Session PL1: Plenary 1
Monday, July 9 08:00-09:15, Pentland Suite (Level 3)
Session Chairs: Michael Kong, *Loughborough University, Leicestershire, UK*
XinPei Lu, *Huazhong University of Science & Technology, China*

8:00 PL1-1 Introductory Remarks N/A
M. Kong
Loughborough University, Leicestershire, UK

8:15 PL1-2 Plasma Nanoscience in a Sustainability Age 1
K. Ostrikov
Plasma Nanoscience Center Australia, Lindfield, Australia

Session 1A: Basic Phenomena I (oral)
Monday, July 9 9:45-11:45, Tinto Room (Level 0)
Session Chair: Siegbert Kuhn, *University Innsbruck, Austria*

9:45 1A-1 (invited) Emissive Langmuir Probes in the Strong Emission Regime for the Determination of the Plasma Properties 2
L. Conde[1], S. P. Tierno[1], J. L. Domenech[1], J. M. Donoso[1], D. Jennewein[2], G. Herdrich[2]
[1]*Dpt. Applied Physics, ETSI Aeronauticos. UPM, Madrid (Spain), Madrid, Spain*
[2]*Institute für Raumfahrtsysteme, Stuttgart University, Stuttgart, Germany*

10:15 1A-2 Comparative Study of Homogenous Dielectric Barrier Discharge in Atmospheric Inert Gases 3
H. Luo, J. Ran, X. Wang
Tsinghua University, Beijing, China

10:30 1A-3 The Startup of an Electrodeless Rf Discharge in Toroidal Systems in Presence of Low Magnetic Field 4
C. Das, D. C. Jana
Physics & Technophysics, Vidasagar University, West Bengal, India, Midnapore, West Bengal, India

10:45 1A-4 Dissociative Quenching and Ultrafast Heating following Nanosecond Repetitively Pulsed Discharges in Air 5
D. L. Rusterholtz[1], D. Z. Pai[2], G. D. Stancu[1], D. A. Lacoste[1], C. O. Laux[1]
[1]*EM2C Laboratory CNRS UPR288 - ECP, Chatenay Malabry, France*
[2]*Terashima Laboratory, The University of Tokyo, Kashiwa, Japan*

11:00 1A-5 Particle-in-Cell Simulations of Hollow Cathode Enhanced Capacitively Coupled Rf Discharges 6
R. W. Boswell, T. A. Lafleur
SP3/RSPE, Australian National University, ACT, Australia

11:15 1A-6 Transient Properties of Anodic Glow in a Constricted Anode Plasma Source 7
M. A. Mujawar[1], S. K. Karkari[2], M. M. Turner[1]
[1]*National Centre for Plasma Science and Technology, School of Physical Sciences, Dublin City University, Dublin 9, Ireland*
[2]*Institute for Plasma Research, Bhat, Gandhinagar, India*

11:30 1A-7 Nanosecond Pulse Discharge in High Denisty Polymer Liquid (PDMS) 8
Y. Seepersad[1], E. Plowman[1], G. Friedman[1], A. Fridman[1], D. Dobrynin[1], A. Fontecchio[2]
[1]*Drexel Plasma Institute, Philadelphia, USA*
[2]*Department of Electrical and Computer Engineering, Drexel University, Philadelphia, USA*

Session 1B: Partially Ionized Plasmas I
Monday, July 9 9:45-11:45, Moorfoot Room (Level 0)
Session Chair: Miles Turner, *Dublin City University*

9:45 1B-1 Temporal Behavior of Microplasma and Its Coupling Phenomena in Silicon Channel Devices 9
E. S. Kim, D. S. Choi, S. -J. Park, J. G. Eden
Department of Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

10:00 1B-2 Generation and Loss of Reactive Oxygen Species in Low-Temperature Atmospheric-Pressure RF $He^{+}O2^{+}H2O$ Plasma 10
K. McKay[1], D. X. Liu[2], M. Z. Rong[2], F. Iza[1], M. G. Kong[1]
[1]*School of Electronic, Electrical and Systems Engineering, Loughborough University, Leicestershire, United Kingdom*
[2]*State Key Laboratory of Electrical Insulation & Power Equipment, Xian Jiaotong University, Xian City, China*

10:15 1B-3 Numerical Studies on Plasma Bullet Propagation and its Inhibition in Helium Plasma Jet at Atmospheric Pressure 11
F. Liu, D. Wang
Dalian University of Technology, Dalian, China

10:30 1B-4 Modeling Study on Pressure Dependence of Plasma Structure in Microwave Air Breakdown N/A
Q. Zhou, Z. Dong
Institute of Applied Physics and Computational Mathematics, Beijing, China

10:45 1B-5 Adjacent Needle Streamer Synchronicity in Argon-Acetylene Atmospheric Pressure Weakly Ionized Plasma 12
E. C. Wemlinger, P. D. Pedrow
The School of Electrical Engineering and Computer Science, Washington State University, Pullman, WA, USA

11:00 1B-6 Discharge Mechanims of Sub-Microsecond Pulsed Atmospheric Pressure Glow Discharges 13
J. J. Shi, S. Song, Y. Guo, J. Zhang
College of Science, Donghua University, Shanghai, China

11:15 1B-7 Ionic Plasmas in Room-Temperature Atmospheric-Pressure Gases 14
O. Sakai, K. Yamada, K. Urabe
Department of Electronic Science and Engineering, Kyoto University, Kyoto, Japan

11:30 1B-8 Predicting Self-Organization in DC Glow Microdischarges in Different Gases with the Use of Comsol Multiphysics 15
P. G. C. Almeida, M. S. Benilov, M. J. Faria
Departamento de Fisica, Universidade da Madeira, Funchal, Portugal

Session 1C: High Energy Density Matter I (oral)

Monday, July 9 9:45-11:45, Fintry Auditorium (Level 3)
Session Chair: David Neely, *Central Laser Facility, STFC*

9:45 1C-1 (invited) Particle Transport and Electric Fields in a Laser-Generated Focused Proton Beam 16

M. E. Foord[1], T. Bartal[2], C. McGuffey[2], M. Wei[3], B. Qiao[2], C. Bellei[1,2], M. H. Key[1], P. Patel[1], L. Jarrott[2], D. Higginson[1,2], R. B. Stephens[3], F. N. Beg[2]
[1]*Lawrence Livermore National Laboratory, Livermore, CA, USA*
[2]*Center for Energy Research, University of California-San Diego, La Jolla, CA, USA*
[3]*General Atomics, San Diego, CA, USA*

10:15 1C-2 Vlasov-Fokker-Planck Modeling of Magnetic Field Reconnection Driven by Heat Flow in Inertial Confinement Fusion Related Scenarios 17

A. S. Joglekar, A. G. R. Thomas
Nuclear Engineering, University of Michigan, Ann Arbor, MI, USA

10:30 1C-3 X-Ray Scattering from Warm Dense Iron 18

D. Riley[1], S. White[1], G. Nersisyan[1], B. Kettle[1], T. W. J. Dzelzainis[1], K. McKeever[1], C. L. S. Lewis[1], A. Otten[2], K. Siegenthaler[2], D. Kraus[2], M. Roth[2], T. White[3], G. Gregori[3], D. O. Gericke[4], K. Wuensch[4], J. Vorberger[4]
[1]*Centre for Plasma Physics, Queen's University Belfast, Antrim, United Kingdom*
[2]*Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, Germany*
[3]*Clarendon Laboratory, University of Oxford, Oxford, UK*
[4]*Centre for Fusion, Space and Astrophysics, Department of Physics, University of Warwick, Coventry, UK*

10:45 1C-4 X-Ray Spectra of Laser Irradiated Metal Foils for X-Ray Thomson Scattering of Warm Dense Matter on the Z-Accelerator 19

T. Ao[1], E. C. Harding[1], J. E. Bailey[1], D. B. Sinars[1], M. P. Desjarlais[1], S. B. Hansen[1], R. W. Lemke[1], D. F. Wenger[1], I. C. Smith[1], P. D. LePell[2], G. Gregori[3]
[1]*Sandia National Laboratories, Albuquerque, NM, USA*
[2]*Raytheon Ktech Corp., Albuquerque, NM, USA*
[3]*Clarendon Laboratory, University of Oxford, Oxford, United Kingdom*

11:00 1C-5 Thermodynamics of Plasmas at High Energy Densities N/A

V. E. Fortov
Russian Academy of Sciences, Joint Institute for High Temperatures of RAS, Moscow, Russian Federation

11:15 1C-6 Effect of Lattice Structure on Hot Electron Transport in Warm Dense Carbon 20

D. A. MacLellan[1], D. C. Carroll[1], R. J. Gray[1], A. P. L. Robinson[2], M. P. Desjarlais[3], N. Booth[2], C. M. Brenner[1,2], M. Burza[4], M. Coury[1], F. Du[5], H. Powell[1], M. N. Quinn[1], D. Neely[2], G. Scott[1,2], O. Tresca[1], X. H. Yuan[5], C. G. Wahlstrom[4], P. McKenna[1]
[1]*University of Strathclyde, Glasgow, United Kingdom*
[2]*Central Laser Facility, STFC Rutherford Appleton Laboratory, Oxfordshire, United Kingdom*
[3]*Sandia National Laboratories, Albuquerque, New Mexico, USA*
[4]*Department of Physics, Lund University, Lund, Sweden*
[5]*Beijing National Laboratory of Condensed Matter Physics, CAS, Beijing, China*

11:30 1C-7 Flux-Limited Non-Equilibrium Electron Energy Transport in Warm Dense Gold 21

Z. Chen[1], V. Sametoglu[1], Y. Y. Tsui[1], T. Ao[2], A. Ng[3]

[1]*Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Alberta, Canada*
[2]*Sandia National Laboratories, Albuquerque,New Mexico, USA*
[3]*Department of Physics and Astronomy, University of British Columbia, Vancouver, British Columbia, Canada*

Session 1D: Insulation, Dielectrics, and Switching (oral)
Monday, July 9 9:45-11:45, Sidlaw Auditorium (Level 3)
Session Chairs: Hulya Kirkici, *Auburn University*
Luis Redondo, *Nuclear Physics Center from Lisbon University*

9:45 1D-1 Breakdown in High Vacuum: Contribution of Dark Current Emission 22
K. Almaksour[1], M. J. Kirkpatrick[2], P. Dessante[2], E. Odic[2], D. Alamarguy[1], P. Teste[1]
[1]*LGEP, Gif-sur-Yvette, France*
[2]*Energy, SUPELEC, Gif-sur-Yvette, France*

10:00 1D-2 Measurements of UV-VUV Radiation Produced from Dielectric Surface Flashover 23
A. S. Fierro, G. R. Laity, A. A. Neuber, L. L. Hatfield
Center for Pulsed Power and Power Electronics, Texas Tech University, Lubbock, TX, USA

10:15 1D-3 Space Charge and Dc Dielectric Breakdown in Polymeric Insulation 24
G. Chen, J. Zhao
Electronics and Computer Science, University of Southampton, Southampton, United Kingdom

10:30 1D-4 The Comparison of the Residual Charge Distribution of Surface Leader Discharge under Positive and Negative Impulse Voltage Application 25
D. Jun-Bo[1], M. Hai-Bao[1], Z. Guan-Jun[1], A. Kumada[2], K. Hidaka[2]
[1]*State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi, China*
[2]*The University of Tokyo, Tokyo, Japan*

10:45 1D-5 Generating THz Radiations from Gallium Arsenide Photoconductive Switches with Oprimized Pulse Amplitude 26
H. M. Alsaif, O. A. Ibrahim, N. E. Islam
Department of Electrical and Computer Engineering, University of Missouri-Columbia, Columbia, MO, USA

11:00 1D-6 Ultrafast 10kV SiC PCSS and Its on-State Characteristics 27
J. Liu, H. Liu, J. Yuan, H. Li, W. Xie
Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China

11:15 1D-7 Study on Multichannel Discharge and Operating Characteristics of a Three Electrode Coaxial Field Distortion Gas Spark Switch 28
J. Chang, X. Li, Q. Zhang, A. Qiu
School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China

11:30 1D-8 Emission Spectroscopy and CFD Modeling of the Arc in a Model Circuit Breaker 29
D. Eichhoff[1], A. Kurz[1], R. Kozakov[2], G. Gött[2], D. Uhrlandt[2]
[1]*Institute for High Voltage Technology, RWTH Aachen, Aachen, Germany*
[2]*Leibniz-Institute for Plasma Science and Technology e.V. (INP Greifswald), Greifswald, Germany*

Session 1E: Environmental and Industrial Applications I (oral)

Monday, July 9 9:45-11:45, Pentland Auditorium (Level 3)
Session Chair: Ahmed Khacef, *University d'Orleans, France*

9:45 1E-1 (invited) Plasms Surface Treatment of Biomaterials 30
P. K. Chu
Physics and Materials Science, City University of Hong Kong, Kowloon, Hong Kong, China

10:15 1E-2 Solar Driven Discharge Plasma for Nox Treatment in a Diesel Automobile: a Practical Demonstration N/A
S. B. Maragani, S. Mohapatro, B. S. Rajanikanth
Electrical Engineering, Indian Institute of Science, Bangalore, Karnataka, India

10:30 1E-3 Plasma-Assisted Diesel Oxidation Catalyst: Laboratory and Bench Scale Investigations for CO and HC Light-Off Temperature and NOx Remediation 31
A. Leray[1,2], A. Guy[3], M. Makarov[2], K. Lombaert[4], J. M. Cormier[1], A. Khacef[1]
[1]*GREMI Laboratory, CNRS-University d'Orleans, Orleans, France*
[2]*FR TCR, Renault, Guyancourt, France*
[3]*Engineering, SAFRAN, Montigny-le-Bretonneux, France*
[4]*CTL, Renault, Lardy, France*

10:45 1E-4 Low Temperature Plasma-Driven Catalysis of Nano-Titanium Dioxide for Vehicle Exhaust Clearance 32
S. Yu[1], Y. Liang[1], S. Sun[1], K. Zhang[1], J. Zhang[1], J. Fang[1], W. Zhu[2]
[1]*Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[2]*Saint Peter's College, Jersey City, New Jersey, USA*

11:00 1E-5 The Effect of Balance Gas Mixture on the Destruction of Naphthalene by Surface Dielectric Barrier Discharge N/A
A. A. Abdelaziz, T. Seto, Y. Otani
Department of Chemical and Material Engineering, Kanazawa University, Kanazawa, Japan

11:15 1E-6 Dual Sided Al/Al2O3 Microchannel Plasma Ozone Reactor 33
M. H. Kim, J. H. Cho, S. B. Ban, J. K. Bae, S. -J. Park, J. G. Eden
Department of Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

11:30 1E-7 Dissociation and Conversion of Carbon Dioxide in Arrays of Atmospheric Pressure Microplasma Devices 34
T. Oh, S. -J. Park, J. G. Eden
Department of Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

Session PL2: Plenary 2
Monday, July 9 13:00-14:00, Pentland Suite (Level 3)
Session Chair: Mounir Laroussi, *Old Dominion University*

13:00 PL2-1 Plasma Science in the Limit of the Small: Recent Advances in Microavity Plasmas and their Applications 35
G. Eden
University of Illinois, Urbana, IL, USA

Session 1P: Intense Beam Microwave Generation (poster session)
Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Colin G Whyte, *University of Strathclyde*

1P-1 Mode Analysis in an Overmoded Klystron-like Relativistic Backward Wave Oscillator 36
R. Xiao, Z. Song, X. Li, L. Zhang, W. Tan
Science and Technology on High Power Microwave Laboratory, Northwest Institute of Nuclear Technology, Xi'an, China

1P-2 W-Band Cherenkov Maser Based on a Periodic Surface Field Structure 37
A. R. Phipps[1], I. V. Konoplev[2], C. W. Robertson[1], C. G. Whyte[1], A. D. R. Phelps[1], A. R. Young[1], K. Ronald[1], A. W. Cross[1]
[1]*Atoms, Beams and Plasmas Group, University of Strathclyde, Glasgow, United Kingdom*
[2]*JAI, Department of Physics, Oxford University, Oxford, United Kingdom*

1P-3 Electron Excursion versus Scattering Mechanism in a Cross-Field Diode N/A
B. S. Stutzman[1], J. P. Verboncoeur[2]
[1]*US Coast Guard Academy, New London, CT, USA*
[2]*Michigan State University, East Lansing, MI, USA*

1P-4 Numerical Study of the Effects of the Magnetic Axis Misalignment in the Eu Coaxial Cavity Gyrotron for Iter 38
I. G. Pagonakis[1], K. A. Avramides[2], S. Illy[1], B. Piosczyk[1], S. Kern[1], J. -P. Hogge[3], J. Jelonnek[1]
[1]*Karlsruhe Institute of Technology (KIT), IHM, Karlsruhe, Germany*
[2]*National Technical University of Athens (NTUA), Athens, Greece*
[3]*Centre de Recherche en Physique des Plasmas (CRPP), EPFL, Lausanne, Switzerland*

1P-5 Anode Material Outgassing at 250 A/cm^2 Current Density under UHV Conditions 39
J. M. Parson, J. C. Dickens, A. Neuber, J. Walter, M. Kristiansen
Electrical and Computer Engineering, Texas Tech University, Lubbock, TX., USA

1P-6 Dissipation in Composits with High-Loss and Lossless Components 40
A. Figotin[1], A. Welters[2]
[1]*University of California, Irvine, CA, USA*
[2]*University of Louisiana, Baton Rouge, LA, USA*

1P-7 Recent Advances in Relativistic A6 Magnetron Research - Mode Control 41
E. Schamiloglu, M. Fuks, S. Prasad, C. Leach, C. Mendonca, D. Galbreath
Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, USA

Session 1P: Fast-Wave Devices (poster session)

Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Monica Blank, *CPII*

[1]*Department of Physics, National Central University, Johnli, Taiwan*
[2]*Department of Physics and Astronomy, University of California, Irvine, Irvine, CA 92697, USA*

1P-18 3D CFDTD PIC Simulation Study on Low-Frequency Oscillations in a Gyrotron 52
M. C. Lin, D. N. Smithe
Tech-X Corporation, Boulder, CO, USA

Session 1P: Codes and Modeling (poster session)
Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Simon J Cooke, *Naval Research Laboratory*

1P-19 A Self-Consistent General Thermal Field Emission Model 53
M. C. Lin
Tech-X Corporation, Boulder, CO, USA

1P-20 Counter Streaming Charged Particle Beam Model in MICHELLE-eBEAM 54
S. G. Ovtchinnikov[1], S. J. Cooke[2], M. M. Mkrtchyan[1], R. Shtokhamer[1], C. Kostas[1], A. N. Vlasov[2], J. J. Petillo[1], B. Levush[2]
[1]*SAIC, Billerica, MA, USA*
[2]*NRL, Washington, DC, USA*

1P-21 Influence of Kinetic Effects on the Resonance Behavior of the Impedance Probe 55
J. Oberrath, T. Mussenbrock, R. P. Brinkmann
Theoretical Electrical Engineering, Ruhr University, Bochum, Germany

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J. Petillo, C. Kostas, D. Panagos, S. Ovtchinnikov, A. Burke, E. Nelson, T. Antonsen
Center for Electromagnetics, SAIC, Billerica, MA, USA

1P-23 IOT Electron Gun Design Using Beam Optics Analyzer 57
R. Jackson, T. Bui, M. Read, R. L. Ives
Calabazas Creek Research, Inc., San Mateo, CA, USA

1P-24 3-D Modeling of Dielectric Barrier Discharge at Low Pressure Argon Gas 58
A. Barjasteh
Physics, Iran University of Science and Technology (IUST), Tehran, Iran

1P-25 Numerical Analysis for Magnetically Dispersed Ar Arc Plasma at Atmospheric Pressure with Different Shape of Cathode 59
W. Xia[1], B. Bai[1], J. Zha[1], X. Zhang[1], C. Wang[1], L. Ding[2]
[1]*Department of Thermal Science and Energy Engineering, University of Science and Technology of China, Hefei, China*
[2]*Department of Life Science, University of Science and Technology of China, Hefei, China*

1P-26 Design and Modeling of Multistage Depressed Collectors Using 3D Conformal Finite-Difference Time-Domain Particle-in-Cell Simulations 60
M. C. Lin[1], P. H. Stoltz[1], D. N. Smithe[1], H. Song[2], H. J. Kim[3], J. J. Choi[3], S. J. Kim[4], S. H. Jang[4]
[1]*Tech-X Corporation, Boulder, CO, USA*
[2]*University of Colorado, Colorado Springs, CO, USA*
[3]*Kwangwoon University, Seoul, South Korea*
[4]*Agency for Defense Development, Daejon, South Korea*

Session 1P: Basic Phenomena (poster session ~ 1)
Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Siegbert Kuhn, *University Innsbruck, Austria*

1P-36 Studies on Relative Contribution of Different Electron Population on Heat Transport Across a Transverse Magnetic Field in Double Plasma Device N/A

B. K. Das[1], M. Bandyopadhyay[2], M. Chakraborty[3]
[1]*Centre of Plasma Physics-Institute for Plasma Research, Tepesi, Kamrup, Assam, India*
[2]*ITER-India, Institute For Plasma Research, Gandhinagar, Gujarat, India*
[3]*Centre of Plasma Physics-Institute for Plasma Research, Tepesia, Kamrup, Assam, India*

