June 27: MONDAY

Session JP1: Joint Plenary I

Monday, June 27 08:00-09:30, Ballroom AB
Session Chairs: Ahmed Hassanein, Purdue University
Charles L Neumeyer, Princeton University Plasma Physics Laboratory

8:00 JP1-1 Conference Opening
A. Hassanein[1], C. Neumeyer[2]
[1]Purdue University, West Lafayette, IN, United States
[2]Princeton Plasma Physics Laboratory, Princeton, NJ, United States

8:30 JP1-2 (invited) The Importance of High Energy Density Plasma Science to NNSA's Defense Programs Mission
D. L. Cook
National Nuclear Security Administration, Washington, DC, United States

Session IO1A: Computational Plasma Physics (o)

Monday, June 27 10:00-12:00, Pullman Room
Session Chair: Andrew Christlieb, Michigan State University

10:00 IO1A-1 (invited) Simulation of Current Free Double Layers in Highly Electronegative Plasma Using Monte Carlo Collision in OOPIC Pro and XOOPIC
C. A. Henderson, N. Hershkowitz, *Department of Engineering Physics, University of Wisconsin - Madison, Madison, WI, USA*

10:30 IO1A-2 An Implicit Maxwell Solver
A. J. Christlieb, L. VanGroingen, B. Ong, *Michigan State University, East Lansing, MI, United States*

10:45 IO1A-3 Investigation of Low Pressure Capacitively Coupled Plasma Behavior Using PIC-MCC Simulation
K. Bera, S. Rauf, K. Collins, *Applied Materials, Inc., Sunnyvale, CA, United States*

11:00 IO1A-4 Kinetic Self-Consistent Simulations of Electromagnetic Effects in CCP Plasmas with a 2D Darwin PIC/MCC Code, D. Eremin, T. Mussenbrock, R. -P. Brinkmann, *Ruhr-Universität-Bochum, Bochum, Germany*

11:15 IO1A-5 Single-Electron Based Model of the Child-Langmuir Law
Y. Zhu, L. K. Ang, *School of Electric and Electronic Engineering, Nanyang Technological University, Singapore, Singapore*

11:30 IO1A-6 High Order PIC Simulation of High Power Millimeter Wave Sources
J. Neudorfer[1], C. -D. Munz[1], R. Schneider[2], S. Roller[3,4]
[1]Institut für Aerodynamik und Gasdynamik, Universität Stuttgart, Stuttgart, Germany; [2]Institut für Hochleistungsimpuls- und Mikrowellentechnik, Karlsruher Institut für Technologie, Karlsruhe, Germany; [3]German Research School for Simulation Sciences, Aachen, Germany; [4]Applied Supercomputing in Engineering, RWTH Aachen University, Aachen, Germany

11:45 IO1A-7 Simulation of Self-Neutralization Techniques for Charged Particle Thrusters
D. C. Liaw[1], B. E. Gilchrist[2], T. M. Liu[3]
[1]EECS, University of Michigan, Ann Arbor, MI, United State; [2]EECS/AOSS, University of Michigan, Ann Arbor, MI, United States; [3]AERO, University of Michigan, Ann Arbor, MI, United States

Session IO1B: Slow-Wave Devices/Intense Beam Microwave Generation (o)

Monday, June 27 10:00-12:00, CC23 AB
Session Chairs: David Abe, NRL & Michael D. Haworth, AFRL

10:00 IO1B-1 (invited) Multiple-Beam Amplifiers
K. Nguyen[1], D. K. Abe[2], E. Wright[1], L. Ludeking[3], D. Pershing[1], J. Pasour[2], I. Chernyavskiy[4], V. Jabotinski[1], B. Levush[2]
[1]Beam-Wave Research Inc., Bethesda, MD, United States; [2]Electronics Science and Technology Div., Naval Research Laboratory, Washington, DC, United States; [3]ATK-Mission Research, Newington, VA, United States; [4]Science Applications Int. Corp., McLean, VA, United States

10:30 IO1B-2 Development of a 10-kW W-Band Sheet Beam Extended Interaction Klystron (EIK)
J. A. Pasour[1], K. Nguyen[2], E. Wright[2], B. Levush[1]
[1]Code 6840.1, Naval Research Laboratory, Washington, DC, United States; [2]Beam Wave Research, Inc., Bethesda, MD, United States

10:45 IO1B-3 Three-Dimensional, Time-Dependent Simulation of Inductive Output Tubes
H. Freund[1], J. Verboncoeur[1], W. Sessions[2], B. Jamroz[3], C. Jhurani[3], L. Ives[4], T. Bui[4]
[1]SAIC, McLean, VA, United States; [2]NSWC Dahlgren, Dahlgren, VA, United States; [3]Tech-X Corp., Boulder, CO, United States
[4]Calabazas Creek Research, San Mateo, CA, United States

11:00 IO1B-4 350 MHz, 200 kW CW, Multiple Beam Inductive Output Tube
R. L. Ives[1], M. Read[1], D. Marsden[1], G. Collins[1], R. H. Jackson[1], E. Eisen[2], T. Kimura[2]
[1]Calabazas Creek Research, Inc., San Mateo, CA, United States; [2]Communications & Power Industries, LLC, Palo Alto, CA, United States

11:15 IO1B-5 Development of a 1.5 MW Conventional Magnetron via Numerical Simulation
M. Lambrecht[1], T. Fleming[1], P. Mardahl[1], K. Cartwright[1], J. Keisling[2], M. Tracy[3]
[1]Air Force Research Laboratory, Kirtland AFB, NM, United States; [2]Scientific Applications International Corporation, McLean, VA, United States; [3]Communications and Power Industries, Beverly, MA, United States

11:30 IO1B-6 Possible Effect of Metallic Dust on Operation of Rep-Rate, High-Power Microwave Devices
G. S. Nusinovich, D. G. Kashyn, *IREAP, University of Maryland, College Park, MD, United States*

11:45 IO1B-7 The Concepts of in-Phase Multichannel Ka-band HPM Oscillators
M. I. Yalandin[1], S. N. Rukin[1], K. A. Sharypov[1], V. G. Shpak[1], S. A. Shunailov[1], M. R. Ul'masculov[1], V. V. Rostov[2], A. I. Klimov[2]
[1]Institute of Electrophysics, Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russian Federation
[2]High Current Electronics Institute, Siberian Branch of Russian Academy of Sciences, Tomsk, Russian Federation

Session IO1C: Optical and X-ray Diagnostics (o)

Monday, June 27 10:00-12:00, CC22 BC
Session Chair: Daniel B Sinars, Sandia National Laboratories

10:00 IO1C-1 High-Energy Bremsstrahlung Diagnostics to Characterise Hot Electron Production in Short-Pulse Laser-Plasma Experiments
A. L. Meadowcroft, R. D. Edwards, *Plasma Physics Department, AWE, Reading, United Kingdom*

10:15 IO1C-2 Ionization Energy Shift in Iridium Measured with a Lutetium Edge Filter
N. R. Pereira[1], S. Jackson[2], J. W. Schumer[2], J. F. Seely[2], B. V. Weber[2], T. L. Hudson[3]
[1]Ecopulse, Inc., Springfield, VA, United States; [2]Naval Research Laboratory, Washington DC, United States; [3]National Institute of Science and Technology, Gaithersburg, MD, United States

10:30 IO1C-3 X-Ray Diagnostics in a Mega-Amp Dense Plasma Focus Device - Focus Fusion-1
S. Krupakar Murali, E. J. Lerner, A. M. Blake, D. M. Shannon, F. V. Roessel
Lawrenceville Plasma Physics, Berkeley Heights, NJ, United States

10:45 IO1C-4 Time Resolved Visible Spectroscopy Characterizations of Single Wire Aluminum Plasmas
K. S. Blesener[1], S. A. Pikuz[1], T. A. Shelkovenko[1], D. A. Hammer[1], Y. Maron[2], V. Bernshtam[2], L. Weingarten[2]
[1]Cornell University, Ithaca, NY, United States; [2]Weizmann Institute of Science, Rehovot, Israel

11:00 IO1C-5 (invited) Same-Shot X-Ray Thomson Scattering and Streaked Imaging of Radiative Shock Experiments at Omega
C. M. Huntington[1], E. J. Gamboa[1], C. M. Krauland[1], C. C. Kuranz[1], R. P. Drake[1], S. H. Glenzer[2]
[1]Atmospheric, Oceanic, Space Science, University of Michigan, Ann Arbor, MI, United States
[2]L-399, Lawrence Livermore National Laboratory, Livermore, CA, United States

11:30 IO1C-6 Characterization of the Pulse-Burst Laser System for High-Repetition-Rate Thomson Scattering
W. S. Harris, D. J. Den Hartog, N. C. Hurst, *Department of Physics, UW-Madison, Madison, WI, United States*

11:45 IO1C-7 Experimental Measurements of the Dynamic Electric Field Topology Associated with Magnetized RF Sheaths
E. H. Martin[1], S. C. Shannon[2], J. B. O. Caughman[1], R. C. Isler[1], C. C. Klepper[1]
[1]Fusion Energy Division, ORNL, Oak Ridge, TN, United States; [2]Nuclear Engineering, NCSU, Raleigh, NC, United States

Session IO1D: Particle Acceleration with Lasers & Beams (o)

Monday, June 27 10:00-11:45, CC21 BC
Session Chair: Farhat Beg, Univ. Calif. San Diego

10:00 IO1D-1 Focusing of Laser-Accelerated Protons for Fast Ignition Studies
C. Bellei[1,2], M. E. Foord[2], D. J. Strozzi[2], M. H. Key[2], T. Bartal[1,2], H. S. McLean[2], P. K. Patel[2], R. B. Stephens[3], F. N. Beg[1]
[1]University of California at San Diego, San Diego, CA, United States; [2]Lawrence Livermore National Laboratory, Livermore, CA, United States; [3]General Atomics, San Diego, CA, United States

10:15 IO1D-2 Basic Study of a Diagnostic Electron Beam Traversing a Plasma and Electromagnetic Wave
R. L. Williams, A. L. Bowman
Florida A&M University, Physics Department, Tallahassee, FL, United States

10:30 IO1D-3 (invited) Laser Ion Acceleration in Tailored Mass Limited Targets
A. A. Andreev[1], K. Y. Platonov[2]
[1]Max Born Institute, Berlin, Germany
[2]Vavilov State Optical Institute, Saint Petersburg, Russia

11:00 IO1D-4 Target Normal Sheath-Field Deuterium Acceleration for a Laser-Based Neutron Source
J. T. Morrison[1], C. R. Willis[1], P. X. Belancourt[1], E. W. McCary[1], R. L. Daskalova[1], E. A. Chowdhury[1], M. J. Storm[1], K. U. Akli[1], L. Van Woerkom[1], R. R. Freeman[1], S. H. Feldman[2], G. Dyer[2], T. Ditmire[2]
[1]The Ohio State University, Columbus, OH, United States
[2]The University of Texas at Austin, Austin, TX, United States

11:15 IO1D-6 The Effect of Fast Electron Scattering on Determining the Laser-Induced Electron Divergence
S. Jiang, A. Krygier, A. Link, R. R. Freeman
Department of Physics, The Ohio State University, Columbus, OH, United States

Session IP1A: Basic Phenomena I (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Earl Scime, West Virginia University

IP1A-1 Nonlinear Absorption of Superpower Laser Radiation of Ultrarelativistic Intensities in Plasma
H. K. Avetissian, A. G. Markossian
Centre of Strong Fields Physics, Yerevan State University, Yerevan, Armenia

IP1A-2 Study of EMHD Waves in a Magnetic Bubble
V. P. Anitha
Microwave Plasma Interaction, Institute for Plasma Research, Gandhinagar, Gujarat, India

IP1A-3 The Role of Laser Wavelength on Dual Pulse Laser-Breakdown Spectroscopy
R. W. Coons, S. S. Harilal, A. Hassanein
School of Nuclear Engineering & Center for Materials Under Extreme Environment, Purdue University, IN, United States

IP1A-4 How the Plasma Bullet Stops Propagating
M. Laroussi, E. Karakas, M. A. Akman
Laser and Plasma Eng. Inst., Old Dominion University, Norfolk, VA, United States

IP1A-5 Production of Proton-Antiproton Pairs by Laser Beams of Ultrarelativistic Intensities in Plasma
H. K. Avetissian, A. K. Avetissian, G. F. Mkrtchian, K. V. Sedrakian
Centre of Strong Fields Physics, Yerevan State University, Yerevan, Armenia

IP1A-6 Whistler Wave Mode Conversion Experiments in the NRL SPSC
D. D. Blackwell[1], W. E. Amatucci[1], G. I. Ganguli[1], E. M. Tejero[2], C. D. Cothran[2], D. N. Walker[2]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]Global Strategies Group North America, Inc., Crofton, MD, United States

IP1A-7 Analysis and Design of a Perfect/Super Plasma Lens
A. M. Hala, *National Center for Mathematics and Physics, KACST, Riyadh, Saudi Arabia*

IP1A-8 Temporal and Spatial Locking of Nonlinear Systems
E. J. Cruz[1], I. M. Rittersdorf[1], J. C. Zier[2], Y. Y. Lau[1], R. M. Gilgenbach[1], J. W. Luginsland[3], B. W. Hoff[4]
[1]University of Michigan, Ann Arbor, MI, United States;[2]Naval Research Laboratory, Washington, D.C., United States
[3]Air Force Office of Scientific Research, Arlington, VA, United States; [4]Air Force Research Laboratory, Abuquerque, NM, United States

