

# Wavelengths



## Volume 63 – Issue 08

### Contents

Upcoming Events	1
Chair's Column	2
Technical Activities Report	4
AI for Everyone	5
This Month in August	6
Finding Hams	8
Vanishing Volunteer	9
Rise of the Rockets	10
Fall Conference '23	11
Member News	14
Lost Contact?	15
EMC SIPI 2023	16
Magnetics Chapter Chair	18
Power Outage 2003	19
IEEE Day 2023	22
RoboFest update	23
ORG UNITS cheat sheet	24
Back to the Moon	26
Activities & Events	27
Executive Committee	28
ExCom Meeting Schedule	30
Editorial Corner	31
Web & Social Sites	33
Leadership Meetings	34
Advertising Rates	34

### Upcoming Events

We have several events coming up this month, all are listed below, FYI.  
*Note: All times are EST/EDT. If any events are missed do kindly bring them to the attention of [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org). Enjoy!*

You can also use this bookmark to view All of the links at a single glance  
<http://bit.ly/sem-upcoming>

Event	Date	Time
<a href="#">AI for everyone</a>	01 Aug 2023	06:00 PM
<a href="#">Generalized Inverse Problems: models, inference, and applications: University of Michigan-Ann Arbor, GRS29</a>	02 Aug 2023	07:00 PM
<a href="#">IEEE SEM YP Affinity Group Monthly Admin Meeting - August 2023</a>	06 Aug 2023	10:00 AM
<a href="#">Ch8: AdCom Teleconference</a>	10 Aug 2023	11:00 AM
<a href="#">SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2023</a>	10 Aug 2023	06:30 PM
<a href="#">EMC Society Monthly tech Meeting</a>	17 Aug 2023	05:30 PM
<a href="#">Documentary Night: Rise of the Rockets</a>	18 Aug 2023	04:43 PM
<a href="#">Documentary Night: Back to the Moon</a>	25 Aug 2023	04:50 PM

## Chair's Column

***The month of August – travel/vacation/time off before the school begins!***

We celebrated the month of July with a Section wide Summer Potluck Picnic on July 2<sup>nd</sup> at the Rochester Municipal Park. We had a total of 18 folks attend and despite the on again off again rain, totally enjoyed it. (We had a covered pavilion all to ourselves). Pictured below are most of the IEEE member attendees and their families.



(L → R: Nilesh Dudhaia, Vedit Dudhaia, Mrs Darshita Dudhaia, Ms Diksha Dudhaia, Vikram Havele, Nicole Hamilton, Michael Anthony, Ben Gonzalez, Norman Kutemperor, NK Sridhar, Karthik Rajagopalan, Mrs Yamuna Karthik and baby Avi Karthik)  
Missing from the picture, but were active during the picnic: Subra Ganesan and Akio Fujimaki



(Nicole Hamilton, Sharan Kalwani and Michael Anthony w/ IEEE desktop banner)

August is typically a slow month for activities, but despite that we do have a couple of documentaries scheduled for our Friday nights to help kick off our weekends. Several of them have been suggested/requested by our IEEE members – thank you for the feedback! In case you had not noticed, there is a growing theme of space exploration, and we have many such exciting themed events coming up in September.

Last year Chapter 5 celebrated the 20<sup>th</sup> anniversary of their ESW (Embedded Systems Workshop). They have already begun planning to up the ante and are preparing for a massive 3-day event spread over October 14, 21 and 28<sup>th</sup>. Keep a weather eye out for announcements!

This month we are again featuring several of our section members who have achieved senior status. Do feel free to reach out to them and congratulate them on this major milestone. We held yet another senior elevation event soon (virtual of course – in order to get maximum participation) on July 18th. We also helped several members outside of our Section achieve senior status! We plan perhaps one more late this year so do feel free to contact Mohamad Berri, who is also our Vice Chair of the section (besides being the membership Development chair).

IEEE Day – this year will be celebrated on October 3. I would like to invite **a volunteer from our Section** to become the **IEEE Day ambassador** to represent all of us on that day. This is plenty of guidance and tons of official support and assistance from IEEE-HQ available for this. I have done it thrice in the past few years and benefited immensely from this. Feel free to contact me or any of the IEEE Day organizers....

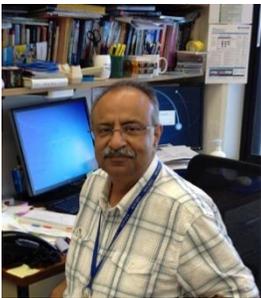
As the Magnetics Society chapter is new, we are introducing their interim chair – Steve Louis. See the official notification in the member news portion of this newsletter.

I wonder how many of you peruse the “This month...” portion of the newsletter. Well in August of 2003 – we had a major power outage, which I note every year at this time. However, one of active members – **Michael Anthony – along with his colleagues has written an extensively research case study paper** and we are publishing it in our newsletter! Mike has a solid 40+ years of experience with the national electricity standards – so it is worth checking out this article.

I invite all our IEEE community members, faculty, graduate students, researchers, undergrads to consider sharing their papers, case studies and perspectives. Remember – every little bit helps, and the Section is here to help!

Finally, I ask you to help share news about our IEEE Section to fellow engineers. This will help us fulfill the mission and goals, which is to use technology to help society. Do help us gain more visibility – word of mouth, invitations to our tech events, skills, join as members, post our events to your social media feeds, etc.

### ***Sharan Kalwani***



Via email: [chair@ieee-sem.org](mailto:chair@ieee-sem.org)

*Section members are encouraged to engage using any of these online platforms:*



## Technical Activities Report

\*Status as of June 29, 2023

Ch's & AG's	Ave Tech Mtg. Attend	Ave Tech Mtg Guest	#L31 -Technical	#L31 -Admin	#L31 Professional	#L31 -Other	Geo-Unit Name	# Unreported	Total Mtgs
Cnslt	0	0	0	0	4	0	Consultants Network	0	4
LIFE	0	0	0	0	5	0	Life Members	2	5
WIE	25	15	1	5	2	0	Women In Engineering	1	8
YP	0	0	0	1	0	0	Young Professionals	0	1
1	0	0	0	1	0	0	Circuits & Systems, Signal Proc., Info Th.	0	1
2	24	7	4	0	0	0	Vehicular Technology	0	4
3	12	0	1	0	0	0	Aerospace & Elec. Sys., Communications	0	1
4	40	27	3	0	0	0	Trident (Ant, Elect Dev., uWave, Photo)	0	3
5	30	8	14	4	0	0	Computers	0	18
6	161	56	1	0	0	0	Geoscience & Remote Sensing	0	1
7	170	56	4	2	0	0	Power Engineering, Industrial App.	0	6
8	58	29	8	6	4	0	Electromagnetic Compatibility (EMC)	1	18
9	99	43	1	0	0	0	Power Electronics, Industrial Electronics	0	1
10	5	0	2	1	0	0	Engineering Management	0	3
11	0	0	0	0	0	0	Eng. in Medicine & Biology	0	0
12	17	1	2	1	0	0	Control Systems	0	3
13	19	0	24	5	0	0	Education	0	29
14	34	30	2	0	1	1	Robotics & Automation	0	4
15	40	27	3	0	0	0	Nuclear Plasma Science Society	0	3
16	0	0	0	1	0	0	Computational Intelligence / Sys.Man.Cyber.	0	1
17	27	0	1	0	0	0	Nano Technology Council	0	1
SEM	57	20	5	34	2	0	SEM (Section)	4	41
	817	319	76	61	18	1	NOTE: Highlight Green = Active	8	156

Chapter and Affinity group leaders please reach out to the TAcOm for any assistance. Chapter and Affinity group members if you have suggestions or requests to host or co-host technical meetings, please contact me via the email below. Your TAcOm plans to conduct a survey of Geo-unit and committee leaders to elicit needs and desires to better engage our SEM membership. The TAcOm also plans to offer career focused webinars and talks to equip our membership for seeking and or changing employment. These events are to be open to the entire SEM membership.

Your TAcOm plans to continue contacting chapters and groups needing assistance in meeting IEEE and SEM Section goals for encouraging member participation and discussions related to the vast amounts of technical and engineering challenges facing our world.

V/r

Jeffery V. Mosley

TAcOm Chairman

[jmosley@ieee.org](mailto:jmosley@ieee.org)

## AI for Everyone

*IEEE Southeastern Michigan  
Presents an Industry talk on  
AI for Everyone*



## Quick Summary

- **When:**  
Date: August 1, 2023  
Time: 06:00 – 7:00 PM (EST/EDT)
- **Where:**  
ECE 281, Oakland University, 115 Library Drive, Rochester, MI 48309
- **Audience: OPEN to ALL**

*Sponsored by  
IEEE  
Southeastern  
Michigan  
Nanotech  
Computer &  
Education Society  
Technical Chapters*

This is an introductory talk on AI. The goal is to introduce various sub domains under the umbrella of AI, with a more focus on Natural Language Processing. The talk will also highlight some of the potential concerns in the domain and what we can do to address those.

*Speaker Bio:*

Ms Prabhjot Kaur is currently working as an Automated Driving Lead Software Platform Engineer at General Motors (GM). She has over 10 years of experience working in the automotive industry, specifically in developing Advanced Driver Assistance Systems. She currently holds 2 patents w/ 5 patents pending. She also has 4 peer reviewed papers published. Additionally, Prabhjot is a final year PhD candidate in Computer Science at Wayne State University. Her research spans audio machine learning, signal processing, natural language processing and robotics. She is passionate about bringing communities together using AI.

**\*Pre-Registration Required!**

<https://events.vtools.ieee.org/m/367181>



IEEE  
computer  
society



**IEEE Southeastern Michigan Section**

**This Month in August**

**Or: Notable Events in Engineering & Science History, which I Did Not Know! ☺**

***Electric Traffic Light Invented, August 5th, 1914***

On this day in tech history, the American Traffic Signal Co installed the first electric traffic light system at East 105th Street and Euclid Avenue in Cleveland, OH. The device used red and green lights with a buzzer that warned when the color was about to change and allowed police and fire stations to control the signals in case of an emergency. The system was designed by James Hoge and patented in 1918. His "municipal traffic control system" displayed electrically powered STOP and MOVE signs mounted on posts at each corner of an intersection that were wired to a manually-operated switch housed inside a control booth nearby. The introduction of the traffic light allowed police officers directing traffic to move inside a glass booth on the corner where they controlled the light and reported accidents or emergencies.

