

# Wavelengths



## Volume 61 – Issue 2

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### Upcoming Events

We have a number of events coming up this month. Be sure to check out the Section Website: <https://r4.ieee.org/sem>

As well as vtools:

#### [IEEE Region 4 - SE Michigan Section Upcoming](#)

Listed below are some of the events, FYI.

| Event  | Date        | Time     |
|--|-------------|----------|
| <a href="#">Inspace.chat: A better zoom replacement?</a>                             | 02 Feb 2021 | 08:30 PM |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for February 2021</a> | 03 Feb 2021 | 05:00 PM |
| <a href="#">New Chips on the Block</a>   | 05 Feb 2021 | 04:30 PM |
| <a href="#">Ch8: AdCom Teleconference</a>  | 11 Feb 2021 | 11:00 AM |
| <a href="#">Challenges of Battery Energy Storage Systems (BESS)</a>                  | 12 Feb 2021 | 03:00 PM |
| <a href="#">Micro Tutorial: Internet Security Awareness</a>                          | 16 Feb 2021 | 05:30 PM |
| <a href="#">Homi J Bhabha: His Life &amp; Legacy</a>                                 | 19 Feb 2021 | 06:00 PM |
|  |             |          |
|  |             |          |

*Note: All times are EDT/EDT unless otherwise marked. Accurate at the time of going to press. If any events are missed do kindly bring them to the attention of [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org). Thank you! ☺*

**Chair's Message**

Welcome to the February edition of Wavelengths. This month I'd like to welcome all of our new officers. There are two new members to the Elected Officer team, Colleen Chmielewski and Bhupinder Mavi. They are taking the positions of Section Treasurer and Secretary respectively. There is a brief biography of Colleen in this month's edition of Wavelengths. Bhupinder will be highlighted in an upcoming edition.

There are also several new Chapter and Affinity Group Officers. Please check the Section website for the full listing. While you are there, check for any open positions that you may be interested in filling. We are always looking for additional volunteers.

There are several great events for Section members in February. Several are highlighted in this edition. Topics include alternatives to Zoom, grid scale integration of batteries, and internet security. Please check out the events and sign up on Vtools, IEEE's online meeting portal.

I look forward to continuing to represent our Section and am excited about all the upcoming 2021 IEEE events.

David Mindham  
[dmindham -At- ieee.org](mailto:dmindham@ieee.org)



## 2021 Committees

The IEEE Section Standing Committees are empaneled to conduct the many diverse functions that make up the activities of an busy Section.

However, notice that the pandemic has had a drastic effect on the level of membership in many committees, and they can benefit from new volunteers stepping up and offering to help bring us out of this slump.

| Standing Committees                    |                       |  |
|--|-----------------------|--|
| <b>Finance Committee (FinCom):</b>     |                       |  |
| <i>Finance Committee Chair</i>         | Nevrus Kaja           | <a href="mailto:nkaja-AT-umich.edu">nkaja-AT-umich.edu</a>                                 |
| <i>Secretary</i>                       |                       |  |
| <i>Treasurer</i>                       | Michael Folian        | <a href="mailto:mpfolian-AT-gmail.com">mpfolian-AT-gmail.com</a>                           |
| <i>Past Treasurer</i>                  | Kimball Williams      | <a href="mailto:k.williams-AT-ieee.org">k.williams-AT-ieee.org</a>                         |
| <i>Section Chair</i>                   | David Mindham         | <a href="mailto:dmindham-AT-ieee.org">dmindham-AT-ieee.org</a>                             |
| <i>Grant Coordinator</i>               |                       |  |
| <b>All Geo-Unit Treasurers:</b>        |                       |  |
| <b>Technical Activities (TACOM):</b>   |                       |  |
| <i>Chair</i>                           | Jeffery Mosley        | <a href="mailto:jmosley-AT-gmail.com">jmosley-AT-gmail.com</a>                             |
| <i>Secretary</i>                       | ANEESH MATHAI         | <a href="mailto:aneesh.mathai-AT-ieee.org">aneesh.mathai-AT-ieee.org</a>                   |
| <i>V-Ch</i>                            |                       |  |
| <i>Technical Coord</i>                 |                       |  |
| <i>Technical Coord</i>                 | S Ramesh              | <a href="mailto:rameshari1958-AT-gmail.com">rameshari1958-AT-gmail.com</a>                 |
| <i>Info Mgmt Coord</i>                 | Kimball Williams      | <a href="mailto:k.williams-AT-ieee.org">k.williams-AT-ieee.org</a>                         |
| <i>Asst. Info Mgmt Coord</i>           |                       |  |
| <i>vTools Coord</i>                    |                       |  |
| <b>Education Committee (EdCom):</b>    |                       |  |
| <i>Chair</i>                           | Christopher Guirlanda | <a href="mailto:christopher.guirlanda-AT-gmail.com">christopher.guirlanda-AT-gmail.com</a> |
| <i>Secretary</i>                       | Malcolm Lunn          | <a href="mailto:lunnmalcolm-AT-me.com">lunnmalcolm-AT-me.com</a>                           |
| <i>Temp V-Ch</i>                       | Benjamin Sweet        | <a href="mailto:bsweet-AT-ieee.org">bsweet-AT-ieee.org</a>                                 |
| <i>Section STEM Coordinator</i>        | Malcolm Lunn          | <a href="mailto:lunnmalcolm-AT-me.com">lunnmalcolm-AT-me.com</a>                           |
| <i>Bacon Library Coord</i>             | Barry Steltz          | <a href="mailto:bsteltz1958-AT-gmail.com">bsteltz1958-AT-gmail.com</a>                     |
| <i>CKL Library Coord</i>               | Ahmad Habbal          | <a href="mailto:al.habbal-AT-protonmail.com">al.habbal-AT-protonmail.com</a>               |
| <i>Future Cities Coord</i>             | Don Bramlett          | <a href="mailto:d.bramlett-AT-ieee.org">d.bramlett-AT-ieee.org</a>                         |
| <i>Library Science Coord</i>           | Candace Suriano       | <a href="mailto:csuriano254569-AT-comcast.net">csuriano254569-AT-comcast.net</a>           |
| <i>Science Fair Coord</i>              | Don Bramlett          | <a href="mailto:d.bramlett-AT-ieee.org">d.bramlett-AT-ieee.org</a>                         |
| <i>RoboBots Coord</i>                  | Chan-Jin Chung        | <a href="mailto:cchung-AT-itu.edu">cchung-AT-itu.edu</a>                                   |
|  | Lin Van Nieuwstadt    | <a href="mailto:linvn-AT-umich.edu">linvn-AT-umich.edu</a>                                 |
| <b>Student Activities (SACom):</b>     |                       |  |
| <i>Chair</i>                           | Jiann-Cherng Chi      | <a href="mailto:mel.chi-AT-outlook.com">mel.chi-AT-outlook.com</a>                         |
| <i>Secretary</i>                       |                       |  |
| <i>Student Representative *</i>        |                       |  |
| <i>Communication Coordinator</i>       | Michael Anthony       | <a href="mailto:maanthony-AT-umich.edu">maanthony-AT-umich.edu</a>                         |
| <b>Student Branch Mentors (SMCom):</b> |                       |  |
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| <i>V-Ch</i>                            |                       |  |
| <i>Secretary</i>                       |                       |  |
| <i>Mentors (See each Branch)</i>       |                       | x  |
| <b>Web Communications (WebCom):</b>    |                       |  |
| <i>Chair</i>                           |                       |  |
| <i>V-Ch</i>                            |                       |  |
| <i>Secretary</i>                       |                       |  |
| <i>Webmaster</i>                       | Scott Lytle           | <a href="mailto:s.r.lytle-AT-ieee.org">s.r.lytle-AT-ieee.org</a>                           |
| <i>Associate Webmaster</i>             |                       |  |
| <i>Associate Webmaster</i>             | Sharan Kalwani        | <a href="mailto:sharan.kalwani-AT-ieee.org">sharan.kalwani-AT-ieee.org</a>                 |
| <i>Social Media Coord</i>              | Sharan Kalwani        | <a href="mailto:sharan.kalwani-AT-ieee.org">sharan.kalwani-AT-ieee.org</a>                 |
| <i>Collabratec Coord</i>               |                       |  |
| <i>ListServ Coord</i>                  | Christopher Johnson   | <a href="mailto:cjohnson-AT-ieee.org">cjohnson-AT-ieee.org</a>                             |

The Nominations and Appointments (N&A) Committee is about to initiate an effort to contact all the currently listed committee officers to determine their readiness to continue to serve. Those who do not respond are considered MIA and must be replaced

