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**Regensburg, Germany
10-14 July 2017**



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Schedule

Monday, 10 July 2017

10:00 - 13:30 Registration

13:30 - 13:45 Welcome Address
Prof. Dr. Rupert Schreiner, Conference Chair

Tutorial Session 1

Chair: Dirk Lützenkirchen-Hecht

13:45 - 14:30 Tutorial T1	The extraction of emitter characterization parameters from field emission current-voltage data <u>Richard G. Forbes</u> <i>University of Surrey, Guildford, Surrey, UK</i>	p. 2
14:30 - 15:15 Tutorial T2	Introduction to the Micro/Nano-Fabrication of Modern Vacuum Electronic Devices <u>Juncong She, Zhizhen Huang, Yifeng Huang, Zhijun Huang, Jun Chen, Shaozhi Deng, Ningsheng Xu</u> <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 4

15:15 - 15:45 Coffee Break

Tutorial Session 2

Chair: Richard Forbes

15:45 - 16:30 Tutorial T3	Microplasmas and the Role of Plasma/Surface Interactions <u>Gary Eden</u> <i>University of Illinois, Urbana, USA</i>	
16:30 - 17:15 Tutorial T4	THz Technology with Nanoelectronic and Vacuum Nanoelectronic Devices <u>Oktay Yilmazoglu</u> <i>Technische Universität Darmstadt, Darmstadt, Germany</i>	p. 8

18:00 - 18:15 Welcome Address
Prof. Dr. Wolfgang Baier, President, OTH Regensburg

18:15 - 20:00 Welcome Reception

Tuesday, 11 July 2017

7:45 - 8:15 Registration

8:15 - 9:00 Plenary P1	Attosecond Charge Transport in Atoms and Condensed Matter <u>Ursula Keller</u> <i>ETH Zürich, Zürich, Switzerland</i>	N/A
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Oral Session 1

Theory and Fundamentals

Chair: Charles Hunt

9:00 - 9:15 TF-C1	Comments on the relationship between voltage loss, reduction in field enhancement factor, and saturation effects in Fowler-Nordheim plots <u>Richard G. Forbes</u> <i>University of Surrey, Guildford, Surrey, UK</i>	p. 12
9:15 - 9:30 TF-C2	Properties of Emission from a Low-Dimensional Paraboloidal Emitter <u>Alex I. Patterson</u> , Akintunde I. Akinwande <i>Massachusetts Institute of Technology, Cambridge, USA</i>	p. 14
9:30 - 9:45 TF-C3	Exact Eigenstates of a Nanoscopic Paraboloidal Emitter: Field Emission Quantities and Spot Size of the Near Field Electron Microscope <u>John P. Xanthakis</u> , Andreas Chatziafratis, George Fikioris <i>National Technical University of Athens, Athens, Greece</i>	p. 16
9:45 - 10:00 TF-C4	Nanogap Diode Current Using Shape Factor Methods <u>Kevin L. Jensen</u> , Donald A. Shiffler, Martin Peckerar, John R. Harris, John J. Petillo <i>Naval Research Laboratory, Washington, DC, USA</i>	p. 18

10:00 - 10:30 Coffee Break

Oral Session 2

Field Emission Cathodes

Chair: Yasuhito Gotoh

10:30 - 11:00 Invited FEC-I1	Field emission from n-type diamond NEA surface and graphene/n-type diamond junction <u>Takatoshi Yamada</u> , Tomoaki Masuzawa, Yoichiro Neo, Hidenori Mimura, Shuichi Ogawa, Yuji Takakuwa, Ken Okano <i>National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan</i>	p. 20
11:00 - 11:15 FEC-C1	Fabrication of ZnO nanowire field emitter arrays with non-coplanar focus electrode structure Jun Chen, <u>Yuanming Liu</u> , Long Zhao, Zhipeng Zhang, Keshuang Zheng, Daokun Chen, Guofu Zhang, Juncong She, Shaozhi Deng, Ningsheng Xu <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 22
11:15 - 11:30 FEC-C2	Sputtering of Spindt-type Field Emission Tip induced by Electron Stimulated Desorption of Gate Contaminations <u>Tao Zheng</u> , Bo Zhang, Bruce Gnade <i>University of Texas at Dallas, Richardson, United States</i>	p. 24
11:30 - 11:45 FEC-C3	Reduction of work functions for high current density cathode by introducing fractional monolayer adsorbate on tungsten <u>Ming-Chieh Lin</u> , Ruei-Fu Jao, Tsan-Chuen Leung <i>Hanyang University, Seoul, Korea</i>	p. 26
11:45 - 12:00 FEC-C4	Nanoscale Phonon Drag as a Part of Low-Field Electron Emission Mechanism for Nanocarbons <u>Alexander V. Arkhipov</u> , Pavel G. Gabdullin, Olga E. Kvashenkina, V. S. Osipov <i>Peter the Great St. Petersburg Polytechnic University, St. Petersburg, Russia</i>	p. 28

