*$250*
*Silver Sponsorship Registration**	*$500*
*Gold Sponsorship Registration**	*$1000*
*Platinum Sponsorship Registration**	*$2000*
*Diamond Sponsorship Registration**	*$3000*

*Please contact organizers at isullivan@ieee.org for further sponsorship details.

Conference website: htttp://www.ieee-sem.org/spring

EIT 2018

ANNOUNCEMENT

2018 IEEE INTERNATIONAL CONFERENCE on ELECTRO/INFORMATION TECHNOLOGY

May 3-5, 2018, Hosted by Oakland University
Rochester, Michigan, USA

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Hossein Mousavinezhad

EIT 2018 Conference Web site:
http://www.eit-conference.org/eit2018/

The 2018 International Electro/Information Technology Conference, sponsored by the IEEE Region 4 (R4), is focused on basic/applied research results in the fields of electrical and computer engineering as they relate to Electrical and Computer Engineering, Information Technology, and related applications. The purpose of the conference is to provide a **forum for researchers and industrial investigators** to exchange ideas and discuss developments in these growing fields. There will also be exhibits where the latest electro/information technology tools and products will be showcased. This is also an opportunity for professional activities development, workshops and tutorials.

Topics of interest include but are not limited to:

- Robotics and Mechatronics
- Intelligent Systems and Multi-agent Systems
- Control Systems and System Identification
- Reconfigurable and Embedded Systems
- Power Systems and Power Electronics
- Solid State, Consumer, Automotive Electronics
- ADAS-Advanced Driver Assist Systems
- Connected Vehicle – V2V, V2I, V2X
- Biomedical Applications, Telemedicine
- Biometrics and Bioinformatics
- Nanotech, Micro Electromechanical Systems
- Wireless communications and Networking
- Ad Hoc and Sensor Networks, Cyber Security
- GPU Computing
- Computer Vision, Signal/Image Processing
- Distributed Data Fusion and Mining
- Cloud, Mobile, and Distributed Computing
- Software Engineering, Middleware Architecture
- Engineering Education, More topics on website

Important dates:

- **Early registration: April 1, 2018**

For more information, ideas for organizing /chairing sessions, industry participation, tutorials, professional activities sessions, please contact:
Dr. Ganesan, Dr. Aloi or Dr. Mousavinezhad

EMC Training Classes

2018 Gold Awards

The 2018 Engineering Society of Detroit (ESD) Gold Award Reception & Recognition ceremony took place on March 21, 2018 at the American Polish Cultural Center in Troy, Michigan. At 6 p.m. a reception was held, followed at 7:15 p.m by the Awards Program. The audience consisted of ESD officers, representatives of the ESD Affiliate Council member Societies, award recipients and their guests, and ESD members and their guests. All in all, the gathering totaled over 100 persons gathered to honor and celebrate the accomplishments of some of our most outstanding volunteers. On behalf of the IEEE, the SEM Section Adviser, Don Bramlett, presented awards for outstanding serve to the following IEEE Section members:

Nevrus Kaja who was accompanied by his sister, Adela Kaja, received the Section's thanks and the award for "…continuous service to Southeastern Michigan IEEE Section at multiple levels of responsibility."

Nevrus & Adela

Subramanian Ganesan who was accompanied by his wife, **Shanthi Ganesan**, received the award "…for sustained leadership of IEEE Southeastern Michigan Section Chapter 5 (Computers) and his encouragement for the creation and support of the Embedded Systems Workshop."

Shanthi Ganesan & Subra Ganesan

David Mindham & Nicole Mindham were unable to attend the ceremony due to David's required presence in Washington D.C. that evening. David's award reads - "In recognition of his dedication to the success of IEEE Southeastern Michigan Section by completing the Volt Program, serving as the Section Secretary, Conference Chair and Chapter 7 Chair."

Kimball Williams accepted the award on behalf of David and will deliver it to him at the April Executive Committee face-to-face meeting.

Sharan Kalwani was given the award "…for leadership and enthusiastic development of IEEE Southeastern Michigan Chapter 5 (Computers) activities and continuous contributions to the success of the 'Wavelengths' newsletter."

Javier Alcazar was presented with his award "for dedicated leadership of IEEE Southeastern Michigan Chapter 14 (Robotics & Automation) through organizing technical seminars supporting robotics such as IEEE RAS HTD (Humanitarian Technology Day), IEEE sponsoring Robofest, and Michigan Robotics Day."

Joining the above were Don Bramlett's wife, Anne Bramlett, and Akio Fujimaki, Malcolm Lunn, Eric George and Kimball Williams.

Subra, Sharan & Javier

We were all happy to celebrate the accomplishments, dedication and hard work by all the awardees, and have the opportunity to network with these people who make Southeastern Michigan one of the most active and successful Sections within all of IEEE.

Introducing: Chapter Chairs

Over the course of 2018 we will be featuring interviews with different Section officers. This month we're pleased to interview the Chair of Chapter 2.

Larry Buczkowski

What is your educational background?
I have a Bachelor of Science in Engineering majoring in Electrical Engineering from Southern Illinois University at Edwardsville in 1983 and a Masters of Science in Electrical and Electronics Engineering from North Dakota State University, Fargo, ND in 1991.

What is your current position and specialty?
I am currently an Engineering Product Manager for General Dynamics Land Systems. My specialty is motion control, vehicle power distribution systems and manufacturing machines.

How long have you been involved with Chapter 2?
1.5 years

What is the aim of this Chapter?
The SEM Vehicular Technology Society Chapter 2 mission is to learn about and support the technologies that facilitate future vehicles. While we are in Southeast Michigan and have a strong interest in the consumer automotive industry, vehicles include automotive, motorcycle, bicycle, rail, and aircraft. Realistically, the historical interest of the chapter has been within the automotive industry.

Is there anything that went particularly well with the group in 2017, or anything that might be a "lesson learned" for other Chairs/Chapters?
We have been able to have good attendance for some of the technical presentations. Trying to have a lecture meeting every month is hard. So, we are attempting to schedule meetings in advance - more than a month. We are planning for presentations month's in advance and that helps manage expectations as well as accomplish successful planning.