New volunteers are encouraged to come forward!

| Conference Committee (ConCom):                           |                       |  |
|--|-----------------------|--|
| <i>Chair</i>   |                       |  |
| <i>V-Ch</i>  |                       |  |
| <i>Secretary</i>   | David Mindham         | <a href="mailto:dmindham-AT-ieee.org">dmindham-AT-ieee.org</a>                     |
| <i>Conference Treasurer</i>                              |                       |  |
| <i>Sponsorships</i>                                      |                       |  |
| <i>Event Publications</i>                                | Ravi Ngam             | <a href="mailto:migam154934mi-AT-comcast.net">migam154934mi-AT-comcast.net</a>     |
| <i>Media Relations</i>                                   |                       |  |
| <b>Newsletters (NewsCom):</b>                            |                       |  |
| <i>Chair</i>   |                       |  |
| <i>V-Ch</i>  |                       |  |
| <i>Secretary</i>   |                       |  |
| <i>e-Wavelengths Editor</i>                              | Nevrus Kaja           | <a href="mailto:nkaja-AT-umich.edu">nkaja-AT-umich.edu</a>                         |
| <i>e-Wavelengths Dvlp Coord</i>                          |                       |  |
| <i>e-Wavelengths ListServ Ops</i>                        | Christopher Johnson   | <a href="mailto:cjohnson-AT-ieee.org">cjohnson-AT-ieee.org</a>                     |
| <i>Newsletter Editor</i>                                 | Sharan Kalwani        | <a href="mailto:sharan.kalwani-AT-ieee.org">sharan.kalwani-AT-ieee.org</a>         |
| <i>Newsletter Co-Editor</i>                              | Christopher Johnson   | <a href="mailto:cjohnson-AT-ieee.org">cjohnson-AT-ieee.org</a>                     |
| <i>Newsletter Assistant</i>                              | Nilesh Dudhaia        | <a href="mailto:nilesh.dudhaia-AT-ieee.org">nilesh.dudhaia-AT-ieee.org</a>         |
| <i>Newsletter Photographer</i>                           | Akio Fujimaki         | <a href="mailto:akiofujimaki-AT-ieee.org">akiofujimaki-AT-ieee.org</a>             |
| <i>Publications Review</i>                               |                       |  |
| <b>Member Development (MDCom):</b>                       |                       |  |
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| <i>Secretary</i>   |                       |  |
| <i>V-Ch</i>  |                       |  |
| <i>New Member Relations</i>                              |                       |  |
| <i>Member Engagement</i>                                 | Charles Albrecht      | <a href="mailto:chuck-AT-albrechtellc.com">chuck-AT-albrechtellc.com</a>           |
| <i>Member Elevation</i>                                  |                       |  |
| <i>Member Retention</i>                                  |                       |  |
| <i>Student Elevation &amp; Retention</i>                 |                       |  |
| <b>Nominations &amp; Appointments Committee (NACom):</b> |                       |  |
| <i>Chair</i>   | Kimball Williams      | <a href="mailto:k.williams-AT-ieee.org">k.williams-AT-ieee.org</a>                 |
| <i>Secretary</i>   |                       |  |
| <i>V-Ch</i>  |                       |  |
| <i>Awards Coord</i>                                      |                       |  |
| <i>Fellows - Coord</i>                                   | William Moylan        | <a href="mailto:w.l.moylan-AT-ieee.org">w.l.moylan-AT-ieee.org</a>                 |
| <i>Director Elections</i>                                | Yiming Deng           | <a href="mailto:dengyimi-AT-egr.msu.edu">dengyimi-AT-egr.msu.edu</a>               |
| <i>Director Appointments</i>                             | Colleen Chmielewski   | <a href="mailto:colleenchmielewski-AT-ieee.org">colleenchmielewski-AT-ieee.org</a> |
| <b>PACE Activity (PACE):</b>                             |                       |  |
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| <i>Secretary</i>   |                       |  |
| <i>PACE Event Coord</i>                                  |                       |  |
| <b>Affiliation Activities (AACom):</b>                   |                       |  |
| <i>Government Relations</i>                              | David Mindham         | <a href="mailto:dmindham-AT-ieee.org">dmindham-AT-ieee.org</a>                     |
| <i>Academic Relations</i>                                | Marcelo Araujo Xavier | <a href="mailto:maxavier-AT-ieee.org">maxavier-AT-ieee.org</a>                     |
| <i>Industrial Relations</i>                              |                       |  |
| <i>ESD Liaison</i>                                       | Kimball Williams      | <a href="mailto:k.williams-AT-ieee.org">k.williams-AT-ieee.org</a>                 |
| <b>Nearby Section Liaisons (NSCom):</b>                  |                       |  |
| <i>NMI Section Liaison</i>                               | Ahmed Mohamed         | <a href="mailto:abdel1a-AT-cmich.edu">abdel1a-AT-cmich.edu</a>                     |
| <i>Toledo Section Liaison</i>                            | Dominic Wilson        | <a href="mailto:dominic_wilson-AT-owens.edu">dominic_wilson-AT-owens.edu</a>       |
| <i>Windsor Section Liaison</i>                           | Mohamed Khalid        | <a href="mailto:mkhaliid-AT-uwindsor.ca">mkhaliid-AT-uwindsor.ca</a>               |
| <i>West MI Section Liaison</i>                           | Johnson Asamadu       | <a href="mailto:johnson.asamadu-AT-wmich.edu">johnson.asamadu-AT-wmich.edu</a>     |

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### Morse code, why?

We can learn so much useful information from the internet these days. I just learned from one post that Morse code was finally completely dead.

"Who needs it?", asked the speaker. "No one!" they offered and talked about all the wonderful new inventions that work so much better.

In another post I see a recording of a race between two teams with one using a cell phone to send text and another using Morse code to send the same message and the Morse code sent much faster, hands down.

<https://www.youtube.com/watch?v=pRuRE-Bwk1U>

We are also told that the US military has stopped teaching the use of Morse code to its members because satellite systems are more reliable and faster. In another post I see that the NSA is hiring civilians to receive and transcript Morse code because other nations are still using it to send messages, and the US needs to know what they are saying.

[https://www.youtube.com/watch?v=uh88Y2\\_33GI](https://www.youtube.com/watch?v=uh88Y2_33GI)

Meanwhile, there are growing organizations dedicated to preserving and teaching Morse code to the Amateur Radio community. And that community is growing constantly and more new licensed amateurs are taking up the use of Morse code (called CW) not because they have to (*Morse code is no longer a requirement for an FCC Amateur Radio license*) but because they see it as an exciting way to allow them to easily talk to others anywhere on this planet.

*(There are always Amateur Radio operators among the astronauts on the space station.)*

The Straight Key Century Club (SKCC) now has over 6 thousand members dedicated to the use of the 'straight key' which is the earliest form of CW transmitting keys.



Another organization; the Long Island CW Club, which has been in existence for only three years now tops 1,200 members in 20 countries and uses modern internet technology (ZOOM) to teach the use of Morse Code to its world wide membership, in 50+ classes each week, along with special free CW classes just for kids K-12.

<https://longislandcwclub.org/>

If you are a history buff, and like a good read, I recommend a most interesting book about the early days of the use of Morse code using land line telegraphy:

**"Brass-Pounders: Young Telegraphers Of The Civil War"** Alvin F. Harlow

"Speed is always key, and in the day of the Civil War, the fastest transmission was by telegraph. As the frontlines advanced and retreated, the wire would have to be strung to the front lines.

In this fascinating volume, Alvin Harlow, recounts many of the adventures of the Civil War telegraphers, who despite their civilian status shared the dangers of the soldiers as they sent messages back to the various headquarters and generals.

As the title suggests these telegraphers were often no more than teenagers, and their stories form an interesting sidelight on the Civil War.

I was interested to see that some names of later fame were among those 'kids' who were dedicated to telegraphy in their early years. One, 'little' Andy Carnegie was noted as being a 'great CW operator'.

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

## 2021 Planning

In 2021 we have updated our Newsletter focus publishing plan. You will find a copy at the end of the newsletter always and in 2021, we will constantly tweak it, as changes may happen in our section due to many reasons (relocation, employment changes, retirements, etc). But currently we will be contacting all the Society chapter chairs and their officers for updates, summaries and plans for 2021 as per the schedule below.

| Month | AG's | Ch's | Ch's | SB's   | Special Notice      | Reporting Events  | Monthly Focus       | Awards |
|-------|------|------|------|--------|---------------------|-------------------|---------------------|--------|
| 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 |

We will also do people profile features as per the schedule below.

| Month | Profiles     | Profiles | Committees          |
|-------|--------------|----------|---------------------|
| 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    |          |                     |

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## About Engineers Week

### National Engineers Week (U.S.)

In the United States, **National Engineers Week (aka Eweek)** is always the week in February which encompasses George Washington's actual birthday, February 22. It is observed by more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies. The purpose of National Engineers Week is to call attention to the contributions to society that engineers make. It is also a time for engineers to emphasize the importance of learning math, science, and technical skills.