12:00 - 14:00 Lunch at Restaurant Weltenburger am Dom

Oral Session 3

Micro Plasma and Discharges 1

Chair: Juncong She

14:00 - 14:30 Invited MP1-I1	The Role of Field Emission on Plasma Formation at Microscale Dimensions <u>David B. Go</u> , R. Mohan Sankaran, Mihai A. Bilici, John R. Haase <i>University of Notre Dame, Notre Dame, USA</i>	
14:30 - 15:00 Invited MP1-I2	New Types of Electron Beam Sources based on High-Voltage Glow-Discharge – Basics and Applications <u>Frank-Holm Rögner</u> , Gösta Mattausch, Burkhard Zimmermann, Ignacio G. Vicente Gabás <i>Fraunhofer-Institute for Organic Electronics, Electron Beam and Plasma Technology (FEP), Dresden, Germany</i>	
15:00 - 15:15 MP1-C1	Energetic evaluation of the transition from field electron emission to plasma discharges with extended use of the Fowler-Nordheim plot <u>Wolfram Knapp</u> <i>Institute of Manufacturing Technology and Quality Management, Magdeburg, Germany</i>	p. 34

15:15 - 15:45 Coffee Break

Oral Session 4

Micro Plasma and Discharges 2

Chair: Rüdiger Foest

15:45 - 16:15 Invited MP2-I1	Ignition and operation of microdischarge arrays on silicon wafers <u>Rémi Dussart</u> , M. Michaud, Arnaud Stolz, Olivier Aubry, Philippe Lefaucheux, Sebastian Dzikowski, Volker Schulz-von der Gathen, Lawrence J. Overzet <i>Univ. Orleans - CNRS, Orléans, France</i>	
16:15 - 16:30 MP2-C1	Nanotip evaporation under high electric field <u>Andreas Kyritsakis</u> , Mihkel Veske, Vahur Zadin, Flyura Djurabekova <i>University of Helsinki, Helsinki, Finland</i>	p. 38
16:30 - 16:45 MP2-C2	Adatom diffusion in high electric fields <u>Ville Jansson</u> , Ekaterina Baibuz, Andreas Kyritsakis, Flyura Djurabekova <i>University of Helsinki, Helsinki, Finland</i>	p. 40

16:45 - 17:00 Group Photo and walk to Dollingersaal

17:00 - 19:00	Poster Session 1 (Dollingersaal) Field Emission Cathodes Micro Plasma and Discharges Thermionic and Thermoelectronic Energy Conversion Devices and Applications	FEC MP TEC DA
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Wednesday, 12 July 2017

7:45 - 8:15 Registration

8:15 - 9:00 Plenary P2	Terahertz radiation sources based on cold cathode vacuum electronics <u>Shaozhi Deng</u> <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	
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Oral Session 5

