



Southeastern Michigan Section

April 2024

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IEEE Southeastern Michigan Section, Chair 2021-2024

chair@ieee-sem.org



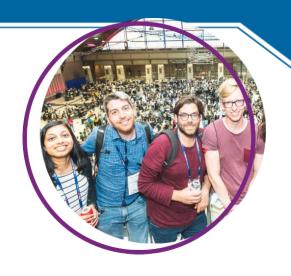
Students

Industry and Professionals

Academia









- Students:
 - Pre-University
 - Undergraduate
 - Graduate

Students/ Young Professionals



- ► EPICS (Engineering Projects in Community Service) https://epics.ieee.org/
- ► IEEE Potentials Magazine, https://potentialsmagazine.ieee.org/home/
- ► IEEE Humanitarian Activities, https://hac.ieee.org/
- ► IEEE Extreme, https://ieeextreme.org/
- ► IEEE Women in Engineering, https://wie.ieee.org/
- ► IEEE Mentoring Program, https://www.ieee.org/membership/mentoring.html



- ► Industry:
 - Individual Contributor
 - Industry Researcher
 - Managerial Path



- ► IEEE Learning Network, https://iln.ieee.org/public/trainingcatalog.aspx
- ► IEEE Center for Leadership Excellence, https://ieee-elearning.org/CLE/
- ► IEEE Resource Centers, https://www.ieee.org/communities/ieee-resource-centers.html
- ► IEEE Standards Association, https://standards.ieee.org/
- ► IEEE Job Site, https://jobs.ieee.org/
- ► IEEE Academies, https://www.ieee.org/education/academy-index.html
- ► IEEE Credentialing Program, https://www.ieee.org/education/credentialing/index.html





- ► Faculty:
 - Junior Faculty
 - Established Faculty
 - Retired Faculty
- ► IEEE Xplore, https://ieeexplore.ieee.org/Xplore/home.jsp
- ► IEEE Standards Association, https://standards.ieee.org/
- ► IEEE Job Site, https://jobs.ieee.org/
- ► IEEE Volunteering, https://volunteer.ieee.org/
- ► IEEE Mentoring Program, https://www.ieee.org/membership/mentoring.html

YOUR PROFESSIONAL HOME

Academic

- ► IEEE Awards, https://corporate-awards.ieee.org/
- ► IEEE Conferences, https://www.ieee.org/conferences/
- ► IEEE Societies, https://www.ieee.org/communities/societies/index.html



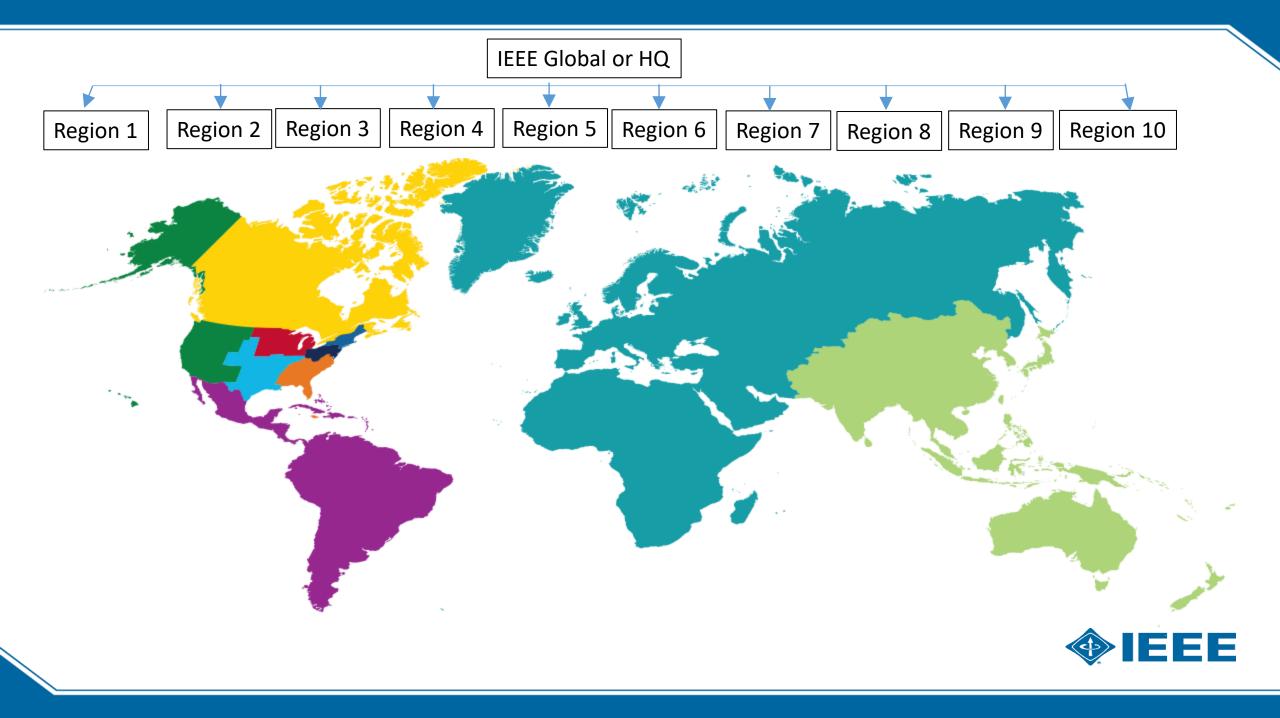


▶ The world is divided into 10 geographic areas called Regions. More than 474,336 members in more than 190 countries; slightly more than 60% of whom are from outside the United States

