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Monday 20 May 2013

17:00-19:00 Registration open

Tuesday 21 May 2013

08:00 Registration

Plenary Session

Room: Louis Armand

- 08:30 Introduction
08:45 KA-SAT and Future HTS Systems
Fenech, H.; EUTELSAT
09:20 The European Spallation Source
McGinnis, D.; EUROPEAN SPALLATION SOURCE
09:55 The Diary of a TWT Engineer – Vacuum Tubes Don't Suck
Carruthers, M.; Comtech Xicom Technology
10:30 Coffee Break
10:50 J. Pierce Award Ceremony
11:00 The Vitality of Vacuum Electronics
Armstrong, C.; L-3 Communications Electron Devices
11:35 ITER Project and RF systems
Beaumont, B.; ITER Organization

12:10 Lunch Break

Session 1A: Thermionic Cathodes I

Chair: T. Grant (Communications & Power Industries, LLC)

Room: Louis Armand

- 14:00 **Keynote:** Environmental Influence on MM-type Dispenser Cathodes used in VED's and Propulsion Systems
Seidel, H.; Schirra, M.; Lazurenko, A.; Weis, S.; van Reijen, B.; Genovese, A.; Haderspeck, J.; Holtmann, P.
Thales Airsystems & Electron Devices GmbH, (GERMANY)
14:20 Advanced CPR Cathode Research
*Ives, L.¹; Read, M.¹; Marsden, D.¹; Collins, G.¹; Falce, L.²; Busbaher, D.³; Effgen, M.³; Schwartzkopf, S.⁴;
Malygin, A.⁵; Borchard, P.⁶*
¹Calabazas Creek Research, Inc., (UNITED STATES); ²Consultant, (UNITED STATES); ³Semicon Associates, Inc., (UNITED STATES); ⁴Ron Witherspoon, Inc., (UNITED STATES); ⁵Karlsruhe Institute of Technology, (GERMANY); ⁶Dymenso, LLC, (UNITED STATES)
14:40 A new Impregnated Dispenser Cathode
Shengyi, Yin.¹; Zhen, Peng.²; Qiang, Zheng.³; Yu, Wang.³; Xinxin, Wang.³; Yang, Li.¹
¹Institute of Electronics, Chinese Academy of Sciences, (CHINA); ²University of Chinese Academy of Sciences, (CHINA); ³Institute of Electronics, Chinese Academy of Sciences, (CHINA)
15:00 Performance Comparison between Sintered Tungsten Dispenser Cathodes and Nano-Composite Scandate Dispenser Cathodes
Busbaher, D.¹; Zhao, J.²; Gamzina, D.²; Luhmann, N.²
¹Semicon Associates, (UNITED STATES); ²University of California Davis, (UNITED STATES)
15:20 1,000 A/cm² Cathode: to be or not to be?
Taran, A.¹; Kyslytsyn, O.¹; Podshyvalova, O.¹; Ordanjan, S.²
¹National Aerospace University "Kharkiv Aviation Institute", (UKRAINE); ²St. Petersburg State Technological Institute (Technical University), (RUSSIAN FEDERATION)

- 15:40 Performance Degradation Simulation for M-type Cathode Based on Ion Bombardment
Shi, X. ¹; Fan, H. ¹; Zhao, X. ¹; Song, F. ²; Sun, X. ¹
¹*Southeast University, (CHINA); ²Science and Technology on Reliability Physics and Application Technology of Electronic Component Lab, (CHINA)*

Session 1B: Gyrodevices I

Chair: JP. Hogge (EPFL)

Room: Friedrich List

- 14:00 **Keynote:** First Tests of a 527 GHz Gyrotron for Dynamic Nuclear Polarization
Felch, K. ¹; Blank, M. ¹; Borchard, P. ¹; Cauffman, S. ¹; Rosay, M. ²; Tometich, L. ²
¹*Communications and Power Industries, (UNITED STATES); ²Bruker Biospin, (UNITED STATES)*
- 14:20 Compact Sub-THz Gyrotrons for Real-Time T-ray Imaging
Han, S.T.
Korea Electrotechnology Research Institute, (KOREA, REPUBLIC OF)
- 14:40 Manufacturing of a 263 GHz Continuously Tunable Gyrotron
Rozier, Y. ¹; Legrand, F. ¹; Lievin, C. ¹; Racamier, J.-C. ¹; Marchesin, R. ¹; Alberti, S. ²; Braunmueller, F. ²; Hogge, J.-Ph. ²; Da Silva, M. ²; Tran, M.Q. ²; Tran, T.M. ²; Macor, A. ³
¹*Thales Electron Devices, (FRANCE); ²Centre de Recherches en Physique des Plasmas, EPFL, (SWITZERLAND); ³Institute of Condensed Matter Physics, EPFL, (SWITZERLAND)*
- 15:00 Analysis of Mode Competition in 10kW/28GHz Gyrotron
Malygin, A. ¹; Illy, S. ²; Pagonakis, I. Gr. ²; Avramides, K. ²; Thumm, M. ²; Jelonnek, J. ²; D'Andrea, D. ²; Ives, L. ³; Munz, C.-D. ⁴
¹*Karlsruhe Institute of Technology (KIT), (GERMANY); ²Karlsruhe Institute of Technology, (GERMANY); ³Calabazas Creek Research, Inc., (UNITED STATES); ⁴Institute of Aerodynamics and Gasdynamics, University of Stuttgart, (GERMANY)*
- 15:20 The Study of a High Power TE11 Ku-Band Gyro-TWT
Wang, J. ; Luo, Y. ; Xu, Y. ; Deng, X.
University of Electronic Science and Technology of China, (CHINA)
- 15:40 Effect of Window Reflection on Mode Competition in Gyrotron
Usacheva, S.A. ¹; Chumakova, M.M. ¹; Glyavin, M.Yu. ²; Novozhilova, Yu.V. ²; Ryskin, N.M. ¹
¹*Saratov State University, (RUSSIAN FEDERATION); ²Institute of Applied Physics, RAS, (RUSSIAN FEDERATION)*

Session 1C: Space Application

Chair: S.Voigt (DLR)

Room: Georges Stephenson

- 14:00 **Keynote:** TWTAs versus SSPA: A Comparison Update of the Boeing Satellite Fleet On-Orbit Reliability
Nicol, E.F. ¹; Mangus, B.J. ²; Grebliunas, J.R. ²; Woolrich, K. ²; Schirmer, J.R. ²
¹*Boeing Company, (UNITED STATES); ²Space & Intelligence Systems, Boeing Corporation, (UNITED STATES)*
- 14:20 Reliability of TWTAs and MPMs in Orbit
Jaumann, G. ¹; Gallego Jimenez, E. ²
¹*TESAT, (GERMANY); ²TESAT Spacecom, (GERMANY)*
- 14:40 Multibeam Satellites Performance Analysis in Non-Uniform Traffic Conditions
Aloisio, M. ; Lizarraga, J. ; Angeletti, P. ; Alagha, N.
European Space Agency ESA-ESTEC, (NETHERLANDS)
- 15:00 Use of Flexible LCTWTA for Communication Satellites
Piro, F. ¹; Joer, JP. ¹; Frysiras, I. ²
¹*Eutelsat, (FRANCE); ²Eutelsat, (GREECE)*
- 15:20 Radiation Cooled TWTs at End-Of-Life: An Evaluation of Thermal Evolution Over 15 Years
Kaliski, M.
Space Systems/Loral, LLC, (UNITED STATES)

15:40 CAN bus based TM/TC Interface for Microwave Power Modules in Satcom Payloads
Freese, J. ; Kurz, R. ; Artmann, J. ; Stanka, T.
Tesat Spacecom, (GERMANY)

16:00 *Coffee Break*

Session 2A: Cold Cathodes I

Chair: P.Legagneux (Thales-TRT)

Room: Louis Armand

- 16:20 **Keynote:** Electron Over-Barrier Emission Mechanism of Single Layer Graphene
Liang, S. ; Ang, L. K.
Singapore U of Technology and Design, (SINGAPORE)
- 16:40 High Average Power Field Emitter Cathode and Testbed For X/Ku-Band Cold Cathode TWT
Whaley, D. ¹; Duggal, R. ¹; Armstrong, C. ¹; Holland, C. ²; Spindt, C. ²; Thibert, D. ²
¹L-3 Communications Electron Devices, (UNITED STATES); ²SRI International, (UNITED STATES)
- 17:00 Carbon Nanotubes Electron Source
Ullisse, G. ; Ciceroni, C ; Brunetti, F ; Di Carlo, A
University of Rome "Tor Vergata", (ITALY)
- 17:20 Synthesized and Field Emission Properties of Carbon Tubes/Graphene Composite Films b !
Hu, T. ; Zeng, Y. ; Xu, Z. ; Kang, D. ; Chen, Z.
University of Electronic Science and Technology of China, (CHINA)
- 17:40 The Matrix Field Emission Cathodes based on Carbon Nanotubes for Vacuum Electronic Devices b !
Tarasov, E. ¹; Gulyaev, Yuri ²; Sinitsyn, Nikolai ¹; Torgashov, Gennadi ¹; Grigoriev, Yuri ¹; Aban'shin, Nikolai ³; Schalaev, Pavel ⁴
¹Saratov Division of Kotel'nikov Institute of Radio Engineering and Electronic of RAS, (RUSSIAN FEDERATION); ²Kotel'nikov Institute of Radio Engineering and Electronic of RAS, (RUSSIAN FEDERATION); ³SRI «Volga», (RUSSIAN FEDERATION); ⁴SRI «RPE «Almaz», (RUSSIAN FEDERATION)

Session 2B: Klystrons & Applications I

Chair: F.Peauger (CEA)

Room: Friedrich List

- 16:20 **Keynote:** Sheet Beam Extended Interaction Klystron (EIK) in W Band
Pasour, J. ¹; Wright, E. ²; Nguyen, K. ²; Balkcum, A. ³; Levush, B. ⁴
¹Naval Research Laboratory, (UNITED STATES); ²Beam Wave Research, Inc., (UNITED STATES); ³CPI, (UNITED STATES); ⁴Naval Research Lab, (UNITED STATES)
- 16:40 S-Band Sheet Beam Klystron Research and Development at SLAC
Jensen, A. ; Fazio, M. ; Haase, A. ; Jongewaard, E. ; Martin, D. ; Neilson, J. ; Sprehn, D. ; Vlieks, A.
SLAC National Accelerator Laboratory, (UNITED STATES)
- 17:00 A 48GHz, 500W CW Extended Interaction Klystron
Dobbs, R. ; Hyttinen, Mark ; Steer, Brian
CPI Canada, (CANADA)
- 17:20 14 kW High Power X-Band to Ka-Band Klystron Frequency Multiplier
Fan, J.J. ; Wang, Y.
Institute of Electronics, Chinese Academy of Sciences, (CHINA)
- 17:40 Development of a 10 kW CW High Efficiency S-Band PPM Klystron
Ferguson, P ; Read, M ; Marsden, D ; Bui, T ; Ives, L
Calabazas Creek Research, Inc., (UNITED STATES)

Session 2C: Space TWT's and TWTA's

Chair: W. Menninger (L-3 Communications Electron Technologies)

