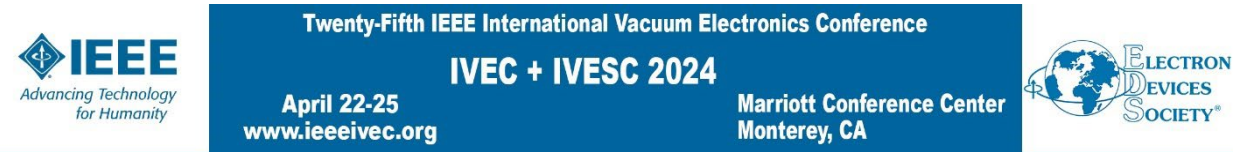

Twenty-Fifth IEEE International Vacuum Electronics Conference

PROGRAM

April 22-25, 2024, Monterey Marriott, Monterey, California
Sponsored by the IEEE Electron Devices Society
www.ieeeivec.org

WELCOME

On behalf of the IVEC and the IVESC 2024 Conference Committees, I would like to welcome you to the 25th IEEE International Vacuum Electronics Conference, held jointly with the Fifteenth International Vacuum Electron Sources Conference and the IEEE Electron Devices Society (EDS) Technical Committee on Vacuum Electronics. Our 2024 conference will be an in-person event under the sponsorship of the IEEE Electron Devices Society (EDS).

The IVEC meeting has been ongoing consistently for over 20 years now! IVEC and IVESC continue their legacy of convening thriving and lively international scientific conference discussions focused on vacuum electronics research and innovation. These meetings have been held at locations across the world, and for the last several years, at least partially in cyberspace. This year, IVEC is fully in person.

This conference has been arranged to facilitate the presentation and discussion of information useful to manufacturers, systems application engineers, academics, and students. Traditionally, IVEC attracts a diverse group of attendees. The technical presentation and poster sessions, exhibitor showcases, and social events will provide unique opportunities to renew old or establish new contacts and friendships with colleagues, customers and end users, and students.

As in the past, we will open this year's conference with mini-course lectures on Monday, April 22. We are offering 8 mini-course lectures this year: "Emission Physics: Theory and Simulation" by Dr. Kevin Jensen, "Basics of TWT Amplifiers" by Dr. Frédéric André, "Modeling of RF Vacuum Devices" by Dr. Simon Cooke, "Ultrafast Electron Emission Physics and Space Charge Waves" by Professor Peng Zhang, "Fast Wave Devices" by Dr. John Jelonnek, "Additive Manufacturing for Vacuum Electronics" by Professor Tim Horn, "Photocathode Materials Science: Methods and Goals" by Dr John Smedley, and "Electron Gun Design" by Dr. John Petillo. Continuing education credits from IEEE can be obtained by attendance at these courses.

Our core conference is a three-day event, Tuesday, April 23, through Thursday, April 25. Tuesday morning, our plenary lectures will be "Application of Vacuum Electron Device Technologies to Base Defense Challenges" by Dr. Brad Hoff and Dr. John Luginsland, and "Merging Electron Microscopy with Advanced Photonics" by Dr. Armin Feist. After the Tuesday plenary session, we will present the 2024 John R. Pierce Award for Excellence in Vacuum Electronics.

On Wednesday, the second plenary session will be held with "High Power Microwave Systems for First Generation Fusion Power Plants" by Dr. Mark Henderson, and "Electrons in a Diode: Some New Perspectives on the Child-Langmuir Law and Other Foundational Theories" by Prof. YY Lau. After Wednesday's plenary session, we will announce the winners of the 2024 Best Student Paper Award and the Vacuum Electronics Young Scientist Award.

Our conference includes three days of outstanding oral and poster technical presentations, with sessions dedicated to TWTs, cathodes, components, klystrons, electron guns, power supplies, microfabrication, gyrotrons and magnetrons, modeling, and much more.

Please be sure to visit our exhibitors, who will be on hand all three days of the event.

Also make sure you don't miss our social events, which are open and free to all registered attendees. On Monday night, we're holding an opening wine and cheese reception in the San Carlos Foyer from 5 to 7 pm. This is a great opportunity to meet up with colleagues old and new before the technical program begins the next day. And on Wednesday evening, April 24, from 6 to 8 pm, come unwind with us in San Carlos Ballrooms 2-4. We'll have drinks, plentiful hors d'oeuvres, live jazz music, and great company!

As usual, the conference web site (ieeeivec.org) is your best source of information about IVEC 2024 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 Committee members for their help and support, especially Rich Kowalczyk, the Technical Program Chair, for doing a lot of heavy lifting in the conference organization. Rich, together with all the staff at Palisades Convention Management, built the meeting you are about to experience. Thank you also to the IVESC committee, chaired by Kevin Jensen, for cooperating so closely with us on this joint conference. We are excited to welcome these two communities together. I would also like to thank Monica Blank, the EDS Technical Committee Chair for helping to facilitate numerous issues over the past year and coordinate extensively with the EDS committee and IVEC. Our past conference chairs Jack Tucek and Jags Sirigiri laid solid foundations for us to build upon, and continue to provide support and guidance beyond their tenure.

I deeply thank our corporate financial contributors for their support. Please see our showcase for our generous corporate sponsors and exhibitors.

Finally, I thank you, our presenters and exhibitors, for your participation in making this year's conference a lively exchange of ideas and opportunities for our community.

Max Mankin
General Chair
IVEC + IVESC 2024

GENERAL INFORMATION

Registration

The registration fee includes admission to all technical sessions, entrance to the Monday Night Wine and Cheese Reception and the Wednesday Evening Social Event at the Monterey Marriott, all refreshment breaks, and digital access to the conference digest.

On-site registration takes place in the San Carlos Ballroom Foyer of the Monterey Marriott Hotel during the hours listed below.

Monday, April 22	8:30 am – 4:30 pm
Tuesday, April 23	7:00 am – 5:30 pm
Wednesday, April 24	7:30 am – 5:30 pm
Thursday, April 25	7:45 am – 5:30 pm

Wine and Cheese Welcome Reception

All registered attendees are invited to attend the conference welcome reception on Monday, April 22, with wine and cheese from 5:00 to 7:00 pm in the San Carlos Foyer.

Wednesday Evening Social Event

All conference attendees are invited to attend a social event to be held on Wednesday evening, April 24, from 6:00 to 8:00 pm in San Carlos II-IV. Enjoy food, drink, and live music in a relaxing setting while catching up with your fellow conference attendees.

Awards

2024 John R. Pierce Award for Excellence in Vacuum Electronics

The John R. Pierce Award for Excellence in Vacuum Electronics was established in 2002 to recognize outstanding contributions to the field. Any person or group of persons working in the field of vacuum electronics is eligible for this award, which will be presented each year during the IVEC conference. Anyone in the field may nominate a colleague. Selection of the winner will be made by a vote of the members of the Technical Committee. Members of the Technical Committee who are nominees may not vote. Only living persons are eligible for the award.

Best Student Paper Award

IVEC 2024 will select the most outstanding student-authored and presented paper for the honor of “Best Student Paper Award.” Eligible papers are those with a student as the principal author and presenter. Students are considered as individuals pursuing a baccalaureate or graduate degree at the time of the conference or during the past year when the work was completed,

Vacuum Electronics Young Scientist Award

The Vacuum Electronics Young Scientist Award is aimed to recognize 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. The winner will be announced at IVEC 2024

Conference Contacts
Anyone requiring additional information should contact the Conference Coordinators, Ronnie Stephenson (rstephenson@pcm411.com), Bill Klein (wklein@pcm411.com), or Jenny Donelan (jdonelan@pcm411.com).

IVEC 2024 Web Site
For additional information on IVEC 2024, individuals are encouraged to visit our web site at www.ieeeivec.org.

Mobile App
For a complete schedule, technical presentation abstracts, and more, download the IVEC 2024 mobile app, powered by Jujama, and search on IVEC 2024.

IVEC + IVESC 2024 would like to express our sincere gratitude to our supporting organizations.

Thank you to our 2024 Sponsors

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MONDAY, APRIL 22

2024 IVEC Mini-Courses

Mini-courses run in three tracks from 10:00 am to 4:30 pm.

Registration includes breakfast, box lunch, and afternoon snack.

Continuing Education Credits
Earn free continuing education credits by attending the IVEC 2024 mini-courses! The IEEE Educational Activities Credentialing Program has approved all eight courses for 1.5 continuing education units (CEUs) each. All you have to do is register, attend, and complete a short evaluation form, and your certificate will be emailed to the address you provide.

Room	**San Diego**		**Los Angeles**		**San Carlos IV**	
Time	**Presenter**	**Topic**	**Presenter**	**Topic**	**Presenter**	**Topic**
10:00 – 11:30	Dr. Kevin Jensen	Emission Physics: Theory and Simulation	Dr. Frédéric André	Basics of TWT Amplifiers	Dr. Simon Cooke	Modeling of RF Vacuum Devices
1:00 – 2:30	Prof. Peng Zhang	Ultrafast Electron Emission Physics and Space Charge Waves	Dr. John Jelonnek	Fast Wave Devices	Prof. Tim Horn	Additive Manufacturing for Vacuum Electronics
3:00 – 4:30	Dr. John Smedley	Photocathode Materials Science – Methods and Goals	Dr. John Petillo	Electron Gun Design		

5:00 – 7:00 pm Monday Evening Wine and Cheese reception for all registered attendees in the San Carlos Foyer.

TUESDAY, APRIL 23

PLENARY SESSION
San Carlos III-IV

8:00 - 8:10 AM **Welcome and Introduction to IVEC + IVESC 2024**
25th IEEE International Vacuum Electronics Conference
Max Mankin, IVEC 2024 General Chair

8:10 - 8:55 AM **Plenary Lecture I**
Dr. Brad Hoff, Air Force Research Laboratory, and Dr. John Luginsland,
Air Force Research Laboratory MidAtlantic Regional Network

"Application of Vacuum Electron Device Technologies to Base Defense Challenges"

8:55 - 9:40 AM **Plenary Lecture II**
Dr. Armin Feist
Max Planck Institute for Multidisciplinary Sciences & University of Göttingen
"Merging Electron Microscopy with Advanced Photonics"

9:40 - 10:15 AM **Presentation of the John R. Pierce Award for Excellence in Vacuum Electronics and Lecture**

10:15 - 10:40 AM **BREAK**

TUESDAY, APRIL 23, TECHNICAL SESSIONS

TWTs I

Tuesday, April 23 / 10:40 AM - 12:20 PM / San Carlos II

Chair:
Aaron Jensen, Leidos, Inc.

1.1 - Development of Extended Q-band 200W Helix TWT with Two Stage Collector

- *Sosuke Higashibata, Naofumi Kosugi, Takatsugu Munehiro, Tetsuo Machida, Yoshinori Mori, Kenji Nakajima*
  NEC Network and Sensor Systems, Ltd.