***Marvin Minsky, born August 9th 1927, died January 24th, 2016***

On this day in tech history, mathematician and co-founder of the field of artificial intelligence Marvin Minsky was born in New York. A pioneer of robotics and telepresence, Minsky has contributed to computer science in artificial intelligence, cognitive psychology, mathematics, computational linguistics, robotics, optics, and advanced technologies for exploring space. Growing up he attended private schools before serving a year in the Navy in 1944. He then received his bachelors (Harvard, 1950) and PhD (Princeton, 1954) in mathematics, and worked as a junior fellow at Harvard for three years. Minsky built the first randomly wired neural network learning machine, SNARC (stochastic neural analog reinforcement computer) in 1951. Made of 400 vacuum tubes, it was based on reinforcing the synaptic connections that contributed to recent reactions. In 1957, Minsky began working at MIT, where he was the Toshiba Professor of Media Arts and Sciences and a professor of electrical engineering and computer science, until his demise. After coining the term in 1956, Minsky and John McCarthy co-founded the Artificial Intelligence Project at MIT in 1959. Minsky famously said, "No computer has ever been designed that is ever aware of what it's doing; but most of the time, we aren't either."

***Steve Wozniak, born August 11th, 1950***

Inventor, engineer, computer programmer, and philanthropist Stephen Gary Wozniak, aka "Woz," was born in San Jose, CA, on August 11, 1950. The son of an engineer who worked for Lockheed, Wozniak showed an early interest in electronics as well as ham radio, earning his ham radio operator license when he was in sixth grade. In the early 1970s, he attended the University of Colorado and then the University of California at Berkeley, but dropped out and went to work for Hewlett-Packard designing calculators. At about this time, Wozniak was introduced by a mutual friend to the slightly younger Steve Jobs, who would become his good friend and business partner. Teenagers at the time they met, Wozniak and Jobs discovered they both enjoyed playing pranks. One of the pranks they pulled together involved building a "blue box," an electronic device that allowed them to make toll-free long-distance telephone calls (illegally). During one call, Wozniak reached an operator at the Vatican and claimed to be Henry Kissinger calling on behalf of Richard Nixon. In a video from the Santa Clara Valley Historical Association, Jobs tells the story of the blue boxes and states that "if we hadn't built blue boxes, there would have been no Apple." Wozniak and Jobs later raised \$1300 to create the single-board Apple I personal computer kit, which Wozniak designed and built. They unveiled the product at a meeting of the Palo Alto-based Homebrew Computer Club, an informal group of electronic enthusiasts and hobbyists who first started meeting in 1975 in Menlo Park, CA. According to Wozniak, "We didn't sell very many Apple Is the first year. We built them at night in our garage. At first we expected to sell circuit boards at the Homebrew Club: just put in your own chips and it'll work. Then we got a \$50,000 order from a local store and we were in heaven."

Wozniak and Jobs, along with another partner, Ronald Wayne, formed Apple Computer on April 1, 1976. Less than two weeks later, Wayne sold his share of the company back to Wozniak and Jobs for \$800. The company was incorporated January 3, 1977. (Apple removed "Computer" from its name in January 2007 to reflect an increased focus on consumer electronics.)

***Electromagnetic induction discovered, August 29, 1831***

Michael Faraday is credited with the discovery of electromagnetic induction on August 29, 1831. While Faraday receives credit for the discovery, electromagnetic induction may have been anticipated by the work of Italian priest and physicist Francesco Zantedeschi in 1829 or that of Joseph Henry, who around 1830 made a similar discovery, but did not publish his findings until later. Faraday formulated that electromotive force produced around a closed path is proportional to the rate of change of the magnetic flux through any surface bounded by that path. Faraday experimented by wrapping two insulated coils of wire around an iron ring. He found that, upon passing a current through one coil, a momentary current was induced in the other coil—mutual induction. If he moved a magnet through a loop of wire, an electric current flowed in that wire. The current also flowed if the loop was moved over a stationary magnet. Changing magnetic field produces an electric field. This became Faraday's Law when it was modeled mathematically by James Clerk Maxwell. Faraday's Law

became one of Maxwell's equations, which have since evolved into field theory. Faraday would later use the principles to construct the electric dynamo.

#### ***Kilby demos all-semiconductor circuit, August 28, 1958***

Just weeks before the birth of the integrated circuit, Jack St. Clair Kilby of Texas Instruments, demonstrated a multivibrator circuit of discrete silicon elements to TI's Willis Adcock on August 28, 1958. Adcock had hired Kilby the May before. According to IEEE publishings authored by Kilby, his job was not fully defined when he accepted the position. "My duties were not precisely defined, but it was understood that I would work in the general area of microminiaturization," Kilby wrote in the July 1976 document, "Invention of the Integrated Circuit." He began tinkering and soon built an IF amplifier. When the plant shut down for a mass vacation during the summer, Kilby, at TI for only a short time, had no vacation time to take. He was "left alone to ponder" and sketched out a circuit made entirely of semiconductors. When Adcock returned from vacation, Kilby showed him the sketches. Adcock was skeptical and requested proof such a device would work. So Kilby – using packaged growth-junction transistors, resistors formed by cutting small bars of silicon etched to value, and capacitors cut from diffused silicon power transistor wafers – assembled and demonstrated a circuit made of discrete silicon elements.

The demonstration, while hardly what Kilby is celebrated for, was a step closer to the IC. "Although this test showed that circuits could be built with all semiconductor elements, it was not integrated. I immediately attempted to build an integrated structure, as initially planned," Kilby wrote. Weeks later, he demonstrated the first IC.

#### ***The Great North East Blackout August 14, 2003***

On August 14, 2003, more than 50 million people in the United States and Canada were left in the dark thanks to one of the most wide-spread blackouts in history. The blackout began at approximately 4:10 pm ET and impacted several US states including New York, Michigan, Massachusetts, and Ohio, as well as parts of Canada, including most of Ontario. First impact turned into cascading failure and more than 508 generating units at 265 power plants shut down during the outage, an approximate loss of 80%. Beyond electrical systems, telephone and cellular systems became overloaded. Water systems were lacking pressure because pumps lacked power, which could cause contamination. August heat, reaching more than 90°F in some parts of New York, aggravated the situation. However, looting and violence were kept to a minimum.

After immediate concerns of terrorist activity were refuted, US and Canadian investigations—as well as finger pointing—began with neither country taking blame for the event. Stated, but disputed, reasons for the blackout's trigger included a 3,500 MW power surge at the New York Independent System Operator (NYISO), lightning storms damaging equipment, the "Blaster Worm" virus infiltrating power control systems, an outage at a nuclear plant in Pennsylvania, overloading at the Niagara-Mohawk power grid, and a sudden shift in the direction of power flow on the northern portion of the Lake Erie Transmission Loop. In the end, much of the blame was placed on FirstEnergy Corp, a diversified energy company headquartered in Akron, Ohio. Its systems were said to be unreliable and inadequate at the time. However, US government authorities did not punish FirstEnergy for its role in the blackout because law at the time did not require electric reliability.

Many believed that such a blackout would not occur again after the Northeast Blackout of 1965. Indeed, safeguards were put into place to avoid cascading failure. Isolated failure had occurred on some of the same systems affected in the 1965 and 2003 blackouts during the NY Blackout of 1977. The 2003 blackout lasted more than 24 hours in some locations.

(See also page 19)

This continues the yearlong feature of interesting ***engineering*** events or milestones that occurred in a specific month. Readers are invited to share their views and opinions (or suggestions) at the accompanying link. Submissions can also be made using direct email to the editors at: [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org).

#### ***Sharan Kalwani***

*Just one of the Editors, Wavelengths,  
2022-2023 Chair, Southeastern Michigan Section  
Passionate Engineering History Buff/Aficionado*

## Finding Hams

Over several years I have written about Amateur Radio, how it can be a great training ground for young people interested in technology, science, mathematics etc. Also, about how helpful Hams can be helping newly interested prospective Hams get started learning the basics and introducing them to other nearby Hams.

But how do you find your local Hams? If you live in an HOA community with arcane restrictions on antennas, you are not likely to find a Ham by spotting his antenna. If you live in the USA or Canada, there may be help in the form of a website: <https://haminfo.tetranz.com/map>

Use this map to find amateur radio license holders in the USA. Operation is simple:

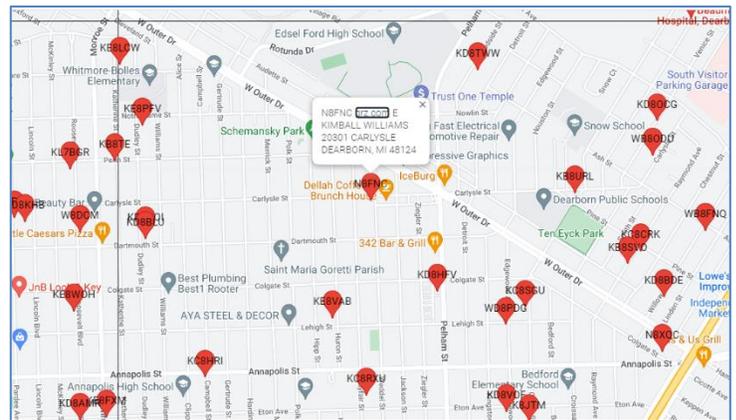
- Select the type of input (callsign, grid square, zip code or street address) on the left.
- Enter an appropriate search value on the right.
- Hit the button.
- Scroll down to see the map.

The selection you choose to enter determines the center of the map.

When the map appears, you can adjust the zoom level and drag the map around. If you're looking at a sparsely populated area, you'll probably need to zoom out.