Are there any plans for 2018 that you're particularly excited about/interested in?
We are looking at having more than technical presentations and are considering a local tour as well as an informational workshop presentation in the near future - so stay tuned…

Computer Society Meetings

March 15th 2018, An Introduction to Block Chain

The Computer Society SE Michigan chapter held its 3rd technical meeting/evened with a two-hour presentation on "Introduction to BlockChain". The meeting was held at Oakland University, on March 15 from 6 to 8 pm and was jointly sponsored by IEEE SEM Computer Chapter, IEEE SEM Education chapter and the IEEE Student Branch of Oakland University, all of whom joined hands to make this possible. The meeting started on time with an introduction by Dr. Subra Ganesan about IEEE Computer Society, its future activities, benefits of IEEE membership and request for participation at all levels. The Oakland University Student Branch provided pizza and pop for the day's events. The Student Branch officers – Abhijit Maktal, Fawaz and other well-wishers/members spoke about the activities and encouraged other students to become members.

The speaker Mr. Sharan Kalwani has more than 30 years of experience in high performance computing, across many aspects of hardware and software. He has also given many presentations at various conferences and IEEE events. After a general introduction by all the 50+ attendees, there was a call for networking after the presentation and in future events.

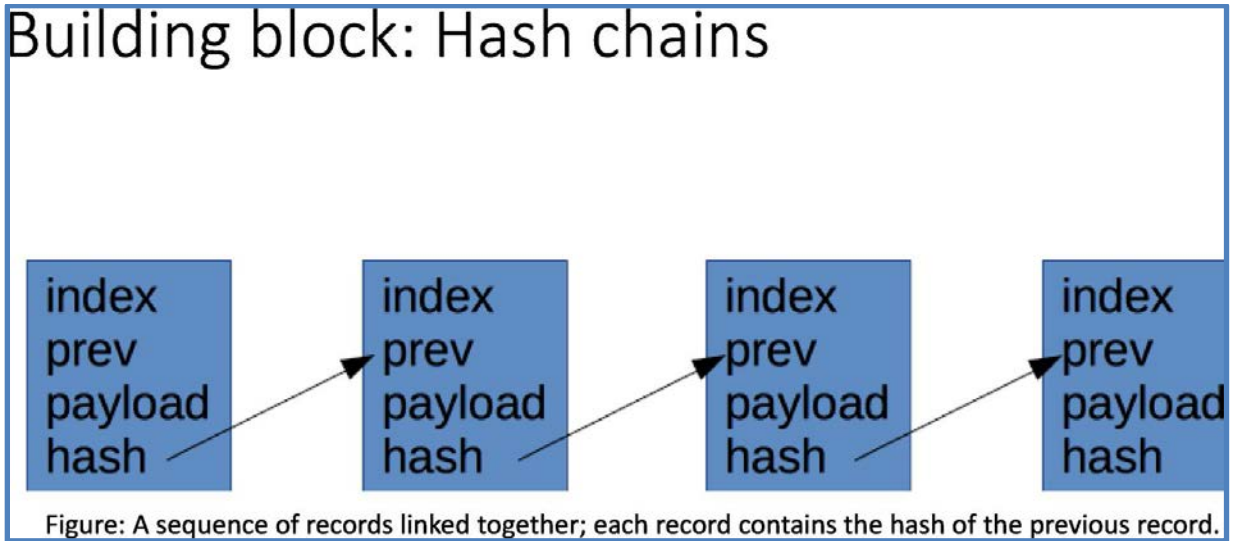


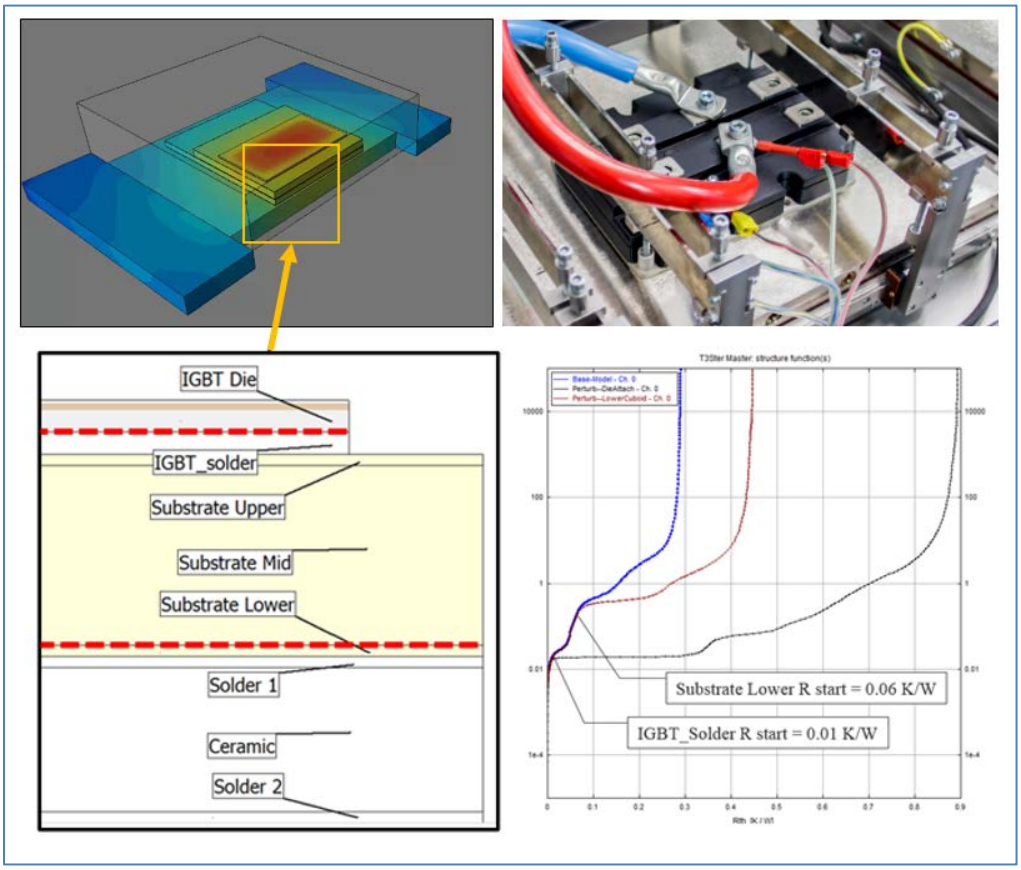
Figure: A sequence of records linked together; each record contains the hash of the previous record.

The presentation started with a quick introduction to BlockChain, its application in various areas, including cryptocurrencies such as Bit Coin. The speaker gave the basic process of how BlockChain are implemented and applications in many fields. The applications include, secure transaction, communication, voting, IOT, manufacturing, medical records and digital currency.