- *Travis Stewart*
  NEC Corporation of America

1.2 - Extended V-band Helix TWT for Future High Throughput Satellite Uplink Applications

- *Naofumi Kosugi, Sosuke Higashibata, Tetsuo Machida, Takatsugu Munehiro, Yoshinori Mori*
  NEC Network and Sensor Systems, Ltd.

- *Travis Stewart*
  NEC Corporation of America

1.3 - Wideband Glide-Symmetric Double Corrugated Gap Waveguide Traveling-Wave Tube for Millimeter-waves

- *Miguel Angel Saavedra-Melo, Robert Gabriel Marosi, Filippo Capolino*
  University of California, Irvine

- *Nelson Castro, Eva Rajo-Iglesias*
  University Carlos III of Madrid

1.4 - Microstrip Meander-Line Slow Wave Structure with Ferrite Circulator for a Q-band Traveling-wave Tube

- *Zhaoxiang Tan, Zhaoxiang Tan, Lingna Yue, Lingna Yue, Pengcheng Yin, Pengcheng Yin, Zhengrong Deng, Zhengrong Deng, Jin Xu, Jin Xu, Hairong Yin, Hairong Yin, Jinchi Cai, Jinchi Cai, Guoqin Zhao, Wenxiang Wang, Yanyu Wei*
  University of Electronic Science and Technology of China

1.5 - Comparison between Halbach Array and Periodic Permanent Magnet Circuit Configuration

- *Giuseppe Paterna, Giorgia Comparato, Giuseppe Lipari, Eleonora Traina, Antonino Muratore, Alessandro Busacca, Patrizia Livreri, Salvatore Stivala*
  University of Study of Palermo

1.6 - Devil's Horn Electric Field to Solve Abnormal Gain of Sheet Beam Traveling Wave Tubes

- *Yixin Wan, Jianxun Wang, Xinjie Li, Zihao Dai, Wei Jiang, Yong Luo*
  University of Electronic Science and Technology of China

Session 2:
Magnetrons/Gyrotrons

Tuesday, April 23 / 10:40 AM - 12:20 PM / San Carlos III

Chair:
Nicholas Jordan, University of Michigan

2.1 - Simulation and Experiments on the Coaxial, All-Cavity Extraction, Recirculating Planar Magnetron

- *Emma N. Guerin, Adam N. Brusstar, Christopher J. Swenson, Ryan A. Revolinsky, Yue Ying Lau, Nicholas M. Jordan, Ronald M. Gilgenbach*
  University of Michigan

2.2 - Operation of Non-Incandescent Cathode in X-band Magnetron

- *Kostyantyn Ilyenko, Vagan N. Gurdgian*
  IRE NAS of Ukraine

- *Valentyn P. Dzhyuba*
  S-R E Office "Spektr"

- *Tetyana Yatsenko*
  General Mills

2.3 - Preliminary Study on Frequency-Locking Bandwidth of a Novel Coaxial Line Injection Structure Based on S-Band Magnetron

- *Wenlong Li, Hailong Li, Licun Wang, Yu Qin, Liangjie Bi, Wanshan Hou, Haixia Liu, Yong Yin, Bin Wang, Lin Meng*
  University of Electronic Science and Technology of China

- *Shibin Xu, Yun Zhang*
  Guangdong Witol Vacuum Electronic Manufacturing Co., Ltd.

- *Xiangwei Tang*
  Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd.

2.4 - Design and Fabrication of a Dual Frequency 70/105 GHz, 600 kW, CW Gyrotron

- *Stephen Cauffman, Monica Blank, Philipp Borchard, Kevin Felch*
  Communications & Power Industries

2.5 – WITHDRAWN

2.6 - Experimental Study of High-Power Millimeter Wave Drilling Technology

- *Efeng Wang, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

- *Xinjian Niu*
  University of Electronics Science and Technology of China

- *Gang Liu*
  ENN Energy Research Institute

Session 3:
Emission Physics/Simulation/Modeling

Tuesday, April 23 / 10:40 AM - 12:20 PM / San Carlos IV

Chair:
Kevin Jensen, University of Maryland, IREAP

Co-Chair:
John Petillo, Leidos, Inc.

3.1 - Electromagnetic Analogs of Emission and Breakdown on Cathode Surfaces

- *Rebecca Seviour*
  University of Huddersfield

- *Jeanne Riga*
  Air Force Research Laboratory

- *Kevin Jensen, John Petillo*
  Leidos, Inc.

3.2 - Characterization of Nanocomposite Scandia Tungstate Electron Emitter Surface though Algorithm Assisted Statistical Analysis of Boundaries

- *Michael Cheney, Colin McElroy, Rich Kowalczyk, Diana Gamzina*
  Elve, Inc.

3.3 - Design of Electron-optical System for 1.03THz Backward Wave Oscillator

- *Boning Gao, Lingna Yue, Jin Xu, Hairong Yin, Wenxiang Wang, Jinchi Cai, Pengcheng Yin, Yanyu Wei*
  University of Electronic Science and Technology of China

- *Wenxin Liu*
  Aerospace Information Research Institute

3.4 - Effect of Self-Affine Surface Roughness on Space-Charge Limited Current

- *N. R. Sree Harsha, Allen L. Garner*
  Purdue University

3.5 - A User's Guide to Calculating Electron Emission

- *Kevin L. Jensen*
  IREAP, University of Maryland

Session 4:
High Power Microwaves

Tuesday, April 23 / 1:20 PM - 3:20 PM / San Carlos II

Chair:
Eric Nelson, Los Alamos National Laboratory

Co-Chair:
David Abe, DARPA

4.1 - Progress and Opportunities in Short-Pulse High-Power Microwave Generation for Compact Particle Accelerators - keynote

- *Xueying Lu*
  Northern Illinois University & Argonne National Laboratory

4.2 - Design of an Overmoded X-band MILO

- *Adam Brusstar, Ryan Revolinsky, Christopher Swenson, Emma Guerin, Nicholas Jordan, Ronald Gilgenbach, Yue Ying Lau*
  University of Michigan

4.3 - X-band Relativistic Traveling Wave Amplifier

- *Ahmed Elfrgani, Ethan Wade, Andrey Andreev, Edl Schamiloglu*
  University of New Mexico

4.4 - Scaling of Crossed-Field Devices for High Power

- *Michael S Worthington, John Cipolla, Hugh Shultz, Joe Musheno, Todd Hansen*
  Stellant Systems

- *Andrew Marconnet*
  GE HealthCare

- *Haynes Wood*
  Archer Labs

4.5 - Simulated and Experimental Oscillation Thresholds of the Recirculating Planar Crossed-Field Amplifier

- *Christopher Swenson, Ryan Revolinsky, Emma Guerin, Yue Ying Lau, Nicholas Jordan, Ryan McBride, Ronald Gilgenbach*
  University of Michigan

4.6 - Discussion on Mutual Coupling Phase-Locking Magnetrons

- *Yu Qin, Yong Yin, Haixia Liu, Liangjie Bi, Bin Wang, Hailong Li, Lin Meng*
  University of Electronic Science and Technology of China

4.7 - Optimizing the Inner Diameter of Reflector for High-Power Microwaves Generation in Multivircator

- *Sohail Mumtaz, Zaffar Iqbal, Eun Ha Choi*
  Kwangwoon University

Session 5:
Klystron Frontier

Tuesday, April 23 / 1:20 PM - 3:20 PM / San Carlos III

Chair:
Kevin Felch, Communications and Power Industries

5.1 - Studies on High Efficiency Ka-band Space-borne Extended Interaction Klystron - keynote

- *Ding Zhao, Chao Zhao, Xiaowan Hou, Wei Gu, Qingsheng Li, Zhaowei Qu, Shuzhong Wang*
  Aerospace Information Research Institute, Chinese Academy of Sciences

5.2 - Latest Progress on the Development of Large-Signal Klystron Simulation Code KlyC

- *Jinchi Cai, Pengcheng Yin, Zixuan Su, Xinke Zhang, Jin Xu, lingna Yue, Hairong Yin, Guoqing Zhao, Wenxiang Wang, Yanyu Wei*
  UESTC

5.3 - Development of Compact Low-Voltage Klystrons for Integrated Linear Accelerator Systems

- *Bradley Shirley, Craig Burkhart, Don Geranen, Andrew Haase, Juan Hernandez, Erik Jongewaard, Mark Kemp, Emilio Nanni, Sami Tantawi, Brandon Weatherford*
  SLAC National Accelerator Laboratory

5.4 - High Efficiency Design of a 100-kW L-Band IOT Amplifier for Accelerator Applications

- *Mohamed Othman, Carlos Munoz Pequeno, Ann Sy, Brandon Weatherford*
  SLAC National Accelerator Laboratory

- *Michael Boyle, Holger Schult*
  Stellant Systems

5.5 - Comprehensive Design and Whole-Cavity Simulation of a Multiple Beam Inductive Output Tube Using a 3rd Harmonic Drive on the Grid

- *H.P. Fruend, R Lawrence Ives, Thuc Bui, M. Read, T. Haberman*
  Calabazas Creek Research, Inc.

5.6 - Benchmarking of the SLAC 75XP4, a 75 MW X-band PPM Klystron

- *Brandon Weatherford, Erik Jongewaard, Valery Dolgashev, Don Geranen, Andrew Haase, Julian Merrick, Mohamed Othman, Ann Sy*
  SLAC National Accelerator Laboratory

Session 6: Modeling I

Tuesday, April 23 / 1:20 PM - 3:20 PM / San Carlos IV

Chair:
Thuc Bui, Calabazas Creek Research, Inc.

6.1 - Effects of Magnetic Focusing on Power and Stability of VE Amplifiers

- *Vadim J. Jabotinski, Alexander N. Vlasov, Simon J. Cooke*
  U.S. Naval Research Laboratory

6.2 - From Single to Multiple Frequency Stability Analysis of VE Amplifiers Using TESLA-Z Based Framework

- *Igor A Chernyavskiy, Alexander N Vlasov*
  Naval Research Laboratory

- *Thomas M Antonsen, Jr.*
  Leidos, Inc.

6.3 - A Survey of Advanced Features of the MICHELLE Beam Optics Simulation Code

- *John Petillo, Serguei Ovtchinnikov, Aaron Jensen, David Chernin, Eric Nelson, Kevin Jensen*
  Leidos, Inc.

- *Thomas Antonsen*
  University of Maryland

- *Simon Cooke, Alexander Vlasov*
  US Naval Research Laboratory

6.4 - An Electron Beam Manipulated by Laguerre-Gaussian Modes

- *Yung-Chiang Lan*
  Department of Photonics, National Cheng Kung University

- *Ming-Chieh Lin*
  Multidisciplinary Computational Laboratory, Department of Electrical and Biomedical Engineering, Hanyang University

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6.5 - Mechanical-Electromagnetic Coupling Simulation of Microwave Tubes Based on Dynamic Mesh Technology

- *Junhui Yin, Longwei Deng, Xinyu Cao, Chaoyang Zhang, Li Xu, Xing Li, Bin Li*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

- *Qing He*
  Shenzhen Institute for Advanced Study, University of Electronic Science and Technology of China

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6.6 - Three-Dimensional Solution of Electromagnetic Focusing System Based on Double Scalar Potential Method

- *Zhenting Qin, Quan Hu, Yulu Hu, Xiaofang Zhu, Bin Li*
  University of Electronic Science and Technology of China

Session 7:
Space TWTs

Tuesday, April 23 / 3:40 PM - 5:40 PM / San Carlos III

Chair:
Larry Sadwick, Innosys

7.1 - 55-Watt Ka-band Linearized Quad Channel Microwave Power Module for Space Applications

- *Wyatt James Rufener, Kushan Shah, Russell H Martin, David E Lewis, William L Menninger*
  Stellant Systems Inc.