Novel Measurement and Characterization

Chair: Cheol Jin Lee

9:00 - 9:15 NMC-C1	Hyperspectroscopy: a tool for high-spatial-resolution temperature mapping of electron emitters <u>Harrison D. E. Fan</u> , George A. Sawatzky, Jeff F. Young, Alireza Nojeh <i>University of British Columbia, Vancouver, BC, Canada</i>	p. 44
9:15 - 9:30 NMC-C2	Field emission microscopy of ultra-nano-crystalline diamond films <u>Sergey V. Baryshev</u> , Oksana Chubenko, Stanislav S. Baturin, Anirudha V. Sumant, Alexander V. Zinovev, Kiran K. Kovi <i>Euclid TechLabs, Bolingbrook, USA</i>	p. 46
9:30 - 9:45 NMC-C3	Field Emission from Adsorbed Fullerene Molecules <u>Masahiro Sasaki</u> , Yoichi Yamada, Ken Asanagi, Manabu Adachi, Yuji Nishiyama <i>University of Tsukuba, Tsukuba, Japan</i>	p. 48
9:45 - 10:00 NMC-C4	FEF distribution influence on linearity of Fowler-Nordheim plots: modeling and experiment <u>Eugeni O. Popov</u> , Anatoly G. Kolosko, Sergey V. Filippov <i>Ioffe Institute, St.-Petersburg, Russia</i>	p. 50

10:00 - 10:30 Coffee Break

Oral Session 6

Thermionic and Thermoelectronic Energy Conversion

Chair: Heinz Busta

10:30 - 11:00 Invited TEC-I1	Key Challenges for Thermionic and Thermoelectronic Power Conversion <u>Jochen Mannhart</u> <i>Max Planck Institute for Solid State Research, Stuttgart, Germany</i>	N/A
11:00 - 11:15 TEC-C1	In-situ Work Function Measurements in Thermoelectronic Generators <u>Iman Rastegar</u> , Wolfgang Voesch, Robin Wanke, Wolfgang Braun, Jochen Mannhart <i>Max Planck Institute for Solid State Research, Stuttgart, Germany</i>	p. 54
11:15 - 11:30 TEC-C2	Exploring the Ultimate Efficiency Limits of Thermoelectronic Energy Conversion <u>Wolfgang Voesch</u> <i>Max Planck Institute for Solid State Research, Stuttgart, Germany</i>	N/A
11:30 - 11:45 TEC-C3	Magnetic diode configuration for more efficient photon-enhanced thermionic energy converter <u>Khairudin Mohamed</u> , Kamarul A. Abdul Khalid, Thye J. Leong <i>Universiti Sains Malaysia, Nibong Tebal, Malaysia</i>	N/A
11:45 - 12:00 TEC-C4	Light-induced nanostructured thermionic energy converters: the effect of cathode-anode gap on the output current <u>Kais Dridi</u> , Mike Chang, Kevin Voon, Alireza Nojeh <i>University of British Columbia, Vancouver, BC, Canada</i>	p. 60

12:00 - 14:00 Lunch at Restaurant Weltenburger am Dom

Oral Session 7

X-Ray Sources

Chair: Stefan Junge

14:00 - 14:30 Invited XRS-I1	Digital X-ray Sources Based on Field Emission from Nanomaterials <u>Yoon-Ho Song</u> <i>Electronics and Telecommunications Research Institute, Daejeon, Korea</i>	
14:30 - 14:45 XRS-C1	Cold cathode x-ray source fabricated by the CNT point emitter <u>Cheol J. Lee</u> , Sang H. Lee, Jun S. Han, Han B. Go <i>Korea University, Seongbuk-gu, Seoul, Republic of Korea</i>	p. 64
14:45 - 15:00 XRS-C2	Control of the Electron Source Current <u>Michael P. Bachmann</u> , Florian Dams, Felix Düsberg, Martin Hofmann, Andreas Pahlke, Christoph Langer, Robert D. Ławrowski, Christian Prommesberger, Rupert Schreiner <i>Ketek GmbH, München, Germany</i>	p. 66
15:00 - 15:15 XRS-C3	High performance glass sealed x-ray tube with CNT cold cathode electron beam (C-beam) <u>Kyu C. Park</u> , Ji H. Hong, Jung S. Kang, Jae Y. Park <i>Kyung Hee Univ., Seoul, South Korea</i>	p. 68