After two seconds of not moving, it will reload with stations for the new area. You can also click on the gridsquare labels to center the map on that square.

Use the "Show grid labels" checkbox to temporarily remove the grid square lines and labels if they get in the way. (*Grid squares are used by many as location identifiers similar to latitude and longitude coordinate systems.*)



Click on a marker to see name and address info. I entered my callsign and got the map shown below. I was frankly astonished at the number of licensed Amateur Radio operators living near me. Michigan has always been a 'hotbed' of Amateur Radio activity but, gee!

With the address you can walk up to the house, knock on the door, and introduce yourself to the Amateur Radio operator that lives there. Most Hams are gregarious by nature and happy to talk about their equipment and experiences on Amateur Radio. If you are looking for someone who can help you or someone you know (friend or child for example) they should be able to help you find the local clubs and other Hams in the area. Anyone may become an 'Elmer' (Experienced Ham willing to help someone learn.)

The origin of the term 'Elmer' has been lost to the mists of time but has been an Amateur Radio tradition for as long as any of us alive now can recall. What is important is that Hams are there to help. Find those near you and make a new friend.

kw N8FNC

## Vanishing Volunteer

A few days ago, I happened to be in an IEEE online meeting and the subject came up of documenting the activities of all the Chapters of a Society using the vTools Event records online. A few months ago, I had shown the meeting organizer how we do this in our Section using the spreadsheet expertly tailored by Aneesh Mathai which significantly improved my first crude attempts. He had collected all the data for Chapters in Region 4 for the current year. Impressive work.

However, I noticed that there were many Chapters with reasonable activity for membership meetings that listed no administrative meetings at all. My comment was that if they were holding no administrative meetings, they could not be effectively training their officers. One of the other committee members was Ron Jensen, one of our Region 4 senior officers. Ron mentioned that we could no longer expect to see active on-the-job training of our young officers. The younger generation seems to not be interested in 'training by experience', or what we used to call 'on the job training'.

When we see our Section Geo-unit Health chart (*see page 4 in this issue of Wavelengths*) and note Chapters with several Technical or other membership meetings but no administrative meetings listed, what that probably means is that there is a single officer in the Chapter that is working hard, and the rest are riding along 'on his or her coat tails'.



My first reaction is, 'That I not fair!' Which is true but further, it is also a recipe for 'burn-out' of a good volunteer and a dedicated officer. My message to young engineers wishing to learn any of the 'non-technical' skills needed to have a long and successful career in engineering has always been to 'learn by doing'. In fact that is also a good approach to truly learning any of the technical disciplines as well. Most technical subjects include a 'lab' to attempt to give students at least a minimum of 'hands on' experience. But a single lab course can only begin the learning process. The 'lab' experience needs to be repeated again and again before it is to be truly understood. If you want to play tennis, you need to spend enough time swinging a racket at a moving ball to make it 'second nature'. It can't be learned completely by taking one lesson.



One solution when someone finds themselves in a situation where they are the only one rowing the boat, and all the other passengers are sitting waiting for him or her to get them all to shore and not willing to lend a hand, is to jump overboard and swim. What happens to the ones left in the boat is no longer his or her concern.

What is important is that they will reach shore.

I am not sure there has ever been a 'help' key on any keyboard I have ever seen but I have seen many pleas for assistance with Chapters, Affinity Groups and Committees go unanswered, and in a few cases have seen the leader in that organization walk away in disgust and despair. At some point we all ask ourselves if what we are doing is worth all that effort when it is obvious that no one else really cares. Of course, there may be some degree of satisfaction in a job well done. But when that is no longer sufficient to justify all the work and worry.....

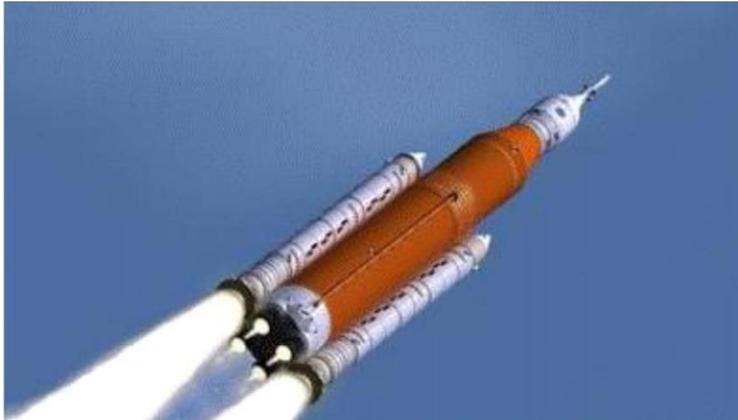
I once read a short story about the final spaceship preparing to leave the earth with the last of the engineers and technicians who knew how all the machinery on earth ran and how to maintain it and fix it if it broke. The current political leader was pleading for them to stay saying 'What will we do when something goes wrong?'

The response was 'Pass a resolution'.

*Quote for the day: "What this country needs are more unemployed politicians".*

## Rise of the Rockets

*IEEE Southeastern Michigan  
Presents a Video Documentary on  
Rise of the Rockets*



#### Quick Summary

- **When:**  
Date: August 18<sup>th</sup>, 2023  
Time: 04:45 – 5:45 PM  
(EST/EDT)
- **Where:**  
Online via Webex (to be shared only after you have a confirmed registration)
- **Audience: OPEN to ALL\***

*Sponsored by  
IEEE  
Southeastern  
Michigan  
Education Society  
Technical Chapter*

Rockets are becoming cheaper and more powerful than ever before thanks to stunning new technologies. As companies like SpaceX and Virgin Galactic make space more accessible, and NASA returns to crewed spaceflight, a new era of space exploration seems to be on the horizon. But will this seeming rocket Renaissance become more than just hype? NOVA explores the latest rocket technologies and the growing role private citizens may have in space.

*Running time: 50 minutes ()*

**\*Pre-Registration Required!**

<https://events.vtools.ieee.org/m/365814>



**IEEE Southeastern Michigan Section**

## Fall Conference '23

Dear IEEE Members,

Planning for the IEEE Southeast Michigan Fall 2023 Conference is kicking into high gear! This time the venue will be at Michigan State University, and the theme will be “Engineers Solving Megatrend and Nanotrend Challenges”.

The conference, scheduled for October 18, 2023, will feature keynote presentations, a student research poster competition, a recruitment opportunity, a technical track, a section activity showcase, a technical demo, awards, a dinner, technical chapter active collaboration and social networking. Currently we are actively seeking speakers from Industry and Academia, and vendors for sponsorship.

Please access early event info here: <https://events.vtools.ieee.org/m/364728> as we are carving out a detailed plan and putting the pieces together. I would invite you all to actively contribute and make it successful again. Please participate in the Fall conference planning meeting, which is already scheduled in the events.VTOOLS.ieee.org page for registration. Please see the “SAVE the Date FLYER” and reach out to me for any comment, question, concern to [conference@ieee-sem.org](mailto:conference@ieee-sem.org).

Thank you for your support and I look forward to meeting with you all.



Robert Hipple and Keyur Patel, on behalf of the Conference Planning Team

## IEEE Southeastern Michigan Fall Conference 2023

**Theme: *Engineers Solving Mega- and Nano- trend Challenges***

Topics planned are:

Mega Trends to Nano Trends Challenges

Areas of Electrical/Electronics/Computer/Mechanical/Power Engineering & Science

*Keynote Presentations, Student Poster Competition, Recruitment Technical Track, Technical Demo, Section Activity, Dinner, Award, Social Networking & Chapters Collaboration*

**Event Date: October 18<sup>th</sup>, Wednesday, 2023 – 3:00 PM to 8:30 PM (EST)**

Venue: Kellogg Hotel & Conference Center, Michigan State University, Michigan

# Save the Date

**October 18<sup>th</sup>, Wednesday, 2023**

Contact: [Conference@ieee-sem.org](mailto:Conference@ieee-sem.org)

<https://events.vtools.ieee.org/m/364728>



**Looking for: Finance Chair for the Fall 2023 Section Conference Event**

Dear IEEE members

As we work through Fall Section Conference 2023, the Section conference planning team has a need for a Finance Chair. We are looking for an enthusiastic volunteer who could help in tracking various financial transactions area between Vendor, Conference Team, and IEEE Section Treasurer and ensure these are handled efficiently.

Key Responsibilities:

1. Conference Planning support
2. Budget Management Support
3. Sponsorship and Fundraising Management Support
4. Logistic and Operational expense handling
5. Evaluation and Reporting
6. Registration Expenses handling
7. Co-ordinational with Section Treasurer, reach out to IEEE organization, and Vendor / Supplier,
8. Active participation in the event planning meetings

Please reach out to "[conference@ieee-sem.org](mailto:conference@ieee-sem.org)" for more information.

Thank you.

Keyur Patel

IEEE Southeastern Michigan - Fall 2023 Section Conference Chair



## Member News



This month we are featuring several of our colleagues who have achieved senior member status.

CONGRATULATIONS to all!



### Sabarish Chandramohan:

Sabarish Chandramohan received his Bachelor of Technology in Electronics and Communication Engineering from University of Kerala, Kerala, India in May 2006. He worked as WiMax engineer at Tata Communications Limited in Bangalore, Karnataka, India and 4G WiMAX implementation engineer at Tata Communications Limited in Kochi, Kerala, India . He received his Master of Science in Electrical Engineering from Wayne State University, Detroit , MI in August 2014. He received the Wayne State University's Graduate Professional Scholarship during the academic year 2011-2012, while pursuing his Master's degree. He received PhD in Electrical Engineering from Wayne State University, Detroit , MI in December 2016. The major field of research for his PhD was Image/Signal processing, Nano Photonics and Nano Plasmonics.



Sabarish Chandramohan is currently working in automotive industry (6 years as of now) as Electrical Engineer with expertise in Automotive Embedded Systems. He is currently member of IEEE including the Signal processing society, CASS, Power Electronics Society. He is active member of Society of Automotive Engineers (SAE) and actively participates in automotive standard committees.