7.2 - New product Dual TWT THL12070D and THL12075D qualification

- *Victor GUIVARCH, Jean GASTAUD, Thibaut DUBOIS, Malak KOJOK*
  Thales AVS FRANCE

7.3 - Broadband L-Band TWTs for Satellite Navigation

- *Philip Birtel, Wolfgang Duerr, Klaus Zimmermann, Erdogan Cakir, Ernst Bosch*
  Thales Deutschland GmbH

7.4 - 32 GHz Traveling-Wave Tubes Development for Venus Exploration THL32070 and THL32150 Models

- *Jean Gastaud, Malak Kojok, Victor Guivarch, Frédéric André, Thibaut Dubois*
  THALES AVS FRANCE

- *Roberto Dionisio, Felix Mentgen*
  ESA/ESTEC

7.5 - Folded-Waveguide Pulsed Ka-Band TWTs for Earth Observation

- *Philip Birtel, Wolfgang Duerr, Klaus Zimmermann, Erdogan Cakir, Ernst Bosch*
  Thales Deutschland GmbH

7.6 - Advances in Linearizers for TWTAs in Space

- *Allen Katz*
  The College of New Jersey

- *Robert Gray, Roger Dorval, Christopher Tenev*
  MACOM LMS

Session 8:
Advanced Manufacturing and Emerging Technologies I

Tuesday, April 23 / 3:40 PM - 5:40 PM / San Carlos IV

Chair:
John Verboncoeur, Michigan State University

8.1 - Electromagnetic Sensing and Communication in a Plasma Environment

- *Bahram Jalali, Ali Ayazi*
  UCLA ECE Department

- *Young-Kai Chen*
  Coherent Corp.

8.2 - Multipactor Mitigation Using Anharmonic, Quasi-Aperiodic RF Field Via Two-Tone Injection

- *Brandon E.J. Cortez, Halil Topözlü, Joseph P. Berg, John H. Booske, Nader Behdad*
  University of Wisconsin - Madison

- *Mirhamed Mirmozafari*
  Maxwave LLC

8.3 - Thermal Stability of Molybdenum and Molybdenum-Rhenium Alloy Processed by Laser Spot Welding

- *Qianqian Chen, Pucheng Wang, Congling Dai, Wei Jiang, Jianxun Wang, Yong Luo*
  University of Electronic Science and Technology of China

- *Hongwei Guo*
  Sichuan Jienuochuang Technology Co., Ltd.

- *Peng He*
  Harbin Institute of Technology

8.4 - A Planar GaN Nano Air Channel Diode with High Current and Radiation-Resistance

- *Yu Zhang, Yazhou Wei, Yuhao Pan, Feiliang Chen, Mo Li, Jian Zhang*
  University of Electronic Science and Technology of China

8.5 - Performance Analysis of Molybdenum and Oxygen-free Copper Vacuum Brazed Joints

- *Cong Wang, Bofeng Wang, Hongqi Zhang, Jinyu Zhao, Ning Tian, Jiayu Xie, Chongjie Chang*
  the Aerospace Information Research Institute

WEDNESDAY, APRIL 24

PLENARY SESSION
Wednesday, April 24, San Carlos III-IV

8:00 - 8:10 AM	**Welcome and Introduction to IVEC + IVESC 2024** **25th IEEE International Vacuum Electronics Conference** Max Mankin, IVEC 2024 General Chair
8:10 - 8:55 AM	**Plenary Lecture I** Dr. Mark Henderson United Kingdom Atomic Energy Auth ***"High Power Microwave Systems for First-Generation Fusion Powe Plants"***
8:55 - 9:40 AM	**Plenary Lecture II** Professor Y.Y. Lau University of Michigan ***"Electrons in a Diode: Some New Perspectives on the Child-Langmuir Law and Other Foundational Theories"***
9:40 – 9:50 AM	**Best Student Paper Award**
9:50 – 10:15 AM	**Vacuum Electronics Young Scientist Award and Lecture**
10:15 - 10:40 AM	**BREAK**

WEDNESDAY APRIL 24 TECHNICAL PRESENTATIONS
(See end of today's listings for poster sessions.)

Session 9: TWTs II

Wednesday, April 24 / 10:40 AM - 12:20 PM / San Carlos II

Chair:
Stephen Langellotti, University of Michigan

9.1 - 100-Watt K/Ka-Wideband Microwave-Power Module for Radar Applications

- *Wyatt James Rufener, James Taylor, Kevin Berg, Russell Martin*
  Stellant Systems

9.2 - Enhanced Peak Power Saturation for Impulse Amplification in a Broadband Traveling Wave Tube

- *Halil Topözlü, Nader Behdad, John Booske*
  University of Wisconsin Madison

9.3 - Achieving Ultra-Wideband Slow-Wave Structure for High-Power Sheet Beam Traveling Wave Tube

- *Zihao Dai, Jianxun Wang, Yixin Wan, Xinjie Li*
  University of Electronic Science and Technology of China

9.4 - Design and thermal analysis of a coupled-by-rods interaction structure for traveling-wave tubes

- *Giuseppe Lipari, Antonino Muratore, Giuseppe Paterna, Giorgia Comparato, Alessandro Busacca, Patrizia Livreri, Salvatore Stivala*
  University of Palermo

- *Eleonora Traina*
  University of Trento

9.5 - Design of a novel conical cut frequency-taper for a K-band Ring Bar Slow Wave Structure

- *Giorgia Comparato, Giuseppe Paterna, Giuseppe Lipari, Antonino Muratore, Alessandro Busacca, Salvatore Stivala, Patrizia Livreri*
  University of Palermo

- *Eleonora Traina*
  University of Trento

Session 10:
Klystron Manufacturing

Wednesday, April 24 / 10:40 AM - 12:20 PM / San Carlos III

Chair:
Steve Lenci, CPI MPPD

10.1 - Research on a 2-kW Broadband W-band Extended Interaction Klystron - keynote

- *Li Qing Sheng, Wang Shu Zhong, Zhao Ding, Qu Zhao Wei, Ding Yao Gen, Zhang Zhen Xia, Hu Xu Hua, Yin Sheng Yi, Ren Feng, Bao Yi Pin, Li Long*
  Aerospace Information Research Institute, Chinese Academy of Sciences

10.2 - X-band 20 and 25 MW Klystrons for High Pulse Repetition Rate Operations

- *Toshiro Anno*
  Canon Electron Tubes & Devices co., Ltd.

10.3 - Design and Simulation of Input Cavity of W-band Extended Interaction Klystron

- *WanLi Shi, Zheng Tan, GuoXin Ren, ShiLong Zhu, HaiYing Yuan, LuanFeng Gao, XiaoFang Zhu, Bin Li, YuLu Hu*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

10.4 - A Method to Suppress High-Order-Mode Oscillations in a Multibeam Klystron and the Corresponding Choke Structure

- *Zixuan Su, Jinchi Cai, Xinke Zhang, Pengcheng Yin, Jin Xu, Lingna Yue, Hairong Yin, Yong Xu, Guoqing Zhao, Wenxiang Wang, Yanyu Wei*
  University of Electronic Science and Technology of China

Session 11:
Field Emission

Wednesday, April 24 / 10:40 AM - 12:20 PM / San Carlos IV

Chair:
John Smedley, Stanford

Co-Chair:
Wayne Ohlinger, Self-employed

11.1 - Graphene-Film Electron Field Emitter for THz VEDs

- *Matlabjon Sattorov*
  Seoul-Teracom, Inc.
- *Dongpyo Hong*
  Advanced Institutes of Convergence Technology
- *Varun Dixit, Sunhong Min, Gun-Sik Park*
  Seoul National University
- *Young Joon Yoo*
  Advanced Institutes of Convergence Technology
- *Sang Yoon Park*
  Kyonggi University

11.2 - Field Emission Radiation Source and X-Ray Tube for Analytical Equipment

- *Evgeny P. Sheshin, Duc M. Phung, Ilya A. Savichev*
  Moscow Institute of Physics and Technology

- *Nikolay V. Egorov, Konstantin A. Nikiforov, Vyacheslav V. Vekovtsev, Andrei A. Jordan*
  Saint Petersburg State University

11.3 - Field Emitter Failure Mechanisms and Harsh Environment Robustness Studies

- *Rushmita Bhattacharjee , Cody Oberbeck, Jake West, Cesar Weasley Segura Del Rio, Ranajoy Bhattacharya, Jim Browning*
  Boise State University

- *Winston Chern, Nedeljko Karaulac, Girish Rughoobur , Marco Turchetti , Matthew Yeung, Phillip D. Keathley , Karl. K. Berggren, Akintunde I. Akinwande*
  Massachusetts Institute of Technology

- *Alberto Nardi*
  IBM Research Europe

- *Wesley Britton, Luca Dal Negro*
  Boston University

11.4 - Carbon-Containing Cathodes: Field Emission and Structural Characteristics, Stability and Efficiency of Application

- *Evgeny P. Sheshin, Viktor B. Kireev, Fung Duc Man*
  Moscow Institute of Physics and Technology

- *Nataliya D. Kundikova*
  South Ural State University, Institute of Electrophysics, Ural RAS

- *Kirill N Belov, Alexey S. Berdnikov*
  South Ural State University

11.5 - Experimental Measurements of Magnetically-Insulated Coaxial Diode's Space-Charge-Limited Electron-Beam Current, a.k.a. Fedosov Current, on the SINUS-6 High-Current Electron-Beam Accelerator at the University of New Mexico

- *Andrey D Andreev, Edwin F Guzman, Christopher Rodriguez, Edl Schamiloglu*
  University of New Mexico

11.6 - Field Emission Performance of Carbon Nanotube Emitters Fabricated with Varying Geometries

- *Connor Gunter, Scott D. Kovaleski, Junyoung Shin*
  University of Missouri Department of Electrical Engineering and Computer Science

- *Elizabeth Bellott, Matthew Maschmann*
  University of Missouri Department of Mechanical and Aerospace Engineering

- *Brandon Weatherford*
  SLAC National Accelerator Laboratory

Session 12: Microfabrication/THz

Wednesday, April 24 / 1:20 PM - 3:20 PM / San Carlos III

Chair:
Rehan Kapadia, University of Southern California

Co-Chair:
Wyatt Rufener, Stellant Systems

12.1 - Dispersion Model of a Rectangular, Sinusoidally Corrugated, 220 GHz Backward-Wave Oscillator (BWO)

