

Our Seventh IMS Microwave Week 3MT Competition

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The Merriam-Webster dictionary defines engineering as “the application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people.” As microwave engineers, our mission can therefore be understood as first, seeking

and understanding the needs of (preferably large numbers of) people, then devising microwave theories and technologies that could help fulfill these needs, and finally, maturing these creations into products that can serve their users.

As you can see, this process starts and ends with people.

Unfortunately, a thick and opaque mist between engineers and the general population persistently lingers. This disconnect is further enhanced by the arcane nature of microwave engineering: we contort and project invisible waves (which are also particles) of energy traveling through space at the speed of light by manipulating the properties and shapes of materials in a process even described



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by many of our fellow electrical engineers as black magic. No wonder people are confused and even sometimes frightened. Likewise, it is often also difficult for people like us, with interests in such a counterintuitive discipline, to competently connect with the public whose duty it is for us to serve through our work and who often fund it through their tax contributions.

IEEE Microwave Week strives to connect members of the community and to collectively make us better engineers. Particularly, it catalyzes the technical prowess of up-and-coming young microwave engineers by giving them the opportunity to participate in several paper and design competitions. There is, however, only one event that

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Digital Object Identifier 10.1109/MMM.2023.3242844
Date of current version: 6 April 2023

inspires these budding researchers to connect their technical achievements to the people that can give them their full meaning: the Three Minute Thesis (3MT) competition.

What Is 3MT?

Created at the University of Queensland, Australia, in 2008, the 3MT competition [1] motivates contestants to develop and hone their communication and delivery skills, and trains them in the art of stimulating the imagination, sparking curiosity, and enlisting the support of individuals from all walks of life. In 3 min or fewer, using only one static slide and no other props, contestants deliver their presentations to a panel of nonspecialist judges that ranks them on how engaging, accessible, and compelling they made their presentations [2] (see Figure 1). A speaker who goes over his or her time is disqualified.

Goals of the 2023 Microwave Week 3MT Competition

After a very successful return on stage in its sixth year, the 3MT competition is continuing in person for its seventh year [3]. Our aims for the event continue to be the creation of a shining beacon, attracting the attention of the broader public to the flagship conferences of our community, through the production and mass broadcasting of

high-quality, accessible, and enticing talks displaying some of the most impactful results achieved by the microwave theory and technology (MTT) community, presented by its brightest and most passionate and articulate young members.

We believe that achieving these goals will make a significant contribution toward popularizing our discipline, attracting a broad and diverse group of new members and advocates [4], and propelling the careers of our rising stars. Previous examples of such products can be found in the MTT's YouTube playlists [5], [6], [7], [8], [9], [10].

The 2023 Microwave Week 3MT Competition

The 3MT committee chooses finalists from among those who identified their desire to enter the competition during the submission process [11], [12] (see Figure 2). To be eligible, a contestant must be a current student or be within 15 years of their first professional degree. Finalists may speak only once, with no substitutions, and only one 3MT presentation per accepted paper is allowed.

In the weeks leading up to the competition, finalists work with the 3MT organizers, attending online meetings, receiving tips and feedback on their



Figure 1. Photo of Connor Rowe, first-place winner, on stage during his 2022 Microwave Week 3MT presentation.



Figure 2. Photo of 2022 3MT finalists after the competition at IMS2022 in Denver, Colorado.

drafts, and rehearsing. This hard work will culminate in a 3MT presentation to be delivered in San Diego, California, possibly earning a spot in the top three, leaving the presenter with a battery of techniques and strategies for improving communication of technical work, skills that are useful across disciplines and career paths. The winners will be selected by a panel of nonspecialist judges, while the audience will select their own Audience Choice winner. The awards will be presented during the closing session of the 2023 IEEE Microwave Theory and Technology Society (MTT-S) International Microwave Symposium (IMS2023), with cash prizes to be awarded to the top-three ranked contestants and to the Audience Choice winner.