IP1A-9 IP1A-9 A Plasma Source for High Power Microwave Interaction Studies
V. P. Anitha, P. J. Rathod, R. Bahl, J. V. Raval, Y. C. Saxena, A. Shyam, A. Das, P. K. Kaw
Microwave Plasma Interaction, Institute for Plasma Research, Gandhinagar,Gujarat, India

Session IP1B: Fusion - Inertial, Magnetic & Alternate Concepts I (p)

Poster Session, Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Jeremy P Chittenden, Imperial College

IP1B-11 Effect of Electrode and Limiter Biasing on the Edge Plasma Rotation in IR-T1 Tokamak
M. Ghoranneviss, A. S. Elahi, S. Mohammadi, R. Arvin
Plasma Physics Research Center, Science & Research Campus, I. Azad University, Tehran, Iran

IP1B-12 Relation Between Tokamak Plasma Displacement and Vertical Field Coil Characteristics
M. Ghoranneviss, A. S. Elahi
Plasma Physics Research Center, Science & Research Campus, I. Azad University, Tehran, Iran

IP1B-13 ITER ECH Transmission System Test Stand and Prototype Component Development
T. S. Bigelow, A. M. Barker, J. B. Caughman, G. R. Hanson, S. M. Killough, D. A. Rasmussen, C. R. Schaich, J. A. White, C. A. Ausmus, P. V. Pesavento, M. P. Simpson
Fusion Energy, ORNL, Oak Ridge, TN, United States

IP1B-14 FRC Lifetime Studies for the Field Reversed Configuration Heating Experiment
T. C. Grabowski[1], J. H. Degnan[1], D. J. Amdahl[1], R. K. Delaney[1], M. T. Domonkos[1], F. M. Lehr[1], R. Magallanes[1], P. R. Robinson[1], E. L. Ruden[1], W. M. White[1], H. R. Wood[1], D. G. Gale[2], M. R. Kostora[2], J. L. McCullough[2], W. E. Sommars[2], M. H. Frese[3], S. D. Frese[3], J. F. Camacho[3], S. K. Coffey[3], T. P. Intrator[4], G. A. Wurden[4], J. Sears[4], P. J. Turchi[4], W. J. Waganaar[4], T. Weber[4], R. E. Siemon[5], S. Fueling[5], B. S. Bauer[5], A. G. Lynn[6], N. F. Roderick[6]
[1]Air Force Research Laboratory, Albuquerque, NM, United States; [2]Science Applications International Corporation, Albuquerque, NM, United States; [3]NumerEx, Albuquerque, NM, United States; [4]Los Alamos National Laboratory, Los Alamos, NM, United States; [5]University of Nevada, Reno, Reno, NV, United States; [6]University of New Mexico, Albuquerque, NM, United States

IP1B-16 Theta-Pinch Preionization and Trapped Flux in FRC Formation
M. H. Frese, S. D. Frese; *NumerEx, Albuquerque, NM, United States*

Session IP1C: Plasma for Lighting & Flat Panel Displays (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Richard Garner, OSRAM Sylvania Inc.

IP1C-17 High Power Excilamps
V. F. Tarasenko, S. M. Avdeev, M. V. Erofeev, M. I. Lomaev, D. V. Shitz, V. S. Skakun, E. A. Sosnin
LOI, High Current Electronics Institute, Tomsk, Russian Federation

IP1C-18 Diagnostic Study of Micro-Discharges of Inert Gas under Atmospheric Pressure
C. C. Wang[1], Y. J. Yang[1], Y. W. Lu[2], C. C. Hsu[1]
[1]Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan
[2]Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taipei, Taiwan

IP1C-19 Flexible and Transparent Microplasma Devices for Ultraviolet Medical Treatment
T. G. Oh, T. Kim, J. H. Ma, S. -J. Park, J. G. Eden
Electrical and Computer Engineering, University of Illinois, Urbana, IL, United States

IP1C-20 Ashing Process Using an Atmospheric Pressure, DBD-Generated Plasma
S. Yoo, T. Lho, D. Seok, Y. Hong, B. Lee
Convergence Plasma Research Center, National Fusion Research Institute, Daejeon, South Korea

Session IP1D: Vacuum Microelectronics (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Jim Browning, Boise State University

IP1D-21 Hop Structure Optimization

M. I. Pearlman, T. Rowe, J. Browning
Electrical Engineering, Boise State University, Boise, ID, United States

IP1D-22 Space Charge Limited Current in a Gap Combined of Several Kinds of Medium
Y. Zhu, L. K. Ang, *School of EEE, Nanyang Technological University, Singapore, Singapore*

IP1D-23 Field Emission Properties of Nano-Layered Carbon Lateral Edge Emitters
N. Kumar[1], R. Hellmer[1], M. Mueller[1], M. Eaton[1], J. Browning[2]
[1]Stellar Micro Devices, Inc., Austin, TX, United States; [2]Boise State University, Boise, ID, United States

Session IP1E: Partially Ionized Plasmas (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Natalia Y. Babaeva, University of Michigan

IP1E-24 Study on Electrical Characteristics of HfO_2 Treated by NF_3 Plasma
J. -C. Lee[1,2], S. -J. Lee[1], Z. Zulkarnain[1], Y. -P. Kim[1], S. B. Kang[1], S. Choi[1], Y. Roh[2]
[1]Semiconductor R&D Center, Samsung Electronics Co., Ltd., Hwasung, South Korea
[2]School of Information and Communication, Sungkyunkwan University, Suwon, South Korea

IP1E-25 The Simulation of Amplification Process of Gas Electron Multiplifier With PIC-MCC Model
L. Yang, Y. Tu
Display Center, School of Electronic Science and Engineering, Southeast University, Nanjing, Jiangsu, China

IP1E-26 Effect of Process Parameters on the Synthesis of Iron Nanoparticles Using a Low Pressure Plasma
V. R. Panchal[1], G. Lahoti[2], U. Bhandarkar[2], M. Neergat[1], P. Apte[3]
[1]Energy Science and Engineering, Indian Institute of Technology Bombay, Mumbai, India
[2]Mechanical Engineering, Indian Institute of Technology Bombay, Mumbai, India
[3]Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India

IP1E-27 Optical Characterization of Atmospheric Torch Operating Modes
A. J. McWilliams[1], S. C. Shannon[2], S. J. Hudak[1], J. J. Cuomo[1]
[1]Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC, United States
[2]Department of Nuclear Engineering, North Carolina State University, Raleigh, NC, United States

IP1E-28 Confinement of Microplasmas in Silicon Channels with Widths as Small as < 5 um
E. S. Kim, T. L. Kim, Y. H. Kim, S. -J. Park, J. G. Eden
Electrical and Computer Engineering, University of Illinois, Urbana, IL, United States

IP1E-29 A Plasma Jet Made of a Syringe-Needle Covered with a Glass Tube
M. K. Lee, H. Kang, J. Kim, S. Han, K. Baik, H. Uhm, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

IP1E-30 Electric Shock-Free Plasma Plume with Double-Channel Plasma Jets
H. Kang, D. Jin, J. Kim, H. Kim, G. Park, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

IP1E-31 Measurement of Hydroxyl Radical Density, Electron Temperature and Density from the Atmospheric Pressure Plasma Jet of Needle Type
Y. J. Hong, G. S. Cho, H. S. Uhm, D. I. Choi, E. H. Choi
Electrophysics, Charged Particle Beam and Plasma Laboratory/Plasma Bioscience Research Center, Seoul, South Korea

Session IP1F: Dusty Plasmas (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: John Goree, University of Iowa

IP1F-32 Charging of Finite Cylinders in Low Pressure Plasmas
A. Shahravan, T. Matsoukas
Department of Chemical Engineering, The Pennsylvania State University, University Park, PA, United States

IP1F-33 Charging of Dust Grain Clusters in Flowing Plasmas
G. Miloshevsky, A. Hassanein
Purdue University, West Lafayette, IN, United States

IP1F-34 Time-Resolved Plasma Density Measurements in a Dusty Plasma Created via Cathode Spot Powder Dispersion
E. D. Gillman, J. E. Foster
Nuclear Engineering & Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

IP1F-35 Non-Gaussian Velocity Distribution of Microparticles in Plasma under Microgravity Conditions
A. Mukhopadhyay[1], J. Goree[1], B. Liu[1], V. Fortov[2], A. Lipaev[2], V. Molotkov[2], O. Petrov[2], G. Morfill[3], H. Thomas[3], A. Ivlev[3]
[1]Department of Astronomy & Physics, University of Iowa, Iowa City, IA, United States; [2]JIHT, Russian Academy of Sciences, Moscow, Russia; [3]Max-Planck-Institut für extraterrestrische Physik, Garching, Germany

IP1F-36 Defect Dynamics and Plastic Deformations in Complex Plasmas
C. Durniak, D. Samsonov
University of Liverpool, Liverpool, United Kingdom

IP1F-37 Interaction Between Dust Particles in Weakly Ionized Gas Discharge Plasma
E. Lisin, O. Vaulina, O. Petrov, V. Fortov
Joint Institute for High Temperatures, RAS, Moscow, Russian Federation

IP1F-38 Modeling of Dust Transport and Impact on Fusion Edge Plasmas
R. Smirnov[1], S. Krasheninnikov[1], A. Pigarov[1], L. Roquemore[2], D. Mansfield[2], C. Skinner[2]
[1]University of California San Diego, La Jolla, CA, United States; [2]Princeton Plasma Physics Laboratory, Princeton, NJ, United States

Session IP1G: Microwave Plasma Interactions (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Tim Bigelow, ORNL

IP1G-39 Investigation of Beam Parameters to Design Plasma Filled BWO
N. Kumar, V. Lamba, D. K. Verma, M. Kumar, B. L. Meena, M. S. Tyagi, V. Srivastava, U. N. Pal
MWT, CEERI, Pilani, Rajasthan, India

IP1G-40 Rapid Formation of Distributed Plasma Discharges Using X-Band Microwaves
D. Holmquist, X. Xiang, B. Kupzyck, J. Booske, J. Scharer
Dept. of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, United States

IP1G-41 Conservation of Energy Analysis of Collisonal Cross-Field Diffusion
B. S. Stutzman[1], J. P. Verboncoeur[2]
[1]Science, US Coast Guard Academy, New London, CT, United States
[2]Electrical Engineering, Michigan State University, East Lansing, MI, United States

IP1G-42 Experimental Investigation of Air Breakdown Utilizing a 1.5-MW, 110 GHz Gyrotron
J. S. Hummelt, A. M. Cook, M. A. Shapiro, R. J. Temkin
PSFC/Waves and Beams, MIT, Cambridge, MA, United States

IP1G-43 Design of an ECH System for a Small Modular Stellarator
H. J. Trimino
Physics, Instituto Tecnologico de Costa Rica, Cartago, Costa Rica

IP1G-44 Modeling of a Tokamak Antenna Module with VORPAL
C. M. Roark, D. N. Smithe, T. M. Austin, S. W. Sides
Tech-X Corporation, Boulder, CO, United States

IP1G-45 Preliminary Simulation and Experimental Design to Determine the Feasibility of Developing a Microwave Sustained Guide Star for Adaptive Optics on Large Telescopes
K. L. Cartwright[1], R. Q. Fugate[2], B. W. Hoff[3], D. M. French[3], N. P. Lockwood[3], D. A. Shiffler[3]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]New Mexico Institute of Mining and Technology, Socorro, NM, United States
[3]Air Force Research Laboratory, Albuquerque, NM, United States

Session IP1H: Plasma, Ion & Electron Sources I (p)

Poster Session

Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Evgeniya Lock, NRL

IP1H-46 Validation and Uncertainty Quantification of ICEPIC/EMPHASIS Codes for a Series of Gas Cell Experiments at NRL
K. L. Cartwright[1], T. D. Pointon[1], D. B. Seidel[1], C. D. Turner[1], D. D. Hinshelwood[2], J. W. Schumer[2], S. B. Swanekamp[2], P. F. Ottinger[2]
[1]*Sandia National Laboratories, Albuquerque, NM, United States*
[2]*Naval Research Laboratory, Washington, DC, United States*

IP1H-47 An Improved Self-Consistent Fitting Model for Characterizing Field Emitters
M. C. Lin[1], P. S. Lu[1], J. P. Verboncoeur[2]
[1]*NSSL, Fu Jen Catholic University, New Taipei City, Taiwan*
[2]*PTSG, University of California, Berkeley, CA, United States*

IP1H-48 An Investigation into Radial Gradients in an Electrothermal Plasma Source Using a Semi 2-D Approach
A. L. Winfrey[1], J. G. Gilligan[1], A. V. Saveliev[2], M. A. Bourham[1], M. A. Abd Al-Halim[3]
[1]*Department of Nuclear Engineering, North Carolina State University, Raleigh, NC, United States*
[2]*Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, United States*
[3]*Department of Physics, Benha University, Benha, Kalubia, Egypt*

IP1H-49 One Dimensional Modeling of Atomic and Molecular Species in DC and RF Ion Sources
E. Surrey[1], A. J. Holmes[2]
[1]*Culham Centre for Fusion Energy, Abingdon, United Kingdom*
[2]*Marcham Scientific, Hungerford, United Kingdom*