- *Andrey D Andreev, Alexander Glick, Edl Schamiloglu*
  University of New Mexico

- *Natalie B Kostinski, Brian R Poole*
  Lawrence Livermore National Laboratory

12.2 - Design of Slow-Wave Structures Based on Modulated Spoof Surface Plasmon Polaritons

- *Shilong Zhu, Yufan Yang, Luanfeng Gao, Haiying Yuan, Zheng Tan, Wanli Shi, Xiaofang Zhu, Quan Hu, Bin Li, Yulu Hu*
  University of Electronic Science and Technology of China

12.3 - Analysis of THz Smith-Purcell Radiation in Single- and Two-Layer Gratings Utilizing Hot-Tube Dispersion Relation

- *Md Arifuzzaman Faisal, Peng Zhang*
  Michigan State University

12.4 - Simulated and Measured Scattering Parameters of Self-Winding Helices at Millimeter Frequencies

- *Francesca Cavallo*
  University of New Mexico

12.5 - Reconfiguration and Millimeter-Wave Transmission Properties of Heat-Treated Self-Assembled Helices

- *Francesca Cavallo*
  Center for High Technology Materials

12.6 - Operational Characteristics of the 330 GHz Continuous-Wave Clinotron with Modified Cavity

- *Sergey Vlasenko , Yurii Kovshov, Aleksandr Likhachev, Eduard Khutoryan, Sergey Steshenko , Sergey Kishko, Alexei Kuleshov*
  O. Ya. Usikov Institute for Radio Physics and Electronics of NASU

- *Yuri Arkusha*
  V. N. Karazin Kharkiv National University

- *Sergiy Ponomarenko*
  Max Planck Institute for Plasma Physics

Session 13:
Modeling II

Wednesday, April 24 / 1:20 PM - 3:20 PM / San Carlos IV

Chair:
Igor Chernyavskiy, NRL

13.1 - Adjoint Method and Its Application to Helix TWT Design

- *Alexander N Vlasov, Igor A. Chernyavskiy*
  US Naval Research Laboratory

- *David Chernin, Thomas M Antonsen Jr.*
  Leidos Inc.

13.2 - Development and Application of Adjoint Methods in the MICHELLE Beam Optics Code

- *Thomas Antonsen, Heather Shannon, Anthony Boboc, Brian Beaudoin*
  University of Maryland

- *Philipp Borchard*
  Dymenso LLC

- *John Petillo, Serguei Ovtchinnikov, Aaron Jensen*
  Leidos, Inc.

13.3 - Recent Advances in the Accelerator Electromagnetic Code ACE3P

- *Mohamed Othman Othman, Lixin Ge, Zenghai Li, David Bizzozero, Liling Xiao, Cho-kuen Ng*
  SLAC National Accelerator Laboratory

13.4 - Electromagnetic PIC Simulation of High Power Microwave Sources Using Neptune

- *Simon Cooke, Alexander Vlasov, Vadim Jabotinski*
  US Naval Research Laboratory

- *John Petillo, Serguei Ovtchinnikov*
  Leidos, Inc.

13.5 - The Study of Electromagnetic Finite Element Method and Bayesian Deep Learning for SWS Analysis Based on Python Programming

- *Feng Lan, Han Lai, Zugen Guo, Xiao Yang, Xinyang Wang, Huarong Gong*
  University of Electronic Science and Technology of China

13.6 - Cyclotron Resonance Interaction of Electron Beam with the Mode of Topological Photonic Crystal

- *Michael Shapiro, Li Guangjiang*
  PSFC MIT

Poster Session 1: Cathodes/Materials/Electron Guns Posters

Wednesday, April 24 / 8:00 AM - 12:00 PM / San Carlos I

P1.1 - Optimization and Design of L-Band Sheet Beam Electron Gun

- *Hao Li, Jianxun Wang, Yixin Wan, Xinjie Li, Zihao Dai, Yong Luo*
  University of Electronic Science and Technology of China

P1.3 - Simulation of a Cusp Gun with a Grid for a Gyrotron Traveling-Wave Amplifier

- *Bo Li, Junqiang Gao, Fu Gao, Guoxiang Shu, Huabi Yin, Wenlong He*
  Shenzhen University

P1.4 - Design of Electron Optics System for D-band Traveling Wave Tub

- *Xiao Yang, Zu Gen Guo, Xin Yang Wang, Hua Rong Gong*
  University of Electronic Science and Technology of China

- *Shu Chen, Zi Jian Wang, Shu Guang Wang*
  Guoguang Electrical Co., Ltd.

P1.5 - Preparation and Investigation of W-Re-Os Ternary-alloy Matrix Cathodes

- *Zheng Liu, Junhao Sun, Hongmei Liu, Zichen Li, Yunfei Yang, Jinshu Wang*
  Beijing University of Technology

P1.6 - Design of a Dual Sheet Beam Electron Gun for THz Traveling Wave Tube

- *Shaochen Ma, Guoxiang Shu, Xinlun Xie, Huaxing Pan, Siyuan Liu, Mingze Li, Jiawei Tang, Wenlong He*
  State Key Laboratory of Radio Frequency Heterogeneous Integration (Shenzhen University)

P1.7 - Synthesis of Low-Hygroscopic Impregnant for Enhanced Reliability in Scandium-Containing Dispenser Cathodes

- *Hongrui Zhang, Qiang Zheng, Jianxun Wang, Yong Luo*
  University of Electronic Science and Technology of China

P1.8 - Design and Measurement of the Sheet Beam Electron Gun for 0.14 THz SDV-TWT

- *Fu Gao, Junqiang Gao, Bo Li, Guoxiang Shu, Huabi Yin, Wenlong He*
  College of Electronics and Information Engineering, Shenzhen University

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P1.9 - The Design of a Sheet Beam Electron Optical System for a K-Band Traveling Wave Tube

- *Wuyang Fan, Jin Xu, Pengcheng Yin, Jinchi Cai, Lingna Yue, Hairong Yin, Yong Xu, Wenxiang Wang, Yanyu Wei*
  University of Electronic Science and Technology of China

P1.10 - Experiment of An Electron Gun for Ku Band Continuous Wave Klystron

- *Xin Guo, Zhiqiang Zhang, Honghong Gu, Yuan Liang, Bin Shen, Haibing Ding*
  Aerospace Information Research Institute, Chinese Academy of Sciences

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P1.11 - High Current and High Stability Field Emission Carbon Nanotubes Emitters for Cold Cathode Magnetron

- *Dong ZhiJianMuCuo, Liu Jianlong, Wang Dayang, Zeng Baoqing*
  University of Electronic Science and Technology of China

P1.12 - Investigation on Asynchronized Beams Electron Optics System

- *Luanfeng Gao*
  University of Electronic Science and Technology of China

P1.13 - Design and Modelling of a Sheet Beam Electron Gun for Traveling Wave Tube (TWT)

- *Ishita Shrivastava, Navya Sahu, Naveen G. Babu, Nameesha Chauhan*
  SHIV NADAR INSTITUTION OF EMINENCE

P1.15 - Space-charge limited current for nonplanar crossed-field diodes

- *Jack Kenneth Wright, Sree Harsha Naropanth Ramamurthy, Allen Lawrence Garner*
  Purdue University

P1.16 - Design of MIG for 250GHz, 50-100W Second Harmonic Gyrotron

- *ALOK MISHRA, ANIRBAN BERA*
  CSIR-CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE, PILANI

- *M.V. KARTIKEYAN*
  INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING, KANCHEEPURAM

Poster Session 2: Fast Wave/Gyro-Oscillators/Magnetrons Posters

Wednesday, April 24 / 8:00 AM - 12:00 PM / San Carlos I

P2.1 - MW Level 280 GHz 2nd Harmonic Coaxial Gyrotron Cavity with Variable Corrugation Depth

- *Lukas Feuerstein, Vitalii I. Shcherbinin, Stefan Illy, John Jelonnek, Manfred Thumm, Chuanren Wu*
  Karlsruhe Institute of Technology (KIT)

- *Konstantinos A. Avramidis, Ioannis Chelis, Dimitrios Peponis, Ioannis Tigelis*
  National and Kapodistrian University of Athens (NKUA)

P2.2 - Capacity of an Irregular Gyrotron Cavity to Provide an Increase in Output Power

- *Aleksandr Maksimenko, Vitalii Shcherbinin*
  Karlsruhe Institute of Technology & Kharkiv Institute of Physics and Technology

- *Lukas Feuerstein, John Jelonnek, Manfred Thumm*
  Karlsruhe Institute of Technology

P2.3 - Recent Developments of the 2 MW Coaxial-Cavity Pre-Prototype Gyrotron towards Multi-Frequency Operation

- *Tobias Ruess, Joahnnes Eppli, Lukas Feuerstein, Gerd Gantenbein, Stefan Illy, Jianbo Jin, Tomasz Rzesnicki, Sebastian Stanculovic, Manfred Thumm, John Jelonnek*
  Karlsruhe Institute of Technology (KIT)

P2.6 - Mode Selectivity of Cylindrical Cavities with Irregular Corrugation

- *Sergiy Ponomarenko, Heinrich Peter Laqua, Laurent Krier, Dmitry Moseev, Johan Willem Oosterbeek, Stefan Marsen, Torsten Stange*
  Max Planck Institute for Plasma Physics

P2.7 - Improved Step-Type Coupling in a Complex Sub-THz Gyrotron Cavity

- *Dietmar Wagner*
  Max-Planck-Institute for Plasma Physics

- *Manfred Thumm*
  Karlsruhe Institute of Technology

- *Vitalii Shcherbinin*
  Kharkiv Institute of Physics and Technology

- *Jagadishwar Sirigiri*
  Bridge 12 Technologies

P2.8 - Design of a Transmission Line for a 263GHz Gyrotron Traveling-Wave Amplifier

- *Junqiang Gao, Fu Gao, Bo Li, Guoxiang Shu, Huabi Yin, Wenlong He*
  State Key Laboratory of Radio Frequency Heterogeneous Integration, Shenzhen University College of Electronics and Information

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P2.9 - Thorough Simulation of High-Power Gyrotron Cavity Interaction in the Hard Excitation Regime

- *Ioannis Gr. Pagonakis, Alexander B. Barnes*
  ETH Zurich

- *Jeremy Genoud, Jean-Philippe Hogge*
  EPFL

P2.10 - Study of Ionized Particles in a Gyrotron Using a Full Gyrotron Simulation Model

- *Lea Marti, Ioannis Gr. Pagonakis, Leif Sieben, Alexander B. Barnes*
  ETH Zürich

- *Jérémy Genoud, Jean-Philippe Hogge*
  EPFL Lausanne

P2.11 - The Effect of Velocity Spread on a Ka-band Large-orbit Gyro-TWT with Periodic Dielectric-loaded Structure

- *Jintao Yang, Efeng Wang, Zihan Lei, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

- *Qixiang Zhao*
  Guilin University of Electronic Technology

- *Chaojun Lei*
  China People's Police University

P2.12 - Concept of a Nested Cavities Gyrotron

- *Alexander Tsvetkov*
  Quaise Energy, Inc.