15:15 - 15:45 Coffee Break

Oral Session 8

Vacuum Technology

Chair: Wolfram Knapp

15:45 - 16:15 Invited VT-I1	Miniaturized Vacuum Pumps and their Application <u>Jan A. Dziuban</u> <i>Wrocław University of Science and Technology, Wrocław, Poland</i>	
16:15 - 16:30 VT-C1	Novel vacuum gauge based on an electron space charge compensation ion source <u>Mihail Granovskij</u> , Sergej Uchatsch, Anton Zimare, Christian Reinhardt, Jaroslaw Iwicki, Michael Flämmich, Ute Berger <i>VACOM Vakuum Komponenten und Messtechnik GmbH, Großlöbichau, Germany</i>	
16:30 - 16:45 VT-C2	Ultra-high vacuum leak detection technology with the lower limit of 10⁻¹⁶Pam³/s for nano devices <u>Yaowen Lu</u> , Yunning Dong, Aqin Chen, Jing Qi, Liangzhen Cha <i>Beijing Orient Institute of Measurement and Test, Beijing, P. R. China</i>	p. 74

16:45 - 17:00 Walk to Dollingersaal

17:00 - 19:00	Poster Session 2 (Dollingersaal) Theory and Fundamentals Novel Measurement and Characterization Photo-induced Field Emission X-Ray Sources	TF NMC PE XRS
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Thursday, 13 July 2017

7:45 - 8:15 Registration

8:15 - 9:00 Plenary P3	Ultrafast light and electron sources from the THz to the X-ray wavelength range <u>Franz X. Kärtner</u> <i>Deutsches Elektronen Synchrotron and University of Hamburg, Hamburg, Germany</i>	p. 76
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Oral Session 9

Photo-induced Field Emission 1

Chair: Alireza Nojeh

9:00 - 9:30 Invited PE1-I1	Lightwave-driven scanning tunneling microscopy <u>Rupert Huber</u> , Dominik Peller, Tyler L. Cocker, Jascha Repp <i>University of Regensburg, Regensburg, Germany</i>	
9:30 - 9:45 PE1-C1	Highly Coherent Femtosecond Electron Pulses for Ultrafast Transmission Electron Microscopy <u>Nora Bach</u> , Armin Feist, Till Domröse, Marcel Möller, Nara Rubiano da Silva, Thomas Danz, Sascha Schäfer, Claus Ropers <i>Georg-August-Universität Göttingen, Göttingen, Germany</i>	p. 80
9:45 - 10:00 PE1-C2	On the transverse wave function and coherence of field emission electrons <u>Soichiro Tsujino</u> <i>Paul Scherrer Institut, Villigen PSI, Schweiz</i>	p. 82

10:00 - 10:30 Coffee Break

Oral Session 10

Photo-induced Field Emission 2

Chair: Soichiro Tsujino

10:30 - 11:00 Invited PE2-I1	Ultrafast hot electron generation in graphite and Ag nanocluster/graphite heterojunctions <u>Hrvoje Petek</u> <i>University of Pittsburgh, Pittsburgh, USA</i>	
11:00 - 11:15 PE2-C1	Field emission and field ion microscopy from single crystal diamond needle Angela Vella, <u>Mario Borz</u> , Ivan Blum, Olivier Torresin, Julien Mauchain, Benoît Chalopin, Alexander N. Obratsov <i>Normandie Univesité, Rouen, France</i>	p. 86
11:15 - 11:30 PE2-C2	Laser-induced photoemission from tungsten and diamond tips Benoît Chalopin, <u>Olivier Torresin</u> , Julien Mauchain, Mario Borz, Ivan Blum, Angela Vella, Alexander N. Obratsov <i>UPS - LCAR, Toulouse, France</i>	p. 88
11:30 - 11:45 PE2-C3	Ultrafast field-driven monochromatic photoemission from carbon nanotubes <u>Qing Dai</u> , Chi Li, Xu Zhou, Feng Zhai, Zhenjun Li, Fengrui Yao, Ruixi Qiao, Ke Chen, Matthew T. Cole, Dapeng Yu, Zhipei Sun, Kaihui Liu <i>National Center for Nanoscience and Technology, Beijing, P. R. China</i>	p. 90
11:45 - 12:00 PE2-C4	Modeling of the electron emission by picosecond lasers under an intense electric field in vacuum <u>Benjamin Seznec</u> , Philippe Dessante, Valentin Gérard, Philippe Testé, Tiberiu Minea <i>Université Paris-Saclay, Orsay, France</i>	p. 92