Room: Georges Stephenson

- 16:20 **Keynote:** Very High efficiency Dual Flexible TWTA, a flexible Concept allowing to deal with Performances and Schedule Constraints of Telecommunication Payloads
Cuignet, E. ¹; Tonello, E. ²; Maynard, J. ²; Boone, Ph. ³
¹THALES ALENIA SPACE, (BELGIUM); ²THALES ALENIA SPACE, (FRANCE); ³THALES ELECTRONIC DEVICES, (FRANCE)
- 16:40 Travelling Wave Tubes for Modern Satellite Communications b !
Bosch, E.
Thales Electron Devices, (GERMANY)
- 17:00 mm-Wave Space Helix TWT Performance and Experience
Robbins, N. ; Dibb, D. ; Menninger, W.
L-3 Electron Technologies, Inc., (UNITED STATES)
- 17:20 Space-Qualified, 160-Watt Radiation-Cooled, X-band Helix TWT
Martin, R ; Menninger, W ; Zhai, X ; Blunk, S ; Feicht, J ; Mcgeary, W
L-3 Communications, ETI, (UNITED STATES)
- 17:40 A Novel Design of L-Band Lineariser for TWTA
Li, S.
Institute of Electronics, Chinese Academy of Sciences (IECAS), (CHINA)
- 18:45 Welcome Cocktail sponsored by Thales Electron Devices

Wednesday 22 May 2013

Session 3A: Klystrons and Applications II

Chair: S.Choroba (DESY)

Room: Louis Armand

- 08:30 **Keynote:** Overview on Pulsed UHF Sources at Thales Electron Devices
Beunas, A. ; Grezaud, M. ; Bel, C. ; Boussaton, A. ; Darges, B.
Thales Electron Devices, (FRANCE)
- 08:50 Applications of High Power Induction Output Tubes in High Intensity Superconducting Proton Linacs
McGinnis, D. ¹; Garoby, R. ²; Gerick, G. ²; Lindroos, M. ¹; Montesinos, E. ²; Sunesson, A. ¹
¹ESS, (SWEDEN); ²CERN, (SWEDEN)
- 09:10 Some Technical Problems of the C-Band Broadband Multi-Beam Klystron
Ding, Y. ; Ding, H. ; Shen, B. ; Miao, Y.
Institute of Electronics, Chinese Academy of Sciences, (CHINA)
- 09:30 Design and Fabrication of a 10 MW, L-Band, Annular Beam Klystron
Read, M. ; Ferguson, P. ; Jackson, R. ; Marsden, D. ; Ives, L.
Calabazas Creek Research Inc., (UNITED STATES)
- 09:50 Lifetime and Reliability Analysis of Klystrons
Balkcum, A ; Habermann, T
CPI, (UNITED STATES)
- 10:10 Pulsed Depressed Collector for High-Efficiency RF Systems
Kemp, M.A. ; Jensen, A. ; Neilson, J.
SLAC National Accelerator Laboratory, (UNITED STATES)

Session 3B: 220 GHz

Chair: J. Booske (University of Wisconsin)

Room: Friedrich List

- 08:30 **Keynote:** Demonstration of a High Power, Wideband 220 GHz Serpentine Waveguide Amplifier Fabricated by UV-LIGA
Joye, C. ¹; Cook, A. ¹; Calame, J. ¹; Abe, D. ¹; Nguyen, K. ²; Wright, E. ²; Vlasov, A. ¹; Chernyavskiy, I. ¹; Kimura, T. ³; Levush, B. ¹
¹U.S. Naval Research Laboratory, (UNITED STATES); ²Beam-Wave Research, (UNITED STATES); ³Communications and Power Industries, Inc., (UNITED STATES)
- 08:50 A Compact, High-Power THz Source: Concept & Simulation
Bluem, H¹; Jarvis, J¹; Todd, A¹; Jackson, R²
¹Advanced Energy Systems, UNITED STATES; ²Jackson Science Consulting, UNITED STATES
- 09:10 Breakthrough UV-LIGA Microfabrication of Sub-mm and THz Circuits
Joye, C.; Cook, A.; Calame, J.; Abe, D.; Levush, B.
U.S. Naval Research Laboratory, UNITED STATES
- 09:30 220 GHz Power Amplifier Testing at Northrop Grumman
Kreischer, K ; Tucek, J ; Basten, M ; Gallagher, D
Northrop Grumman, (UNITED STATES)
- 09:50 220 GHz Ultra Wide Band TWTA: Nano CNC Fabrication and RF testing
Baig, A. ; Gamzina, D. ; Barchfeld, R. ; Zhao, J. ; Domier, C. W. ; Spear, A. ; Barnett, L. R. ; Luhmann, N. C.
University of California - Davis, (UNITED STATES)
- 10:10 High Power CW 264 GHz Tunable Extended Interaction Oscillator
Roitman, A. ; Horoyski, P. ; Steer, B. ; Berry, D.
CPI Canada, (CANADA)

Session 3C: RF Modeling

Chair: E.Bosch (TED)

Room: Georges Stephenson

- 08:30 **Keynote:** An External Circuit Model for Electromagnetic Particle-In-Cell Simulations
Lin, M. C. ; Zhou, C. D. ; Smithe, D. N.
Tech-X, (UNITED STATES)
- 08:50 A 3D Large Signal Model for Helix TWT*
David, J-F ; Bariou, D.
Thales Electron Devices, (FRANCE)
- 09:10 TWT Stability for Frequencies near a Band Edge
Chernin, D. ¹; Antonsen, T.M. ²; Vlasov, A.N. ³; Nguyen, K.N. ⁴; Joye, C.D. ³; Cooke, S.J. ³; Levush, B. ³
¹SAIC, (UNITED STATES); ²University of Maryland, (UNITED STATES); ³Naval Research Laboratory, (UNITED STATES); ⁴Beam-Wave Research, Inc., (UNITED STATES)
- 09:30 Conformal Time-Domain Particle-in-Cell Simulation of Vacuum Electronic Devices with Accurate Surface Loss
Cooke, S. ; Stantchev, G.
Naval Research Laboratory, (UNITED STATES)
- 09:50 SUNRAY-1D and SUNRAY-2.5D Codes for Large-Signal Analysis of a Space TWT
Srivastava, V.
CSIR Central Electronics Engineering Research Institute, (INDIA)
- 10:10 Application of External Circuit Model to MIG Gun LFO Study
Smithe, D. ; Lin, M. C. ; Zhou, S.
Tech-X Corporation, (UNITED STATES)
- 10:30 *Coffee Break*

Session 4A: High Power Microwaves I

Chair: M.Clark (TMD Technologies Ltd)

Room: Louis Armand

- 10:50 **Keynote:** Numerical Evaluation of the Role of Reflectors to Maximize the Power Efficiency of an Axial Vircator
Champeaux, S ¹; Gouard, P ¹; Cousin, R ²; Larour, J ³
¹CEA, (FRANCE); ²CST AG, (FRANCE); ³LPP, UMR7648 CNRS, Ecole Polytechnique, (FRANCE)
- 11:10 Microwave Oscillations in the Recirculating Planar Magnetron
Franzi, M. ¹; Gilgenbach, R ¹; French, D ²; Hoff, B ²; Lau, Y.Y. ¹; Simon, D ¹; Greening, G ¹; Jordan, N ¹; Luginsland, J ³
¹University of Michigan, (UNITED STATES); ²Air Force Research Laboratory, (UNITED STATES); ³Air Force Office of Scientific Research, (UNITED STATES)
- 11:30 Self-similar Regimes of Short Electromagnetic Pulses Amplification and Compression by Quasi-Stationary Electron Beams
Ryskin, N.M. ¹; Ginzburg, N.S. ²; Zotova, I.V. ²
¹Saratov State University, (RUSSIAN FEDERATION); ²Institute of Applied Physics, RAS, (RUSSIAN FEDERATION)
- 11:50 Unique Multi-Physics Approach of Self Phase Locked Magnetron (SPLM) System with CST STUDIO SUITE™
Balk, Monika ¹; Baek, Seungwon ²; Kim, Hyungjong ³; Kim, Kiho ³; Choi, Jinjoo ⁴
¹CST AG, (GERMANY); ²CST OF AMERICA, Inc., (UNITED STATES); ³LIG NEX1, (KOREA, REPUBLIC OF); ⁴Kwangwoon University, (KOREA, REPUBLIC OF)
- 12:10 Relativistic Magnetron-Driven Microwave Pulse Compressor based on the Traveling Wave Resonator
Sayapin, A.; Levin, A.; Krasik, Ya.
Technion, ISRAEL

Session 4B: Broadband and mm wave TWT's

Chair: Jinjun Feng (Beijing, Vacuum Electronics Research Institute)

Room: Friedrich List

- 10:50 **Keynote:** Development of High-Power Broadband Ka-band Cascaded-TWT
Nguyen, K.¹; Pershing, D.¹; Pasour, J.²; Ludeking, L.³; Wright, E.¹; Myers, R.¹; Vlasov, A.²; Abe, D.²; Levush, B.²; Petillo, J.⁴; Chernin, D.⁴
¹Beam-Wave Research, Inc., (UNITED STATES); ²Naval Research Laboratory, (UNITED STATES); ³ATK-Mission Research, (UNITED STATES); ⁴SAIC, (UNITED STATES)
- 11:10 Development of wide Band Helix Mini-TWT with "strong" Phase Velocity Control
Martorana, Rosario ; Dionisio, R. ; Nicosia, A.
Selex ES, (ITALY)
- 11:30 1.8 kWatt Broad Band Ka-band TWT Power Booster
Levush, B.¹; Abe, D.¹; Vlasov, A.N.¹; Chernyavskiy, I.¹; Cooke, S.J.¹; Legarra, J.²; Nguyen, K.N.²; Cusick, M.³; Begum, R.³; Stockwell, B.³; Ramirez-Aldana, J.L.³; Chernin, D.⁴
¹Naval Research Laboratory, (UNITED STATES); ²Beam-Wave Research, Inc., (UNITED STATES); ³CPI, (UNITED STATES); ⁴SAIC, (UNITED STATES)
- 11:50 Investigation of 0.14THz Folded Waveguide TWT
Wang, Yajun
Institute of Electronic Engineering China Academy of Engineering Physics, (CHINA)
- 12:10 Modeling of the NRL G-Band TWT Amplifier Using the CHRISTINE and TESLA Simulation Codes
Vlasov, A.¹; Chernyavskiy, I.¹; Joye, C.¹; Cook, A.¹; Calame, J.¹; Levush, B.¹; Chernin, D.²; Antonsen Jr., T.²; Nguyen, K.³
¹Naval Research Laboratory, (UNITED STATES); ²Science Applications International Corporation, (UNITED STATES); ³Beam-Wave Research Inc, (UNITED STATES)

Session 4C: Cold Cathodes II

Chair: D.Whaley (L-3 Communications Electron Devices Division)

Room: Georges Stephenson

- 10:50 **Keynote:** Microfocus X-Ray Tube Based on CNT Array
Chen, Z. ; Wang, Z. ; Hu, T. ; Zeng, Y. ; Tang, N.
University of Electronic Science and Technology of China, (CHINA)
- 11:10 Emittance and Emission from Arrays with Statistical Variation
Panagos, D.¹; Jensen, K.²; Petillo, J.¹
¹Science Applications International Corp., (UNITED STATES); ²US Naval Research Laboratory, (UNITED STATES)
- 11:30 Enhanced Field Emission from Chemically Synthesized Cadmium Sulphide-Polyaniline (CdS-PANI) Nanotube Composite
Patil, S. ; Shinde, A. ; Joag, D. ; More, M.
University of Pune, (INDIA)
- 11:50 3D Simulations of Secondary Electron Emission from Hydrogen-Terminated Diamond
Dimitrov, D.¹; Wang, E.²; Smedley, J.²; Ben-Zvi, I.²; Rao, T.²
¹Tech-X Corporation, (UNITED STATES); ²Brookhaven National Laboratory, (UNITED STATES)
- 12:10 A Novel Silicon Nanowire-based Electron Detector Utilized in Field Emission Scanning Electron Microscopes
Hajmirzaheydarali, M. ; Akbari, M. ; Mohajerzadeh, S.
University of Tehran, (IRAN, ISLAMIC REPUBLIC OF)

