

IVEC 2021

22nd International Vacuum Electronics Conference

27-30 April 2021
Virtual Event

CALL FOR PAPERS

www.ivec2021.org

Dear Colleagues,

The Organizing Committee is pleased to announce the twenty-second International Vacuum Electronics Conference, IVEC 2021, organized and sponsored by the European Space Agency (ESA) with the technical co-sponsorship of the IEEE Electron Devices Society (EDS). The conference will be held virtually on 27 to 30 April 2021.

IVEC was originally created in 2000 by merging the US Power Tubes conferences and the European Space Agency TWTA Workshops, and has now expanded to a fully international conference. In view of current events, the 2021 edition of IVEC will be held on a virtual platform. This ensures that all interested persons will be able to participate, regardless of their individual travel situation. You can learn more about IVEC by visiting VacuumElectronics.org, the IEEE EDS Vacuum Electronics Technical Committee website.

IVEC 2021 aims at being an international forum of information and technical discussion between the various players in the field of vacuum electronics: designers, researchers, young and experienced engineers, scientists, device users, manufacturers, operators, government/institutions, academics and of course, our valuable students.

We invite you to submit papers with the results of your latest work and experiences in the field of vacuum electronics. Submissions from all groups are highly encouraged and appreciated. IVEC 2021 will provide a unique place for the exchange of scientific and technical information and will foster collaboration and cooperation in the vacuum electronics domain both at European and worldwide level. A special highlight of IVEC 2021 will be the introduction of a new topic, focused on nano-vacuum electronics. IVEC 2021 is the ideal forum to present and discuss the promising research from this field with the wider vacuum electronics community.

Even in the absence of the traditional social event, the John R. Pierce Award for Excellence in Vacuum Electronics, the Vacuum Electronics Young Scientist Award and the Best Student Paper Award will be presented.

More details about the modalities of the virtual conference system will be posted on the IVEC 2021 website in the months to come.

We look forward to welcoming you to IVEC 2021!

Sincerely,

The IVEC 2021 Organizing Committee

ORGANIZING COMMITTEE

Natanael Ayllon - *European Space Agency (ESA)*
Roberto Dionisio - *European Space Agency (ESA)*
Felix Mentgen - *European Space Agency (ESA)*
John Jelonnek - *Karlsruhe Institute of Technology (KIT), TPC Chair*
Philippe Thouvenin - *Thales Electron Devices, TPC Co-Chair*

TECHNICAL PROGRAMME COMMITTEE

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Siegfried Voigt	<i>DLR</i>
Irina Zotova	<i>IAP RAS</i>

EDS TECHNICAL COMMITTEE

Please find the EDS Technical Committee members at:
<https://vacuumelectronics.org/committee.html>

CALENDAR OF EVENTS

Abstract submission deadline	21 December 2020
Notification of acceptance	10 February 2021
Preliminary programme	17 February 2021
Final IEEE compliant paper submission deadline	10 March 2021
Author registration deadline	19 March 2021
Final programme	19 March 2021
Early registration deadline	26 March 2021

TOPICS

1. Vacuum Electron Devices

- Traveling-wave devices (microwave and mmWave TWTs)
- Backward-wave devices (oscillators and amplifiers)
- Transit-time devices (klystrons, MBKs, EIOs/EIKs)
- Inductive output devices (IOTs)
- Crossed-field devices (e.g. magnetrons, oscillators and amplifiers)
- Fast-wave devices (e.g. gyrotrons, oscillators and amplifiers)
- Free electron lasers and masers, undulators
- High-power microwave / RF directed energy devices
- Triodes, tetrodes and pentodes
- Plasma filled amplifiers and oscillators
- Novel spatially distributed electron beam devices
- Novel mm-Wave and Terahertz amplifiers and oscillators
- Plasma devices and thrusters
- Power switches
- Pulse compression devices