### Scott Faust, PhD:

Dr. Scott Faust is an EMI/E3 Technical Specialist with the U.S. Army Ground Vehicle System Center (GVSC) in Warren, Michigan where leads the VEA EMC Laboratory in performing MIL-STD-461 testing of electronic subsystems used in Military ground vehicles. He received a B.S. degree in Electrical Engineering from Rose-Hulman Institute of Technology in Terre Haute, Indiana and M.S. and Ph.D. degrees in Electrical and Computer Engineering from Oakland University in Rochester, Michigan. Dr. Faust supports GVSC and the wider Tank-Automotive & Armaments Command (TACOM) in EMI and E3-related requirements development, technical reviews, failure analysis, and mitigation of EMI/EMC issues. He also chairs the TACOM E3 Requirements Board where he represents GVSC and TACOM to the wider DoD E3 community.

Dr. Faust holds one patent and is the recipient of the 2020 DoD Army E3 Award and Civilian Service Commendation Medal. Prior to joining GVSC (then TARDEC) in 2010, Dr. Faust held a variety of test, design, and engineering/technical leadership positions within the automotive industry with Ford and various Tier I suppliers. In addition to his work with GVSC, Dr. Faust is a part-time Lecturer at Oakland University.



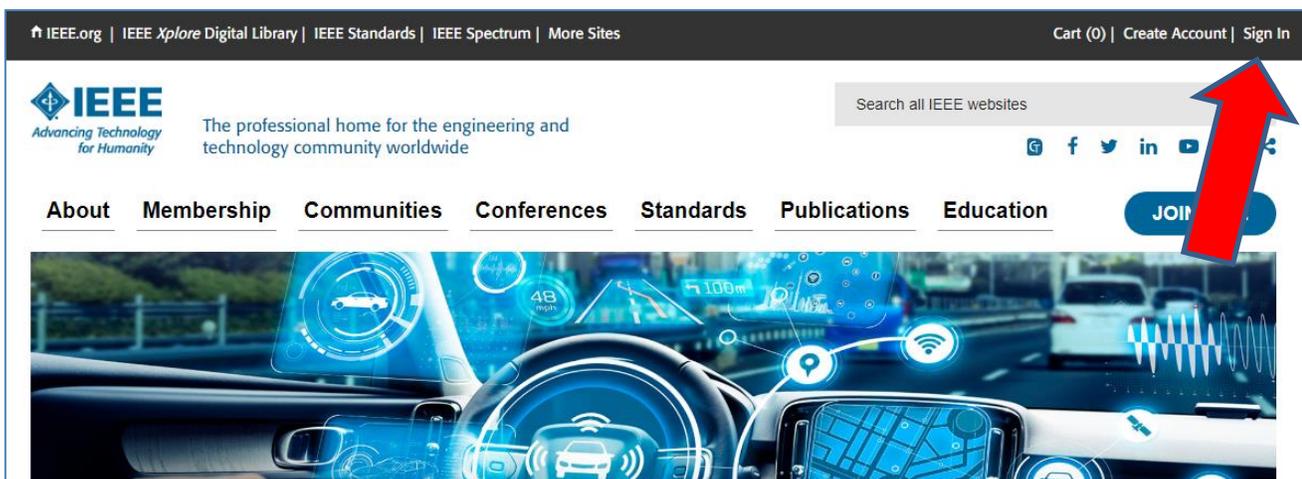
## Lost Contact?

One of the items that Southeastern Michigan Section is lauded for is maintaining a monthly newsletter when most other Sections have none, or once a year or once a quarter, at most. I mention this to members and occasionally get the response; “I never see it!”. Upon further discussion I am told that the members never get any notification of local events or meetings at all.

At this point I can usually guess what has happened. When renewing his or her membership, they checked something in the ‘Personal Profile’ which reduced their email load and cut them off from all IEEE local communications. (*Or they forgot to renew their membership!*)

So, how can you check your Personal Profile? Simple:

- Log into the main IEEE website at: <https://www.ieee.org>
- ‘Sign in’ using your IEEE email address and password. (Arrow below shows the ‘Sign in’ button.)



- Click on your name when it appears, and you will be taken to your IEEE Account page.
- Click on the Profile block.
- Click on the Communications Preferences and Policies link.

Under Communications Preferences, if the ‘Expand All’ button is shown, click on it to show you all your communications options. Often, I find that to limit their email, members have checked:

*‘Please remove me from IEEE communications not required legally or for the fulfillment of services.’*

If that item is checked, you will certainly limit your email from IEEE. You will never hear of local, regional, national, or international events, or any interesting news about activities or technical topics at all.

You will also never see the monthly link to the SEM ‘Wavelengths’ newsletter.

For some members who have demanding careers as consultants involving lots of travel, personal visits and lots of focused work on behalf of clients and only need IEEE for such things as insurance or other services, this may be a viable option.

For the rest of us clicking that box cuts us off from the IEEE membership community and everything that IEEE works for on behalf of the members.

So, please check your IEEE setting today, and think carefully about your choices. You can open a cornucopia of opportunities for involvement with interesting and relevant happenings that align with your interests and goals. Or you may cut yourself off from many potentially wonderful opportunities and experiences. The choice is clearly yours.

Make a wise choice.

30 kw

EMC SIPI 2023

2023 IEEE INTERNATIONAL SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY & SIGNAL/POWER INTEGRITY



## BENEFITS OF ATTENDING

### PARTICIPATE IN 200+ TECHNICAL SESSIONS

Workshops & Tutorials, Hands-on Experiments & Demonstrations, and Special Sessions with the world's leading engineers in EMC and SIPI.

### ATTEND THE "ASK THE EXPERTS" PANELS

Bring your questions or simply listen and learn from the experts!

### PARTICIPATE IN LIVE DEMONSTRATIONS

Presented by industry experts to learn how to solve real-world problems.

### LEARN ABOUT THE LATEST GLOBAL STANDARDS

in EMC and SIPI, hear updates, ask questions, and attend Working Group Meetings as part of the "Standards Week" special track.

### NETWORK WITH FRIENDS AND COLLEAGUES

During the Welcome Reception, the Gala Dinner, Young Professionals, and Women in Engineering events.

### BRING THE FAMILY

And Experience this unique and vibrant city of Grand Rapids, Michigan. Companions are invited to join the Social Events and interesting area tours.

#IEEE\_ESP23



[www.emc2023.org](http://www.emc2023.org)



IEEE

EMC  
SOCIETY.

2023 IEEE INTERNATIONAL SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY &amp; SIGNAL/POWER INTEGRITY

# TECHNICAL PROGRAMS

A sampling of the technical program highlights planned for 2023!



## SPECIAL SESSIONS

### EMC Assessment and EMI Modelling for Electrical and Electronic Devices in the Low-Frequency Range

**Co-Chairs:**Erjon Ballukja and Karol Niewiadomski, *University of Nottingham, UK*

### Advanced EMC Design Based on Near-field Modeling and Metasurface

**Co-Chairs:**Richard Xian-Ke Gao and Xing-Chang Wei, *Zhejiang University, China*

### Stochastic Simulation for EMC and Signal Integrity

**Co-Chairs:**Paul Bremner, *RobustPhysics, San Diego, CA*Prof. Zhen Peng, *University of Illinois Urbana-Champaign, Urbana, IL*

## ASK THE EXPERTS PANEL DISCUSSIONS

### EMC Challenges of Automotive Electrification

**Chair:**Craig Fanning, *Elite Electronic Engineering*

### Signal Integrity Challenges of SERDES Interfaces

**Chair:**James Drewniak, *Missouri S&T EMC Laboratory*

### Challenges in Medical EMC

**Chair:**Larry Banasky, *Stryker Medical*

### EMI Issues and Solutions of Modern Power Electronics Systems with Wide Bandgap Semiconductor Devices

**Chair:**Shuo Wang, *University of Florida*

## CLAYTON R. PAUL GLOBAL UNIVERSITY

Advance your EMC knowledge and career with 20 hours of in-depth classes on EMC at the IEEE EMC Society's premier educational event.

**Signal Spectra** - Dr. Flavia Grassi, *Politecnico Milano***Non-Ideal Behavior of Components** - Dr. Anne Roc'h, *Eindhoven University of Technology***Radiated Emissions** - Mr. Lee Hill, *Silent Solutions LLC & GmbH***Conducted Emissions** - Dr. Arturo Mediano, *University of Zaragoza***Electrostatic Discharge** - Dr. Todd Hubing, *Clemson University***PCB Design for EMC** - Dr. Bruce Archambeault, *Missouri University of Science & Technology***Shielding** - Dr. Frank Leferink, *University of Twente***Signal Integrity** - Dr. Eric Bogatin, *University of Colorado, Boulder***Crosstalk** - Dr. Daryl G. Beetner, *Missouri University of Science & Technology***Power Integrity** - Mr. James Herrmann, *AppliedLogix, LLC*

## SIPI SHORT COURSE

**Presenter:**John Golding, *Siemens EDA*

For beginner and intermediate level learners. Our topics will include:

**SIGNAL INTEGRITY****Basic Concepts**

- What is Signal Integrity
- Transmission Lines
- Crosstalk
- Differential Pairs
- Vias and Impairments
- Termination
- Timing

**Application Examples**

- DDR Memory Interface
- High-Speed Serial Interface

**POWER INTEGRITY****Basic Concepts**

- What is Power Integrity
- DC Current and Voltage
- Decoupling
- Transient Performance

**Application Examples**

- DC (IR) Voltage Drop
- Decoupling and noise

**Duration:** 4 hours**Cost:** \$75 per person / \$100 per person after the June 26th early deadline**Cost:**\$350 per person/  
\$400 per person after the  
June 26th early deadlineSEE FULL DESCRIPTIONS OF OUR PROGRAMS:  
[emc2023.org/technical-programs.html](http://emc2023.org/technical-programs.html)

**Magnetics Chapter Chair**

Steven Louis is a faculty member in the Department of Electrical and Computer Engineering at Oakland University. He holds a PhD in Electrical Engineering (2020) and an MS in Physics (2015), both obtained from Oakland University. He also earned a BS in Electrical Engineering from Arizona State University in 1998. Before pursuing graduate studies, Steven gained extensive experience working in the fields of telecommunications, biomedical research, and corporate finance for over 15 years.

