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Monday 24 April 2017

07:30 *Registration*

Plenary Session
Room: Constellation Room

08:30 Welcome and Introduction

Plenary Session part 1: Vacuum Electronics in the big challenges of science
Chair: Natanael Ayllon (European Space Agency)

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Dr. Sergio Orlandi; ITER

09:25 **Real Time Tomography – a high speed inspection technology for aviation security N/A**
Dr. Russell Luggar; Rapiscan Systems Ltd.

10:05 **Vacuum Electronics based RF systems at CERN N/A**
Erk Jensen; CERN

10:45 *Coffee Break*

Plenary Session part 2: Vacuum Electronics in the big challenges of science
Chair: Claudio Paoloni (Lancaster University)

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Prof. Mark McCaughrean; European Space Agency

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12:00 Award Winner Acceptance Speech

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Room : Constellation Room

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G. Denisov
Institute of Applied Physics/GYCOM, Nizhny Novgorod, Russian Federation

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[1]Gycom Ltd., Nizhny Novgorod, Russian Federation
[2]Institute of Applied Physics, Nizhny Novgorod, Russian Federation

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Room : Copernicus Extended Room

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[1]Saratov State University, SARATOV, Russian Federation
[2]Saratov Branch, Institute of Radio Engineering and Electronics RAS, SARATOV, Russian Federation
[3]Saratov Branch, Institute of Radio Engineeribg and Electronics RAS, SARATOV, Russian Federation

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[1]Kwangwoon University, SEOUL, South-Korea
[2]Pohang Accelerator Laboratory, POHANG, South-Korea

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[1]UC Davis, DAVIS, CA, United States of America
[2]Vacuum Process Engineering, Inc., SACRAMENTO, CA, United States of America

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[1]Calabazas Creek Research, Inc., SAN MATEO, CA, United States of America
[2]Naval Surface Warfare Center, CRANE, IN, United States of America

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NuFlare Technology America, HOPEWELL JUNCTION, NY, United States of America

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[1]Beijing Vacuum Electronics Research Institute, BEIJING, China
[2]University of California Davis, DAVIS, United States of America
[3]Lancaster University, LANCASTER, United Kingdom

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[1]SLAC National Accelerator Laboratory, MENLO PARK, United States of America
[2]Dymenso LLC, SAN FRANCISCO, United States of America

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[1]University of Electronic Science and Technology of China, CHENGDU, China
[2]University of California, Los Angeles, LOS ANGELES, United States of America

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[1]Naval Research Laboratory, WASHINGTON, DC, United States of America
[2]Beam-wave Research, Inc., BETHESDA, MD, United States of America

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[1]Lancaster University, LANCASTER, United Kingdom
[2]CERN, GENEVA, Switzerland
[3]Moscow University of Finance & Law, MOSCOW, Russian Federation
[4]SLAC National Accelerator Laboratory, MENLO PARK, CA, United States of America

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[1]Lancaster University, LANCASTER, United Kingdom
[2]European Spallation Source ESS ERIC, LUND, Sweden
[3]CERN, GENEVA, Switzerland

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[1]CEA, GIF-SUR-YVETTE CEDEX, France
[2]Thales Electron Devices, VÉLIZY-VILLACOUBLAY, France

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E2V Technologies, CHELMSFORD, United Kingdom

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Room : Constellation Room

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Thales Electronic System GmbH, ULM, Germany

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[1]Airbus DS GmbH, FRIEDRICHSHAFEN, Germany
[2]CPI Satcom Division - East, GEORGETOWN, ONTARIO, Canada
[3]European Space Agency, NOORDWIJK, The Netherlands

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D.C. Eze*, W.L. Menninger*
L-3 Communications Electron Technologies Inc., TORRANCE, United States of America

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[1]Xlim, LIMOGES, France
[2]Labex sigma-Lim, LIMOGES, France
[3]CNES, TOULOUSE, France

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D. Chernin[1]*, T.M. Antonsen Jr.[1], K. Elliott[1], A.N. Vlasov[2]*
[1]Leidos, Inc, WASHINGTON, DC, United States of America
[2]Naval Research Laboratory, WASHINGTON, DC, United States of America

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[1]US Naval Research Laboratory, WASHINGTON, DC, United States of America
[2]Leidos, Inc., BILLERICA, MA, United States of America

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Institute of Electronics, Chinese Academy of Sciences, BEIJING, China

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[1]CST AG, DARMSTADT, Germany
[2]Institute for Pulsed Power and Microwave Technology (IHM), KIT, KARLSRUHE, Germany

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Y.N. Pchelnikov
Pchelnikov's Consulting, Cary, United States of America