The audience left with a better understanding of this emerging algorithm and applications. After the presentations, some of the audience spent time discussing the applications and research with the speaker.
Over all this was an apt presentation on an emerging topic of public interest.

March 29th: Utilizing Electrical Test Methods for Thermal Measurement, Reliability and Quality Assessment

An In-depth Technical Presentation, at Chapter 5 (Computer Society) meeting
by
Speaker: Joe Proulx, Application Engineer with Mentor Graphics.

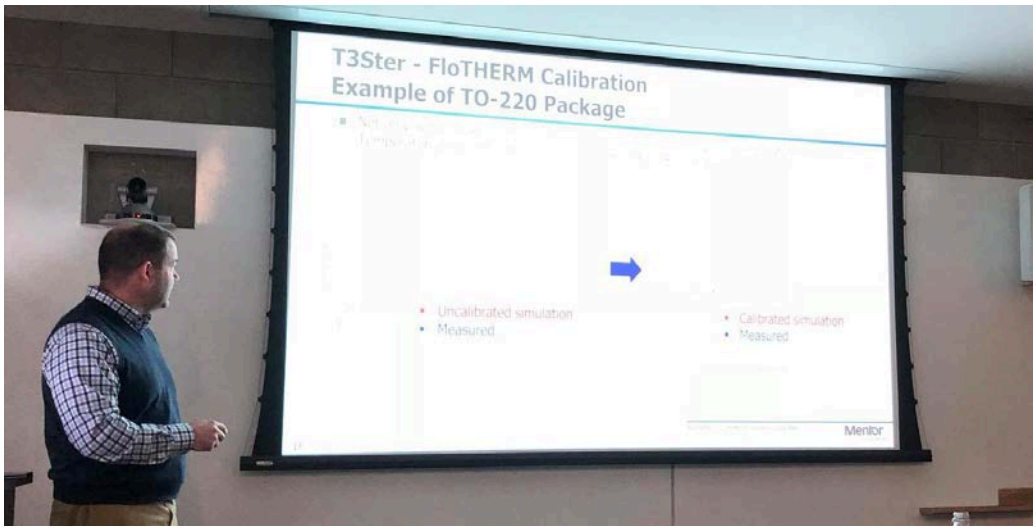


From multi-core chips in slim smartphone devices or compact packaging of power semiconductor modules for lightweight electric vehicle inverters, requires a very good understanding of semiconductor package heat dissipation, and it remains important for performance and product reliability purposes, especially to all of us EE engineers working in the automotive, aerospace, commercial, industrial sector here in SE Michigan. For this topic we were lucky to host Joe Proulx, Senior Application Engineer – Mentor Graphics, (A Siemens Business) for this occasion.

His presentation introduced us to electrical test methods covered by JEDEC 51-1 standards. By utilizing this approach, the difficulties and problems measuring temperature at the component's die are overcome. Further use of the techniques allow transient thermal response measurement, for package and system thermal characterization, which can be applied to identifying thermal degradation, verifying package material quality for manufacturing purposes, and supporting thermal design processes by generating validated semiconductor package thermal models. This method is an alternative to XRay, CSAM or destructive inspection methods for certain failure diagnosis applications.

Key takeaways from this presentation were: we can use this process for

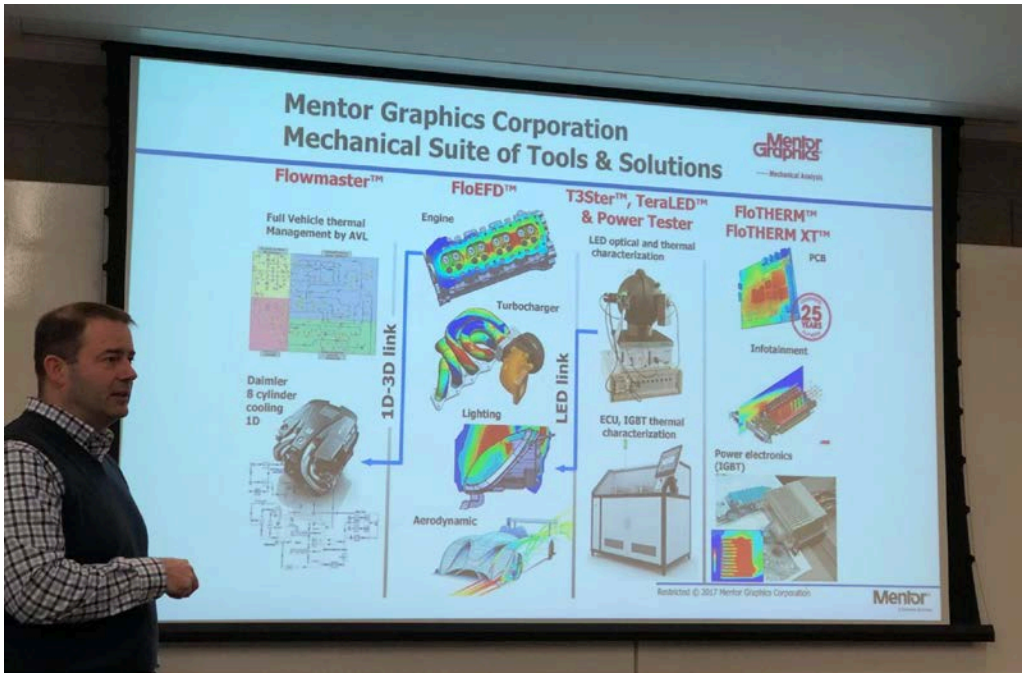
- ✓ Electrical test methods for thermal measurement, JEDEC 51-1 series, transient thermal response & structure functions
- ✓ Package material structure object mapping
- ✓ Power Electronics – IGBT thermal degradation identification & power cycling studies
- ✓ Package Material Defect Identification
- ✓ Recent IP developments in detailed thermal model calibration



We had in attendance, several professional from our neck of the woods, as well as many students of the craft. This was a very new technique indeed. Joe also has a patent submitted for this technique, using something called structure function. Essentially a structure function is used to map the changes at each substrate to the measured changes in electrical and thermal characteristics, calibrate this, so one can later do an automated object mapping. Behind the scenes, a tool call FloTHERM is active doing all the heavy lifting.