12:00 - 14:00 Lunch at Restaurant Weltenburger am Dom

14:00 - 14:15 Walk from Herzogssaal to shipping pier

14:15 - 18:00 Excursion to Walhalla by ship

19:00 - 23:00 Conference Dinner at Herzogssaal

Friday, 14 July 2017

7:45 - 8:15 Registration

8:15 - 9:00 Plenary P4	Plasmon-assisted Photemission for Microelectronics <u>Ebrahim Forati</u> , Dan Sievenpiper <i>University of California San Diego, San Diego, USA</i>	
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Oral Session 11

Devices and Applications 1

Chair: Hidenori Mimura

9:00 - 9:30 Invited DA1-I1	Revolutionary Propulsion for Future Spacecraft: Field Emission Thruster Developments at TU Dresden towards their First Flight Application <u>Martin Tajmar</u> , Daniel Bock, Philipp Laufer <i>Technische Universität Dresden, Dresden, Germany</i>	p. 96
9:30 - 9:45 DA1-C1	Si tip with integrated nano-channel: Self-heated and self-current-limited field electron emitter Juncong She, <u>Zhijun Huang</u> , Yifeng Huang, Zhangxu Pan, Shaozhi Deng, Jun Chen, Ningsheng Xu <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 98
9:45 - 10:00 DA1-C2	Contact and Line Resistivity in Nanogranular Compound Materials Fabricated with Focused Electron Beam Induced Processing <u>Hans W. P. Koops</u> , Ivo W. Rangelow <i>HaWilKo GmbH, Ober-Ramstadt, Germany</i>	p. 100

10:00 - 10:30 Coffee Break

Oral Session 12

Devices and Applications 2

Chair: Hans W. P. Koops

10:30 - 11:00 Invited DA2-I1	Pulsed Electron Source for Atmospheric Pressure Chemical Ionization in Ion Mobility Spectrometry <u>Erik Bunert</u> , Andre Heptner, Ansgar T. Kirk, Oliver Käbein, Alexander Kusch, Marc C. Wurz, Stefan Zimmermann <i>Leibniz Universität Hannover, Hanover, Germany</i>	p. 102
11:00 - 11:15 DA2-C1	Robustness of Field Emitter Arrays against High-Energy X-ray Irradiation at High Dose Rate <u>Yasuhito Gotoh</u> , Teruyuki Morito, Hiroshi Tsuji, Masayoshi Nagao, Masafumi Akiyoshi, Ikuji Takagi <i>Kyoto University, Kyoto, Japan</i>	p. 104
11:15 - 11:30 DA2-C2	Long term current stability of commutable cold cathodes based on vertically aligned carbon nanotubes <u>Pierre-louis Gautherin</u> , Lucie Sabaut, Pascal Ponard, Jean-Paul Mazellier, Pierre Legagneux, Stephane Xavier <i>Thales Electron Devices, Thonon les Bains, France</i>	p. 106
11:30 - 11:45 DA2-C3	Simulation of Fowler-Nordheim Emission for Scanning Probe Lithography <u>Steve Lenk</u> , Marcus Kaestner, Claudia Lenk, Yana Krivoschapkina, Ivo W. Rangelow <i>Technische Universität Ilmenau, Ilmenau, Germany</i>	p. 108
11:45 - 12:00 DA2-C4	Periodic Pulsed Electron Emission from Single Hot Carbon Nanotubes <u>Xianlong Wei</u> <i>Peking University, Beijing, P. R. China</i>	p. 110