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[1]Max Planck Institute for Plasma Physics, GREIFSWALD, Germany
[2]IHM, Karlsruhe Institute of Technology (KIT), KARLSRUHE, Germany

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[1]Institute of Applied Physics RAS, Nizhny Novgorod, Russian Federation
[2]Institute of Electrophysics, UB RAS, Russian Federation
[3]Moscow Engineering Physics Institute Joint Institute of High Temperatures, RAS, MOSCOW, Russian Federation

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[1]Nizhny Novgorod State University, Nizhny Novgorod, Russian Federation
[2]Peter the Great St. Petersburg Polytechnic University, ST. PETERSBURG, Russian Federation
[3]Institute of Applied Physics Russian Academy of Sciences (IAP RAS), Nizhny Novgorod, Russian Federation

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Institute of Applied Physics of the Russian Academy of Sciences (IAP RAS), Nizhny Novgorod, Russian Federation

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[1]Saratov State University, SARATOV, Russian Federation
[2]University of Fukui, FUKUI, Japan
[3]University of Latvia, RIGA, Latvia

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Karlsruhe Institute of Technology (KIT), KARLSRUHE, Germany

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Mm-wave TWTs

Chair : J. Feng (Beijing Vacuum Electronics Research Institute, China)
Room : Constellation Room

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Institute of Applied Physics, China Academy of Engineering Physics, MIANYANG, China

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Ulsan National Institute of Science and Technology, ULSAN, South-Korea

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Chair : Y. Ding (Institute of Electronics, Chinese Academy of Sciences, China)
Room : Copernicus Extended Room

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L-3 Communications Electron Devices Division, SAN CARLOS, CA, United States of America

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[1]Thales Electron Devices, Velizy Villacoublay, France
[2]Communications & Power Industries, Palo Alto, United States of America

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[1]University of Michigan, ANN ARBOR, United States of America
[2]Sandia National Laboratory, ALBUQUERQUE, NM, United States of America
[3]Air Force Research Laboratory, ALBUQUERQUE, NM, United States of America

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[1]Saratov State Technical University, SARATOV, Russian Federation
[2]National Research Nuclear University „MEPhI„ MOSCOW, Russian Federation

12:15 Lunch Break

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[1]U.S. Naval Research Laboratory, WASHINGTON, D.C., United States of America
[2]Beam-Wave Research, Inc., BETHESDA, MD, United States of America

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Y. Zheng[1], *D. Gamzina[1], N.C. Luhmann Jr.[1], M. Moran[2]*
[1]University of California, Davis, DAVIS, United States of America
[2]High Voltage Outsourcing, LLC, DANBURY, United States of America

11:35 **A Depressed Collector for the 65 MW 5045 Klystron N/A**
R. Kowalczyk[1], *E. Jongewaard[1], A. Haase[1], M. Kemp[1], A. Jensen[2], T. Habermann[3], P. Kolda[3], S. Lenci[3], A. Shabazian[3], B. Stockwell[3]*
[1]SLAC National Accelerator Laboratory, MENLO PARK, United States of America
[2]Leidos, BILLERICA, United States of America
[3]Communications Power Industries, PALO ALTO, United States of America

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M. Kemp[1], A. Haase[1], E. Jongewaard[1], R. Kowalczyk[1], *T. Habermann[2], P. Kolda[2], S. Lenci[2], A. Shabazian[2], B. Stockwell[2], A. Jensen[3]*
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[2]Communications and Power Industries,LLC, PALO ALTO, United States of America
[3]Leidos, BILLERICA, United States of America

Helix TWTs

Chair : P.H. Thouvenin (TED, France)
Room : Constellation Room

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L-3 Electron Technologies, Inc., TORRANCE, United States of America

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CPI, PALO ALTO, United States of America

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InnoSys Inc, SALT LAKE CITY, United States of America

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M. Chesnut, *N. Chaudhary, J.Collazo, M. Perrin, O. Sabev*
Communications and Power Industries LLC, PALO ALTO, United States of America

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T. Ghosh, *A. Tokeley, K. Rushbrook, D. Scott, G. Peters, T. Fox, I. Poston, D. Bowler*
E2V, CHELMSFORD, United Kingdom

15:10 **Backward-Wave Oscillation Suppression in Helix Traveling-Wave Tubes by Magnetic Field Tapering 380**
M. Hägermann[1], *P. Birtel[2], S. Meyne[1], D. Safi[1], A.Jacob[1]*
[1]Hamburg University of Technology, HAMBURG, Germany
[2]Thales Electronic Systems GmbH, ULM, Germany