1P-37 Breakdown Charactiristics of Spark Gap Switch in Distilled Water by High Voltage Pulses 69

Y. -S. Byeon[1], K. B. Song[1], J. H. Park[1], H. S. Uhm[1], H. -Y. Ryu[2], E. H. Choi[1]
[1]*Kwangwoon University, Seoul, South Korea*
[2]*Agency for Defense Development, Daejeon, South Korea*

1P-38 Generation of Plasma in Liquid without Bubbles by Nanosecond Pulsed Discharge: Fast Imaging and Modeling 70

D. Dobrynin[1], M. Pekker[1], M. Shneider[2], A. Fridman[1]
[1]*Drexel University, Philadelphia, PA, USA*
[2]*Princeton University, Princeton, NJ, USA*

1P-39 Absorption of Intense X-Ray Radiation in Plasma by Multiphoton Inverse-Bremsstrahlung 71

H. K. Avetissian, A. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian
Centre of Strong Fields Physics, Yerevan State University, Yerevan, Armenia

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O. Niculescu[1], M. Agop[1], D. G. Dimitriu[2]
[1]*Department of Physics, Gh. Asachi Technical University of Iasi, Iasi, Romania*
[2]*Department of Physics, Al. I Cuza University of Iasi, Iasi, Romania*

1P-41 Experimental Investigations and Theoretical Study of the Negative Differential Resistance in a Discharge Plasma 73

O. Niculescu[1], M. Agop[1], P. E. Nica[1], D. G. Dimitriu[2]
[1]*Department of Physics, Gh. Asachi Technical University of Iasi, Iasi, Romania*
[2]*Department of Physics, Al. I Cuza University of Iasi, Iasi, Romania*

1P-42 Multiple Double Layers Evolution to Chaos in Plasma through a Cascade of Sub-Harmonic Bifurcations 74

M. Agop[1], P. E. Nica[1], O. Niculescu[1], D. G. Dimitriu[2]
[1]*Department of Physics, Gh. Asachi Technical University of Iasi, Iasi, Romania*
[2]*Department of Physics, Al. I Cuza University of Iasi, Iasi, Romania*

1P-43 Non-Differentiable Model and Its Implications in the Dynamics of a Laser Ablation Plasma Structure 75

M. Agop[1], P. E. Nica[1], O. Niculescu[1], S. O. Gurlui[2]
[1]*Department of Physics, Gh. Asachi Technical University of Iasi, Iasi, Romania*
[2]*Department of Physics, Al. I Cuza University of Iasi, Iasi, Romania*

1P-44 Negative Plasma Potential in a Chamber with a Dielectric Coated Plasma Boundary 76

J. P. Sheehan, N. Hershkowitz
Nuclear Engineering and Engineering Physics, University of Wisconsin - Madison, Madison, WI, USA

Session 1P: Computational Plasma Physics (poster session ~ 1)
Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Andrew J Christlieb, *Michigan State University*

National Center for Plasma Science and Technology, Dublin City University, Dublin, Ireland

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C. J. Lingwood[1], G. Burt[1], A. C. Dexter[1], J. D. Smith[2], P. Goudket[3], P. H. Stoltz[4]
[1]*Engineering Department, Lancaster University, Lancaster, Lancashire, United Kingdom*
[2]*Tech-X UK Ltd, Warrington, Cheshire, United Kingdom*
[3]*STFC Daresbury Laboratory, Warrington, Cheshire, United Kingdom*
[4]*Tech-X Corporation, Boulder, CO, USA*

1P-63 Parallel Fluid Modeling of a Dome- Shape Inductively Coupled Plasma Reactor with Fluorocarbon Precusor 93
Y. -M. Chiu, C. -T. Hung, J. -S. Wu*
Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan

Session 1P: Partially Ionized Plasmas (poster session)
Monday, July 9 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Miles Turner, *Dublin City University*

1P-64 Study of Stochastic Heating Using Particle-in-Cell Simulation in Single Frequency Capacitively Coupled Plasma Discharges 94
S. Sharma, M. M. Turner
National Centre for Plasma Science and Technology, Dublin City University, Dublin, Ireland

1P-65 Electromagnetic Modes Supported by Neutral Dynamics in Partially Ionised Plasma N/A
A. A. Shaikh
Department of Physics and Astronomy, The University of Leicester, Leicester LE1 7RH, UK

1P-66 Influence of Non-Unique Modified Forms of Saha and Guldberg-Waage Equations on Thermophysical Properties of Two-Temperature SF6 Plasmas 95
W. Wang[1,2], J. D. Yan[2], M. Rong[1]
[1]*Shool of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China*
[2]*Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, UK*

1P-67 Particle in Cell Simulations of Initial Argon Dielectric Barrier Discharges 96
M. A. Huerta[1], L. D. Ludeking[2], A. J. Woods[2]
[1]*Physics Department, University of Miami, Coral Gables, FL, USA*
[2]*Magic User Support, ATK Mission Systems Group, Newington, USA*

1P-68 Influences of Impedance Matching Network on Pulse-Modulated RF Atmospheric Pressure Glow Discharges 97
Z. F. Ding[1], W. G. Huo[1,2], K. Xu[1]
[1]*School of Physics and Optoelectronic Technology, Dalian University of Technology, Dalian, Liaoning, China*
[2]*School of Physics and Electronic Technology, Liaoning Normal University, Dalian, Liaoning, China*

1P-69 Microplasma and VUV-photoionization Gas Analyzers Based on Collisional Electron Spectroscopy (CES) 98
A. A. Kudryavtsev[1], A. S. Mustafaev[2], A. B. Tsyganov[2], A. S. Chirtsov[1]
[1]*Department of Physics, St.-Petersburg State University, Sanct-Petersburg, Russian Federation*
[2]*Department of General and Technical Physics, St.-Petersburg State Mining University, Sanct-Petersburg, Russian Federation*

1P-70 Evolution of Ar Metastable Atom Density with Electron Density in Ar ICP Discharge 99
M. Park[1], H. -Y. Chang[2], S. -J. You[3], J. -H. Kim[3]

[1]*Nuclear Fusion Engineering & Technology Development Center, Korea Atomic Energy Research Institute (KAERI), Daejeon, South Korea*
[2]*Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea*
[3]*Center for Vacuum Technology, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea*

Session 1P: Nonequilibrium Plasma Applications (poster session ~ 1)
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[5]*University of Northern British Columbia, Prince George, British Columbia, Canada*
[6]*University of British Columbia, Vancouver, British Columbia, Canada*

1P-185 Wide-Range Equations of State for Structural Materials at High Energy Densities 199
K. V. Khishchenko
Joint Institute for High Temperatures RAS, Moscow, Russian Federation

1P-186 Experimental Observation of Ultra-Slow Electron-Lattice Coupling in Highly Non-Equilibrium Graphite 200
T. G. White[1], B. J. B. Crowley[1,2], P. Davis[3], D. O. Gericke[4], S. Glenzer[3], J. Harris[2], D. C. Hochhaus[5], S. Le Pape[3], T. Ma[3], C. D. Murphy[1], P. Neumayer[5], L. K. Pattison[2], S. Richardson[2], J. Vorberger[4], G. Gregori[1]
[1]*Atomic and Laser Physics, Oxford Unviersity, Oxford, United Kingdom*
[2]*AWE, Aldermaston, United Kingdom*
[3]*Lawrence Livermore National Laboratory, Livermore, CA, USA*
[4]*Centre for Fusion, Space, and Astrophysics, University of Warwick, Warwick, United Kingdom*
[5]*Extreme Matter Institute, Darmstadt, Germany*

1P–187 Pulsed Electric Field Induced Conformational Changes of Mammalian Cells Revealed by Time Domain Dielectirc Spectroscopy 201
Jie Zhuang, J. Kolb, Y. Jing, Y. Hargrave

Session 2A: Space Plasmas (oral)
Monday, July 9 15:30-17:45, Tinto Room (Level 0)
Session Chair: Marian Lazar, *Ruhr-University Bochum*

15:30 2A-1 Weak Turbulence Theory and Wave-Wave Interaction: Three Wave Coupling in Space Plasmas 202
F. A. Spanier[1], R. O. Vainio[2]
[1]*Lehrstuhl fürAstronomie, Universität Würzburg, Würzburg, Germany*
[2]*Department of Physics, Helsinki University, Helsinki, Finland*

15:45 2A-2 VLF LH/Whistler Nonlinear Interactions in the Topside Ionosphere: Simulation Study 203

V. Galinsky[1], V. Shevchenko[1], E. Mishin[2], M. Starks[2]
[1]*ECE, UCSD, La Jolla, CA, USA*
[2]*Space Vehicles Directorate/Kirtland AFB, AFRL, New Mexico, USA*

16:00 2A-3 Investigation of Naturally Occurring and Radio Wave Induced Ionospheric Plasma Turbulence 204
M. -C. Lee[1], R. Pradipta[2], J. A. Cohen[2], M. P. Sulzer[3], A. Uyar[1], L. A. Rooker[1], L. N. Whitehurst[1], B. J. Watkins[4], S. P. Kuo[5], K. Hu[1], B. See[1]
[1]*Department of Electrical & Computer Engineering, Boston University, Boston, MA, USA*
[2]*Department of Nuclear Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA*
[3]*Arecibo Observatory, Arecibo Observatory, Arecibo, PR, USA*
[4]*Geophysical Institute, University of Alaska Fairbanks, Fairbanks, AK, USA*
[5]*Department of Electrical & Computer Engineering, New York University, Brooklyn, NY, USA*

16:15 2A-4 (invited) Proton Temperature Anisotropy-Beta Relationship in Space Plasmas 205
P. H. Yoon
IPST, University of Maryland, College Park, College Park, MD, USA

16:45 2A-5 Temperature-Anisotropy Instability Thresholds in the Solar Wind 206
M. Michno, R. Schlickeiser
Institut fürTheoretische Physik, Lehrstuhl IV: Weltraum- und Astrophysik, Bochum, Germany

17:00 2A-6 Perpendicular Transport of Cosmic Rays in Turbulence 207
H. Yan[1], A. Lazarian[2]
[1]*Kavli Institute of Astronomy & Astrophysics, Peking U, Beijing, China*
[2]*Dept of Astronomy, University Wisconsin, Madison, US*

17:15 2A-7 Diffusive Transport of Solar Energetic Particles in the Interplanetary Plasma 208
S. Artmann, R. Schlickeiser
Institut fuer Theoretische Physik, Lehrstuhl IV: Weltraum- und Astrophysik, Bochum, Germany

17:30 2A-8 Plasma Effects on Fast Pair Beams in Cosmic Voids 209
R. Schlickeiser[1], F. Miniati[2], D. Ibscher[1], A. Elyiv[3,4]
[1]*Institute for Theoretical Physics IV, Ruhr-University, Bochum, Germany, Bochum, Germany*
[2]*Physics Department,, ETH-Zürich, Zürich, Switzerland*
[3]*Institut d'Astrophysique et de Geophysique, Universite de Liege, Liege, Belgium*
[4]*Academy of Sciences of Ukraine, Main Astronomical Observatory, Kyiv,, Ukraine*

Session 2B: Dusty plasmas I and Microwave Plasma Interaction (oral)
Monday, July 9 15:30-17:45, Moorfoot Room (Level 0)
Session Chairs: Dmitry Samsonov, *The University of Liverpool*
Nicholas Braithwaite, *The Open University, UK*

15:30 2B-1 Modeling Tools for Plasmas in the Strongly-Coupled State 210
P. H. Stoltz[1], D. Meiser[1], A. Christlieb[2], B. Ong[2], E. Hallman[1], K. Beckwith[1], J. Loverich[1]
[1]*Tech-X Corporation, Boulder, CO, USA*
[2]*Department of Mathematics, Michigan State, East Lansing, MI, USA*

15:45 2B-2 Apparent Surface Tension in Complex (Dusty) Plasmas 211
M. Schwabe[1,2], S. Zhdanov[2], A. V. Ivlev[2], H. M. Thomas[2], G. E. Morfill[2]

[1]*Department of Chemical and Biomolecular Engineering, University of California at Berkeley, Berkleey, CA, USA*
[2]*Max Planck Institute for Extraterrestrial Physics, Garching, Germany*

16:00 2B-3 Numerical Investigation of Fine-Particle Gyrophase Drift 212
M. Koepke[1], J. Walker[1], V. Demidov[1], M. Zimmerman[2], W. Farrell[2], U. Kortshagen[3]
[1]*West Virginia University, Morgantown, WV, USA*
[2]*NASA-GSFC, Greenbelt, MD, USA*
[3]*University of Minnesota, Minneapolis, MN, USA*

16:15 2B-4 String Formation in 3D Particle Clusters in Complex Plasmas 213
C. Raeth[1], L. Woerner[1], V. Nosenko[1], S. Zhdanov[1], J. Schablinski[2], D. Block[2], H. Thomas[1], G. Morfill[1]
[1]*Max Planck Institute for Extraterrestrial Physics, Garching, Germany*
[2]*IEAP, CAU Kiel, Kiel, Germany*

16:30 2B-5 Electron Density Evolution of Post-Pulse High Power Microwave Plasma 214
S. Beeson, A. Neuber
Center for Pulsed Power and Power Electronics, Texas Tech Univeristy, Lubbock, Texas, USA

16:45 2B-6 Characterization of Breakdown Delay and Memory Effects in High Power Microwave Dielectric Window Discharges 215
B. Kupczyk, X. Xiang, J. Scharer, J. Booske
Electrical and Computer Engineering, University of Wisconsin - Madison, Madison, WI, USA

17:00 2B-7 A 2D Model for the Electromagnetic-Plasma Interaction in a Coaxial Surface Wave Discharges 216
S. Rahimi, M. Jimenez_Diaz, J. van Dijk, J. J. A. M. van der Mullen
Eindhoven University of Technology, Eindhoven, Netherlands

17:15 2B-8 Self-Consistent Time-Resolved Modeling of Surface-Wave Microwave Plasma 217
I. P. Ganachev[1,2], H. Sugai[2]
[1]*Technology Headquarters, Shibaura Mechatronics Corporation, Yokohama, Japan*
[2]*Department of Electronics and Information Engineering, Chubu University, Kasugai, Aichi, Japan*

17:30 2B-9 Cutoff Probe Diagnostic for the Precise Measurement of Electron Density 218
S. J. You[1], D. W. Kim[2], K. H. You[2], B. K. Na[2], J. H. Kim[1], Y. H. Shin[1], H. Y. Chang[2]
[1]*Vacuum, Kriss, Daejeon, South Korea*
[2]*Physics, Kaist, Daejeon, South Korea*

Session 2C: Radiation Physics and Plasma Material Interactions (oral)
Monday, July 9 15:30-17:45, Fintry Auditorium (Level 3)
Session Chair: Gianluca Gregori, *Oxford University, UK*

15:30 2C-1 Study of a Prototype of a New Compact Hohlraum Configuration at the 1.7 Ma UNR Zebra Generator 219
V. L. Kantsyrev[1], A. S. Safronova[1], A. A. Esaulov[1], I. Shrestha[1], G. C. Osborne[1], V. V. Shlyaptseva[1], M. E. Weller[1], H. A. Zunino[1], A. S. Chuvatin[2], L. I. Rudakov[3], A. L. Velikovich[4], B. Jones[5], R. A. Vesey[5]
[1]*University of Nevada, Reno, NV, USA*
[2]*Ecole Polytechnique, Palaiseau, France*
[3]*Icarus Inc., Bethesda, MD, USA*

[4]*Naval Research Laboratory, Washington DC, USA*
[5]*Sandia National Laboratories, Albuquerque, USA*

15:45 2C-2 A Multi-Purpose Pseudo Nlte Solver for Large Scale Multi-Dimensional Plasma Simulations 220
N. P. L. Niasse, J. P. Chittenden
Plasma Physics, Imperial College, London, United Kingdom

16:00 2C-3 Improved Non-Local Radiation Coupling for Mach2-TCRE 221
J. W. Thornhill[1], J. L. Giuliani[1], Y. K. Chong[1], A. Dasgupta[1], J. P. Apruzese[2]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington DC, USA*
[2]*L3 Communications, Chantilly, VA, USA*

16:15 2C-4 (invited) High Energy Density Pinch Plasma: A Unique Non-Conventional Tool for Plasma Nanotechnology 222
R. S. Rawat
Natural Sciences and Science Education, National Institute of Education, Nanyang Technological University, Singapore, Singapore

16:45 2C-5 Atmospheric Pressure Plasma Activation of Plastics and Composites for Improved Adhesion 223
R. F. Hicks, T. S. Williams, H. Yu
Chemical and Biomolecular Engineering, University of California, Los Angeles, Los Angeles, CA, USA

17:00 2C-6 Experimental Simulation of Beryllium Damage under Intense Transient Plasma Loads N/A
I. B. Kupriyanov[1], E. V. Basaleev[1], G. N. Nikolaev[1], L. A. Kurbatova[1], L. N. Podkovyrov[2], A. D. Muzichenko[2], A. M. Zhitlukhin[2], L. N. Khimchenko[3]
[1]*A.A. Bochvar Research Institute of Inorganic Materials, Moscow, Russian Federation*
[2]*TRINITI, Troitsk, Moscow reg., Russian Federation*
[3]*Project Centre of ITER, Moscow, Russian Federation*

17:15 2C-7 Platinum/Carbon Intergated Electrodes for Direct Methanol Fuel Cells 224
C. Zhang
Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui, China

17:30 2C-8 Analysis of Atmospheric Pressure Plasma Torch and the Effects of Multiple Gas Compositions on Plasma Chemistry and Its Interaction with High Density Polyethylene 225
A. J. McWilliams[1], S. J. Hudak[1], S. C. Shannon[2], J. J. Cuomo[1]
[1]*Materials Science & Engineering, North Carolina State University, Raleigh, NC, USA*
[2]*Nuclear Engineering, North Carolina State University, Raleigh, NC, USA*

Session 2D: Laser Produced Plasmas (oral)
Monday, July 9 15:30-17:30, Sidlaw Auditorium (Level 3)
Session Chair: Paul McKenna, *University Strathclyde, UK*

15:30 2D-1 (invited) Experimental and Simulated Coupling and Spectra of Hot Electrons into Cone-Wire Targets 226
D. P. Higginson[1], A. Link[1], P. K. Patel[1], H. Sawada[2], S. Wilks[1], T. Bartal[2], S. Baton[3], C. D. Chen[1], K. Flippo[4], R. R. Freeman[5], S. Gaillard[4], E. Giraldez[6], L. C. Jarrott[2], A. Kemp[1], G. E. Kemp[1],

M. Key[1], A. Krygier[5], T. Ma[1], H. McLean[1], P. A. Norreys[7], F. Perez[1], Y. Ping[1], H. -P. Schlenvoigt[3], R. B. Stephens[6], L. D. Van Woerkom[5], T. Yabuuchi[2], F. N. Beg[2]
[1]*Lawrence Livermore National Lab, Livermore, CA, USA*
[2]*University of California, San Diego, La Jolla, CA, USA*
[3]*Laboratoire pour l'Utilisation des Lasers Intenses, Palaiseau, France*
[4]*Los Alamos National Lab, Los Alamos, NM, USA*
[5]*The Ohio State University, Columbus, OH, USA*
[6]*General Atomics, San Diego, CA, USA*
[7]*STFC Rutherford Appleton Laboratory, Chilton, UK*

16:00 2D-2 Laser Produced Plasma as a New, Compact Neutron Source for Dynamic Materials Research 227
M. Roth
Institute for Nuclear Physics, Technische Universitaet Darmstadt, Darmstadt, Germany

16:15 2D-3 Time and Space Resolved Plasma Species Dynamics of a Laser Carbon Plasma in Low Pressure Neutral Background Gas 228
M. Favre, H. M. Ruiz, F. Guzman, L. S. Caballero, H. Bhuyan, H. Chuaqui, E. S. Wyndham
Physics, Pontificia Universidad Católica de Chile, Santiago, Chile

16:30 2D-4 Anomalous Laser Absorption in Underdense Solid Targets by Synchrotron Emission 229
C. S. Brady[1], T. D. Arber[1], C. P. Ridgers[2], A. R. Bell[2]
[1]*Department of Physics, University of Warwick, Coventry, United Kingdom*
[2]*Clarendon Laboratory, University of Oxford, Oxford, United Kingdom*

16:45 2D-5 Highly Efficient Acceleration of Dense Plasma in the LICPA Accelerator 230
J. Badziak[1], T. Pisarczyk[1], T. Chodukowski[1], S. Jablonski[1], Z. Kalinowska[1], P. Parys[1], P. Raczka[1], M. Rosinski[1], S. Borodziuk[1], A. Kasperczuk[1], J. Wolowski[1], E. Krousky[2], M. Pfeifer[2], J. Skala[2], J. Ullschmied[3], R. Liska[4], M. Kucharik[4], K. Tomaszewski[5], P. Pisarczyk[6], Y. -J. Rhee[7]
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[2]*Institute of Physics AS CR, Prague, Czech Republic*
[3]*Institue of Plasma Physics AS CR, Prague, Czech Republic*
[4]*FNSPE, Czech Technical University, Prague, Czech Republic*
[5]*ACS Ltd., Advanced Diagnostics Laboratory, Warsaw, Poland*
[6]*ICS, Warsaw University of Technology, Warsaw, Poland*
[7]*KAERI, Daejeon, Korea*