The celebration of National Engineers Week was started in 1951 by the National Society of Professional Engineers in conjunction with President George Washington's birthday. the nation's first engineer, notably for his survey work. Prior to the start of National Engineers Week, the [University of Missouri College of Engineering](#) began celebrating the world's first Engineers' Week in 1903, 48 years before the [National Society of Professional Engineers](#), with St. Patrick as the patron Saint of engineers.

The results of the [Federal Engineer of the Year Award](#) are also announced during the week.

This year 2021, it will occur the week of February 21-27. Feel free to check out the **excellent** article on Eweek by Stacey Ober and her staff from the National Society of Professional Engineers on Page 7 of this issue. I will also be announcing via our IEEE SE Michigan Facebook.com, LinkedIn.com pages and Twitter.com posts about related upcoming Eweek events.

### References

1. <https://engineering.missouri.edu/current-students/engineers-week/>
2. "Engineers Week | National Society of Professional Engineers" (<https://www.nspe.org/resources/partners-and-state-societies/national-engineers-week>).
3. "DiscoverE" (<http://www.discovere.org/our-programs/engineers-week>)
4. <https://asme.org/career-education/articles/students/engineering-go-brag>
5. <https://blog.cloudcalc.com/2016/03/15/saint-patrick-structural-engineer/>
6. Retrieved from '[https://en.wikipedia.org/w/index.php?title=National\\_Engineers\\_Week\\_\(U.S.\)&oldid=949638561](https://en.wikipedia.org/w/index.php?title=National_Engineers_Week_(U.S.)&oldid=949638561)

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## Engineers Week 2021



Engineers aren't just problem solvers. They are also visionaries who are constantly changing our world. They dream up creative, practical solutions and work with teams of smart, inspiring people to invent, design and create things that matter. In celebration of that eye toward the future, Engineers Week 2021 will take place February 21-27 with the theme, "Imagining Tomorrow." Its focus will be on virtual role models, distance learning, and diversity and belonging.

This theme comes at a crucial time when the world depends on the ingenuity of engineers. COVID-19 laid bare the critical work of engineers in creating a world safe from pandemics, climate change, cyber-attacks, and other daunting global challenges. And the unrest we saw relating to social and racial injustice also increased the urgency to address the issues of diversity, equity, and inclusion in our profession.

The National Society of Professional Engineers founded Engineers Week in 1951 with the goal of calling attention to the contributions that engineers make to society. Since then, the goal has expanded to include outreach to young students and a call to engage, educate, and inspire more children and young adults to consider engineering as a career. Today, EWeek is a formal coalition of more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies.

Now under the stewardship of [DiscoverE](#), Eweek promotes recognition among parents, teachers, and students of the importance of a technical education and a high level of math, science, and technology literacy. It also works to motivate future generations to pursue engineering careers in order to provide a diverse and vigorous engineering workforce.

Here is a brief glimpse at some of the EWeek activities and events happening this year:



[Introduce a Girl to Engineering Day](#), or "Girl Day," helps focus a growing movement to inspire girls' futures so they learn they have a place in engineering a better world. Girl Day will be held on February 25 this year and will also carry the "Imagining Tomorrow" theme forward. The focus will be on virtual role models and diversity and belonging. , but it will also feature special editions of DiscoverE's "[Chats With Change Makers](#)" series, in which a high school student interviews engineers and technicians who are working hard to make the world a better place.



This year's [Future City Competition](#) theme is "Living on the Moon." The project-based program challenges students in sixth, seventh and eighth grade to imagine, research, design, and build cities of the future. To adapt to the pandemic, teams will be allowed to work remotely and competitions will be virtual. Teams will make a video presentation of their cities, and their models will be presented in a slideshow format. There will be a live Q&A for the teams to answer questions about their models and presentations. Volunteers are always needed for virtual judging – email [info@futurecity.org](mailto:info@futurecity.org) for more information.



[The Persist Series](#), which replaces the Global Marathon, is a monthly event where thousands of women around the world come together to hear inspiring stories and candidly discuss topics like inclusive workplace cultures, being an active bystander to casual bias, and developing a growth mindset. The next event, "[Workplace Norms that Work](#)" will take place on February 10, 2021 at 2pm Eastern and is free to register.

There are many ways that volunteers can get involved in the assorted Eweek activities, including signing up to be a Role Model at [DiscoverE.org/RoleModel](#). Anyone can be a Role Model: women, men, engineers, technicians, educators, and parents—anyone interested in helping students realize their potential. In addition, a new resource called "[At Home Engineering](#)" is filled with video challenges, student activities, and "how to" articles and was developed for students currently studying at home due to the pandemic. These resources are also great to use when planning virtual classroom visits or other outreach as part of your EWeek planning.

Engineers can also engage in promoting EWeek and its outreach via social media. A [Social Media Toolkit](#) with sample social media posts, timeline of events, and graphics is available for download. Many other resources have also been gathered for your use and can be found on NSPE's [Engineers Week page](#).

While much of Eweek will focus on students and the future, the engineering community of today is already helping to realize a better tomorrow. Through the resilience and adaptability of our profession, and the innate desire to give back and protect the health, safety, and welfare of our communities and the public, engineers are at the forefront of truly making the world a better place.

In recognition of the contributions made by engineers over the last year, NSPE will include the [Federal Engineer of the Year Award \(FEYA\) ceremony](#) during its Engineers Week celebrations. Sponsored by the Professional Engineers in Government, FEYA honors engineers employed by a federal agency that employs at least 50 engineers worldwide. For the health and safety of all attendees, we will honor these public servants—and announce this year's winner-- with a video celebration on Wednesday, February 24.

At NSPE, we are also realizing a better tomorrow for our Society, and our profession, with our strategic plan's focus on driving growth, shaping public policy, educating for the future, and promoting diversity and tomorrow's engineer. These endeavors will take all of our collective talents and efforts, but the future is bright, and we have much to look forward to as engineers and as a profession.

Stacey A. Ober  
Director, Marketing and Outreach  
1420 King Street, Alexandria, Virginia 22314  
703-684-2815 | [www.nspe.org](http://www.nspe.org)

***Professional Engineering Licensure: Rigorous for a Reason***



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## InSpace: Better than Zoom?

IEEE SE Michigan  
Presents

*"Inspace.chat: A better zoom replacement?"*

**At Glance**

- **When:**  
Date: February 2<sup>nd</sup>, 2021  
Time: 8:30 – 9:30 PM  
EST/EDT
- **Where:**  
Online via **Inspace.chat**  
(requires a pre-confirmed registration)
- **Audience:** All eligible members and potential members (only if slots available)

\*

**Sponsored by**  
**IEEE**  
**SE Michigan**  
**Education Society**  
**Chapter**

**Pre-Registration Required!**

<https://events.vtools.ieee.org/m/255902>



## Tech Talk: BESS



## Challenges of Battery Electric Storage Systems (BESS)

**Description:**

Utility-scale solar is gaining momentum with installed cost drops and environmental and regulatory attractiveness. Utility-scale batteries are being added to solar and wind to address the intermittency of renewable technologies. This presentation will look at challenges in scaling the battery applications to larger and longer durations. A key challenge in scaling BESS to utility applications is managing the specifics of the DC systems. When using Li-Ion technology, DC fault currents can approach unreasonable levels, in many cases exceeding equipment ratings. This discussion will focus on solutions and mitigation techniques that can be used in scaling battery projects to desirable levels.

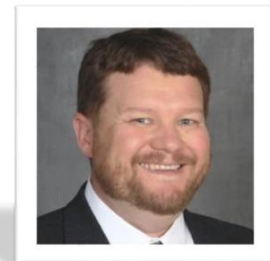
I see a bright future for BESS, with applications today at distribution levels with current technology, but moving into electric transmission ( $> 69$  kV) applications as the technology develops. To allow battery storage to have a major impact to change the way we look at electric power, we need battery systems to scale to sizes and durations that meet our needs. The methods discussed here will allow us to develop BESS technology and fundamentally change how power systems operate.