15:35 Coffee Break

15:55-17:25 Poster Session 2

18:00 Departure by bus to the dinner venue

19:30 Start Gala Dinner

Advanced Fabrication Techniques

Chair : N.M. Ryskin (Saratov State University, Russia)
Room : Copernicus Extended Room

13:50 **Keynote: Microfabrication Methods for a 233 GHz Traveling Wave Amplifier 253**
C.D. Joye[1], *A.M. Cook[1], R.L. Jaynes[1], J.P. Calame[1], B.S. Albright[1], J.R. Lowe[1], D.K. Abe[1], K.T. Nguyen[2], E.L. Wright[2]*
[1]U.S. Naval Research Lab, DISTRICT OF COLUMBIA, United States of America
[2]Beam-Wave Research, Inc., BETHESDA, United States of America

14:10 **A Microfabricated V-Shaped Microstrip Meander-Line Slow-Wave Structure 115**
W. Shaomeng, *S. Aditya*
Nanyang Technological University, SINGAPORE, Singapore

14:25 **Additive Vacuum Electronics: Electron Beam Melting of Copper 157**
D. Gamzina[1], *N.C. Luhmann Jr.[1], C. Ledford[2], T. Horn[2], I. Karakaut[3], L.Lin[3], P. Frigola[4]*
[1]UC Davis, DAVIS, CA, United States of America
[2]CAMAL, NCSU, RALEIGH, NC, United States of America
[3]UC Berkeley, BERKELEY, CA, United States of America
[4]Radiabeam Technologies Inc., SANTA MONICA, CA, United States of America

14:40 **3D-printed Mold Electroforming for Microfabrication of W-band TWT Circuits 205**
A. M. Cook, *C. D. Joye, J. P. Calame, D. K. Abe*
U.S. Naval Research Laboratory, WASHINGTON, D.C., United States of America

14:55 **MEMS Fabrication of H-plane and E-plane loaded 400 GHz TWT Amplifier 497**
L.R. Billa[1], *X. Shi[2], M. Nadeem Akram[1], X. Chen[1]*
[1]University College of Southeast Norway, BORRE, Norway
[2]University of Electronic Science and Technology of China, CHENGDU, China

15:10 **Investigation of RF and DC Plasma Electron Sources for Material Processing Applications 485**
S. Del Pozo[1], *C. Ribton[1], D.R. Smith[2]*
[1]TWI Ltd. & Brunel University London, CAMBRIDGE, United Kingdom
[2]Brunel University London, UXBRIDGE, United Kingdom

15:35 Coffee Break

15:55-17:25 Poster Session 2

18:00 Departure by bus to the dinner venue

19:30 Start Gala Dinner

Electron Sources

Chair : R.L.I. Ives (Calabazas Creek Research, United States of America)
Room : Alexander Graham Bell Room

13:50 **Keynote: Development of New Generation of Cathodes using Additive manufacturing 29**
D. Busbaher, *J. Spors, J.O. Tarter*
Ceradyne Inc., a 3M Company, LEXINGTON, United States of America

14:10 **Field Emission Study of Small Number of Carbon Fiber Field Emitters 3**
W.W. Tang[1], *D.A. Shiffler[1], J.R. Harris[1], K.L. Jensen[2]*
[1]Air Force Research Laboratory, KIRTLAND AFB, United States of America
[2]Naval Research Laboratory, WASHINGTON DC, United States of America

14:25 **High Performance of X-ray Tube with Field-emission Cathode 193**
L. Wei, *Z. Zuoya, Z. Xiaobing, C. Yitao, W. Baoping*
Southeast University, NANJING, China

14:40 **Long-Life Photocathodes with High Quantum Efficiency 477**
R.L.Ives[1], *E.J. Montgomery[2], G. Collins[1], D. Marsden[1], T. Bui[1]*
[1]Calabazas Creek Research, Inc., SAN MATEO, CA, United States of America
[2]University of Maryland, COLLEGE PARK, MD, United States of America

14:55 **Improved field Emission from Tungsten Doped Reduced Graphene Oxide 527**
G. Park[1,2], *R . Bhattacharya[1], I. Baek[2], R.K. Barik[3], S. Kim[2], D. Hong[2], O. Kwon[2], M.A. Sattorov[4]*
[1]School of Electrical & Computer Engineering, Seoul National University, SEOUL, South Korea [2]Department of Physics & Astronomy, Seoul National University, SEOUL, South Korea [3]CSIR-CEERI, PILANI, India [4]Seoul-Teracom Inc, SEOUL, South Korea

15:10 **Field Electron Emission Theory for Technology 378**
R. G. Forbes
University of Surrey, GUILDFORD, United Kingdom