After several discussions, we had a little time left, so Joe introduced us to the various other simulation & design portfolio tools, that Mentor Graphics offers. Amongst these were:

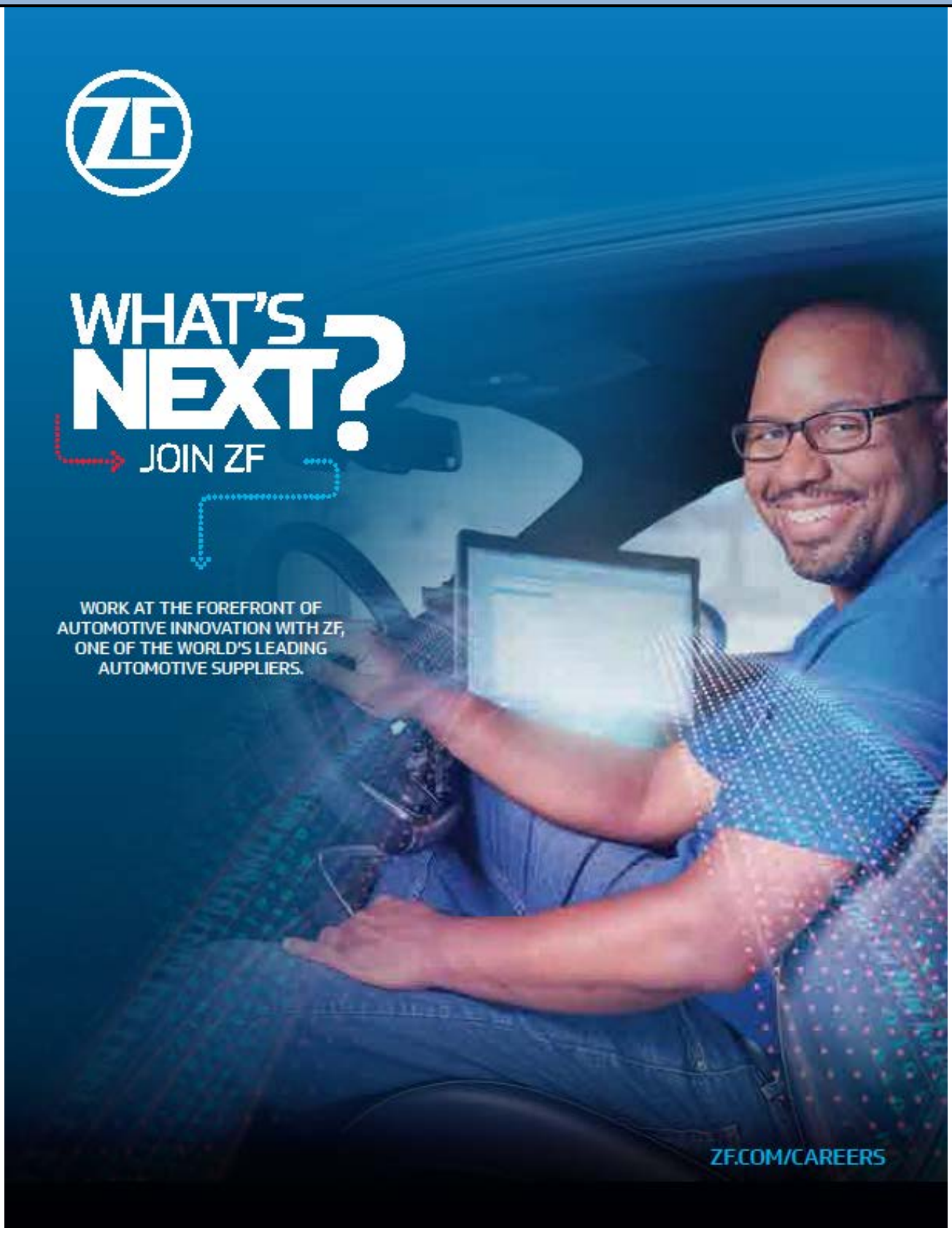
- FlowMaster, FloEFD, FloTERM, FloTERM XT, TeraLED and T3Ster



We would like to thank both Joe, Gus Cervera and Adil from mentor Graphics for this excellent knowledge session.

Sharan Kalwani
Vice-Chair, Chapter 5 (Computer Society)
sharan.kalwani@ieee.org

ZF Employment Ad



Officer Training

"We Train Leaders:"
That is truly our goal. Though a 'leader' is not always someone with a recognized title or position. Leaders step forward and tackle jobs that often no one else will attempt. As John F. Kennedy once proclaimed in his 'go to the moon' speech, "…We choose to do these things not because they are easy but, because they are hard."

We know from physics that moving something that is too easy accomplishes no 'work'. Only when expending energy do we actually accomplish something worthwhile. We do work! We learn!

I often refer to learning the non-technical (management) side of an engineering career as similar to learning to play a musical instrument, or a sport, or how to dance. You can read all the books you want but you only really learn by doing.

Starting by volunteering to fill a vacant Treasurer's position or a Secretary position can begin a training experience unmatched by any management course in a university.

If you notice a vacancy where you might be interested in contributing to fill that role, contact the relevant 'Chair' in that organization and discuss the duties of the office.

As with all others, the road to this learning begins with the first step. That step is inquiring and finding out what skills go with each position. That information is maintained in the IEEE Center for Leadership Excellence at: **https://ieee-elearning.org/CLE/**

Good luck!

Volunteer Portal:

Our IEEE Section is about to launch a new option to facilitate establishing connections between the current leadership and members seeking volunteer opportunities within IEEE.

This new feature is our "**Volunteer Portal**" and is located in the IEEE Southeastern Michigan website at:
http://sites.ieee.org/sem/

Under the TAB titled "About SEM" use the button:
Titled 'Volunteer Portal' and you will see our beginning efforts to establish this new tool.

As we begin to put this new tool to use, we will be going through a 'learning experience' and will welcome your comments and suggestions. At this point, we can use all the help we can gather, and any offers to help will be carefully evaluated.

If you want to help with this effort, please contact:
scott.lytle@us.yazaki.com or
K.williams@ieee.org

Thank you!

Police Radio

Milestones: One-Way Police Radio Communication, 1928

Detroit, MI IEEE Historical Plaque - Dedicated May 1987

"At this site on April 7, 1928 the Detroit Police Department commenced regular one-way radio communication with its patrol cars. Developed by personnel of the department's radio bureau, the system was the product of seven years of experimentation under the direction of police commissioner, William P. Rutledge. Their work proved the practicality of land-mobile radio for police work and led to its adoption throughout the country."

The plaque can be viewed on Belle Island of Detroit, Michigan, U.S.A., at the front south-west corner near the main entrance door to the police building.