**Speaker:** Ian Hutt, PE, PMP

**When:** Friday, Feb 12<sup>th</sup>, 2021. From 3 to 5 PM (EST/EDT)

**Where:** Online using WEBEX

**Register:** <https://events.vtools.ieee.org/m/255812>

**Speaker Bio:**

Mr. Hutt is experienced in project management and electrical power systems. He specializes in relay protection engineering, coordination, arc flash analysis, short circuit analysis, transmission planning, electromagnetic field analysis, and automatic generation control using CAPE, ASPEN, CYME, PSCAD, EMTP-RV, ETAP, SKM Power Tools, EasyPower, CDEGS, AcSELeator QuickSet, PowerBase, PSS/E and TRANSMISSION 2000®. He is a member of the Commonwealth Renewable Energy Team and is an industry published leader and expert in renewable technologies, particularly solar, BESS and micro grids. Ian has been active in IEEE since 2005, and has held various positions including volunteer coordinator for the 2011 PES GM, SEM PES Chair and SEM YP Chair.



## Talk on Homi J Bhabha

IEEE SE Michigan

Presents

*"Homi J Bhabha: Engineer, Mathematician & Physicist"*

## At Glance

- **When:**  
Date: February 19<sup>th</sup>, 2021  
Time: 6:00 – 7:45 PM
- **Where:**  
Online via Webex (to be shared only after you have a confirmed registration)
- **Audience:** All eligible members and potential members (only if slots available)

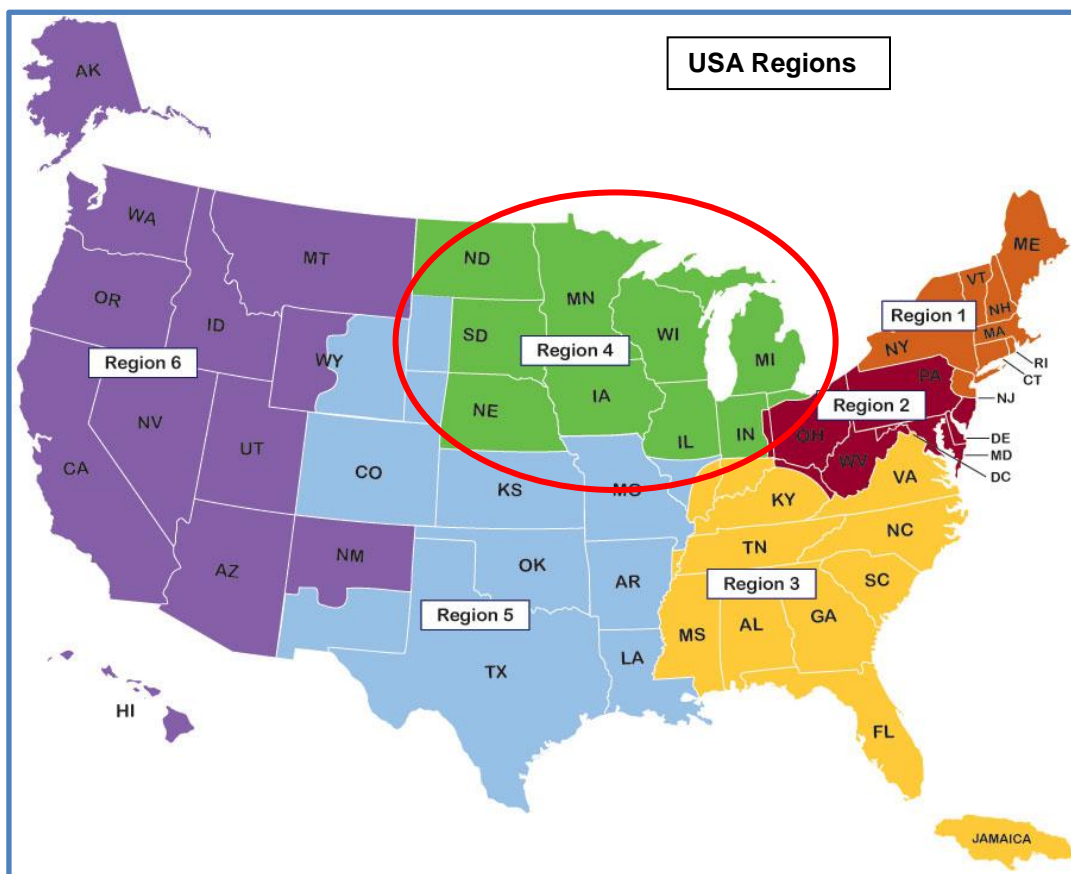
\*

*Sponsored by  
IEEE  
SE Michigan  
Education Society  
Chapter*

**Pre-Registration Required!**<https://events.vtools.ieee.org/m/255046>

## All about IEEE Region4

Last month, I wrote all about the IEEE global and USA regions. This month I will introduce you to Region 4.



So much for the history and work that IEEE does. I have a little cartoon somewhere which adds a little bit of humor to this. The IEEE has organized the entire world into 10 Regions. We are located as part of

- Region 4 (Central USA)... *we are classified as being the center of the USA!*

As such we span 2 Time Zones, Eastern and Central. So the various states which make up Region 4 are:

- Michigan
- Indiana
- Illinois
- Wisconsin
- Minnesota
- Iowa
- North Dakota
- South Dakota and
- Nebraska

As mentioned earlier, all the regions have local Sections, usually clustered around major hubs/cities of IEEE related activity. So the Central region or R4 as it is more affectionately known, has sections in Chicago, Detroit, etc. Our particular section is called the South Eastern Michigan Section or IEEE SE Michigan Section. We do also have 2 other sections nearby – Western Michigan Section and Northern Michigan Section.

All the sections are listed here (in Alphabetical order) for your information:

- ❖ Arrowhead
- ❖ Calumet
- ❖ Cedar Rapids
- ❖ Central Illinois
- ❖ Central Indiana
- ❖ Central Iowa
- ❖ Chicago
- ❖ Fox Valley Subsection
- ❖ Northwest Subsection
- ❖ Fort Wayne
- ❖ Iowa-Illinois
- ❖ Madison
- ❖ Milwaukee
- ❖ Missouri Slope
- ❖ Nebraska
- ❖ Northeastern Michigan
- ❖ Northeastern Wisconsin
- ❖ Red River Valley
- ❖ Rock River Valley
- ❖ Siouxland
- ❖ Southeastern Michigan
- ❖ Southern Minnesota
- ❖ Coulee Subsection
- ❖ Toledo
- ❖ Twin Cities
- ❖ West Michigan

I hope this helps paint a clear visual picture of how we are organized. Comments, suggestion are welcome. I do hope readers of this piece will share this with new members or even veterans, who may not have been aware of the vast spread of the IEEE!

To learn more you can check out:

- 1) <https://ewh.ieee.org/reg/4/index.php>, the official R4 web site
- 2) <https://ewh.ieee.org/reg/4/sections.php>, this link also shares the Chair and size of each section in R4
- 3) <https://ewh.ieee.org/reg/4/map.php>, an interactive map of R4

**Sharan Kalwani,**  
**Editor, Wavelengths,**  
**2017-2018-2019-2020-2021**  
**Email: [Sharan.Kalwani@ieee.org](mailto:Sharan.Kalwani@ieee.org)**



**Profile: Section Treasurer****Introducing our Section Treasurer for 2021: Colleen Chmielewski**

Colleen Chmielewski is a Project Engineer and she has been working on transmission line projects since she started her career at Commonwealth Associates, Inc. in June 2009. She graduated with a BS in Civil Engineering from Michigan Technological University in May 2009. Colleen actively participates in IEEE by holding positions as the SEM Treasurer, SEM WIE Secretary and PES ICC WIP Chair. She created a website for the IEEE SEM WIE and hopes to see the group grow.

Colleen is on the Board of Directors at her local Kiwanis Club of Jackson and she volunteers for several Kiwanis fundraisers. She is developing her public speaking skills through Toastmasters International and is Treasurer of the Energizers Toastmasters Club. She enjoys spending quality time with her husband and son, traveling to her family's cottage on Lake Superior, walking the beach, searching for agates, hiking, saunas, swimming and watching movies.

## Science Fair Judging

### IEEE-SEM MEMBERS NEEDED AS 2021 SCIENCE FAIR JUDGES

By Don C. Bramlett, PE, LSMIEEE, FMSPE, FESD

Please volunteer to serve on the elite panel of judges for the **professional awards** sponsored by the Southeastern Michigan Section of the Institute of Electrical and Electronics Engineer, Inc. (IEEE-SEM) at the 64th Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD). This is the 26th straight year that the IEEE-SEM Section has provided judges and sponsored **professional awards** for projects associated with electrical, electronics, computer engineering and IEEE related fields.