12:30 Lunch Break

14:00-18:00 Poster Session I

Session 5A: Microwave Tube Technologies

Chair: F.Doveil (Univ. of Marseille)

Room: Louis Armand

- 14:00 **Keynote:** Diminishing Manufacturing Sources and Material Sources Impacting the Microwave Tube Industry
Mitsdarffer, K.
NSWC Crane, (UNITED STATES)
- 14:20 High Power RF Window for Multi-Megawatt Power Transmission
Ives, L¹; Marsden, D¹; Collins, G¹; Lucovsky, G²; Zeller, D²; Schamiloglu, E³
¹Calabazas Creek Research, Inc., (UNITED STATES); ²N.C. State University, (UNITED STATES); ³University of New Mexico, (UNITED STATES)
- 14:40 Preliminary Results on the Multipactor Effect Prediction in RF Components with Ferrites
Puech, J.
CNES, (FRANCE)
- 15:00 Ka-Band Gyro-TWA Waveguide Severs for Circularly Polarized Waves.
Whyte, C
University of Strathclyde, UNITED KINGDOM
- 15:20 A 15-Beam Electron Gun for an X-Band Klystron
Read, M¹; Ives, L¹; Ferguson, P¹; Marsden, D¹; Collins, G¹; Borchard, P²
¹Calabazas Creek Research, Inc., (UNITED STATES); ²Dymenso, LLC, (UNITED STATES)
- 15:40 Experimental Investigation of the Influence of Electron Incidence Angle on the Total Electron Emission Yield of Silver
Gineste, T¹; Belhaj, M¹; Bundaleski, N²; Teodoro, O²; Pons, C¹; Puech, J³
¹ONERA, (FRANCE); ²CEFITEC, (PORTUGAL); ³CNES, (FRANCE)

Session 5B: Microwave Circuit Design

Chair: KH.Hübner (TESAT spacecom)

Room: Friedrich List

- 14:00 **Keynote:** New Klystron Topology Based on Periodic Sequence of High Order Mode Cavities
Paoloni, C.
Lancaster University, (UNITED KINGDOM)
- 14:20 On the Use of Metamaterials for Increasing of Output Power of Multibeam Klystrons
Galdetskiy, A.
FSUE Istok, (RUSSIAN FEDERATION)
- 14:40 Corkscrew Modulated Hollow-Beam Klystron for High Power and Frequency Multiplying Applications
Grede, A. G. ; Henke, H.
Technische Universitaet Berlin, (GERMANY)
- 15:00 Folded Meander-Line Slow-Wave Structure for Millimeter-Wave Traveling-Wave Tubes
Sumathy, M¹; Datta, S. K²; Lalit, Kumar²
¹MTRDC, (INDIA); ²MTRDC/DRDO, (INDIA)
- 15:20 Design of an Unconnected Pair of Planar Helices with Straight-Edge Connections for Application in TWTs
Zhao, C.¹; Aditya, S.¹; Chua, C.²; Jin, C.³
¹Nanyang Technological University, (SINGAPORE); ²Institute of High Performance Computing, A*STAR, (SINGAPORE); ³Institute of Microelectronics, A*STAR, (SINGAPORE)
- 15:40 Open Planar Sheath Slow-Wave Structure
Nguyen, L ; Antonsen, T ; Nusinovich, G
University of Maryland, College Park, (UNITED STATES)
- 16:00 Coffee Break

Session 6A: Gyrodevices II

Chair: E.Jensen (CERN)

Room: Louis Armand

- 16:20 **Keynote:** Recent Results in Development in Russia of Megawatt Power Gyrotrons for Fusion
Denisov, G. ¹; Litvak, A.G. ¹; Zapevalov, V.E. ¹; Myasnikov, V.E. ²; Tai, E.M. ²; Popov, L.G. ²; Nichiporenko, V.O. ²; Usachev, C.V. ²; Soluyanov, E.A. ²; Kazansky, I.V. ²; Kruglov, A.V. ²; Sokolov, E.V. ²; Ilin, V.I. ³
¹Institute of Applied Physics, (RUSSIAN FEDERATION); ²GYCOM Ltd, (RUSSIAN FEDERATION); ³Kurchatov Institute, (RUSSIAN FEDERATION)
- 16:40 Design and Operation of a 2 MW CW, RF Load for Gyrotrons
Ives, L. ¹; Mizuhara, M ¹; Collins, G. ¹; Borchard, P ²; Neilson, J ³
¹Calabazas Creek Research, Inc., (UNITED STATES); ²Dymenso, LLC, (UNITED STATES); ³Lexam Research, (UNITED STATES)
- 17:00 Status of high Power Gyrotron Development in JAEA
Sakamoto, K ; Kajiwaru, K ; Oda, Y ; Hayashi, K ; Takahashi, K ; Kobayashi, T ; Moriyama, S
Japan Atomic Energy Agency, (JAPAN)
- 17:20 Towards the Design of 100 kW, 95 GHz Gyrotron for Active Denial System Application
Singh, Udaybir
CEERI, (INDIA)
- 17:40 Design of the EU-1MW Gyrotron for ITER
Pagonakis, I. Gr. ¹; Gantenbein, G. ¹; Jelonnek, J. ¹; Jin, J. ¹; Illy, S. ¹; Kern, S. ¹; Piosczyk, B. ¹; Rzesnicki, T. ¹; Thumm, M. ¹; Alberti, S. ²; Hogge, J.-P. ²; Schlatter, C. ²; Tran, M.-Q. ²; Avramides, K. A. ³; Vomvoridis, J. L. ³; Ioannidis, Z. C. ⁴; Latsas, G. P. ⁴; Tigelis, I. G. ⁴; Bruschi, A. ⁵; Lontano, M. ⁵; Dumbrajs, O. ⁶; Benin, P. ⁷; Rozier, Y. ⁷; Albajar, F. ⁸; Bonicelli, T. ⁸; Cismondi, F. ⁸
¹Karlsruhe Institute of Technology (KIT), (GERMANY); ²EPFL-CRPP, (SWITZERLAND); ³National Technical University of Athens, (GREECE); ⁴National and Kapodistrian University, (GREECE); ⁵Istituto di Fisica del Plasma CNR, (ITALY); ⁶Institute of Solid State Physics, University of Latvia, (LATVIA); ⁷Thales Electron Devices, (FRANCE); ⁸The European Joint Undertaking for ITER and the Development of Fusion Energy, (SPAIN)

Session 6B: Power Supplies and Transmitters

Chair: L.Nilsson (Saab)

Room: Friedrich List

- 16:20 **Keynote:** A 100 Watt W-Band MPM
Wan, C. ; Marotta, C. ; Zubyk, A. ; Tucker, G. ; Meadows, C. ; True, R. ; Schoemehl, T. ; Duggal, R. ; Kirshner, M. ; Kowalczyk, R. ; Armstrong, C.
L-3 Communications Electron Devices, (UNITED STATES)
- 16:40 Robust High-Average-Power Modulator
Kempkes, Michael ; Roth, Ian ; Butler, Neal ; Gaudreau, Marcel
Diversified Technologies, Inc., (UNITED STATES)
- 17:00 Progress of an Integrated TWT for Phased Array Application
Hu, Y. F ; Feng, J. J ; Liu, M. H ; Cai, J ; Wu, X. P ; Liao, F. J
Beijing Vacuum Electronics Research Institute, (CHINA)
- 17:20 Affordable, Short Pulse Marx Modulator
Kempkes, Michael ¹; Phillips, Robert ¹; Gaudreau, Marcel ¹; Casey, Jeff ²
¹Diversified Technologies, Inc., (UNITED STATES); ²Rockfield Research, Inc., (UNITED STATES)
- 17:40 A 200W High Power MPM
Brown, N.R. ; Chan, D. ; Watkins, R. ; Springmann, D. ; Donald, A. ; Duggal, R. ; Schoemehl, T.
L3 Communications Electron Devices, (UNITED STATES)
- 18:00 End of afternoon Sessions
- 18:45 Departure for Conference Dinner at Musée des Arts Forains

Thursday 23 May 2013

08:30-12:30 Poster Session II

Session 7A: Gyrodevices III

Chair: J.Jelonnek (KIT)

Room: Louis Armand

- 08:30 **Keynote:** A High Gain Photonic Band Gap Gyrotron Amplifier
Nanni, E. ; Lewis, S. ; Shapiro, M. ; Temkin, R.
MIT, (UNITED STATES)
- 08:50 Operation of a Step-Frequency Tunable Gyrotron with a Diamond Brewster Angle Output Window
Gantenbein, G. ¹; Dammertz, G. ¹; Jelonnek, J. ¹; Losert, M. ¹; Samartsev, A. ¹; Schlaich, A. ¹; Scherer, T. ¹; Strauss, D. ¹; Thumm, M. ¹; Wagner, D. ²
¹Karlsruhe Institute of Technology, (GERMANY); ²Max Planck Institut für Plasmaphysik, (GERMANY)
- 09:10 High-Power Ka-band Gyroklystron Oscillator with Time-Delayed Feedback
Danilov, Yu.Yu. ¹; Guznov, Yu.M. ¹; Zaitsev, N.I. ¹; Kuzikov, S.V. ¹; Novozhilova, Yu.V. ¹; Shevchenko, A.S. ¹; Rozhnev, A.G. ²; Ryskin, N.M. ²
¹Institute of Applied Physics, RAS, (RUSSIAN FEDERATION); ²Saratov State University, (RUSSIAN FEDERATION)
- 09:30 W-band Gyro-TWA using a Cusp Electron Gun and a Helically Corrugated Interaction Region
He, W.
University of Strathclyde, (UNITED KINGDOM)
- 09:50 Experimental Study of a Q-Band Gyro-TWT
Liu, B. T. ; Li, Z. L. ; Wang, E. ; Xu, Z. ; Zhu, Y. ; Feng, J. J. ; Yan, T. Ch.
Beijing Vacuum Electronics Research Institute, (CHINA)
- 10:10 Frequency Multiplication in Relativistic Gyro-Klystron Operating with Combination of TE-TM Modes
Denisov, G. ; Zaitsev, N.I. ; Ahmedzhanov, T.R. ; Guznov, Yu.M. ; Kalynova, G.I. ; Kuftin, A.N. ; Moiseev, M.A. ; Shevchenko, A.S.
Institute of Applied Physics, (RUSSIAN FEDERATION)

Session 7B: Beam Optics

Chair: D. Chernin (SAIC)

Room: Friedrich List

- 08:30 **Keynote:** Design Considerations for Linear Beam Devices Employing Emittance Dominated Electron Beams
Whaley, D.
L-3 Communications Electron Devices, (UNITED STATES)
- 08:50 Experimental Investigation on Sheet Electron Beam Transport with Electron Beam Measuring and Analyzing System Developed in IECA
Ruan, Cunjun ¹; Li, Qingsheng ²; Wang, Shuzhong ²; Yang, Xiudong ²; Wu, Xunlei ²; Chongshan, Li ²
¹Key Laboratory of High Power Microwave Sources and Technologies, Institute of Electronics, Chinese A, (CHINA);
²Institute of Electronics, Chinese Academy of Sciences, (CHINA)
- 09:10 Advances in Beam Optics Analyzer
Bui, T. ; Read, Mike ; Ives, Lawrence ; Marsden, David ; Ferguson, Patrick ;
Calabazas Creek Research, Inc., (UNITED STATES);
- 09:30 Novel Scaling Laws for the Langmuir-Blodgett Solutions in Cylindrical and Spherical Diode
Zhu, Y. B. ¹; Zhang, P. ²; Valfells, A. ³; Ang, L. K. ⁴; Lau, Y. Y. ²
¹Nanyang Technological University, (SINGAPORE); ²University of Michigan, (UNITED STATES); ³Reykjavik University, (ICELAND); ⁴Singapore U of Technology and Design, (SINGAPORE)