In the 1920s gangster era, bank robbers and bootleggers made clean getaways time after time, to the great consternation of police.

But in 1928, a dedicated Detroit patrolman and an electronics buff devised the first successful one-way radio link between police headquarters and cruisers. Critical news of crimes in progress could now be transmitted from the stationhouse to police cars as they drove.

Electronics was a fledgling science when Detroit Patrolman Kenneth Cox and Robert L. Batts, an engineering student, built a stable radio receiver and antenna system. Their successful one-way radio, coming after years of trial and error, was installed in April 1928. The Detroit Police Department made history as the first to dispatch patrol cars regularly by radio. Many city police departments shortly followed suit with their own systems.

Between 1921 and 1927, radio buffs Kenneth R. Cox, Walter Vogler and Bernard Fitzgerald, all Detroit police officers, experimented with radio sets they had Installed in the back seat of a Model T Ford police patrol car.

The receivers picked up signals, but not very consistently. Frequently, broadcasts would fade out as the car passed large buildings or under railroad bridges. Also, police had no designated band on which to broadcast, so the system operated like any radio station. The station was appropriately called KOP and listed locally as an entertainment station.

To meet FRC (Federal Radio Commission, predecessor of the FCC) licensing requirements, police officers broadcast recorded music in between lists of stolen vehicles and descriptions of missing children. Persistent work by Cox and Robert Batts led to the development of an improved receiver in 1927. A broadcasting station, W8FS, was set up on Belle Isle and regular dispatches began in 1928.
(Source: Detroit Free Press).

Belle Isle Radio Day:

In 1928 the first radio broadcast to police car radios began at the police station on Belle Isle. (See the above 1928 Detroit Free Press article.) We are now preparing to celebrate the 90th anniversary of that achievement.

50 years ago the IEEE placed a historical plaque at the Belle Isle police station building. Approximately 10 years ago the APCO (**https://www.apcointl.org/about-apco.html**) also supported the placement of a historical marker near the building.

Plans are in place for member of the local IEEE Section, the APCO, and members of the Amateur Radio community (**http://www.arrl.org**) to visit to Belle Isle between 10 AM and 4 PM on April 7th to hold re-dedication ceremonies at 2 PM for both plaques. (See **http://ethw.org/Milestones:One-Way_Police_Radio_Communication,_1928**.)

Belle Isle Police Station

Bill Boyke (N8OZV) of the Ford Motor Company, Tin Lizzy Amateur Radio Club has registered special event Amateur Radio Station, 'K0P' (Kilo Zero Papa) with the FCC, and is working on commemorative QSL cards.

We expect to see participation from several local Amateur Radio clubs in the form of operation of low power (QRP) emergency radio communication equipment and simple wire, loop or vertical antennas. All this equipment is small, easily portable and will be unobtrusive and completely removed at the end of the day.

Antennas:

The DNR's rules, in the "Michigan State Parks on the Air" program prohibit using trees in state parks to hang antennas. There's very good reason, disease spores can easily live on wire or rope that can be transmitted from tree to tree.
Reference: http://www.mspota.org/protect-our-parks/
So, we should see lots of Verticals and Loop antennas, along with Poles & Inverted 'Vs', etc.
But, no antennas in trees on Belle Isle!

This is a unique opportunity to see Amateur Radio at work and to view its place in emergency communications at this re-dedication event on Belle Isle. It can also be a great 'pre Field Day' event to help Hams get emergency equipment, antennas, generators, etc. out of moth balls and back to work.
Plans are for a 10 AM setup and operate through 4 PM for pack up.

The original station call sign from the FCC for this station was W8FS. That call is now held by Lowell Price of Grand Blanc, and he has been invited as a 'special representative' for the day.

The gathering arrangements are:

- Time - 10:00 AM through 4 PM.
- Location - Parking lot & grounds around the Belle Isle Police Station building.
- **NOTE:** A Michigan State Park pass on your vehicle license plate is needed to enter Belle Isle, (*unless entry is by foot or bicycle or public transportation*.)
- Water & Rest Rooms at the Aquarium, about 0.36 miles, or about a 15 minute walk away….so…
- Plan for a picnic type day and bring water, food, sunscreen and a shade hat.

For the Amateur Radio Community, as you arrive, we have some organizational business to conduct:

- Talk-in on the 2 Meter Wandotte Repeater: WY8DOT/R 147.240 MHz, +, 100 Hz Tone.
- Once you arrive please switch to Simplex Frequency 146.52
- We plan to operate "Station K0P" with multiple rigs and operating frequencies / Times / Modes / so we are developing a Scheduling system to maximize everyone's on-air time.
- Collecting contact information for the QSL cards.
- **Please 'Sign-in' as you arrive**, so we have a clear record of who was able to attend.

Belle Isle Radio Day:2

Driving Directions:
Entrance to the MacArthur Bridge to Belle Isle is at the junction of E. Jefferson Ave. and E. Grand Blvd.
(The nearest Interstate highway junction appears to be the I-375 spur from the I-75, and E. Jefferson Ave.)
Note: *Most major roads on the island are one way, so pay attention to the signs.*
Cross the bridge, and stay to the right avoiding the construction.
As you enter Belle Isle proper, you are directed to the right onto Sunset Drive.
Stay to the left as Sunset Drive divides to become Casino Way. Stay left!
Turn left onto Central Ave.
Follow Central Ave. past Muse Road, Picnic Way and Fleming Street.
Approach the statue of Major General Alpheus Starkey Williams (no relation) at the junction of Central Ave. and Inselruhe Ave.
Stay to the right of the statue, and circle to the left around the statue, effectively turning left onto Inselruhe Ave.
Inselruhe Ave.is a two way street, so traffic can approach from both directions!
Discover the old Belle Isle police station building immediately on your right. (GPS coordinates of 42.340419, -82.986598)
You are there!

The map below should help with navigation and map shows the location of the police station.

Parking:
Since Inselruhe Ave. is a fairly narrow, two way street, parking there is to be avoided. If the police station parking lot is full (it rather limited) please park along Riverbank Drive. (Note it is one way.)
There are 'over-flow' covered facilities both east and west of the police station along Riverbank Drive, so there should be room for everyone who can come.

The link below to a map gives a good overview of the entire island with all the roads.
http://www.michigan.gov/documents/dnr/belle_isle_map_color_461800_7.pdf

Bacon Library STEM

STEM (Science, Technology, Engineering & Mathematics) classes in our Section have been growing and expanding in the past months, in great part due to the generous contributions from ZF Cares.