The Science Fair and judging will be conducted in a virtual manner. Students will provide a project presentation (up to 12 pages in a pdf format) and a short video link. There will be no interviews for the **professional awards**. The Science Fair and I will communicate further details to those that will be IEEE judges. Session 1 judging, which includes **professional awards** judging, will be from 8 am March 4 to 5 PM March 8.

It is necessary that if you are already registered as a Science Fair judge or a new judge, to go to the Science Fair website,

<http://www.sefmd.org>

Judging . *Identify you will be judging as part of the IEEE **professional awards judging** team during Session 1. Provide also the information for a background check with the Michigan State Police. Inform me if you are registered to be an IEEE **professional awards** judge, at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org).*

As last year, IEEE-SEM plans to provide judging for both the Junior (6<sup>th</sup> – 8<sup>th</sup> grade) Division and the Senior (High School) Division. IEEE-SEM will tentatively make three Grand Awards, including personalized certificates and cash prizes, and several Outstanding Achievement Awards, consisting of personalized certificates.

This year, like last year, some projects in the IEEE related fields may be found in the categories of Systems Software, Robotics & Intelligent Machines, Physics & Astronomy, Environmental Engineering, Engineering Mechanics, Energy: Physical, Energy: Chemical, Embedded Systems, etc. Students in Wayne, Oakland, Macomb, Lenawee, Livingston, Monroe and Washtenaw counties will participate in the Science Fair. So this year again will be a real interesting experience judging the Junior Division and Senior Division projects.

Based on the number and quality of the selected project displays, the judges may choose to use the supplied Project Evaluation and Judging Forms to grade the projects in each Division or to use a less formalized process, as deemed appropriate.

Please direct any questions you may have to me at home (734) 591-1452, or on my cell phone at 313-608-6223; or you may contact me at my e-mail address [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org) .

Looking forward to working with you on this event.

## ESD Gold Award 2021



**THE ENGINEERING SOCIETY of Detroit**

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# Gold Award Reception

## ESD Gold Award Reception & Recognition

**March 17, 2021**

6:00 p.m. Welcome and Awards Program  
Online via the Zoom Platform.

Join The Engineering Society of Detroit (ESD) and its Affiliate Council for a unique event as professionals representing 100+ ESD Affiliated Technical Societies come together to honor and recognize its leaders – engineers, scientists and technical professionals who have distinguished themselves through outstanding achievement and service within their respective Societies.

In its 49<sup>th</sup> year, The Gold Award has honored presidents of companies and leaders of industry, professors and engineers, entrepreneurs and innovators for their dedication and commitment to their professions.

**COST:**  
Complimentary to ESD members and the Affiliate Society community.

**TO REGISTER:** For more information or to register, contact Elana Shelef at 248-353-0735, ext. 119, or [eshelef@esd.org](mailto:eshelef@esd.org).

**ZOOM RECORDING**

**PAST AWARDEES**

**DOWNLOAD GOLD AWARD NOMINATION FORM**

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To view a streaming video of last year's event (approximately 1.5 hours long), click this zoom link [here](#).

To see a list of past ESD Gold Award recipients, use this [web link](#).

To nominate a person for the 2021 ESD Gold Award, download the Word document form, which can be found at this [link](#) location. Email the completed form to Elana Shelef at [eshelef@esd.org](mailto:eshelef@esd.org).

**Sharan Kalwani,**  
**Wavelengths,**  
**2017 ~ 2021**

## EIT 2021 CFP



IEEE

**2021 IEEE INTERNATIONAL CONFERENCE  
on ELECTRO/INFORMATION TECHNOLOGY**

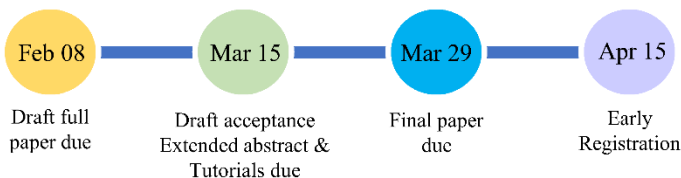
May 13 – 15, 2021, Central Michigan University, Mount Pleasant, MI



Format: Hy-Flex (in-person and remote)

**eit 2021**[www.eit-conference.org/eit2021](http://www.eit-conference.org/eit2021)

## Call for Papers



The 2021 IEEE International Electro/Information Technology Conference, sponsored by the IEEE Region 4 (R4), in collaboration with Central Michigan University (CMU) is focused on basic/applied research results as they relate to Electrical and Computer Engineering, Information Technology, and related applications.

**Contribution Categories:**

Full paper  
Extended abstracts  
Tutorials/Workshops  
12-hour Hackathon

**Topics of interest:**

- Ad Hoc and Sensor Networks
- Artificial Intelligence & Deep Learning
- Big Data Processing
- Biomedical Applications, Telemedicine
- Biometrics and Bioinformatics
- Cloud, Mobile, and Distributed Computing
- Computer Vision
- Control Systems and System Identification
- Cyber Physical Systems & Security
- Distributed Data Fusion and Mining
- Diversity, Equity, and Inclusion in Engineering
- Embedded Systems
- Engineering Education
- Intelligent Systems and Multi-agent Systems
- Internet of Things
- Machine Learning
- Micro Electromechanical Systems
- Nanotechnology
- Optics & Photonics
- Power Systems and Power Electronics
- Reconfigurable and Embedded Systems
- Robotics and Mechatronics
- Signal/Image and Video Processing
- Software Engineering and Middleware Architecture
- Smart Grid
- Sustainable Computing and Systems
- Wireless communications and Networking
- 5G and Multi-Gigabit Communications

**Organizing Committee:**
**R4 Conference Committee Rep to EIT**

James Riess

**EIT Conferences Founding General Chair**

Hossein Mousavinezhad, Idaho State University

**2021 Conference General Chair**

Kumar Yelamarthi, CMU

**Program Chairs**

Ahmed Abdelgawad, CMU

Constantin Apostoia, Purdue University Northwest

**Hackathon Chairs**

Subra Ganesan, Oakland University

Prasanth Yanambaka, CMU

**Finance Chair**

Steve Kerchberger, IBM

**Professional Development Program Chair**

Tarek Lahdhiri, General Motors

**Exhibits/Industry/Sponsorship Chair**

Hamid Vakilzadian, University of Nebraska Lincoln

**Publicity Chair**

Ahmed Abdelgawad, CMU

**Local Arrangements Chair**

Prasanth Yanambaka, CMU

**Registration Chair**

Prasanth Yanambaka, CMU

**Publications Chair**

Afshin Izadian, Indiana University Purdue

University Indianapolis

**International Liaisons**

Peter Dittrich, Hongwei Zhang, Hsiao-Hwa

Chen, Deepak Puthal

**Webmaster**

Bob Evanich, Duke Energy

**Awards co-Chairs**

Sat Basu

Hossein Mousavinezhad, Idaho State University

All accepted papers will be published in the conference proceedings, and full papers will be published in IEEE Xplore

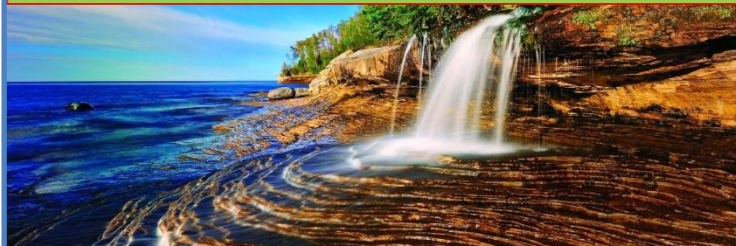
[www.eit-conference.org/eit2021](http://www.eit-conference.org/eit2021)



## Circuits Symposium 2021

## IEEE MWSCAS 2021

2021 IEEE 64<sup>th</sup> International Midwest Symposium on Circuits and Systems, Lansing, Michigan, USA | Aug. 9-11, 2021. <http://www.mwscas2021.org>

**Honorary Chair**

Anthony N. Michel, Notre Dame Univ.

**General Chair**

Fathi M Salem, Michigan State Univ.

**Technical Program Chairs**

Kenneth Jenkins, Penn State Univ.  
Khurram Waheed, NXP Semiconductors

Zaid Albataineh, Yarmouk Univ.

**Publication Chairs**

Shantanu Chakrabartty, Washington Univ.  
Chetan Thakur, Indian Institute of Science, Bengaluru.

**Special Sessions Chair**

Mohammed Ismail, Wayne State Univ.

**Tutorials Chair**

Faisal Abu-Nimeh, Apple, Inc.