- 09:50 Analysis of Quadrupole Focusing Lattices for Electron Beam Transport in Traveling-Wave Tubes
Nichols, K.¹; Schamiloglu, E.¹; Carlsten, B.²
¹University of New Mexico, (UNITED STATES); ²Los Alamos National Laboratory, (UNITED STATES)
- 10:10 Electrostatic Focusing for a Field Emission Electron Source
Jabotinski, V.¹; Pasour, J.²; Nguyen, K. T.¹; Petillo, J.³; Levush, B.²; Abe, D.²
¹Beam-Wave Research, UNITED STATES; ²U. S. Naval Research Laboratory, UNITED STATES; ³Scientific Applications International Corporation, UNITED STATES
- 10:30 Coffee Break

Session 8A: High Power Microwaves II

Chair: A.Galdetskiy (ISTOK)

Room: Louis Armand

- 10:50 **Keynote:** Locked Generation in Relativistic TWT near Region of Cyclotron Suppression of Parasitic Feedback
Schamiloglu, E.
University of New Mexico, (UNITED STATES)
- 11:10 Technological Development for X-band Plasma Assisted Slow Wave Oscillator (PASOTRON)
Kumar, N. ; Verma, D ; Ahmed, M ; Pal, U ; Kumar, M ; Prakash, R ; Srivastava, V
CSIR-CEERI, (INDIA)
- 11:30 Plasma-Tunable Metamaterials and Periodic Structures
Liu, Chien-Hao ; Behdad, Nader
Department of Electrical and Computer Engineering University of Wisconsin-Madison, (UNITED STATES);
- 11:50 High-Power Microwave Pulse Compressor Operating in Two Frequencies
Shlapakovski, A. ; Beilin, L. ; Krasik, Ya.
Technion, (ISRAEL)
- 12:10 Feasibility of Quantum Analogues of Classical Microwave Devices on Longitudinal Interaction
Mozgovoi, Yu. D. ¹; Kanavets, V. I. ²; Khritkin, S. A. ¹
¹National Research University Higher School of Economics, (RUSSIAN FEDERATION); ²Lomonosov Moscow State University, (RUSSIAN FEDERATION)

Session 8B: W Band TWT's

Chair: R.Martorana (SELEX ES)

Room: Friedrich List

- 10:50 **Keynote:** A 100 Watt W-Band MPM TWT
Kowalczyk, R. ; Zubyk, A. ; Meadows, C. ; Martin, M. ; Kirshner, M. ; True, R. ; Theiss, A. ; Rominger, J. ; Armstrong, C.
L-3 Communications Electron Devices, (UNITED STATES)
- 11:10 Development of W-band Folded Waveguide pulsed TWT
Cai, J ; Feng, Jinjun ; Hu, Yinfu ; Du, Yinghua ; Tang, Ye ; Liu, Jingkai ; Dong, Ruitong ; Chen, Ji ; Wu, Xianping
Beijing Vacuum Electronics Research Intitute, (CHINA);
- 11:30 Design of a Wideband High-Power W-band Serpentine TWT
Nguyen, K.¹; Ludeking, L.²; Cook, A.³; Cooke, S.³; Joye, C.³; Calame, J.³; Burke, A.⁴; Wright, E.¹; Pershing, D.¹; Pasour, J.³; Petillo, J.⁴; Vlasov, A.³; Chernin, D.⁴; Abe, D.³; Levush, B.³
¹Beam-Wave Research, Inc., (UNITED STATES); ²ATK-Mission Research, (UNITED STATES); ³Naval Research Laboratory, (UNITED STATES); ⁴SAIC, (UNITED STATES)
- 11:50 Experimental Measurement of W-band Backward-Wave Amplification Driven by External Pulsed Signals
Baik, C. W.
Samsung Advanced Institute of Technology, (KOREA, REPUBLIC OF)

- 12:10 Effects of Random Circuit Fabrication Errors on the Mean and Standard Deviation of Small Signal Gain and Phase in a TWT
Rittersdorf, I.M. ¹; Antonsen, Jr., T.M. ²; Chernin, D. ³; Lau, Y.Y. ¹
¹University of Michigan, (UNITED STATES); ²University of Maryland, (UNITED STATES); ³Science Applications International Corporation, (UNITED STATES)

12:30 Lunch Break

14:00-18:00 Poster Session III

Session 9A: Microwave Design and RF Modeling

Chair: N.Ryskin (Saratov)

Room: Louis Armand

- 14:00 **Keynote:** Parallel 2D Large-signal Modeling of Cascaded TWT Amplifiers
Chernyavskiy, I. ¹; Vlasov, A. ²; Levush, B. ²; Antonsen, T. ³; Nguyen, K. ⁴
¹Naval Research Laboratory, (UNITED STATES); ²Naval Research Laboratory, (UNITED STATES); ³SAIC, (UNITED STATES); ⁴Beam-wave Research, Inc., (UNITED STATES)
- 14:20 Design of the Radio Frequency Section of a J-band Multiple Beam Klystron
Bandyopadhyay, A.K. ¹; Maity, S. ²; Joshi, L.M. ¹; Kant, D. ¹; Singh, A.K. ¹
¹Central Electronics Engineering Research Institute (CSIR-CEERI), (INDIA); ²Greater Kolkata College of Engineering and Management, (INDIA)
- 14:40 Hamiltonian Description of Electron Dynamics and its Radiated Field in a Periodic Structure
ANDRÉ, F. ¹; BERNARDI, P. ¹; RYSKIN, N. M. ²; DOVEIL, F. ³; ELSKENS, Y. ³
¹Thales Electron Devices, (FRANCE); ²Saratov State University, (RUSSIAN FEDERATION); ³UMR 7345 CNRS–Aix-Marseille-Université, (FRANCE)
- 15:00 Dispersive Properties of Serpentine and Folded Waveguide Circuits
Vlasov, A. ¹; Chernyavskiy, I. ¹; Levush, B. ¹; Chernin, D. ²; Antonsen Jr., T. ²; Nguyen, K. ³
¹Naval Research Laboratory, (UNITED STATES); ²Science Applications International Corporation, (UNITED STATES); ³Beam-Wave Research Inc., (UNITED STATES)
- 15:20 The Circuit Design and Particle-in-Cell Simulation for W-Band High-Power Extended Interaction Klystron
Zhang, C. Q. ; Ruan, C. J. ; Zhao, D. ; Wang, S. Z. ; Yang, X. D.
Institute of Electronics, Chinese Academy of Sciences, (CHINA)
- 15:40 Bi-helix SWS for High-Power TWTs
Pchelnikov, Y.N. ¹; Vlasov, A.N. ²; Chernin, D. ³
¹Consultant, (UNITED STATES); ²Naval Research Laboratory, (UNITED STATES); ³SAIC, (UNITED STATES)

Session 9B: Thermionic Cathodes II

Chair: I.Milsom (E2V Technologies)

Room: Friedrich List

- 14:00 **Keynote:** An Ammonium Perrhenate Impregnated Ni Sponge Oxide Cathode
Wang, Xiaoxia ; Zhao, Qinglan ; Luo, Jirun ; Li, Yun ; Liao, xianheng ; Zhang, Qi
Institute of Electronics, Chinese Academy of Sciences, (CHINA)
- 14:20 Scandate Cathode with Sharp Transition
Vancil, B. ¹; Brodie, I. ²; Schmidt, V. ³; Lorr, J. ³
¹e beam, inc., (UNITED STATES); ²University of California, Davis, (UNITED STATES); ³e beam inc., (UNITED STATES)
- 14:40 Sol-gel Synthesis of Sc₂O₃ Doped W Nano-particle for Cathode Application
Barik, R. ; Bera, A. ; Tanwar, A.K. ; Baek, I.K. ; Eom, K. ; Sattarov, M.A. ; Min, S.H. ; Kwon, O.J. ; Park, G-S
Seoul National University, (KOREA, REPUBLIC OF)

- 15:00 Surface Characteristics of Scandate Dispenser Cathodes during Life
Wang, Y. ; Wang, J. ; Zhang, X. ; Wang, X. ; Yang, F. ; Liu, W.
Beijing University of Technology, (CHINA)
- 15:20 Emission Energy Barriers of Scandate Surfaces with adsorbed Ba and Ba-O using Density Functional Theory
Jacobs, R. ; Morgan, D. ; Booske, J.
University of Wisconsin- Madison, (UNITED STATES)
- 15:40 LaB6 Cathode Workfunction Evaluation
Katsap, V
NuFlare Technology, UNITED STATES
- 16:00 Coffee Break

Session 10A: THz

Chair: C.Paoloni (Univ. of Lancaster)

Room: Louis Armand

- 16:20 **Keynote:** Testing of a 0.850 THz Vacuum Electronic Power Amplifier
Tucek, J. C. ; Basten, M. A. ; Gallagher, D. A. ; Kreischer, K. E.
Northrop Grumman, (UNITED STATES)
- 16:40 Cherenkov-Like Radiation from Metallic Metamaterials
Park, G-S. ; Bera, Anirban ; Sattarov, M.A ; Kwon, O.J ; Barik, R.K ; Min, S.H
Seoul National University, (KOREA, REPUBLIC OF)
- 17:00 G-Band Power Module Development at Northrop Grumman
Basten, M.A. ; Tucek, J.C. ; Gallagher, D.A. ; Kreischer, K.E.
Electronic Systems, Northrop Grumman Corporation, (UNITED STATES)
- 17:20 Surface Resistance of Copper from 400 to 850 GHz
Kirley, M. P. ; Booske, J. H.
University of Wisconsin-Madison, (UNITED STATES)
- 17:40 Periodic-Surface-Lattice Cavities for MM-Wave Vacuum Electronic Sources
MacLachlan, A.J. ¹; Konoplev, I.V. ²; Robertson, C.W. ¹; Phipps, A.R. ¹; Phelps, A.D.R. ¹; Cross, A.W. ¹
¹University of Strathclyde, (UNITED KINGDOM); ²University of Oxford, (UNITED KINGDOM)

Session 10B: Satcom and Space TWT's

Chair: J.Puech (CNES)

Room: Friedrich List

- 16:20 **Keynote:** An 80 Watt Dual Ka/Q-Band Mini TWT
Taylor, J ; Chan, D ; Donald, A ; True, Richard ; Vlahos, V ; Zubyk, A
L-3 Communications Electron Devices, (UNITED STATES)
- 16:40 High Power Millimeter Wave Helix TWT Programs at L-3 ETI
Chong, C. ; Cordrey, D. ; Dawson, R. ; Forster, J. ; Layman, D. ; Ramay, M. ; Stolz, R. ; Washington, C.
L-3 Communications Electron Technologies, Inc., (UNITED STATES)
- 17:00 Second Harmonic Suppression in Helix Traveling-Wave Tubes
Gehrmann, E. ¹; Jacob, A.F. ¹; Birtel, P. ²; Dürr, W. ²
¹Technische Universität Hamburg-Harburg, (GERMANY); ²Thales Air Systems & Electron Devices GmbH, (GERMANY)
- 17:20 High-Efficiency, 200-W Ku-band Traveling-Wave Tubes for Satellite Communications Downlinks
Menninger, W. ; Eze, D. ; Hollister, R. ; Martin, R.
L-3 Electron Technologies, Inc., (UNITED STATES)

17:40 Hybrid Time-Domain Measurement and Pre-distortion of Broadband Complex Waveforms in a Ka-band TWT Amplifier