IP1H-50 Numerical Study of the Start-up Scenario of a 670 GHz Gyrotron Operation at $TE_{31,8}$ Mode.
R. Pu, O. Sinitsyn, G. Nusinovich
IREAP, University of Maryland, College Park, MD, United States

IP1H-51 Characterization of a Helicon Ion Source for Helium-3 Fusion in an Inertial Electrostatic Confinement Device
G. E. Becerra, G. L. Kulcinski, J. F. Santarius
Fusion Technology Institute, University of Wisconsin-Madison, Madison, WI, United States

IP1H-52 Simulation of Microwave Plasma Discharge in 915 MHz CVD Reactor for Single Crystal Diamond Deposition
J. Lai, S. Krasnicki, Y. Meng, H. K. Mao, R. J. Hemley, K. W. Hemawan, C. S. Yan, Q. Liang
Geophysical Laboratory, Carnegie Institution of Washington, Washington, DC, United States

Session IP1I: Intense Electron & Ion Beams (p)

Poster Session
Monday, June 27 13:00-15:00, CC11 AB
Session Chair: Scott Kovaleski, University of Missouri-Columbia

IP1I-53 Two Dimensional Child-Langmuir Law for a Sharp Field Emitter
S. Sun, L. K. Ang
School of Electric and Electronic Engineering, Nanyang Technological University, Singapore, Singapore

IP1I-54 The Monte Carlo Simulation of a 1MW Neutral Beam Injector on RFX-mod
N. Pilan[1], P. Agostinetti[1], L. Grando[1], S. Kiyama[2], A. Rizzolo[1], H. Sakakita[2], M. Tollin[1], M. Valisa[1]
[1]*Consorzio RFX, Padova, Italy*
[2]*National Institute of Advanced Industrial Science and Technology AIST, Tsukuba, Japan*

IP1I-55 Analysis of Electron Beam in Pseudospak Discharge Based Hollow Cathode Electron Gun
D. K. Verma
Microwave Tubes Division, CEERI, Pilani, India

IP1I-56 Contribution of the Photonetic Doppler Velocimetry to the Cesar Electron Beam Analyze
L. Voisin, T. Desanlis, A. Galtie, B. Bicrel, D. Hebert
CEA/CESTA, Le Barp, France

IP1I-58 Using a Relativistic Electron Beam to Generate Warm Dense Matter for Equation of State Studies
M. J. Berninger[1], T. J. T. Kwan[2], M. J. Schmitt[2]

[1]*Physics and Analysis, National Security Technologies, LLC, Los Alamos, NM, United States*
[2]*X-Computational Physics Division, Los Alamos National Laboratory, Los Alamos, NM, United States*

IP1I-59 Application of the NRL High-Impedance Radiography Diode to a 2.3-MV Generator
R. J. Allen[1], G. Cooperstein[2], R. C. Fisher[2], D. D. Hinshelwood[1], D. Mosher[2], P. F. Ottinger[2], J. W. Schumer[1], F. C. Young[2]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*
[2]*L-3 Services, Inc., GS&ES, Chantilly, VA, United States*

IP1I-60 Characterization of Heavy-Ice Deposition-Thickness on Flat Metal Targets for Deuteron Ion Acceleration
M. S. Engle[1], M. Storm[1], J. T. Morrison[1], P. X. Belancourt[1], R. R. Freeman[1], L. Van Woerkom[1], S. H. Feldman[2], G. Dyer[2], T. Ditmire[2], A. C. Bernstein[2]
[1]*Physics, Ohio State University, Columbus, OH, United States*
[2]*Physics, University of Texas, Austin, TX, United States*

Session IP1J: Fast-Wave Devices (p)

Poster Session
Monday, June 27 13:00-15:00, CC12 A-D
Session Chair: Steven H Gold, Naval Research Laboratory

IP1J-1 Design, Construction and First Tests of a Stainless Steel Load for High Power mm-Wave Radiation
S. Illy, G. Gantenbein, M. Schmid, J. Weggen
IHM, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

IP1J-2 Numerical Studies on the Parasitic Modes in Gyrotron Beam Tunnels
G. P. Latsas, Z. C. Ioannidis, I. G. Tigelis
Dep. of Electronics, Computers, Telecommunications and Control, Faculty of Physics, National and Kapodistrian University of Athens, Athens, Greece

IP1J-3 Parametric Study on the Ohmic Loading of the 170-GHz 2-MW EU Coaxial Gyrotron Cavity
Z. C. Ioannidis[1], G. P. Latsas[1], I. G. Tigelis[1], K. A. Avramides[2]
[1]*Dept. of Electronics, Computers, Telecommunications and Control, Faculty of Physics, National and Kapodistrian University of Athens, Athens, Greece*
[2]*School of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece*

IP1J-4 Effects of Long-Line Reflection on the Instantaeous Tunabily of Gyrotron Backward-Wave Oscillators
S. -H. Chen[1], W. -Y. Huang[1], C. -C. Chiou[2]
[1]*Department of Physics, National Central University, Johnli, Taiwan*
[2]*Department of Physics, National Tsinghua University, Hsinchu, Taiwan*

IP1J-5 Excitation of Backward Waves in Beam Tunnels with Saw-Teeth Wall Profiles in Gyrotrons
D. Kashyn, G. Nusinovich, O. Sinitsyn, T. Antonsen
IREAP, University of Maryland, College Park, MD, United States

IP1J-6 Updates of a W-Band Gyrotron-BWO Experiment Based on a Cusp Electron Gun
C. R. Donaldson, W. He, A. D. R. Phelps, L. Zhang, F. Li, A. W. Cross, K. Ronald, C. W. Roberston, C. G. Whyte, A. R. Young
Physics, University of Strathclyde, Glasgow, United Kingdom

IP1J-7 Free Electron Maser Amplifier Experiments
C. G. Whyte, C. W. Robertson, K. Ronald, A. R. Young, W. He, A. W. Cross, P. MacInnes, A. D. R. Phelps
Physics, University of Strathclyde, Glasgow, United Kingdom

IP1J-8 Regimes for Efficiency Enhancement of Fast-Wave Amplifiers
K. Matheson[1], K. Ronald[1], A. R. Young[1], A. D. R. Phelps[1], A. W. Cross[1], A. V. Savilov[2]
[1]*SUPA, Department of Physics, University of Strathclyde, Glasgow, United Kingdom*
[2]*Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia*

Session IP1K: Space Plasmas (p)

Poster Session
Monday, June 27 13:00-15:00, CC12 A-D
Session Chair: Greg Howes, University of Iowa

IP1K-9 Investigation of a Laboratory Plasma for a Geophysical Simulation Experiment

S. L. McConville[1], D. C. Speirs[1], K. Matheson[1], C. G. Whyte[1], K. M. Gillespie[1], K. Ronald[1], A. D. Phelps[1], A. W. Cross[1], C. W. Robertson[1], W. He[1], R. Bingham[2], B. J. Kellett[2], I. Vorgul[3], A. R. Cairns[3]
[1]*Physics, University of Strathclyde, Glasgow, United Kingdom*
[2]*Space Physics, Rutherford Appleton Laboratory, Didcot, United Kingdom*
[3]*Mathematics and Statistics, University of St Andrews, Fife, United Kingdom*

IP1K-10 Examples of Synchrotron Light Leylines from Near-Earth Birkeland Currents
W. F. Yao[1], A. L. Peratt[2]
[1]*Albuquerque Public Schools, State of New Mexico, Albuquerque, NM, United States*
[2]*Applied Physics Division, Los Alamos National Laboratory, Los Alamos, NM, United States*

IP1K-11 Use of X-Pinches to Study Neutron Star Atmospheres
M. Tooth, D. Martinez, S. Stein, C. Plechaty, S. Haque, L. O'Brien, R. Presura
University of Nevada, Reno, Reno, NV, United States

IP1K-12 Numerical and Laboratory Investigation of Astrophysical Cyclotron Emission Processes
D. C. Speirs[1], K. Ronald[1], K. M. Gillespie[1], S. L. McConville[1], A. D. R. Phelps[1], A. W. Cross[1], R. A. Cairns[2], I. Vorgul[2], R. Bingham[3], B. J. Kellett[3]
[1]*Department of Physics, University of Strathclyde, Glasgow, Lanarkshire, United Kingdom*
[2]*Department of Mathematics and Statistics, University of St. Andrews, St. Andrews, Fife, United Kingdom*
[3]*Space Physics Division, Rutherford Appleton Laboratory, Didcot, Oxfordshire, United Kingdom*

IP1K-13 Synchrotron Light Leylines from Near-Earth Birkeland Currents
A. L. Peratt[1], A. H. Qoyawayma[2]
[1]*Applied Physics Division, Los Alamos National Laboratory, Los Alamos, NM, United States*
[2]*Ceramics and Epigraphics, Qoyawayma Ceramics and Epigraphics, Prescott, AZ, United States*

Session IP1L: High Pressure & Thermal Plasma Processing (p)

Poster Session
Monday, June 27 13:00-15:00, CC12 A-D
Session Chair: Yukinori Sakiyama, University of California, Berkeley

IP1L-14 Growth Mechanism of ZnO Thin Films Deposited by an Atmospheric Pressure Plasma Jet
H. C. Li, Y. J. Yang, C. C. Hsu
Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan

IP1L-15 Thermophysical Properties of Ar-He-H_2 Thermal Plasmas at High Pressure
R. Sharma, K. Singh
Physics, Guru Nanak Dev University, Amritsar, India

IP1L-16 Modeling of Convective Plasma Flow in High Pressure Microwave Plasma-Assisted CVD Diamond Reactors
C. S. Meierbachtol, N. V. Nair, T. A. Grotjohn, B. Shanker
Electrical and Computer Eng., Michigan State University, East Lansing, MI, United States

IP1L-17 Atmospheric Pressure Microwave-Powered Microplasma Source
P. Liu, T. A. Grotjohn, J. Asmussen
Electrical and Computer Eng., Michigan State University, East Lansing, MI, United States

IP1L-18 Spectroscopic Investigation of Multiple Boltzmann Distributions of Argon Atomic and Ionic Excited States in an Expanding H_2O-Ar DC Arc Jet
V. Sember
Institute of Plasma Physics ASCR, v.v.i., Prague, Czech Republic

IP1L-19 Microwave Plasma Assisted Reactor Design for High Deposition Rate Diamond Synthesis
Y. Gu[1], J. Lu[1], T. Grotjohn[1,2], T. Schuelke[2], J. Asmussen[1,2]
[1]*Electrical and Computer Engineering, Michigan State University, East Lansing, MI, United States*
[2]*Center for Coatings and Laser Applications, Fraunhofer USA, East Lansing, MI, United States*

IP1L-20 Characteristics of Pulsed Discharge Plasmas at Atmospheric Pressure for Preparation of Large-Area Amorphous Carbon Films
Y. Kikuchi[1], K. Fukui[1], M. Miyamae[1], Y. Matsuo[1], M. Nagata[1], M. Yatsuzuka[1], Y. Horiguchi[2], Y. Nishimura[2]
[1]*Graduate School of Engineering, University of Hyogo, Himeji, Japan*
[2]*Kurita Seisakusyo Co. Ltd, Kyoto, Japan*

IP1L-21 Plasma Based Nano-Technology Laboratory
C. A. Gentile, Y. Raitses
Engineering, Princeton Plasma Physics Laboratory, Princeton, NJ, United States

Session IP1M: Fast Z-Pinches I (p)

Poster Session
Monday, June 27 13:00-15:00, CC12 A-D
Session Chair: Simon C Bott, University of California, San Diego

IP1M-22 Towards Recombination Pumped H-like N X-Ray Laser
I. Gissis, A. Lifshitz, A. Rikanati, I. Beery, U. Avni, A. Fisher, E. Behar
Physics, Technion - Institute of Technology, Haifa, Israel

IP1M-23 The LLNL Z-Pinch Ion Probe Experiment (ZIPX)
V. Tang[1], G. Guethlein[1], S. Falabella[1], E. Cook[1], S. Hawkins[1], M. Adams[1], D. Blackfield[1], T. Houck[1], H. McLean[1], Y. -J. Chen[1], G. Caporaso[1], A. Schmidt[1], D. Rose[2], D. Welch[2]
[1]*Lawrence Livermore National Laboratory, Livermore, CA, United States*
[2]*Voss Scientific LLC, Albuquerque, NM, United States*

IP1M-24 Anisotropy and Feedthrough in Magneto-Rayleigh-Taylor Instabilities
Y. Y. Lau[1], I. M. Rittersdorf[1], M. R. Weis[1], R. M. Gilgenbach[1], J. C. Zier[2]
[1]*University of Michigan, Ann Arbor, MI, United States*
[2]*Naval Research Laboratory, Washington, DC, United States*

IP1M-25 Seeded Magneto-Rayleigh Taylor Experiments on Planar Foils Using a 1-MA Linear Transformer Driver
D. A. Chalenski, R. M. Gilgenbach, J. C. Zier, S. G. Patel, Y. Y. Lau, M. R. Gomez, A. M. Steiner
University of Michigan, Ann Arbor, United States

IP1M-26 Spectroscopic Analysis of Foil Plasmas on a 1-MA Linear Transformer Driver
S. G. Patel, R. M. Gilgenbach, J. C. Zier, D. A. Chalenski, M. R. Gomez, A. M. Steiner, D. M. French, M. Weis, Y. Y. Lau
Nuclear Engineering, University of Michigan, Ann Arbor, MI, United States