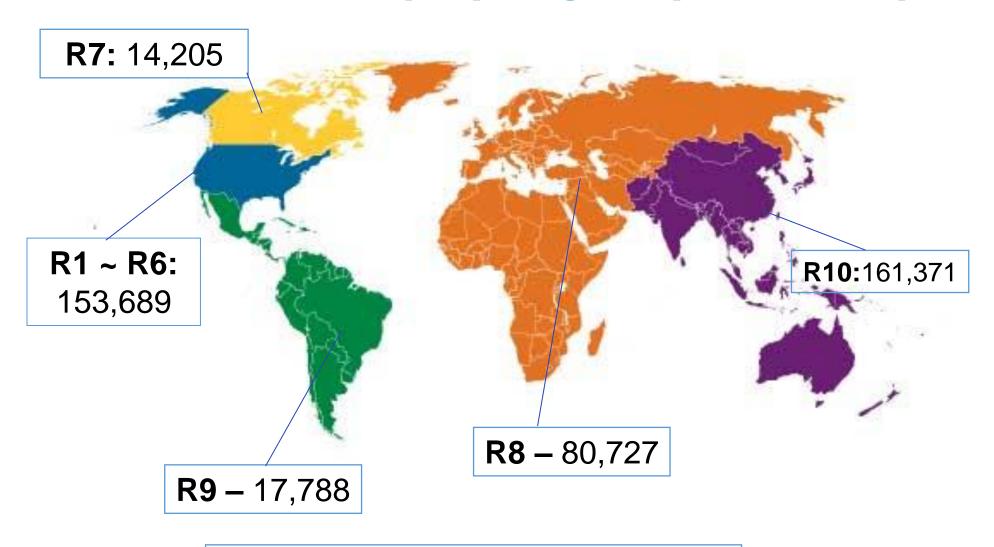








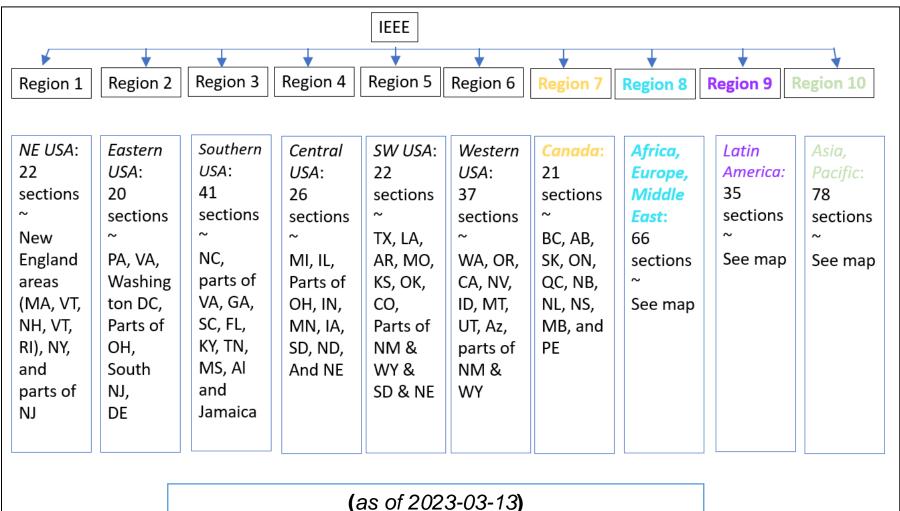
IEEE Membership by Region (2023 data)



TOTAL MEMBERSHIP: 427,780 (as of 2023-03-13)