17:00 2D-6 Proton Diagnostic Performance in Laser Driven Hydrodynamics Experiments N/A
C. A. Di Stefano[1], C. C. Kuranz[1], R. P. Drake[1], M. J. Grosskopf[1], C. M. Krauland[1], D. C. Marion[1], S. R. Klein[1], B. Fryxell[1], P. M. Nilson[2], T. Plewa[3]
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[2]*University of Rochester, Rochester, NY, USA*
[3]*Florida State University, Tallahassee, FL, USA*

17:15 2D-7 Mass Limited Targets for Relativistic Laser Plasma Interactions N/A
P. B. Hilz[1], T. Ostermayr[1], C. Kreuzer[1], J. Schreiber[1], J. Bin[2], K. Allinger[2], D. Kiefer[2], W. Ma[2], H. Wang[2], S. Steinke[3], J. Bränzel[3], F. Abicht[3], M. Schnürer[3], W. Sandner[3]
[1]*Ludwig Maximilians Universität , München, Germany*
[2]*Max Plank Institut of Quantum Optics, München, Germany*
[3]*Max Born Institut, Berlin, Germany*

Session 2E: Plasma Medicine I (oral)
Monday, July 9 15:30-17:45, Pentland Auditorium (Level 3)
Session Chair: Mounir Laroussi, *Old Dominion University*

15:30 2E-1 (invited) Effifacy of Cold Plasma in Cancer Therapy 231
M. Keidar[1], O. Volotskova[1], A. Shashurin[1], M. A. Stepp[1], R. Guerro-Preston[2], B. Trink[2], R. Walk[3], P. Srinivasan[3], A. Sandler[3]
[1]*George Washington University, Washington, USA*
[2]*John Hopkins University, Baltimore, USA*
[3]*Childrens National Medical Center, Washington, USA*

16:00 2E-2 Inactivate Adenovirus by Using a Room Temperature Plasma Needle 232
X. Lu, Z. Xiong
State Key Laboratory of Advanced Electromagnetic Engineering and Technology, HUST, WuHan, China

16:15 2E-3 Effects of Atmospheric Pressure Plasma on Microorganisms and Human Cells 233
W. Choe[1], J. H. Shin[2], C. Jo[3], B. Gweon[1], D. B. Kim[1], H. Jung[1], S. Park[1], S. Y. Moon[1], M. Kim[2], D. Kim[2], H. Kim[2], H. J. Lee[3]
[1]*Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon, South Korea*
[2]*Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Daejeon, South Korea*
[3]*Department of Animal Science and Biotechnology, Chungnam National University, Daejeon, South Korea*

16:30 2E-4 Non Thermal Microplasma Jet Array for Wound Healing 234
C. -H. Park[1,2], J. -M. Lee[2], H. -W. Joo[2], O. -J. Lee[2], J. -H. Kim[2], J. Cho[3], P. P. Sun[3], S. -J. Park[3], J. G. Eden[3]
[1]*Department of Otorhinolaryngology-Head & Neck Surgery, College of Medicine, Hallym Medical Center, Chuncheon, South Korea*
[2]*Nano Bio Regenerative Medicine Institute, Hallym University, Chuncheon, South Korea*
[3]*Department of Electrical and Computer Engineering, University of Illinois, Urbana, USA*

16:45 2E-5 Inactivation Efficiencies of Reactive Oxygen Species on Inactivation of Penicilium Degitatum Spores by Atmospheric-Pressure O2/Ar Plasma 235
H. Hashizumi[1], T. Ohta[1], M. Ito[1], F. Jia[2], K. Takeda[2], K. Ishikawa[2], M. Hori[2]
[1]*Fucurty of Science and Technology, Meijo University, Nagoya, Japan*
[2]*Graduate School of Engineering, Nagoya University, Nagoya, Japan*

17:00 2E-6 A Comparison of Different Cold Atmospheric Pressure Plasma Jets for Biomedical Applications: Gas Temperatures, Morphology, Power Dissipation and Biological Activity 236
S. Hofmann[1], C. A. J. van Gils[1], S. Iseni[1,2,3], P. J. Bruggeman[1]
[1]*Elementary Processes in Gas Discharges, Eindhoven University of Technology, Eindhoven, Netherlands*
[2]*Centre for Innovation Competence plasmatis, Greifswald, Germany*
[3]*Leibniz Institute for Plasma Science and Technology (INP), Greifswald, Germany*

17:15 2E-7 Effects of Cold Atmospheric Plasmas on Adenoviruses in Solution 237
J. L. Zimmermann[1], T. Shimizu[1], G. E. Morfill[1], V. Boxhammer[1], J. Schlegel[2], K. Dumler[3], A. Wolf[3], B. Gaensbacher[3], M. Anton[3]

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[2]*Department of Neuropathology, Technical University Munich, Munich, Germany*
[3]*Institute for Experimental Oncology, Technical University Munich, Munich, Germany*

17:30 2E-8 Non-Thermal Oxygen-Rich Helium Plasmas using Theta Shaped Tubing for Evaluation of Plasmid DNA Strand Breaks 238

J. Y. Kim[1,2], D. -H. Lee[3], J. Ballato[2,4], W. Cao[3], S. -O. Kim[1,2]
[1]*Holcombe Department of Electrical and Computer Engineering, Clemson University, Clemson, SC, USA*
[2]*Center for Optical Materials Science and Engineering Technologies (COMSET), Clemson University, Clemson, SC, USA*
[3]*Department of Genetics and Biochemistry, Clemson University, Clemson, SC, USA*
[4]*School of Material Science and Engineering, Clemson University, Clemson, SC, USA*

Session PL3: Plenary -- PSAC Award Winner
Tuesday, July 10 08:00-09:00, Pentland Suite (Level 3)
Session Chair: Brendan Godfrey, *University of Maryland*

8:00 PL3-1 Warm Dense Matter: The Missing Link Between Condensed Matter & Plasma 239
A. Ng
University of British Columbia, Vancouver, Canada

Session 3A: Dusty plasmas II (oral)
Tuesday, July 10 09:30-12:00, Tinto Room (Level 0)
Session Chairs: Dmitry Samsonov, *The University of Liverpool*
Celine Durniak, *The University of Liverpool*

9:30 3A-1 (invited) On the Use of Microscopic Test Particles for Non-Conventional Plasma Sheath Diagnostics 240
V. Schneider, T. Trottenberg, H. Kersten
IEAP, University Kiel, Germany, Kiel, Germany

10:00 3A-2 Strongly Coupled Coulomb Dust Systems: Ordering and Transport Phenomena in Ground and Microgravity Experiments N/A
O. F. Petrov[1,2], V. E. Fortov[1,2]
[1]*Joint Institute for High Temperatures RAS, Moscow, Russian Federation*
[2]*Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation*

10:15 3A-3 The PK-4 Project: Complex Plasma Experiments in a DC Discharge 241
M. H. Thoma
Max-Planck-Institute for Extraterrestrial Physics, Garching, Germany

10:30 3A-4 Collective Phenomena in Dusty Plasma N/A
T. W. Hyde, J. Kong, K. Qiao, M. Chen, B. Harris, V. Zhang, A. Douglass, J. Carmona-Reyes, L. Matthews
CASPER, Baylor University, Waco, Texas, USA

10:45 3A-5 Ionization Enhanced Ion Collection by a Small Floating Grain in Plasmas N/A
S. Khrapak
Max-Planck-Institut fuer Extraterrestrische Physik, Garching, Germany

11:00 3A-6 Self-Consistent Numerical Simulations of RF Dusty Plasma Afterglows, With and Without Plasma Pulsing 242
S. L. Girshick, P. Agarwal
Mechanical Engineering, University of Minnesota, Minneapolis, MN, USA

11:15 3A-7 Expansion of Complex Plasma and Dust Particle Charge 243
T. Antonova[1], C. -R. Du[1], B. M. Annaratone[1], A. Ivlev[1], L. Hou[1], R. Kompaneets[2], H. M. Thomas[1], G. E. Morfill[1]
[1]*Max Planck Institute for Extraterrestrial Physics, Garching, Germany*
[2]*School of Physics, The University of Sydney, Sydney, Australia*

11:30 3A-8 Impacts of Plasma Fluctuation on Nano-Particle Growth in Reactive Plasmas 244
M. Shiratani
Kyushu University, Fukuoka, Japan

11:45 3A-9 PlasmaLab - Next Generation Plasma Chambers for the International Space Station 245

C. A. Knapek, U. Konopka
Max Planck Institute for Extraterrestrial Physics, Garching, Germany

Session 3B: Intense Beam Microwave Generation, Codes and Modeling (oral)
Tuesday, July 10 09:30-12:00, Moorfoot Room (Level 0)
Session Chairs: Don Shiffler, *AFRL*
Xiaodong Chen, *Queen Mary University of London*
Claudio Paoloni, *University of Rome Tor Vergata, Italy*

09:30 3B-1 (invited) Generation, Amplification and Nonlinear Self-Compression of Powerful Microwave Superradiance Pulses 246

N. S. Ginzburg[1], A. W. Cross[2], A. D. R. Phelps[2], M. I. Yalandin[3], V. V. Rostov[4]
[1]*Russian Academy of Sciences, Institute of Applied Physics,, N.Novgorod, Russian Federation*
[2]*Department of Physics, SUPA, University of Strathclyde, Glasgow, United Kingdom*
[3]*Russian Academy of Sciences, Institute of Electrophysics, Ekaterinburg, Russian Federation*
[4]*Russian Academy of Sciences, Institute of High Current Electronics, Tomsk, Russian Federation*

10:00 3B-2 Recent Advances in Relativistic A6 Magnetron Research - Improvements in Start-up and Efficiency 247

E. Schamiloglu, M. Fuks, S. Prasad, C. Leach, C. Mendonca, D. Galbreath
Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, USA

10:15 3B-3 Generation of Terahertz Electromagnetic Radiation in a Beam-Driven Turbulent Plasma 248

A. V. Arzhannikov[1], I. A. Kotelnikov[2], I. V. Timofeev[2], M. K. A. Thumm[1]
[1]*Physics Dep./ATIC Div., Novosibirsk State University, Novosibirsk, Russian Federation*
[2]*Plasma Physics Dep., Budker Institute of Nuclear Physics, Novosibirsk, Russian Federation*

10:30 3B-4 High Power Single Pulse THz Transmitters N/A

A. S. Podgorski
ASR Technologies Inc., Ottawa, Canada

10:45 3B-5 Predictive, Optimized Numerical Simulation of Microwave Generation in Complex Geometries with Real Materials 249

R. E. Peterkin, T. P. Fleming, D. M. French, P. D. Gensheimer, A. D. Greenwood, B. W. Hoff, D. R. Karrels, M. Lambrecht, N. P. Lockwood, P. J. Mardahl, W. W. Tang
Directed Energy Directorate, Air Force Research Laboratory, Albuquerque, NM, USA

11:00 3B-6 Multi-Frequency Stability Analysis of Coupled Cavity TWTs Using TESLA-CC 250

A. N. Vlasov[1], I. A. Chernyavskiy[1], B. Levush[1], T. M. Antonsen, Jr.[2]
[1]*Naval Research Laboratory, Washington, DC, USA*
[2]*Science Applications International Corporation, McLEan, VA, USA*

11:15 3B-7 GPU-Accelerated Large-Signal Device Simulation Using the 3D Particle-in-Cell Code 'Neptune' 251

S. J. Cooke[1], I. A. Chernyavskiy[1], G. M. Stanchev[1], B. Levush[1], T. M. Antonsen[2]
[1]*Vacuum Electronics Branch, Naval Research Laboratory, Washington, DC, USA*
[2]*Science Applications International Corporation, McLean, VA, USA*

11:30 3B-8 Numerical Modelling of Plasma for Flow Control in Aerospace Applications 252

K. Kourtzanidis[1,2,3], F. Rogier[1], J. P. Boeuf[2,4]
[1]*DTIM/M2SN, ONERA, Toulouse, France*
[2]*Laboratoire Plasma et Conversion d'Energie (LAPLACE), UPS, University of Toulouse, Toulouse, France*
[3]*ISAE, Toulouse, France*
[4]*LAPLACE, CNRS, Toulouse, France*

11:45 3B-9 A Plasma-Chemical Zero-Dimensional Model for Non-Thermal Atmospheric Pressure Argon Plasma Jet 253
L. Taghizadeh[1,2], C. Leys[1], G. Morfill[2]
[1]*Applied Physics, Ghent University, Ghent, Belgium*
[2]*Max-Planck Institute for Extraterrestrial Physics, Munich, Germany*

Session 3C: Fast Z Pinches, X-ray Lasers I (oral)
Tuesday, July 10 09:30-12:00, Fintry Auditorium (Level 3)
Session Chair: Adam J Harvey-Thompson, *Sandia National Laboratories*

9:30 3C-1 (invited) End-on Laser Interferometry of Wire Array Z-Pinch Implosions on the MAGPIE Generator 254
G. F. Swadling, S. Lebedev, J. Chittenden, S. Bland, G. Hall, F. Suzuki-Vidal, N. Niasse, G. Burdiak, L. Pickworth, E. Koorey, L. Suttle, J. Skidmore
Plasma Physics Group, Imperial College London, London, United Kingdom

10:00 3C-2 Spectroscopy of a Nitrogen Capillary Discharge Plasma Aimed at a Recombination Pumpted X-Ray Laser 255
I. Gissis, A. Rikanati, I. Be'ery, A. Fisher, E. Behar
Department of Physics, Technion - Institute of Technology, Haifa, Israel

10:15 3C-3 X-Ray Lasers Pumped with One Long and Two Short Pulses N/A
D. Ursescu[1], R. A. Banici[1], G. V. Cojocaru[1], R. Dabu[1], H. Stiel[2]
[1]*Lasers, National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania*
[2]*Max Born Institut fürNichtlineare Optik und Kurzzeitspektroskopie im Forschungsverbund Berlin e.V., Berlin, Germany*

10:30 3C-4 Investigation of the Interaction Between a Supersonic, Radiatively Cooled, Plasma Jet with Metallic Foil and Foam Targets 256
L. A. Pickworth[1], S. N. Bland[1], S. Lebedev[1], G. Hall[1], F. Suzuki-Vidal[1], G. Swadling[1], M. Bennett[1], G. Burdiak[1], P. de Grouchy[1], E. Khoory[1], J. Skidmore[1], L. Suttle[1], J. Chittenden[1], M. Bocchi[1], N. Niasse[1], D. Mariscal[2], S. C. Bott[2], F. N. Beg[2], A. Frank[3]
[1]*Plasma Physics, Imperial College London, London, United Kingdom*
[2]*University of San Diego, La Jolla, CA, USA*
[3]*Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA*

10:45 3C-5 Microsecond Conical Wire Array Experiments as a Source of Plasma Jets Relevant to Laboratory Astrophysics Experiments 257
F. Zucchini[1], D. Plouhinec[1], J. Grunenwald[1], P. Maury[1], D. Sol[1], P. Combes[1], S. Ritter[1], A. Loyen[1], A. Morell[1], D. A. Hammer[2]
[1]*DAM/GRAMAT, CEA, Gramat, France*
[2]*Laboratory of Plasma Studies, Cornell University, Ithaca, NY, USA*

11:00 3C-6 Snowplow Calculations for Ne Puff Z-Pinch Experiments 258
E. M. Waisman[1], C. W. Nakhleh[1], M. E. Cuneo[1], E. Kroupp[2], D. Osin[2], Y. Maron[2]

[1]*Pulsed Power Science Center, Sandia National Laboratories, Albuquerque, NM, USA*
[2]*Weizmann Institute of Science, Rehovot, Israel*

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A. Dasgupta[1], R. W. Clark[2], J. W. Thornhill[1], N. D. Ouart[1], J. P. Apruzese[1], J. L. Giuliani[1], B. M. Jones[3], D. J. Ampleford[3]
[1]*Plasma Physics, NRL, Washington, DC, USA*
[2]*Berkeley Scholars, Springfiled, VA, USA*
[3]*SNL, Albuquerque, NM, USA*

11:30 3C-8 Comparative Properties of Copper Wire Array Implosions Driven by the Pre-Refurbished and Post-Refurbished Z Generator 260
J. P. Apruzese[1], J. W. Thornhill[1], J. L. Giuliani[1], C. A. Coverdale[2], B. Jones[2], D. J. Ampleford[2]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington DC, USA*
[2]*Sandia National Laboratories, Albuquerque NM, USA*

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J. L. Giuliani[1], J. W. Thornhill[1], A. L. Velikovich[1], R. W. Clark[2], B. Jones[3], D. J. Ampleford[3], M. E. Cuneo[3], W. A. Stygar[3], C. A. Coverdale[3]
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[2]*Berkeley Research Associates, Beltsville, MD, USA*
[3]*Sandia National Laboratories, Albuquerque, NM, USA*

Session 3D: Nonequilibrium Plasma Applications I (oral)
Tuesday, July 10 09:30-12:00, Sidlaw Auditorium (Level 3)
Session Chair: Vincent Puech, *University Paris-Sud 11*

9:30 3D-1 (invited) Measurement, Modelling, and Controle of the Reactive Species Composition in the Effluent of an Argon Plasma Jet 262
S. Reuter[1], J. Winter[1], M. U. Hammer[1], K. Masur[1], K. Wende[1], H. Tresp[1], A. Schmidt-Bleker[1], M. Duennbier[1], M. HAnsch[1], T. von Woedtke[2], K. -D. Weltmann[2]
[1]*INP Greifswald e.V / ZIK Plasmatis, Greifswald, Germany*
[2]*INP Greifswald e.V, Greifswald, Germany*

10:00 3D-2 Atmospheric Plasma Brush Driven by Sub-Microsecond Voltage Pulses 263
X. Lu, S. Wu
State Key Laboratory of Advanced Electromagnetic Engineering and Technology, HUST, WuHan, China

10:15 3D-3 Influence of Multiple Electrode Configurations on Atmospheric Pressure Microplasma Jet Arrays in Flexible Polymer 264
P. P. Sun, J. H. Cho, S. -J. Park, J. G. Eden
Department of Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

10:30 3D-4 Electric Potential Measurement of the Plasma Plume in Atmospheric-Plasma Jet 265
H. Kang, J. Kim, J. Kim, H. -K. Yu, J. H. Koo, E. -H. Choi, H. S. Uhm, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

10:45 3D-5 Pulsed Atmospheric Pressure Plasma Streams: Characterization and Role of Critical Experimental Parameters 266
E. Robert[1], V. Saron[1], D. Ries[1], S. Dozias[1], J. -M. Pouvesle[1], Z. Xiong[2], M. J. Kushner[2]

[1]*GREMI, Orleans University/CNRS, Orleans, France*
[2]*Electrical Engin. and Computer Science Department, University of Michigan, Ann Arbor, MI, USA*

11:00 3D-6 The Manipulation of Atmospheric Pressure Dielectric Barrier Plasma Jets 267
P. Olszewski, J. L. Walsh
Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, United Kingdom

11:15 3D-7 Experimental and Numerical Investigation on the Interaction Between Ar Flow Channel and Ar Plasma Jet at Atmospheric Pressure 268
X. Shao, G. Zhang, Z. Chang
State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

11:30 3D-8 Particle-in-Cell Simulation of Aluminum/Aluminum Oxide Microplasma Devices 269
A. Likhanskii[1], S. Macheret[2]
[1]*Tech-X Corporation, Boulder, CO, USA*
[2]*Lockheed Martin Aeronautics Company, Palmdale, CA, USA*

11:45 3D-9 The Effect of Power on Duty Cycle on the Pulsed RF Discharge and the Pulsed RF Plasma Jet Array 270
D. Liu
Huazhong University of Science and Technology, Wuhan, China

Session 3E: Plasma Medicine II (oral)
Tuesday, July 10 09:30-12:00, Pentland Auditorium (Level 3)
Session Chair: Mounir Laroussi, *Old Dominion University*

9:30 3E-1 (invited) The Flowing Afterglow of the N2-O2 Discharge as a Means of Decontaminating/Sterilising Through UV Irradiation: Summary of the Research Achieved and Recent Results 271
M. Moisan
Physics, Universite de Montreal, Montreal, Quebec, Canada

10:00 3E-2 Bacteria Inactivation in a Thin Layer of Aqueous Medium by Surface Micro-Discharge 272
Y. Li, J. Zimmermann, G. Morfill
Max Planck Institute for Extraterrestrial Physics, Garching, Germany

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E. V. Sysolyatina[1], M. A. Yurova[1], A. Y. Mukhachev[1], M. A. Danilova[1], M. E. Grushin[2], A. V. Petryakov[2], N. I. Trushkin[2], S. A. Ermolaeva[1], Y. S. Akishev[2]
[1]*Gamaleya Research Institute of Epidemiology and Microbiology, Moscow, Russian Federation*
[2]*2State Research Center of Russian Federation TRINITI, Troitsk, Moscow reg., Russian Federation*