IP1M-27 Radial-Time Gain of Argon Laser Pumped by Pinching Capillary Discharge
M. Vrbova[1], P. Vrba[2], A. Jancarek[3], M. Nevrkla[3]
[1]*Faculty of Biomedical Engineering, Czech Technical University in Prague, Kladno, Czech Republic*
[2]*PALS, Institute of Plasma Physics AS CR, Prague, Czech Republic*
[3]*Faculty of Nuclear Science and Physical Engineering, Czech Technical University in Prague, Prague, Czech Republic*

IP1M-28 Multidimensional Radiation MHD Modeling of Argon on Deuterium Gas Puff Z-Pinch Loads as a Neutron Source
Y. K. Chong[1], A. L. Velikovich[1], J. W. Thornhill[1], J. L. Giuliani[1], C. A. Coverdale[2], D. G. Flicker[2], R. W. Clark[3]
[1]*Naval Research Laboratory, Washington, DC, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*
[3]*Berkeley Research Associates, Beltsville, MD, United States*

IP1M-29 Nuclear Reaction Kinetics in Deuterium Gas Puffs
B. D. Appelbe, J. Chittenden
Imperial College London, London, United Kingdom

IP1M-30 Comparison of Implosion Characteristics of Gases in a 1.5 kJ Plasma Focus
B. L. Bures, M. Krishnan, R. Madden
Alameda Applied Sciences Corporation, San Leandro, CA, United States

IP1M-31 MHD Simulation of Low Current Pinch Plasma Dynamics
S. M. Hassan[1], V. V. Vikhrev[2], S. S. Harilal[1], T. S. Sizyuk[1], V. Sizyuk[1], M. Tatarakis[3], A. Hassanein[1]
[1]*School of Nuclear Engineering, Purdue University, West Lafayette, IN 47907, United States*
[2]*I. V. Kurchatov Institute of Atomic Energy, Moscow, Russia*
[3]*Center for Plasma Physics and Lasers, TEI of Crete, Chania 73133, Crete, Greece*

IP1M-32 NX-3 Plasma Focus Device: High Flux Pulsed Neutron Source
R. Verma[1,2], T. L. Tan[1], P. Lee[1], A. Talebitaher[1], H. B. M. Shariff[1], S. V. Springham[1], A. Shyam[3], R. S. Rawat[1]

[1]*Natural Sciences and Science Education, National Institute of Education, Nanyang Technological University, Singapore, Singapore*
[2]*Institute for Plasma Research, Bhat, Gandhinagar, India*
[3]*Energetics and Electromagnetic Division, Bhaba Atomic Research Centre, Autonagar, Vishakhapatnam, India*

IP1M-33 Neutron Yield, Implosion Time and Energy Efficiency from a Low Energy, High Repetition Rate Plasma Focus at the 100 kA Level
B. L. Bures, C. James, M. Krishnan
Alameda Applied Sciences Corporation, San Leandro, CA, United States

IP1M-34 Capillary Discharge as a Table-Top Soft X-Ray Source
M. P. Valdivia, E. S. Wyndham, J. C. Valenzuela, M. Favre, H. Chuaqui
Facultad de Fisica, Laboratorio de Optica y Plasma, Pontificia Universidad Católica de Chile, Santiago, Chile

Session IP1N: Plasma Medicine I (p)

Poster Session
Monday, June 27 13:00-15:00, CC12 A-D
Session Chair: Mounir Laroussi, Old Dominion University

IP1N-35 Influence of Volume Dielectric Barrier Discharge in Argon and Argon Oxygen Atmospheres on Water and *E. coli* Suspensions
K. Oehmigen, M. Haensch, K. -D. Weltmann, T. von Woedtke
INP - Leibniz Institute for Plasma Science and Technology e. V., Greifswald, Germany

IP1N-36 Effective Non-Thermal Plasma Induction of Apoptosis in Leukemia Cancer Cells
M. Thiyagarajan, L. Waldbeser, A. Whitmill
Plasma Engineering & Research Laboratory, Texas A&M University - Corpus Christi, Corpus Christi, TX, United States

IP1N-37 Plasma-Cell-Interaction: Expression of Surface Molecules on HaCaT Keratinocytes after Treatment with Dielectric Barrier Discharge (DBD) Plasma
B. Haertel[1], M. Haehnel[2], K. Wende[2], K. Oehmigen[2], T. von Woedtke[2], U. Lindequist[1]
[1]*University of Greifswald, Institute of Pharmacy, Greifswald, Germany*
[2]*Leibniz-Institute for Plasma Science and Technology e.V. (INP), Greifswald, Germany*

IP1N-38 Afterglow Chemistry of Air Operated Non-Thermal Plasma Jet
X. L. Hao[1,2], A. M. Mattson[2], C. Edelblute[2], V. Amaismeier[2], M. A. Malik[2], L. C. Heller[2], J. F. Kolb[2]
[1]*Environmental and Civil Engineering, Jiangnan University, Wuxi, China*
[2]*Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, United States*

IP1N-39 Global Characterization of Physical Plasma Impact on Vegetative Microorganisms
J. Winter[1], S. Reuter[1], T. Winter[2], K. Kusch[2], R. Sietmann[2], M. Hecker[2], H. Kusch[2], M. Polak[3], J. Ehlbeck[3], K. -D. Weltmann[3]
[1]*Center for Innovation Competence plasmatis, Leibniz Institute for Plasma Science and Technology, Greifswald, Germany*
[2]*Institute for Microbiology, Ernst-Moritz-Arndt-University, Greifswald, Germany*
[3]*Leibniz Institute for Plasma Science and Technology, Greifswald, Germany*

IP1N-40 Influence of Non-Thermal Atmospheric Pressure Plasma on DNA of Human Keratinocytes (HaCaT): Role of Reactive Oxygen Species
S. Blackert[1], K. Wende[2], B. Haertel[1], K. Oehmigen[2], T. von Woedtke[2], U. Lindequist[1]
[1]*Institute of Pharmacy, Ernst Moritz Arndt University of Greifswald, Greifswald, Germany*
[2]*Leibniz Institute for Plasma Science and Technology e.V. (INP), Greifswald, Germany*

IP1N-41 Chemical Species Generated in Water by an Atmospheric-Pressure Air Plasma Jet
X. L. Hao[1,2], M. A. Malik[2], A. M. Mattson[2], J. F. Kolb[2]
[1]*Environmental and Civil Engineering, Jiangnan University, Wuxi, China*
[2]*Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, United States*

IP1N-42 The Production of Hydroxyl Radical, Singlet Oxygen and Ozone in an Atmospheric Pressure Non-Thermal Plasma Jet: From the Perspective of Efficiency and Safety
H. Wu[1], Q. Zhang[2], S. Yu[2], W. Nian[2], P. Sun[1], J. Zhang[1,2], J. Fang[1,2], W. Zhu[3]
[1]*College of Engineering, Peking University, Beijing, China*
[2]*Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[3]*Department of Applied Science and Technology, Saint Peter's College, Jersey City, NJ, United States*

IP1N-43 Characterization of a Cold Intermittent Negative DC Corona Discharge Plasma for Biomedical Applications
R. Bussiahn, R. Brandenburg, T. Gerling, T. Hoder, E. Kindel, H. Lange, T. von Woedtke, K. -D. Weltmann
Leibniz Institute for Plasma Science and Technology (INP Greifswald), Greifswald, Germany

IP1N-44 Characterizing Blood Sugar Response to a Wide Ranging Electromagnetic Radiation Using GTEM Cells
N. Boriraksantikul[1], S. Tantong[1], P. Kirawanich[2], J. Viator[3], N. Islam[1]
[1]Department of Electrical and Computer Engineering, University of Missouri-Columbia, Columbia, MO, United States
[2]Department of Electrical Engineering, Mahidol University, Salaya, Nakhon Pathom, Thailand
[3]Department of Biological Engineering, University of Missouri-Columbia, Columbia, MO, United States

Session IO2A: Laser-Produced Plasmas I (o)

Monday, June 27 15:00-17:00, Pullman Room
Session Chair: Alexander L. Velikovich, NRL

15:00 IO2A-1 Focused Laser Initiated RF Sustained High Pressure Air Plasmas
R. C. Giar, J. E. Scharer
Dept. Electrical Engineering, University of Wisconsin - Madison, Madison, WI, United States

15:15 IO2A-2 Thomson Scattering from a Laser Induced Breakdown in 1 Atmosphere of Helium
E. Nedanovska[1], W. Graham[1], G. Nersisyan[1], T. Morgan[2], L. Huwel[2], D. Riley[1]
[1]Centre for Plasma Physics, Queen's University Belfast, Belfast, United Kingdom
[2]Department of Physics, Wesleyan University, Middletown, Connecticut, United States

15:30 IO2A-3 Photoionization in Precursor of Laser-Induced Plasma by Ultraviolet Radiation
K. Shimamura[1], K. Michigami[1], B. Wang[1], K. Komurasaki[1], Y. Arakawa[2]
[1]Advanced Energy, University of Tokyo, Chiba, Japan
[2]Aeronautics and Astronautics, University of Tokyo, Tokyo, Japan

15:45 IO2A-4 Numerical Simulation of Laser-Produced Plumes
A. Sunahara[1], S. Misaki[2], K. A. Tanaka[2]
[1]Institute for Laser Technology, Suita, Osaka, Japan
[2]Osaka University, Suita, Osaka, Japan

16:00 IO2A-5 Plasma Evolution Induced by Long Nanosecond Laser Pulse Ablation: Time-Resolved Measurement and Physics-Based Modeling
S. Tao, Y. Zhou, B. Wu
Illinois Institute of Technology, Chicago, IL, United States

16:15 IO2A-6 Study of Short-Pulsed Laser-Induced Plasma Confined in a Microhole
S. Tao, B. Wu
Illinois Institute of Technology, Chicago, IL, United States

16:30 IO2A-7 Underwater Laser Filamentation and Guiding of Electrical Discharges
M. H. Helle, T. G. Jones, M. Hornstein, A. Ting, D. F. Gordon
Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

16:45 IO2A-8 Investigation of Plasma Flow Redirection by an Externally Applied Magnetic Field
C. Plechaty, R. Presura, S. Stein, L. O'Brien, S. Haque, M. Tooth
Nevada Terawatt Facility, Reno. NV, United States

Session IO2B: THz Sources, Radiation, & Applications (o)

Monday, June 27 15:00-17:00, CC23 AB
Session Chair: Kenneth Kreischer, Northrop Grumman

15:00 IO2B-1 Numerical and Experimental Analysis of THz Sheet Beam Traveling Wave Tube Amplifier (TWTA)
A. Baig, L. R. Barnett, N. C. Luhmann Jr., Y. -M. Shin
Applied Science, University of California - Davis (UCD), Davis, CA, United States

15:15 IO2B-2 Development of a 670 GHz Extended Interaction Klystron Amplifier
D. Chernin[1], R. Dobbs[2], M. Hyttinen[2], A. Roitman[2], D. Berry[2], M. Blank[3], K. Nguyen[4], V. Jabotinsky[4], E. Wright[4], D. Pershing[4], J. Calame[5], B. Levush[5], J. Neilson[6], F. Maiwald[7], N. S. Barker[8], R. Weikle[8], J. Booske[9]
[1]Science Applications International Corporation, Washington, DC, United States[2]CMP, Communications and Power Industries, Georgetown, Ontario, Canada;[3]MPP, Communications and Power Industries, Palo Alto, CA, United States; [4]Beam-Wave

Research, Inc, Bethesda, MD, United States; [5]Code 6840, Naval Research Laboratory, Washington, DC, United States; [6]Lexam Research, Redwood City, CA, United States; [7]Jet Propulsion Laboratory, Pasadena, CA, United States; [8]University of Virginia, Charlottesville, VA, United States; [9]University of Wisconsin, Madison, WI, United States

15:30 IO2B-3 670 GHz Power Amplifier Development at Northrop Grumman
J. C. Tucek, M. A. Basten, D. A. Gallagher, K. E. Kreischer
Northrop Grumman, Rolling Meadows, IL, United States

15:45 IO2B-4 Measurement of Surface Roughness Effects on Conductivity in the Terahertz Regime with a High-Q Quasioptical Resonator
B. B. Yang, J. H. Booske
Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, United States

16:00 IO2B-5 Plasma Creation by a Powerful Electromagnetic Radiation of Terahertz Gyrotrons
V. L. Bratman, Y. K. Kalynov, V. A. Koldanov, A. G. Litvak, S. V. Razin, A. V. Sidorov, V. A. Skalyga, V. G. Zorin
Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

16:15 IO2B-6 220 GHz Power Amplifier Development at Northrop Grumman
M. A. Basten, J. C. Tucek, D. A. Gallagher, K. E. Kreischer
Electronic Systems, Northrop Grumman Corporation, Rolling Meadows, IL, United States

16:30 IO2B-7 Examination of Electromagnetic Attenuation Induced by Atmospheric Water Content on Terahertz Radiation
M. J. Weber, B. B. Yang, S. L. Katz, J. H. Booske
Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, United States