15:35 Coffee Break

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18:00 Departure by bus to the dinner venue

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Wednesday 26 April 2017

Mm-wave Gyrotrons

Chair : J. Jelonnek (Karlsruhe Institute of Technology, Germany)
Room : Constellation Room

08:30 **Keynote: First CW Experiments with the EU ITER 1 MW, 170 GHz Industrial Prototype Gyrotron 131**
Z.C. Ioannidis[1], *T. Rzesnicki[1], K. Avramidis[1], G. Gantenbein[1], S. Illy[1], J. Jin[1], T. Kobarg[1], I.Gr. Pagonakis[1], M. Schmid[1], M. Thumm[1], J. Jelonnek[1], V. Hermann[2], Y. Rozier[2], F.. Legrand[2], S. Alberti[3], F. Braunmueller[3], J-P. Hogge[3], C. Schlatter[3], J. Genoud[3], M.Q. Tran[3], W. Kasparek[4], C. Lechte[4], J.L. Vomvoridis[5], J. Chelis[6], G.P. Latsas[6], A. Zisis[6], I.G. Tigelis[6], A. Bruschi[7], M. Lontano[7], F. Albajar[8], T. Bonicelli[8], P.-E. Frigot[8], W. Bin[7]*
[1]Karlsruhe Institute of Technology, EGGENSTEIN-LEOPOLDSHAFEN, Germany
[2]Thales Electron Devices, VÉLIZY-VILLACOUBLAY, France
[3]Swiss Plasma Center, LAUSANNE, Switzerland
[4]University of Stuttgart, STUTTGART, Germany
[5]National Technical University of Athens, ATHENS, Greece
[6]National and Kapodistrian University of Athens, ATHENS, Greece
[7]Istituto di Fisica del Plasma, MILANO, Italy
[8]European Joint Undertaking for ITER and the Development of Fusion Energy, BARCELONA, Spain

08:50 **A 140 GHz Gyro-Amplifier using a Dielectric-loaded, Sever-less Confocal Waveguide 105**
A.V. Soane, *S. Jawla, M.A. Shapiro, R.J. Temkin*
MIT, CAMBRIDGE, United States of America

09:05 **W-band Helical-Waveguide Gyro-Twts Yielding High Gain and High Output Power: Design and Simulations 113**
S.V. Samsonov[1], *A.A. Bogdashov[1], G.G. Denisov[1], I.G. Gachev[1], S.V. Mishakin[1], V.N. Manuilov[2]*
[1]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation
[2]Nizhny Novgorod State University, Nizhny Novgorod, Russian Federation

09:20 **Development of Multi-Frequency Gyrotrons in QST N/A**
Y. Oda, *R. Ikeda, T. Kobayashi, K. Kajiwara, K. Takahashi, S. Moriyama, K. Sakamoto*
National Institute of Quantum and Radiological Science and Technology, NAKA, Japan

09:35 **Terahertz Large-Orbit High-Harmonic Gyrotrons at IAP RAS: Recent Experiments and New Designs 344**
A.V. Savilov, *I.V. Bandurkin, V.L. Bratman, Yu.K. Kalynov, I.V. Osharin*
Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

09:50 **Measurement of a W-Band Gyro-TWA Experiment based on a Helically Corrugated Interaction Region 415**
W. He, *C.R. Donaldson, L . Zhang, P . McElhinney, J . Garner, K. Ronald, A.W. Cross, A.D.R. Phelps*
The University of Strathclyde, GLASGOW, United Kingdom

10:15 Coffee Break

Modelling & Codes

Chair : B. Levush (Naval Research Laboratory, United States of America)
Room : Copernicus Extended Room

08:30 **Keynote: Application of Reciprocity to the Design of Electron Guns 286**
T. M. Antonsen[1], *D. P. Chernin[2], J. J. Petillo[2],*
[1]IREAP, COLLEGE PARK MD, United States of America
[2]Leidos, RESTON VA, United States of America

08:50 **Development of an Advanced Vector Analysis Code for Simulation of Electromagnetic Fields in Quasi-Optical Systems of High Power Gyrotrons 346**
A. Marek, J. Jin*, J. Jelonnek, M. Thumm, A.S. Müller*
Karlsruhe Institute of Technology, KARLSRUHE, Germany

09:05 **Developments of the MICHELLE Charged Particle Beam Optics Code for High Performance Computing 461**
J. Petillo[1], *S. Ovtchinnikov[1], C. Kostas[1], D. Panagos[1], A.L. Jensen[1], A. Burke[1], E. Nelson[1], G. Stantchev[2], S. Cooke[2], B. Held[3], A. Nichols[3], S. Ayala[3]*
[1]Leidos, BILLERICA, United States of America
[2]US Naval Research Laboratory, WASHINGTON, DC, United States of America
[3]AWR-National Instruments, MEQUON, WI, United States of America

