

EDS VACUUM ELECTRONICS TECHNICAL COMMITTEE REPORT

The EDS Vacuum Electronics Technical Committee (VETC) was formed more than 20 years ago to represent the vacuum electron device community within EDS. The Committee has 11 members and 15 corresponding members, all of whom are world-recognized experts in one or more technical disciplines related to vacuum electronics. In addition to overseeing the International Vacuum Electronics Conference (IVEC) and

better performance, including higher power, higher frequencies, broader bandwidths, higher gains, and longer lifetimes, the Committee actively promotes the research and development to ensure that the technology continues to meet ever growing application demands.

The VETC is also responsible for selecting yearly winners of the John R. Pierce Award for Excellence in Vacuum Electronics as well as the Vacuum Electronics Young Scientist (VEYS) Award. Each year, these two awards are presented at IVEC, where the winners have the opportunity to deliver plenary addresses. The 2022 Pierce Award Winner, Dr. Keishi Sakamoto from Kyoto Fusionering, gave at IVEC 2022 an enthusiastic and inspiring plenary address on how the continuous wave gyrotrons performance improvements at the megawatt power level, have moved electron cyclotron resonance heating from a lesser role to the main heating method for ITER and other ground-breaking fusion machines. The 2022 VEYS Award winner, Dr. Diana Gamzina from SLAC and Elve, delivered a career retrospective talk highlighting the most impressive of her numerous technical accomplishments as well as her establishment and oversight of the SLAC Accelerating Girls' Engagement in STEM (SAGE-S) program. Please join the VETC in congratulating Dr. Sakamoto and Dr. Gamzina, two extremely accomplished and deserving award winners, who represent the best our field has to offer.

Last year, the Committee's main areas of focus were the successfully concluded IVEC 2022, the upcoming IVEC 2023, a special issue of the IEEE Transactions on Electron Devices, and an updated technical Committee

supporting EDS journals, the Committee works to promote and foster emerging technologies, new applications, and cutting-edge research in the broad field of vacuum electronics. With the Committee members from the academia, industry, and government labs in Asia, Europe, and North America, the VETC seeks to represent and advocate for the worldwide vacuum electronics community.



Monica Blank, Chair of VETC, standing next to a 170 GHz, 1 MW power level gyrotron oscillator

website. IVEC 2022, the first hybrid in-person and online meeting in the IVEC series, was held in Monterey, CA, in April under the guidance of Dr. Jack Tucek of Northrop Grumman Corporation, the General Chair, and Technical Program Chair Dr. Max Mankin of Modern Electron Corporation. The meeting was comprised of 257 invited and contributed papers, 6 plenary and award talks, and a very well-received mini course with lectures on the basics of TWT amplifiers, additive manufacturing for vacuum electronics, thermionic converters, as well as ultrafast and ultra-small scale electron emission. Despite the inher-

The dynamic, challenging, multidisciplinary field of vacuum electronics represented by the Committee continues to advance, evolve, and grow. Scientists and engineers working in the field of vacuum electronics seek to develop and exploit the most up-to-date technology, design tools, and design techniques to continuously advance the state-of-the-art. As applications require vacuum electronic devices with progressively

ent challenges of a hybrid meeting, the 23rd IVEC, along with the mini course, was a huge success, with higher than typical attendance and outstanding technical content.

Prof. Yubin Gong of UESTC, the general chair of IVEC 2023, and his co-chairs, Prof. Yirong Wu of AIR-CAS, Prof. Detian Li of LIP-CAST, and Prof. Jinjun Feng from BVERI, are well ahead in the planning process for next year's IVEC. The hybrid conference will take place from 25–28 April 2023, with the in-person component held in Chengdu, China. Details about the conference can be found at <https://ivec2023.org>. Please visit the conference website for the latest information about this exciting upcoming meeting. We hope to see all of you in Chengdu or online for IVEC 2023.

The VETC has also been focused on the upcoming Special Issue in the *IEEE Transactions on Electron Devices*, entitled "From Mega to Nano: Beyond One Century of Vacuum Electronics." The submission deadline for the Special Issue is October 31, 2022 and publication is planned for June 2023. All are invited to submit manuscripts to this timely and relevant Special Issue.

Details about the Special Issue of TED, the 2023 IVEC, the John R. Pierce and VEYS awards, and much more can be found at the newly updated Committee website, <https://vacuumelectronics.org>. We invite everyone to visit the website for all the latest news and information about the vibrant and exciting vacuum electronics community.

*Monica Blank
Chair of EDS Vacuum Electronics
Technical Committee*