- *Mikhail Glyavin, Andrey Zuev, Vladimir Manuilov, Anton Sedov, Vadim Skalyga*
  Institute of Applied Physics RAS

P2.13 - Characterization of Magnetron Cavity Loading Using Conformal Finite-Difference Time-Domain Simulations

- *Kaviya Aranganadin, Ming-Chieh Lin*
  Multidisciplinary Computational Laboratory, Department of Electrical and Biomedical Engineering, Hanyang University

- *Shi-Hao Huang, Hua-Yi Hsu*
  Department of Mechanical Engineering, National Taipei University of Technology

- *Ya-Yu Nieh*
  Information & Communications Research Division, National Chung-Shan Institute of Science and Technology

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P2.14 - Design and Simulation of 76 GHz Spatially Harmonic Magnetron

- *Anshu Sharan Singh, Dragos Dancila*
  Electrical Engineering Uppsala University

P2.15 - Simulation of the Space-Charge-Limited Current and Anode Current of Thermionic Emission Magnetron

- *Licun Wang, Yong Yin, Liangjie Bi, Hailong Li, Yu Qin, Wanshan Hou, Wenlong Li, Haixia Liu, Bin Wang, Lin Meng*
  University of Electronic Science and Technology of China

- *Man Zhang, Xiangwei Tang*
  Guangdong Midea Kitchen Appliance Manufacturing Co., ltd

- *Shibin Xu*
  Guangdong Witol Vacuum Electronic Manufacture Co., ltd

P2.16 - Design and Development of Field Emission Based Magnetron for Industrial Applications Using 3-D Conformal Finite-Difference Time-Domain Particle-in-Cell Simulations

- *Kaviya Aranganadin, Ming-Chieh Lin*
  Multidisciplinary Computational Laboratory, Department of Electrical and Biomedical Engineering, Hanyang University

- *Hua-Yi Hsu*
  Department of Mechanical Engineering, National Taipei University of Technology

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P2.17 - Particle-in-Cell Simulation and Experimental Setup of a Crossed-Field Amplifier

- *Cesar Weasley Segura Del Rio, Jake West, Marcus Pearlman, Ranajoy Bhattacharya, Jim Browning*
  Boise State University

- *Winston Chern, Akintunde I. Akinwande*
  Massachusetts Institute of Technology

Poster Session 3:
High Power Microwaves Posters

Wednesday, April 24 / 1:00 PM - 5:00 PM / San Carlos I

P3.1 - Design Studies of a Three-Beam Metamaterial-Loaded Slow-Wave Structure for High-Power Microwave Generation

- *Aditya Singh Thakur, Meenakshi Rawat*
  Indian Institute of Technology Roorkee

- *Debasish Mondal*
  Indian Institute of Technology Tirupati

- *S. Yuvaraj*
  National Institute of Technology Andhra Pradesh

- *Kartikeyan Machavarm*
  Indian Institute of Information Technology, Design and Manufacturing

P3.3 - Beam Wave Interaction Studies of Harmonically Related Axially Partitioned Dual Band MILO

- *Sivavenkateswara Rao V.*
  IIIT Surat

P3.4 - Research on High-Power Microwave Synthesis and Transmission Based on Dichroic Plate in X-band

- *Biao Hu, Shige Shu, Tianming Li, Hao Li, Haiyang Wang*
  University of Electronic Science and Technology of China

- *Yuntao Liu*
  The Ninth Research Institute of China Electronics Technology Group Corporation

P3.5 - Study of Traveling Wave Waveguide Narrow Slot Array Antenna Based on High Power Capacity and High Radiation Efficiency

- *Wanshan Hou, Yong Yin, Yu Qin, Licun Wang, Pengkun Gao, Haixia Liu, Wenlong Li, Hailong Li, Liangjie Bi, Bin Wang, Lin Meng*
  University of Electronic Science and Technology of China

P3.6 - Investigation on Multi-Port Radial Extraction S-Band Relativistic Magnetron

- *Bo Zhao, Yanlin Deng, Keqiang Wang, Biao Hu, Hao Zhou, Hao Li, Haiyang Wang, Tianming Li*
  University of Electronic Science and Technology of China

P3.7 - Waveguide Slot Antenna and Antenna Array for High-power Application

- *Haixia Liu, Yu Qin, wenlong Li, yong yin, Bin Wang, hailong li, Lin Meng*
  UESTC

P3.8 - Design of A Low Magnetic Field Coupler For Output Structure of The SLAC 75XP4 Klystron

- *Mohamed Othman, Valery Dolgashev, Erik Jongewaard, Brandon Weatherford*
  SLAC National Accelerator Laboratory

P3.9 - A Miniaturized Double-Ridged Waveguide Diplexer with Evanescent Mode Coupling in L-Band

- *Jingzhi Zheng, Jianxun Wang, Yixin Wan, Xinjie Li, Zihao Dai, Yong Luo*
  School of Electronic Science and Engineering,University of Electronic Science and Technology of China

P3.10 - Design of an Input Coupler for an X-Band Traveling Wave Tube Amplifier

- *Ethan Wade, Ahmed Elfrgani, Edl Schamiloglu*
  University of New Mexico

P3.11 - Multipactor in a Coaxial Geometry with Non-Sinusoidal RF Fields

- *Asif Iqbal, De-Qi Wen, Sandhiya Suresh, John Verboncoeur, Peng Zhang*
  Michigan State University

- *Patrick Wong*
  N/A

- *Shu Lin*
  Xi'an Jiaotong University

P3.13 - Equivalent Circuit Model of Transmission Lines Illuminated by HPM

- *Mingwen Zhang, Chunguang Ma, Ruilong Song, Yuanci Gao, Yong Luo*
  School of Electronic Science and Engineering,University of Electronic Science and Technology of China

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P3.14 - Research on Peak Leakage Characteristics of PIN Diodes Limiters under High-Power Microwaves (HPM)

- *Ruilong Song, Jiawei Huang, Bicheng Zhang, Mingwen Zhang, Chunguang Ma, Yong Luo*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

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P3.15 - Experimental Study on the Damage Effect of HPM on LNA

- *Jiawei Huang, Bicheng Zhang, Ruilong Song, Mingwen Zhang, Chunguang Ma, Yong Luo*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

Poster Session 4:
Klystron Manufacturing Posters

Wednesday, April 24 / 1:00 PM - 5:00 PM / San Carlos I

P4.2 - The Generation and Suppression of Monotron Oscillation in High-power W-band Extended Interaction Klystron

- *Zhen Zhang, Jinchi Cai, Pengcheng Yin, Jin Xu, Yong Xu, Hairong Yin, Lingna Yue, Guoqing Zhao, Wenxiang Wang, Yanyu Wei*
  School of Electronic Science and Engineering, UESTC

P4.3 - The Effect of Space Charge on the Performance of Linear Beam Devices

- *Md Wahidur Rahman, Peng Zhang*
  Michigan State University

P4.4 - Low Temperature Leakage Sealing Technology for Vacuum Electronic Devices

- *Hongqi Zhang, Jinyu Zhao, Bofeng Wang, Yasong Zhou, Yuntong Wang, Jie Hao, Cong Wang, Ning Tian, Honghong Gu*
  Aerospace Information Research Institute, Chinese Academy of Sciences

P4.5 - Design of a C-Band, High-Efficiency, Multi-Beam Klystron

- *Thomas Habermann, Michael Read, Lawrence Ives, Thuc Bui, Henry Freund*
  Calabazas Creek Research, Inc.

THURSDAY, APRIL 25

Session 14:
THz TWTs

Thursday, April 25 / 8:00 AM - 10:15 AM / San Carlos III

Chair:
Billy Putnam, University of California, Davis

14.1 - Enhancement of a 263 GHz EPR Spectrometer with TWT Amplifier

- *Shasha Qiu, Yuan Zheng, Neville C. Luhmann*
  Dept. of Electrical and Computer Engineering, University of California, Davis

- *Paul Stucky, David R. Britt*
  Dept. of Chemistry, University of California, Davis

- *Pan Pan, Ying Li, Jinjun Feng*
  National Key Laboratory of Science and Technology on Vacuum Electronics, Beijing Vacuum Electronics Research Institute (BVERI)

14.2 - A Multi-SWS Hybrid High-Frequency Circuit for 0.66 THz TWTs

- *Yinyu Zhang, Yuan Zheng, Yang Dong, Jingyu Guo, Yubin Gong*
  University of Electronic Science and Technology of China

- *Shasha Qiu*
  University of California, Davis

14.3 - The Design of the Electron Optical System Based on the Sheet Electron Beam Matching Focusing Magnetic Field for a 340-GHz TWT

- *Pengcheng Yin, Jinchi Cai, Jin Xu, Lingna Yue, Hairong Yin, Yong Xu, Guoqing Zhao, Wenxiang Wang, Yanyu Wei*
  UESTC

14.4 - TWT Folded Wave-Guide High-Frequency Losses Test and Simulation based on Surface Roughness

- *Jian Wang, Jirun Luo, Yu Fan*
  Aerospace Information Research Institute, Chinese Academy of Sciences

- *Yong Huang*
  School of Materials Science and Engineering, Nanjing University of Science & Technology

- *Zheng Wen*
  College of Advanced Interdisciplinary Studies, National Univercity of Defense Technology

- *Lin Zhang*
  National Key Laboratory of Science and Technology on Vacuum Electronics, Beijing Vacuum Electronics Research Institute

Session 15:
Photoemission

Thursday, April 25 / 8:00 AM - 10:15 AM / San Carlos IV

Chair:
John Smedley, Stanford

Co-Chair:
Kevin Jensen, University of Maryland, IREAP

15.1 - Patternable On-Chip Waveguide Integrated Cs3Sb Photocathodes

- *Hyun uk Chae, Ragib Ahsan, Anika Tabassum Priyoti, Rehan Kapadia*
  University of Southern California

- *Alimohammed Kachwala, Siddharth Karkare*
  Arizona State University

15.2 - Effects of Laser Pulse Length on Photoemission Spectra from a Biased Metal Surface

- *Lan Jin, Peng Zhang*
  Michigan State University

15.3 - Performance Limits of Electrostatically Controllable Negative Electron Affinity Photoemitters

- *Ragib Ahsan, Anika Tabassum Priyoti, Hyun Uk Chae, Rehan Kapadia*
  University of Southern California

15.4 - Semiconductor Physics and Characteristics of Tunable Negative Electron Affinity Photocathode with High Quantum Efficiency

- *Anika Tabassum Priyoti, Ragib Ahsan, Hyun Uk Chae, Juan Sanchez Vazquez, Rehan Kapadia*
  University of Southern California

15.5 - Thermal Emission Properties Of A Hot Electron Laser Assisted Cathode

- *Brandon E.J. Cortez, Ryan Jacobs, John H. Booske, Nader Behdad*
  University of Wisconsin - Madison

- *Ragib Ahsan, Anika Priyoti, Juan Sanchez Vazquez, Rehan Kapadia*
  University of Southern California

Session 16:
TWTs III

Thursday, April 25 / 10:40 AM - 12:20 PM / San Carlos III

Chair:
Wyatt Rufener, Stellant Systems

16.1 - Design of a Precision W-Band Traveling Wave Tube

- *Aaron Jensen, John Petillo*
  Leidos Corporation

- *Heather Shannon, Brian Beaudoin, Thomas Antonsen Jr., Hannah McCright*
  University of Maryland

- *Philipp Borchard*
  Dymenso LLC

16.2 - Fabrication of W-Band Traveling Wave Tube Amplifier Beamstick using Precision Alignment Techniques

- *Philipp Borchard, Abhinav Parameswaran, May Ling Har*
  Dymenso LLC

- *Heather Shannon, Thomas Antonsen, Brian Beaudoin*
  University of Maryland

- *Aaron Jensen, John Petillo*
  Leidos, Inc.