09:20 **Modeling Oscillations in TWTs using the TESLA Family of Codes 447**
I.A. Chernyavskiy[1], *A.N. Vlasov[1], B. Levush[1], T.M. Antonsen Jr.[2], K.T. Nguyen[3]*
[1]Naval Research Laboratory, WASHINGTON, DC, United States of America
[2]Leidos, Inc., RESTON, VA, United States of America
[3]Beam-wave Research, Inc., BETHESDA, MD, United States of America

09:35 **Recent Advances in Beam Optics Analyzer 487**
T. Bui*, R.L. Ives, M. Read*
Calabazas Creek Research, Inc., MOUNTAIN VIEW, United States of America

09:50 **Electron-Wave Momentum Exchange and Time Domain Simulations Applied to Traveling Wave Tubes 506**
D.F.G. Minenna[1,2,3], *Y. Elskens[2], F. André[3]*
[1]Centre National d'Études Spatiales, TOULOUSE, France
[2]University of Marseille, PIIM, France
[3]Thales Electronic Device, PARIS, France

10:15 Coffee Break

Travelling Wave Tubes

Chair : S. Voigt (DLR, Germany)
Room : Constellation Room

10:35 **Keynote: Helix Traveling-Wave Tube Interaction Simulation with CST Particle Studio 382**
D. Safi[1], *P. Birtel[2], S. Meyne[1], A.F. Jacob[1]*
[1]Hamburg University of Technology, HAMBURG, Germany
[2]Thales Electronic Systems GmbH, ULM, Germany

10:55 **Study of a 1.5 KW Average Output Power CC-TWT with a 10% Banwidth Operating in X-band 270**
A. Mistretta[1], D. Bisconti[1], R. Martorana[1], *A. Muratore[2]*
[1]Leonardo, PALERMO, Italy
[2]Teoresi S.p.A., TORINO, Italy

11:10 **Full Thermal Analyses for Slow-Wave Structure in Helix-TWT under Operation 421**
X. Sun[1], J. Zhang[1], *H. Yuan[1], X. Zhao[1], N. Bai[1], C. Shen[1], H. Fan[1], B. Chen[2], J. Feng[2], T. Yan[2]*
[1]Southeast University, NANJING, China
[2]Beijing Vacuum Electronics Research Institute, BEIJING, China

11:25 **Design of Low Voltage Folded Waveguide Multiple Beam mini-TWTs 499**
A.N. Vlasov[1], *J.C. Rodgers[1], J.A. Pasour[1], I.A. Chernyavskiy[1], S.J. Cooke[1], B. Levush[1], T.M. Antonsen Jr.[2], D. Chernin[2], K.T. Nguyen[3]*
[1]NRL, WASHINGTON, United States of America
[2]Leidos Inc., BILLERICA, United States of America
[3]Beam-Wave Research Inc., BETHESDA, United States of America

12:00 Lunch Break

12:00-13:30 Poster Session 3

High Power Vacuum Devices

Chair : J. Booske (University of Wisconsin, United States of America)
Room : Copernicus Extended Room

10:35 **Keynote: Study of the Oscillation Startup Time in a G-band EIO based on a Pseudospark-Sourced Electron Beam 388**
P. Peng, *L. Bi, Z. Chang, F. Zeng, Y. Yin, B. Wang, L. Meng*
University Of Electronic Science And Technology Of China, CHENGDU, China

10:55 **Novel Schemes of Powerful FEM-Oscillators and Amplifiers for Potential Applications 306**
N.Yu. Peskov[1], *I.V. Bandurkin[1], N.S. Ginzburg[1], S.V. Kuzikov[1], A.V. Savilov[1], V.Yu. Zaslavsky[1], A.K. Kaminsky[2], E.A. Perelshtein[2], S.N. Sedykh[2]*
[1]Institute of Applied Physics RAS, Nizhny Novgorod, Russian Federation
[2]Joint Institute for Nuclear Research, DUBNA, Russian Federation

11:10 **THz Undulator Radiation of Dense Electron Bunches Stabilized in the Negative Mass Regime 376**
I.V. Bandurkin[1], V.L. Bratman[1], I.S. Kurakin[1], Y.S. Oparina[1], A.V. Savilov[1], *N. Balal[2], Y. Lurie[2]*
[1]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation
[2]Ariel University, ARIEL, Israel