2. Emitter/Cathode Technologies and Emission Physics

- Thermionic emitters (e.g. directly heated emitters, dispenser cathodes, scandate emitters)
- Non-thermionic emitters (e.g. photocathodes, secondary emitters)
- Field emitters/arrays (e.g. SiC nanowires)
- Novel emitter materials and technologies (e.g. graphene)
- Novel cathode design, fabrication and characterization
- Accelerator emission physics (breakdown, halo, emittance)

3. Key Components, Tools, Technologies and new trends

- Key components (e.g. guns, couplers, severs, circuits, vacuum windows, collectors)
- Materials (e.g. dielectric and magnetic materials, coatings)
- Metamaterial structures and designs
- Analysis and computer modelling
- Simulation/design tools (PIC, multi-physics)
- RF breakdown
- Linearity, intermodulation and noise
- Thermal power management and control
- Components/devices miniaturization
- Advanced manufacturing technologies (e.g. additive manufacturing, laser ablation)
- Measurements techniques and diagnostics
- Sensors and detectors

4. Subsystems

- Microwave and mm-Wave power modules
- Electronic power conditioners, modulators, and supplies
- Vacuum components and systems
- Linearizers
- Amplifier and antenna interfaces
- Device and system integration
- System performance and reliability

5. Systems and Applications

- Wireless communication (e.g. future broadband technologies, THz wireless communication)
- Electric propulsion
- Applications in medicine and industry
- Particle accelerators
- Materials processing and lithography
- Nuclear fusion
- Radar technologies and systems (e.g. space observation, long range radar)
- Electronic countermeasures
- High-power microwave systems
- X-Ray imaging
- Ultra-fast electron microscopy

6. Nano vacuum electronics

- Emerging material and structure for cathode
- Numerical simulation and modeling
- Negative workfunction cathode
- In-depth reliability study and aging mechanism
- Circuit primitive and applications
- Compact model

ABSTRACT SUBMISSION

Authors are invited to submit an initial **2-page abstract** of the work to be reported including as many details as possible. The inclusion of figures, tables and especially numerical data is strongly recommended. In addition to the standard 2-page abstract, authors will be requested to submit a 150-word (or less) summary of their abstract which will be printed in the programme booklet which will be distributed at the conference.

The deadline for the Initial abstract submission is **21 December 2020**. Abstracts must be submitted as instructed at www.ivec2021.org.

Authors will be notified by **10 February 2021** and accepted abstracts presented at the conference will be published by IEEE. Accepted papers for oral and poster presentation will be published on electronic media and distributed during the conference.

For accepted papers, Final Paper Submission guidelines will be provided in your paper acceptance notification and will also provide details to aid authors in making their abstracts IEEE Xplore compliant. However, only the accepted papers that are presented (oral and/or poster) at the conference by one of the abstract authors will also be published by IEEE via IEEE Xplore.

Authors of accepted papers will be required to submit their final papers, in IEEE compliant format by **10 March 2021**.

ORAL PRESENTATIONS

Each paper selected for oral presentation will be allotted a total of 20 minutes, including 15 minutes for presentation and 5 minutes for questions and discussion. To maintain the session schedule, authors are asked to ensure that their presentations conform to these time constraints.

AWARDS

Nominations are solicited for the 2021 John R. Pierce Award for Excellence in Vacuum Electronics. Any member of the vacuum electronics community may submit a nomination as described at the [John R. Pierce Award](#) page on the Vacuum Electronics.

The Vacuum Electronics Young Scientist Award is aimed at recognizing outstanding contributions from early career researchers and young professionals in the field of vacuum electronics. This award recognizes technical achievements, leadership in service, education, innovation and entrepreneurship. Any member of the vacuum electronics community may submit a nomination as described at the [Vacuum Electronics Young Scientist Award](#) page on the Vacuum Electronics website.

IVEC 2021 will select the most outstanding, student-authored and presented paper for the honour of "Best Student Paper Award." Criteria for eligible papers include those with a student as the principal author and presenter.

ADDITIONAL INFORMATION

Further information, including instructions for the submission of abstracts and information for exhibitors is available on the IVEC website: www.ivec2021.org.

CONTACT

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