Stantchev, G.¹; Abe, D.¹; Levush, B.¹; Hanna, J.²; Chernin, D.³; Antonsen, T.³

¹US Naval Research Laboratory, (UNITED STATES); ²Beam-Wave Research, (UNITED STATES); ³SAIC, (UNITED STATES)

18:00 *End of afternoon Sessions*

Poster Session I - Wednesday 22 May, 14:00-18:00

Beam Optics and other Modeling

- 1.1 Sheet Electron Beam Formation and Transport in the Uniform Magnetic Field
Tang, X. F.; Sha, G. W.; Duan, Z. Y.; Wang, Z. L.; Wei, Y. Y.; Gong, Y. B.
University of Electronic Science and Technology of China, CHINA
- 1.2 Research on W-Band Sheet Beam Electron Optics System
Yang, X. D.; Wang, S. Z.; Ruan, C. J.; Zhao, D.; Zhang, C. Q.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 1.3 Electrostatic Focusing for a Field Emission Electron Source b !
Jabotinski, V.¹; Pasour, J.²; Nguyen, K. T.¹; Petillo, J.³; Levush, B.²; Abe, D.²
¹Beam-Wave Research, UNITED STATES; ²U. S. Naval Research Laboratory, UNITED STATES; ³Scientific Applications International Corporation, UNITED STATES
- 1.4 Space Charge Effect of Time-dependent Emission Current Excited from Ultrafast Laser
Liu, Y. J.¹; Ang, L. K.²
¹Nanyang Technological University, SINGAPORE; ²Singapore U of Technology and Design, SINGAPORE
- 1.5 3D Large-Signal Capability in Beam Optics Analyzer
Bui, T.; Read, Mike; Ives, Lawrence
Calabazas Creek Research, Inc., UNITED STATES
- 1.6 Multi-Source, Complex Beamline Model Development in MICHELLE eBEAM
Ovtchinnikov, S.G.¹; Cooke, S.J.²; Mkrtchyan, M.M.¹; Shtokhamer, R.¹; Vlasov, A.N.²; Petillo, J.J.¹; Levush, B.²
¹SAIC, UNITED STATES; ²Naval Research Laboratory, UNITED STATES
- 1.7 Efficient Algorithm for Numerical Integration of Motion Equations of Large Particles in Microwave Devices b !
Kurayev, A.A.; Batura, M.P.; Rak, A.O.
Belarusian State University of Informatics and Radioelectronics, BELARUS
- 1.8 Sheet Beam Design Using EOS
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 1.9 The Research of Multi-Beam Gridded Electron Gun Simulation b !
Tian, TH
Nanjing Sanle Electronic Information Industry Group, Institute of Electronic Devices, Inc, CHINA
- 1.10 Comparison of PPM and Solenoidal Focusing in Multi-beam Electron Gun b !
Sharma, RK¹; Choyal, Y²; Nehra, A¹
¹CSIR-CEERI, Pilani, INDIA; ²DAV Indore, INDIA

High Power Microwaves

- 1.11 Resonance Effects in the Quantum Exchange Interaction of Electrons and Positrons Beams
Mozgovoï, Yu. D.¹; Kanavets, V. I.²; Khritkin, S. A.¹
¹National Research University Higher School of Economics, RUSSIAN FEDERATION; ²Lomonosov Moscow State University, RUSSIAN FEDERATION

- 1.12 Microwave Radiation of Passing and Counter Electron Beams in Electrodynamics Systems
Mozgovoi, Yu. D.¹; Khritkin, S. A.¹; Evdokimov, Yu. V.²
¹National Research University Higher School of Economics, RUSSIAN FEDERATION; ²Moscow Radiotechnical Institute of Russian Academy of Sciences, RUSSIAN FEDERATION
- 1.13 Features of the Interaction of Electron and Positron Beams in Smoothly Waveguide
Mozgovoi, Yu. D.; Khritkin, S. A.
 National Research University Higher School of Economics, RUSSIAN FEDERATION
- 1.14 Self-ionization of the Electron-Positron Medium
Mozgovoi, Yu. D.¹; Kanavets, V. I.²; Khritkin, S. A.¹
¹National Research University Higher School of Economics, RUSSIAN FEDERATION; ²Lomonosov Moscow State University, RUSSIAN FEDERATION
- 1.15 Asymmetric Immersed Pole Undulators for High-Frequency Sources
Jackson, R.; Read, M.; Ives, R. L.
 Calabazas Creek Research, Inc., UNITED STATES
- 1.16 Power Estimation of Electromagnetic Coupling Effectiveness by a X-band Backward Wave Oscillator with Mode Conversion
Min, S.H.¹; Kwon, O.¹; Sattarov, M.¹; Baek, I.K.¹; Kim, S.T.¹; Bera, A.¹; Barik, R.K.¹; Lee, W.S.²; So, J.H.²; Park, G.S.¹
¹Seoul National University, KOREA, REPUBLIC OF; ²Agency for Defense Development, KOREA, REPUBLIC OF
- 1.17 The Cutoff Magnetron with the Reverse Magnetic System Design and the Device Development Prospects
Akimov, P. I.¹; Kalashnikov, D.A.¹; Melnichuk, G.V.¹; Senatov, O.I.¹; Sigalaev, V.N.¹; Freydovich, I.A.¹; Chudin, V.G.¹; Sergeev, K.L.²
¹FSUE R&PC Toriy, RUSSIAN FEDERATION; ²Joint stock company Spetsmagnit, RUSSIAN FEDERATION
- 1.18 On the Slow-Wave Structure Operation in the Vicinity of the Cutoff Frequency and Means to Enhance the Cutoff Magnetron Life Characteristics
Akimov, P.I.; Kalashnikov, D.A.; Melnichuk, G.V.; Senatov, O.I.; Sigalaev, V.N.
 FSUE R&PC, RUSSIAN FEDERATION
- 1.19 Recuperation in Superpower Cherenkov Oscillator with Inhomogeneous Magnetic Field b !
Kurayev, A.A.; Sinitsyn, A.K.; Rak, A.O.
 Belarusian State University of Informatics and Radioelectronics, BELARUS
- 1.20 FSUE "R&P Corp. "Toriy" Powerful Vacuum RF Tubes.
Melnichuk, G.V.; Akimov, P. I.; Komarov, D. A.; Korotkov, A. F.; Konnov, A. V.; Morev, S. P.; Nikitin, A. P.; Prokofiev, B. V.; Saharov, V. P.; Sigalaev, V. N.; Smirnov, V. A.; Freidovich, I. A.; Yakushekin, E. P.
 FSUE R&PC Toriy, RUSSIAN FEDERATION
- 1.21 Study on High Power Ka-band Rectangular Double-Grating Sheet Beam Device
Zhang, Y. B.¹; Cao, Z.²; Wang, Z. L.¹; Wei, Y. Y.¹; Gong, H. R.¹; Wang, S. M.¹; Gong, Y. B.¹
¹University of Electronic Science and Technology of China, (CHINA); ²China Electronics Standardization Institute, (CHINA)

Space and Satcom TWT's

- 1.22 Asymmetric Cross-Field Multi-Stage Depressed Collector with Half Cylinder Electrodes for Space Applications b !
Mercy Latha, A; Srivastava, V; Sharma, RK; Ghosh, SK
CSIR-CEERI, INDIA
- 1.23 Compact and Light-weight Multi-stage Depressed Collector for Space Traveling wave Tubes b !
Mercy Latha, A; Kaur, Jaspreet; Vishant, Gahlaut; Srivastava, V; Sharma, RK; Ghosh, SK
CSIR-CEERI, INDIA
- 1.24 Effects of Helix Support Geometry on Heat Dissipation from it in a Traveling-Wave Tube b !
Gahlaut, V.¹; Latha, A Mercy¹; Alvi, PA²; Sharma, RK¹; Srivastava, V.¹; Ghosh, SK¹
¹Central Electronic Engineering Research Institute, INDIA; ²Banasthali University, INDIA
- 1.25 Development of K-band 50% efficiency 30W Helix TWT b !
Qu, Bo
Beijing Vacuum Electronics Research Institute, CHINA
- 1.26 Simulation and Experiment of K-band Space TWT Electron Gun b !
Wei, Y. X.; Huang, M. G.; Liu, S. Q.; Li, X. X.; Hao, B. L.; Liu, P. K.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 1.27 Design and Experiment of a V- Band Helix TWT
Li, L.; Jinjun, F.; Bo, Q.; Yanhua, S.
Beijing Vacuum Electronics Research Institute, CHINA
- 1.28 Development of Ku-Band 150W Space TWT
Liang, Xiao feng
Beijing Vacuum Electronics Research Institute, CHINA

Thermionic Cathodes

- 1.29 Fabrication and Emission Property of LaC2-Mo Cathode
Wang, Jinshu
Beijing University of Technology, CHINA
- 1.30 Plasma spraying metal-porous Cathodes for high-power Microwave Devices
Smirnov, V.A.¹; Akimov, P.I.¹; Melnichuk, G.V.¹; Chudin, V.G.¹; Nikitin, A.P.¹; Freydovich, I.A.¹; Potapov, Y.A.¹; Sudakov, Y.S.¹; Bogoslovskaya, A.B.²
¹FSUE R&PC Toriy, RUSSIAN FEDERATION; ²Peoples Friendship University of Russia, RUSSIAN FEDERATION
- 1.31 Wetting and Micro-Structural Variations of Nano-Composite Brazing Fillers for Dispenser Cathode Manufacturing
Busbaheer, D.¹; Liu, W.²; Sekulic, D.²
¹Semicon Associates, UNITED STATES; ²University of Kentucky, UNITED STATES
- 1.32 Current-Noise Characteristics as an Instrument for Quality Estimation of hot Cathodes
Smirnov, V.A.¹; Chudin, V.G.¹; Vorobyev, M.D.²; Akimov, P.I.¹; Chirkov, M.N.²; Yudaev, D.N.²
¹FSUE R&PC Toriy, RUSSIAN FEDERATION; ²Moscow Power Engineering Institute, RUSSIAN FEDERATION

- 1.33 Composition and Work Function Relationship in Os-Ru-W Ternary Alloys
Swartzentruber, P.¹; Balk, T.J.¹; Roberts, S.²; Effgen, M.²
¹University of Kentucky, UNITED STATES; ²Semicon Associates, UNITED STATES
- 1.34 Cathode Manufacturing Relational Data Collection and Process Control System
Wolverton-Spencer, L.; Effgen, M
 Semicon Associates, UNITED STATES
- 1.35 Impregnation of High Purity Ba-Ca Aluminate on a Porous Tungsten Matrix Obtained from W-Cu Composite for TWT Thermionic Cathodes
Motta, C.¹; Sene, F.²; Mancini, V.²; Santos, V.¹
¹University of Sao Paulo, BRAZIL; ²Nuclear and Energy Research Institute, BRAZIL
- 1.36 Thermionic Emission of Impregnated Dispenser Cathodes at Low Temperature
Zheng, Q.¹; Yin, S.Y.¹; Peng, Z.²; Wang, Y.¹; Wang, X. X.¹; Li, Y.¹
¹Chinese Academy of Sciences, CHINA; ²University of Chinese Academy of Sciences, CHINA
- 1.37 Work Function Measurements on Coated and Uncoated Tungsten Dispenser Cathodes Using a Kelvin Probe
Tarter, J.¹; Swartzentruber, P.²; Balk, J.²
¹Semicon Associates, UNITED STATES; ²University of Kentucky, UNITED STATES
- 1.38 The Effects of Mass Load on Cathode Etching and Hydrogen Consumption
Connor, Derrick; Faulkner, Scott
 Semicon Associates, UNITED STATES
- 1.39 The Modeling and Mesh of a Simple Cathode-Heater Assembly Structure
Xin-wei, LI
 Institute of Electronics, CHINA
- 1.40 Research about Cathode and heater Assembly of Gyrotron
Zhang, ZY
 Nanjing Sanle Electronic Information Industry Group, Institute of Electronic Devices, Inc, CHINA
- 1.41 Emission Performance of Cathode coated with W+BaO/SrO/Sc₂O₃ Film prepared by PLD
Peng, Zhen¹; Yin, Shengyi²; Zheng, Qiang²; Wang, Xinxin²; Wang, Yu²; Li, Yang²
¹Institute of Electronics, University of Chinese Academy of Sciences, CHINA; ²Key Laboratory of High Power Microwave Sources and Technologies, Institute of Electronics, Chinese Ac, CHINA