11:25 **Powerful Multichannel Planar FEMs based on Intense Parallel Sheet Beams 356**
N.Yu. Peskov[1], *N.S. Ginzburg[1], A.S. Sergeev[1], V.Yu. Zaslavsky[1], A.V. Arzhannikov[2], P.V. Kalinin[2], S.A. Kuznetsov[2], S.L. Sinitsky[2], V.D. Stepanov[2], M. Thumm[2]*
[1]Institute of Applied Physics RAS, Nizhny Novgorod, Russian Federation
[2]Budker Institute of Nuclear Physics RAS, NOVOSIBIRSK, Russian Federation

11:40 **Comparison of 6 MW S-band Pulsed BAC MBK with the Existing SBKs 511**
I. Guzilov[1], *O. Maslennikov[1], R. Egorov[2], I. Syratchev[3], V. Kobets[4], A. Sumbaev[4]*
[1]JSC "Vacuum device's basic technologies", MOSCOW, Russian Federation,
[2]M.V.Lomonosov Moscow State University, MOSCOW, Russian Federation
[3]CERN, GENEVA, Switzerland
[4]JINR, MOSCOW, Russian Federation

12:00 Lunch Break

12:00-13:30 Poster Session 3

Klystrons I

Chair : E. Bosch (Thales Electronic System, Germany)
Room : Constellation Room

13:30 **Keynote: Test of a BAC Klystron N/A**
R. Kowalczyk[1], *A. Haase[1], E. Jongewaard[1], M.. Kemp[1], J. Neilson[1], A. Jensen[2]*
[1]SLAC National Accelerator Laboratory, MENLO PARK, United States of America
[2]Leidos, BILLERICA, United States of America

13:50 **Development of a SpaceBorne C-Band Klystron for the MetOp-SG Mission 503**
P. Horoyski*, R. MacHattie, R. Dobbs, D. Berry*
CPI Canada, GEORGETOWN, Canada

14:05 **W-band Klystron Upconverter Driven by Pseudospark-Sourced Electron Beam 73**
L. Zhang[1,2], H. Yin[1,2], D. Constable[2,3], J. Zhao[1,2], W. He[1,2], A. W. Cross*[1,2], G. Burt[2,3], C. Lingwood[2,3], C. Paoloni[2,3]*
[1]University of Strathclyde, GLASGOW, United Kingdom
[2]Cockroft Institute Warrington, CHESHIRE, United Kingdom
[3]Department of Engineering, Lancaster University, LANCASTER, United Kingdom

14:20 **Upgrading the 250-kW CW X-band Klystron used in the Goldstone Solar System Radar 107**
E.L. Eisen*, R. Begum, B. Stockwell, A. Waggoner, S. Cauffman, G. Aymar, S. Forrest, L. Zitelli, A. Staprans*
Communications & Power Industries, LLC, PALO ALTO, United States of America

14:35 **Pre-Development of a C-Band Klystron Intended for Synthetic Aperture Radar in Space Application 268**
R. Martorana*[1], D. Bisconti[1], A. Mistretta[1], A. Muratore[2]*
[1]Leonardo - Finmeccanica SpA, PALERMO, Italy
[2]Teoresi S.p.A., TORINO, Italy

14:50 **20MWp High-Efficiency L Band Multi-Beam Klystron for CLIC Drive Beam 326**
R. Marchesin*, A. Beunas, P. Thouvenin, K. Haj Khlifa, Q. Vuillemin*
Thales Electron Devices, VELIZY-VILLACOUBLAY, France

15:15 Coffee Break

15:15-15:35 Poster Session 3

Design of mm-wave Vacuum Devices

Chair : J.C.T. Tucek (Northrop Grumman Systems, United States of America)
Room : Copernicus Extended Room

13:30 **Keynote: Fabrication of W-band TWT for 5G Small Cells Backhaul 445**
F. André*[1], S. Kolher[1], Q. Trung Le, A. Sabaawi[3], G. Ulisse[4], V. Krozer[4], R. Letizia[3], C. Paoloni[3], R .Zimmermann[4]*
[1]Thales Electron Devices, VELIZY, PARIS, France
[2]HF Systems Engineering GmbH, KASSEL, Germany
[3]Lancaster University, LANCASTER, United Kingdom
[4]Goethe University of Frankfurt, FRANKFURT, Germany

13:50 **71 - 76 GHz Traveling Wave Tube for High Data Rate Satellite Communication 449**
X. Li*, X. Huang, R. Letizia, C. Paoloni*
Lancaster University, LANCASTER, United Kingdom