**Student Paper Contest Chairs**

Randall Geiger, Iowa Stat Univ.  
Robert Newcomb, Univ. of Maryland

**Finance Chair**

Yiming Deng, Michigan State Univ.

**Registration Chair**

Neeraj Mogotra, W. New England Univ.

**WEB Page Coordinator**

Michigan State Univ.

The **IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)** is the oldest, and now the flagship, Circuits and Systems symposium.

The 64th meeting of the MWSCAS is planned to be in Lansing, Michigan, USA, from Aug 8-11, 2021. The MWSCAS 2021 will be ready to pivot to virtual symposium if necessary. It will include oral and poster sessions, a student paper contest, keynote addresses, regular and special sessions, and tutorials presented by world experts in wide range of circuits and systems topics. *The 2021 Symposium theme is artificial intelligence (AI) and autonomous circuits and systems, and hopes to bring forward solutions to consequences of the COVID-19, from detection, testing to predictions.* Topics include, but are not limited to:

- COVID-19 detection, testing, prediction
- Autonomous & Intelligent Circuits/Systems
- Deep Neural Networks and Reinforcement Learning
- Machine Learning and Artificial Intelligence
- Neuromorphic Circuits and Systems
- Analog and Mixed Signal Integrated Circuits
- Digital Integrated Circuits, SOC, and NOC
- Digital Signal Processing
- IoTs and wearables
- Bioengineering Systems and Bio Chips
- Bio-inspired Green Technologies
- Trusted Electronics and Security
- Communication Circuits and Systems
- Wireless Sensors and Systems
- Cloud & System Architectures
- Embedded Electronics
- Image Processing and Multimedia Systems
- Nanoelectronics and Nanotechnology
- MEMS/NEMS
- RFICs, Microwave, and Optical Systems
- Power Management, Energy Harvesting, and Wireless Power
- Hardware/Software Co-design & Verification
- Power Systems and Power Electronics
- Novel Linear/Non-linear Circuits and Systems

Prospective authors are invited to submit a full paper (4 pages) describing original work through the on-line submission system for the conference through a link on the MWSCAS 2021 conference website. Papers should follow the formatting instructions given in the author's kit on the website. Papers will be accepted for either lecture or poster presentation. Review criteria for both lecture and poster presentation formats are identical; the presentation format will be chosen to facilitate topical session grouping and time constraints. Students are encouraged to participate in the Best Student Paper Award contest. Submissions of demos and proposals for tutorials and special sessions are also solicited. Accepted papers will be published in the MWSCAS 2021 Proceedings subject to advance registration of at least one of the authors at the author rate. All papers published in the MWSCAS 2021 Proceedings will be submitted for inclusion into **IEEE Xplore**.

The Greater Lansing Area in Michigan includes the Michigan Capital (Lansing) and is home to Michigan State University and a host of diverse industries, from automotive, communication, medical small tech companies. Michigan has several international Universities. Michigan, the home to the three lakes, has numerous natural sights for touring including islands and the beautiful "upper" peninsula.

**Important Dates** (submission deadlines)

|                |                            |
|----------------|----------------------------|
| March 1, 2021  | Special Session Proposals  |
| March 8, 2021  | Regular Papers             |
| April 5, 2021  | Tutorial Session Proposals |
| April 26, 2021 | Notice of Paper Acceptance |
| May 17, 2021   | Camera-Ready Paper Due     |





## Introducing Chapter 2

Chapter 2 (aka Vehicle Tech Society or VTS) is the featured chapter for this month. The officers are: Jennifer Dukarski (Chair), Sharan Kalwani (Vice-Chair), Gene Saltzberg (Secretary and Treasurer)

Jennifer A. Dukarski is a Shareholder based in Butzel Long's Ann Arbor office, practicing in the areas of emerging technology. She focuses her practice at the intersection of technology and communications with an emphasis on the legal issues arising from emerging and disruptive innovation: vehicle safety, connected and autonomous cars, shared mobility, infotainment, digital media and content, data privacy and security. Jennifer was named one of the 30 Women Defining the Future of Technology in January 2020 by Warner Communications for her innovative thoughts and contributions to the tech industry.

Among Jennifer's strengths are:

- ✓ Emerging Technology, Data Privacy and Security
- ✓ Automotive Technology
- ✓ Data Protection, Privacy and Cybersecurity

Jennifer has become a national leader in the area of the connected and autonomous vehicle and advises on automotive threat vectors and data privacy. She also uses her emerging technology expertise to draft and negotiate development agreements and technology licensing. Jennifer also represents automotive suppliers in vehicle safety, connected and autonomous car technology, warranty and product quality disputes. Her automotive expertise as a former design engineer and quality manager has made her a valuable team member in complex product-related litigation covering warranty disputes, and trade secrets. She represents clients involved in field recalls and FMVSS noncompliance with NHTSA. She is a contributor to the Original Equipment Supplier Association (OESA) North American OEM Production P.O. Terms and Conditions Comparative Analysis and currently serves as Counsel to OESA's Advanced Technology Council.



Ms. Dukarski is also a graduate of the University of Detroit Mercy College of Engineering and Science, (B.S., Mechanical Engineering, summa cum laude, 1996) where she was a full-ride Insignis Scholar, Tau Beta Pi Engineering Honor Society Member, Student of the Year, winner of the Reverend Huetter Award for Leadership in Athletics, and Fencing Team Captain.



Sharan Kalwani is an industry technology specialist with 25+ years of experience. Sharan has degrees in both Engineering and Computer Science. He has worked in many diverse areas. He is a sought after speaker at many a diverse conference and seminars, such as Supercomputing, HPC Advisory Council, SIAM, Infiniband Trade Association, etc. He has delivered several tutorials, workshops and BoF sessions. Sharan is a senior member of IEEE, (Computer Society, Signal Processing Society, Education Society & Vehicle Tech Society), and ACM. He enjoys teaching, holds an Adjunct Faculty position at local educational sites. He has published one book "Linux and Internet Security" and is now working on his second about a new computer programming language. He is a recipient of the IEEE MGA Achievement award for his contributions to IEEE activities in 2018.



Gene Saltzberg, IEEE SEM VTS Chapter Secretary, Treasurer and Past-Chair. He has held previous positions in the Rochester NY Section, for example, Section Vice Chair, EMC Chapter Chair and Region 1 Western Area Chair. Gene has a BS and MS Degrees in Electrical Engineering from Rochester Institute of Technology. Gene has worked as Electro-Optics and EMC Engineer at Xerox Corporation in Rochester, NY. Gene Started his GM career in Honeoye Falls, NY in the Fuel Cell Activity Organization and later transferred to Michigan as an Electrification Engineer. Gene has been retired since the end of 2019. Gene is an IEEE Senior member.

The chapter has a history of being moderately active with at least 5 ~ 6 professional meetings per year. Due to the COVID-19 we have not held any meetings in 2020, but plan to remedy that this year, but need help from the members. The chapter would like to start a yearly conference on Vehicle standards (EV, Autonomous, Safety...)

## MetroCAD 2021

## The Fourth International Conference on Connected and Autonomous Driving (MetroCAD 2021)

Detroit USA, April 28-29, 2021




[HOME](#)   [Committees](#)   [Call for Papers](#)

With the burgeoning of Edge Computing and 5G technologies, we envision future vehicles will serve as a computing platform for a variety of services such as autonomous driving, remote real-time diagnostics, on-board entertainment, and a variety of third-party services, such as public safety. To realize the vision of connected and autonomous driving, researchers and practitioners in the community have to address several challenges, such as communication systems, data analytics platforms, novel algorithms and applications, security, to name a few.

The Fourth International Conference on Connected and Autonomous Driving aims to bring together the researchers and practitioners on connected cars, autonomous driving, transportation systems and ride-sharing platforms to address core challenges with vehicle connectivity and autonomous driving. The conference will include invited speakers, panels, paper presentations, tutorials, and real-vehicle demos. The goal is to discuss and exchange ideas in this area and stimulate the collaboration between academia and industry partners. The topics include, but are not limited to:

- Perception, localization, mapping, planning and control, action prediction for autonomous driving.
- Consumer services, include Internet- and cloud-based digital services that add to the driving experience.
- Connected Vehicle packages, using advanced features to improve or help manage the car's operation and autonomous driving.
- Connected vehicle data operations of various data sources and latency requirements.
- Artificial Intelligence approaches for control and coordination of traffic leveraging V2V and V2X infrastructures.
- Security, privacy, ethics, human interaction related with autonomous driving
- Enabling technologies for Autonomous Driving.
- Social and human impact of CAVs.