10:30 3E-4 From Research to Application: Introducing a Plasma Sterilization Prototype 274
K. Stapelmann[1], N. Bibinov[1], P. Awakowicz[1], J. -W. Lackmann[2], J. Bandow[2]
[1]*Institute for Electrical Engineering and Plasma Technology, Ruhr-University Bochum, Bochum, Germany*
[2]*Microbial Biology, Ruhr-University Bochum, Bochum, Germany*

10:45 3E-5 The Reduced pH Method with Indirect Plasma for Safe and Effective Disinfection in Dentistry and Surgery 275

K. Kitano[1], S. Ikawa[2], A. Tani[3], H. Yamazaki[4], T. Ohshima[4], K. Kaneko[5], M. Ito[5], T. Kuwata[5], A. Yagishita[5]
[1]*Graduate School of Engineering, Osaka University, Suita, Osaka, Japan*
[2]*Technology Research Institute of Osaka Prefecture, Izumi, Oaaka, Japan*
[3]*Graduate School of Science, Osaka University, Toyonaka, Osaka, Japan*
[4]*Graduate School of Dental Medicine, Tsurumi University, Yokohama, Kanagawa, Japan*
[5]*National Cancer Center Hospital East, Kashiwa, Chiba, Japan*

11:00 3E-6 Antimicrobial Activity of Plasma-Generated Vuv Radiation and Its Complete Absorption by Thin Liquid Layers 276

T. von Woedtke, H. Lange, K. -D. Weltmann
Leibniz Institute for Plasma Science and Technology (INP Greifswald), Greifswald, Germany

11:15 3E-7 Evidence of Mass Transfer Limitation in the Inactivation of Pantoea Agglomerans Biofilms with Atmospheric Cold Gas Plasma 277

P. Prokopovich[1,2], S. Perni[3], G. Shama[4], X. T. Deng[5], M. G. Kong[5]
[1]*School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff, United Kingdom*
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[3]*School of Chemical Engineering, University of Birmingham, Birmingham, United Kingdom*
[4]*Chemical Engineering, Loughborough University, Loughborough, United Kingdom*
[5]*School of Electronic, Electrical and System Engineering, Loughborough University, Loughborough, United Kingdom*

11:30 3E-8 Cold Plasma Treatment of Endodontic Biofilms in Root Canals Ex Vivo 278

C. Schaudinn[1], P. Webster[1], D. E. Jaramillo[2], M. Freire[3], A. Nguyen[3], P. P. Sedghizadeh[3], J. W. Costerton[4], C. Jiang[5]
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[3]*Ostrow School of Dentistry, University of Southern California, Los Angeles, CA, USA*
[4]*Allegheny-Singer Research Institute, Pittsburgh, PA, USA*
[5]*Viterbi School of Engineering, University of Southern California, Los Angeles, CA, USA*

11:45 3E-9 Assessment of the Roles of Various Inactivation Agents in an Argon-Based Direct Current Atmospheric Pressure Cold Plasma Jet 279

Q. Zhang[1], P. Sun[2], H. Feng[2], R. Wang[1], Y. Liang[2], W. Zhu[3], K. H. Becker[4], J. Zhang[1], J. Fang[1]
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[2]*College of Engineering, Peking University, Beijing, China*
[3]*Department of Applied Science and Technology, Saint Peter's College, New Jersey, USA*
[4]*Department of Applied Physics, Polytechnic Institute of New York University, New York, USA*

Session PL4: Plenary 4
Tuesday, July 10 13:00-14:00, Pentland Suite (Level 3)
Session Chair: Adrian Cross, *Strathclyde University*

13:00 PL4-1 ADVANCES IN GYRO-AMPLIFIER RESEARCH 280
A. D. R. Phelps
Department of Physics, SUPA, University of Strathclyde, Glasgow, United Kingdom

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Session Chair: Siegbert Kuhn, *University Innsbruck, Austria*

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L. C. Ciobotaru
Low Temperature Plasma, National Institute of Lasers, Plasma and Radiation Physics, Magurele, Romania

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L. Whitehurst, M. -C. Lee
Department of Electrical & Computer Engineering, Boston University, Boston, MA, USA

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L. Rooker, M. -C. Lee
Department of Electrical & Computer Engineering, Boston University, Boston, MA, USA

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Y. O. Tyshetskiy, S. V. Vladimirov, R. Kompaneets
School of Physics, University of Sydney, Sydney, NSW, Australia

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Y. O. Tyshetskiy, D. J. Williamson, R. Kompaneets, S. V. Vladimirov
School of Physics, University of Sydney, Sydney, NSW, Australia

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Y. O. Tyshetskiy, R. Kompaneets, S. V. Vladimirov
School of Physics, University of Sydney, Sydney, NSW, Australia

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E. V. Rostomyan
Institute of Radiophysics & Electronics National Ac Sci of Armenia, Ashtarack, Armenia

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Z. Zhang, X. Wang
School of Physics, Peking University, Beijing, China

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M. King[1], S. L. McConville[1], D. C. Speirs[1], R. Bryson[1], K. M. Gillespie[1], A. D. R. Phelps[1], A. W. Cross[1], C. G. Whyte[1], K. Ronald[1], R. A. Cairns[2], I. Vorgul[2], R. Bingham[3], R. M. G. M. Trines[3]
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[3]*STFC Rutherford Appleton Laboratory, Chilton, Oxforshire, United Kingdom*

2P-10 Amplification of Waves at Fundamental Frequencies in an Inhomogeneous Plasma N/A
P. Deka
Department of Mathematics, Dibrugarh University, Dibrugarh, India

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L. B. Gogoi[1], P. Deka[2]
[1]*Mathematics Department, Duliajan College, Duliajan, Assam, India*
[2]*Mathematics Department, Dibrugarh University, Dibrugarh, Assam, India*

2P-12 Nonlinear Effect of Trapping in a Degenerate Plasma in the Presence of a Quantizing Magnetic Field N/A
H. A. Shah[1], J. Iqbal[1], N. Tsintsadze[1], W. Masood[2]
[1]*Department of Physics, GC University, Lahore, Pakistan*
[2]*Theoretical Plasma Physics Division, Pakistan Atomic Energy Commission, Islamabad, Pakistan*

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J. Kovačič[1,2], T. Gyergyek[1,2], M. Čerček[1]
[1]*Reactor Physics Department, Jozef Stefan Institute, Ljubljana, Slovenia*
[2]*Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia*

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[1]*Inst. Theor. Physics, University Innsbruck, Austria, Innsbruck, Austria*
[2]*Andronikashvili Inst. Phys., Georgian Acad. Sci., Georgia, Tbilisi, Georgia*
[3]*LECAD Laboratory, University Ljubljana, Slovenia, Ljubljana, Slovenia*

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N. Jelic[1], L. Kos[2], J. Duhovnik[2]
[1]*Association EURATOM-ÖAW, Institute for Theoretical Physics, University of Innsbruck, Innsbruck, Austria*
[2]*Faculty of Mech. Eng., University of Ljubljana, Ljubljana, Slovenia*

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Seoul National University, Seoul, South Korea

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B. Sun, E. Ahedo
Plasmas and Space Propulsion Team, Universidad Politecnica de Madrid, Madrid, Spain

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Nuclear Engineering, North Carolina State University, Raleigh, NC, USA

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Session Chairs: Dmitry Samsonov, *The University of Liverpool*
Celine Durniak, *The University of Liverpool*

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O. S. Vaulina, Y. V. Khrustalyov
Institution of Russian Academy of Sciences, Joint Institute for High Temperatures RAS, Moscow, Russian Federation

2P-29 Approximations for the Pair Correlation Functions in the Two- and Three- Dimensional Systems with Isotropic Pair Potentials N/A
O. S. Vaulina
Institution of Russian Academy of Sciences, Joint Institute for High Temperatures RAS, Moscow, Russian Federation

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C. A. Knapek[1], C. Durniak[2], D. Samsonov[2], G. E. Morfill[1]
[1]*Max Planck Institute for extraterrestrial Physics, Garching, Germany*
[2]*Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, UK*

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B. P. Pandey[1], S. V. Vladimirov[2], A. A. Samarian[2]
[1]*Physics & Astronomy, Macquarie University, Sydney, NSW, Australia*
[2]*School of Physics, The University of Sydney, Sydney, NSW, Australia*

Session 2P: Space Plasmas (poster session)
Tuesday, July 10 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Felix A Spanier, *Lehrstuhl für Astronomie, Universität Würzburg*

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B. P. Pandey[1], S. V. Vladimirov[2]
[1]*Physics & Astronomy, Macquarie University, Sydney, NSW, Australia*
[2]*School of Physics, The University of Sydney, Sydney, NSW, Australia*

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A. Mannan[1], A. A. Mamun[1], P. K. Shukla[2]
[1]*Department Physics, Jahangirnagar University, Dhaka-1342, Bangladesh*
[2]*Department Physics & Astronomy, Ruhr-University Bochum, Bochum, Germany*

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[3]*School of Mathematics and Statistics, University of St. Andrews, St Andrews, United Kingdom*

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ECE, UCSD, La Jolla, CA, USA

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2P-38 Solitary Structures in a Plasma with Two Kinds of Ions at Different Temperatures N/A
N. S. Saini[1], I. Kourakis[2]
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[2]*Department of Physics and Astronomy, Queen's University Belfast, Belfast, Antrim, UK*

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M. Lazar
Theoretical Physics 4, Ruhr Universität Bochum, Bochum, Germany

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Aeronautics and Astronautics, Stanford University, Stanford, CA, USA

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[1]*Electrical Engineering, The University of Michigan, Ann Arbor, MI, USA*
[2]*Electrical Engineering, The Pennsylvania State University, University Park, PA, USA*

2P-42 Electrodynamics and Ionization Effects in the Absorption of Powerful Radio Pulse in the Earth Ionosphere 316
E. Stupitsky, D. Morozov
Moscow State Industrial University, Sergiev Posad, Russian Federation

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P. F. Ottinger[1], A. S. Richardson[2], S. B. Swanekamp[2], J. W. Schumer[2]
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[2]*Atomic Weapons Establishment, Aldermaston, United Kingdom*
[3]*Space Sciences Division, Naval Research Laboratory, Washington, DC, USA*

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Microwave Tubes, CSIR-CEERI, Pilani, Pilani, India

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T. Yatsenko[1], K. Ilyenko[1], G. V. Sotnikov[2]
[1]*Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine*
[2]*National Science Center "Kharkiv Institute of Physics and Technology" of NAS of Ukraine, Kharkiv, Ukraine*

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CEA/CESTA, Le Barp, France

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C. Huang, T. J. T. Kwan, B. Carlsten
Los Alamos National Laboratory, Los Alamos, NM, USA

Session 2P: Slow-wave devices (poster session)
Tuesday, July 10 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Richard G Carter, *Lancaster University*

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D. P. Chernin[1], T. M. Antonsen[2], B. Levush[3]
[1]*SAIC, McLean, VA, USA*
[2]*University of Maryland, College Park, MD, USA*
[3]*Naval Research Laboratory, Washington, DC, USA*

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H. Song[1], L. Tekamp[1], C. Everleigh[2], S. H. Kim[3], J. J. Choi[3], S. J. Kim[4], S. H. Jang[4]
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[3]*Radio Science and Engineering, Kwangwoon University, Seoul, South Korea*
[4]*Agency for Defense Development, Daejon, South Korea*

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S. A. Fernandez-Gutierrez[1], J. Browning[1], J. Watrous[2]
[1]*Electrical and Computer Engineering, Boise State University, Boise, ID, USA*
[2]*NumerEx, Albuquerque, NM, USA*

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[2]*Department of Trauma and Hand Surgery, Dusseldorf University Hospital, Dusseldorf, Germany*

2P-145 The Effects of Rat C6 Glioma Cells and in Vivo Tumor by Atmospheric Pressure Cold Plasma Jet 403

Y. Wang[1], C. Cheng[2], J. Shen[2], J. Li[2]
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2P-146 Improving the Degradation Behavior of Magnesium Alloy by Plasma Surface Modification for Biomedical Application 404

M. I. Jamesh, G. Wu, Y. Zhao, P. K. Chu
Department of Physics and Materials Science, City University of Hong Kong, Hong Kong, China

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H. G. Jeon, C. Y. Cho, Y. C. Kim, J. S. Choi, Y. K. Kim, E. H. Choi, B. Park
Electrophysics, Kwangwoon University, Seoul, South Korea

2P-148 Optical Detection in Plasma-Treated Phospholipid Layers by Surface Plasmon Resonance Investigation N/A

C. Y. Cho, H. G. Jeon, Y. C. Kim, J. C. Shin, B. Park
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

2P-149 Measurement of Bimolecular Valence Band Energy Structure of Erythrocyte after Bio-Plasma Treatment. N/A

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[2]*3College of Veterinary Medicine, Chonbuk National University, Chollabuk-Do, South Korea*

2P-150 Characteristics of Atmospheric Pressure Plasma for Decontamination of Endoscopic Channels 405

X. Wang[1], C. Bai[1], D. Li[1], D. Liu[1], M. Rong[1], M. Kong[2]
[1]*School of Electrical Engineering,, Xi'an Jiaotong University, Xi'an, Shaanxi, China*
[2]*School of Electronic, Electrical and Systems Engineering, Loughborough University, Leicester, UK*

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E. -J. Lee[1], J. -S. Kwon[1], S. -H. Uhm[1], Y. H. Kim[2], K. -M. Kim[1], E. H. Choi[2], K. -N. Kim[1]
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E. -M. Yoo[1], S. -H. Uhm[1], J. -S. Kwon[1], H. -S. Choi[1], K. -M. Kim[1], E. H. Choi[2], K. -N. Kim[1]
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Y. Meng
11st Division, Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui, China

2P-154 Decomposition of Albumin Protein Monolsyer by Using Atmospheric Plasma Treatment N/A

Y. C. Kim, C. Y. Cho, H. G. Jeon, G. S. Cho, B. Park
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

2P-155 Handheld Cold Atmospheric Air Plasma Pen and in Vitro Studies of M.R.S.A, C. Difficile and A. Baumannii Decontamination 409

N. O'Connor[1], O. J. Cahill[1], S. Galvin[2], N. Stevens[2], C. McDonnell[3], N. O Hare[3], H. Humphreys[2], S. Daniels[1]
[1]*NCPST, Dublin City University, Dublin 11, Ireland*
[2]*Clinical Microbiology, Beaumont Hospital, Dublin, Ireland*
[3]*MPBE, St James Hospital, Dublin 8, Ireland*

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M. Moisan
Physique, Universite de Montreal, Montreal, Quebec, Canada

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L. J. Cox[1], W. G. Graham[1], J. S. Sousa[2], D. O'Connell[3], T. Gans[3]
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[3]*York Plasma Institute, University of York, Heslington, United Kingdom*

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Department of Electrophysics, Kwangwoon University, Seoul, South Korea

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M. Lee, H. Kim, Y. Kim, W. Y. Lee, K. Y. Baik, N. K. Kaushik, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

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K. Y. Baik[1], J. S. Choi[2], R. Jung[2], E. Choi[1,2]
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Session 2P: High-Temperature and Thermal Plasma Processing (poster session)
Tuesday, July 10 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: Anthony B Murphy, *CSIRO Materials Science & Engineering*

2P-161 Experiment and Simulation Study of Synthesis of Carbon Nanostructures in Anodic Arc N/A

J. Li, A. Shashurin, M. Kundrapu, M. Keidar
Department of Mechanical and Aerospace Engineering, The George Washington University, Washington, DC, USA

2P-162 Novel Structured Coatings by Means of Gas Tunnel Type Plasma Spraying 415

A. Kobayashi

Osaka University, Osaka, Japan

Universidade da Madeira, Funchal, Portugal

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K. Suresh[1], K. P. Rao[1], S. Yugeswaran[2], A. Kobayashi[2], V. Selvarajan[3]

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V. Colombo[1], E. Ghedini[1], M. Gherardi[1], P. Sanibondi[1], C. Delval[2], M. Leparoux[2]

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[2]EMPA, Swiss Federal Laboratories for Materials Science and Technology, Advanced Materials Processing, Thun, Switzerland

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D. Uhrlandt, R. Kozakov, G. Goett, M. Wendt, H. Schoepp

Leibniz-Institute for Plasma Science and Technology e.V. (INP Greifswald), Greifswald, Germany

2P-176 Study for MDS Properties of Pressured CO2 to Supercritical State and DC Breakdown Mechanism 429

C. H. Zhang

EE, Harbin Institute of Technology, Harbin, China

2P-177 Investigation of a Toroidal Air Plasma under Atmospheric Conditions 431

R. Curry[1], A. Lodes[1], W. Brown[2], M. Schmidt[2]

[1]Center for Physical and Power Electronics, University of Missouri-Columbia, Columbia, Missouri, USA

[2]Rocky Mountain Division, Applied Research Associates, Littleton, Colorado, USA

Session 2P: Plasma Thrusters (poster session)
Tuesday, July 10 14:00-15:30, Cromdale Hall (Level -2)
Session Chair: John E. Foster, *University of Michigan*

2P-178 Effects of Aperature Diameter and Gas Flow Rate on a Piezoelectric Plasma Propulsion System 432

K. M. Olson, S. D. Kovaleski, B. T. Hutsel, E. A. Baxter

Department of Electrical Engineering, University of Missouri - Columbia, Columbia, MO, USA

2P-179 Simulation and Experimental Analysis of a Miniature Ion Thruster Fabricated in Low Temperature Co-Fired Ceramic 433

P. P. Bumbarger[1], S. Shawver[1], J. Browning[1], D. Plumlee[2], S. M. Loo[1], D. Reis[2], M. Yates[2], K. Parrish[2], J. Taff[3], L. Knowles[2]

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2P-180 Study of an Electrospray-Based Electric Propulsion System for Small Satellites 434

M. Jugroot, M. Forget
Mechanical and Aerospace, Royal Military College of Canada, ON, Canada

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A. A. Hubble, J. E. Foster
Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, USA

2P-182 Review on the Study of Electron near Wall Conductivity in Hall Thrusters 436
H. Li, H. Liu, D. Yu
College of Energy Science and Engineering, Laboratory of Plasma Propulsion, Harbin, China

2P-183 Numerical Simulation of Charge Exchange Ion's affect in Ion Extraction for Ion Optics 437
Y. Chu, Y. Cao
Department of Mechanical Engineering & Automation, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, Guangdong, China

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I. Kaganovich, Y. Raitses
PPPL, Princeton, NJ, USA

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E. Ahedo, J. Navarro, M. Merino
Plasmas and Space Propulsion Team, Universidad Politecnica de Madrid, Madrid, Spain

Session 4A: Generators, Compact Pulsed Power and Applications (oral)
Tuesday, July 10 15:30-17:45, Tinto Room (Level 0)
Session Chairs: Jane Lehr, *Sandia National Laboratories*
Masahiro Akiyama, *Ichinoseki National College of Technology*

15:30 4A-1 (invited) Stand-Alone Pulsed Power Generator for HPM Generation 440
A. A. Neuber, J. Stephens, C. Lynn, J. Walter, J. Dickens, M. Kristiansen
Center for Pulsed Power and Power Electronics, Texas Tech University, Lubbock, USA

16:00 4A-2 Numerical Simulation of Commercial-Scale Non-Equilibrium Magnetohydrodynamic Generator with Inlet Swirl 441
Y. Hamaguchi[1], T. Fujino[2], M. Ishikawa[2]
[1]*Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, Japan*
[2]*Faculty of Engineering, Information and Systems Division of Engineering Mechanics and Energy, University of Tsukuba, Tsukuba, Japan*

16:15 4A-3 Atmospheric Room-Temperature Helium Plasma Streams Produced Using a Dielectric Barrier Discharge Generator with a Honeycomb-like Inner Electrode 442
Q. -Y. Nie[1], A. Yang[1,2,3], H. -P. Li[1], X. -Z. Zhang[2], C. -Y. Bao[1]
[1]*Department of Engineering Physics, Tsinghua University, Beijing, China*
[2]*Institute of Medical Equipment, Academy of Military Medical Sciences, Tianjin, China*
[3]*iomedical Engineering Institute, Southern Medical University, Guangzhou, China*

16:30 4A-4 Synergistic Effect of Nanosecond Pulsed Electric Fields Combined with Low Concentration of Gemcitabine on Humanoral Squamous Cell Carcinoma InVitro 443

S. Wu[1], J. Guo[2], W. Wei[3], H. Feng[1], H. Pan[2], J. Wang[2], J. Zhang[3], J. Fang[3], S. J. Beebe[4]
[1]*College of Engineering, Peking University, Beijing, China*
[2]*School of Stomatology, Lanzhou University, Lanzhou, China*
[3]*Academy of Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[4]*Frank Reidy Research Center for Bioelectrics, Old Dominion University, Virginia, USA*

16:45 4A-5 Non-Invasive Hyperthermic Necrosis of Cancer Cells Using a Nanosecond Pulsed Electric Field 444
C. D. Burford[1], N. Boriraksantikul[2], K. D. Bhattacharyya[1], N. E. Islam[2], J. A. Viator[1]
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[2]*Department of Electrical and Computer Engineering, University of Missouri-Columbia, Columbia, MO, USA*