14:05 **3D Modeling of a Sheet-Beam Sub-THz Traveling Wave Tube 366**
T.A. Karetnikova*[1,2], N.M. Ryskin[1,2], A.G. Rozhnev[1], A.E. Fedotov[3], S.V. Mishakin[3], N.S. Ginzburg[3,4]*
[1]Saratov State University, SARATOV, Russian Federation
[2]Saratov Branch, Institute of Radio Engineering and Electronics, SARATOV, Russian Federation
[3]Institute of Applied Physics, Nizhny Novgorod, Russian Federation
[4]Nizhny Novgorod State University, Nizhny Novgorod, Russian Federation

14:20 **Design of a 94 GHz Photonic Bandgap Based Extended Interaction Klystron Amplifier 109**
J.C. Stephens[1], *M.A. Basten[2], K.E. Kreischer[2], G. Rosenzweig[1], M.A. Shapiro[1], R.J. Temkin[1], J.C. Tucek[2]*
[1]Massachusetts Institute of Technology, CAMBRIDGE, United States of America
[2]Northrop Grumman Systems Corp., ROLLING MEADOWS, United States of America

14:35 **Research Progress of a W-band 100-Watts Extended Interaction Oscillator 133**
Z. Qu, Z. Zhang*, Y. Ding, S. Wang, Z. Zhang, Q. Li*
Institute of Electronics, Chinese Academy of Sciences, BEIJING, China

14:50 **Design and Experiment of 0.13THz Folded-Waveguide Oscillator 135**
J. Yi, *L. Wenqiang,H. Peng, S. Rui, H. Yinhu, M. Guowu, C. Hongbin*
Institute of Applied Electronics, China Academy of Engineering Physics, MIANYANG, China

15:15 Coffee Break

15:15-15:35 Poster Session 3

Materials & Technologies

Chair : M. Clark (TMD, United Kingdom)
Room : Alexander Graham Bell Room

13:30 **Keynote: Long Pulse Operation of a High Power Microwave Source with a Metamaterial Loaded Waveguide 89**
X. Lu, *J.S. Hummelt, M.A. Shapiro, R.J. Temkin*
MIT, CAMBRIDGE, United States of America

13:50 **Dispenser Cathodes for E-Beam Lithography Machine: a Quick Take 13**
V. Katsap*, C. Lai*
NuFlare Technology America, HOPEWELL JUNCTION, NY, United States of America

14:05 **Study of AlN-FeSiAl Microwave Attenuation Ceramic 239**
Y. Zhang, S. Yin, X. Gao, H. Jin, H. Liu, Y. Ding
Institute of Electronics, Chinese Academy of Sciences, BEIJING, China

14:20 **Corrosion Mitigation Coatings for RF Sources and Components 276**
R.L. Ives[1], *G. Collins[1], D. Marsden[1], T. Bui[1], B. Mitsdarffer[2], C.J. Oldham[3], J.S. Daubert[3], A.P. Gremaud[3], G.N. Parsons[3]*
[1]Calabazas Creek Research, Inc., SAN MATEO, CA, United States of America
[2]Naval Surface Warfare Center, CRANE, IN, United States of America
[3]North Carolina State University, RALEIGH, NC, United States of America

14:35 **Recent Advances in High-Power Metamaterial Microwave Sources at UESTC 290**
Z. Duan[1], *X. Tang[2], Y. Wang[2], X. Wang[2], F. Wang[2], Z. Wang[2], Y. Gong[2]*
[1]University of Electronic Science and Technology of China, CHENGDU, China
[2]UESTC, CHENGDU, China

14:50 **First Experimental Observation of Plasma Breakdown for Detection of Radioactive Material Using a Gyrotron in Real-Time 467**
D. Kim*, D. Yu, A. Sawant, M.S. Choe, E.M. Choi*
Ulsan National Institute of Science and Technology, ULSAN, South-Korea

15:15 Coffee Break

15:15-15:35 Poster Session 3

MPMs and mini-TWTs

Chair : D.K. Abe (Naval Research Laboratory, United States of America)
Room : Constellation Room

15:35 **Keynote: A Compact G-Band MPM Power Amplifier for High-Resolution Airborne Radar 255**
C.M. Armstrong[1], *A. Zubyk[1], C Meadows[1], K Berg[1], D Chan[1], T Schoemehl[1], R Duggal[1], N Hinch[1], M. Martin[1], R. Kowalczyk[2], B. Weatherford[2], B. Tobin[1], M. Sweeney[1]*
[1]L-3 Electron Devices, SAN CARLOS, United States of America
[2]Stanford Linear Accelerator, MENLO PARK, United States of America