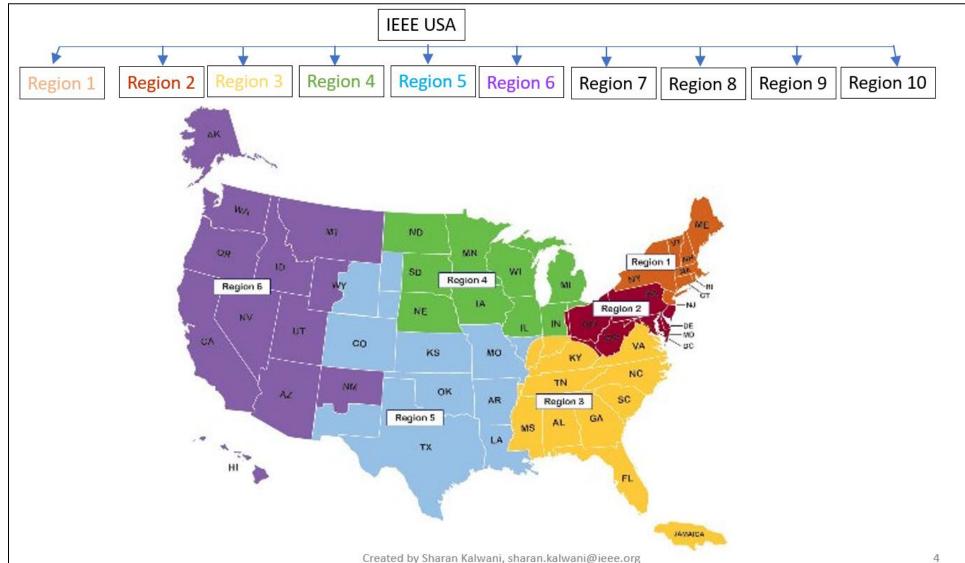


IEEE Sections by Region



IEEE

IEEE-USA Sections by Region (1~6)





IEEE: Quick facts.....(2024-03-01)

- Sponsors or Co-sponsors more than 2000 conferences & meetings world-wide each year (106 countries)
 - Society/Council Conferences, Workshops, etc
 - Regional Meetings
 - Local Section and Chapter Meetings
- ▶ More than 5 million documents in the IEEE *Xplore*® Electronic Library
- ▶ 4 million total conference papers in *Xplore* ® since 1936, approx. 200,000 added annually
- Publishes 200 Transactions, Journals and Magazines/Newsletters
- ▶ More than 1032 active IEEE standards, with 400 1035 in development
- ▶ 39 Technical Societies
- IEEE publishes <u>nearly a third</u> of the world's technical literature in electrical engineering, computer science, and electronics

IEEE: Quick facts.....(2024-03-01)

- ▶ More than 474,336 members in more than 190 countries (64% non-USA)
- More than 181,612 student members
- ▶ 344 **Sections** and 38 Sub-Sections in **ten** geographic Regions worldwide (each section can have 1 or more technical chapters)
- ▶ 2,702 Technical Chapters that unite local members with similar technical interests
- ▶ 338 Affinity Groups { Consultants/WiE/Life Members (LM)/Young Professionals (YP) }
- ▶ 3,700 Student <u>Branches</u> in 100 countries
- ▶ 3,625 Student Branch Chapters (IEEE technical societies)*
- ► 634 Affinity Groups
- ▶ Grew 8% *a lot* this year ©

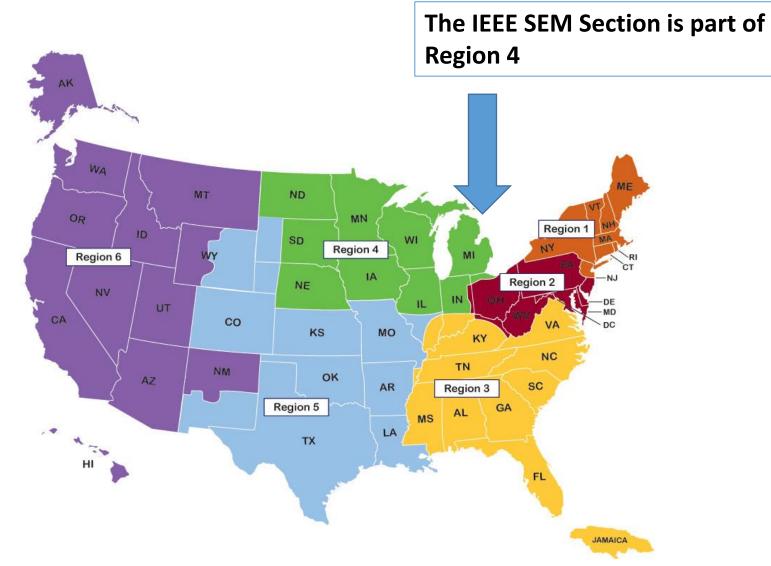


IEEE: Recap of IEEE taxonomy.....(2024-04-21)

- Structure
- ► IEEE is organized into: Local sections within geographic regions
- Chapters comprised of local members with similar technical interests
- Societies and technical councils that compose technical divisions
- Student branches at colleges and universities around the world
- Student branch chapters; <u>affinity groups</u> and special interest groups; as well as <u>IEEE-Eta Kappa Nu (IEEE-HKN)</u>, the honor society of <u>IEEE</u>
- For more on these and other statistics go to IEEE at a Glance
- Download a chart containing a Summary of the IEEE Organization (PDF, 19 KB)