THz

- 1.42 Three-Dimensional Particle-in-Cell Simulations of Terahertz Smith-Purcell Radiation Generated from Tapered Grating
Liu, W.
 Institute of Electronics, Chinese Academy of Sciences, CHINA
- 1.43 Nonrelativistic Electron Beam Control and Its Application in Terahertz Radiation Generation
Gong, H.; Xu, J; Wang, Z; Tang, T; Gong, Y
 University of Electronic Science and Technology of China, CHINA

- 1.44 Development on W-Band Coupled-Cavity Device b !
Sattorov, M. A.¹; Tanwar, A. K.²; Bera, A.²; Barik, R. K.²; Min, S. H.²; Kwon, O.²; Park, G. S.²
¹Seoun National University, KOREA, REPUBLIC OF; ²Seoul National University, KOREA, REPUBLIC OF

- 1.45 Photonic Crystals Assisted Slow Wave Structure for THz Vacuum Devices
Letizia, R; Paoloni, C; Mineo, M; Pinto, D
Lancaster University, UNITED KINGDOM

- 1.46 Structure Design and Simulation of Extended Interaction Oscillator
Zhong, Y.
Institute of Electronics, Chinese Academy of Sciences, CHINA

- 1.47 Cylindrical Equivalent Model for Fast Gain Calculation of Sub-terahertz Sheet Beam TWT and Beam Transport Analysis through Twisted SWS b !
Panda, P. C.¹; Srivastava, Vishnu¹; Vohra, Anil²
¹CSIR-Central Electronics Engineering Research Institute, INDIA; ²Kurukshetra University, Kurukshetra Haryana, INDIA

- 1.48 Investigation of 0.14THz Pill-box Window for Folded Waveguide TWT
Chen, Z.; Wang, Y.J.
Institute of Electronic Engineering, China Academy of Engineering Physics, CHINA

- 1.49 Breakthrough UV-LIGA Microfabrication of Sub-mm and THz Circuits b !
Joye, C.; Cook, A.; Calame, J.; Abe, D.; Levush, B.
U.S. Naval Research Laboratory, UNITED STATES

- 1.50 Improvement of Cold Parameters of the double Corrugated Waveguide by Geometrical Shaping of the Corrugations
Mineo, M.; Paoloni, C.
Lancaster University, UNITED KINGDOM

- 1.51 Amplifiers of Millimetric and Submillimetric Wave Bands on Orbotron-Klystrons with Sheet Beams b !
Aksenchyk, A.V.; Yeryomka, V.D.; Kirinovich, I.F.; Kyrayev, A.A.
Belarusian State University of Informatics and Radioelectronics, BELARUS

- 1.52 Optimized Variants of 0.18 -THz Orbictron-Amplifier b !
Yeryomka, V.¹; Kurayev, A.²; Sinitsyn, A.²
¹Usikov IRE NASU, UKRAINE; ²BSUIR, BELARUS

- 1.53 A 0.65-THz BWO Based on Slotted Single-Grating Rectangular Waveguide
Xie, W.-Q.¹; Wang, Z.-C.²; Luo, J.-L.²; Liu, Q.-L.²
¹Chinese Academy of Science, CHINA; ²Institute of Electronics, Chinese Academy of Sciences, CHINA

- 1.54 Modeling and Characterization of a Slow-Wave Structure for a Sheet-Beam Sub-THz TWT Amplifier
Ryskin, N.M.¹; Rozhnev, A.G.¹; Karetnikova, T.A.¹; Torgashov, G.V.²; Sinitsyn, N.I.²; Shalaev, P.D.³; Burtzev, A.A.⁴
¹Saratov State University, RUSSIAN FEDERATION; ²Saratov Branch, Institute of Radio Engineering and Electronics, RAS, RUSSIAN FEDERATION; ³"Almaz" R&D Co., Saratov, RUSSIAN FEDERATION; ⁴"Almaz" R&D Co., Saratov, RUSSIAN FEDERATION

- 1.55 Simulation of High Frequency Structure for Extended Interaction Oscillator b !

Zhao, Chao

Institute of Electronics, Chinese Academy of Sciences, CHINA

- 1.56 Time-Domain Calculation Of The Interaction Of THz Backwave Oscillator b !

Liu, T.¹; Wang, Z.C.²; Liu, P.K.²

¹China University of Petroleum, CHINA; ²Chinese Academy of Sciences, CHINA

W Band and other TWT's

- 1.57 Double-Grating Rectangular Waveguide for W-Band Traveling-Wave Tube b !

Liu, Q.L.; Wang, Z.C.; Liu, P.K.; Xie, W.Q.

Institute of Electronics, Chinese Academy of Sciences, CHINA

- 1.58 W-Band Rectangular Ring-Bar Structure with Straight-Edge Connections

Chua, C.¹; Aditya, S.²; Lau, Y. Y.³

*¹Institute of High Performance Computing, A*STAR (Agency for Science, Technology and Research), SINGAPORE; ²School of Electrical and Electronic Engineering, Nanyang Technological University, SINGAPORE;*

³Department of Nuclear Engineering and Radiological Sciences, University of Michigan, UNITED STATES

- 1.59 Development of a Wideband W-band Serpentine Waveguide TWT

Cook, A. M.¹; Joye, C. D.¹; Calame, J. P.¹; Nguyen, K. T.²; Chernin, D. P.³; Vlasov, A.¹; Abe, D. K.¹; Levush, B.¹

¹U.S. Naval Research Laboratory, UNITED STATES; ²Beam-Wave Research, Inc., UNITED STATES; ³SAIC, UNITED STATES

- 1.60 An Evaluation of Heat Dissipation Capability of Slow-wave Structure by Micro Fiber Bragg Grating Sensor Array

Wei, P.¹; Zhu, L.¹; Zhang, J.¹; Wang, X.F.¹; Zhao, X.Q.¹; Zhou, M.G.²; Yang, M.H.²; Sun, X.H.¹

¹Southeast University, CHINA; ²Beijing Vacuum Electronic Research Institute, CHINA

- 1.61 Reducing the Gain Change in Broadband TWTs b !

Danilov, A.B.; Il'ina, E.M.; Rafalovich, A.D.; Shalaev, P.D.

The Open Joint-Stock Company NPP "Almaz", RUSSIAN FEDERATION

- 1.62 Coherence Resonance in TWT and BWO Autogenerators b !

Sadovnikov, S; Dmitriev, Boris; Zharkov, Yuri; Skorokhodov, Valentin

Saratov State University, RUSSIAN FEDERATION

- 1.63 Simulations of a Ka-Band 7-Beam coupled-cavity Traveling-Wave Tube when the operating Frequency is near one of the cutoff Frequencies.

Komarov, D. A.; Darmaev, A. N.; Makeev, A. E.; Morev, S.P.

FSUE R&PC Toriy, RUSSIAN FEDERATION

Poster Session II - Thursday 23 May 2013, 08:30-12:30

Cold Cathodes

- 2.1 Dielectric Enhancement of Electric Fields for a Noble Cold Cathode
Chung, M.¹; Chun, J.¹; Mayer, A.²; Miskovsky, N.³; Cutler, P.³
¹University of Ulsan, KOREA, REPUBLIC OF; ²University of Namur, BELGIUM; ³Pennsylvania State University, UNITED STATES
- 2.2 Improved Field Emission Algorithms for Modeling Field Emission Devices Using a Conformal Finite-Difference Time-Domain Particle-In-Cell Method
Lin, M. C.; Loverich, J.; Stoltz, P. H.; Nieter, C.
Tech-X, UNITED STATES
- 2.3 Improving the Field Emission Property of Zinc Oxide by Directly Growing on Graphene Layer
Zhao, N.; Shi, C.Y.; Qu, K.; Li, C.; Lei, W.; Zhang, X.B.
School of Electronic Science and Engineering, Southeast University, CHINA
- 2.4 cancelled
- 2.5 High Current Density Edge Electron Emission from Graphene Paper b !
Liu, J; Li, N; Zeng, B
University of Electronic Science and Technology of China, CHINA
- 2.6 Novel Field Emission from Graphene Sheets supported by CNTs Arrays
Qu, K.¹; Zhang, X. B.²; Cole, M. T.³; Li, C.¹; Zhao, N.²; Shi, C. Y.²; Ding, S. Y.²; Ying, K.⁴; Lei, W.²; Wang, B. P.²; Milne, W. I.⁴
¹Display Research Centre, School of Electronic Science and Engineering, Southeast University, Nanji, CHINA;
²Display Research Centre, School of Electronic Science and Engineering, Southeast University, Nanjin, CHINA;
³Department of Engineering, Electrical Engineering Division, University of Cambridge, CB3 0FA, Cambri, UNITED KINGDOM; ⁴Department of Engineering, Electrical Engineering Division, University of Cambridge, 9 JJ Thomson Av, UNITED KINGDOM
- 2.7 Pulse Field Emission Characteristics of the Vertical Few-layer Graphene Cold Cathode b !
Zhang, Y.; Deng, D.L.; Deng, S.Z.; Chen, J.; Xu, N.S.
Sun Yat-sen university, CHINA
- 2.8 The Improvement of Field Emission Characteristic after high Temperature Sealing Process of Carbon Nano-Tube X-Ray Tube
Jeong, J. W.; Kim, J. W.; Kang, J. T.; Choi, S. Y.; Choi, J. Y.; Ahn, S. J.; Song, Y. H.
ETRI, KOREA, REPUBLIC OF
- 2.9 Implementation field-emitting Planar Matrices in Electron-Optic Systems of powerful RF Devices
Darmaev, A. N.¹; Aban'shin, N. P.²; Gorfinkel, B. I.²; Komarov, D. A.¹; Makeev, A. E.¹; Yakunin, A. N.³
¹FSUE R&PC Toriy, RUSSIAN FEDERATION; ²Volga-Svet Co. Ltd, RUSSIAN FEDERATION; ³Institute of Precise Mechanics and Control, RAS, RUSSIAN FEDERATION
- 2.10 Highly Adhesive Carbon Nanotube Field Emitters with a Carbide Filler
Kim, J.-W.; Jeong, J.-W.; Kang, J.-T.; Choi, S.; Choi, J.; Ahn, S.; Song, Y.-H.
Electronics and Telecommunications Research Institute, REPUBLIC OF KOREA