His research focuses on translating recent scientific discoveries in magnetism and spintronics into practical applications. Some of Steven's recent projects include developing a nanoscale ultrafast spectrum analyzer with a nanosecond time resolution based on a spin torque nano oscillator. He is also working on creating self-powered computing devices, such as a magnetic tunnel junction capable of harnessing stray radio frequency energy to power a black phosphorus transistor. Additionally, he is involved in the development of energy-efficient, THz frequency computer hardware using non-von Neumann architectures for neuromorphic AI systems.

Steven can be reached at: [slouis@oakland.edu](mailto:slouis@oakland.edu)

## Power Outage 2003

Case Study Abstract:

**August 2003 North American Blackout: University of Michigan Response**

| 7.29.2023 | ~ 2092 880 words | 8 minute read

Michael A. Anthony, P.E.

\* More at <https://site.ieee.org/icps-ehe/8-14-2003/>

It was one of those late summer days that makes poets of us all; a clear-skyed, not-too-humid day between the end of Ann Arbor Art Fair and the beginning of students trickling back to campus for the new school year. On the three Ann Arbor campuses -- Central, Hospital (Medical) and North -- normally the milieu for 60,000 students, faculty and staff spread across 4000 acres -- economic activity was significantly reduced, mild and pleasant. In academia in August, the weekend starts on Thursday.

Since the University's Central Heating Plant (CHP) began operation sometime in the early 1900's (in the lowest part of campus so that gravity would help condensate return to its origin) it had never had to reckon with anything like the colossal blackout of August 13, 2003. Over the previous 100-odd years the CHP evolved from a heating plant for steam and hot water into a large university Central Power House (CHP → CPP) which now generates 50 megawatts of electricity and a million pounds of steam through 10-odd miles of tunnels. In effect it evolved into a microgrid long before microgrids were cool.

When the "Old Main" hospital was demolished in the early 1990's it was decided that Old Main's replacement (the building that stands there now) would sever its dependence on CPP electricity; a decision influenced by political atmospherics around district energy at the time. Despite the approximate 1500-foot electrical distance between the University Hospital and the CPP an effective "voltage wall" was created; complicated when transformer manufacturing standards changed from 13.2 kV to 13.8 kV. The 4 percent voltage difference between the 13.2 kV secondary output of the DTE's CPP transformers and the 13.8 kV secondary output of DTE's University of Michigan Hospitals (UMH) transformers was not troublesome until the turn of the millennium.

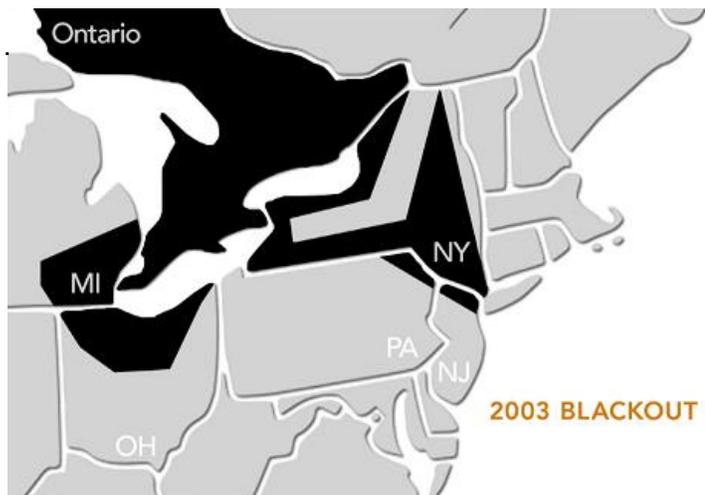


Image: [Pacific Northwest National Laboratory](#)

In the minutes before the outage crossed the Ohio and Canadian borders DTE was aware of anomalies gathering pace with the regional transmission operator. The CPP was generating normally -- about 26 MW of its own power and buying 17 MW from DTE Energy. Think of mix as the "home position" for energy production for late summer afternoon. CPP operators try to tune the energy mix so that the "house power" requirement is met at the same time the generators operate in the sweet spot of their efficiency curve (typically 50 percent loading). Operators also want to maintain purchased power below the annual peak purchased power contract demand set by DTE which, if breached, present punitive demand charges.

Farther away from the CPP heating and cooling was provided by regional steam chillers that reduced the need for inefficient and unsightly split DX and window AC units. Cooling to the Hospital and North Campus, essential for patient care was completely dependent upon DTE power. Ninety-six hours of life safety power for UMH and ninety minutes of code minimum egress power for North Campus but nothing after that; except where a few backup generators supported laboratory research (i.e. animals, freezers, incubators, special alarms, etc.).

A daytime blackout in beautiful weather takes a few minutes to figure out. I was driving back to Central Campus from field work at the Argus Building on Ann Arbor's Old West Side. I noticed traffic signals were dark. Drivers took turns at intersections. At that point I knew that the outage was at least an Edison problem; perhaps an errant squirrel. When, further down the west boundary of Central Campus I saw exterior egress lighting units energized, I knew Edison's problem was also our problem. I tuned to WJR -- "The Voice of the Great Lakes" -- the go-to place on the radio dial for emergency communication protocols. Once back at the Plant Operations complex I found the dispatch center running on the generator we built for Y2K.

At that point 69 Michigan counties had dropped power to 2.1 million DTE Energy customers and 1.9 million Consumers Energy customers.

The life-saving success of the University of Michigan Plant Operations response to the August 14th blackout begins the year ahead of the turn of the century when it prepared for embedded system clocks that could not differentiate Year 1900 from Year 2000. Everything with a microprocessor -- information and communications, security, and energy -- required identification and risk evaluation. Lots of field work, spreadsheets, and meetings. Lots of meetings. To many who knew memory board level programming, it seemed a trivial problem, but others spread the belief that the "bug" could propagate incalculable economic disruption and societal breakdown. Thus, the genesis of the "[Year 2000 Information and Readiness Disclosure Act](#)" \*

At the beginning of 1999 Plant Operations was in compliance with all its paperwork obligations for Y2K but time was running out on non-paperwork defend-in-place contingencies for University Hospital. Week by week, the cost of reserving ten megawatts of mobile generation escalated beyond belief. When the pain point reached \$2 million we were given the green light to find a way to supply power to UMH from the CPP:

*Q. How do we get cabling between the two systems?* (A. We found an unused breaker and empty conduits in a switchgear room that serviced the original 1928 University Hospital).

*Q. How will UMH run with a 4 percent difference in voltage?* (A. Electricians confirmed that most transformers voltage taps that would permit 7.5% adjustment.)

*Q. How much will it cost?* (A. Construction bids -- including a one-off 4% autotransformer came in less than \$200,000)

*Q. Do we still have time?* (A. A Wisconsin-based manufacturer made quick work of it and delivered it before Thanksgiving)

Thus the "C.S. Mott Children's Hospital Intertie" was born.

As the clock struck midnight on the new millennium the catastrophic failures were nowhere to be found.

Many people in the upper quadrant of North America remember what they are doing on the Thursday, Friday and Saturday 1322 days later. (Times are approximate\*)

[Thursday 16:11] The outage initializes when a 345 kV transmission line sags into overgrown trees in suburban Cleveland. An improbable combination of man and machine errors in regional transmission operation centers became probable.

[Thursday 16:15] Power flows in a giant loop from southern Ohio to Pennsylvania to New York to Ontario to Michigan to northern Ohio. Detroit Edison and Consumers Energy drop 1,863 MW and 820 MW of generation respectively.

[Thursday 16:16] Five minutes later the outage is essentially complete. DTE system frequency = 00.00 Hz. Transmission protective regimes did their job -- they protected generators and transmission lines -- but now about 50 million people in North America are without power.

Back in Ann Arbor the University Emergency Command Center is running on generators. Plant Operations Zone managers scramble with radios and plain old telephone service. Electricians and mechanics fan out to buildings, resetting a bazillion alarms as necessary. Zone maintenance staff reports no one trapped in elevators.

[Thursday 17:00] Through WJR we learn there will be no quick return to normal. CPP operators are in communication with DTE primary service representatives and lock out its service switchgear. UM system frequency ~60 Hz. Sending UM generated power down the 13.2 kV distribution network gives the regional boiler operators the power they need to re-start the absorption chillers which, in turn, loads the heat recovery gas turbines which creates more steam to run through the steam generators. Additionally, a balance condenser mounted on the roof of the CHP, normally used to shave electrical demand peaks, was put into service to maintain steam pressure.

Iterating steam and electrical load between the CPP and the outlying boiler teams gets done in stages over the next few hours; proving the engineering beauty of district energy..

[Thursday 18:00] Hospital Security calls the CPP to say UMH is getting mighty hot. After a few phone calls the Y2K protocol for relief was approved by the Director of Plant Operations -- "Close the "C.S. Mott Intertie" Campus electricians and UMH electricians added load incrementally measuring voltage at key substations; eventually ramping up to about 4 MW -- enough to provide power well above minimums to chillers for surgical units, birthing, clinics and critical laboratories, sterilization.

For the next 18-odd hours people could hear the world without the ambient 60 Hz hum of electrical energy. You could hear the birds. Voices traveled farther. The skies were empty of airplanes. You could see stars. People made the best of it, gathering in the well-lit Diag which had morphed into a place of refuge for people you normally only see during the Hash Bash..People brought their sleeping bags and tents to be in the Diag light which felt safe to them. .

[Friday 21:00] DTE restoration accelerates with re-energization of its 120 kV distribution network. Initializing a cranking path for all the generators on a large grid like DTE's is non-trivial; not unlike lighting a birthday cake with one candle to the next. By over-exciting its generators the CPP was able to provide a measure of reactive power to DTE to hasten grid support for the Ann Arbor region.