IEEE Southeastern Michigan (SEM) Section





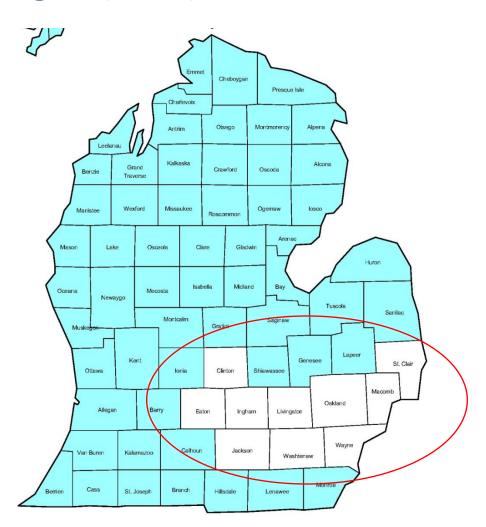
IEEE Southeastern Michigan (SEM) Section

The IEEE SEM Section is part of Region 4 and covers only the Southeastern portion of the state of Michigan.

The IEEE SE Michigan Section was founded on June 1, 1963.

Number of members ≈ 2839

Total Population of Michigan ≈ 10.07 million

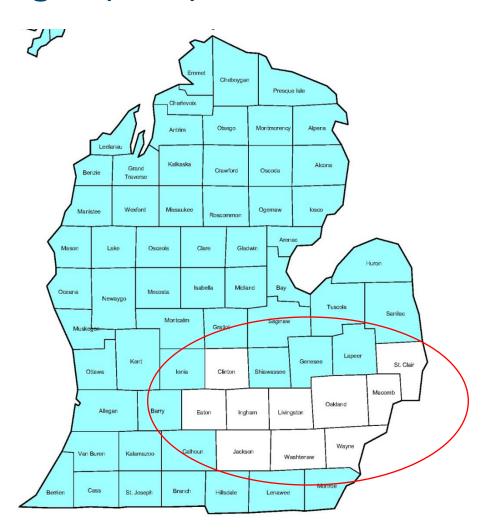




IEEE Southeastern Michigan (SEM) Section

Super Quick Summary The Southeastern Michigan Section has:

- 18 Technical Chapters (CH)
- 4 Affinity Groups (AG)
- 8 Student Branches (SB)
- 8 Student Honors Society (HKN)
- 4 Student Technical Chapters (SBC)





IEEE Southeastern Michigan (SEM) Section History

IEEE SEM section has a rich and storied history. It began life as an amalgamation of the Detroit Sections of AIEE (American Institute of Electrical Engineers) and IRE (Institute of Radio Engineers).

The Detroit Sections of IRE and AIEE were recognized by the national organizations as being among the more active sections. Each section had hosted several national conventions and many smaller technical conferences in Detroit. Several local officers went on to leadership roles at the national levels in AIEE and IRE.

Following the 1961 AIEE Fall General Meeting, the officers of the Detroit Sections of AIEE and IRE held several discussions to iron out many potential problems in order to make the new union a success. The two sections merged to form the Southeastern Michigan Section of the IEEE (IEEE/SEM) on June 1, 1963.

Read the fascinating narrative at https://r4.ieee.org/sem/about-sem/section-history/



IEEE Southeastern Michigan (SEM) Section History

The activism of IEEE SEM Section has extended to involvement in the broader engineering, professional and scientific community. We publish every month a Newsletter called Wavelengths (more on that later).

Past issues of Wavelengths illustrate the involvement of IEEE/SEM and its members in programs with the **Engineering Society of Detroit (ESD)**, and especially the ESD Affiliate Council, the **Michigan Society of Professional Engineers**, National Engineers Week, and the Science and Engineering Fair of Metropolitan Detroit. We also collaborate with numerous sister professional organizations such as INCOSE, NSBE, etc.

In addition, our numerous section chapters, student branches, etc. (all called <u>Organization Units</u> or OUs) are actively involved in technical meetings, events, professional development, conferences, etc.

Read the fascinating narrative at https://r4.ieee.org/sem/about-sem/section-history/



IEEE Southeastern Michigan (SEM) Current 2024 Leadership

Chair: Sharan Kalwani

Vice-Chair: Aneesh Mathai

Secretary: Christopher Johnson



Treasurer: Ramesh Sethu



Advisor: Mohamad Berri



How can I contact the Executive Committee/Admin members of the Section?

Use any of the following:

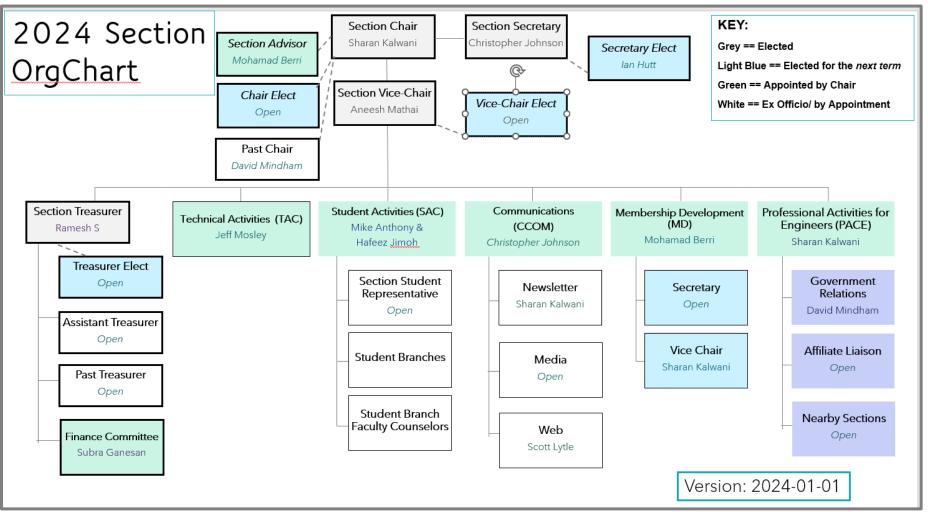
Chair: <u>chair@ieee-sem.org</u>

Vice Chair:vicechair@ieee-sem.orgTreasurer:treasurer@ieee-sem.orgSecretary:secretary@ieee-sem.orgAdvisor:advisor@ieee-sem.org

More details can be found at https://r4.ieee.org/sem/excom-officers/

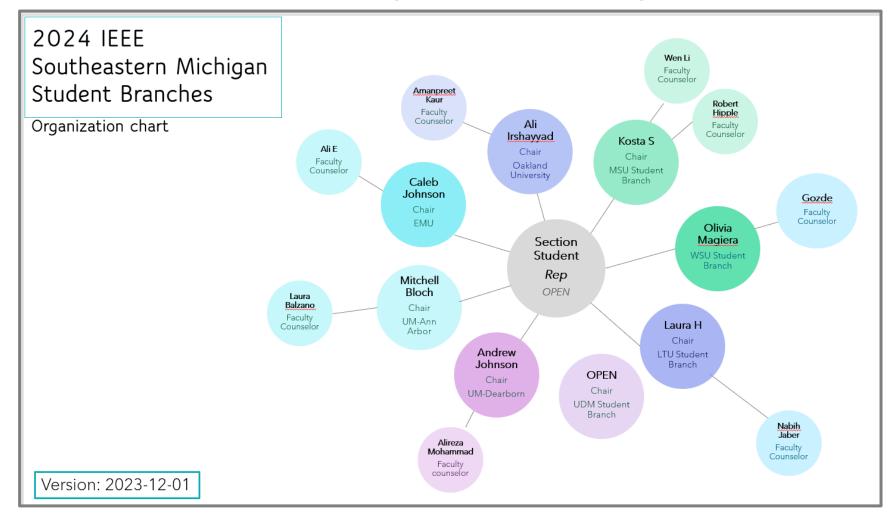


IEEE Southeastern Michigan Section Organization





IEEE Southeastern Michigan Section Organization





IEEE Southeastern Michigan Section has the following Technical Society Chapters

Chapter Technical Meetings:

- Chapter: 01 (Joint) Signal Processing, Circuits & Systems + Information Theory Society
- Chapter: 02 Vehicular Technology Society
- Chapter: 03 (Joint) Aerospace & Electronic Systems Society w/ Communications Society
- Chapter: 04 (Joint) Antennas & Propagation, Electron Devices w/Microwave Theory and Techniques "Trident"
- Chapter: 05 Computer Society
- Chapter: 06 Geosciences and Remote Sensing Society
- Chapter: 07 (Joint) Power Engineering w/ Industrial Applications Society
- Chapter: 08 Electromagnetic Compatibility Society "EMC"
- Chapter: 09 (Joint) Industrial Electronics w/ Power Electronics Society
- Chapter: 10 Technology and Engineering Management Society
- Chapter: 11 Engineering in Medicine & Biology Society
- Chapter: 12 Control Systems Society
- Chapter: 13 Education Society
- Chapter: 14 Robotics And Automation Society
- Chapter: 15 Nuclear Plasma Sciences Society
- Chapter: 16 (Joint) Computational Intelligence with Systems, Man and Cybernetics Society
- Chapter: 17 Nanotechnology Council
- Chapter: 18 Magnetics Society (NEW in the SECTION)



IEEE Southeastern Michigan Section has the following Affinity Groups

Affinity Groups:

- Consultants Network (aka CN)
- Women in Engineering (aka WiE)
- Life Members (aka LMAG)
- Young Professionals (recent graduates aka YP, called GOLD in the distant past....)