16.3 - Possible Improvement of AM/PM Conversion Induced by Positive Phase Jump in FWG TWT

- *Han Lai, Feng Lan, Zugen Guo, Huarong Gong*
  University of Electronic Science and Technology of China

16.4 - An Investigation of Methods for Adjusting Electron Beams in Traveling Wave Tubes

- *Stephen Volosov Langellotti, Anil P Nair, Kenneth E Kreischer, Jack C Tucek*
  Northrop Grumman Mission Systems

16.5 - Precision Bead-Pull Test Bench with New Self-Centering Procedure

- *Fred Oulefki, Frederic Anrde*
  Thales AVS

Session 17:
Power Supplies

Thursday, April 25 / 10:40 AM - 12:20 PM / San Carlos IV

Chair:
Jack Tucek, NGC

17.1 - Optimization and Measurement of an Orthomode Input Coupling System for W-Band Gyro-Amplifiers - keynote

- *Craig Ross Donaldson, Liang Zhang, Rory McNeill, Craig W Robertson, Colin G Whyte*
  University of Strathclyde

17.2 - Study of Large Orbit Gyro-TWT Window at Ka-Band

- *Zihan Lei, Efeng Wang, Jintao Yang, Xu Zeng, Dongshuo Gao, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

17.3 - Research on Brazing Technology and Properties of Electron Beam Window

- *Bofeng Wang, Jinyu Zhao, Hongqi Zhang, cong wang, Jiaming Liu, hong Song, jianyong zhou, ning tian, Chunjie Chang*
  The Aerospace Information Research Institute, Chinese Academy of Sciences

Session 18:
Scandate and Thermionic Cathodes

Thursday, April 25 / 1:20 PM - 3:20 PM / San Carlos III

Chair:
Bernard Vancil, EBEAM

Co-Chair:
Daniel Busbaher, 3M Technical Ceramics

18.1 - Review of Development History and Ongoing Development Status of a 100 A Discharge Current Reservoir Hollow Cathode for Electric Propulsion

- *Wayne Ohlinger*
  Consultant

- *Bernard Vancil*
  e-beam, inc.

18.2 - Advances in Scandate Cathode

- *Jinshu Wang*
  Beijing University of Technology

18.3 - The Nature and Distribution of Materials at the Emitting Surface and Throughout the Thickness of High-Performance Scandate Cathodes

- *T. John Balk, Huanhuan Bai, Michael J. Detisch*
  University of Kentucky

- *Bernard K. Vancil*
  E Beam, Inc.

18.4 - Miniature Sheet Beam Electron Gun

- *Bernard Vancil, Victor Schmidt*
  e beam, inc.

- *Carol Kory*
  Kore Scientific, LLC

- *Jerry Rossano, Nikolaos Pachalidis, Dennis Chornay, Timothy Cameron*
  NASA Goddard Space Flight Center

18.5 - Investigation of the Oxide Thermocathode in Thermal Field Mode

- *Vyacheslav Mikhailovich Lobanov, Evgeniy Pavlovich Sheshin, Nikolay Nikolaevich Chadaev, Svyatoslav Vyacheslavovich Lobanov*
  Moscow Institute of Physics and Technology

Session 19:
Modeling III

Thursday, April 25 / 1:20 PM - 3:20 PM / San Carlos 4

Chair:
Aaron Jensen, Leidos

19.1 - Multipactor Analysis of Dielectric-Loaded Parallel Plates with Local-Regional Increment of Secondary Emission Yield

- *Shu Lin, Huan Zhong, Yongdong Li*
  Xi'an Jiaotong University

- *Lin Huang*
  Air Force Engineering University

- *Patrick Wong, Peng Zhang*
  Michigan State University

19.2 - A Simple Space Charge Limited Emission Algorithm for 1-D Particle-in-Cell Simulations

- *Guo-Ning Wang, Kaviya Aranganadin, Ming-Chieh Lin*
  Hanyang University

- *Hua-Yi Hsu*
  National Taipei University of Technology

- *John P. Verboncoeur*
  Michigan State University

19.3 - Modeling of Sever in Two-stage Serpentine Waveguide Traveling Wave Tubes

- *Kasra Rouhi, Robert Marosi, Tarek Mealy, Alexander Figotin, Filippo Capolino*
  University of California, Irvine

19.4 - Modeling Traveling-Wave Tube Distortion via Transfer Curve Fitting

- *Ismail Hakki Batum, William Menninger*
  Stellant Systems, Inc.

19.5 - TESLA-family of Large-signal Codes as Fast and Efficient Computational Tools for Accurate Modeling of Linear-Beam VE Amplifiers

- *Igor A. Chernyavskiy, Alexander N. Vlasov, Baruch Levsuh*
  Naval Research Laboratory

- *Thomas M. Antonsen, Jr.*
  Leidos, Inc.

Session 20:
Gyrotrons

Thursday, April 25 / 3:40 PM - 5:40 PM / San Carlos 3

Chair:
Asif Iqbal, Michigan State University

20.1 - Industrial Qualification of the THALES TH1509U European 170 GHz 1 MW CW Gyrotron - keynote

- *Alberto Leggieri, François Legrand, Christophe Lievin, Rodolphe Marchesin, Ijaze M. Oumar, Etienne Vallée*
  THALES

- *Ferran Albajar, Ruggero Bertazzoni, Davide Dall'Acqua, Francisco Sanchez*
  Fusion For Energy

- *Stefano Alberti, Falk H. Braunmueller, Jérémy Genoud, Timothy P. Goodman, Jean-Philippe Hogge*
  Swiss Plasma Center

- *Konstantinos A. Avramidis, Ioannis Chelis, Zisis Ioannidis, Ioannis Tigelis*
  National and Kapodistrian University Athens

- *William Bin, Alex Bruschi, Saul Garavaglia, Gustavo Granucci*
  Institute for Plasma Science and Technology (ISTP-CNR)

- *Daniele Bonetti*
  EniProgetti

- *Antonio Cammi, Carolina Introini*
  Politechnic of Milan

- *Rosa Difonzo, Eleonora Gajetti, Laura Savoldi*
  Politechnic of Turin

- *Lukas Feuerstein, Gerd Gantenbein, Stefan Illy, John Jelonnek, Jianbo Jin , Tomasz Rzesnicki, Sebastian Stanculovic, Manfred Thumm*
  Karlsruhe Institute of Technology

- *Afra Romano*
  DTT S.C. a r.l.

20.2 - Review and Development of 170 GHz Gyrotron for Nuclear Fusion in BVERI

- *Zhang Yichi, Zeng Xu*
  Beijing Vacuum Electronics Research Institute

20.3 - THALES TH1507U 140 GHz 1.5 MW CW Industrial Gyrotron for W7-X ECRH System Upgrade

- *Alberto Leggieri, Jérémy Gontard, Sophie Kohler, François Legrand, Christophe Lievin, Rodolphe Marchesin, Ijaze M. Oumar, Etienne Vallée*
  THALES

- *Konstantinos A. Avramidis, Ioannis Chelis, Zisis Ioannidis, Ioannis Tigelis*
  National and Kapodistrian University Athens

- *Rosa Difonzo, Eleonora Gajetti, Laura Savoldi*
  Politechnic of Turin

- *Benjamin Ell, Lukas Feuerstein, Gerd Gantenbein, Stefan Stefan Illy, John Jelonnek, Jianbo Jin, Tobias Ruess, Tomasz Rzesnicki, Manfred Thumm*
  Karlsruhe Institute of Technology

- *Heinrich Laqua, Stefan Marsen, Frank Noke, Sergiy Ponomarenko, Torsten Stange, Robert Wolf*
  Max-Planck-Institute for Plasma Physics Greifswald

- *Sebastian Stanculovic*
  Karlsruhe Institute of Technology

20.4 - The 28 GHz / 35 GHz Dual Frequency Gyrotron System for Electron Bernstein Wave Heating and Current Drive in MAST Upgrade

- *Toru Tsujimura, Kenichi Hayashi, Sakuji Kobayashi, Yosuke Hirata, Konan Yagasaki, Maki Okada, Satoru Kobayashi, Yuto Yoshioka, Keishi Sakamoto*
  Kyoto Fusioneering Ltd.

- *Masaki Nishiura*
  National Institute for Fusion Science

- *Tsuyoshi Kariya, Ryutaro Minami*
  University of Tsukuba

- *Helen Webster, Mark Henderson, Grace Brett-Drinkwater, Simon Freethy*
  United Kingdom Atomic Energy Authority, Culham Science Centre

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20.5 - Advanced Gyrotrons for Fusion Power Plants

- *Robert Lawrence Ives, Jeffrey Neilson, Michael Read, Thomas Habermann, Thuc Bui, David Marsden, George Collins*
  Calabazas Creek Research, Inc.

Session 21:
Advanced Manufacturing and Emerging Technologies II

Thursday, April 25 / 3:40 PM - 5:40 PM / San Carlos IV

Chair:
Tim Horn, IVEC

21.1 - Monolithic Fabrication of a Multiple-Electron-Beam Traveling-Wave Circuit

- *Reginald L. Jaynes, Alan M. Cook, Benjamin S. Albright, Jr., Colin D. Joye*
  U.S. Naval Research Laboratory

- *Thomas Adcock*
  GE Research

21.2 - Fabrication Precision of CNC-Machined Millimeter-Wave TWT Circuits

- *Alan M. Cook, Benjamin S. Albright, Jr.*
  U.S. Naval Research Laboratory

- *Franklin N. Wood, Edward L. Wright, Khanh T Nguyen*
  Beam-Wave Research, Inc.

21.3 - Electropolishing Additively Manufactured RF components: an investigation into aluminum texture and RF losses

- *Nadia Eslami, Zahra Chaghazardi , Rolf Wuthridge*
  Concordia University

- *Nanda Gopal Matavalam, Paul Carriere*
  Radiabeam Technologies

21.4 - Additive Manufacturing for RF Products

- *Lawrence Ives, David Marsden, George Collins*
  Calabazas Creek Research, Inc.