15:55 **High PRF Microwave Power Module with Electronic Power Conditioner of enhanced features 265**
R. Martorana, *D. Bisconti, A. Mistretta*
Leonardo - Finmeccanica SpA, PALERMO, Italy

16:10 **Mini-TWT in Gain and Phase Matched Applications 519**
T. Ghosh, *A. Tokeley, K. Rushbrook, D. Scott, G. Peters, D. Fox, I. Poston, D. Bowler*
E2V, CHELMSFORD, United Kingdom

16:25 **Development of Ka-Band 25 Watt Mini TWT 296**
Q. Liu, *M. Huang, L. Yao*
Institute of Electronics, Chinese Academy of Sciences, BEIJING, China

16:45 Conference Closing Remarks

Klystrons II

Chair : Y.B. Gong (UESTC, China)
Room : Copernicus Extended Room

15:35 **Study of a Rectangular Beam Extended Interation Klystron in G-band 334**
C. Ruan, R. Li
Beihang University, BEIJING, China

15.55 **A High Efficiency S-band Klystron for Medical Accelerator System 183**
Z. Wan, J. Wang
Beijing Vacuum Electronics Research Institute, BEIJING, China

16:10 **Design and Analysis of a Multiple-Beam Extended Interaction Oscillator with Coaxial Structure 119**
Y. Yin, *B. Wang, T. Zhang, F. Zeng, R. Peng, L. Bi, Z. Chang, L. Meng*
University of Electronic Science and Technology of China, CHENGDU, China

16:25 **Development and Production of a 704 MHz, 1.5 MW Peak Power Klystron 463**
G. Aymar, *E. Eisen, B. Stockwell, R. Begum, O. Sabev, S. Lenci, S. Torres,*
Communications and Power Industries LLC, PALO ALTO, United States of America

16:45 Conference Closing Remarks

Relativistic Vacuum Devices

Chair : G.S. Park (Seoul National University,Korea)
Room : Alexander Graham Bell Room

15:35 **Keynote: Efficient Relativistic Magnetron with Lengthy Virtual Cathode Formed using the Magnetic Mirror Effect 274**
E. Schamiloglu[1], M.I. Fuks[1], *A.A. Koronovskii[2], S.A. Kurkin[2]*
[1]University of New Mexico, ALBUQUERQUE, United States of America
[2]Saratov State University, SARATOV, Russian Federation

15:55 **Design and Simulation of a Relativistic Inverted Magnetron 53**
T.P. Fleming[1], *M. Lambrecht[1], P. Mardahl[1], J. Keisling[2]*
[1]Air Force Research Lab, EDGEWOOD, NEW MEXICO, United States of America, [2]Leidos Inc., ALBUQUERQUE, United States of America

16:10 **Experimental Realization of Pulse W-band Relativistic Gyrotron with 5 MW Output Power 358**
E.B. Abubakirov, A.V. Chirkov, G.G. Denisov, *Yu.M. Guznov, S.Yu. Kornishin, A.N. Leontyev, O.P. Plankin, R.M. Rozental, A.S. Sedov, E.S. Semenov, N.A. Zavolsky, S.A. Zapevalov, V.E. Zapevalov*
Institute of Applied Physics, Nizhny Novgorod, Russian Federation

16:25 **Design and Simulation of a High efficiency Relativistic Backward Wave Oscillator 63**
M.A. Ansari, M. Thottappan
Centre of Research in Microwave Tubes (CRMT), Department of Electronics Engineering,Indian Institute of Technology (BHU), India

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Poster Sessions

Poster session 1 - Monday 24 April 2017
15:35 – 15:55 / 17:25 – 18:25
Room : Constellation Room & Lounge Extended

1.1 **Landmine Detector on a Slow-Wave Structure 17**
Y.N. Pchelnikov
Pchelnikov's Consulting, Cary, United States of America

1.2 **A Simple Pillbox-Type Mixed-Mode Window for High Power Microwave Devices 19**
B.V. Prokofiev, *M.A. Martynenko*
JSC, Scientific & Production Enterprise, Toriy, MOSCOW, Russian Federation

1.3 **Development of MIG-Collector Test Module for 170 GHz, 1MW Gyrotron N/A**
K. Alaria, *U. Singh, R. Poonia, A. Bera, A. Sinha*
CSIR-CEERI, PILANI, India

1.4 **Method of Elimination of a High-Order Mode in the Overlapping-Mode Double-Gap Output Circuit 31**
Z.C. Zhang, *J. Cao, Y.W. Zhang, Y.F. Guo*
Institute of Electronics, Chinese Academy of Sciences, BEIJING, China

1.5 **THz Electromagnetic Radiation in Beam-Plasma System under Differentions' Quantity 33**
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