IEEE Southeastern Michigan Section has the following Student Branches

- Student Branches (SB):
 - University of Michigan, Ann Arbor
 - University of Michigan, Dearborn
 - Eastern Michigan University, Ypsilanti
 - Wayne State University, Detroit
 - Lawrence Tech University, Southfield
 - Oakland University, Rochester
 - Michigan State University, East Lansing

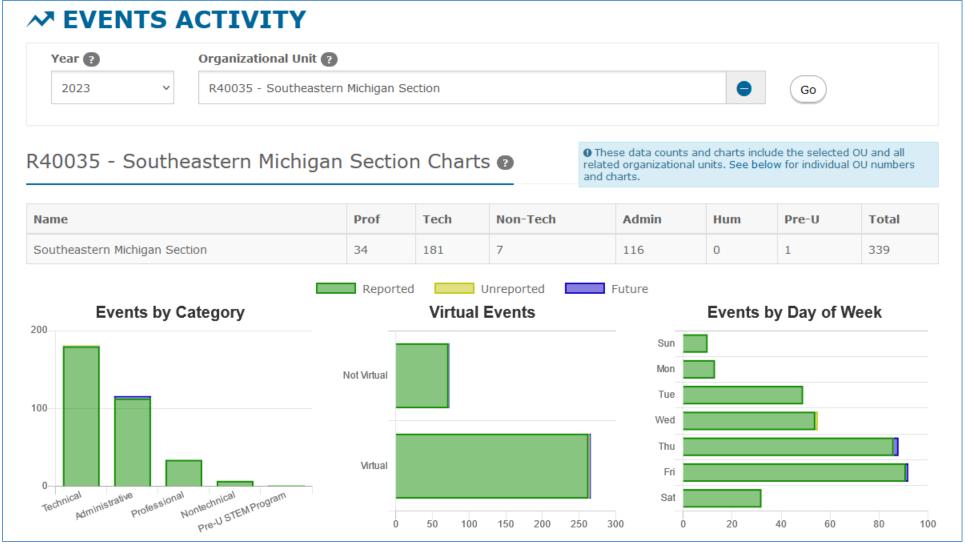


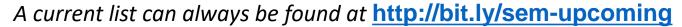
IEEE Southeastern Michigan Section Organization

- Section engages in a lot of outreach
- ► Holds regular STEM sessions on a variety of EE/Physics/Science topics
- Focus is on building value for members via:
 - Technical Development/Educational Sessions
 - Professional Development thru complimentary skills (Proj Mgmnt, etc)
 - Soft Skills/Leadership/Time Mgmnt seminars
- Section Technical Meetings:
 - ❖ Variety of topics and subjects, both online & in person



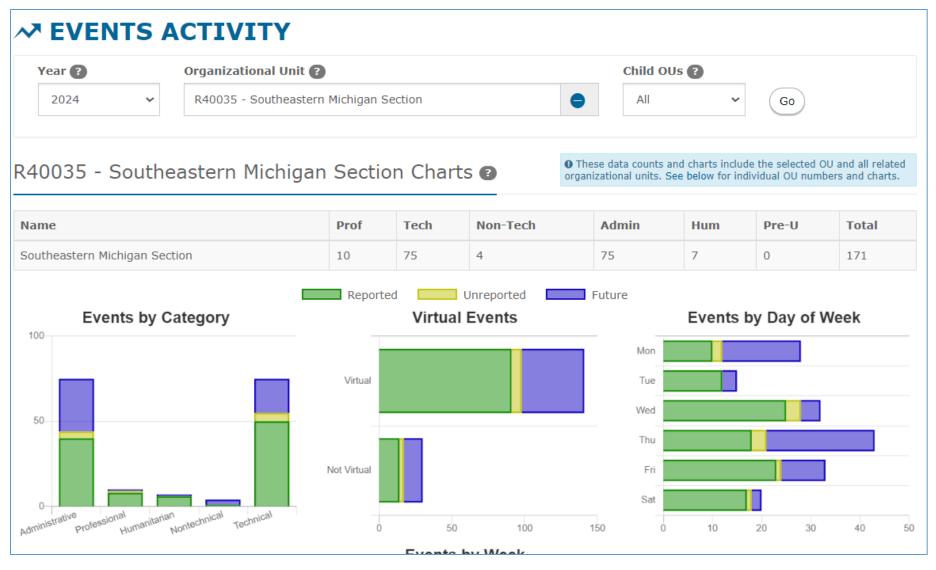
IEEE Southeastern Michigan Section Organization (2023)







IEEE Southeastern Michigan Section (2024 YTD) *04/15/2024





IEEE Southeastern Michigan Section Past Laurels

- ► Innovations:
 - Police Radio (Belle Isle)

April 2, 2018

IEEE SOUTH EAST MICHIGAN - WAVELENGTHS

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.

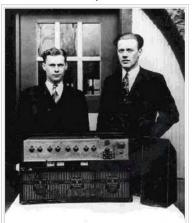
But in 1928, a dedicated Detroit patrolman and an electronics buff devised the first successful one-way radio link between police headquarters and cruisers. Critical news of crimes in progress could now be transmitted from the stationhouse to police cars as they drove.

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 begani 1928. (Source: Detroit Free Press).