12:00 - 12:15 Farewell

Prof. Dr. Rupert Schreiner, Conference Chair

12:15 - 14:00 Lunch at Restaurant Weltenburger am Dom

Poster Session 1

Tuesday, 11 July 2017, 17:00 - 19:00, Dollingersaal

Field Emission Cathodes

FEC-P01	Annealing effect on electron emission properties of graphene-oxide-semiconductor planar-type electron emission devices <u>Katsuhisa Murakami</u> , Takuya Iijima, Masayoshi Nagao, Yoshihiro Nemoto, Masaki Takeguchi, Yoichi Yamada, Masahiro Sasaki <i>National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan</i>	p. 114
FEC-P02	Effect of surface O₂ adsorption on the field Emission performances of LaB₆ Nanowires <u>Fei Liu</u> , Haibo Gan, Luxi Peng, Xun Yang, Ningsheng Xu, Jun Chen, Shaozhi Deng <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 116
FEC-P03	Fabrication of Large-Area Arrays of Coaxial Gated ZnO Nanowire Field Emitters for Vacuum Microelectronics Applications Jun Chen, <u>Long Zhao</u> , Yuanming Liu, Zhipeng Zhang, Juncong She, Shaozhi Deng, Ningsheng Xu <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 118
FEC-P04	Field emission characterization of in-situ deposited metallic nanocones <u>Johannes Bieker</u> , Farough Roustaei, Helmut F. Schlaak, Christoph Langer, Rupert Schreiner <i>Technische Universität Darmstadt, Darmstadt, Germany</i>	p. 120
FEC-P05	Process technology for volcano-structured double-gate Spindt-type field emitter arrays <u>Masayoshi Nagao</u> , Katsuhisa Murakami, Yasuhito Gotoh, Yoichiro Neo, Hidenori Mimura <i>National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan</i>	p. 122
FEC-P06	Fabrication of highly stable electron beams with CNT cold cathode <u>Kyu C. Park</u> , Jung S. Kang, Jung H. Kim <i>Kyung Hee Univ., Seoul, South Korea</i>	p. 124

FEC-P07	Field-emission investigations of micro-structured stainless steel 1.4301 (ASTM 304) <u>Wolfram Knapp</u> <i>Institut for Manufacturing Technology and Quality Management, Magdeburg, Germany</i>	p. 126
FEC-P08	Research on the influence of image potential on the field emission behaviors of SmB6 nanowires <u>Fei Liu</u> , <u>Xun Yang</u> , Haibo Gan, Luxi Peng, Yan Tian, Jun Chen, Ningsheng Xu, Shidong Liang <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 128
FEC-P09	Microrods and microlines by three-dimensional epitaxially grown GaN for field emission cathodes <u>Robert D. Ławrowski</u> , Christoph Langer, Christian Prommesberger, Rupert Schreiner <i>OTH Regensburg, Regensburg, Germany</i>	p. 130
FEC-P10	Silicon field emitter arrays produced via wafer dicing <u>Alexander Kusch</u> , Erik Bunert, Stefan Zimmermann, Marc C. Wurz <i>Leibniz Universität Hannover, Garbsen, Germany</i>	p. 132
FEC-P11	Silicon carbide gate controlled field emission array <u>Alexey S. Ivanov</u> , Vladimir A. Golubkov, Vladimir A. Ilyin, Vladimir N. Titov <i>St. Petersburg Electrotechnical University LETI, St. Petersburg, Russia</i>	p. 134
FEC-P12	Effect of CF₄ plasma treatment on morphology, composition and field emission properties of ZnO nanowires <u>Jun Chen</u> , Wang Ying, Xiaomeng Song, Yicong Chen, Zhipeng Zhang, Juncong She, Shaozhi Deng, Ningsheng Xu <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 136
FEC-P13	Field emission properties of p-type silicon tips decorated with tungsten nanoparticles <u>Victor I. Kleshch</u> , Pavel Serbun, Anton Orekhov, Dirk Lützenkirchen-Hecht, Alexander N. Obratsov, Christian Prommesberger, Christoph Langer, Rupert Schreiner <i>Moscow State University, Moscow, Russia</i>	p. 138