By early Saturday August 16 DTE had restored power and so had much of the Northeastern part of North America. An estimated 100 lives were lost (indirectly; mostly on the East Coast) and at a cost in the range of \$10-\$100 billion.

Through the whole ordeal the CPP remained the beating heart of the University of Michigan Ann Arbor campus.

Today's power grid has been significantly improved since 2003 but some smaller outages are noteworthy.: The September 2011 Southwest blackout affected 7 million. Hurricane Florence blackout affected 4.5 million. The February 2021 ERCOT blackout affected 4.5 million. During Hurricane Sandy in October 2012 and the Princeton University "microgrid" provided some local relief for above life-safety minimums though not nearly at the same scale as at the University of Michigan with the urgency of a 900-bed hospital.

#### Reflections & Recommendations:

- The "scary" part of the Y2K scare was authored by the federal government, which, in recent history, has proven sketchy in its judgements about national emergencies. Admittedly, the legislation provided impetus for upgrades that might not have been driven any other way.
- Amateur radio and plain old broadcast radio are an essential part of the US emergency alert system. AM radio bands have many technical advantages over FM for coverage, penetration and resilience in four weather and should remain in all automobiles.
- Develop more solutions to manage water-electric-fuel interdependence with natural gas supply. You cannot maintain municipal water supply and sanitation systems with solar panels. Loss of backflow pressure can contaminate a community in seconds.
- Grid enhancement technology, (smart grid and prosumer) innovations at the utility level are welcomed but more local contingencies can be developed by upscaling the backup systems already required by building safety codes and permitting proximate buildings to share household generators.

- Having even 1000 watts of power from a car battery for household defend-in-place; will dampen the likelihood of civil unrest if outages last weeks. Hybrid and conventional automobiles can be tricked out with DC/AC inverters and plugs to provide power to one or more households for weeks for less than \$200 and with less noise. The largest energy storage system in the USA (in terms of BTU's) is mobile and stored in the ~300-million road vehicles.
- Harden blackout damages and hasten recovery with resilient internet access. People can function in daylight without power but they cannot function either day or night without internet access. The iPhone did not arrive until four years later, anything close to the normal order of business has been unthinkable since.

This is only a snapshot of what happened on one of America's largest campus power systems. Confidentiality is essential for power security; but sharing "lessons learned" in some measure is an essential feature of academic freedom. There are many people who contributed to the University response -- too many for a case study abstract. A more complete paper will include more engineering and management detail suitable for another IEEE publication.

Just as January 1, 2000, helped us with August 14, 2003, will August 14, 2003 prepare us for the next major regional contingency? It is hard to count something that does not happen. What is more certain is that if federal regulators persist in their janky energy policies by willfully building single points of failure it is only a matter of time.

\* More at <https://site.ieee.org/icps-ehe/8-14-2003/>

## IEEE Day 2023



In most areas outside IEEE-USA, IEEE Day has almost the status of a major holiday. Sections have major activities and there is strong participation in the Photo and Video Contests. Badges are earned and Collaboratec is full of information about the various celebrations of the day when engineers came together to share their technical expertise. But in Regions 1 through 6 activities are few and far between. Some sections in Region 10 have more IEEE Day Ambassadors than entire USA regions!

Our Section has anywhere between 2500 to 3000 members (it varies as folks retire, join, relocated in or out of the area, etc) AND can be as creative and productive as our counterparts anywhere else. We are just as clever as the members of any of these sections. The IEEE Day window is on October 3<sup>rd</sup>, during that week, which activities qualify as IEEE Day Activities provides an excellent opportunity for recruiting students returning to school and professional members regrouping after summer. It is also a great time to remind our industry partners of the educational opportunities available through ILN (IEEE Learning network) and IEEE.TV (our own streaming service for selected videos only), plus several other societies. The classes, workshops, and lectures available via the various IEEE avenues can be used to provide excellent continuing education to engineers working through out your section.

Once again there will be free presentations by the various societies and other IEEE entities like ILN. There will be free and discounted classes and mini-courses on a wide range of topics. Discounts on some future conferences will be offered when registration is done during IEEE Day window. New members will again be offered a discount to join. Many societies will be offering free or discounted fees for becoming society members. These should be great enticements for new members to join or lapsed members to return. In many cases the discount is extended to both professional and student members.

There will once again be prizes for photos and videos submitted to the contests. Badges will be offered to those who complete a series of tasks associated with IEEE and its long history.

The Region IEEE Day Lead will work with the Section IEEE Day Ambassadors to coordinate activities with the local society chapters, affinity groups and student branches. Publicizing the local activities and the national offerings in local

media can attract new members and reinvigorate existing members. Sending information to local media, libraries, companies, and even schools can help to attract attendance from outside the organization.

October 3 – the date of IEEE Day for 2023 – seems like part of a distant future, but given the annual summer slowdown, it is much closer than one might think. This is a great time to start planning both activities and how to publicize them.

There will be additional guidance in the months leading up to IEEE Day to help Sections, Chapters, and Student Branches in the field, for IEEE Day celebrations to rival those in any Region. Now is the time to begin the discussions that will lead to a successful IEEE Day 2023. Let's prove that we can be as successful with its IEEE Day observances as our IEEE colleagues all over the world.

**Sharan Kalwani**, email: [chair@ieee-sem.org](mailto:chair@ieee-sem.org)

**Chair, IEEE Southeastern Michigan Section (2022-2023)**

**Editor, Wavelengths** (Serving you as an active newsletter contributor since 2018)

*Enthusiastic IEEE Section & Chapter & Committee volunteer since 2011*

## RoboFest update

### Invitation to the Robofest Appreciation and Planning Dinner

Robofest thanks all the IEEE members who volunteered for Robofest competitions in the 2022-2023 academic year. Please join us on Thursday, August 17. Appreciation buffet Dinner will start at 5:30, Room J234 in building No. 8 (STEM Center) and the brief presentation will start at 6:15.

In addition to dinner, we will have some giveaways, share our wrap-up video and season statistics, AND announce some exciting news for the 2024 Robofest season.

All IEEE members who are interested in volunteering for Robofest 2024 are invited, too.

**To join the dinner, please sign up at:** <https://forms.gle/2qjbCxPDj1PtbxCu6> by Aug. 9<sup>th</sup>.

The following photo shows some of IEEE members who volunteered for Robofest 2023 World Championships.

IEEE members who served as Judges



(Left to right: Jonathan Berent, CJ Chung, Sharan Kalwani, Victor Manske, Benancio Gonzalez, Hao Jiang)

## ORG UNITS cheat sheet

**Section Unit Name or Affinity Group or Chapter Name (Organizational Unit code is in parentheses)**

Consultants Network Affinity Group:	(CN40035)
Life Members:	(LM40035)
Young Professionals:	(YP40035)
Women in Engineering:	(WE40035)
Chapter: 01 (CH04049)	(SP01) Signal Processing Society, (CAS04) Circuits and Systems Society and (IT12) Information Theory Society
Chapter: 02 (CH04051)	(VT06) Vehicular Technology Society
Chapter: 03 (CH04053)	(AES10) Aerospace and Electronic Systems Society and (COM19) Communications Society
Chapter: 04 (CH04050)	(AP03) Antennas and Propagation Society, (ED15) Electron Devices Society, (MTT17) Microwave Theory and Techniques Society,
Chapter: 05 (CH04055)	(C16) Computer Society
Chapter: 06 (CH04056)	(GRS29) Geosciences and Remote Sensing Society
Chapter: 07 (CH04057)	(PE31) Power Engineering Society, (IA34) Industrial Applications Society
Chapter: 08 (CH04088)	(EMC27) Electromagnetic Compatibility Society
Chapter: 09 (CH04087)	(IE13) Industrial Electronics Society, (PEL35) Power Electronics Society
Chapter: 10 (CH04142)	(TEM14) Technology and Engineering Management Society
Chapter: 11 (CH04099)	(EMB18) Engineering in Medicine & Biology
Chapter: 12 (CH04103)	(CS23) Control Systems Society
Chapter: 13 (CH04113)	(E25) Education Society
Chapter: 14 (CH04115)	(RA24) Robotics And Automation Society
Chapter: 15 (CH04144)	(NPS05) Nuclear Plasma Sciences Society
Chapter: 16 (CH04125)	(CIS11) Computational Intelligence Society, (SMC28) Systems, Man and Cybernetics Society
Chapter: 17 (CH04128)	(NANO42) Nanotechnology Council
Chapter: 18 (CH04162)	(MAG33) Magnetics Society

**Section Unit Name or Affinity Group or Chapter Name (Organizational Unit code 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)

Use the Geo-unit 'Code' for faster access in the vTools system applications.

HKN Code	HKN Name (Student IEEE Honor Society)
HKN029	University of Michigan-Ann Arbor, Beta Epsilon
HKN042	University of Detroit-Mercy, Beta Sigma
HKN054	Michigan State University, Gamma Zeta
HKN073	Wayne State University, Delta Alpha
HKN163	University of Michigan-Dearborn, Theta Tau
HKN164	Lawrence Institute of Technology, Theta Upsilon
HKN190	Oakland University, Iota Chi
HKN244	Southeastern Michigan Alumni

Organization Unit IEEE Code	Student Technical Chapter name
SBC00531	University of Detroit-Mercy, Computer Society Chapter
SBC02251	Wayne State University, Computer Society Chapter
SBC03921	Lawrence Tech University, Computer Society Chapter
SBC06741	Oakland University, Engineering in Medicine & Biology

Why do we publish this? Well, this is most useful when searching the vTools page for entering L31s or creating new events or searching for existing events!

/\*

*NOTE: we have updated this month the newly formed Magnetic Society Chapter*

\*/

**Curated & Maintained By**

**Sharan Kalwani,**

**Chair, IEEE Southeastern Michigan Section (2022-2023)**

**Editor, Wavelengths (Serving you as an active newsletter contributor since 2018)**

*Enthusiastic IEEE volunteer since 2011*

Use the Geo-unit 'Code' for faster access in the vTools system applications.