16:45 IO2B-8 Comparative Study of LT-Gallium Arsenide and SI-Gallium Arsenide for THz Pulse Generation
A. K. Alla[1], S. Ray[1], P. Kirawanich[2], S. J. Yakura[3], N. Islam[1]
[1]Department of Electrical and Computer Engineering, University of Missouri-Columbia, Columbia, MO, United States
[2]Department of Electrical Engineering, Mahidol University, Salaya, Nakhon Pathom, Thailand
[3]Air Force Research Laboratory, Albuquerque, NM, United States

Session IO2C: Non-equilibrium Plasma Applications I (o)

Monday, June 27 15:00-17:00, CC22 BC
Session Chair: Michael Kong, Loughborough University

15:00 IO2C-1 Thermodynamics of Microplasma Initiation in Liquids
R. Geiger, S. Ghimire, R. Kawashima, D. Staack
Texas A&M University, College Station, TX, United States

15:15 IO2C-2 (IP2D-42) Discharge Mechanism of Aqua-Plasma Inside an Oscillating Bubble in Electrolyte
S. -Y. Yoon1, W. S. Kang2, Y. -C. Jang1, S. -H. Lee3, J. W. Hong4, G. -H. Kim1
1Department of Nuclear Engineering, Seoul National University, Seoul, South Korea
2Korea Advanced Fusion Research Institution, Seoul National University, Seoul, South Korea
3Department of Rehabilitation, Korea University, Seoul, South Korea
4Department of Control and Instrumentation, Korea University, Seoul, South Korea

15:30 IO2C-3 (invited) Plasma Acid and its Applications
N. Shainsky[1], D. Dobrynin[1], U. Ercan[2], S. Joshi[3], A. Brooks[3], H. Ji[4], G. Fridman[1], Y. Cho[1], A. Fridman[1], G. Friedman[1]
[1]A. J. Drexel Plasma Institute, Camden, NJ, United States
[2]Biomedical Engineering, Drexel University, Philadelphia, PA, United States
[3]College of Medicine, Surgery, Drexel University, Philadelphia, PA, United States
[4]College of Art and Science, Department of Chemistry, Drexel University, Philadelphia, PA, United States

16:00 IO2C-4 Study of Generation Mechanism of OH Radical in an Atmospheric Pressure Argon Microwave Plasma Jet with Addition of Water Content
N. Srivastava, C. Wang
Department of Physics & Astronomy, Mississippi State University, Mississippi State, MS, United States

16:15 IO2C-5 Independently Controlled Rf Micro-Dielectric Barrier Discharge Arrays
J. -C. Wang[1], M. J. Kushner[1], N. Leoni[2], H. Birecki[2], O. Gila[2]
[1]Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States
[2]Hewlett Packard Research Labs., Palo Alto, CA, United States

16:30 IO2C-6 High Speed Monitoring of the Discharge Regimes of a Non-Thermal Atmospheric Pressure Plasma Jet
S. Peters, J. Schaefer, R. Foest, T. Gerling, T. Hoder, K. -D. Weltmann
POT, INP Greifswald, Greifswald, Germany

16:45 IO2C-7 Propagation of Ion Plasma Wave-Packet as the Plasma Bullet in a Plasma Jet-Plume
G. Cho, E. -H. Choi, H. S. Uhm
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

Session IO2D: Radiation Physics (o)

Monday, June 27 15:00-17:00, CC21 BC
Session Chair: Alla Safronova, University of Nevade, Reno

15:00 IO2D-1 (invited) Analysis of Implosion and Stagnation of Stainless Steel Wire Array Z-Pinches at 18MA on the Z Generator
D. J. Ampleford[1], C. A. Jennings[1], B. Jones[1], S. B. Hansen[1], M. E. Cuneo[1], C. A. Coverdal[1], M. C. Jones[1], Y. Maron[2], B. Bernshtam[2], V. Fisher[2], Y. Zarnitsky[2], J. P. Apruzese[3], J. W. Thornhill[3], J. L. Giuliani[3]
[1]*Sandia National Laboratories, Albuquerque, NM, United States*
[2]*Weizmann Institute of Science, Rehovot, Israel*
[3]*Naval Research Laboratory, Washington, DC, United States*

15:30 IO2D-2 2D Radiation MHD Model Assessment of Initial Argon Gas Distributions to be Imploded on the Z Machine*
J. W. Thornhill[1], J. L. Giuliani[1], Y. K. Chong[1], A. L. Velikovich[1], A. Dasgupta[1], J. P. Apruzese[2], M. Krishnan[3], P. L. Coleman[3], R. E. Madden[3], K. W. Elliott[3], B. Jones[4], D. J. Ampleford[4], C. A. Coverdale[4], C. Jennings[4], M. E. Cuneo[4]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington DC, United States*
[2]*L3 Communications, Chantilly, VA, United States*
[3]*Alameda Applied Sciences Corp., San Leandro, CA, United States*
[4]*Sandia National Laboratories, Albuquerque, NM, United States*

15:45 IO2D-3 Anisotropy and Pulse Shaping of Radiation Emitted from Multi-Planar Wire Arrays
V. L. Kantsyrev[1], A. A. Esaulov[1], A. S. Safronova[1], L. I. Rudakov[2], A. S. Chuvatin[3], A. L. Velikovich[4], K. M. Williamson[1], G. C. Osborne[1], I. Shrestha[1], M. E. Weller[1], V. V. Shlyaptseva[1], A. Stafford[1]
[1]*University of Nevada, Reno, Reno, NV, United States*
[2]*Icarus Research Inc., Bethesda,MD, United States*
[3]*École Polytechnique, Palaiseau, France*
[4]*Naval Research Laboratory, Washington, DC, United States*

16:00 IO2D-4 3-Dimensional Modeling of Nested Al and Ni-clad Ti on Al Wire Array Z Pinches
C. A. Jennings[1], C. A. Coverdale[1], D. J. Ampleford[1], S. B. Hansen[1], B. Jones[1], E. P. Yu[1], M. E. Cuneo[1], P. D. LePell[2], J. P. Chittenden[3], Y. Maron[4]
[1]*Sandia National Laboratories, Albuquerque, NM, United States*
[2]*Ktech Corporation, Albuquerque, NM, United States*
[3]*Imperial College, London, United Kingdom*
[4]*Weizmann Institute, Rehovot, Israel*

16:15 IO2D-5 Cold K-Shell Emission from the Implosion of Brass Planar Wire Arrays and X-Pinches Performed at the 1-MA Zebra Generator at UNR
N. D. Ouart[1], J. L. Giuliani[2], A. S. Safronova[3], V. L. Kantsyrev[3], A. A. Esaulov[3], N. R. Pereira[4], I. Shrestha[3], K. M. Williamson[3], G. C. Osborne[3], M. E. Weller[3], V. Shlyaptseva[3]
[1]*Plasma Physics Division, NRC/NRL Postdoc, Naval Research Laboratory, Washington, DC, United States*
[2]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*
[3]*Physics Department, University of Nevada, Reno, Reno, NV, United States*
[4]*Ecopulse, Inc., Springfield, VA, United States*

16:30 IO2D-6 Spectroscopic Modeling for HEDP Experiments
I. E. Golovkin[1], J. J. MacFarlane[1], P. R. Woodruff[1], M. Prokopenko[1], J. E. Bailey[2], G. A. Rochau[2], G. A. Chandler[2], P. W. Lake[2], R. J. Leeper[2]
[1]*Prism Computational Sciences, Inc., Madison, WI, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*

16:45 IO2D-7 Analysis of Radiation from Uniform and Combined Ag Planar Wire Arrays

M. E. Weller[1], A. S. Safronova[1], V. L. Kantsyrev[1], A. A. Esaulov[1], A. Stafford[1], K. M. Williamson[1], I. Shrestha[1], G. C. Osborne[1], V. Shlyaptseva[1], S. Keim[1], S. B. Hansen[2]
[1]*University of Nevada, Reno, Reno, NV, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*

June 28: TUESDAY

Session JP2: Joint Plenary II

Tuesday, June 28 08:00-09:30, Ballroom AB
Session Chairs: Charles L Neumeyer, Princeton University Plasma Physics Laboratory
Ahmed Hassanein, Purdue University

8:00 JP2-1 (invited) EUV Lithography: A Semiconductor Industry Application of Plasma Physics
B. Rice, *SEMATECH, Albany, NY, United States*

8:45 JP2-2 (invited) The Future of Fusion
J. Li, *ASIPP, Hefei, China*

Session IO3A: Basic Phenomena I (o)

Tuesday, June 28 10:00-12:00, Pullman Room
Session Chair: Richard Magee, West Virginia University

10:00 IO3A-1 A Comparison of Emissive Probe Techniques for Electric Potential Measurements in a Complex Plasma
J. P. Sheehan[1], Y. Raitses[2], N. Hershkowitz[1], I. Kaganovich[2], N. Fisch[2]
[1]*Nuclear Engineering and Engineering Physics, University of Wisconsin - Madison, Madison, WI, United States*
[2]*Princeton Plasma Physics Laboratory, Princeton, NJ, United States*

10:15 IO3A-2 Effects of Wire Thickness, Neutral Pressure and Gas Composition on the Inflection Point Technique
N. Hershkowitz, B. Dechawatanapisal, C. -S. Yip
University of Wisconsin - Madison, Madison, WI, United States

10:30 IO3A-3 Plasma Parameters Dependence on the Magnetic Field in a Toroidal Discharge from Floating Double Probe Technique Measurements for Nitrogen and Argon
C. Das, D. C. Jana
Dept. of Physics & Technophysics, Vidyasagar University, Midnapore, West Bengal, India

10:45 IO3A-4 The Plasma-Sheath-Transition in RF-Modulated Low Temperature Plasmas: On the Existence of a Modified Bohm Criterion
A. Wollny
Dept. of Electrical Engineering and Information Technology, Ruhr-University Bochum, Bochum, Germany

11:00 IO3A-5 Dynamics of Atmospheric Pressure He/H_2O Microplasmas: a New Double Layer Structure
K. McKay[1], D. X. Liu[2], F. Iza[1], M. Z. Rong[2], M. G. Kong[1]
[1]*Electronic and Electrical Engineering, Loughborough University, Leicestershire, United Kingdom*
[2]*State Key Laboratory of Electrical Insulation for Power Equipment, Xi'an Jiaotong University, Xi'an, China*

11:15 IO3A-6 Ion Beam Observation in the Madhex Helicon Source
M. D. Wiebold, Y. -T. Sung, J. E. Scharer
Electrical and Computer Engineering, University of Wisconsin, Madison, Madison, WI, United States

11:30 IO3A-7 (invited) Excitation of Large-Scale Plasma Sheets and Micropulsations by Injected High Power Radio Waves
R. Pradipta[1], M. -C. Lee[2], J. Morton[3], B. Watkins[4], C. Fallen[4], S. Kuo[5]
[1]*Department of Nuclear Sciences and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*
[2]*Department of Electrical and Computer Engineering, Boston University, Boston, MA, United States*
[3]*Department of Electrical and Computer Engineering, Miami University, Oxford, OH, United States*
[4]*Geophysical Institute, University of Alaska Fairbanks, Fairbanks, AK, United States*
[5]*Department of Electrical and Computer Engineering, New York University, Brooklyn, NY, United States*

Session IO3B: High Pressure & Thermal Processing/Thrusters/Lighting & Flat Panel Displays (o)

Tuesday, June 28 10:00-12:00, CC23 AB
Session Chair: Sung-Jin Park, University of Illinois

10:00 IO3B-1 Characterization of Plasmas in Saline Solutions under Different Bubble Behavior
H. W. Chang, C. C. Hsu
Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan

10:15 IO3B-2 Microwave Plasma Assisted Synthesis of Single Crystal Diamond at High Pressures and High Power Densities
J. Lu[1], Y. Gu[1], D. K. Reinhard[1,2], T. A. Grotjohn[1,2], J. Asmussen[1,2]
[1]*Electrical & Computer Engineering, Michigan State University, East Lansing, MI, United States*
[2]*Center for Coatings and Laser Applications, Fraunhofer USA, East Lansing, MI, United States*

10:30 IO3B-3 High-Functionally Composite Materials by Gas Tunnel Type Plasma Spraying
A. Kobayashi
JWRI, Osaka University, Ibaraki, Osaka, Japan

10:45 IO3B-4 Measuring Fill Gas Pressure in an Electrodeless Lamp by RF Impedance Diagnostics
R. P. Gilliard, A. Hafidi, D. O'Hare, G. Adishian
Luxim Corporation, Sunnyvale, CA, United States

11:00 IO3B-5 (invited) Glow-to-Arc Transition in Mercury-Free HID Lamps: Cathode Phenomena and Salt Evaporation Model
N. Y. Babaeva[1], M. J. Kushner[1], A. Sato[2], N. Brates[2], S. Yamamoto[2]
[1]*Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States*
[2]*Universal Lighting Technologies Inc, Woburn, MA, United States*

11:30 IO3B-6 Investigation of Plasma Detachment Mechanisms in a Magnetic Nozzle
P. -Q. Elias, R. Gueroult
Physics and Instrumentation Department, ONERA, Palaiseau, France

11:45 IO3B-7 Two-Dimensional Laser Collision-Induced Fluorescence Mapping of Electron Density and Temperature near Plasma Cathode Apertures
B. R. Weatherford[1], J. E. Foster[1], E. V. Barnat[2]
[1]*University of Michigan, Ann Arbor, MI, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*