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In Cooperation



IEEE COMPUTER SOCIETY  
AUTONOMOUS DRIVING  
TECHNOLOGIES  
Special Technical Community

Conference Sponsorship



WAYNE STATE  
College of Engineering



Previous Events

[MetroCAD 2020](#)

[MetroCAD 2019](#)

[MetroCAD 2018](#)

Important Dates

Paper Submission: **Jan. 24, 2021**

Acceptance Notifications: **Feb. 26, 2021**

Camera-ready Papers Deadline: **Mar. 12, 2021**

Conference: **Apr. 28-29, 2021**

Contact Email:

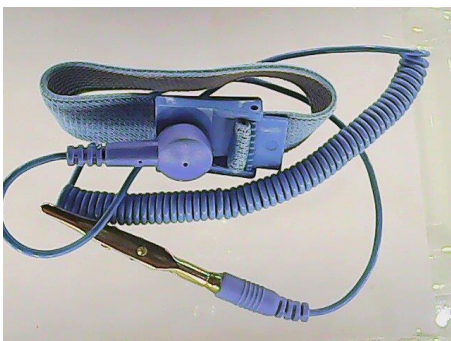
[Metrocad@groups.wayne.edu](mailto:Metrocad@groups.wayne.edu)

## Surviving Winter: ESD

Keysight: How to prevent Electro Static Discharge (ESD) damage

By Dan Romanchik

The cold, dry air outside can mean only one thing. You're right. It's ESD season in Michigan! ESD, aka electrostatic discharge, is one of the leading causes of electronic failures. To help you get through this cold, dry season, here are some tips from Keysight on how to prevent ESD from damaging your electronics:

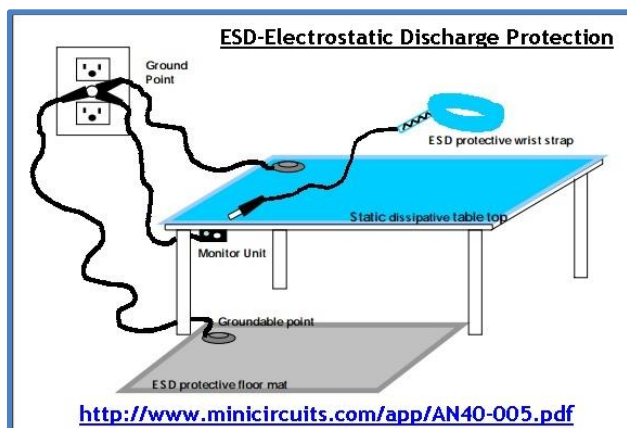


### • USE A GROUNDED WRIST STRAP

Using a grounded wrist strap whenever you are handling equipment or boards prevents your body from building up charge and causing damage when this built-up charge discharges into your equipment or test boards. Make sure to connect that alligator clip to ground! If your wrist strap isn't grounded, then it's not proving any protection.

### • USE GROUNDED WORK SURFACES OR MATS

Using grounded work surfaces or mats will also protect your electronics. Do NOT use static generating or insulating materials as a work surface. Non-grounded mats and static generating/insulated materials can inductively charge boards, especially exposed ones. When connecting a charged board to equipment, the board can cause damage by discharging into the equipment's inputs.



### • KEEP CHARGED MATERIALS AT LEAST 0.3 METERS FROM EXPOSED ASSEMBLIES

This includes plastics, foam, or other materials that can build up charge. Having a charged material near an exposed assembly can inductively charge the assembly. The assembly can then discharge into the equipment's inputs.

### • DISCHARGE YOUR CABLES BEFORE CONNECTING THEM TO YOUR EQUIPMENT

Here's how to properly discharge cables:

- Ensure your device is off.
- Connect your cable to your device.
- Attach a 50  $\Omega$  shunt to the open end of the cable.
- Remove the shunt and immediately attach your device to your equipment. This prevents the center conductor of your cable from discharging stored charge into your equipment. A charged assembly can charge connected cables.

### • USE BOARD STANDOFFS AS NEEDED

In some situations, you need board standoffs to provide extra insulation for your exposed assemblies. This prevents your grounded mats from making unwanted connections on your board.

- NEVER USE “PINK” PACKING MATERIAL FOR BOARD TRANSPORT OR AS A WORK SURFACE

While many people think pink packing material is ESD safe, in most cases it easily builds up unwanted charge. Unless continuous, thorough testing is done, treat pink packing materials as charged.

- CAP UNUSED EQUIPMENT INPUTS

Cap unused inputs of your electronics or test equipment to avoid accidental ESD and physical damage. Damage often occurs by accidentally contacting equipment inputs. Capping unused inputs protects them from incidental ESD damage.

- USE ESD-SAFE BAGS WHEN TRANSPORTING BOARDS

This protects boards from ESD damage while moving between ESD-safe locations.

- DO NOT OVERDRIVE EQUIPMENT INPUTS

Start your testing at the least sensitive input setting and zoom in on your signal. Additionally, observe the maximum input levels for your specific equipment. The least sensitive setting is the most resilient, so starting there ensures that your inputs are at safe operating levels.

I like to think that I follow ESD-safe procedures, but there are a couple of things here that I hadn't thought about before. For example, I'd never really thought about discharging test equipment cables before connecting them. I think that's a good tip, and I hope that you found all of these tips useful. To learn more, go to

<https://www.keysight.com/find/PreventESD>

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*Dan Romanchik is a freelance technical writer, specializing in writing about electronics and software systems. When he's not worrying about electrostatic discharge, he enjoys amateur radio (call sign KB6NU) and is a member of the Ann Arbor Rotary Club. You can reach him by emailing [dan@danromanchik.com](mailto:dan@danromanchik.com).*





**ORG UNITS cheat sheet****Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)**

Consultants Network Affinity Group: (CN40035)

Life Members: (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 "Trident" (AP03) Antennas and Propagation Society,  
 (CH04050) (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 &amp; 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

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

University Of Detroit-Mercy: (STB00531)

Michigan State University: (STB01111)

University Of Michigan-Ann Arbor: (STB01121)

Wayne State University: (STB02251)

Lawrence Technological University: (STB03921)

Oakland University: (STB06741)

Eastern Michigan University: (STB11091)

University of Michigan-Dearborn: (STB94911)

**Curated & Maintained By**

**Sharan Kalwani,**  
**Wavelengths,**  
**2017 ~ 2021**



## Non-IEEE Events

We try to publish IEEE events in several places to ensure that everyone who may want to attend has all the available relevant information. **NOTE: The IEEE SE Michigan section website is changing to its new home, kindly make a note of it! The new home is located at <http://r4.ieee.org/sem/>.** The old links will continue to work for some time, but will be changing permanently in the near future.

### SEM Wavelengths:

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

This is our 'Active' event listing site where everyone should look first to see what events are scheduled for our Section in the near future.

### SEM Web Calendar:

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

Select "SEM Calendar" button in the top row of the website.

### SEM Web Meetings:

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

Select "SEM Meeting List" button in the left-hand column.

### vTools Meetings:

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

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

## Other 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: You may need to copy the URL and paste it into your browser address bar.**

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

**Michigan Institute for Plasma Science and Engineering:** Seminars for the 2018-2020 academic year:

<http://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://2021.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/>

## Executive Committee

The **SEM Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2019/2020/2021 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on either the first Wednesday or first Thursday at noon. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: <http://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 **Bhupinder Mavi**, the section secretary at: [bmavi@outlook.com](mailto:bmavi@outlook.com), 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.