ZF funding allowed us to establish new and improved teaching capabilities and facilities at both the Dearborn-Heights Caroline Kennedy Library and the Bacon District Memorial Library in Wyandotte, MI.

These new facilities have allowed us to extend teaching the 'Fundamentals of Electricity now to both libraries, and introduce the classes in Safe Soldering in both at the same time.

The introduction of the new Fundamentals of Electricity classes at the Bacon library was well received, and the students were all very excited about the topic and the hands on experiments.

The new class on Safe Soldering classes that included each student constructing a low power, Morse code, Amateur Radio Station was well received at both libraries. We are now considering what other projects we might use to engage in developing the skills to build their own equipment as well as new circuit design and modeling before the final soldered stage.

More Libraries:
The current successes have encouraged us to begin to explore other libraries in Southeastern Michigan Section and we have turned up some interesting possibilities in the northern and western suburbs.

However, before we can take advantage of those new opportunities, we will need to recruit and engage more volunteer instructors.

We also need to improve the details of the entire set of class descriptions to provide a framework within which each instructor team can not only find the guidance where the material is currently a bit 'vague' yet remain sufficiently flexible to allow for the development of new and different 'Hands on' experiments and demonstrations.

At this time we are planning a series of brainstorming meetings with the current and past instruction teams to consider way in which the structure and content of the STEM classes can be improved to benefit the students.

Those interested in volunteering to help with our STEM program at existing or new libraries should contact Kimball Williams at k.williams@ieee.org.

This Month in April

Or: Notable Events in History, which I Did Not Know! ☺

April 1st, 1932 - Birth of **Norman Abramson**, American computer scientist who created ALOHANET, the first modern data network, which formed the basis of the protocols essential in Ethernet now in wide use. It opened in 1970, operating at 9600 bits per second, using radio to provide a wireless packet-switched data network between several Hawaii islands. Its innovations included the first packet radio sensors, the first packet radio repeaters, the first satellite packet network and the first radio access to the Internet. Abramson's U.S. patents include the first patent for CRC redundancy checks to provide data error control technique (No. 3,114,130), and the first patent issued for the design of burst errors in digital systems (No. 3,163,84)

April 4th 1826 - Birth of **Zénobe-Théophile Gramme*, died 20 Jan 1901 at age 74.***
Belgian-born French electrical engineer and inventor (1869) of the Gramme dynamo, a continuous-current electrical generator that gave principal impetus to the development of electric power. In 1870 he invented a continuous-current dynamo with a ring armature (a ring of soft iron around which were placed insulated copper coils). This produced much higher voltages than other dynamos of the time and was the first high-voltage direct-current generator practical for mass production and distribution. Driven by steam-engines, they were immediately successful and were used for a variety of purposes, including factory lighting, electroplating, and lighthouses. With these dynamos, the era of large-scale electrical engineering began.

April 6th 1903 - Birth of **Harold E. Edgerton*,*** died 4 Jan 1990 at age 86.
Harold Eugene Edgerton was an American engineer and ultra-high-speed photographer who, as a graduate at the Massachusetts Institute of Technology (1926), used a strobe light in his studies, which,. by 1931, he applied the strobe to ultra-high-speed photography. He formed a company (1947) to specialize in electronic technology, which led to inventing the Rapatronic camera, capable of photographing US nuclear bomb test explosions from a distance of 7 miles. Throughout his career he applied high-speed photography as a tool in various scientific applications. He also developed sonar to study the ocean floor. Using side-scan sonar, in 1973, he helped locate the sunken Civil War battleship USS Monitor, lost since
1862, off Cape Hatteras, NC.

April 9th 1919; Date of birth of **J. Presper Eckert Jr*.*** died 3 Jun 1995 at age 76.
American engineer and inventor of the first general-purpose electronic computer, a digital machine that was the prototype for most computers in use today. In 1946, Eckert with John W. Mauchly fulfilled a government contract to build a digital computer to be used by the U.S. Army for military calculations. They named it ENIAC for Electronic Numerical Integrator and Computer. By 1949, they had started a manufacturing company for their BINAC computer. This was followed by a business oriented computer, UNIVAC (1951), which was put to many uses and spurred the growth of the computer industry. By 1966 Eckert held 85 patents, mostly for electronic inventions.

April 14th 1898; Date of birth of **Harold Stephen Black,** died 11 Dec 1983 at age 85.
American electrical engineer who discovered and developed the negative-feedback principle, in which amplification output is fed back into the input, thus producing nearly distortion less and steady amplification. In 1921, Black joined the forerunner of Bell Labs, in New York City, working on elimination of distortion. After six years of persistence, Black conceived his negative feedback amplifier in a flash while commuting to work aboard a ferry. Basically, the concept involved feeding systems output back to the input as a method of system control. The principle has found widespread applications in electronics, including industrial, military, and consumer electronics, weaponry, analog computers, and such biomechanical devices as pacemakers.

Readers are invited to share any ***major engineering*** event or milestones that they are aware of that occurred in April, next issue. Submissions can be made using direct email to the editors at: wavelengths@ieee-sem.org

Sharan Kalwani
Associate Editor, Wavelengths,
Vice-Chair, Chapter 5 (Computer Society), Chair, Chapter 13 (Education Society), PACE
Engineering History Buff/Aficionado

ORG UNITS cheat sheet

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)		
Consultants Network Affinity Group:	(CN40035)	
Life Members:		
Young Professionals:		
Women in Engineering:		
Chapter: 01	(SP01) (CAS04) (IT12)	Signal Processing Society, Circuits and Systems Society and Information Theory Society
Chapter: 02	(VT06)	Vehicular Technology Society
Chapter: 03	(AES10) (COM19)	Aerospace and Electronic Systems Society and Communications Society
Chapter: 04 “Trident”	(AP03) (ED15) (MTT17)	Antennas and Propagation Society, Electron Devices Society, Microwave Theory and Techniques Society,
Chapter: 05	(C16)	Computer Society
Chapter: 06	(GRS29)	Geosciences and Remote Sensing Society
Chapter: 07	(PE31) (IA34)	Power Engineering Society, Industrial Applications Society
Chapter: 08 “EMC”	(EMC27)	Electromagnetic Compatibility Society
Chapter: 09	(IE13) (PEL35)	Industrial Electronics Society, Power Electronics Society
Chapter: 10	(TEM14)	Technology and Engineering Management Society
Chapter: 11	(EMB18)	Engineering in Medicine & Biology
Chapter: 12	(CS23)	Control Systems Society
Chapter: 13	(E25)	Education Society
Chapter: 14	(RA24)	Robotics And Automation Society
Chapter: 15	(NPS05)	Nuclear Plasma Sciences Society
Chapter: 16	(CIS11) (SMC28)	Computational Intelligence Society, Systems, Man and Cybernetics Society
Chapter: 17	(NANO42)	Nanotechnology Council