17:00 4A-6 Nanosecond Pulsed Electric Fields Caused Breast Cancer Self-Distruction: under Magnetic Resonase Imaging Evaluation 445
W. Wei[1], S. Wu[2], J. Guo[3], H. Feng[2], W. Nian[1], H. Pan[3], J. Zhang[1], J. Fang[1]
[1]*Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[2]*College of Engineering, Peking University, Beijing, China*
[3]*School of Stomatology, Lanzhou University, Lanzhou, China*

17:15 4A-7 Low Temperature Plasma Production in Water, Supercritical Fluid and Air Flow and Its Applications 446
H. Akiyama[1], M. Inokuchi[1], H. Ishizawa[1], T. Sakamoto[1], T. Furusato[1], T. Sakugawa[1], S. Katsuki[1], G. Sebastian[1], M. Akiyama[2]
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[2]*Ichinoseki National College of Technology, Ichinoseki, Japan*

17:30 4A-8 Triggering and Guiding of High-Voltage Tesla Coil Discharges by Femtosecond Laser-Induced Plasma Filaments in Air 447
Y. Y. Brelet, A. A. Houard, B. B. Prade, J. J. Carbonnel, Y. -B. Y. André, A. A. Mysyrowicz
Laboratoire d'Optique Appliqué, LOA/ENSTA ParisTech - Ecole Polytechnique-CNRS, Palaiseau, France

Session 4B: Fast-Wave Devices (oral)
Tuesday, July 10 15:30-17:45, Moorfoot Room (Level 0)
Session Chair: Monica Blank, *CPII*

15:30 4B-1 (invited) EU Gyrotron Development for ITER: Recent Achievements and Experimental Results of the Coaxial 2 MW Gyrotron 448
S. Kern[1], G. Gantenbein[1], S. Illy[1], J. Jelonnek[1], J. Jin[1], I. Pagonakis[1], B. Piosczyk[1], T. Rzesnicki[1], M. Thumm[1], J. -P. Hogge[2], S. Alberti[2], F. Li[2], M. Q. Tran[2], K. Avramides[3], I. Tigelis[4]
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[2]*CRPP, Ecole polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland*
[3]*School of Electrical and Computer Engineering, National Technical University of Athens, Greece*
[4]*Faculty of Physics, National and Kapodistrian University of Athens, Athens, Greece*

16:00 4B-2 Impact of Gyrotron Power Modulation on the Collector of the 2MW, 170GHz Gyrotron for ITER 449
S. Illy[1], S. Kern[1], I. Pagonakis[1], M. Thumm[1], A. Vaccaro[2]
[1]*IHM, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany*
[2]*IAM-AWP, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany*

16:15 4B-3 Experimental Research on a 1.5 MW, 110 GHz Gyrotron 450

D. S. Tax, W. C. Guss, M. A. Shapiro, R. J. Temkin
Plasma Science and Fusion Center, MIT Plasma Science and Fusion Center, Cambridge, MA, USA

16:30 4B-4 Recent Improvements in Time-Variant Gyrotron RF Output Spectrum Monitoring 451
A. Schlaich[1], G. Gantenbein[2], S. Kern[2], M. Thumm[2]
[1]*Institut fuer Hochfrequenztechnik und Elektronik (IHE), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany*
[2]*Institute for Pulsed Power and Microwave Technology (IHM), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany*

16:45 4B-5 Stability of Gyrotron Operation on the Second Harmonic 452
O. V. Sinitsyn, R. Pu, G. S. Nusinovich, T. M. Antonsen, Jr.
Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, USA

17:00 4B-6 A W-Band Gyro-TWA Based on a Cusp Electron Gun and Helically Corrugated Waveguide 453
C. R. Donaldson, W. He, L. Zhang, P. McElhinney, A. D. R. Phelps, A. W. Cross, K. Ronald
University of Strathclyde, Glasgow, United Kingdom

17:15 4B-7 Powerful Short Wavelength FEMs Operated at Harmonics of Bounce Frequency: Recent Results and Prospects 454
N. Y. Peskov[1], I. V. Bandurkin[1], N. S. Ginzburg[1], A. V. Savilov[1], A. S. Sergeev[1], A. K. Kaminsky[2], E. A. Perelstein[2], S. N. Sedykh[2]
[1]*Institute of Applied Physics RAS, Nizhny Novgorod, Russian Federation*
[2]*Joint Institute for Nuclear Research, Dubna, Russian Federation*

17:30 4B-8 The Cyclotron Maser Based on the Combination Two-Wave Resonance 455
A. V. Savilov
Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

Session 4C: Fusion - Inertial, Magnetic and Alternate Concepts (oral)
Tuesday, July 10 15:30-17:30, Fintry Auditorium (Level 3)
Session Chair: Jeremy Chittenden, *Imperial College*

15:30 4C-1 Effects of Alpha Particle Transport in 3D 4π Hydro Simulations of Perturbed NIF Targets 456
S. Taylor, B. Appelbe, N. Niasse, J. Chittenden
Department of Physics, Imperial College London, London, United Kingdom

15:45 4C-2 A Novel Approach to ICF Ignition 457
Y. -M. Wang
Los Alamos National Laboratary, Los Alamos, NM, USA

16:00 4C-3 Ultra-High Density Deuterium Cluster Material for Deuteron Beam Driven Fast Ignition N/A
X. Yang[1], G. H. Miley[1], H. Hora[2], K. A. Flippo[3], D. T. Offermann[3], S. A. Gaillard[4]
[1]*Nuclear, Plasma, Radiological Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA*
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[4]*HelmholtzZentrum Dresden-Rossendorf, Dresden, Germany*

16:15 4C-4 Kinetic Effects of Burn in Magnetized and Unmagnetized Dense Plasmas 458
B. D. Appelbe, S. Taylor, J. Chittenden
Imperial College London, London, United Kingdom

16:30 4C-5 Thermonuclear Burn Wave Propagation Across an Ultrahigh Magnetic Field 459
A. L. Velikovich[1], J. L. Giuliani[1], R. W. Clark[2], S. T. Zalesak[2]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, USA*
[2]*Berkeley Research Associates, Beltsville, MD, USA*

16:45 4C-6 Field-Reversed Configuration Formation for High Energy Density Plasma Experiments* 460
G. A. Wurden[1], T. P. Intrator[1], J. A. Sears[1], T. Weber[1], T. C. Grabowski[2], J. H. Degnan[2], D. J. Amdahl[2], M. T. Domonkos[2], E. L. Ruden[2], W. M. White[2], D. G. Gale[3], M. R. Kostora[3], J. McCullough[3], W. Sommars[3], M. H. Frese[4], S. D. Frese[4], J. F. Camacho[4], S. K. Coffey[4], G. F. Kiuttu[5], S. R. Fueling[6], B. S. Bauer[6], A. G. Lynn[7]
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[5]*VariTech Services, Albuquerque, NM 87112, USA*
[6]*University of Nevada, Reno, Reno, NV 89557, USA*
[7]*University of New Mexico, Albuquerque, NM 87131, USA*

17:00 4C-7 Status and Functional Capabilities of ITER EC H&CD System 461
F. Gandini
ITER Organization, 13115 Saint Paul lez Durance, France

17:15 4C-8 Indian Contribution to the Development of High Current Negative Ion Beams N/A
A. K. Chakraborty[1], M. Bandyopadhyay[2], M. Singh[2]
[1]*DNB, ITER-India, Institute for Plasma Research, Ahmedabad, Gujarat, India*
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Session 4D: High Energy Density Matter II & Nonequilibrium Plasma Applications II (oral)
Tuesday, July 10 15:30-18:00, Sidlaw Auditorium (Level 3)
Session Chair: David Neely, *Central Laser Facility, STFC*

15:30 4D-1 Interaction of Radiatively Cooled Plasma Jets with Collimated, Supersonic Gas Flows 462
F. Suzuki-Vidal[1], S. V. Lebdev[1], J. Skidmore[1], G. F. Swadling[1], A. J. Harvey-Thompson[1], M. Bocchi[1], M. Bennett[1], S. N. Bland[1], G. Burdiak[1], J. P. Chittenden[1], P. de Grouchy[1], G. N. Hall[1], E. Khoory[1], L. Pickworth[1], S. Stafford[1], L. Suttle[1], K. Mahadevan[2], K. Wilson-Elliot[2], R. E. Madden[2], A. Ciardi[3], A. Frank[4]
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[2]*Alameda Applied Sciences Corporation, San Leandro, CA, USA*
[3]*Observatoire de Paris, Paris, France*
[4]*Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA*

15:45 4D-2 Temporal evolution of High Mach Number Electrostatic Shocks in laboratory Plasma 463

H. Ahmed[1], M. E. Dieckmann[1], D. Doria[1], L. Romagnani[2], G. Sarri[1], R. Prasad[1], K. Quinn[1], E. Ianni[1], M. Cerchez[3], A. L. Giesecke[3], M. Notley[4], I. Kourakis[1], M. Borghesi[1], O. Willi[3], D. Neely[4]
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[2]*LULI, Ecole Polytechnique, Paris, France*
[3]*Institute for Laser and Plasma Physics, University of Dusseldorf, Germany, Düsseldorf, Germany*
[4]*Central Laser Facility, STFC Rutherford Appleton Laboratory, Oxfordshire, United Kingdom*

16:00 4D-3 Extreme State of Water Produced by Converging Strong Shock Waves Generated Using Underwater Electrical Wire Array Explosion 464
Y. E. Krasik, S. Efimov, L. Gilburd, D. Sheftman, O. Antonov, D. Shafer, V. T. Gurovich, G. Bazalitsky
Physics Department, Technion, Haifa 32000, Israel

16:15 4D-4 Magnetic Field Topology Variations in Plasmas Generated by Radial Foils 465
P. A. Gourdain, A. Y. Gorenstein, J. B. Greenly, D. A. Hammer, J. E. Kim, B. R. Kusse, S. A. Pikuz, P. C. Schrafel, C. E. Seyler, T. C. Shelkovenko
Laboratory of Plasma Studies, Cornell University, Ithaca, NY, USA

16:30 4D-5 (invited) Nonthermal Bioplasma Characteristics of Reactive Radical Speciesâ€™ Density & Electron Temperature and Their Interactions with Biological Cells 466
E. H. Choi[1], N. KAushik[1], G. S. Park[1], K. Y. Baik[1], G. C. Kwon[1], B. J. Park[1], B. C. Park[1], K. J. Lee[1], R. Jung[1], Y. G. Han[1], G. Cho[1], H. S. Uhm[1], K. N. Kim[2]
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[2]*Research Center for Orofacial and Hard Tissue Regeneration, Yonsei University, Seoul, Korea*

17:00 4D-6 Cold Gas Plasma as a Novel Approach to Improve Wear Performance of UHMWPE 467
S. Perni[1], M. G. Kong[2], P. Prokopovich[3,4]
[1]*Department of Chemistry, University College London, London, United Kingdom*
[2]*School of Electronic, Electrical and System Engineering, Loughborough University, Loughborough, United Kingdom*
[3]*School of Engineering, Cardiff University, Cardiff, United Kingdom*
[4]*School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff, United Kingdom*

17:15 4D-7 Microdischarge Arrays as Sources of Intense Ultraviolet Radiation. 468
V. Martin, G. Bauville, V. Puech
Universite Paris Sud, Laboratoire de Physique des Gaz et des Plasmas, Orsay, France

17:30 4D-8 Observation of Plasma Sheath Modulation in the Plasma Bipolar Junction Transistor 469
T. J. Houlahan Jr., B. Li, C. J. Wagner, J. G. Eden
Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

17:45 4D-9 Temporal Dynamics of Microdischarges in a Dielectric Barrier Plasma Actuator 470
R. Barni, I. Biganzoli, C. Riccardi
Dipartimento di Fisica G.Occhialini, Università Degli Studi di Milano-Bicocca, Milano, Italy

Session 4E: Environmental and Industrial Applications II (oral)
Tuesday, July 10 15:30-17:45, Pentland Auditorium (Level 3)
Session Chair: Pierre Tardiveau, *LPGP, Université Paris-Sud, Orsay, France*

15:30 4E-1 Low Voltage Bubble Discharge in the Water Using Metal Clutched Porous Ceramic Electrode for Environmental Application 471
S. Muradia, Y. Mochizuki, A. Ogino, M. Nagatsu
Nanovision Technology, Shizuoka University, Hamamatsu, Japan

15:45 4E-2 Experimental and Computational Results of a Microwave Plasma/Catalyst System for CO2 Dissociation N/A
L. F. Spencer, A. D. Gallimore
Applied Physics, University of Michigan, Ann Arbor, MI, USA

16:00 4E-3 Plasma Polymerized Allylamine Functionalization of Quartz Particles for the Removal of Anionic Water Contaminants 472
K. L. Jarvis, P. Majewski
Mawson Institute, University of South Australia, Mawson Lakes SA, Australia

16:15 4E-4 Plasma-Catalytic Dry Reforming of Methane in Dielectric Barrier Discharge: Synergistic Effect at Low Temperatures 473
X. Tu, J. C. Whitehead
School of Chemistry, The University of Manchester, Manchester, United Kingdom

16:30 4E-5 Regeneration of Deactivated Au/TiO_2 Nanocatalysts During CO Oxidation by Using in-Situ O_2 and N_2/O_2 Plasma 474
C. Shi, X. Li, S. Zhang, J. Liu, A. Zhu
Dalian University of Technology, Dalian, China

16:45 4E-6 Modification of Adhesion Properties of Polymers via Atmospheric Plasma Exposures N/A
M. Nieto-Perez[1], A. Norberto-Espinosa[2], G. Ramos[1], R. Avalos-Zuniga[1]
[1]*Alternative Energy, CICATA-IPN Unidad Queretaro, Queretaro, Mexico*
[2]*UNAQ, Queretaro, Mexico*

17:00 4E-7 Higher-Efficiency CO2 Dissociation Using Nonthermal Plasma Desorption 475
M. Okubo[1], H. Yamada[1], T. Kuwahara[1], T. Kuroki[1], K. Yoshida[2]
[1]*Mechanical Engineering, Osaka Prefecture University, Sakai, Japan*
[2]*Electrical and Electronics, Osaka Institute of Technology, Osaka, Japan*

17:15 4E-8 Analysis of the Decomposition of Methylene Blue Dye under the Action of a Pulsed Dbd Plasma Jet 476
J. E. Foster[1], S. Gucker[1], I. Blankson[2], G. Adamovsky[2]
[1]*Nuclear Engineering, University of Michigan, Ann Arbor, MI, USA*
[2]*NASA Glenn Research Center, Cleveland, OH, United State*

17:30 4E-9 Comparing the Performance of Three Commercial Atmospheric Plasma Jets for the Activation of PET 477
D. P. Dowling[1], M. Donegan[1], D. T. O'Neill[1], V. Milosavljevic[2]
[1]*School of Mechanical and Materials Engineering, University College Dublin, Dublin, Ireland*
[2]*NCPST, Dublin City University, Dublin, Ireland*

Session PL5: Plenary -- IEEE Marie Sklodowska-Curie Award Winner
Wednesday, July 11 08:00-09:00, Pentland Suite (Level 3)
Session Chairs: Brendan Godfrey, *University of Maryland*
Peter Staecker, *IEEE*

8:00 PL5-1 Ecton Processes in a Vacuum Arc 478
G. Mesyats
Russian Academy of Sciences, P. N. Lebedev Physics Institute, Moscow, Russia

Session 5A: Computational Plasma Physics I (oral)
Wednesday, July 11 09:30-12:00, Tinto Room (Level 0)
Session Chair: Andrew J Christlieb, *Michigan State University*

9:30 5A-1 (invited) Conservative Semi-Lagrangian Vlasov Solvers on Mapped Meshes 479
M. Mehrenberger[1], M. Bergot[1], H. Sellama[1], E. Sonnendrucker[1], V. Grandgirard[2], G. Latu[2]
[1]*IRMA, Universite de Strasbourg et CNRS, Strasbourg, France*
[2]*CEA/IRFM, St Paul les Durance, France*

10:00 5A-2 Energy Transfer Processes in Burning Fusion Plasmas 480
D. J. Edie[1], J. Vorberger[1], S. J. Rose[2], D. O. Gericke[1]
[1]*Department of Physics, University of Warwick, Coventry, United Kingdom*
[2]*Department of Physics, Imperial College London, London, United Kingdom*

10:15 5A-3 High-Order Computational Method Applied to the Multi-Fluid Plasma Model 481
U. Shumlak, R. Lilly, S. Miller, N. Reddell, E. Sousa
University of Washington, Seattle, WA, USA

10:30 5A-4 Self-Consistent Modeling of the ITER RF Antenna, Edge Plasma, and Sheath Voltages 482
D. Smithe, T. Austin, T. Jenkins, J. Loverich, P. Stoltz
Tech-X Corporation, Boulder, CO, USA

10:45 5A-5 High order semi-Lagrangian methods for the kinetic description of plasmas 483
Y. Guclu[1], W. N. G. Hitchon[2], S. -Y. Chen[2]
[1]*Department of Mathematics, Michigan State University, East Lansing, MI, USA*
[2]*Department of Electrical and Computer Engineering, University of Wisconsin, Madison, WI, USA*

11:00 5A-6 Moment Preserving Adaptive Particle Weighting Scheme for PIC Simulations 484
J. -L. Cambier[1], R. S. Martin[2]
[1]*Spacecraft Propulsion Branch, Air Force Research Laboratory, Edwards AFB, USA*
[2]*ERC Inc, Air Force Research Laboratory, Edwards AFB, USA*

11:15 5A-7 High Order Discontinuous Galerkin Methods for Vlasov Models of Plasma 485
D. C. Seal, J. A. Rossmanith
Mathematics, University of Wisconsin, Madison, Madison, WI, USA

11:30 5A-8 Investigations of a Virtual Cathode under Complex Conditions Using Grid-Free Treecode Method 486
J. Krek[1], N. Jelic[2], J. Duhovnik[1]
[1]*LECAD laboratory, Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia*

[2]*Institute for Theoretical Physics, University of Innsbruck, Association EURATOM-ÖAW, Innsbruck, Austria*

11:45 5A-9 Parallel 2-D Simulation of Atmospheric- Pressure Plasma Jet Accelerated by a Temporal Multi-Scale Model 487
K. -M. Lin, M. -H. Hu, C. -T. Hung Hung, J. -S. Wu*
Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan

Session 5B: Plasma, Ion and Electron Sources (oral)
Wednesday, July 11 09:30-12:00, Moorfoot Room (Level 0)
Session Chairs: Joe W Kwan, *Lawrence Berkeley National Lab*
Larry R Grisham, *Princeton University Plasma Physics Laboratory*

9:30 5B-1 (invited) Performance of Present High Charge State ECR Ion Sources and Challenges for Next Generation Sources 488
C. M. Lyneis
Nuclear Science Dvision, Lawrence Berkeley National Laboratory, Berkeley,CA, USA

10:00 5B-2 Overview of the Iter Negative-Ion-Based Neutral Beam Injector and Its Development 489
L. R. Grisham[1], D. Boilson[2], H. P. L. de Esch[2], J. Graceffa[2], R. S. Hemsworth[2], M. Kuriyama[2], B. Schunke[2], L. Svenson[2], M. Tanaka[2]
[1]*Plasma Physics Laboratory, Princeton University, Princeton, N. J., USA*
[2]*Neutral Beam Section, ITER Organization, St Paul lez Durance Cedex, France*

10:15 5B-3 Ion-Ion Plasma in Propulsion and Processing Applications 490
N. Oudini, A. Meige, P. Chabert, A. Aanesland
Laboratoire de Physique des Plasmas (LPP), Ecole Polytechnique, 91128, Palaiseau, France

10:30 5B-4 Investigation and Modeling of Single Walled NanoTube Fiber Cathodes N/A
N. P. Lockwood[1], S. B. Fairchild[1], W. W. Tang[1], M. A. Lange[2]
[1]*Air Force Research Laboratory, Kirtland AFB, NM, USA*
[2]*TechFlow Scientific, Albuquerque, NM, USA*

10:45 5B-5 Analysis of Carbon Nanotube Fibers for use as Field Emission Cathodes 491
S. B. Fairchild[1], N. P. Lockwood[1], T. C. Back[2], M. A. Lange[3]
[1]*Air Force Research Laboratory, New Mexico, USA*
[2]*Universal Technology Corporation, Ohio, USA*
[3]*TechFlow Scientific, New Mexico, USA*

11:00 5B-6 Controlled Porosity Reservoir Cathode and Photocathode Research 492
L. Ives[1], L. Falce[1], G. Collins[1], D. Marsden[1], E. Montgomery[2], P. O'Shea[2], B. Riddick[2]
[1]*Calabazas Creek Research, Inc., San Mateo, CA, USA*
[2]*Inst. for Research in Electronics and Appl. Physics, University of Maryland, College Park, MD, USA*

11:15 5B-7 Two-Dimensional Arrays of Microwave-Generated Microplasmas 493
A. R. Hoskinson, C. Wu, J. Hopwood
Electrical and Computer Engineering, Tufts University, Medford, USA

11:30 5B-8 Development of Atmospheric Pressure Microwave Plasma System and Its Applications N/A

W. A. Toor, A. U. Baig, N. Shafqat
Systems Department, PIEAS, Islamabad, Pakistan

11:45 5B-9 Atmospheric Pressure Cold Argon/Oxygen Plasma Jet Assisted by Preionization of Syringe Needle Electrode 494
C. Ren
School of Physics and Optoelectronic Technology, Dalian University of Technology, Dalian, China