- 2.11 Direct Synthesis of Carbon Nanotube on Stainless Steel Cathode
Zhang, Y.; Deng, S.Z.; Chen, J.; Xu, N.S.
Sun Yat-sen university, CHINA
- 2.12 Pressed Metal-Alloy Palladium-Barium Cathode.
Li, I.P.¹; Polivnikova, O.V.²
¹*OJSC "Pluton", RUSSIAN FEDERATION; ²FSUE "Istok", RUSSIAN FEDERATION*
- 2.13 The Field Emission Properties of Diamond-like Carbon Film Prepared by Filtered Cathodic Vacuum Arc
Wang, C.; Zhao, Z.W.; Chen, Y.Q.
Southeast University, CHINA
- 2.14 Design of Carbon Nanotube Cathode Electron Gun for Travelling Wave Tube Applications b !
Li, X.; Cai, S.; Bai, G.; Li, H.; Ding, M.; Feng, J.; Liao, F.
Beijing Vacuum Electronics Research Institute, CHINA
- 2.15 Enhanced Adsorption between Defective Carbon Nanotubes and Metal Chlorides based on First-Principles Calculations b !
Liu, Weihui; Xu, Shunfu
Shandong university of science and technology, CHINA
- 2.16 Study of Field Screening Effect for Cone-type Field Emitter Arrays b !
Li, Nannan¹; Zeng, Baoqing¹; Liu, Jianlong¹; Zhang, Hai¹; Guo, Jing¹; Xiang, Wei²; Tan, Xiaohua²; Jin, Dazhi²; Qian, Muyang²; Zhao, Xinghai²
¹*University of Electronics Science and Technology of China, CHINA; ²Chinese Academy of Engineering Physics, CHINA*
- 2.17 Simulation and Design of Surface-Conduction Field Emission Display
Li, Haiyan; Zhu, Zhuoya; Lei, Wei; Zhang, Xiaobing; Sun, Yajun; Li, Shuang
Southeast University, CHINA
- Klystrons and ISM**
- 2.18 A Kicker Driver for the бЅбЅ DЅQЅoЅЅЅЅЅ [Ѕ°'Ѕ {ЅЅЅЅЅ
Kempkes, Michael; Arntz, Floyd; Gaudreau, Marcel
Diversified Technologies, Inc., UNITED STATES
- 2.19 The Research and Development of S-band High Power Multi-beam Klystrons b !
Shen, B.; Ding, Y.; Zhang, Z.; Gu, H.; Gao, D.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 2.20 A Technique for Resonant Frequency Measurement of Brazed Intermediate Cavities of Ku-Band Multiple-Beam Klystron b !
Bansiwal, Ashok
Microwave Tube Research and Development Centre, INDIA
- 2.21 Design and Particle-in-Cell Simulation of W-band CW Extended Interaction Klystron b !
Zhong, Y.
Institute of Electronics, Chinese Academy of Sciences, CHINA

- 2.22 A Way to Increase the Efficiency of Klystrons
Guzilov, I.A.
JSC "Basic technology of vacuum devices", RUSSIAN FEDERATION
- 2.23 Simulation Study of a C-Band High Power Klystron
Zhang, Rui; Wang, Yong
IECAS, CHINA
- 2.24 Progress of Developing the 10MW L-Band Multi-Beam Klystron
Wang, Y.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 2.25 Progress of an S-band High Average Power Broadband Multi-beam Klystron
Gao, Dongping; Ding, Yaogen; Zhang, Zhaochuan; Shen, Bin; Zhang, Zhiqiang; Cao, Jin; Gu, Honghong; Wang, Caiying; Wang, Feng
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 2.26 Some Physical Phenomena in the Collector Region of Multi-Beam Klystron
Ding, Y.; Shen, B.; Ding, H.; Gu, H.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- Microwave Circuit Design**
- 2.27 A Novel Angular Log-Periodic Micro-Strip Meander-Line Slow Wave Structure for Low-Voltage and Wideband Traveling Wave Tube
Wang, S. M.¹; Cao, Z.²; Hou, Y.¹; Zhao, G. Q.¹; Wei, Y. Y.¹; Duan, Z. Y.¹; Wang, Z. L.¹; Gong, Y. B.¹
¹National Key Laboratory of Science and Technology on Vacuum Electronics, CHINA; ²China Electronics Standardization Institute, CHINA
- 2.28 Investigation of a Novel Folded Waveguide Slow Wave Structure for Traveling Wave Tube
Hou, Y.; Xu, J.; Wang, S. M.; Zhao, G. Q.; Wei, Y. Y.; Duan, Z. Y.; Gong, Y. B.
National Key Laboratory of Science and Technology on Vacuum Electronics, CHINA
- 2.29 Modeling the Finite Thickness of Helix Slow-Wave Structures
Mahmoudi, Ali
University of Tehran, IRAN, ISLAMIC REPUBLIC OF
- 2.30 Novel SWS Designs for High Power Ka-band TWTs
Pchel'nikov, Y.N.¹; Vlasov, A.N.²; Chernin, D.³
¹Consultant, UNITED STATES; ²Naval Research Laboratory, UNITED STATES; ³SAIC, UNITED STATES
- 2.31 Two cavity W-Band Sheet Beam Extended Interaction Klystron Simulation
Bhanu Naidu, V.¹; S K, Datta²; kumar, Lalit²
¹MTRDC, INDIA; ²MTRDC, DRDO, INDIA
- 2.32 A Modified Slotted Helix Slow-Wave for High-Power Millimeter-Wave TWT
Liu, L.W.; Wei, Y. Y.; Yin, H. R.; Xu, J.; Zhao, G. Q.; Huang, M. Z.; Duan, Z. Y.; Gong, Y. B.
University of Electronic Science and Technology of China, CHINA

- 2.33 Scaled Design and Test of a Coupler for Micro-Reentrant Square-Cavities for Millimeter Wave Klystrons
Paoloni, C.¹; Mineo, M.²; Yin, H.³; Zhang, L.³; He, W.³; Robertson, C.W.³; Cross, A.W.³; Ronald, K.³; Phelps, A.D.³
¹Engineering Department, UNITED KINGDOM; ²Lancaster University, UNITED KINGDOM; ³University of Strathclyde, UNITED KINGDOM
- 2.34 Design of multi-gap extended output cavity for W band Sheet beam EIK
Chen, Shuyuan; Ruan, Cunjun; Zhang, Changqing; Wang, Yong
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 2.35 Design and Coldtest of High Frequency Interaction Structure for X-Band Sheet Beam Klystron
Zhao, D.; Ruan, C.; Liang, Y.; Zhang, C.; Wang, S.; Yang, X.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 2.36 Study the Effect of Positive Dispersion in Input Circuit of Broadband Helix Traveling Wave Tubes
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 2.37 Negative Dispersion Study of some typical Slow Wave Structures in Helix b !
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 2.38 Time-Domain PIC-Modeling of Suppression of Self-Modulation in the Multiple Cavity Klystron Oscillator with Delayed Feedback
Emelyanov, V.V.; Ryskin, N.M.
Saratov State University, RUSSIAN FEDERATION
- 2.39 S-Shaped Microstrip Meander-Line Slow-Wave Structure for W-Band Traveling-Wave Tube
Bai, N.
Southeast University, CHINA
- 2.40 S Parameters of a Single coupler Extracted from the Whole SWS System b !
Zhu, Zhaojun; Jia, Baofu; Wei, Chaolei; Yu, Bin
University of Electronic Science and Technology of China, CHINA
- 2.41 Analysis of an Inhomogenously Ridge-loaded Helix SWS Used in MPM b !
Zhu, Zhaojun; Jia, Baofu; Wei, Chaolei; Yu, Bin
University of Electronic Science and Technology of China, CHINA
- RF Modeling**
- 2.42 Modeling a Gyrotron Cavity Using a 3D CFDTD PIC Method
Lin, M. C.; Smithe, D. N.
Tech-X, UNITED STATES
- 2.43 Equivalent Capacitance of a Sheet Electron Beam
Pchelnikov, Yu. N.¹; Yelizarov, A. A.²; Pchelnikov, A. G.³
¹retired, UNITED STATES; ²MIEM, RUSSIAN FEDERATION; ³Moscow State Expertise, RUSSIAN FEDERATION

- 2.44 Electron Waves in the Passbands and Stopbands of Periodic Slow-Wave Systems
Solntsev, V.A.
Moscow Institute of Electronics and Mathematics National Research University, RUSSIAN FEDERATION
- 2.45 Analytical Solutions of the Dispersion and Coupling Impedance for the Double Slot Coupled Cavity Slow Wave Structure in TWT
He, F.M.¹; Luo, Jirun¹; Zhu, Min²; Guo, Wei³
¹*Institute of Electronics, Chinese Academy of Sciences, CHINA;* ²*Institute of Electronics, Chinese Academy of Sciences, CHINA;* ³*Institute of Electronics, Chinese Academy of Sciences, CHINA*
- 2.46 SWS-based Methods for Non-Destructive Monitoring Absorbing Coatings
Pchelnikov, Yu.¹; Smirnov, A.²
¹*Retired Consultant, UNITED STATES;* ²*RadiaBeam Technologies, UNITED STATES*
- 2.47 Optimization of a Sheet Electron Beam Interaction with a Slow Wave
Pchelnikov, Yu.¹; Yelizarov, A.²
¹*Retired, Consultant, UNITED STATES;* ²*MIEM, RUSSIAN FEDERATION*
- 2.48 Why Aharonov-Bohm Effect Does Not Violate Locality Principle b !
Gritsunov, A.
KNEU, UKRAINE
- 2.49 A 3D Simulation Code for Folded Waveguide Traveling Wave Tubes
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 2.50 Three-Dimensional FE Modeling of Slow-Wave Structure for Traveling-Wave Tube without Matching Meshes
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 2.51 Development and Validation of a Time-Dependent Large-Signal Simulation Code for Gyrokystron Amplifier
Zhu, X. F
University of Electronic Science and Technology of China, CHINA
- 2.52 Simulation Computation Method for the Gap Impedance of Multi-gap Output Cavity with Double Coupling Apertures b !
Ge, M¹; Wang, Y²
¹*Key laboratory of High Power Microwave Sources and Technologies, Institute of Electronics, Chinese, CHINA;*
²*Key laboratory of High Power Microwave Sources and Technologies, Institute of Electronics, Chinese A, CHINA*
- 2.53 Features of Long-term Interaction of Electron Beam with Electromagnetic Wave Involving Emission Modulation b !
Krasnova, G.; Trubetskov, D.
Saratov State University, RUSSIAN FEDERATION
- 2.54 BWIS_KLY: A 1D Large-Signal Beam Wave Interaction Simulator for klystron
Jin, X. L
University of Electronic Science and Technology of China, CHINA
- 2.55 Operation of FDM Method in TE Modes Computation of Rectangular/Ridge Waveguide b !
Deng, DJC; Deng, jiacheng
Nanjing Sanle Electronic Information Industry Group, Institute of Electronic Devices, Inc, CHINA

Poster Session III - Thursday 23 May 2013, 14:00-18:00

Gyrodevices

- 3.1 Study of TM01 to TE11 Coaxial Transmission Mode Conversion b !
Zhu, Xian-neng¹; Niu, Xin-jian¹; Liu, Ying-hui¹; Yu, Xin-hua²
¹University of Electronic Science and Technology of China, CHINA; ²Guilin University of Electronic Technology, CHINA
- 3.2 A TE62 Mode Generator in W-Band Using Waveguide Transformation b !
Wen-yuan Shen , S.¹; Hu Wang , W.¹; Zhi-hui Geng , G.²; Pu-Kun Liu , L.²
¹University of Chinese Academy of Sciences, CHINA; ²Institute of Electronics, Chinese Academy of Sciences, CHINA
- 3.3 Recent Experimental Results of Magnetron Injection Gun (MIG) for 42 GHz 200 kW Gyrotron
Khatun, Hasina; Singh, Udaybir
CSIR-Central Electronics Engineering Research Institute (CEERI), INDIA
- 3.4 Design of Triple- Frequency Gyrotron
Singh, Udaybir
CEERI, INDIA
- 3.5 Analysis of Parasitic Mode Oscillations for 95 GHz Gyrotron Beam Tunnel
Kumar, Nitin
CEERI, INDIA
- 3.6 Simulations and Experiments of a five Waveguide Output Structure for Gyro-devices Applications
Luo, J¹; Cui, J²; Zhu, M¹; Guo, W¹
¹Institute of Electronics, Chinese Academy of Sciences, CHINA; ²School of Information science and Engineering, Central South University, CHINA
- 3.7 Simulation of lossy Interaction Structure for Ka-band Gyro-TWT
Alaria, Mukesh
CEERI, INDIA
- 3.8 Design of Interaction Structure for 2THz Gyrotron Operating at Second Harmonic
Muppalla, Prudhvi
CEERI, INDIA
- 3.9 Design and Experiment of a U-Band TE01 Gyro-TWT b !
Xu, Y.; Xu, Y.
University of Electronic Science and Technology of China, CHINA
- 3.10 Experiment Study of A W-band Frequency Tunable Gyrotron Oscillator with an Over-length Cylindrical Cavity b !
Du, C.¹; Chang, T.¹; Liu, P.²
¹National Tsing Hua University, CHINA; ²Institute of Electronics, Chinese Academy of Sciences, CHINA
- 3.11 Research of Low Frequency Oscillations of ka Band TE01 Gyro-TWT b !
Youlei pu, P; Luo Yong, L; Jiang Wei , J; Liu Guo, I
University of Electronic Science and Technology of China, CHINA

