

WELCOME

On behalf of the IVEC 2020 Committee and the IEEE Electron Devices Society (EDS) Technical Committee on Vacuum Electronics, I would like to welcome you to the [21st IEEE International Vacuum Electronics Conference](#).

IVEC was created in 2000 by merging the U.S. Microwave Power Tube Conference (Monterey Conference) and the European Space Agency TWTA Workshop, and has now expanded to a fully international conference, being held every other year in the U.S. and in Europe and Asia, alternately, every fourth year. You can learn more about IVEC by visiting VacuumElectronics.org, the EDS Vacuum Electronics Technical Committee web site, or the conference website ieeeivec.org. Typically, the conference is held as a three-day event. Starting in 2018, we added an additional day for a mini-course featuring lectures on various subjects in vacuum electronics. The success of the mini-course has prompted us to make it an essential part of the conference.

2020 has been a remarkable year for all of us due to the widespread disruption caused by the COVID-19 pandemic. The pandemic has taken an unprecedented toll on human life and brought untold suffering around the world. The health challenges posed by the pandemic led first to the postponement of the face-to-face conference to late October to ensure the safety of the IVEC family and our broader global community. However, it soon became evident that holding a face-to-face conference would not be possible due to the health mandates and policies put in place in the state of California and also due to global travel restrictions.

If there is one encouraging outcome from this pandemic, it has been the realization of the importance of scientific research and, most importantly, the scientific method to fight such a problem. There have been unprecedented support and interest in medical and other related technologies and solutions necessary to combat the pandemic. The importance of science and appreciation for work done by scientists and health care workers on the front lines have come into sharp focus. As the world awaits a safe and effective vaccine to combat the coronavirus, the work of scientists is more important than ever before.

As scientists who always work the problem, the cancellation of IVEC 2020 due to the pandemic was not an option for the IVEC 2020 organizing committee. When it was evident that the face-to-face conference would have to be postponed, we immediately started looking at potential alternatives for holding the conference with as wide a participation as possible. The IVEC 2020 organizing committee clearly saw this as an opportunity to develop a pilot for online participation in the conference in case of continuing travel restrictions. Furthermore, we believed that this approach would lay a strong foundation for the conference in the future by broadening our reach and increasing online access to researchers with limited travel funds.

With considerable support from the IVEC 2020 organizing committee, IEEE, sponsors, and exhibitors, as well as the technical contributors to the conference, we are pleased that we will hold IVEC 2020 with almost all of the technical presentations as originally planned for the face-to-face event in April. It is a testament to the strength of our community that we have continued our work in spite of the unprecedented challenges posed by the COVID-19 pandemic.

IVEC 2020 follows a similar pattern as that of the IVEC 2018 conference. We have a one-day vacuum electronics mini-course on Monday, October 19th. This course consists of 8 subjects with pre-recorded lectures that can be viewed on demand with downloadable course notes for a period of two weeks after the end of the conference. The technical sessions will run from October 20-22. All the talks for each day will be posted at 8 AM PDT (3:00 PM GMT) and will be available for a period of two weeks for on-demand viewing

after the conclusion of the conference. There will be a 45-minute live event on October 20, 21, and 22 at 10 AM PDT (5:00 PM GMT) with a live Q&A featuring the plenary or the award recipient speakers of the day.

The technical sessions will officially open on Tuesday, October 20, with a plenary session. I am very excited about this session, which consists of two outstanding speakers covering the area of generation of electron beams and the application of charged particle beams. Dr. Joan Yater, U. S. Naval Research Laboratory, will discuss the advances in cathode research enabled by nanoscale material control. Dr. Bogdan Neculaes, GE Global Research, will discuss the application of Industrial Charged Particle Beam Applications in medical imaging, electron beam additive manufacturing, and circuit-breakers. The two plenaries on October 21 will look at the emerging competition and opportunities for collaboration with wide-bandgap semiconductor technology and the exciting application of microwave technology in space missions. Professor Srabanti Chowdury, Stanford University, will address the competition from wide-band gap semiconductor devices and highlight the potential for collaboration with vacuum electronics. Dr. Shannon Rodriguez, NASA/Goddard Space Flight Center, will discuss the use of vacuum electronics in NASA missions, which are universally fascinating. On October 22, we will have the 2020 Pierce Award Lecture by Prof. John Booske, University of Wisconsin, Madison, followed by a lecture by Dr. Richard Kowalczyk, who is the recipient of the Vacuum Electronics Young Scientist Award for 2020.

Major credit for holding IVEC 2020 as planned albeit in a virtual format goes to the support from our sponsors and exhibitors. Their decision to continue supporting the conference in 2020 in spite of the absence of face-to-face meetings with participants is very generous and praiseworthy. I encourage you to visit their virtual booths and reach out to the exhibitors to show them your support. The virtual booths have been arranged to facilitate the presentation and discussion of information useful to manufacturers, device users, academics, and students.

Traditionally, the conference attracts a diverse group of attendees. The technical sessions and social events provide unique opportunities to renew or establish new contacts and friendships with colleagues, customers and end users, and students. As usual, the conference web site (ieeivec.org) is your best source of information about IVEC 2020 and will continue to serve as a clearinghouse for news and other IVEC-related information after the conference, along with the EDS Vacuum Electronics Web site, VacuumElectronics.org.

I would like to take this opportunity to thank the IVEC Organizing Committee Members for their help and support, especially Jack Tucek, the Technical Program Chair, and Samantha Tola of Palisades Convention Management, for doing an excellent job with the conference coordination. Samantha Tola deserves significant credit for setting up the online platform by working closely with CadmiumCD staff. I also want to acknowledge the management at Bridge12 and Northrop Grumman for providing the resources to Jack and me to work on this conference at least two times over. Monica Blank, the General Chair of IVEC 2018, has been a great help behind the scenes with information, advice, support, and encouragement at the most critical times. I would also like to thank our corporate financial contributors for their support (please see our webpage showcasing our generous corporate sponsors), as well as the presenters and exhibitors for their participation. I am confident that IVEC 2020 will be a great conference and will be a model for future hybrid conferences with a much wider and larger audience.

I wish you all a wonderful conference experience and a safe and healthy 2020.

Jagadishwar R. Sirigiri
General Chair
IVEC 2020