An equally important benefit of the competition is promotional: the accessible, engaging nature of these talks is perfect for making the general public curious about innovations and breakthroughs in microwaves and high-frequency electromagnetics. Showcasing the human element of the MTT-S's social media channels using videotaped award-winning 3MT presentations by passionate and articulate younger members [5], [6], [7], [8], [9], [10] should help attract high school students, undergraduates, and women to our profession.

To this end, this year's Microwave Week in San Diego warmly welcomes all Symposium attendees and guests to attend the precompetition presentation skills workshop, the briefing and coaching sessions, and the competition itself [3].

Our references [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [24], [26] include helpful articles [4], [13], [14], workshops [15], [16], [17], [18], [19], [20], and MTT-S webinars [21], [22], [23], [24], [24], [26]. You can also find the 3MT presentation videos on our Society's YouTube channel [5], [6], [7], [8], [9], [10], including the virtual competitions conducted in 2020 and 2021 [8], [9].

Conclusion

Many of us have participated in the wonderful student competitions that

Microwave Week has to offer. Despite its superficially peripheral connection to microwave engineering, you will be hard pressed to find any alumnus or alumna of the Microwave Week 3MT competition who does not consider it the most intense, terrifying, rewarding, and transformational event that he or she has been involved in at the conference. The 3MT pushes you out of your comfort zone and forces you, its contestant, to connect your technical achievements to the people that they were meant to serve all along.

As such, we want to encourage all the students submitting papers to throw their hat in the 3MT competition ring and motivate their colleagues, friends, and advisors to come support them during the event. Finally, we would urge all conference attendees to join us to admire and learn from the original and gripping narratives and connections that the contestants unflinchingly achieve to weave during their carefully crafted 3-min stage performances. We invite you to visit the IMS website to get more information and the latest details. The event will take place on the Monday of Microwave Week at the Hilton Hotel. See you all there!

Acknowledgments

We thank Robin Aiello, Beth Bandler, Ricardo Figueiredo, Ramesh Gupta, Rachelle Ho, Ana Kovacevic, Michelle Ogrodnik, Daniel Shields, Nicholas Simard, Megan Vierhout, John Vlachopoulos, Mahmoud Wagih, and many more for helping shape this work. We are grateful to the three 2023 IEEE Microwave Week Steering Committees: Robert Caverly, Rashaunda Henderson, Sherry Hess, Michael Oakley, Sandy Owens, Amanda Scacchitti, and Elsie Vega for their support. We are also very grateful to the MTT-S and the MTT-S Education Committee, especially Wenquan Che, Xun Gong, and Anding Zhu.

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Boot Camps at IMS2023 in San Diego, CA, USA (continued from page 108)

and the microwave control of quantum computing platforms.

The Quantum Boot Camp will introduce the basics of quantum engineering, targeting microwave engineers who want to understand how they can make an impact in this emerging field. It features speakers covering quantum

engineering basics with a focus on the design, fabrication, control, and measurement of quantum systems with a focus on superconducting qubits. The course will conclude with an industry perspective from one of the leading commercial providers of quantum computing.

The intended audience includes new engineers, engineers who may be changing their career path, and marketing and sales professionals seeking a better understanding of quantum technology as well as current college students looking to learn more about the practical aspects of quantum technology.



IMS2023 Paper Competitions (continued from page 112)

Advanced Practice Paper Competition

An advanced practice paper is one that describes, in contrast to basic research, a practical RF/microwave design, integration technique, process enhancement, and/or combination thereof that results in significant improvements in performance and/or in time to production for RF/microwave components, subsystems, or systems. Any author can submit to this category. Judges will review the presentations of all finalists, whose identities at this point are known publicly, thereby choosing

a winner, who will be announced at the IMS Plenary Closing Session.

Congratulations to the winners of the IMS2022 student, industry, and advanced practice paper competitions in Figures 1, 2, and 3, respectively.

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