- 3.12 Development of a Wide-Band Window in HE_{1,1} Guide for Gyrotrons
Read, M.¹; Bui, T.¹; Marsden, D.¹; Ives, R.L.¹; Stockwell, B.²; Neilson, J.³
¹Calabazas Creek Research Inc., UNITED STATES; ²Communications and Power Industries, LLC, UNITED STATES;
³Lexam Research, UNITED STATES
- 3.13 Design of a G-Band Harmonic Multiplying Gyrotron Traveling-Wave Amplifier with a Mode Selective Circuit
Yeh, Yi Sheng; Lai, C. H.; Chen, C. H.; Lin, T. Y.
Southern Taiwan University of Science and Technology, TAIWAN
- 3.14 Numerical Simulation of a 1.37 THz Gyro-Multiplier
Constable, D.A.¹; Bandurkin, I.V.²; He, W.¹; Cross, A.W.¹; Savilov, A.V.²; Phelps, A.D.R.¹; Bratman, V.L.²; Ronald, K.¹
¹University of Strathclyde, UNITED KINGDOM; ²Institute of Applied Physics, RUSSIAN FEDERATION
- 3.15 Experimental Study of High- Efficiency and high-gain Ka-Band Gyrotron-Traveling Wave-Tube b !
Wang, EFeng
National Key Laboratory of Science and Technology on Vacuum Electronics Beijing Vacuum Electronics Re,
CHINA
- 3.16 Synthesis the Quasi-Optical Launcher using the Improved Equivalent Current Method b !
Wu, W.; Li, Hao; Fu, Hua; Xu, Jianhua; Li, Tianming
School of Physical Electronics, University of Electronic Science and Technology of China, CHINA
- 3.17 Quasi-optical Mode Converter for a Second Harmonic 0.4THz, 100kW Gyrotron Oscillator b !
Kim, S.G; Choi, Eunmi
UNIST, KOREA, REPUBLIC OF
- 3.18 Design Study of MIG for Dual-band Gyrotron
Lee, I.G.; Kim, S.G.; Choi, E.M.
Ulsan National Institute of Science and Technology (UNIST), KOREA, REPUBLIC OF
- 3.19 Numerical Simulation of a Dimpled-wall Quasi-optical Launcher for High Power Gyrotron Oscillators b !
Wang, Hu¹; Geng, Zhi-hui²; Shen, Wen-yuan³; Liu, Pu-kun²
¹University of Chinese Academy of Sciences, CHINA; ²Institute of Electronics, Chinese Academy of Sciences, CHINA; ³Institute of Electronics, Chinese Academy of Sciences; University of Chinese Academy of Sciences, CHINA
- 3.20 Design of a 0.1THz Gyrotron with Complex Cavity b !
Liu, L
University of Electronic Science and Technology of China, CHINA
- 3.21 Measurement Study of Complex Cavity Frequency of W- Band Gyrotrons b !
Wang, EFeng
National Key Laboratory of Science and Technology on Vacuum Electronics Beijing Vacuum Electronics Re,
CHINA
- 3.22 Numerical Simulation of Ka-Band Fundamental Complex Cavity Gyrotron b !
Liu, Chun-gong; Niu, Xin-jian; Liu, Ying-hui
University of Electronic Science and Technology of China, CHINA

- 3.23 Simulation of the Structure for W-Band Gyroklystron Amplifiers
Li, Teng-bao; Liu, Ying-hui; Niu, Xin-jian
University of Electronic Science and Technology of China, CHINA
- 3.24 Design of Adapted Phase Correcting Mirrors for Gyrotrons
Liu, J.¹; Jin, J.²; Thumm, M.²; Zhao, Q.¹; Li, H.¹
¹*Institute of Physical Electronics, University of Electronic Science and Technology of China, CHINA;* ²*Institute for Pulsed Power and Microwave Technology, Karlsruhe Institute of Technology, GERMANY*
- 3.25 Thermal Analysis of Output Window of Ka-band Gyro-TWT b !
Zeng, Xu; Wang, Efeng; Liu, Bentian; Li, Zhiliang; Feng, Jinjun; Yan, Tiechang
Beijing Vacuum Electronics Research Institute, CHINA
- 3.26 The Design and Particle Simulation of a Q-band Gyro-TWT Based on Periodic Dielectric Loaded Waveguide b !
Tang, Yong; Luo, Yong
UESTC, CHINA
- 3.27 A Steady-state Multimode Analysis of Mode Competition in Gyro-TWT
Wang, Q.S.; Luo, J.R.; Peng, S.Y.; Jiao, C.Q.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 3.28 Study on high-frequency Structure for a Complex Cavity Gyrotron with gradual Transition b !
Liu, Fei
University of Electronic Science and Technology of China, CHINA
- 3.29 Design of the Magnetron Injection Gun for W-band Gyrotron Oscillator
Geng, G.
Institute of Electronics, Chinese Academy of Sciences, CHINA
- 3.30 Single-Anode Magnetron Injection Gun Design for 140GHz Gyrotron b !
Li, D.; Niu, X.J; Liu, Y.H
University of Electronic Science and Technology of China, CHINA
- 3.31 The Thermal Analysis of Ka-band Gyrotron Beryllia Output Window b !
Li, RuLi; Niu, XinJian; Liu, YingHui
University of Electronic Science and Technology of China, CHINA

Microwave Tube Technologies

- 3.32 Development of Dual Anode Electron Gun and PPM Beam Focusing for Space Helix TWT b !
Sharma, RK; Arya, S; Mercy Latha, A; Pareek, P; Sharma, SM; Ghosh, SK; Srivastava, V
CSIR-CEERI, INDIA
- 3.33 Estimation of Permittivity and Loss Tangent of High Frequency Ceramics using Free Space Method
Yadav, V.¹; Kumar, N.¹; Singh, U.¹; Kumar, A.¹; Deorani, S.C.²; Sinha, A.K.¹
¹*CEERI, INDIA;* ²*RR College, INDIA*
- 3.34 Design of Sheet Beam Electron Gun for a X-Band Klystron b !
Jangid, S.K.; Bandyopadhyay, A.K.; Joshi, L. M.; Kant, D.; Devi, N.; Pal, D.
Central Electronics Engineering Research Institute, INDIA

- 3.35 Numerical modeling of Liquid Cooled CCTWT Collector
Singh, A. K.; SriKrishna, P.; Subramanian, S.
Microwave Tube Research & Development Centre, INDIA
- 3.36 Recent Development on the Modeling of Electrical Contact
Zhang, Peng; Lau, Y. Y.
University of Michigan, UNITED STATES
- 3.37 Influence of the Incident Angle on Energy Dependence of a Secondary Electron Emission Yield
Bundaleski, N.¹; Behlaj, M.²; Gineste, T.²; Teodoro, O.M.N.D.¹
¹*CeFiTec, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, PORTUGAL;* ²*ONERA / DESP (Département Environnement SPatial), FRANCE*
- 3.38 The Design Considerations of W-Band Broad Band Output Window
Wang, S.Z.¹; Ruan, C.J.²; Yang, X.D.²; Zhao, D.²; Zhang, C.Q.²
¹*Institute of electronics, Chinese Academy of Sciences, CHINA;* ²*Institute of Electronics, the Chinese Academy of Sciences, CHINA*
- 3.39 Applications of Microwave Plasma CVD Diamond in mm TWTs b !
Ding, M. Q.¹; Li, Li L.²; Du, Ying H.²; Hu, Yin F.²; Chen, Bo²; Li, Li²; Feng, Jin J.²
¹*Beijing Vacuum Electronics Research Institute, CHINA;* ²*Beijing Vacuum Electronics Research Institute,, CHINA*
- 3.40 The Study of Mini Coupler by the Stepped-impedance Technology b !
Zhu, Zhaojun; Jia, Baofu; Cheng, Shaofei; Yu, Bin
University of Electronic Science and Technology of China, CHINA
- 3.41 Particularities of Reversible Magnetic Focusing System Development for Multi-Beams Klystrons
Akimov, P.I.¹; Nikitin, A.P.¹; Melnichuk, G.V.¹; Freydovich, I.A.¹; Chudin, V.G.¹; Dormidontov, A.G.²; Drozdov, S.S.²; Sergeev, K.L.²; Lukin, A.A.²; Bogoslovskaya, A.B.³
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- 3.42 RF Window for a 350 kW CW X-Band Klystron
Prokofiev, B.¹; Yegorov, A.¹; Grigoriev, A.²
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- 3.43 Rayleigh Scattering Measurement of Residual Gas Inside Microwave Vacuum Electronic Devices
Sun, Xiaohan
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- 3.44 Waveguide Window for a Broadband Multibeam Ka-Band Klystron
Prokofiev, B.¹; Freidovich, I.¹; Balabanov, A.¹; Yegorov, A.¹; Zakirov, A.¹; Grigoriev, A.²
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- 3.45 Development of Output Structures for 650MHz CW Klystron b !
Zhang, X; Wang, Y
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3.46 Growth of Graphite Film on Copper Foil by Plasma Enhanced Chemical Vapor Deposition

Shi, C.Y.; Zhao, N.; Zhao, Z.W.; Lei, W.

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3.47 Thermodynamic Analysis of the TWT Electron Gun b !

Qi, QWL

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3.48 **Other**

The Ion Extraction Efficiency of Tiny Amounts of Gases Analysis with Quadrupole Mass Spectrometry b !

Ji, Xiacong; Xiao, Mei; Wang, Hui; Liu, Shunming

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3.49 Application of Microwave Technology in Deep Desulfurization of Coking Coal b !

Yao, YT

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PSU's, Transmitters and MPM's

3.50 Components of Heating and Fueling of Fusion Plasmas

Kempkes, Michael; Schrock, Kenneth; Roth, Ian; Gaudreau, Marcel

Diversified Technologies, Inc., UNITED STATES

3.51 Switch Tube Test Set

Kempkes, Michael; Kinross-Wright, John; Jashari, Luan; Chipman, Chris

Diversified Technologies, Inc., UNITED STATES

3.52 DC-Link Capacitor Voltage Balancing using Redundant Vectors for Five-Level Neutral Point Clamped Voltage Source Inverter

Abdelkrim, T.¹; Benamrane, K.¹; Benkhelifa, Aeh.¹; Bezza, B.¹; Benslimane, T.²

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3.53 Technologies for a C\X\Ku band pulsed MPM b !

Shi, SMM

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3.54 A X-band Pulsed MPM for Radar System

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