- *Tim Horn, Chris Rock*
  N.C. State University

21.5 - ML-Based Analysis of In-Situ Backscatter Electron Detection for Quality Assurance During Additive Manufacturing

- *Temilola Gbadamosi-Adeniyi, Trevor McDonald, Dylan Peverall, Emmanuel Amoako, Scott Ferguson, Tim Horn*
  North Carolina State University

- *Christopher Tassone*
  SLAC

21.6 - Permanent Magnet Solutions for Particle Accelerators

- *Heeju Choi*
  Electron Energy Corporation

Poster Session 5: Micro-Fabrication/THz Devices Posters

Thursday, April 25 / 8:00 AM - 12:00 PM / San Carlos I

P5.1 - Free-Electron-Based Terahertz Nano-Imaging System

- *Min Hu, Xiaoqiuyan Zhang, Xingxing Xu, Tianyu Zhang, Zhenhua Wu*
  University of Electronic Science and Technology of China

P5.2 - A High-Order Mode Terahertz Extended Interaction Oscillator With Three Electron Beams

- *Youfeng Yang, Ping Zhang, Yuan Zheng, Yang Dong, Shaomeng Wang, Zhanliang Wang, Zhigang Lu, Yubin Gong*
  University of Electronic Science and Technology of China

P5.3 - Simulation of A Backward-wave oscillator Operating at THz Band

- *Weilong Wang, Zhaochuan Zhang*
  Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences

- *Zhaowei Qu*
  Aerospace Information Research Institute, Chinese Academy of Sciences

P5.4 - A Tunable Narrow-Band THz Radiation Using Subwavelength Hole Array Layer

- *Ping Zhang, Youfeng Yang, Yin Dong, Bingyang Liang, Shengpeng Yang, Yuan Zheng, Shaomeng Wang, Zhanliang Wang, Yubin Gong*
  University of Electronic Science and Technology of China

Poster Session 6: Modeling Posters

Thursday, April 25 / 8:00 AM - 12:00 PM / San Carlos I

P6.1 - Memory Effects in Digital Predistortion of TWTAs

- *Feng Zou*
  Aerospace Information Research Institute Chinese Academy of Sciences; University of Chinese Academy of Sciences

- *Xinai Liu*
  Aerospace Information Research Institute Chinese Academy of Sciences

- *Xiaojie Gu*
  Shanghai Satellite Engineering Institute

P6.2 - Critical Analysis of Simulations with Large-signal Codes: Pros and Cons of Modeling with Reduced-order Algorithms

- *Igor A. Chernyavskiy, Alexander N. Vlasov*
  Naval Research Laboratory

- *David Chernin, Thomas M. Antonsen, Jr.*
  Leidos, Inc.

P6.3 - Integrated Dark Current Radiation Study for Accelerator Structures Using ACE3P and Geant4

- *Lixin Ge, Zenghai Li, Cho-Kuen Ng, Liling Xiao*
  SLAC National Accelerator Laboratory

- *Hiroyasu Ego, Yoshinori Enomoto, Hiroshi Iwase, Yu Morikawa, Takashi Yoshimoto*
  KEK

P6.4 - Design of Microstrip Line Adaptor for W-band Microstrip Meander Line Slow Wave Structure Based on BP-GA Neural Network

- *Xinxin Li, Yongzhi Zhuang, Xingqun Zhao, Changsheng Shen, Zhaofu Chen, Ningfeng Bai*
  Southeast University

P6.5 - Effects of a Series Resistor on Quantum Tunneling Current in Dissimilar Metal-Insulator-Metal Nanogap

- *Bingqing Wang, Peng Zhang*
  Michigan State University

P6.7 - Space Charge Limited Current Scaling for Short-Pulse Beam in a Vacuum Diode with Different Pulse Shapes

- *Yves HERI, Peng Zhang*
  Michigan State University

P6.9 - Investigations of Two-Dimensional Brillouin Flow through a Cylindrical Step Discontinuity

- *Ryan A. Revolinsky, Christopher J. Swenson, Nicholas M. Jordan, Yue Ying Lau, Ronald M. Gilgenbach*
  University of Michigan

P6.10 - Integration of the Magnetic Circuits for Magnetrons Using New Magnetostatic Solvers in VSim

- *Kaviya Aranganadin, Ming-Chieh Lin*
  Multidisciplinary Computational Laboratory, Department of Electrical and Biomedical Engineering, Hanyang University

- *Hua-Yi Hsu*
  Department of Mechanical Engineering, National Taipei University of Technology

P6.11 - Modeling of Sheet Beams From Array of Field Emitters for mm-Wave Tubes

- *Muhammed Zuboraj*
  Los Alamos National Laboratory

P6.12 - Simulation Analysis of Noise Generation in a Re-Entrant Crossed-Field Amplifier

- *Marcus Pearlman, Jim Browning*
  Boise State University, Department of Electrical and Computer Engineering

- *Jack Watrous*
  Confluent Sciences

- *David Smithe*
  TechX

- *Michael S Worthington*
  Stellant Systems

- *Allen Garner*
  Purdue University, School of Nuclear Engineering

P6.13 - Recent Advances in Beam Optics Analyzer

- *Thuc Bui, Michael Read, Thomas Habermann, Lawrence Ives*
  Calabazas Creek Research Inc.

P6.14 - Research on Mesh Generation Technology Based on Delaunay Triangulation

- *Longwei Deng, Junhui Yin, Xinyu Cao, Chaoyang Zhang, Junhao Cui, Bin Li*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

- *Qing He*
  Shenzhen Institute for Advanced Study, University of Electronic Science and Technology of China

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P6.15 - Adaptive Mesh Refinement Strategy for Microwave Devices Analysis

- *Junhong Liu, Li Xu, Junhui Yin, Hao Wang, Bingqi Liu, Hangxin Liu, Bin Li*
  University of Electronic Science and Technology of China

P6.16 - A Predictive Regression Model for High Frequency Structures in MTSS

- *Zheng Tan, Wan li Shi, Hai ying Yuan, Yu fan Yang, Shi long Zhu, Luan feng Gao, Xiao fang Zhu, Yu lu Hu, Bin Li*
  National Key Laboratory of Science and Technology on Vacuum Electronics

- *Jun yi Lv*
  Shenzhen Institute for Advanced Study, UESTC

P6.17 - Two-Dimensional Calculation of Axisymmetric Coils and Permanent-Magnet System in MFS

- *Ling Mei, Quan Hu, Xiaofang Zhu, Yulu Hu, Xiaobing Wang, Huijiao Zhang, Jike Yang, Zhenting Qin, Bin Li*
  University of Electronic Science and Technology of China

P6.18 - A Novel Transmission Simulator for Traveling-Wave Tube with Periodic Structure

- *Hangxin Liu, Li Xu, Hao Wang, Bingqi Liu, Honghai Fan, Xuesong Yuan, Bin Li*
  University of Electronic Science and Technology of China

P6.19 - Calculation of Eddy Current Field by Finite Element Method in MFS

- *Jike Yang, Quan Hu, Yulu Hu, Xiaofang Zhu, Xiaobing Wang, Huijiao Zhang, Zhenting Qin, Ling Mei, Bin Li*
  University of Electronic Science and Technology of China

P6.20 - Electromagnetic Analysis of Metamaterial Absorber Using Finite Element/Boundary Element Method

- *Bingqi Liu, Li Xu, Hao Wang, Hangxin Liu, Honghai Fan, Bin Li*
  National Key Laboratory of Science and Technology on Vacuum Electronics

Poster Session 7: Power Supplies/Windows/Components/Other Posters

Thursday, April 25 / 1:00 PM - 5:00 PM / San Carlos I

P7.1 - A New Strategy to Fabricate Sapphire Meta-surface Output Window at Ku-band with Glass Interlayer

- *Zhenqian Yuan, Qianqian Chen, Guo Liu, Feng Si, Jianxun Wang, Yong Luo*
  University of Electronic Science and Technology of China

P7.2 - A Compact Broadband Double Ridge RF Window for X-band Sheet Beam TWT

- *Yuan Fang, Jianxun Wang, Yixin Wan, Xinjie Li, Zihao Dai, Yong Luo*
  University of Electronic Science and Technology of China

P7.3 - A novel Method for Sorting of Electrons in Gyro-TWT Multistage Depressed Collectors

- *Jianwei Zhou, Wei Jiang, Chaoxuan Lu, Guo Liu, Jianxun Wang, Yong Luo*
  University of Electronic Science and Technology of China

P7.4 - A High-Order Mode Terahertz Extended Interaction Oscillator With Three Electron Beams

- *Youfeng Yang, Ping Zhang, Yuan Zheng, Yang Dong, Shaomeng Wang, Zhanliang Wang, Zhigang Lu, Yubin Gong*
  University of Electronic Science and Technology of China

P7.5 - Experimental Study of an Overmoded V-Band Sapphire Pillbox Window

- *Duo Xu, Shaomeng Wang, Yuan Zheng, Caidong Xiong, Zhanliang Wang, Yubin Gong*
  University of Electronic Science and Technology of China

P7.6 - Investigation of Low Loss and Broadband Window for 0.34THz Traveling Wave Tube

- *Lin Zhang, Dachuan Gao, Yanan Li, Kexin Ma, Jun Cai, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

P7.7 - Design of An E-Band Planar Slow-Wave Structure with Energy Transmission Window

- *Yufan Yang, ShiLong Zhu, HaiYing Yuan, Zheng Tan, WanLi Shi, Bin Li, LuanFeng Gao, YuLu Hu*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

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P7.8 - Analysis of Welding Residual Stress and Dielectric Loss Thermal Stress in High Power Output Window

- *Pucheng Wang, Wei Jiang, Qianqian Chen, Chaoxuan Lu, Yong Luo, Jianxun Wang*
  University of Electronic Science and·Technology of China

P7.9 - Diagnostics System for Electron Beam Emission Characteristics Analysis

- *Ingeun Lee, Yoonseon Choi, Jinwoo Shin , Youngseok Bae*
  Agency for Defense Development

Poster Session 8:
TWT Posters

Thursday, April 25 / 1:00 PM - 5:00 PM / San Carlos I

P8.1 - Study on High-Transmission Rate W-band Electro-Optical System and Travelling Wave Tube

- *Xinyang Wang, Xiao Yang, Zugen Guo, Feng Lan, Zhaoyun Duan, Yubin Gong, Huarong Gong*
  University of Electronic Science and Technology of China

- *Shu Chen, Zijian Wang, Shuguang Wang*
  Guoguang Electrical Co., Ltd.