Session IO3C: Charged Particle & Nuclear Diagnostics/Microwave & FIR Diagnostics (o)

Tuesday, June 28 10:00-11:45, CC22 BC
Session Chairs: Hans Hermann, LANL
Yongho Kim, Los Alamos National Laboratory

10:00 IO3C-1 (invited) Nuclear Diagnostic Commissioning for the National Ignition Campaign
S. Le Pape[1], A. Mackinnon[1], P. McKenty[2], S. Craxton[2], S. Janezic[3], A. Nikroo[4], M. Hoppe[4], J. Moody[1], J. Caggianno[1], V. Glebov[2], J. Frenje[5], H. Herrmann[6], J. McNanney[1], G. Grimm[6], R. Leeper[7], D. Bleuel[1], S. Friedrich[1], J. Knauer[2], R. Petrasso[5], M. Rosenberg[6], A. Zylstra[6], H. Rinderknech[6], A. Macphee[1], C. Sangster[2], J. D. Kilkenny[4]
[1]*Lawrence Livermore National Laboratory, Livermore, CA, United States*
[2]*Laboratory for Laser Energetics, University of Rochester, Rochester, NY, United States*
[3]*Departments of Mechanical Engineering and Physics & Astronomy, University of Rochester, Rochester, NY, United States*
[4]*General Atomics Corporation, La Jolla, CA, United States*
[5]*Plasma Science and Fusion Center, Massachusetts Institute of Technology, Cambridge, MA, United States*
[6]*Los Alamos National Laboratory, Los Alamos, NM, United States*
[7]*Sandia National Laboratories, Albuquerque, NM, United States*

10:30 IO3C-2 Performance Characteristics of the Neutron Imaging Diagnostic at NIF
F. E. Merrill[1], D. Clark[1], D. Mares[1], V. Fatherley[1], G. P. Grim[1], E. Loomis[1], G. Morgan[1], J. Oertel[1], I. Tregillis[1], P. Volegov[1], C. Wilde[1], M. Wilke[1], D. Bower[2], J. Dzenitis[2], B. Felker[2], M. Frank[2], J. R. Holloway[2], D. Kalantar[2], J. Kingman[2], R. Nyholm[2], G. Roberson[2], P. Weiss[2], R. Buckles[3], N. Guler[1], C. Danly[1], T. Murphy[1], C. Munson[1], D. Fittinghoff[2], B. Quivey[2]
[1]*Los Alamos National Laboratory, Los Alamos, NM, United States*
[2]*Lawrence Livermore National Laboratory, Livermore, CA, United States*
[3]*National Securities Technology, Livermore, CA, United States*

10:45 IO3C-3 Measuring Neutron Yield and ρR Anisotropies with Activation Foils at the National Ignition Facility
D. Bleuel
Physics Division, Lawrence Livermore National Laboratory, Livermore, CA, United States

11:00 IO3C-4 The Radiochemical Analysis of Gaseous Samples (RAGS) Apparatus for Nuclear Diagnostics at the National Ignition Facility
D. A. Shaughnessy[1], W. Stoeffl[1], C. Velsko[1], K. Moody[1], L. Bernstein[1], D. Jedlovec[1], A. Linden-Levy[1], E. Tereshatov[1], D. Schneider[1], A. Riddle[2]
[1]*Lawrence Livermore National Laboratory, Livermore, CA, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*

11:15 IO3C-5 Introducing Hairpin Probe for Electron Density Measurement in a Kamaboko-III Negative Ion Source
G. S. Gogna[1], S. K. Karkari[1,2], D. Boilson[3], M. M. Turner[1], A. Simonin[3]
[1]*School of Physical Sciences, Dublin City University, Dublin, Ireland*
[2]*Basic Plasma Group, Institute for Plasma Research, Bhat Gandhinagar, Gujarat, India*
[3]*Neutral Beam Injection Group, ITER Organization, 13115 St. Paul Lez Durance, France*

11:30 IO3C-6 Increased Resolution ECE Imaging of Temperature Profiles/Fluctuations in Tokamak Plasmas
X. Kong, L. Yu, S. Che, C. W. Domier, N. C. Luhmann, Jr.
Dept. of Applied Science, University of California, Davis, Davis, CA, United States

Session IO3D: High Energy Density Matter (o)

Tuesday, June 28 10:00-12:00, CC21 BC
Session Chair: David Ampleford, Sandia National Laboratories

10:00 IO3D-1 Measurement of Ablative Richtmyer-Meshkov Growth in Planar Geometry
S. H. Batha[1], E. N. Loomis[1], D. Braun[2], O. L. Landen[2]
[1]*Physics, Los Alamos National Laboratory, Los Alamos, NM, United States*
[2]*Lawrence Livermore National Laboratory, Livermore, CA, United States*

10:15 IO3D-2 Investigation of Electrical Conductivity and Equations of State of Metals Using Different Timescale Underwater Electrical Wire Explosion
D. Sheftman, Y. E. Krasik
Physics, Technion, Haifa, Israel

10:30 IO3D-3 (invited) Velocity and Temperature Measurements of Z Pinch Plasmas Using Optical Thomson Scattering
A. J. Harvey-Thompson, S. V. Lebedev, S. Patankar, R. Smith, H. W. Doyle, S. N. Bland, J. P. Chittenden, G. N. Hall, F. Suzuki Vidal, G. Swadling, G. Burdiak, P. De Grouchy, L. Pickworth, E. Khoory, L. Suttle, A. Colaitis
Imperial College London, London, United Kingdom

11:00 IO3D-4 Plasma Dynamics and Stability of Radial Foil Explosions on COBRA
P. A. Gourdain, D. A. Hammer, P. F. Knapp, B. R. Kusse, S. A. Pikuz, P. C. Schrafel, C. E. Seyler, T. C. Shelkovenko
Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States

11:15 IO3D-5 Asymmetric Spreading of a Radial Foil Plasma Jet Due to Imposed Magnetic Field
P. Schrafel, P. Gourdain, J. Greenly, B. Kusse
Cornell University, Ithaca, NY, United States

11:30 IO3D-6 Numerical Simulations of Wire and Foil Behaviors Driven by Megaampere Current to Produce Warm Dense Matter
S. F. Garanin[1], A. M. Buyko[1], S. D. Kuznetsov[1], R. E. Reinovsky[2]
[1]*ITMF, All-Russian Research Institute of Experimental Physics (VNIIEF), Sarov, Nizhny Novgorod Region, Russian Federation*
[2]*Los Alamos National Laboratory, Los Alamos, NM, United States*

11:45 IO3D-7 Equations of State for Metals at High Energy Densities
K. V. Khishchenko, *Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russian Federation*

Session IP2A: Basic Phenomena II (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC11 AB
Session Chair: Earl Scime, West Virginia University

IP2A-1 Effects of the Distribution Function of the Emitted Electrons on the Space-Charge Region Formed in Front of a Floating Electrode
J. Kovačič[1], T. Gyergyek[1,2], M. Čerček[2,3]
[1]*Laboratory of Physics, University of Ljubljana, Faculty of Electrical Engineering, Ljubljana, Slovenia*
[2]*Reactor Physics Department, Laboratory of Plasma Physics, "Jozef Stefan" Institute, Ljubljana, Slovenia*
[3]*Physics Department, University of Maribor, Faculty of Civil Engineering, Maribor, Slovenia*

IP2A-2 PIC/MCC Simulations and Measurements of Microdischarges in MEMS Structures
A. Venkattraman[1], A. Garg[2,3], D. Peroulis[2,3], A. Alexeenko[1,3]
[1]*School of Aeronautics & Astronautics, Purdue University, West Lafayette, IN, United States*
[2]*School of Electrical & Computer Engineering, Purdue University, West Lafayette, IN, United States*
[3]*Birck Nanotechnology Center, Purdue University, West Lafayette, IN, United States*

IP2A-3 Chemistry of Atmospheric Pressure Low Temperature Plasma Jets for Different Experimental Parameters
E. Karakas, J. Jarrige, M. A. Akman, M. Laroussi
Laser and Plasma Eng. Inst., Old Dominion University, Norfolk, VA, United States

IP2A-4 Ion Acceleration in the Madhex Helicon Source
Y. -T. Sung, M. D. Wiebold, J. E. Scharer
Electrical and Computer Engineering, University of Wisconsin, Madison, Madison, WI, United States

IP2A-5 Ambipolar Diffusion in Weakly Ionized Plasmas
J. H. Hoyos[1], A. Reisenegger[2], J. A. Valdivia[3]
[1]*Depto. de Ciencias Basicas, Universidad de Medellin, Medellin, Colombia*
[2]*Fac. de Fisica, Depto. de Astronomia y Astrofisica, Pontificia Universidad Católica de Chile, Santiago, Chile*
[3]*Fac. de Ciencias, Depto. de Fisica, Universidad de Chile, Santiago, Chile*

IP2A-6 Time-Resolved Phase Contrast Imaging of Electrohydrodynamic Interaction Induced by a Dielectric Barrier Discharge
S. Nourgostar, N. Hershkowitz
Nuclear Eng. and Eng. Physics, University of Wisconsin, Madison, WI, United States

IP2A-7 Control of the Contact Hole Diameter Using Inductively Coupled Fluorocarobon and Hydrocarbon Plasmas
J. -H. Kim, S. -W. Cho, C. -K. Kim
Ajou University, Suwon, South Korea

IP2A-8 Investigation of the Moving Striation in a Low Pressure Mercury Discharge
Y. Watanabe, M. Kawagoe
Engineering, Kanagawa University, Yokohama, Japan

Session IP2B: Computational Plasma Physics I (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC11 AB
Session Chair: John P Verboncoeur, Michigan State University

IP2B-9 Radar Cross Section Simulation of Metal Cone Covered with Plasma
S. S. M. Chung
Electronics Engineering, Southern Taiwan University of Technology, Tainan, Taiwan

IP2B-10 Suggestion of a Structural Design for ICF Pellets in Order to Reduce Fluid Instabilities
A. Esmaeili[1], A. Sirusi Arvrij[2], M. Rezvani Jalal[3]
[1]*CS Department, University of Tsukuba, Tsukuba, Japan*
[2]*Photonics & Applied Physics, Graduate Program of Gwangju Institute of Science and Technology Oryong-dong, Buk-gu, 500-712, Gwangju, Republic of Korea*
[3]*Department of Physics, University of Bu Ali Sina, Hamedan, Iran*

IP2B-11 Particle-in-Cell Simulation of Plasmonic Nanoparticle
W. S. Koh[1], S. -H. Chen[2], L. K. Ang[3]
[1]*Institute of High Performance Computing, A*STAR, Singapore 138632, Singapore*
[2]*National Central University, Jhongli 32001, Taiwan*
[3]*Nanyang Technological University, Singapore 639798, Singapore*

IP2B-12 Heat Transfer in Beam Optics Analyzer

T. Bui, L. Ives, M. Read
Calabazas Creek Research, Inc., Mountain View, CA, United States

IP2B-13 Integrated Thermal & EM Simulation Capability in the VORPAL Software
D. Smithe[1], P. Stoltz[1], H. Wang[2], G. Cheng[2]
[1]*Tech-X Corporation, Boulder, CO, United States*
[2]*Thomas Jefferson National Accelerator Facility, Newport News, VA, United States*

IP2B-14 Particle-in-Cell (PIC) Tools for Simulation of Electrodynamic Bare Tether Plasma Interactions
S. Mahalingam[1], Y. Choi[1], P. H. Stoltz[1], L. P. Rand[2], J. D. Williams[2]
[1]*Tech-X Corporation, Boulder, CO, United States*
[2]*Mechanical Engineering, Colorado State University, Fort Collins, CO, United States*

IP2B-15 Optimization and Characterization of Xenon Ions Density in a Hall Plasma Thruster
D. I. Ndihgihdah
Physics Department, Bayero University, Kano, Abuja, Nigeria

IP2B-16 Two-Stream Instability in Plasma Klystron
P. Mardahl
Air Force Research Laboratory, Kirtland AFB, NM, United States

Session IP2C: Plasma, Ion & Electron Sources II (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC11 AB
Session Chair: Evgeniya Lock, NRL

IP2C-18 Influences of Coil Current and Gas Pressure on Plasma Parameters
N. Delkash Rudsary
Radiation Department of Shahid Behesahti University, Tehran, Iran

IP2C-19 High-Current Diode with Ferroelectric Plasma Source-Assisted Hollow Anode
V. Vekselman, J. Gleizer, S. Yatom, V. Gurovich, Y. Krasik
Physics, Technion, Haifa, Israel

IP2C-20 Analytical and Experimental Study of Electric Field Screening by the Proximity of Two Field Emitters
W. Tang[1], D. Shiffer[1], K. Golby[2], M. LaCour[2]
[1]*Air Force Research Laboratory, Albuquerque, NM, United States*
[2]*SAIC Inc, Albuquerque, NM, United States*

IP2C-21 Ion Source Characterization and Testing
E. A. Baxter, S. D. Kovaleski, B. H. Kim, J. W. Kwon
University of Missouri, Columbia, MO, United States

IP2C-22 Electron Gun Design for High Voltage Piezoelectric Accelerators
B. B. Gall, J. A. VanGordon, S. D. Kovaleski, E. A. Baxter, B. H. Kim, J. W. Kwon
University of Missouri, Columbia, MO, United States