Session 5C: Particle Acceleration with Lasers and Beams (oral)
Wednesday, July 11 09:30-12:00, Fintry Auditorium (Level 3)
Session Chair: Stuart Mangles, *Imperial College London*

9:30 5C-1 (invited) Electron Acceleration / Deceleration and Hard X-Ray Generation N/A
S. Karsch[1,2], A. Popp[2], J. Wenz[2], K. Khrennikov[2], S. -W. Chou[1], M. Heigoldt[2], A. Buck[1], J. Xu[1], L. Veisz[1], F. Krausz[1], S. Bajlekov[3], N. Bourgeois[3], S. Hooker[3], S. Schleede[4], K. Achterhold[4], M. Bech[4], P. Thibault[4], F. Pfeiffer[4]
[1]*MPI for Quantum Optics, Garching, Germany*
[2]*Faculty of Physics, Ludwig-Maximilians-Universität , München, Garching, Germany*
[3]*Clarendon Laboratory, University of Oxford, Oxford, UK*
[4]*E17, Technische Universität München, Garching, Germany*

10:00 5C-2 Coupling Laser Driven Ion Beams to Accelerators - the Light Project 495
M. Roth
Inst. for Nuclear Physics, Technische Universitaet Darmstadt, Darmstadt, Germany

10:15 5C-3 Electron Acceleration in anti-Proton or Proton Driven Plasma Nonlinear Wakefields N/A
C. Huang[1], W. B. Mori[2], W. An[2], W. Lu[2], C. Joshi[2], P. Muggli[3]
[1]*Los Alamos National Laboratory, Los Alamos, NM, USA*
[2]*University of California Los Angeles, Los Angeles, CA, USA*
[3]*Max-Planck-Institut für Physik, Munich, Germany*

10:30 5C-4 Plasma Cavity Enhanced Ion Acceleration 496
G. G. Scott[1,2], J. S. Green[2], V. Bagnoud[3], C. Brabetz[3], D. C. Carroll[2], D. A. MacLellan[2], A. P. L. Robinson[1], M. Roth[4], C. Spindloe[1], F. Wagner[4], B. Zielbauer[3], P. McKenna[2], D. Neely[1,2]
[1]*Central Laser Facility, STFC Rutherford Appleton Laboratory, Chilton, Didcot, United Kingdom*
[2]*Department of Physics SUPA, University of Strathclyde, Glasgow, United Kingdom*
[3]*PHELIX group, Gesellschaft für Schwerionenforschung, Darmstadt, Germany*
[4]*Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany*

10:45 5C-5 Tapered Capillaries Applied in Laser Wakefield Acceleration 497
M. Wiggins, S. Abuazoum, G. Vieux, G. H. Welsh, R. C. Issac, R. Islam, B. Ersfeld, E. Brunetti, S. Cipiccia, D. W. Grant, D. A. Jaroszynski
SUPA, University of Strathclyde, Glasgow, United Kingdom

11:00 5C-6 Laser Driven Ion Source from Ultrathin Foils and Its Biomedical Application 498
J. Bin[1,2], W. Ma[1], K. Allinger[1], D. Kiefer[1,2], P. Hilz[1], S. Reinhardt[1], W. Assmann[1], D. Habs[1,2], J. Schreiber[1,2], G. A. Drexler[3], A. A. Friedl[3], N. Humble[4], D. Michalski[4], M. Molls[4], T. E. Schmid[4], O. Zlobinskaya[4], J. J. Wilkens[4]
[1]*Department für Physik, Ludwig-Maximilians-Universität München, Garching b. Muenchen, Germany*
[2]*Max-Planck-Institut für Quantenoptik, Garching b. Muenchen, Germany*

[3]*Department of Radiation Oncology, Ludwig-Maximilians-Universität München, Munich, Germany*
[4]*Department of Radiation Oncology, Technische Universität München, Munich, Germany*

11:15 5C-7 High-Energy Electron Beams Produced by a Laser Wakefield Accelerator* **499**
N. C. Lopes[1], C. Russo[1], R. A. Bendoyro[1], J. Jiang[1], J. M. Dias[1], N. Lemos[1], J. Vieira[1], L. Silva[1], M. Bloom[2], J. Cole[2], S. Kneip[2], S. P. D. Mangles[2], Z. Najmudin[2], D. R. Symes[3], P. Foster[3], R. Pattathil[3], S. Hawkes[3], C. Hooker[3], B. Parry[3], O. Chekhlov[3], Y. Tang[3]
[1]*Grupo de Lasers e Plasmas, Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Lisboa, Portugal*
[2]*Blackett Laboratory, Imperial College London, London, UK*
[3]*Central Laser Facility, STFC, Rutherford Appleton Laboratory, Didcot, UK*

11:30 5C-8 Microbunching of Charged Partcile Beams Using Plasma Wakefield **N/A**
J. A. Holloway
HEP, University College London, London, United Kingdom

11:45 5C-9 Generation of GeV Energy Electrons from Laser Wakefield Acceleration via Ionization Induced Injection **500**
M. Z. Mo[1], A. Ali[1], N. Naseri[1], W. Rozmus[1], R. Fedosejevs[1], S. Fourmaux[2], P. Lassonde[2], J. -C. Kieffer[2], P. -E. Masson-Laborde[3]
[1]*University of Alberta, Edmonton, AB, Canada*
[2]*INRS-EMT, University of Quebec, Varennes, Quebec, Canada*
[3]*CEA, DAM, Arpajon, France*

Session 5D: Nonequilibrium Plasma Applications III (oral)
Wednesday, July 11 09:30-12:00, Sidlaw Auditorium (Level 3)
Session Chair: Gregori Fridman, *Drexel University*

9:30 5D-1 (invited) Ultra-Short Pulsed Corona Discharges under Strong Overvoltage for Ignition and Air Treatment **501**
P. Tardiveau
Laboratoire de Physique des Gaz et des Plasmas, Universite Paris-Sud, Orsay, France

10:00 5D-2 Enhancement of Radical Generation in a Round Helium Atmospheric-Pressure Plasma Jet by an On-Time Modulated Power Source **502**
C. -T. Liu, Y. -W. Yang, M. -H. Hu, K. -M. Lin, C. -J. Wu, J. -S. Wu*
Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan

10:15 5D-3 The Production and Measurement of Oh in Atmospheric Pressure Plasmas and Its Use for Applications **503**
P. Bruggeman, T. Verreycken, R. van der Horst, R. Mensink
Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands

10:30 5D-4 Investigation of Nanosecond Repetitively Pulsed Discharges in Water Vapor for Hydrogen Production **504**
F. P. Sainct[1,2], D. A. Lacoste[1,2], M. J. Kirkpatrick[3], E. Odic[3], C. O. Laux[1,2]
[1]*Laboratoire E.M2.C. - CNRS UPR 288, Chatenay-Malabry, France*
[2]*Ecole Centrale Paris, Chatenay-Malabry, France*
[3]*Department of Power and Energy systems, SUPELEC - E3S, Gif-sur-Yvette, France*

10:45 5D-5 Biomethane Reforming in DBD Nonequilibrium Plasma **505**
M. Dors, A. Berendt, J. Mizeraczyk

Centre for Plasma and Laser Engineering, Institute of Fluid-Flow Machinery, Gdansk, Poland

11:00 5D-6 The Reactive Species Production and Ignition of the Hydrogen- Oxygen and Hydrogen-Air Mixtures by RF DBD 506
I. Shkurenkov, Y. Mankelevich, T. Rakhimova
Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russian Federation

11:15 5D-7 Low Energy Sparks in Dielectric Liquids 507
R. Geiger, D. Staack
Mechanical Engineering, Texas A&M University, College Station, TX, USA

11:30 5D-8 Mode Transition of Aqua-Plasma Generated by Micro Metal Tip Surrounded Dielectric Material in Electrolyte 508
S. -Y. Yoon[1], G. -H. Kim[1], S. -H. Lee[2], Y. -K. Hong[2], J. -W. Hong[3]
[1]*Department of Nuclear Engineering, Seoul National University, Plasma Application Laboratory, Seoul, South Korea*
[2]*Department of Rehabilitation, Korea University, Rehabilitation, Seoul, South Korea*
[3]*Department of Control and Instrumentation, Control and Instrumentation, Seoul, South Korea*

11:45 5D-9 Bubble to Jetting Mode Transition Mechanism of Plasmas in Salt Solutions Sustained by Pulsed DC Power 509
A. -H. Hsieh, H. -W. Chang, C. -C. Hsu
Chemical Engineering, National Taiwan University, Taipei, Taiwan

Session 5E: Plasma Thrusters (oral)
Wednesday, July 11 09:30-12:00, Pentland Auditorium (Level 3)
Session Chair: John E. Foster, *University of Michigan*

9:30 5E-1 (invited) Rotating Spoke Phenomena in Hall Thrusters 510
Y. Raitses[1], L. Ellision[1], M. Griswold[1], N. J. Fisch[1], R. Schneider[2], K. Matyash[2], S. Mazouffre[3], A. L. Lejeun[3], S. Tsikata[3]
[1]*Princeton Plasma Physics Laboratory, Princeton, NJ, USA*
[2]*Ernst-Moritz-Arndt University, Greifswald, Germany*
[3]*ICARE - CNRS, Orléans, France*

10:00 5E-2 (invited) Two New Concepts in RF Plasma Sources for Space Travel. 511
C. Charles
Space Plasma, Power and Propulsion Laboratory, RSPE, The Australian National University, ACT0200, Australia

10:30 5E-3 Enhanced Thrust from a Plasma Thruster Due to Collisions with Neutrals 512
A. Fruchtman, G. Makrinich
H.I.T. - Holon Institute of Technology, Holon, Israel

10:45 5E-4 Effect of Inductive Coil Geometry on the Operating Characteristics of Plasma Thruster 513
A. Hallock[1], K. Polzin[2], G. Emsellem[3]
[1]*Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ, USA*
[2]*Propulsion Research and Technologies, NASA MSFC, Huntsville, AL, USA*
[3]*Research and Development, The Elwing Company, Princeton, NJ, USA*

11:00 5E-5 Research of Heaterless Thermionic Hollow Cathode for Micro Electric Propulsion Systems 514
V. Vekselman[1], Y. Krasik[1], S. Gleizer[1], A. Warshavsky[2], L. Rabinovich[2], A. Loyan[3]
[1]*Physics Department, Technion, Haifa, Israel*
[2]*Rafael, Haifa, Israel*
[3]*National Aerospace University, Kharkiv, Ukraine*

11:15 5E-6 Plasma Properties in the Far-Field Plume of a Radiofrequency Plasma Thruster 515
A. Shabshelowitz, A. D. Gallimore
Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI, USA

11:30 5E-7 Development of a New Time-Resolved Laser-Induced Fluorescence Diagnostic 516
C. J. Durot[1], A. D. Gallimore[2]
[1]*Applied Physics, University of Michigan, Ann Arbor, MI, USA*
[2]*Aerospace Engineering, University of Michigan, Ann Arbor, MI, USA*

11:45 5E-8 Micro-Cathode Thruster for Cube Satellite Propulsion 517
T. Zhuang, A. Shashurin, M. Keidar
Department of Mechanical and Aerospace Engineering, The George Washington University, DC, USA

Session PL6: Plenary 6
Wednesday, July 11 13:00-14:00, Pentland Suite (Level 3)
Session Chair: John Luginsland, *AFOSR*

13:00 PL6-1 Transient Plasma: Energy, Engines, and Aerospace Applications 518
P. T. Vernier, C. Jiang
University of Southern California, Los Angeles, CA, USA

Session 3P: Vacuum Microelectronics (poster session)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Claudio Paoloni, *University of Rome Tor Vergata, Italy*

3P-1 Investigation of Current Transmission Through Insulating Funnels via Secondary Electron Emission 519
T. Rowe, M. Pearlman, J. Browning
Electrical and Computer Engineering, Boise State University, Boise, ID, USA

3P-2 Narrow Corrugated Waveguide BWO for THz Signal Generation 520
M. Mineo, C. Paoloni
Electronic Engineering, University of Rome Tor Vergata, Italy, Rome, Italy

3P-3 Parametric Survey of Space-Charge Modulations in Vacuum Microdiodes 521
A. Valfells[1], P. Jonsson[1], A. Manolescu[1], A. Pedersen[2]
[1]*Reykjavik University, Reykjavik, Iceland*
[2]*University of Iceland, Reykjavik, Iceland*

3P-4 Study of Geometrical Tolerances of an Electron Gun for THz Vacuum Tube 522
G. Ulisse, F. Brunetti, A. Di Carlo
University of Rome "Tor Vergata", Rome, Italy

Session 3P: Dusty plasmas (poster session ~ 2)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chairs: Dmitry Samsonov, *The University of Liverpool*
Celine Durniak, *The University of Liverpool*

3P-5 Growth of Nanometer Sized Particles in a Dc Discharge 523
L. Woerner[1,2], J. Berndt[2], E. Kovacevic[2], H. Thomas[1], M. Thoma[1], L. Boufendi[2], G. Morfill[1]
[1]*Max Planck Institute for Extraterrestrial Physics, Garching, Germany*
[2]*Universite d'Orleans, GREMI, Orleans, France*

3P-6 Dislocations Dynamics During Plastic Deformations of Complex Plasma Crystals 524
C. Durniak, D. Samsonov, J. Ralph
Electrical Engineering and Electronics, The University of Liverpool, Liverpool, United Kingdom

3P-7 Complex Plasmas — a Kinetic View on Thermo- and Hydro-Dynamics 525
R. Sütterlin, R. Heidemann, S. Zhdanov
Max-Planck-Institute for Extraterrestrial Physics, Garching, Germany

3P-8 Kelvin-Helmholtz Instability in a Partially Ionized Dusty Plasma 526
N. Kumar[1], V. Kumar[1], H. Sikka[2], A. Kumar[3]
[1]*Department of Mathematics, M.M.H. College, Ghaziabad, Ghaziabad, Uttar Pradesh, India*
[2]*Department of Mathematics, Maharaja Agrasen Institute of Technology, Delhi, Delhi, India*

[3]*Department of Applied Sciences, Vishveshwarya Institute of Engineering and Technology, G. B.Nagar, Uttar Pradesh, India*

3P-9 Instabilities in a Complex DC Plasma 527
M. Kretschmer[1], T. Antonova[1], S. Zhdanov[1], M. Thoma[1], H. Thomas[1], G. Morfill[1], A. Usachev[2]
[1]*Max-Planck-Institut für Extraterrestrische Physik, Garching, Germany*
[2]*Joint Institute for High Temperatures, Moscow, Russia*

3P-10 Interaction of 2D Plasma Crystals with Upstream Charged Particle: Mach Cones and Channeling Effect 528
C. -R. Du, A. V. Ivlev, V. Nosenko, H. M. Thomas, G. E. Morfill
Max Planck Institute for Extraterrestrial Physics, Garching, Germany

3P-11 Nonlinear Wave Propagation in Strongly Correlated Dusty Plasmas 529
N. Chakrabarti[1], S. Ghosh[2]
[1]*Plasma Physics, Saha Inst. of Nuclear Physics, Kolkata, India*
[2]*Applied Math Department, University of Kolkata, Kolkata, India*

3P-12 Experimental Study of Dust Interactions in Plasma of RF Discharge 530
E. A. Lisin, O. S. Vaulina, O. F. Petrov, V. E. Fortov
Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russian Federation

3P-13 Chain-like Dust Particles Structure Formation and Diagnostics (Numerical Simulation) 531
E. A. Lisin, I. I. Lisina, O. S. Vaulina
Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russian Federation

3P-14 3D Diagnostic of Complex Plasmas 532
E. Hall, D. Samsonov
Department Electrical Engineering and Electronics, University Of Liverpool, Liverpool, United Kingdom

3P-15 Nucleation of Nanodiamond at Atmospheric Pressure via Microplasma Synthesis N/A
A. Kumar, P. A. Lin, A. Xue, R. M. Sankaran
Chemical Engineering, Case Western Reserve University, Cleveland, Ohio, USA

3P-16 Phase Transitions in 2D Plasma Crystals Driven by Tunable Interactions 533
P. C. Brandt, A. V. Ivlev, G. E. Morfill
Max-Planck-Institut für Extraterrestrische Physik (MPE), Garching, Germany

3P-17 Small Amplitude Solitary Structures and Double Layers in a Dusty Plasma with Superthermal Electrons N/A
N. S. Saini, S. Shalini
Department of Physics, Guru Nanak Dev University, Amritsar, Punjab, India

3P-18 Evolution of Dust Void in Cryogenic Plasma N/A
A. A. Samarian[1], M. Chikasue[2], O. Ishihara[2]
[1]*School of Physics, University of Sydney, Sydney, Australia*
[2]*Faculty of Engineering, Yokohama National University, Yokohama, Japan*

Session 3P: Computational Plasma Physics (poster session ~ 2)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Andrew J Christlieb, *Michigan State University*

Session 3P: THz Sources & Applications (poster session)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Wenlong He, *Department of Physics SUPA, University of Strathclyde, Glasgow, UK*

Y. Liu[1], L. -K. Ang[2,1]
[1]*Division MicroElectronics/Sch. EEE, Nanyang Technological University, Singapore, Singapore*
[2]*bSingapore University of Technology and Design, Singapore, Singapore*

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R. H. Jackson, M. E. Read, T. Bui, L. Ives
Calabazas Creek Research, San Mateo, CA, USA

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H. Yin[1], A. W. Cross[1], D. Bowes[1], W. He[1], K. Ronald[1], A. D. R. Phelps[1], D. Li[2], X. Chen[2]
[1]*Physics, University of Strathclyde, Glasgow, UK*
[2]*Electronic Engineering and Computer Science, Queen Mary, University of London, London, UK*

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A. V. Arzhannikov[1,2], A. V. Burdakov[1,3], V. S. Burmasov[1,2], I. A. Ivanov[1,2], M. V. Ivantsivsky[1,3], S. A. Kuznetsov[1,2], K. I. Mekler[1], S. S. Popov[1,2], S. V. Polosatkin[1,2], V. V. Postupaev[1,2], A. F. Rovenskikh[1], S. L. Sinitsky[1,2], V. F. Sklyarov[1,3], M. K. A. Thumm[2]
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[2]*Ministry of Education and Science, Novosibirsk State University, Novosibirsk, Russian Federation*
[3]*Ministry of Education and Science, Novosibirsk State Technical University, Novosibirsk, Russian Federation*

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I. Rathi
MWT Div., CEERI, Pilani, Rajasthan, India

3P-42 Experiment Study on Terahertz Wave Transmission Through Plasma 557
J. Sun
Science and Technology on Electromagnetic Scattering Laboratory, Beijing, China

3P-43 Optically-Controlled Plasma Switch for Integrated Terahertz Applications 558
E. Episkopou, S. Papantonis, S. Lucyszyn
Centre for Terahertz Science and Engineering, Imperial College London, London, United Kingdom

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M. P. Kirley, N. Carlsson, B. B. Yang, J. H. Booske
Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA

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P. McElhinney, C. Donaldson, W. He, L. Zhang, K. Ronald, A. D. R. Phelps, A. W. Cross
Department of Physics, University of Strathclyde, Glasgow, United Kingdom
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J. Gardelle[1], P. Modin[1], J. T. Donohue[2]
[1]*CESTA, CEA, Le Barp, France*
[2]*CENBG, CNRS, Gradignan, France*

Session 3P: Plasma, Ion and Electron Sources (poster session)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Joe W Kwan, *Lawrence Berkeley National Lab*

Session 3P: Plasma Medicine (poster session ~ 2)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: XinPei Lu, *Huazhong University of Science and Technology, China*

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[2]*Microbiology subdepartment, Siberian State Medical University, Tomsk, Russian Federation*

3P-66 Assessing Cellular DNA Damage from the Helium Plasma Needle 579
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Basic Science, Instituto Nacional de Investigaciones Nucleares, Mexico, D.F., Mexico

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J. -S. Kwon[1], Y. H. Kim[2], E. H. Choi[2], K. -N. Kim[1]
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[2]*Kwangwoon University, Plasma Bioscience Research Center, Seoul, South Korea*

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I. Motrescu[1], M. A. Ciolan[2], A. Ogino[2], M. Nagatsu[2]
[1]*Research Institute of Electronics, Shizuoka University, Hamamasu, Shizouka, Japan*
[2]*Graduate School of Science and Technology, Shizuoka University, Hamamasu, Shizouka, Japan*

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J. -S. Oh, J. L. Walsh, J. W. Bradley
Electrical Engineering & Electronics, University of Liverpool, Liverpool, United Kingdom

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[2]*Plasma Bioscience Research Center, Kwangwoon University, Seoul, South Korea*

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Y. Sakiyama[1], M. Orazov[1], D. Graves[1], G. Morfill[2]
[1]*University of California, Berkeley, Berkeley, CA, USA*
[2]*Max Planck Institute for Extraterrestrial Physics, Garching, Germany*

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Y. Sakiyama, M. Pavlovich, D. Clark, D. Graves
University of California, Berkeley, Berkeley, CA, USA