## Back to the Moon

*IEEE Southeastern Michigan  
Presents a Video Documentary on  
Back to the Moon*



Fifty years after humans first set foot on the Moon, new scientific discoveries are fueling excitement for a return to the lunar surface—this time, perhaps, to stay. Join the scientists and engineers working to make life on the Moon a reality

*Running time:* 50 minutes ()



#### Quick Summary

- **When:**  
Date: August 25<sup>th</sup>, 2023  
Time: 04:45 – 5:45 PM  
(EST/EDT)
- **Where:**  
Online via Webex (to be shared only after you have a confirmed registration)
- **Audience:** OPEN to ALL\*

*Sponsored by  
IEEE  
Southeastern  
Michigan  
Education Society  
Technical Chapter*

**\*Pre-Registration Required!**

<https://events.vtools.ieee.org/m/365813>



**IEEE Southeastern Michigan Section**

## Activities & 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. **NOTE: The IEEE SE Michigan section website is located at <http://r4.ieee.org/sem/>**

### SEM Wavelengths:

<https://r4.ieee.org/sem/about-sem/sem-history/wavelengths-magazine-archive/>

### SEM Calendar of events:

<https://r4.ieee.org/sem/sem-calendar/>

Select “SEM Calendar” button in the top row of the website. 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 Collabratec Workspace:

<https://ieee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-Section/activities>

An IEEE supported space for online chat, discussions, connecting with other global IEEE entities, besides our local Michigan folks.

### vTools Meetings:

<http://sites.ieee.org/vtools/>

Select “Schedule a Meeting” button in the left-hand column of buttons.

## Other Happenings

Here are some of the non-IEEE functions that may be of interest to you or someone you know. 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. **NOTE: Copy the URL and paste it into your browser address bar.**

These websites were checked in June 2022 and found viable.

Send details to: [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org) OR [letters@ieee-sem.org](mailto:letters@ieee-sem.org)

.....

**Michigan Institute for Plasma Science and Engineering:** Seminars for the academic year:

<https://mipse.umich.edu/seminars.php>

**Model RC Aircraft**

<http://www.skymasters.org>

**Model Rocketry**

<https://www.nar.org/find-a-local-club/nar-club-locator/>

**Astronomy**

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

**Experimental Aircraft Association**

<https://www.eaa.org/en/ea/ea-chapters/find-an-eaa-chapter>

**Robots**

<https://www.robofest.net/index.php/about/contact-us>

**Science Fiction Conventions**

<https://2022.penguicon.org/>

<http://www.confusionsf.org/>

**Mad Science**

<http://www.madscience.org/>

**ESD PE Review Class**

<https://www.esd.org/programs/pe/>

**Maker Faire:**

<https://swm.makerfaire.com/>

It appears that the SouthWest Michigan Maker Faire was a casualty of the Global Pandemic, as were many of our friends and several organizations.

However, we retain this link for anyone wishing to make contact and consider pumping life back into what was a wonderful experience.

## Executive Committee

**The Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2023 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on usually on a Thursday at 6:30 pm. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: <http://r4.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 **Christopher Johnson**, the section secretary at [secretary@ieee-sem.org](mailto:secretary@ieee-sem.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.

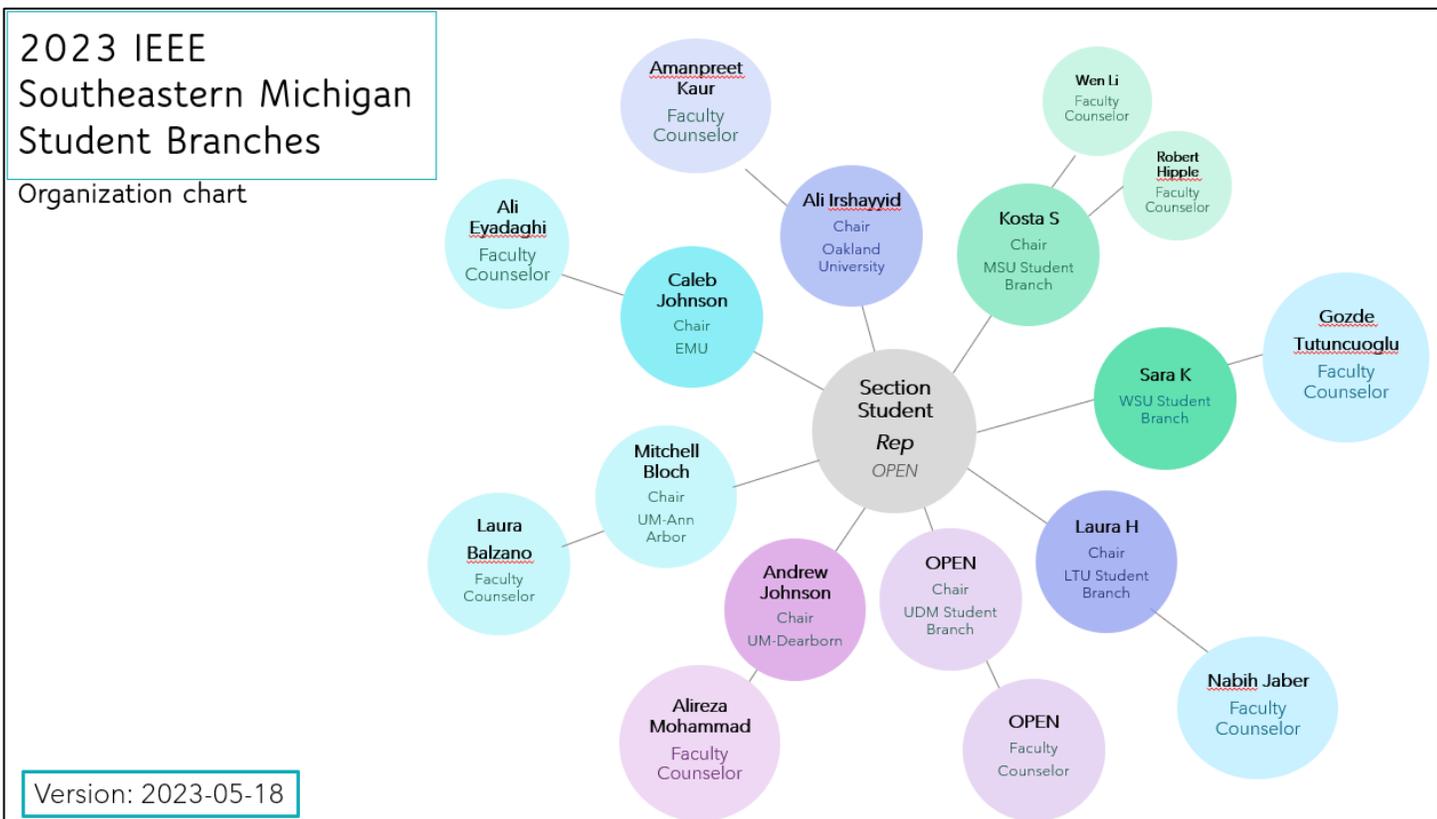
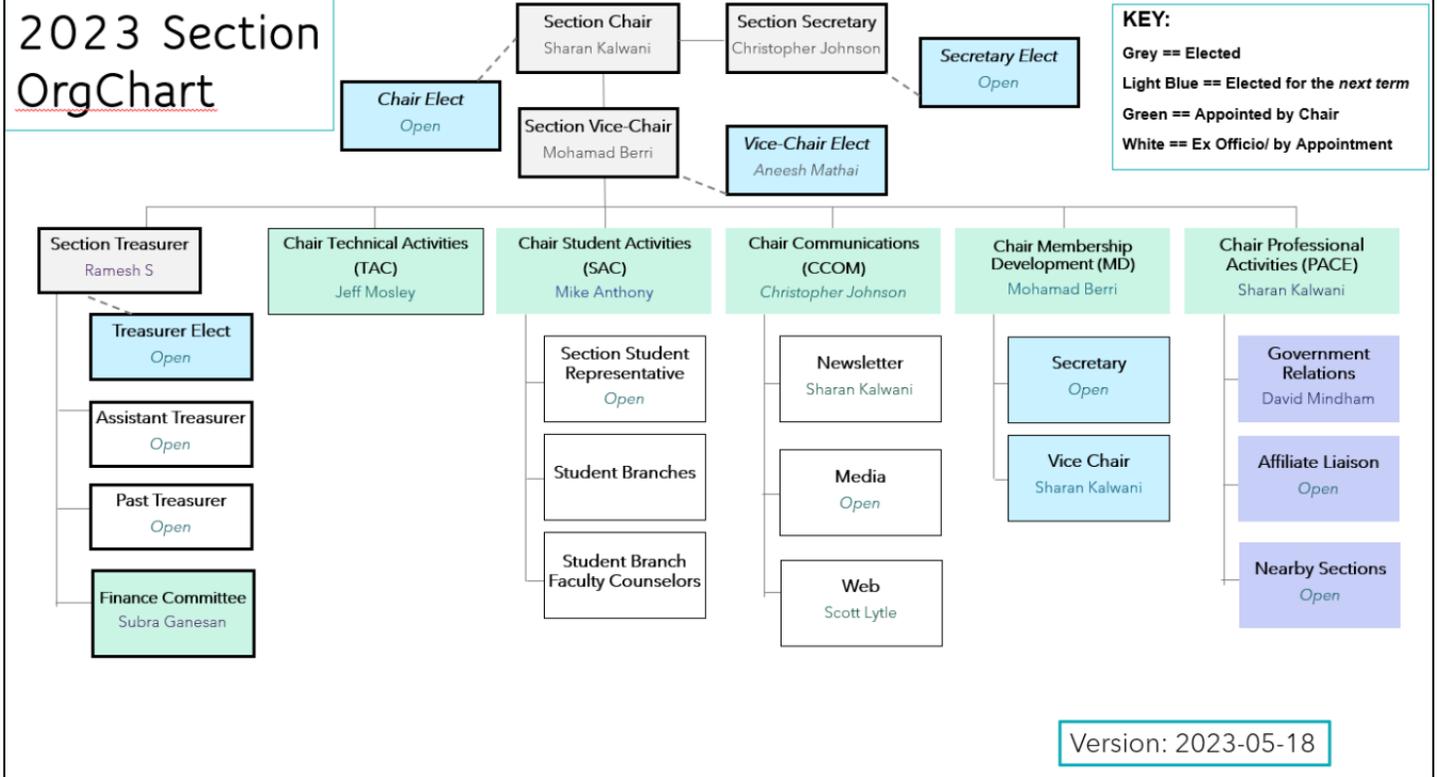
More detailed information on meetings may be found through the IEEE SEM Website: <http://r4.ieee.org/sem/> and clicking on the **SEM meetings list** button near the bottom of the left-hand banner.