P8.2 - A 50 Watt Ka-Band Mini Traveling Wave Tube

- *Liu Qinglun, He Jun, Liu Lin, Li Haiqiang, Cao Linlin, Liu Xinai, Huang Mingguang*
  Aerospace Information Research Institute, Chinese Academy of Sciences

P8.3 - Development of 150 W, Ka Band TWT for Payload Data Transmitter

- *Rosario Martorana*
  Leonardo Electronics

- *Antonio Mendolia Calella*
  Teoresi Group SpA

- *Giovanni Li Calsi*
  Alten Italia SpA

P8.4 - Development of X Band Pulsed TWT for Compact Synthetic Aperture Radar system

- *Rosario Martorana*
  Leonardo SpA

- *Antonio Mendolia Calella*
  Teoresi Group SpA

- *Giovanni Li Calsi*
  Alten Italia SpA

P8.5 - Design of A High Efficiency Wide-band 200W for Ku-band Space TWT

- *Xinwen Shang, Yanwei Li, Hongxia Yi, Liu Xiao*
  Aerospace Information Research Institute, Chinese Academy of Sciences

- *Wenkai Deng*
  University of Electronic Science and Technology of China

- *Jianwei Li*
  Shenzhen VC Thermal Technology Co., Ltd

P8.6 - Recent Progress of the G-band TWT with Pencil-Beam in BVERI

- *Xingwang Bian, Yuan Feng, Bowen Song, Xinzhu Du, Siji Xian, Pan Pan*
  Beijing Vacuum Electronics Research Institute

P8.7 - A 220 GHz Wideband TWT with Output Power over 20 W and Bandwidth over 20 GHz

- *Yuan Feng*
  University of Electronic Science and Technology of China & Beijing Vacuum Electronics Research Institute

- *Bowen Song, Ying Li, Xingwang Bian, Pan Pan, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

- *Yubin Gong*
  University of Electronic Science and Technology of China

P8.8 - An Improved Design of Electron-Optical System for 0.34 THz Traveling Wave Tube

- *Zugen Guo, Feng Lan, Han Lai, Xinyang Wang, Xiao Yang, Zhanliang Wang, Zhigang Lu, Zhaoyun Duan, Yubin Gong, Huarong Gong*
  University of Electronic Science and Technology of China

P8.9 - A New Type of Coupled Folded Waveguide in G-Band for Suppressing Oscillation

- *Ze chuan Wang, Zhi gang Lu, Jing rui Duan, Hai feng Chen, Zhan liang Wang, Shao meng Wang, Hua Rong Gong, Yu bin Gong*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

- *Peng Gao*
  School of Resources and Environment, University of Electronic Science and Technology of China

- *Cai dong Xiong*
  School of Physics, University of Electronic Science and Technology of China, Chengdu

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P8.10 - A Pencil Beam Electron-Optical System for Teahertz Vacuum Electronic Devices

- *Jingyu Guo, Yang Dong, Yuan Zheng, Zhanliang Wang, Zhigang Lu, Ping Zhang, Caidong Xiong, Shaomeng Wang, Yubin Gong*
  University of Electronic Science and Technology of China

P8.11 - Design of a Novel E-Plane Loaded Sine Waveguide for G-band TWT

- *Zheng Chang, Zhigang Lu, Peng Gao, Jingrui Duan, Xiaofan Gui, Zechuan Wang, Zhenting Zheng, Zhanliang Wang, Shaomeng Wang, Huarong Gong, Caidong Xiong, Yubing Gong*
  University of Electronic Science and Technology of China

P8.12 - A Tunable Uniform Magnetic Focusing System for 0.66 THz Traveling Wave Tubes

- *Yang Dong, Jingyu Guo, Yuan Zheng, Ping Zhang, Zhangliang Wang, Zhigang Lu, Caidong Xiong, Shaomeng Wang, Yubing Gong*
  University of Electronic Science and Technology of China

P8.13 - A Novel Dual-Electron-Beam Sine Waveguide TWT Operating at 340 GHz

- *Shuanzhu Fang, Yuanqing Xiao, Tieyang Wang, Qingzhong Xiao, Xingxian Xia*
  China Electronic Product Reliability and Environmental Testing Research Institute

- *Gangxiong Wu*
  Nantong University

P8.14 - Terahertz Backward Wave Oscillator Based Upon Dual-Sheet-Beam Sine Waveguide

- *Shuanzhu Fang, Gaoge Cui, Tieyang Wang, Zhizhe Wang, Jinhao Cai, Jun Luo*
  China Electronic Product Reliability and Environmental Testing Research Institute

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P8.15 - A Novel Slow-wave Structure for Terahertz Traveling-wave Tube

- *Yuan Feng*
  University of Electronic Science and Technology of China,Beijing Vacuum Electronics Research Institute

- *Xingwang Bian, Ying Li, Bowen Song, Pan Pan, Jinjun Feng*
  Beijing Vacuum Electronics Research Institute

- *Yubin Gong*
  University of Electronic Science and Technology of China

P8.16 - Design and Simulation of a Multi-Sheet-Beam Backward Wave Oscillator Based on High-order Mode Orthogonal Grating Waveguides

- *Xinlun Xie, Guoxiang Shu, Huaxing Pan, Shaochen Ma, Jiawei Tang, Siyuan Liu, Mingze Li, Wenlong He*
  State Key Laboratory of Radio Frequency Heterogeneous Integration (Shenzhen University)

P8.17 - A Wide Bandwidth Microstrip Meander Line Slow Wave Structure with Multilayer Metamaterial Absorber

- *Zhengxiao Tang, Yang Xie, Changsheng Shen, Ningfeng Bai*
  Southeast University

- *Wenjie Yu*
  Beijing Vacuum Electronics Institution

- *Hongxia Chen*
  Nanjing Sanle Group Co., Ltd.

P8.18 - Grating-Groove-Ladder Slow Wave Structure for W-band Traveling Wave Tube

- *Jingrui Duan, Zhigang Lu, Peng Gao, Zechuan Wang, Yuan Zheng, Zhanliang Wang, Shaomeng Wang, Huarong Gong, Yubin Gong*
  University of Electronic Science and Technology of China

- *Shasha Qiu*
  University of California, Davis

P8.19 - Design and Verification of the Planar PPM Focusing System for Integrated TWT

- *Huanli Ji, Jinsheng Yang, Ran Sun, Jun Cai, Jinjun Feng*
  National Key Laboratory of Science and Technology on Vacuum Electronics Beijing Vacuum Electronics Research Institute

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P8.20 - 3-D Folded Meander Line Slow Wave Structure for W-Band Applications

- *Nameesha Chauhan, Naveen G. Babu*
  Shiv Nadar Institution of Eminence

P8.21 - Dual-Beam Dielectric-Supported Meander Line Slow-Wave Structure at Q-band

- *Yuxin Wang, Shaomeng Wang, Yang Dong, Jingyu Guo, Duo Xu, Yuan Zheng, Yubin Gong*
  National Key Lab on Vacuum Electronics, University of Electronic Science and Technology of China

- *Qingying Yi*
  University of Electronic Science and Technology of China

P8.22 - Study of a 94GHz Extended Interaction Amplifier Using Interlaced Staggered Resonant Cavities

- *Bolin Quan, Shaomeng Wang, Qingying Yi, Yuan Zheng, Yubin Gong*
  University of Electronic Science and Technology of China

P8.23 - Staggered Microstrip Grating Structure for Sheet-Beam TWTs

- *Robert Marosi, Filippo Capolino*
  University of California, Irvine

- *Muhammed Zuboraj*
  Los Alamos National Laboratory

P8.25 - The Design and Simulation of a Kind of Multi-Beams Electron Gun for Multiple-Input-Multiple-Output Integrated Millimeter-Wave Traveling Wave Tubes

- *Ran Chen, Li Zheng*
  Beijing Vacuum Electronics Research Institute

- *Baoliang Hao*
  China Research Institute of Radiowave Propagation

P8.26 - Sensitivity Analysis of a W-Band Traveling Wave Tube to Obstructions

- *Hannah McCright, Heather Shannon, Brian Beaudoin, Thomas Antonsen*
  University of Maryland

- *Philipp Borchard*
  Dymenso LLC

- *Aaron Jensen, John Petillo*
  Leidos, Inc.

P8.27 - Non-Ideal Electron Beam Effect on Ka-Band Folded Waveguide Traveling Wave Tube Amplifier

- *Yoonseon Choi, Ingeun Lee, Sungjun Yoo, Joonyong Park, Youngseok Bae, Jinwoo Shin*
  Agengy for Defense Development

P8.28 - Evaluation of Electron Beam Laminar Properties in Helix TWT

- *Tianyang Zhang, Changsheng Shen, Jingze Wang, Hehong Fan, Ningfeng Bai, Xiaohan Sun*
  Southeast University

P8.29 - The Start-Oscillation Phase Condition for Backward-Wave Oscillators

- *Lingqiao Wang, Hairong Yin, Jin Xu, Lingna Yue, Jinchi Cai, Pengcheng Yin, Yong Xu, Y.Y. Wei*
  University of Electronic Science and Technology of China

P8.30 - Using Newton's Iteration Method to Achieve Faster Power Iteration Convergence for Extended Interaction Oscillators

- *Xinjie Li, Jianxun Wang, Yixin Wan, Zihao Dai, Wei Jiang, Yong Luo*
  University of Electronic Science and Technology of China

P8.31 - Design of Fast Optimization Software for Magnetic System

- *HaiYing Yuan, Shilong Zhu, Zheng Tan, Xiaobing Wang, Yufan Yang, Xiaofang Zhu, Quan Hu, Luanfeng Gao, Yulu Hu, Bin Li*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

P8.32 - A Design Method for Interaction Circuit of High Efficiency Helix TWTs

- *Wen-kai Deng*
  Shenzhen Institute for Advanced Study, University of Electronic Science and Technology of China

- *Xinwen Shang, Liu Xiao*
  Aerospace Information Research Institute, Chinese Academy of Sciences

- *Yulu Hu, Xiaolin Jin, Dapeng Gong*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

- *Zhonghai Yang, Tao Huang*
  School of Electronic Science and Engineering University of Electronic Science and Technology of China

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P8.33 - About the Pierce Impedance Calculation

- *Wenqi Li, Hairong Yin, Yanyu Wei, Qi Xie, Jin Xu, Lingna Yue, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, Wenxiang Wang*
  University of Electronic Science and Technology of China

P8.34 - Automatic Optimization of Static Electron Beam of Traveling Wave Tube with MFS and EOS

- *Xiao-Bing Wang, Quan Hu, Xiao-Fang Zhu, Luan-Feng Gao, Yu-Lu Hu, Li Liao, Bin Li*
  School of Electronic Science and Engineering, University of Electronic Science and Technology of China

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P8.35 - An Evaluation Method for Assessing the Design of TWTs with Slow-Wave Circuit Tapering

- *Qi Xie, Hairong Yin, Yanyu Wei, Jin Xu, Lingna Yue, Jinchi Cai, Guoqing Zhao, wenxiang Wang, Pengcheng Yin, wenqi Li*
  University of Electronic Science and Technology of China

P8.36 - Research on TWT Gain Measurement Using Vector Network Analyzer

- *Xinai Liu*
  Aerospace Information Research Institute Chinese Academy of Sciences

- *Feng Zou*
  Aerospace Information Research Institute Chinese Academy of Sciences & University of Chinese Academy of Sciences

- *Xiaojie Gu*
  Shanghai Satellite Engineering Institute

P8.37 - The Effect of Thermal Contact Resistance on Space Helix Traveling Wave Tube

- *Zhifeng Ye*
  Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences

- *Guangjiang Yuan, Jun He*
  Aerospace Information Research Institute, Chinese Academy of Sciences