3P-73 The Collaboration of anti-Oxidative Systems in Yeast Cells after Cold Plasma Treatment 586
H. Feng[1], Y. Liang[1], R. Ma[2], F. Li[2], Q. Zhang[2], W. Zhu[3], K. H. Berker[4], J. Fang[2], J. Zhang[2]
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[4]*Department of Applied Physics, Polytechnic Institute of New York University, New York, USA*

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S. Kim[1], S. -H. Uhm[1], D. -H. Song[1], J. -G. Han[2], C. -K. Kim[1], K. -M. Kim[1], K. -N. Kim[1]
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R. Ma[1], H. Wu[2], P. Sun[2], H. Feng[2], H. Zhou[3], R. Wang[1], Y. Liang[2], J. Lu[4], W. Zhu[5], J. Zhang[1], J. Fang[1]
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[5]*Department of Applied Science and Technology and Center, Saint Peter's College, New Jersey, USA*

3P-83 Cold Plasma Therapy for Enterococcus Faecalis Biofilm Infected Tooth Root Canal in Vitro 596

K. Sun[1], J. Pan[2], J. Wang[3], J. Zhang[1], J. Fang[1], D. W. Zhu[4]
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[4]*Department of Applied Science and Technology and Center, Saint Peter's, New Jersey, USA*

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D. Liu[1], C. Chen[1], A. Yang[1], X. Wang[1], M. Rong[1], F. Iza[2], M. Kong[2]
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[2]*School of Electronic, Electrical and System Engineering, Loughborough University, Leicestershire, UK*

3P-85 Non-Thermal Plasma Treated Water as Mouthwash: Evaluation with Streptococcus Mutans Biofilm on Tooth Surface 598

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E. V. Sysolyatina[1], E. N. Kobzev[2], G. V. Kireev[2], Y. A. Rakitsky[2], V. P. Kholodenko[2], V. A. Chugunov[2], N. I. Trushkin[3], M. E. Grushin[3], A. V. Petryakov[3], Y. S. Akishev[3]
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[3]*SRC RF TRINITI, Troitsk, Russian Federation*

3P-87 Modeling of Inactivation of Surface Borne Microorganisms Occuring on Seeds by Cold Atmospheric Plasma (CAP) N/A

A. Mitra, T. Shimizu, Y. -F. Li, J. L. Zimmermann, G. E. Morfill
Max-Planck Institut für Extraterrestrische Physik, D-85741 Garching, Germany, Garching, Germany

3P-88 Amine Functional Groups Incorporation for Improving Biocompatibility Using Nitrogen-Based Atmospheric Pressure Plasma Jet Treatment N/A

Y. -W. Yang[1], C. -T. Liu[1], G. -C. Liao[1], M. -H. M. -H. Chiang[1], C. -C. Wen[2], J. -Y. Wu[2], J. -S. Wu*[1]
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Session 3P: Nonequilibrium Plasma Applications (poster session ~ 2)

Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Vincent Puech, *University Paris-Sud 11*

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A. Sadeghnejad, A. Aroujalian, A. Raisi, S. Fazel
Food Process Engineering and Biotechnology Research Center, Amirkabir University of Technology, Tehran, Iran

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S. Yang[1], J. Tang[2]
[1]*Alabama A&M University, Normal, AL, USA*
[2]*Hunan First Normal College, Changsha, Hunan, China*

3P-91 Development of Hydrophobic Silica Powders Using Plasma Polymerization Technology 602
B. AkhavanTabatabae[1,2], K. Jarvis[2], P. Majewski[1,2]
[1]*Mawson Institute, University of South Australia, Adelaide, SA, Australia*
[2]*School of Advanced Manufacturing and Mechanical Engineering, University of South Australia, Adelaide, SA, Australia*

3P-92 Film Deposition Using a Non-Thermal Microwave-Generated Microplasma at Atmospheric Pressure 603
A. R. Hoskinson, M. Grunde, M. Nobel, J. Hopwood
Electrical and Computer Engineering, Tufts University, Medford, USA

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D. X. Wang, Q. Y. Yang, Y. Guo, K. Ding, Y. C. Shi, J. J. Shi, J. Zhang
Donghua University, Shanghai, China

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School of Engineering, Nanotechnology & Integrated Bio-Engineering Centre (NIBEC), University of Ulster, Belfast, United Kingdom

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B. Arevalo-Torres, M. Nieto-Perez, R. C. Pless-Elling, G. Ramos
Alternative Energy, CICATA-IPN Unidad Queretaro, Queretaro, Mexico

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Z. Liu, Q. Chen, Z. Wang, L. Sang
Beijing Institute of Graphic Communication, Beijing, China

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Tech-X Corporation, Boulder, CO, USA

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Faculty of Chemistry, Brno University of Technology, Brno, Czech Republic

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J. Kousal[1], O. Polonskyi[1], P. Solar[1], H. Biederman[1], J. Blazek[2], P. Bartos[2]
[1]*Faculty of Mathematics and Physics, Charles University in Prague, Prague, Czech Republic*
[2]*Faculty of Education, University of South Bohemia, České Budějovice, Czech Republic*

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M. Predki, M. Shihab, A. Wollny, R. P. Brinkmann
Theoretical Electrical Engineering, Ruhr Universität Bochum, Bochum, Germany

3P-101 Control of Plasma Uniformity in Microwave Discharges by Using Hyper Simulator N/A

Y. Yasaka, N. Tobita, K. Kobayashi, R. Taniguchi, H. Takeno
Electrical and Electronic Eng., Kobe University, Kobe, Japan

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H. -J. You, S. Jang
Plasma Technology Research Center, National Fusion Research Institute, Daejeon, South Korea

3P-103 Preparation of Proton Exchange Membranes by Plasma Grafting of Styrene on PTFE Powder 613

Y. Lan, C. Cheng, Y. D. Meng
Division of Low-Temperature Plasma Application, Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui, China

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H. Barankova, L. Bardos
Angstrom Laboratory, Uppsala University, Uppsala, Sweden

3P-105 The Modification of Lithium Ion Battery Separator by SiOx Coatings 614

Z. Wang, L. Sang, Z. Liu, Q. Chen
Laboratory of Plasma Physics and Materials, Beijing Institute of Graphic Communication, Beijing, China

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S. Jang[1], H. -J. You[1], Y. -W. Kim[1], I. U. Hwang[2], J. Y. Park[2], H. Lee[2]
[1]*National Fusion Research Institute, Daejeon, South Korea*
[2]*Kookje Electric Korea, Pyeongtaek, South Korea*

3P-107 Effect of Wall Electrode on Controlling Phase-Synchronized Triode Capacitively Coupled Plasma Source N/A

M. -S. Choi[1], S. -H. Lee[1], G. -H. Kim[1], D. Sung[2]
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[2]*Mechatronics and Manufacturing Technology Center, Samsung Electronics Co. Ltd., Suwon, South Korea*

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M. Boselli[1], V. Colombo[1], E. Ghedini[1], M. Gherardi[1], R. Laurita[1], F. Rotundo[1], P. Sanibondi[1], M. Minelli[2], M. G. De Angelis[2]
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[2]*Alma Mater Studiorum - Université di Bologna, Department of Chemical Engineering, Bologna, Italy*

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A. Grabovskiy[1], A. Mustafaev[2], V. Demidov[3], I. Kaganovich[4], I. Schweigert[5]
[1]*Saint Petersburg State Mining University, Saint Petersburg, Russian Federation*
[2]*Saint Petersburg State Mining University, Saint Petersburg, Russian Federation*
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[4]*Princeton Plasma Physics Laboratory, Princeton, USA*
[5]*Institute of Theoretical and Applied Mechanics, Novosibirsk, Russian Federation*

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A. Greb[1], K. Niemi[1], D. O'Connell[1], G. J. Ennis[2], N. MacGearailt[2], T. Gans[1]
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[2]*Intel Ireland Ltd., Leixlip, Ireland*

3P-111 A Thermodynamic Model for Determination of the Vibrational Temperature in Non Thermal Plasmas 619
A. C. Piquemal[1], G. Boudarham[1], A. Gleizes[2], P. Teulet[2]
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Session 3P: Particle Acceleration with Lasers and Beams (poster session)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Stuart Mangles, *Imperial College London*

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M. K K, V. K. Tripathi
Physics, IIT Delhi, New Delhi, India

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M. R. Islam, S. M. Wiggins, B. Ersfeld, S. Cipiccia, E. Brunetti, G. H. Welsh, D. A. Zaroszynski
Physics, University of Strathclyde, Glasgow, United Kingdom

3P-114 Acceleration Dynamics in Laser-Driven Wakefields N/A
A. Popp[1], R. Weingartner[1], S. -W. Chou[1], M. Heigoldt[1], K. Khrennikov[1], J. Wenz[1], F. Krausz[1,2], S. Karsch[1,2]
[1]*LEX/LMU Munich, Garching, Germany*
[2]*Max-Planck-Institute of Quantum Optics, Garching, Germany*

3P-115 Electron Acceleration by a Plasma Wave in a Density Modulated Plasma 622
D. N. Gupta
Department of Physics and Astrophysics, University of Delhi, Delhi-110007, Delhi, India

3P-116 A Computational Investigation of Synchrotron Radiation Generation in Laser Wakefield Acceleration Experiments 623
P. G. Cummings, A. G. R. Thomas
Center for Ultrafast Optical Sciences, University of Michigan, Ann Arbor, MI, USA

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[3]*Central Laser Facility, STFC Rutherford Appleton Laboratory, Harwell, United Kingdom*

3P-118 Fusion of Rare Isotopes by Laser Driven Ions 625
D. P. Garuchava, K. Sigua
Plasma Physics, I.Javakhishvili State University, Institute of Physics, Tbilisi, Georgia

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A. S. Nindrayog[1,2], A. Macchi[2,1], F. Pegoraro[1,2]
[1]*Dipartimento di Fisica "Enrico Fermi", Universita di Pisa, Pisa, Italy*
[2]*Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche, Research Unit, Pisa, Italy*

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J. Badziak, S. Jablonski, P. Raczka
Division of Laser Plasma, Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland

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R. J. Mason, R. J. Faehl, R. C. Kirkpatrick
Research Applications Corporation, Los Alamos, NM, USA

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Yerevan State University, Centre of Strong Fields Physics, Yerevan, Armenia

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R. Capdessus, E. d'Humieres, V. T. Tikhonchuk
CELIA (Centre Lasers Intenses et Applications), Talence, France

3P-124 Generation of Relativistic Ion Beams Driven by an Ultraintense Laser N/A
J. Domanski, J. Badziak, S. Jablonski
Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland

3P-125 Wave Generation by Bessel Polarized Laser Beams in Plasma Beat-Wave Accelerator N/A
A. M. Gouda, B. Mohamed
Atomic Energy Authority, Cairo, Egypt

Session 3P: Optical and X-ray Diagnostics (poster session)
Wednesday, July 11 14:00-15:15, Cromdale Hall (Level -2)
Session Chair: Nader Sadeghi, *University Grenoble, France*

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C. L. Hoyt, S. A. Pikuz, T. A. Shelkovenko, D. A. Hammer
Laboratory of Plasma Studies, Cornell University, Ithaca, USA

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K. S. Blesener[1], I. C. Blesener[1], D. A. Hammer[1], R. Doron[2], Y. Maron[2], E. Kroupp[2], V. Bernshtam[2], L. Weingarten[2], Y. Zarnitsky[2]
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[2]*Weizmann Institute of Science, Rehovot, Israel*

3P-138 Ultraviolet Laser Scattering in Atmospheric Microdischarges 643
S. F. Adams[1], J. E. Caplinger[2], J. M. Williamson[2]
[1]*Air Force Research Laboratory, WPAFB, OH, USA*
[2]*UES, Inc., Dayton, OH, USA*

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J. Choi
POSCO, Pohang, South Korea

3P-140 Characteristics of Plasma in Electrical Explosion of Aluminum Wire 644
J. Zhao[1], Q. Zhang[1], W. Yan[1], L. Liu[1], X. Liu[1], Q. Zhou[1], A. Qiu[1,2]
[1]*High Voltage Division, School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China*
[2]*Northwest institute of Nuclear Technology, Xi'an, Shaanxi, China*

3P-141 Fluid-Dynamic Characterization of Atmospheric Pressure Non-Equilibrium Plasma Sources for Biomedical Applications 645
M. Boselli, V. Colombo, E. Ghedini, M. Gherardi, R. Laurita, F. Rotundo, P. Sanibondi
Alma Mater Studiorum - Université di Bologna, Department of Mechanical Engineering, Bologna, Italy

3P-142 Spatial Distribution of Microplasma in Small Discharge Gaps 646
M. G. Blajan, K. Shimizu
Innovation and Joint Research Center, Shizuoka University, Hamamatsu, Japan

3P-143 Laser Spectroscopic Techniques for Diagnosis of Reactive Plasmas 647
H. Ding, C. Feng, C. Li
School of Physics and Optical Electronic Technology, Dalian University of Technology, Dalian, Liaoning, China

Session 3P: Microwave and FIR Diagnostics (poster session)
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Session Chair: Henrik Bindslev, *Aarhus University*

3P-144 Feedback control of the plasma position at ASDEX Upgrade using microwave reflectometry N/A
J. Santos[1], L. Guimarãis[1], M. Zilker[2], W. T. Treutterer[2], M. Manso[1]
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[2]*Max-Planck Institut fuer Plasmaphysik, Garching, Germany*

Session 6A: Basic Phenomena II (oral)
Wednesday, July 11 15:30-17:30, Tinto Room (Level 0)
Session Chair: Rod W Boswell, *Australian National University*

Session 6B: Slow wave Devices and Non-Fusion Microwave Systems (oral)
Wednesday, July 11 15:30-17:45, Moorfoot Room (Level 0)
Session Chairs: Richard G Carter, *Lancaster University*
Kevin Ronald, *University of Strathclyde*

M. A. Franzi[1], R. Gilgenbach[1], Y. Lau[1], D. Chalenski[1], D. French[2], B. Hoff[2], D. Simon[1], J. Luginsland[3]
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[2]*Air Force Research Lab, Kirtland AFB, Albuquerque, NM, USA*
[3]*Air Force Office of Scientific Research, Arlington, VA, USA*

16:00 6B-2 Fabrication and Testing of a W-Band Sheet Beam Extended Interaction Klystron (EIK) 656
J. A. Pasour[1], E. L. Wright[2], A. Balkcum[3], K. T. Nguyen[2], B. Levush[1]
[1]*Naval Research Laboratory, Washington, DC, USA*
[2]*Beam Wave Research, Inc., Bethesda, MD, USA*
[3]*CPI, Inc., Palo Alto, CA, USA*

16:15 6B-3 High-Frequency Devices with Weakly Relativistic Hollow Thin-Wall Electron Beams 657
A. Fedotov, V. Bratman, P. Makhalov
Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

16:30 6B-4 2D Modeling of TWTs Based on Serpentine and Folded Waveguide Structures 658
I. A. Chernyavskiy[1], A. N. Vlasov[1], B. Levush[1], T. M. Antonsen[2]
[1]*Vacuum Electronics Branch, U.S. Naval Research Laboratory, Washington, DC, USA*
[2]*SAIC, McLean, VA, USA*

16:45 6B-5 High-Power Broadband Ka-Band Cascaded-TWT Development 659
D. Pershing[1], K. Nguyen[1], D. K. Abe[2], L. Ludeking[3], B. Levush[2], E. Wright[1], J. Pasour[2], J. Petillo[4], D. Chernin[4]
[1]*Beam-Wave Research Inc., Bethesda, MD, USA*
[2]*Code 6840, Naval Research Laboratory, Washington, DC, USA*
[3]*ATK-Mission Research, Newington, VA, USA*
[4]*Science Applications Intl. Corp., McLean, VA, USA*

17:00 6B-6 Active X-Band Pulse Compressor Using Electron-Beam Switching 660
S. H. Gold[1], A. L. Vikharev[2], A. M. Gorbachev[2], O. A. Ivanov[2], M. Lobaev[2], A. K. Kinkead[3]
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[2]*Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia*
[3]*Icarus Research, Bethesda, MD, USA*

17:15 6B-7 The Nonrelativistic Gyrotron 661
I. Alexeff[1], B. P. Yefimov[2], S. Kishko[2], S. Pomarenko[2], A. Kuleshov[2]
[1]*University of TN, Knoxville, TN 37916, Knoxville, TN, USA*
[2]*Usikov Institute of Radiophysics and Electronics, Kharkov, Ukraine*

17:30 6B-8 A 2d Model for the Electromagnetic-Plasma Interaction in a Surfatron Source N/A
M. Jimenez_Diaz, J. van Dijk, E. A. D. Carbone, J. J. A. M. van der Mullen
Eindhoven University of Technology, Eindhoven, Netherlands

Session 6C: Fast Z Pinches, X-ray Lasers II (oral)
Wednesday, July 11 15:30-17:45, Fintry Auditorium (Level 3)
Session Chair: Gareth N Hall, *Imperial College London*

15:30 6C-1 (invited) Seeded Magneto-Rayleigh-Taylor Instability Experiments on a 1-MA LTD 662

D. A. Chalenski, R. M. Gilgenbach, S. G. Patel, A. M. Steiner, D. Yager-Eliorraga, Y. Y. Lau
Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, USA

16:00 6C-2 Initiation, Ablation, Precursor Formation, and Instability Analysis of Thin Foil Copper Liners 663

I. C. Blesener[1], K. S. Blesener[1], J. B. Greenly[1], B. R. Kusse[1], C. E. Seyler[1], D. A. Hammer[1], B. Blue[2]
[1]*Cornell University, Ithaca, NY, USA*
[2]*General Atomics, San Diego, CA, USA*

16:15 6C-3 Implosion Dynamics of Z-Pinch Loads in Two-Stage Wire Arrays Z-Pinches 664

S. V. Lebedev, A. J. Harvey-Thompson, E. Khoory, S. N. Bland, G. Burdiak, J. P. Chittenden, P. De Grouchy, M. Bennett, G. N. Hall, L. Pickworth, F. Suzuki-Vidal, J. Skidmore, L. Suttle, G. F. Swadling
Imperial College London, London, United Kingdom

16:30 6C-4 Cylindrical Liner Z-Pinch Experiments on the MAGPIE Generator 665

G. C. Burdiak[1], S. V. Lebedev[1], A. J. Harvey-Thompson[2], G. F. Swadling[1], J. Skidmore[1], L. A. Pickworth[1], E. Khoory[1], P. W. de Grouchy[1], F. Suzuki-Vidal[1], S. N. Bland[1], L. G. Suttle[1], G. N. Hall[1]
[1]*Plasma Physics, Imperial College London, London, United Kingdom*
[2]*Sandia National Laboratories, Albuquerque, NM, USA*

16:45 6C-5 Investigation of the Dynamics of Stagnating High-Energy-Density Plasma Using a Novel Technique for the Determination of the Ion Temperature 666

D. Alumot[1], E. Kroupp[1], E. Stambulchik[1], D. Osin[1], A. Starobinets[1], V. Bernshtam[1], L. Weingarten[1], Y. Maron[1], I. Uschmann[2], A. Fisher[3]
[1]*Weizmann Institute of Science, Rehovot, Israel*
[2]*Friedrich-Schiller University, Jena, Germany*
[3]*Technion - Israel Institute of Technology, Haifa, Israel*

17:00 6C-6 Operational Characteristics of a 60 Ka Plasma Focus Between 1 Hz and 10 Hz 667

C. R. James, B. L. Bures, M. Krishnan
Alameda Applied Sciences Corporation, San Leandro, CA, USA

17:15 6C-7 Implosions of Larger Size Wire Arrays at Enhanced Current of 1.5-1.7 MA on Zebra with LCM 668

A. S. Safronova[1], A. A. Esaulov[1], V. L. Kantsyrev[1], A. Stafford[1], M. E. Weller[1], V. V. Shlyaptseva[1], H. A. Zunino[1], I. Shrestha[1], G. C. Osborne[1], S. F. Keim[1], A. S. Chuvatin[2], C. A. Coverdale[3]
[1]*University of Nevada, Reno, NV, USA*
[2]*Ecole Polytechnique, Palaiseau, France*
[3]*Sandia National Laboratories, Albuquerque, NM, USA*

17:30 6C-8 Spectroscopic Diagnosing of Temperature Profile for Aluminum Wire Array Z-Pinches on a 1-MA Facility 669

F. Ye[1], D. L. Xiao[2], Y. Qin[1], S. J. Meng[1], F. X. Chen[1]
[1]*Insitute of Nuclear Physics & Chemistry, China Academy of Engineerig Physics, Mianyang, China*
[2]*Institute of Applied Physics and Computational Mathematics, Beijing, China*

Session 6D: Intense Electron Ion Beams & Particle Diagnostics (oral)

Wednesday, July 11 15:30-17:45, Sidlaw Auditorium (Level 3)
Session Chair: Joseph Schumer, *Naval Research Laboratory*

15:30 6D-1 Use of Pulsed Bremsstrahlung Excitation on HERMES-III for Investigation of Active Detention of Fissionable Material* 670

T. J. Renk[1], B. V. Oliver[1], V. Harper-Slaboszewicz[1], M. S. Derzon[1], D. K. Derzon[1], P. W. Lake[1], E. Brubaker[1], M. D. Gerling[1], J. Steele[1], B. V. Weber[2], R. J. Commisso[2], D. P. Murphy[2], S. L. Jackson[2], J. C. Zier[2], B. F. Phlips[2], A. L. Hutcheson[2], E. A. Wulf[2], A. Caruso[3], E. R. Myers[3]
[1]*Sandia National Laboratories, Albuquerque, NM, USA*
[2]*Naval Research Laboratory, Washington, DC, USA*
[3]*University of Missouri - Kansas City, Kansas City, MO, USA*