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.

*Christopher Johnson (Secretary)*

*Email: [secretary@ieee-sem.org](mailto:secretary@ieee-sem.org)*

If you wish to download the complete SEM Organization Chart, in PDF format, it will be made available soon at <http://r4.ieee.org/sem/>. In the meantime, you may use the diagram below (recently refreshed!)



**ExCom Meeting Schedule**

**NOTE: All SEM members are invited to attend ALL ExCom (Executive Committee) meetings:**

Below is the 2023 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 each scheduled ExCom meeting. Please mark your calendars for the 2023 meetings. Or, link your personal calendar to the SEM Web calendar.

**Section Administrative Committee (ExCom) Meeting Schedule for 2023: (clickable links)**

**Note:** All IEEE Members are welcome at any IEEE meeting, at any time but please register so we can be sure to accommodate you. This month’s meeting is highlighted in **Bold**.

<i>ExCom Meeting (all clickable links)</i>	<i>Date &amp; Time</i>
<b><a href="#">SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2023</a></b>	<b>10 Aug 6:30 PM</b>
<a href="#">SEM Section ExCom Monthly Meeting (virtual) For SEPTEMBER 2023</a>	14 Sep 6:30 PM
<a href="#">SEM Section ExCom Monthly Meeting (virtual) For OCTOBER 2023</a>	12 Oct 6:30 PM
<a href="#">SEM Section ExCom Monthly Meeting (virtual) For NOVEMBER 2023</a>	9 Nov 6:30 PM
<a href="#">SEM Section ExCom Monthly Meeting (virtual) For DECEMBER 2023</a>	14 Dec 6:30 PM

**Christopher Johnson (Secretary)**

Email: [secretary@ieee-sem.org](mailto:secretary@ieee-sem.org)

**Section Administrative Committee (ExCom) Meeting Schedule for 2023: (screen snapshot)**

SEARCH EVENTS

[Learn how to integrate Event notices with your website](#)  
[Hey! I want the old Search page.](#)

Search Options
Advanced Search
Clear Search

Showing 5 of 5 upcoming events, based on search criteria.

Title	Date	Host	Location	Reported On	Options
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2023	10 Aug 2023 06:30 PM	R40035			<a href="#">View</a>   <a href="#">Manage</a>
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For SEPTEMBER 2023	14 Sep 2023 06:30 PM	R40035			<a href="#">View</a>   <a href="#">Manage</a>
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For OCTOBER 2023	12 Oct 2023 06:30 PM	R40035			<a href="#">View</a>   <a href="#">Manage</a>
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For NOVEMBER 2023	09 Nov 2023 06:30 PM	R40035			<a href="#">View</a>   <a href="#">Manage</a>
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For DECEMBER 2023	14 Dec 2023 06:30 PM	R40035			<a href="#">View</a>   <a href="#">Manage</a>

**Editorial Corner**

Previous editions in this series may be found on the IEEE SEM website at: <http://r4.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](mailto:wavelengths@ieee-sem.org)

OR

[sharan.kalwani@ieee.org](mailto:sharan.kalwani@ieee.org)

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

[nilesh.dudhaia@ieee.org](mailto:nilesh.dudhaia@ieee.org)

[k.williams@ieee.org](mailto:k.williams@ieee.org)

[cjohnson@ieee.org](mailto:cjohnson@ieee.org)

[lunnmalcolm@me.com](mailto:lunnmalcolm@me.com)

[akio@emcsociety.org](mailto:akio@emcsociety.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.

*We always encourage all chapters and student branches to share news of activities (both past and future) in their arenas. Please feel free to share any and all information so your peers, colleagues can hear about all the good work you do.*

Quote:

*“If a tree falls in a forest and no one hears it, how do you know it actually fell??”*

**So, publicize your work, one never knows when it can pay off!**

**Editors:**

We are always looking for members interested in helping to edit the newsletter. The process is always more fun with more people to share the duties. Having more participants and contributors also helps us keep the newsletter interesting.

**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](mailto:wavelengths@ieee-sem.org)

**Sharan Kalwani,**  
**Chair, IEEE SE Michigan Education Society Chapter**  
**Vice-Chair, IEEE SE Michigan Computer Society Chapter**  
**Co-Editor, Wavelengths,**  
**2018~2019~2020~2021~2022-2023**

*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	New Year Officers	Officer's Welcome	The Year Ahead	
Feb	Cons	2		MSU	Science Fair Judges	National Engrs Wk.	Surviving Winter	
Mar		3	13	EMU	Elections - Prep			
Apr		4		U/M-D		ESD Gold Awards	Chapter Focus	
May	Life	5	14			Science Fair		
Jun		6					Leadership Skills	
Jul		7	15				Students Issues	
Aug	WIE	8			Nominations Call		Womens Issues	
Sep		9	16	LTU	Ballots	Engineers Day?	Professional Skills	
Oct		10		U/M-AA	Elections!	IEEE Day		
Nov	YP	11	17	WSU	Election Results	New Fellows		
Dec		12		U/D-M	IEEE-Com Apmts.		Happy Holidays	R4 Nom

*Wavelengths Annual Publication Plan for Personal Profiles*

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



## Web & Social Sites

### Southeastern Michigan Section Website

<http://r4.ieee.org/sem/>

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

### Section Website Event Calendar

(Select the “SEM Calendar” button - top row)

### SEM Facebook Page

(Select the “” button under the top row)

<https://www.facebook.com/groups/ieeesemich>

### SEM LinkedIn Page

(Select the “” button under the top row)

<https://www.linkedin.com/groups/1766687/>

### SEM Twitter Account (new)

(Select the “” button under the top row)

<https://www.twitter.com/ieeesemich>

### SEM Collabratec Workspace (new)

<https://iee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-Section/activities>

### SEM Instagram (new)

<https://www.instagram.com/ieeesemich/>

### 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 web page (top banner)

### Section Officers

#### Section Chair

Sharan Kalwani

#### Section Vice-Chair

Mohammad Berri

#### Section Secretary

Christopher Johnson

#### Section Treasurer

Ramesh Sethu

### Standing Committees:

#### Section Adviser

Don Bramlett

#### Wavelengths Editor

Sharan Kalwani

#### Chair Educational

Anthony Will

#### Chair Finance Committee

Subra Ganesan

#### Chair Membership

Development  
Mohamad Berri

#### Chair Nominations & Appointments

Kimball Williams

#### Chair PACE

Sharan Kalwani

#### Chair Student Activities

Michael Anthony

#### SECTION Student Rep

OPEN

#### Chair Technical Activities

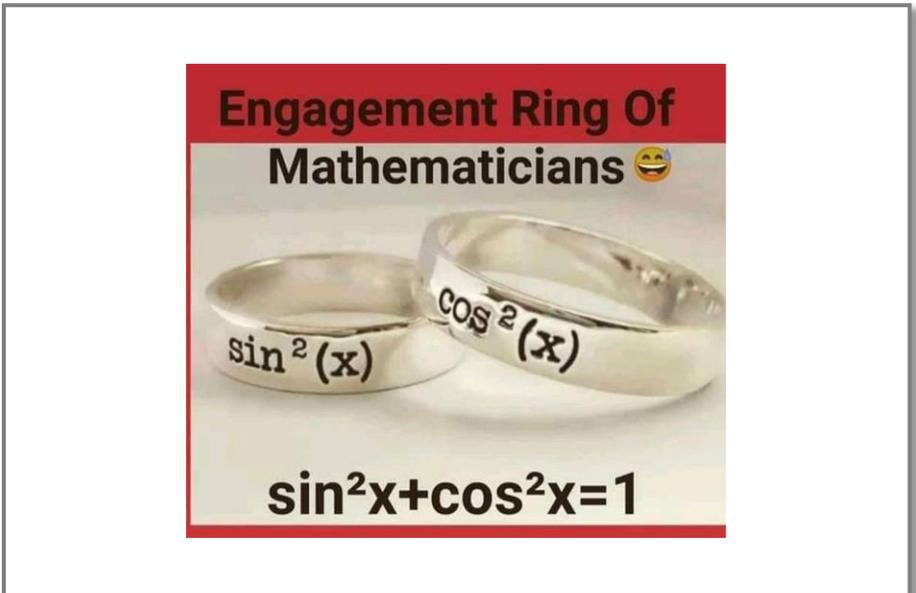
Jeffery Mosley



IEEE Southeastern Michigan

Visit Us on the Web at:

<http://r4.ieee.org/sem>



**Advertising Rates**

SEM Website & Newsletter

**Leadership Meetings**

**SEM Executive Committee Monthly Teleconferences:**

- 2<sup>nd</sup> Thursday of Each Month @ 6:30 PM
- Check the Section Web Calendar at:  
<http://r4.ieee.org/sem/sem-calendar/>  
(Select the "SEM Calendar" button in the top row.)

OR

**SEM Executive Committee Meetings:**

- Find the location, and Registration at:  
<http://bit.ly/sem-ieee>

**SEM Standing Committee Meetings:**

**SEM Affinity Group Meetings:**

**SEM Technical Society/Chapter Meetings:**

**SEM University Student Branch Meetings:**

- Meeting schedules are announced on SEM Calendar  
<http://r4.ieee.org/sem/>  
(Select the "SEM Calendar" button in the top row.)

- Registration for all at:

<http://bit.ly/sem-upcoming>