IEEE Southeastern Michigan Section Recent Laurels (2022)







IEEE Southeastern Michigan Section Appreciation (2023)





IEEE Southeastern Michigan Section's: Technical Chapter Recent Laurels (2021)



2021 Outstanding Chapter Award

presented to the

IEEE Computer Society Southeastern Michigan Section Chapter

"For the Computer Society Professional Chapter providing the best overall set of programs and activities for its local members"

Melissa A. Russell, Executive Director Dec 2021



2021 Outstanding Chapter Award for Industry Engagement

presented to the

IEEE Computer Society Southeastern Michigan Section Chapter

"For the Computer Society Professional Chapter providing the best programs and activities to encourage industry engagement"

Melian Turell

Melissa A. Russell, Executive Director Dec 2021



IEEE Southeastern Michigan Section Laurels (2023)



IEEE Electromagnetic Compatibility Society

takes pleasure in presenting the

2023 Chapter-of-the-Year Award

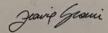
to

Southeast Michigan EMC Chapter





Vignesh Rajamani President EMC Society



Flavia Grassi Chair EMC Awards Committee





IEEE Southeastern Michigan Section Laurels (2018)



IEEE Electromagnetic Compatibility Society

takes pleasure in presenting the

2018 Chapter-of-the-Year Award

to

Southeastern Michigan EMC Chapter



Bruce Archambeault President

EMC Society

Perry Wilson

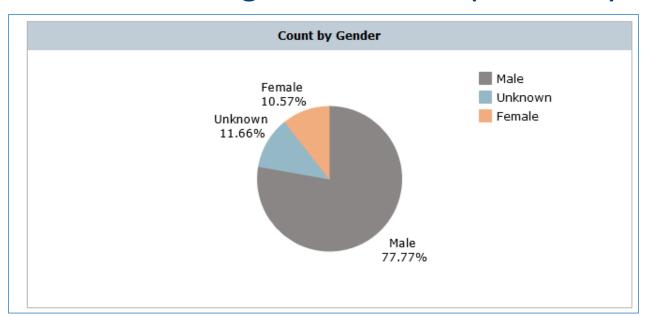
Perry Wilson Chairperson

EMC Awards Committee



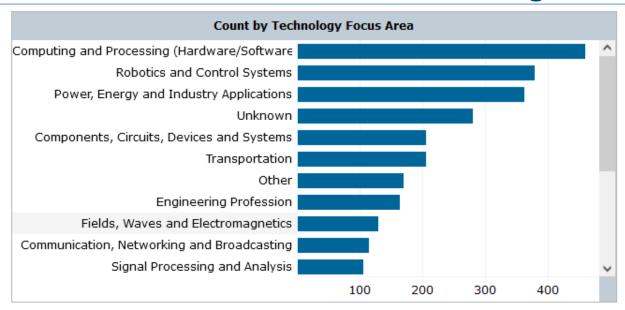


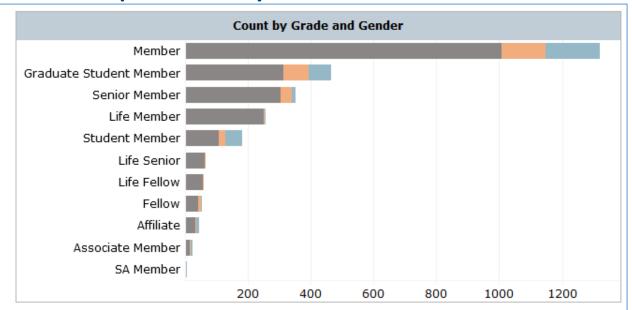
IEEE Southeastern Michigan Membership: Birds Eye View





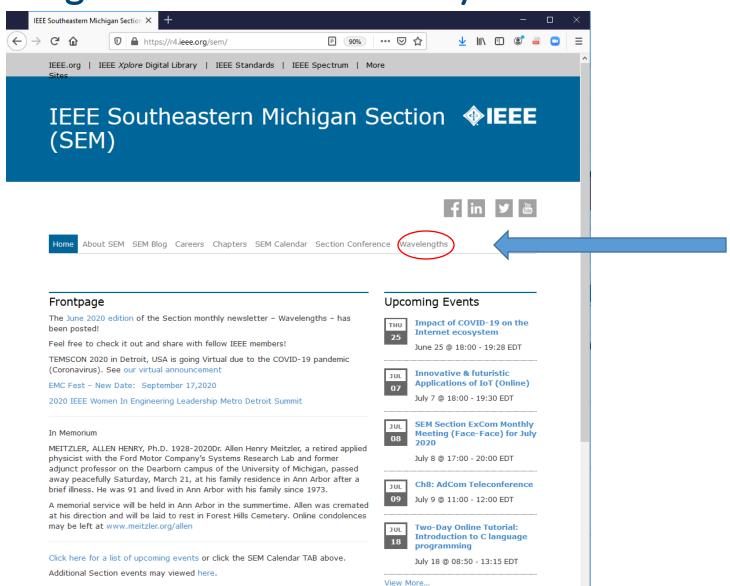
IEEE Southeastern Michigan Membership: Birds Eye View