IP2C-24 Development of a 6.78 MHz Radio-Frequency Argon Plasma Jet
S. Wang, L. Zhao, J. Yang, S. Jia
Institute of Microelectronics, Academy of Chinese Sciences, Beijing, China

IP2C-25 Cylindrical Atomospheric Plasma Source Using Parallel MHCD and Repetitive Impulse Voltage to the Third Axial Electrode
M. Maeyama, A. Kubota, M. Takenaka
Graduate School of Science and Engineering, Saitama University, Saitama, Japan

IP2C-26 Integrated Cylindrical Plasma Source Using Parallel Operated MCS Discharges
T. Asano, A. Kon, M. Maeyama
Graduate School of Science and Engineering, Saitama University, Saitama, Japan

IP2C-27 The Study of Ultra-Fast Electrical Breakdown of the Air-Filled Gap
V. Vekselman, S. Yatom, D. Levko, J. Gleizer, Y. Krasik
Physics, Technion, Haifa, Israel

IP2C-28 Atmospheric Pressure Microwave Plasma Torch
F. Bozduman, A. Gulec, T. Aktan, L. Oksuz
Physics, Süleyman Demirel University, Isparta, Turkey

IP2C-29 AC Atmospheric Pressure Plasma Generated in Insulating Tubings
W. Zhu[1,2], R. Wang[1,3,4], V. Johnson[1], J. L. Lopez[1,2]
[1]*Center for Microplasma Science and Technology, St. Peter's College, Jersey City, NJ, United States*
[2]*Department of Applied Science and Technology, St. Peter's College, Jersey City, NJ, United States*
[3]*Department of Physics, Polytechnic Institute of NYU, Brooklyn, NY, United States*
[4]*School of Engineering, Peking University, Beijing, China*

IP2C-30 Ion Emission Dynamics in Ultrafast Laser Ablated Plasmas
B. Verhoff, M. Polek, S. Harilal, A. Hassanein
School of Nuclear Engineering & Center for Materials Under Extreme Environment, Purdue University, West Lafayette, IN, United States

IP2C-31 Plasma Diagnostics with a High-Aspect Ratio Cylindrical Probe Used as an Impedance Probe
D. N. Walker[1], R. F. Fernsler[2], D. D. Blackwell[2], W. E. Amatucci[2]
[1]*Global Strategies Group, GTEC, Inc., Crofton, MD, United States*
[2]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*

IP2C-32 Ambient Ionization for Methane Quantification in Simulated Martian Atmosphere Using Miniature Inductively Coupled Plasmas
M. Taghioskoui[1], M. Zaghloul[1], A. Montaser[2]
[1]*Electrical and Computer Engineering, The George Washington University, Washington, DC, United States*
[2]*Department of Chemistry, The George Washington University, Washington, DC, United States*

Session IP2D: Non-equilibrium Plasma Applications I (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC11 AB
Session Chair: Michael Kong, Loughborough University

IP2D-33 Tongue-Shaped Ultrahigh Frequency Atmospheric Pressure Plasma Jet
M. Taghioskoui[1], M. Zaghloul[1], A. Montaser[2]
[1]*Electrical and Computer Engineering, The George Washington University, Washington, DC, United States*
[2]*Department of Chemistry, The George Washington University, Washington, DC, United States*

IP2D-34 Electrical Modeling of Strongly-Coupled Microstrip Resonator Arrays for Microplasma Generation
A. R. Hoskinson, C. Wu, J. Hopwood
Electrical and Computer Engineering, Tufts University, Medford, MA, United States

IP2D-35 Simulation of a Capacitively Coupled Silane/hydrogen Discharge
F. -W. Gu[1], K. -C. Leou[1], C. -C. Hseih[2], C. -F. Ai[2]
[1]*Engineering and System Science Department, National Tsing Hua University, Hsinchu, Taiwan*
[2]*Physics Division, Institute of Nuclear Energy Research, Tauyuan, Taiwan*

IP2D-36 Minimizing Damage of Porous SiCOH Using He/H_2 Plasmas
J. Shoeb[1], M. J. Kushner[2]
[1]*Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*
[2]*Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States*

IP2D-37 Optical Diagnostics on Transient Plasma Ignition
S. J. Pendleton[1], M. A. Gundersen[2]
[1]*Department of Physics and Astronomy, University of Southern California, Los Angeles, CA, United States*
[2]*Ming Hsieh Department of Electrical Engineering - Electrophysics, University of Southern California, Los Angeles, CA, Unites States*

IP2D-38 Spatially Resolved Simulation of an Radio-Frequency Driven Atmospheric Pressure Plasma Jet in Ambient Air
T. Hemke, M. Gebhardt, A. Wollny, R. P. Brinkmann, T. Mussenbrock
Ruhr-University Bochum, Bochum, Germany

IP2D-39 Intense Plasma Emissions by Plasma Direct Jet-to-Jet Coupling in Atmospheric Pressure Plasma Jet Arrays

J. Y. Kim, S. -O. Kim
Holcombe Department of Electrical and Computer Engineering, Center for Optical Materials Science and Engineering Technologies (COMSET), Clemson University, Clemson, SC, United States

IP2D-40 Development of High-Power Plasma Reformer and Power-Supply for Large Scale Applications
I. Chernets, G. Nirenberg, A. Fridman, A. Rabinovich
A.J. Drexel Plasma Institute, Drexel University, Philadelphia, PA, United States

IP2D-41 Observation of Plasma Bullet with a Charge-Coupled Device Camera and a Photo-Sensor Amplifier
Y. Kim, M. K. Lee, G. Han, H. Kim, S. Han, K. Y. Baik, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

IP2D-42 Discharge Mechanism of Aqua-Plasma Inside an Oscillating Bubble in Electrolyte
S. -Y. Yoon[1], W. S. Kang[2], Y. -C. Jang[1], S. -H. Lee[3], J. W. Hong[4], G. -H. Kim[1]
[1]*Department of Nuclear Engineering, Seoul National University, Seoul, South Korea*
[2]*Korea Advanced Fusion Research Institution, Seoul National University, Seoul, South Korea*
[3]*Department of Rehabilitation, Korea University, Seoul, South Korea*
[4]*Department of Control and Instrumentation, Korea University, Seoul, South Korea*

IP2D-43 Performance of 5 x 5 Arrays of Al/Al_2O_3 Microcavity Plasma Jet Devices: Spatially Resolved Optical Emission Profiles in He Flow
J. H. Cho, J. K. Jeon, J. Y. Jeon, S. -J. Park, J. G. Eden
Electrical and Computer Engineering, University of Illinois, Urbana, IL, United States

Session IP2E: Fast Z-Pinches II (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC11 AB
Session Chair: Simon C Bott, University of California, San Diego

IP2E-44 Effect of Twist Wavelength on X-Ray Power Output in Al Cable Array Z-Pinches
C. L. Hoyt, P. F. Knapp, P. A. Gourdain, S. A. Pikuz, T. A. Shelkovenko, J. B. Greenly, B. R. Kusse, D. A. Hammer
Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States

IP2E-45 Nested Array Dynamics from Ni-clad Ti - Al Wire Array Z Pinches
C. A. Coverdale[1], M. E. Cuneo[1], C. Jennings[1], B. Jones[1], C. Deeney[1], P. D. LePell[2], Y. Maron[3]
[1]*Sandia National Labs, Albuquerque, NM, United States*
[2]*Ktech Corporation, Albuquerque, NM, United States*
[3]*Weizmann Institute, Rehovot, Israel*

IP2E-46 Comparison of Multi-Dimensional MHD Simulations Against Exact Solutions for a Stagnating Z Pinch
J. L. Giuliani[1], A. L. Velikovich[1], J. W. Thornhill[1], S. T. Zalesak[2]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*
[2]*Berkeley Research Associates, Beltsville, MD, United States*

IP2E-47 New Exact MHD Solutions Describing the Stagnating Z-Pinch Plasma
A. L. Velikovich[1], J. L. Giuliani[1], S. T. Zalesak[2], Y. Maron[3], A. Starobinets[3], E. P. Yu[4]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*
[2]*Berkeley Research Associates, Beltsville, MD, United States*
[3]*Weizmann Institute of Science, Rehovot, Israel*
[4]*Sandia National Laboratories, Albuquerque, NM, United States*

IP2E-48 Hybrid MHD-PIC Simulations of Electrode Plasma Dynamics in the Z-Accelerator
S. W. Vickers[1], J. Chittenden[2]
[1]*Hydrodynamics, AWE, Reading, United Kingdom*
[2]*Plasma Physics, Imperial College, London, United Kingdom*

IP2E-49 Wire Array Z-Pinch Experiments on MAGPIE Facility
S. Lebedev, S. N. Bland, G. Burdiak, J. P. Chittenden, A. Harvey-Thomson, G. N. Hall, P. D. Grouchy, L. Suttle, F. A. Suzuki-Vidal, G. Swadling, E. Khoory, L. Pickworth, J. Skidmore
Physics, Imperial College London, London, United Kingdom

IP2E-50 Analytical Analysis of the Ablation Phase of Low Wire Number Wire Arrays
S. C. Bott, D. Mariscal, K. Gunasekera, J. Peebles, F. N. Beg

University of California, San Diego, La Jolla, CA, United States

IP2E-51 Plasma Evolution and Modulated Structures along the Wire Within Al Z-Pinch/X-Pinch Loads on QG-I Facility
G. Wu[1], J. Wu[2], L. Wang[1], J. Han[1], N. Guo[1], P. Cong[1], M. Qiu[1], A. Qiu[1], M. Lv[2]
[1]*Northwest Institute of Nuclear Technology, Xi'an, China*
[2]*Tsinghua University, Beijing, China*

IP2E-52 Study of Plasma Diffusion Across Magnetic Fields Using Double Planar Wire Arrays
D. A. Mariscal, S. C. Bott, F. N. Beg, J. Peebles, K. Gunasekera
University of California, San Diego, La Jolla, CA, United States

IP2E-53 Preliminary Opacity Experiments in Dense High Z Plasmas on the MAGPIE Facility
L. A. Pickworth[1], S. N. Bland[1], S. V. Lebedev[1], G. N. Hall[1], F. A. Suzuki-Vidal[1], A. Harvey-Thompson[1], G. F. Swadling[1], G. Burdiak[1], J. Skidmore[1], P. de Grouchy[1], L. Suttle[1], N. P. Niasse[1], J. P. Chittenden[1], S. A. Pikuz[2], T. A. Shelkovenko[2]
[1]*Plasma Physics, Imperial College London, London, United Kingdom*
[2]*Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States*

IP2E-54 Optical and Electrical Diagnostic of Underwater Zn-wire Explosion
V. Prukner, K. Kolacek, J. Schmidt, O. Frolov, J. Straus
Institute of Plasma Physics AS CR, v.v.i., Prague, Czech Republic

Session IP2F: Laser-Produced Plasmas (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Alexander L. Velikovich, NRL

IP2F-1 Intense Ultrashort Laser - Xe Cluster Interaction
J. Davis[1], K. Whitney[2], T. B. Petrova[1], G. M. Petrov[1]
[1]*Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States*
[2]*Berkeley Research Associates, Beltsville, MD, United States*

IP2F-2 HEIGHTS Simulation and Optimization of Laser Produced Plasma EUV Sources
T. Sizyuk, A. Hassanein
NE, Purdue University, West Lafayette, IN, United States

IP2F-3 Laser-Produced Carbon Plasma Evolution and Lifecycle
M. Polek, S. Harilal, A. Hassanein
CMUXE, Purdue University, W. Lafayette, IN, United States

IP2F-4 X-Ray Emission in the Water-Window from Laser-Produced Boron-Nitride Plasma
M. L. Crank, S. S. Harilal, S. M. Hassan, A. Hassanein
School of Nuclear Engineering CMUXE, Purdue University, West Lafayette, IN, United States

IP2F-5 Crater Formation and Signal Intensity in Nano- and Femto-Second Laser Ablation Inductively Coupled Plasma Mass Spectrometry
N. L. LaHaye, B. Verhoff, S. Harilal, A. Hassanein
School of Nuclear Engineering & Center for Materials Under Extreme Environment, Purdue University, West Lafayette, IN, United States

IP2F-6 Effects of Pre-Pulses on Extreme Ultraviolet Conversion Efficiency in Laser-Produced Tin Plasmas
J. R. Freeman, R. W. Coons, S. S. Harilal, S. M. Hassan, A. Hassanein
School of Nuclear Engineering & Center for Materials Under Extreme Environment, Purdue University, West Lafayette, IN, United States

IP2F-7 Time-of-Flight Spectroscopy and Fast Imaging Studies of Carbon Dimers in Laser-Produced Plasmas
K. F. Al-Shboul, S. S. Harilal, A. Hassanein
Purdue University, West Lafayette, IN, United States

IP2F-8 The Role of Excitation Wavelength on Debris for CO_2 and Nd:YAG Laser-Produced Plasma EUVL Sources
M. D. Fields, S. S. Harilial, A. Hassanein
Nuclear Engineering, Purdue University, West Lafayette, IN, United States

IP2F-10 Late Time Magnetic Field in Laser Produced Plasmas

S. Stein, D. Martinez, R. Presura
Nevada Terawatt Facility, University of Nevada, Reno, Reno, NV, United States

IP2F-11 Experimental Study of Shock Wave Discontinuities and Interactions with Laser Induced Plasmas
M. Thiyagarajan
Texas A&M University - Corpus Christi, Corpus Christi, TX, United States