FEC-P14	The field emission from nanocrystalline diamond film coated silicon carbide microstructured cathode Alexey S. Ivanov, Victor V. Luchinin, Vladimir A. Golubkov, Vladimir A. Ilyin, Sergey A. Bogdanov, Oleg A. Ivanov, Anatoliy L. Vikharev <i>St. Petersburg Electrotechnical University LETI, St. Petersburg, Russia</i>	p. 140
FEC-P15	Field Emission from Silicon Tips Embedded in a Dielectric Matrix Nedeljko Karaulac, Stephen A. Guerrera, Matthew T. Cole, William I. Milne, Akintunde I. Akinwande <i>Massachusetts Institute of Technology, Cambridge, USA</i>	p. 142
FEC-P16	Development of a LaB6 based ultra-bright cold field emitter electron source R. J. Dwayne Miller, Gopal Singh, Robert Bückner, Günther Kassier, Stephen T. Purcell <i>Max Planck Institute for Structure and Dynamics of matter, Hamburg, Germany</i>	p. 144
FEC-P17	High brightness Carbide Tungsten field emission cathode Ryotaro Yamanashi, Yoichiro Neo, Hidenori Mimura <i>Research institute of electronics, Shizuoka Hamamatsu, Japan</i>	p. 146
FEC-P18	Effective fabrication and field emission characteristics of graphene/hexagonal boron nitride hybrid films Dong Liang, Xuda Hong <i>Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, P. R. China</i>	
FEC-P19	Optimize field emission properties of α-Fe₂O₃ nanoflakes by morphology control and current aging treatment Jun Chen, Junqing Wu, Shaozhi Deng, Ningsheng Xu <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 150
FEC-P20	High Performance Field Emitters of Carbon Nanotubes Synthesized by Electric Arc Discharge Hyeonjee Jo, Taehun Shin, Naesung Lee <i>Sejong University, Seoul, South Korea</i>	p. 152

FEC-P21	Optimization of carbon nanotube paste emitter by controlling the size distribution of SiC nanofiller aggregates Yoon-Ho Song, <u>Eunsol Go</u> , Jae-Woo Kim, Young C. Choi, Hyojin Jeon, Jeong-Woong Lee, Sora Park, Jun-Tae Kang, Jin-Woo Jeong, Ji-Hwan Yeon, Sunghee Kim, Yoon-Ho Song <i>Electronics and Telecommunications Research Institute, Daejeon, South Korea</i>	p. 154
FEC-P22	Thermal field emission from carbon nanotubes Artemiy A. Shamanayev, <u>Sergey V. Bulyarskiy</u> , Alexander A. Dudin, Alexander A. Pavlov, Alexander V. Lakalin <i>SMC Technological Centre, Moscow Zelenograd, Russia</i>	p. 156
FEC-P23	Improvement of field emission characteristics of carbon nanotube emitters using phosphorous compound Naesung Lee, <u>Cheolhan Kim</u> , Octia Floweri <i>Sejong University, Seoul, South Korea</i>	p. 158
FEC-P24	CNT cold cathode electron beam (C-beam) for microscopy application <u>Ha R. Lee</u> , Hyun H. Yang, Kyu C. Park <i>Kyung Hee Univ., Seoul, South Korea</i>	p. 160
FEC-P25	Preparation of ZnO Nanowires for High Emission Current Field Emitter Arrays Jun Chen, Libing Wang, <u>Long Zhao</u> , Zhipeng Zhang, Juncong She, Shaozhi Deng, Ningsheng Xu, Jun Chen <i>Sun Yat-sen University, Guangzhou, P. R. China</i>	p. 162
FEC-P26	Field Emission Properties of Triode Structure CNT film emitter Cheol J. Lee, Jun S. Han, Ki N. Yun, <u>Sang H. Lee</u> , Han B. Go, Yoon-Ho Song <i>Korea University, Seongbuk-gu, Seoul, South Korea</i>	p. 164

Micro Plasma and Discharges

MP-P01	Investigations of the transition from field electron emission to stable plasma discharge in a micro electron source at vacuum pressure <u>Wolfram Knapp</u> , Christoph Langer, Christian Prommesberger, Matthias Lindner, Rupert Schreiner <i>Institute of Manufacturing Technology and Quality Management, Magdeburg, Germany</i>	p. 166
MP-P02	PIC/MCC Simulations of Field Emission Driven Microplasmas Using Diamond Cathodes <u>Ming-Chieh Lin</u> , Hua-Yi Hsu, I-Nan Lin <i>Hanyang University, Seoul, South Korea</i>	
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Poster Session 2

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