15:45 6D-2 Photofission Experiments on the Hermes-III Generator 671

B. V. Weber[1], R. J. Commisso[1], D. P. Murphy[1], S. L. Jackson[1], J. C. Zier[1], B. V. Oliver[2], T. J. Renk[2]
[1]*Naval Research Laboratory, Washington, DC, USA*
[2]*Sandia National Laboratories, Albuquerque, NM, USA*

16:00 6D-3 Modelling of the 7Li(p,n)7Be Neutron Yield from Mercury Using GEANT4 and LSP 672

M. Rubery[1], J. Threadgold[1], J. O'Malley[1], C. Clemett[1], M. Ellis[1], P. Martin[1], A. Thandi[1], J. Zier[2], S. Jackson[2], D. Hinshelwood[2], D. Mosher[2], R. Allen[2], J. Apruzese[2], R. Commisso[2], D. Murphy[2], D. Phipps[2], J. Schumer[2], B. Weber[2], F. Young[2], A. Hutchinson[3], L. Mitchell[3], B. Phlips[3], R. Woolf[3]
[1]*AWE Aldermaston, Reading, Berkshire, United Kingdom*
[2]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, USA*
[3]*Space Science Division, Naval Research Laboratory, Washington, DC, USA*

16:15 6D-4 Measurements and Simulations of Plasma Evolution in the A-K Gap of the Self-Magnetic Pinch Diode Fielded on the RITS-6 Accelerator* 673

M. D. Johnston[1], B. V. Oliver[1], N. Bruner[2], D. Welch[2], Y. Maron[3]
[1]*Advanced Radiographic Technologies, Sandia National Laboratories, Albuquerque, NM, USA*
[2]*Voss Scientific LLC, Albuquerque, NM, USA*
[3]*Weizmann Institute of Science, Rehovot, Israel*

16:30 6D-5 3d Particle-in-Cell Simulations of Small- Diameter Self-Magnetic-Pinch Diodes 674

S. B. Swanekamp[1], G. Cooperstein[2], A. S. Richardson[1], P. F. Ottinger[2], D. D. Hinshelwood[1], J. W. Schumer[1]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, USA*
[2]*Independent Consultant through L3 Communications, Washington, DC, USA*

16:45 6D-6 (invited) A Novel Method for the Measurement of the Momentum of Sputtered Atoms 675

J. Rutscher, T. Trottenberg, H. Kersten
IEAP, University Kiel, Germany, Kiel, Germany

17:15 6D-7 Diagnostics of Ambient Air Species Diffusion into the Effluent of an Atmospheric Pressure Plasma Jet Assisted by Analytical and Numerical Modelling 676

A. Schmidt-Bleker[1,2], J. Winter[1,2], M. Duennbier[1,2], S. Reuter[1,2], K. -D. Weltmann[2]
[1]*Extracellular Effects, Centre for Innovation Competence Plasmatis, Greifswald, Germany*
[2]*INP Greifswald, Greifswald, Germany*

17:30 6D-8 A Compact Plasma Absorption Probe for Plasma Density Measurements 677

C. -H. Hsieh, W. -C. Chen, K. -C. Leou
Engineering and System Science Department, National Tsing Hua University, Hsinchu, Taiwan

Session 6E: Plasmas for Lighting and Flat Panel Display / High-temperature and Thermal Plasma Processing I (oral)
Wednesday, July 11 15:30-17:45, Pentland Auditorium (Level 3)
Session Chair: Mikhail S Benilov, *Universidade da Madeira*

Session PL7: Plenary 7
Thursday, July 12 08:00-09:00, Pentland Suite (Level 3)
Session Chair: Jeremy Chittenden, *Imperial College*

8:00 PL7-1 High Energy Density Physics at AWE N/A
A. Randewich
AWE, Aldermaston, UK

Session 7A: Computational Plasma Physics II (oral)
Thursday, July 12 09:30-12:00, Tinto Room (Level 0)
Session Chair: Andrew J Christlieb, *Michigan State University*

9:30 7A-1 (invited) Error Estimation for Solution Verification of Stochastic Problems in PIC Plasma Models 686
L. C. Musson, K. L. Cartwright, G. A. Radtke, P. L. Hopkins, M. M. Hopkins
Sandia National Laboratories, Albuquerque, NM, USA

10:00 7A-2 Benchmarking of Particle-in-Cell Simulations with Monte Carlo Collisions 687
M. M. Turner[1], D. Eremin[2], T. Mussenbrock[2], A. Derzsi[3], Z. Donko[3]
[1]*National Centre for Plasma Science and Technology, Dublin City University, Dublin, Ireland*
[2]*Theoretical Electrical Engineering, Ruhr University, Bochum, Germany*
[3]*Research Institute for Solid State Physics and Optics, Hungarian Academy of Sciences, Budapest, Hungary*

10:15 7A-3 Solution Verification, Validation, and Uncertainty Quantification for a Series of Gas Cell Experiments at NRL 688
K. L. Cartwright[1], R. G. Hills[1], T. D. Pointon[1], D. D. Hinshelwood[2], J. W. Schumer[2], S. B. Swanekamp[2], P. F. Ottinger[2]
[1]*Sandia National Laboratories, Albuquerque, NM, USA*
[2]*Naval Research Laboratory, Washington, DC, USA*

10:30 7A-4 Numerical Simulation of a 30 GHz Gyrotron Resonator with a 3D High-Order Discontinuous Galerkin Approach Based Particle-in-Cell Method 689
A. Stock[1], J. Neudorfer[1], C. -D. Munz[1], R. Schneider[2]
[1]*Institute of Aerodynamics and Gas Dynamics, University of Stuttgart, Stuttgart, Germany*
[2]*Institut für Hochleistungsimpuls- und Mikrowellentechnik, Karlsruher Institut für Technologie, Karlsruhe, Germany*

10:45 7A-5 Parallelization of a 3D high-order Particle-In-Cell Method and Numerical Simulations of a 170 GHz Resonator and Launcher 690
J. Neudorfer[1], A. Stock[1], C. -D. Munz[1], R. Schneider[2]
[1]*Institut für Aerodynamik und Gasdynamik, Universität Stuttgart, Stuttgart, Germany*
[2]*Institut für Hochleistungsimpuls- und Mikrowellentechnik, Karlsruher Institut für Technologie, Karlsruhe, Germany*

11:00 7A-6 Investigation of Heating Mode Transition in a Dielectric Barrier Discharge at Atmospheric Pressure Using a Particle-in-Cell Simulation 691
J. -Y. Lee, H. W. Bae, H. -J. Lee, H. J. Lee
Department Electronics Engineering, Pusan National University, Busan, South Korea

11:15 7A-7 3D Vacuum Arc Breakdown Simulation: Many Challenges and Some Solutions 692

M. M. Hopkins, J. J. Boerner, E. V. Barnat, P. S. Crozier, M. T. Bettencourt, L. C. Musson, H. E. Meyer, R. Hooper, C. H. Moore
Sandia National Labs, Albuquerque, NM, USA

11:30 7A-8 The Kinetic Theory Molecular Dynamics Method N/A
C. A. Fichtl[1], M. S. Murillo[1], F. R. Graziani[2]
[1]*LANL, Los Alamos, NM, USA*
[2]*LLNL, Livermore, CA, USA*

11:45 7A-9 Parallelized Two-Dimensional Particle-in-Cell Simulation for Capacitively Coupled Plasmas Using Graphic Processing Units 693
J. C. Song, H. W. Bae, H. -J. Lee, H. J. Lee
Electrical Engineering, Pusan National University, Busan, South Korea

Session 7B: Vacuum Microelectronics and THz Sources, Radiation, & Applications (oral)
Thursday, July 12 09:30-12:15, Moorfoot Room (Level 0)
Session Chairs: Claudio Paoloni, *University of Rome Tor Vergata, Italy*
Wenlong He, *Department of Physics SUPA, University of Strathclyde, Glasgow, UK*

9:30 7B-1 Microfabricated 220 GHz, 50W Serpentine Waveguide Amplifier Using Novel UV-LIGA Beam Tunnel Technique 694
C. D. Joye, A. M. Cook, J. P. Calame, D. K. Abe
Code 6840, U.S. Naval Research Laboratory, Washington, DC, USA

9:45 7B-2 Vacuum Tube Amplifier of the Opther Project for 1-THz Amplification 695
A. Di Carlo[1], C. Paoloni[1], M. Mineo[1], A. J. Durand[2], V. Krozer[3], M. Kotiranta[3], F. Bouamrane[4], T. Bouvet[4], S. Megtert[4]
[1]*Electronic Engineering, University of Rome Tor Vergata, Italy, Rome, Italy*
[2]*Thales Electron Devices, Velizy, France*
[3]*Physikalisches Institut, Goethe-Universität Frankfurt am Main, Frankfurt am Main, Germany*
[4]*UMR137 CNRS/Thales, Palaiseau, France*

10:00 7B-3 Cold Cathode Realization for Triode Electron Gun 696
G. Ulisse, C. Ciceroni, F. Brunetti, A. Di Carlo
University of Rome, Rome, Italy

10:15 7B-4 Characterization of Field Emitter Arrays for Compact Neutron Sources Utilizing Field Ionization 697
A. Persaud[1], R. Kapadia[2], K. Takei[2], A. Javey[2], T. Schenkel[1]
[1]*Accelerator and Fusion Research Division, E.O. Lawrence Berkeley National Laboratory, Berkeley, CA, USA*
[2]*Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, Berkeley, CA, USA*

10:30 7B-5 (invited) Remote Detection of Radioactive Materials Using a Near-Terahertz Gyrotron 698
V. L. Granatstein, G. S. Nusinovich, P. A. Sprangle, J. Rodgers, C. A. Romero-Talamas, R. Pu, D. Kashyn, A. Shkvarunets
IREAP, University of Maryland, College Park, MD, USA

11:00 7B-6 Experimental Study on a W-Band Gyro-BWO with a Helically Corrugated Waveguide 699

L. Zhang, W. He, C. R. Donaldson, P. McElhinney, A. W. Cross, A. D. R. Phelps, K. Ronald
Department of Physics, SUPA, University of Strathclyde, Glasgow, United Kingdom

11:15 7B-7 A Compact, High-Power THz Source 700
R. H. Jackson[1], H. P. Bluem[2], A. M. M. Todd[2]
[1]*Jackson Science Consulting, Greensboro, NC, USA*
[2]*Advanced Energy Systems, Medford, NY, USA*

11:30 7B-8 Intense Terahertz Supercontinuum Generated from Ultrashort Laser Induced Plasma of Metal Foil 701
C. L. Zhang
Department of Physics, Captital Normal University, Beijing, China

11:45 7B-9 Terahertz Band Superradaince of Extended Electron Bunch Moving above Periodically Corrugated Surface 702
I. V. Zotova, N. S. Ginzburg, A. S. Sergeev, A. M. Malkin, V. Y. Zaslavsky
Russian Academy Science, Institute of Applied Physics RAS, Nizhny Novgorod, Russian Federation

12:00 7B-10 High Power Broadband Gyro-TWAs Operating in Terahertz Frequency Range 703
W. He, K. Ronald, A. D. R. Phelps, A. W. Cross
SUPA, Department of Phys., University Strathclyde, UK, Glasgow, United Kingdom

Session 7C: Optical, X-ray, Microwave, and FIR Diagnostics (oral)
Thursday, July 12 09:30-12:00, Fintry Auditorium (Level 3)
Session Chair: Henrik Bindslev, *Aarhus University*

9:30 7C-1 Using Tomographic ("Art") Methods with an Interferometer to Diagnose Asymmetrical Gas Flow 704
P. L. Coleman[1], M. Krishnan[2], B. Bures[2], K. Elliott[2], R. Madden[2]
[1]*Evergreen Hill Sciences, Philomath, OR, USA*
[2]*Alameda Applied Sciences, San Leandro, CA, USA*

9:45 7C-2 Schlieren Visualization of Spark Generated Shockwaves in Narrow Channels 705
K. Graupner, C. P. Garner, D. Hoare, J. E. Harry, A. Mason, A. M. Williams
Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, Loughborough, United Kingdom

10:00 7C-3 Experimental Measurements of the Dynamic Electric Field Topology Associated with Magnetized RF Sheaths in Hydrogen and Helium Discharges 706
E. H. Martin[1], S. C. Shannon[1], J. B. O. Caughman[2]
[1]*Nuclear Engineering, NCSU, Raleigh, NC, USA*
[2]*Fusion Energy Division, ORNL, Oak Ridge, TN, USA*

10:15 7C-4 Measurement of Helium Metastables in Micro Plasma Jet 707
C. Douat[1], G. Beauville[1], M. Fleury[1], N. Sadeghi[2], V. Puech[1]
[1]*LPGP and CNRS, Orsay, France*
[2]*LIPhy and CNRS, Grenoble, France*

10:30 7C-5 Time and Spatially Resolved OH Dynamics in a Nanosecond Pulsed Filamentary Discharge in Atmospheric Pressure He-H2O 708
T. Verreycken, R. van der Horst, L. Baede, E. van Veldhuizen, P. Bruggeman
Eindhoven University of Technology, Eindhoven, Netherlands

10:45 7C-6 Detection of Various Active Species in Ar-Diluted NH_3 Atmospheric-Pressure Plasma by Ultraviolet Absorption Spectroscopy 709

Y. Hiraoka, K. Urabe, O. Sakai
Kyoto University, Kyoto, Japan

11:00 7C-7 Visualization of Instabilities in Hot Magnetized Plasmas by Ece Imaging 710

A. J. Donne[1], A. Bogomolov[1], J. J. Boom[1], I. G. Classen[1], B. J. Tobias[2], N. C. Luhmann Jr[3], C. W. Domier[3], G. S. Yun[4], W. Lee[4], H. K. Park[4]
[1]*Fusion Physics, FOM Institute DIFFER, Nieuwegein, Netherlands*
[2]*Princeton Plasma Physics Laboratory, Princeton, NJ, USA*
[3]*Applied Physics, UC Davis, Davis, CA, USA*
[4]*Postech, Pohang, Rep. of Korea*

11:15 7C-8 Microwave Imaging Reflectometry from Concept to Construction: the Role of Modeling and Laboratory Characterization in Diagnostic Development 711

B. J. Tobias[1], C. W. Domier[2], G. J. Kramer[1], J. Lai[2], N. C. Luhmann, Jr.[2], X. Ren[2], E. J. Valeo[1]
[1]*Princeton Plasma Physics Laboratory, Princeton, NJ, USA*
[2]*University of California at Davis, Davis, CA, USA*

11:30 7C-9 Study of Mhd and Turbulence via Advanced 2d/3d Imaging Systems on Kstar 712

H. K. Park[1], G. S. Yun[1], W. Lee[1], M. J. Choi[1], J. Lee[1], M. Kim[1], Y. Nam[1], J. H. Lee[2], Y. M. Jeon[2], C. W. Domier[3], N. C. Luhmann, Jr.[3], A. J. H. Donne[4], S. Zoletnik[5]
[1]*Physics, POSTECH, Pohang, South Korea*
[2]*NFRI, Daejeon, South Korea*
[3]*University of California at Davis, Davis, USA*
[4]*Differ, Rijnhuizen, Netherland*
[5]*WRC, Budafest, Hungary*

11:45 7C-10 Diagnosis of Energetic Ions and Ion Composition in Fusion Plasmas by Collective Thomson Scattering of Mm-Waves 713

H. Bindslev[1], S. B. Korsholm[2], F. Leipold[2], F. Meo[2], P. K. Michelsen[2], S. K. Nielsen[2], M. Salewski[2], M. Steiner[2]
[1]*Faculty of Science and Technology, Aarhus University, Aarhus, Denmark*
[2]*Physics, DTU, Roskilde, Denmark*

Session 7D: High-Temperature & Thermal Plasma Processing II (oral)
Thursday, July 12 09:30-12:00, Sidlaw Auditorium (Level 3)
Session Chair: Anthony B Murphy, *CSIRO Materials Science & Engineering*

9:30 7D-1 (invited) Generation and Functionalization of Pure Graphene Flake Structures in Thermal Plasma Reactors 714

J. -L. Meunier, N. Mendoza-Gonzalez, R. Pristavita, D. Binny, D. Berk
Chemical Engineering, McGill University, Montreal, Quebec, Canada

10:00 7D-2 Influence of Processing Parameters on the Properties of Silicon Nanoparticles Synthesized by Radio-Frequency Induction Thermal Plasma 715

V. Colombo[1], E. Ghedini[1], M. Gherardi[1], P. Sanibondi[1], C. Jaeggi[2], C. Delval[2], M. Leparoux[2], P. Stijn[3], D. Nelis[3]
[1]*Department of Mechanical Engineering, Alma Mater Studiorum - Université di Bologna, Bologna, Italy*
[2]*Swiss Federal Laboratories for Materials Science and Technology, Advanced Materials*

Processing, Empa, Thun, Switzerland
[3]GRD, Umicore, Olen, Belgium

Session 7E: Plasma Medicine III (oral)
Thursday, July 12 09:30-12:15, Pentland Auditorium (Level 3)
Session Chair: XinPei Lu, *Huazhong University of Science and Technology, China*

T. Jacobs[1], R. Morent[1], N. De Geyter[1], C. Leys[1], H. Declercq[2], R. Cornelissen[2], T. Desmet[3], S. Vanvlierberghe[3], P. Dubruel[3]
[1]*Department of Applied Physics, Ghent University, Ghent, Belgium*
[2]*Department of Basic Medical Science, Ghent University, Ghent, Belgium*
[3]*Department of Organic Chemistry, Ghent University, Ghent, Belgium*

10:00 7E-3 Plasma Sources for Local or Large-Area Treatment in Biomedical Applications: Basic Physical Characterization 725
R. Bussiahn, T. von Woedtke, K. -D. Weltmann
Leibniz Institute for Plasma Science and Technology (INP Greifswald), Greifswald, Germany

10:15 7E-4 Study of Plasma Bullet Propagation Inside of Tissue and Agarose Tissue Model 726
D. Dobrynin, A. Fridman
Drexel University, Philadelphia, PA, USA

10:30 7E-5 Antitumoral Effects of Combined Non Thermal Plasma and Gemcitabine Treatments on a Mia Paca-Luc Orthotopic Pancreatic Carcinoma Model 727
L. Brulle[1,2], M. Vandamme[1,3,4], D. Ries[3], E. Martel[2], E. Robert[3], S. Lerondel[1], V. Trichet[5], S. Richard[2], J. -M. Pouvesle[3], A. Le Pape[1,6]
[1]*UPS44 CNRS, TAAM-CIPA, Orleans, France*
[2]*CERB, Baugy, France*
[3]*UMR7344 Orleans University/CNRS, GREMI, Orleans, France*
[4]*GERMITEC SAS, Clichy, France*
[5]*INSERM, U957, Nantes, France*
[6]*ISERM/Tours University, U1100/EA6305, Tours, France*

10:45 7E-6 Quantification of Protein Contamination on surfaces 430
R. Baxter, A. Jones, H. Baxter
School of Chemistry, University of Edinburgh, Edinburgh, United Kingdom

11:00 7E-7 Inducing Intracellular Ros and Cellular Redox without Cell Death in Mesenchymal Cells Using Microsecond-Pulsed DBD Plasma 728
N. Shainsky[1], G. Friedman[1], G. Fridman[2], A. Fridman[3], M. J. Steinbeck[2], T. A. Freeman[4]
[1]*Electrical and Computer Engineering, Drexel University, Philadelphia, USA*
[2]*School of Biomedical Engineering, Science and Health Systems, Drexel University, Philadelphia, USA*
[3]*Mechanical Engineering and Mechanics, Drexel University, Philadelphia, USA*
[4]*Department of Orthopaedic Surgery, Thomas Jefferson University, Philadelphia, USA*

11:15 7E-8 Influence of Non-Thermal Plasma on Human Cell Activities 729
K. Masur, K. Wende, S. Hasse, A. Barton, L. Bundscherer, S. Reuter, K. -D. Weltman
INP Greifswald - ZIK Plasmatis, Greifswald, Germany

11:30 7E-9 Characterisation of Plasmas Created in Conducting Liquids 730
C. P. Kelsey, W. G. Graham
Centre for Plasma Physics, Queens University of Belfast, Belfast, Northern Ireland, United Kingdom

11:45 7E-10 Plasma Decontamination of Space Equipment Using Cold Atmospheric Plasmas 731
H. M. Thomas[1], S. Shimizu[1], T. Shimizu[1], T. Klaempfl[1], J. L. Zimmermann[1], G. E. Morfill[2], S. Barczyk[2], P. Rettberg[2], P. K. Weber[3]

[1]*Institut fuer extraterrestrische Physik, Max-Planck-Gesellschaft, Garching, Germany*
[2]*DLR-Institut fuer Luft- und Raumfahrtmedizin, DLR, Koln, Germany*
[3]*Raumfahrtmanagment, DLR, Bonn, Germany*