Wavelengths – Section's Monthly Newsletter





100th IEEE Anniversary Celebration



In this Issue

100th Anniversary Once in a Lifetime! Event Registration, page 1 • Showing Up, page 3 • DLSEMC course, page 4 • The Secretary's Pavane, page 5 • Mentor News, page 7 • PACE News, page 8 • RoboFest RoboExpo Conference, page 8 • UofM Hybrid Vehicles course, page 11 • EV Battery Tech USA Conference, page 12 • EMC Design, page 13 • Ethics Survey Call for Participants, page 14 • Call of Nominations, page 14 • Definition of IEEE "Chapters" and "Section", page 15 • In Memoriam, page 15 • Science Fair Awards, page 16 • Chapter IV Activities - New Society Added, page 17 • Officers List, page 18

Once in a Lifetime!

100th Anniversary Event

Tuesday, October 11, 2011 6pm The Henry Ford Museum

Early Registration through August 1, 2011

Event for IEEE Southeastern 100 years Henry Ford Museum, Tuesday, Oc- room tober 11, 2011 starting at 6pm. You • A night of private viewing of the members lining up to register!). and your spouse / companion will Museum (a \$15 value!) enjoy the following at the event:

- Hall Lobby
- Lawrence Tech

It's here! The 100th Anniversary city and electronics during the past spouses / companions!

- Michigan Section will be at The . Dinner in the Lovett Hall Ball-

the keynote speaker, the 2011 IEEE Michael Geselowitz from the IEEE couple. Hurry! Early registration is USA President, and others in Lovett History Center at Rutgers. The title open through August 1, 2011. All of Robofest Sumo Robot 100 Years of IEEE & Southeastern http://ewh.ieee.org/r4/se_michigan/100. competition demonstration, organ- Michigan". He will present a non- We are seeking event sponsors and ized by Prof. C.J. Chung from technical history of the last 100- supporters. See the event web site years of electronics and electricity -- for details. •

· Lecture on the history of electri- perfect for members as well as

Members who attended the Spring Section Conference already registered early (see photo of

IEEE members get special discount · Reception and networking with The keynote speaker will be Dr. early registration price of \$90 per of talk is "From Starters to Startups: the information is on the web site at



Members line up for 100th Anniversary registration at the April Spring Conference



Wavelengths Newsletter is produced by IEEE volunteers and published by IEEE Southeastern Michigan (SEM) Section (http://www.ieee-sem.org) for the Section

Newsletter http://ewh.ieee.org/r4/se_michigan/newsl

Email: wavelengths@ieee-sem.org

Wavelengths Newsletter July, 2011 | 1



60th Anniversary Southeastern Michigan SECTION Celebration

Once in a lifetime!

Section 60th Anniversary



Saturday Afternoon Tour, Light Show with an evening dinner: 3 to 8 pm
November 4, 2023

Sloan Planetarium & Flint Institute of Art Flint, Michigan





IEEE Southeastern Michigan – Industry Presence

- SE Michigan is heavily dominated by its famous Automotive Industry
 - General Motors (GM)
 - Ford
 - Stellantis [was FCA (Fiat Chrysler Automotive)/DaimlerChrysler/Chrysler]
- Numerous Tier-1 and Tier-2 Automotive manufacturing suppliers
- Current hot activity is all about:
 - BEV (Battery Electric Vehicles)
 - ADAS (Advanced Driver Assistance Systems)
 - IoT (Internet of Things)
 - Industry 4.0 (Smart Everything)
- Power/Energy Industry (DTE Energy/Consumers Power/Commonwealth Energy/etc)
- Industrial Electronics
- Life Sciences/Medicine/Pharma
- AgriBusiness
- Aerospace (More than 600 related companies)



IEEE Southeastern Michigan Section *Technical Society Chapters*

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Our Logo



Electrical and Electronic Engineers Creating Our Future



- Southeastern Michigan Section ExCom (admin) meetings:
- In person once every Quarter (March, June, September and December)
- Other months it is held virtual using Webex
- Full list of Section Admin meetings can be viewed at: http://bit.ly/sem-ieee
- Training on IEEE tools, resources and Chapter expectations ONLINE training available
- Constantly updated versions of past events
- History Activity
- New volunteers
- Numerous technical events (highest in R4), thanks to the technical chapters!



- http://bit.ly/sem-upcoming (all activities)
- https://r4.ieee.org/sem/sem-calendar/



- Southeastern Michigan Section Website: https://r4.ieee.org/sem/
- SEM Facebook Page: https://www.facebook.com/groups/ieeesemich
- > SEM LinkedIn Page: https://www.linkedin.com/groups/1766687/
- SEM X (formerly Twitter) Account: https://www.twitter.com/ieeesemich
- SEM Collabratec Workspace (new)
- https://ieee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-

Section/activities

- SEM Collabratec Community (new)
- https://ieee-collabratec.ieee.org/app/section/R40035/IEEE-Southeastern-Michigan-

Section

SEM Instagram (under development): https://www.instagram.com/ieeesemich/