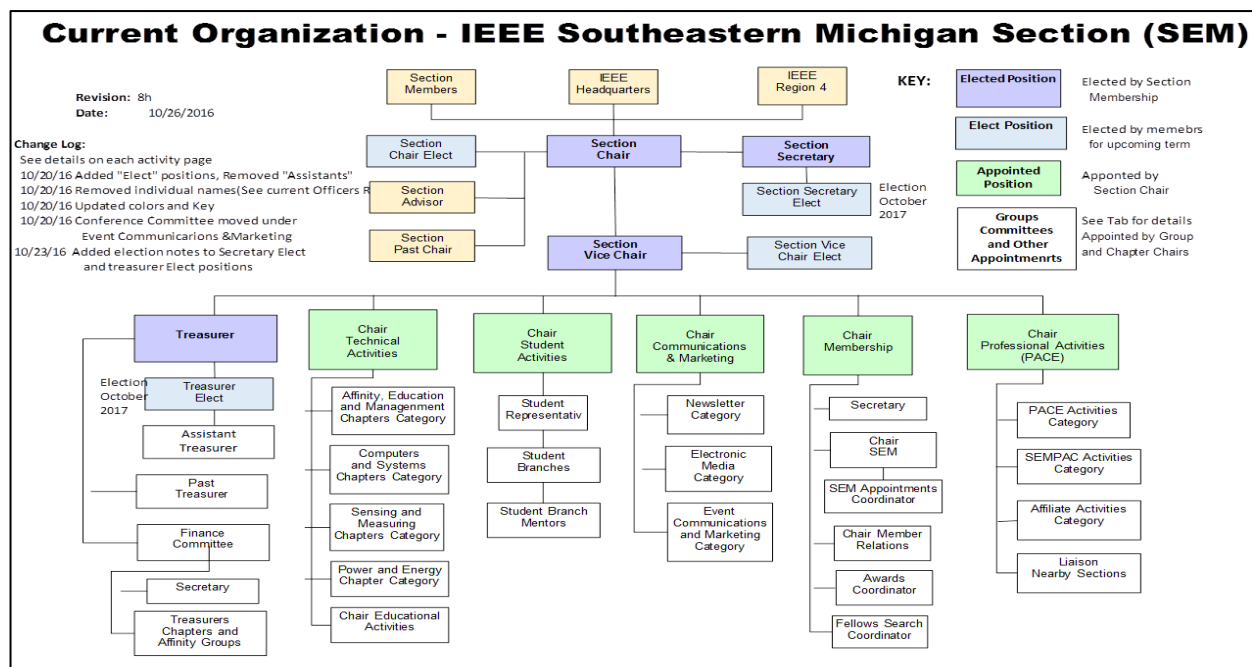
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to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

**Bhupinder Mavi** - SEM Secretary 2021

Download the complete SEM Organization Chart, in PDF format, from our Website at: <http://r4.ieee.org/sem/> Click on “About SEM” Tab and “Current Officers” (*NOTE: this is now password protected*)



## ExCom Meeting Schedule

**NOTE: All SEM members are invited to attend ALL ExCom meetings:**

Below is the 2021 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. Information on each Face-to-Face (in-person) Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the 2021 meetings. Or, link your personal calendar to the SEM Web calendar.

**Section Administrative Committee (ExCom) Meeting Schedule for 2021:**

**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**.

**2021 Meeting Schedule:**

| <i>ExCom Meeting</i>  | <i>Date &amp; Time</i>                |
|---|---------------------------------------|
| <b><a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for February 2021</a></b> | <b><a href="#">2/3/2021 17:00</a></b> |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for March 2021</a>           | 3/4/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for April 2021</a>           | 4/7/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for May 2021</a>             | 5/6/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for June 2021</a>            | 6/2/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Face-Face) for July 2021</a>                 | 7/14/2021 17:30                       |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for August 2021</a>          | 8/5/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for September 2021</a>       | 9/1/2021 17:00                        |
| <a href="#">SEM Section ExCom Monthly Meeting (Face-Face) for October 2021</a>              | 10/7/2021 17:30                       |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for November 2021</a>        | 11/4/2021 17:00                       |
| <a href="#">SEM Section ExCom Monthly Meeting (Teleconference) for December 2021</a>        | 12/1/2021 17:00                       |

Bhupinder Mavi  
SEM Secretary 2021  
[bmavi@outlook.com](mailto:bmavi@outlook.com)

## Letters to the Editor

*As promised, we are now starting a “Letters to the Editor” column soon. Feel free to email away to help us get that started! Letters, bouquets, brickbats, suggestions, advice, feedback, opinions may be sent to:*

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

To the Editors of Wavelengths:

While many IEEE members appreciate the local news and events information your team provides in the Southeastern Michigan newsletter, it takes no great intellect to notice that the Covid-19 restrictions have spawned a plethora of virtual meetings and a purely local communications media has lost some of its immediate relevance.

In years past the Section used to produce regular editions of an ‘e-Wavelength’ electronic listing of virtual meetings, along with local events. It seems to us that that version had been in existence long enough before the global pandemic to allow it to work out all its early growth issues and was successfully communicating to the membership. So, when it has finally become relevant, why has it not been revived when it could be the most helpful?

Signed,

A. Nonymous

*Dear Anonymous:*

*Thank you for being the very first letter writer to this edition of Wavelengths. Yes, every crisis does have a bronze lining, this time bringing people from far flung corners of the globe together.*

*Regarding your direct question about e-Wavelengths this will be communicated to the Section chair as well as the previous erstwhile e-Wavelengths editor for a response.*

*In the meantime, at least for IEEE member organized events you can use the vtools ‘Search’ and select any region and query on ‘upcoming’ in the 3<sup>rd</sup> box. At least this will help in the short term. E-Wavelengths used to also feature many events outside of the IEEE and hopefully it will return.*

--Sharan Kalwani,

Editor Wavelengths (2019 ~ 2021)

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)

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

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

[nkaja@umich.edu](mailto:nkaja@umich.edu)

[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 heard 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.

**Heads Up**

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

**Join the Team:**

If you feel you might like to join the team, or would like to train with us, please contact one of us at:

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

OR

any one of the following:

[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)

[nkaja@umich.edu](mailto:nkaja@umich.edu)

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



*Wavelengths Annual Publication Plan for Articles*

| Month | AG's | Ch's | Ch's | SB's   | Special Notice      | Reporting Events  | Monthly Focus       | Awards |
|-------|------|------|------|--------|---------------------|-------------------|---------------------|--------|
| Jan   |      | 1    |      | OU     | 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

### SEM Website

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

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

### Section Website Event Calendar

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

### SEM Facebook Page

(Select the “” button under the top row.)

### SEM LinkedIn Page

(Select the “” button under the top row.)

### SEM Officers:

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

### Section Officers

#### Section Chair

David Mindham

#### Section Vice-Chair

Sharan Kalwani

#### Section Secretary

Bhupinder Mavi

#### Section Treasurer

Colleen Chmielewski

### Standing Committees:

#### Section Adviser

Don Bramlett

#### Wavelengths Editor

Sharan Kalwani

#### Chair Educational Activities

Christopher Guirlanda

#### Chair Finance

Nevrus Kaja

#### Chair Membership Development

Sharan Kalwani

#### Chair Nominations & Appointments

Kimball Williams

#### Chair Professional Activities (PACE)

Sharan Kalwani

#### Chair Student Activities

Mel Chi

#### Student Communications Coordinator

Michael Anthony

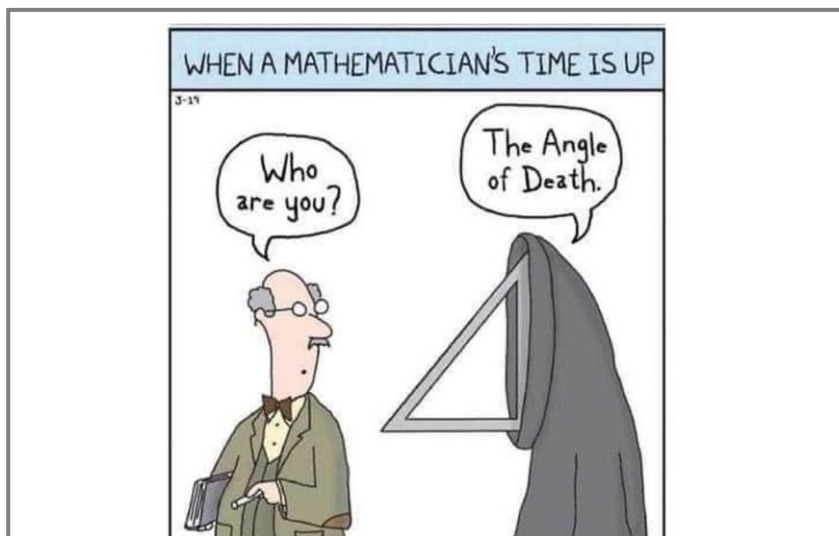
#### Student Representative

#### Chair Technical Activities

Jeffery Mosley



Visit Us on the Web at:  
<http://r4.ieee.org/sem>



### Advertising Rates

SEM Website & Newsletter  
Advertising is coordinated through  
our e-Wavelengths website at:

[http://www.ieee-sem.org/ewavelengths/?page\\_id=181](http://www.ieee-sem.org/ewavelengths/?page_id=181).

Please see the information listed on the site, and contact our web editor of e-Wavelengths, Nevrus Kaja, for further details.

### Leadership Meetings

#### SEM Executive Committee Monthly Teleconferences:

- 1<sup>st</sup> Wednesday or Thursday of Each Month @ Noon
- Check the Section Web Calendar at:  
<http://r4.ieee.org/sem/sem-calendar/>  
(Select the "SEM Calendar" button in the top row.)

#### SEM Executive Committee Face-to-Face Meetings:

- Once every Qtr. 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>