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)	
University Of Detroit-Mercy:	(STB00531)
Michigan State University:	(STB01111)
University Of Michigan-Ann Arbor:	(STB01121)
Wayne State University:	(STB02251)
Lawrence Technological University:	(STB03921)
Oakland University:	(STB06741)
Eastern Michigan University:	(STB11091)
University of Michigan-Dearborn:	(STB94911)

Curated & Formatted By Sharan Kalwani,
Associate Editor, Wavelengths,
2017-2018

Non-IEEE Events:

We try to publish IEEE events in several places to ensure that everyone who may want to attend has all the available relevant information.

SEM e-Wavelengths:
www.e-wavelengths.org
This is our 'Active' event listing site where everyone should look first to see what events are scheduled for our Section in the near future.

SEM Web Calendar:
http://sites.ieee.org/sem/
Select "SEM Calendar" button in the top row of the website.

SEM Web Meetings:
http://sites.ieee.org/sem/
Select "SEM Meeting List" button in the left-hand column.

vTools Meetings:
http://sites.ieee.org/vtools/
Select "Schedule a Meeting" button in the left-hand column of buttons.

Other IEEE Local Meetings:
http://www.e-wavelengths.org/

Other Happenings

However, since IEEE members tend to have eclectic interests, we want to give everyone a heads up for some of the non-IEEE events that may be of interest.

Let us know if you have a special interest in a field that encourages technical study and learning, and wish to share opportunities for participation with members of the section.

Send the particulars to
wavelengths@ieee-sem.org

OR

anyone of the following….
k.williams@ieee.org
karen.burnham@ieee.org
sharan.kalwani@ieee.org

An announcement may be placed in the newsletter.

Links:

Michigan Institute for Plasma Science and Engineering:
Seminars for the 2017-2018 academic year: **http://mipse.umich.edu/about/seminars.htm**.

Below are links to local SEM Clubs engaged in technical hobbies as well as links to sites that may be useful for locating clubs in the area.

XXXXXXXXXXXXXXXXXXX

Amateur Radio Clubs in Southeastern Michigan
(This is a fairly comprehensive listing of all the 'Ham' clubs in SEM.)
http://www.wa2hom.org/ham-radio-clubs-in-se-michigan/

Model RC Aircraft
http://www.skymasters.org/

Model Rocketry
http://team1.org/

Astronomy
http://www.go-astronomy.com/astro-clubs-state.php?State=MI

Experimental Aircraft Association
https://www.eaa.org/en/eaa/eaa-chapters/find-an-eaa-chapter

Robots
http://therobotgarage.com/about-us.aspx

Science Fiction Conventions
http://www.conclavesf.net/

https://2018.penguicon.org/

http://2018.confusionsf.org/

Mad Science
http://www.madscience.org/

ESD PE Review Class
www.esd.org

Maker Faire:
http://www.thehenryford.org/events/makerFaire.aspx

Executive Committee

The SEM Executive Committee is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2017 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 Wednesday or first Thursday at noon. The specific meeting days, 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 first page of the web site.

If you wish to attend, or just monitor the discussions, please contact Eric George, the section secretary at: **eric.george.us@ieee.org** and request to be placed on the distribution list for a monthly copy of the agenda and minutes.

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

Other Meetings:
About half 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 the local chapter meetings each month.

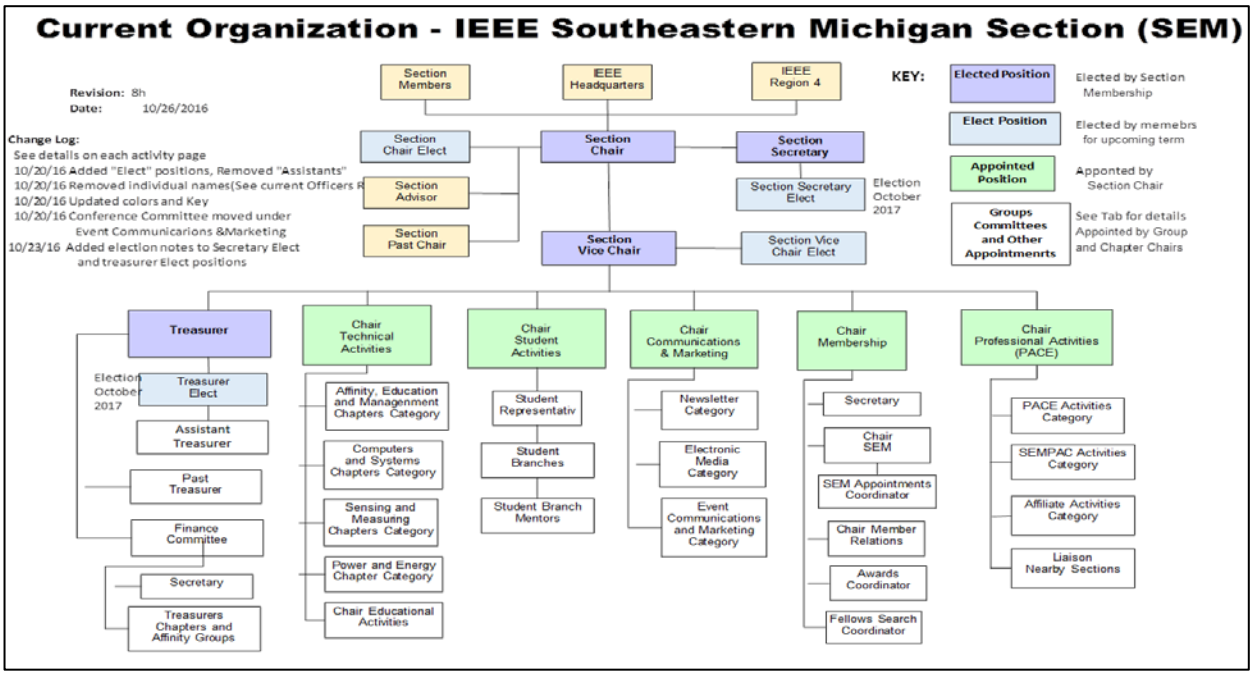
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to send meeting information to our webmasters for posting on section's 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.

Automatic e-mail notification of web updates may be received using the "**Email Notifications**" button at the top of the **SEM Tools/Links** side banner.

Eric George - SEM Asst. Secretary

Download the complete SEM Organization Chart, in PDF format, from the SEM Website at: www.ieee-sem.com
Then, click on "About SEM" Tab, followed by, click on "Current Officers" *(NOTE: this is now password protected)*



ExCom Meeting Schedule:

Below is the 2018 schedule for the Section ExCom meetings with links to add the events to your calendar.
It is important that at least one person from each Chapter/Affinity Group attends the meetings.
Information on each Face to Face Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the 2018 meetings. Or, link your personal calendar to the SEM Web calendar.

April 5, Thursday, F2F (In person meeting), 5:30 – 7:00 P.M., https://meetings.vtools.ieee.org/m/49031

May 2, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49032

June 7, Thursday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49033

July 11, Wednesday, F2F (In person meeting), 5:30 – 7:00 P.M., https://meetings.vtools.ieee.org/m/49034

August 2, Thursday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49035

September 5, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49036

October 4, Thursday, F2F (In person meeting), 5:30 – 7:00 P.M., https://meetings.vtools.ieee.org/m/49037

November 7, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49038

December 6, Thursday, Teleconference (online only), 12:00 – 1:00 PM, https://meetings.vtools.ieee.org/m/49039

Eric George
SEM Assistant Secretary

Note: All IEEE Members are welcome at any IEEE meeting, at any time but, please register so we can be sure to accommodate you.

Eric George
SEM Assistant Secretary

Section Focus:

The IEEE SEM Section Officers have reaffirmed the Mission and Goals of the section with the guidance of the Region 4 leadership. The Mission and Goals conform to those of IEEE worldwide.

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, and
- 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, and
- 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.

SEM Monthly Meetings

Scheduled Meetings:
The regular meetings of the SEM Leadership (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 Monthly meetings are normally scheduled:

Monthly Teleconference / WebEx as well as:

Quarterly Face-to-Face (F2F). See schedule on the page above:

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

Registering will ensure there is sufficient space, refreshments and support for attendees.

Teleconference Schedule
(Held from 12-1 p.m.):

F2F Meeting Schedule:

More information for F2F meetings will be emailed to all officers, (and any members requesting the schedule), in a timely manner before the meeting dates.

Contact **Eric George** the
SEM Section Secretary.at:
eric.george.us@ieee.org for more information.

Additional information may be found at (**http://sites.ieee.org/sem/**).

The links to the SEM Facebook or LinkedIn pages on the SEM website may also be checked for updates.
All the normally scheduled meetings of each of the other section chapters, affinity groups etc. are listed each month in the vTools area of our SEM website at:
http://ewh.ieee.org/r4/se_michigan/calendar1.php

The information is for:
Standing Committee Meetings
Affinity Group Meetings
Technical Chapter Meetings
University Student Branch Meetings
University HKN Chapter Meetings

Calendar Schedule:
Meetings are also announced on the SEM Calendar web page
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 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 will be happy to have you as a participant.

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

Eric George
SEM Section Assistant Secretary.
eric.george.us@ieee.org

Editors Corner

Previous editions in this series may be found on the IEEE SEM website 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 editorial team at wavelengths@ieee-sem.org
OR
k.williams@ieee.org
sharan.kalwani@ieee.org
jrwwoodyard@gmail.com
karen.burnham@ieee.org

We also recommend a cc to the chair of the Communications and Marketing Committee, Ravi Nigam at:
ravi.nigam@ieee.org

We rely on our officers and members to provide the 'copy' that we finally present to readers of the newsletter.
The **Wavelengths Focus Plan and Personal Profiles** plan shown in the matrix below is presented to ensure coverage of section activities and events.

We try to complete the newsletter layout a week before the first of the month to allow time for review and corrections. If you have an article or notice, please submit it two weeks before the first of the month or earlier 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.

Editors:

We are always looking for members interested in helping to edit the newsletter. The process is always more fun with more members to share the duties, and help keep the newsletter alive and lively by providing alternative points of view.

Heads Up

We are contemplating making the submissions of articles and events for the Wavelengths, a little easier and a little more inviting. Ideas are of course welcome and to this end, we are toying with setting up a little "newsletter portal". Stay tuned for some news on that end!

Join the Team:

If you feel you might like to join the team, or would like to train with us, please contact one of us at:
wavelengths@ieee-sem.org OR anyone of the following:
karen.burnham@ieee.org
sharan.kalwani@ieee.org
jrwwoodyard@gmail.com
k.williams@ieee.org

Wavelengths Annual Publication Plan for Articles

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

Wavelengths Annual Publication Plan for 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 "" button under the top row.)

SEM LinkedIn Page
(Select the "" 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 OfficerSection Officers

Community Section Officers **http://sem.oc.ieee.org**

Section Officers

Section Chair
Robert Neff

Section Secretary
Eric George

Section Vice-Chair
Nevrus Kaja

Section Treasurer
Xinhua Xiao

Standing Committees:

Section Adviser
Don Bramlett

Chair Communications & Marketing
Ravi Nigam

Chair Educational Activities

Chair Finance
Nevrus Kaja

Chair Membership
Aisha Yousuf

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities (PACE)
Sharan Kalwani

Chair Student Activities
Mel Chi

Student Representative

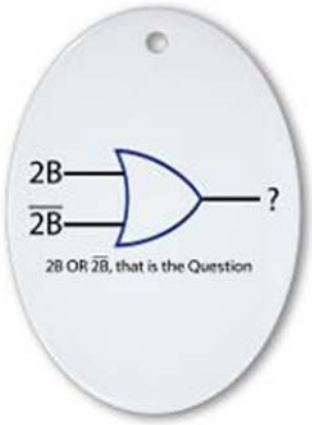
Chair Technical Activities
Kimball Williams

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

IEEE Southeastern Michigan

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



Leadership Meetings

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

SEM Executive Committee Monthly Teleconferences:

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

SEM Executive Committee Face-to-Face Meetings:

- 1/Qtr. Find the location, and Registration at:
  https://meetings.vtools.ieee.org/main

SEM Standing Committee Meetings:
SEM Affinity Group Meetings:
SEM Technical Society/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