Session IP2G: Environmental & Industrial Applications I (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: XinPei Lu, College of EEE, HuaZhong University of Science and Technology

IP2G-12 Portable Plasma Torch Treatment on *E. coli, S. aureus, N. meningitidis* and Other Clinical Isolates
M. Thiyagarajan, L. Waldbeser
Plasma Engineering & Research Laboratory, Texas A&M University - Corpus Christi, Corpus Christi, TX, United States

IP2G-13 Hybrid RF and MW Plasma CVD Process for High-Quality Diamond Thin-Film
S. Han, T. Kwon, S. Park, J. Park
Department of Electrical Engineering, Kyungnam University, Changwon, South Korea

IP2G-14 Polyethyleneterephthalate Surface Modification by an Atmospheric Pressure RF Helium-Perfluorohexane Plasma
S. Yang[1], J. Tang[2]
[1]*Dept. of Electrical Engineering, Alabama A&M University, Normal, AL, United States*
[2]*Dept. of Mathematics and Physics, Hunan First Normal College, Changsha, Hunan, China*

IP2G-15 Synthesis of Nanoparticles Using an Atmospheric Pressure Plasma Jet
S. M. Chang, C. C. Hsu
Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan

IP2G-16 Decomposition of Cellulose by Plasma in Salt Solutions
S. H. Wang, H. W. Chang, C. C. Hsu
Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan

IP2G-17 Decomposition of Perfluorooctane Sulfonate in Water Using Atmospheric Plasma
H. Obo, R. Hayashi, N. Takeuchi, K. Yasuoka
Tokyo Institute of Technology, Tokyo, Japan

IP2G-18 Measurement of Discharge Parameters in He Filled Dielectric Barrier Discharge
P. Gulati[1], U. N. Pal[1], M. Kumar[1], M. S. Tyagi[1], B. L. Meena[1], R. Prakash[2]
[1]*Microwave Tubes Division, CEERI, Pilani, Rajasthan, India*
[2]*Department of Applied Physics, BIT, Jaipur Campus, Jaipur,Rajasthan, India*

IP2G-19 Sterilization of Organic Sheet by Plasma-Based Ion Implantation
N. Sakudo, N. Ikenaga, Y. Nakayama, Y. Kishi, Z. Yajima
College of Engineering, Kanazawa Institute of Technology, Ishikawa, Japan

IP2G-20 Atmospheric Pressure Plasma Decomposition of Azo Dyes in Water
S. Lee, R. -J. Liang, J. -W. Peng
Department of Chemistry, Chung Yuan Christian University, Chungli, Taiwan

IP2G-21 Optical Emission Spectroscopy Analysis of Silane/Methane/Hydrogen Plasma for Deposition of a SiC:H Film
C. -P. Lin[1], K. -C. Leou[1], M. -C. Wang[2], Y. -Z. Chen[2]
[1]*Engineering and System Science Department, National Tsing Hua University, Hsinchu, Taiwan*
[2]*Physics Division, Institute of Nuclear Energy Research, Tauyuan, Taiwan*

Session IP2H: Plasma Medicine II (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Mounir Laroussi, Old Dominion University

IP2H-22 Dielectric Barrier Atmospheric Discharge Combined with Petri-Dish
J. Kim, J. Jeong, G. Han, G. Park, E. Choi, G. Cho

Department of Electrophysics, Kwangwoon University, Seoul, South Korea

IP2H-23 Sterilization Effect of Various Gas Non-Thermal Plasma
T. Takamatsu[1], M. Ichikawa[1], H. Hirai[1], R. Sasaki[1], M. Shibata[1], H. Miyahara[1], Y. Matsumoto[2], A. Okino[1]
[1]*Department of Energy Sciences, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan*
[2]*Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology, Meguro-ku, Tokyo, Japan*

IP2H-24 Atmospheric Pressure Air Plasma Jet Assisted Blood Coagulation
Y. H. Kim[1], H. S. Rhim[2], H. S. Uhm[1], E. H. Choi[1]
[1]*Dept. of Electrophysics, Plasma Bioscience Research Center, Seoul, South Korea*
[2]*Dept. of Biomedical Sciences, Plasma Bioscience Research Center, Seoul, South Korea*

IP2H-25 The Micro-Plasma Jet for Biomedical Application
O. -J. Lee[1], J. -M. Lee[1], H. -W. Joo[1], C. -H. Park[1,2], S. -J. Park[3], J. G. Eden[3]
[1]*Hallym University, Chuncheon, Kangwondo, South Korea*
[2]*Department of Otorhinolaryngology-Head & Neck Surgery, Hallym Medical Center, Chuncheon, Kangwondo, South Korea*
[3]*University of Illinois, Urbana, IL, United States*

IP2H-26 Atmospheric Pressure Plasma Jet Effects on Sterilization of *E. coli* and *S. aureus*
T. Aktan[1], A. Gulec[1], K. Ozaltin[1], L. Oksuz[1], S. Ulusoy[2]
[1]*Physics, Süleyman Demirel University, Isparta, Turkey*
[2]*Biology, Süleyman Demirel University, Isparta, Turkey*

IP2H-27 Antibacterial Efficacy of Nonthermal Atmospheric Pressure Plasma Against *Candida albicans*
T. Aktan[1], H. E. Guldas[2], L. Oksuz[1], B. Ureyen Kaya[2], A. D. Kececi[2], E. Sesli Cetin[3], T. Ozturk[3]
[1]*Physics, Süleyman Demirel University, Isparta, Turkey*
[2]*Dentistry, Süleyman Demirel University, Isparta, Turkey*
[3]*Medicine, Süleyman Demirel University, Isparta, Turkey*

IP2H-28 A Self-Pulsed Air Plasma Plume for Biomedical Applications
X. Lu, S. Wu, Y. Pan
CEEE, HuaZhong University of Science & Technology, China, WuHan, China

IP2H-29 Tooth Whitening by a Direct Current Cold Plasma Micro-Jet
X. Yang[1,2], K. Sun[1,2], P. Sun[1], H. Wu[1], J. Zhang[1], J. Fang[1], J. Wang[2], J. Pan[3], W. Zhu[4]
[1]*Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[2]*School of Stomatology, Lan Zhou University, Lanzhou, China*
[3]*School of Stomatology, Peking University, Beijing, China*
[4]*Department of Applied Science and Technology, Saint Peter's College, Jersey City, NJ, United States*

IP2H-30 Nanosecond Pulsed Electric Fields Combined with Gemcitabine as a Potential Breast Cancer Therapy
S. Wu[1], J. Guo[1], W. Wei[1], J. Zhang[1], J. Fang[1], J. Wang[2]
[1]*Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China*
[2]*School of Stomatology, Lan Zhou University, Lanzhou, China*

Session IP2I: Optical & X-ray Diagnostics I (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Daniel B Sinars, Sandia National Laboratories

IP2I-31 A High-Energy Resolution X-Ray Spectrometer with Interchangeable Detectors (HEX-ID) for Short-Pulse Laser-Plasma Experiments
D. F. Martin[1], A. L. Meadowcroft[2]
[1]*Department of Physics, University of Strathclyde, Glasgow, United Kingdom*
[2]*Plasma Physics Department, AWE, Reading, United Kingdom*

IP2I-32 Spectral Characterization of Al and Ar K-Shell Z-Pinch Source on Sphinx
T. d'Almeida, P. Maury, F. Zucchini, F. Lassalle, A. Morell, H. Calamy
CEA, Gramat, France

IP2I-33 Determination of the Rocking Curve and Reflection Efficiency of a SiO_2 Crystal Imager using Zr, Nb, Mo and Ag Kα X-Rays
P. E. Schiebel[1], M. Storm[1], K. Akli[1], Z. Zhong[2]

[1]*The Ohio State University, Columbus, OH, United States*
[2]*Brookhaven National Laboratory, Upton, NY, United States*

IP2I-34 Imaging X-Ray Thomson Scattering Spectroscopy for Characterizing Extreme Matter States
E. J. Gamboa[1], D. S. Montgomery[2], J. F. Benage[2], S. A. Letzring[2], C. K. Kuranz[1], R. P. Drake[1]
[1]*University of Michigan, Ann Arbor, NM, United States*
[2]*Los Alamos National Laboratory, Los Alamos, NM, United States*

IP2I-35 Development of a Microchannel Plate Based Gated X-Ray Imager for Imaging and Spectroscopy Experiments on Z
M. Wu[1], C. A. Kruschwitz[1], A. Tibbitts[1], G. Rochau[2]
[1]*National Security Technologies, Los Alamos, NM, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*

IP2I-36 Micro-Channel Plate Imaging Techniques for Diagnostics on Sphinx
D. Plouhinec, P. Maury, T. d'Almeida, D. Sol, F. Zucchini
CEA, Gramat, France

IP2I-37 Multi-Color Gated X-Ray Pinhole Imaging of Z-Pinch Implosions on the Saturn and Z Pulsed Power Generators
B. Jones[1], D. S. Nielsen[1], L. B. Nielsen-Weber[1], J. D. Serrano[1], C. J. Meyer[1], C. A. Coverdale[1], D. J. Ampleford[1], C. A. Jennings[1], S. B. Hansen[1], M. E. Cuneo[1], J. P. Apruzese[2], R. W. Clark[3], P. L. Coleman[4]
[1]*Sandia National Laboratories, Albuquerque, NM, United States*
[2]*L3 Communications, Washington, DC, United States*
[3]*Berkeley Scholars, Springfield, VA, United States*
[4]*Evergreen Hill Sciences, Philomath, OR, United States*

IP2I-40 Improved Visualization of Z-Pinch Dynamics from Inversion of Streak Camera Data into Video Format
A. D. Cahill, P. F. Knapp, J. B. Greenly, D. A. Hammer
ECE, Cornell University, Ithaca, NY, United States

Session IP2J: Compact Pulsed Power (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Michael Mazarakis, Sandia National Laboratories

IP2J-41 5 kHz Compact Nano-second Pulser Based on MPC System
D. D. Zhang[1], Y. Zhou[2], P. Yan[1], J. Wang[1]
[1]*Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China*
[2]*Tianjin University of Technology and Education, Tianjin, China*

IP2J-42 Analysis of Multi-Stage MPC System
D. D. Zhang[1], Y. Zhou[2], P. Yan[1], J. Wang[1]
[1]*Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China*
[2]*Tianjin University of Technology and Education, Tianjin, China*

Session IP2K: Insulation & Breakdown (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Keith LeChien, NNSA

IP2K-43 Streamer Dynamics in Transformer Oil: Influence of Applied Voltage Rise Time
J. Jadidian[1], J. G. Hwang[1], M. Zahn[1], L. A. A. Pettersson[2]
[1]*Dept. of Electrical Engineering and Computer Science, Research Laboratory of Electronics, Laboratory for Electromagnetic and Electronic Systems, High Voltage Research Laboratory, Massachusetts Institute of Technology, Cambridge, MA 02139, United States*
[2]*ABB Corporate Research, Vasteras, SE-72178, Sweden*

IP2K-44 Optical and Electrical Diagnostics of 100 Micron Diameter Wires Exploded in Air
J. M. Lehr[1], R. E. Jorgenson[1], J. H. Niederhaus[1], M. R. Nissen[1], L. K. Warne[1], K. C. Hodge[2], Z. R. Wallace[2], M. Caldwell[1], A. C. Day[3]
[1]*Applied Electromagnetics, Sandia National Laboratories, Albuqueque, NM, United States*
[2]*Ktech Corporation, Albuqueque, NM, United States*
[3]*The Boeing Company, Seattle, WA, United States*

IP2K-45 Pulsed HV Vacuum Breakdown of Aluminium and Velvet Cathodes
B. Etchessahar, R. Nicolas
DAM/DIF, CEA, F-91297 Arpajon, France

IP2K-46 Microwave Plasma Window Theory and Experiments
M. A. Franzi, P. Zhang, R. M. Gilgenbach, Y. Lau
Nuclear Engineering, University of Michigan, Ann Arbor, MI, United States

IP2K-47 Breakdown Electron Temperature in Spark Gap Switch by High Voltage Pulses
Y. S. Byeon[1], K. B. Song[1], Y. J. Hong[1], D. I. Choi[1], E. H. Choi[1], H. S. Uhm[2], H. -Y. Ryu[3]
[1]*Charged Particle Beam and Plasma Laboratory, Kwangwoon Univ., Seoul, South Korea*
[2]*Kwangwoon Academy of Advanced Studies, Kwangwoon Univ., Seoul, South Korea*
[3]*Agency for Defense Development, Daejeon, South Korea*

IP2K-48 Development of Small-Size High-Voltage Electronic Vacuum Devices
V. D. Bochkov[1], D. V. Bochkov[1], V. I. Teryoshin[1], P. V. Panov[1], V. N. Nikolaev[1], A. V. Batrakov[2], K. V. Karlik[2], G. E. Ozur[2], D. I. Proskurovsky[2]
[1]*Pulsed Technologies Ltd., Ryazan, Russian Federation*
[2]*Institute of High Current Electronics, Russian Academy of Sciences, Tomsk, Russian Federation*

Session IP2L: Generators (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Raymond Allen, Naval Research Laboratory

IP2L-49 Generators of High-Power High-Frequency Pulses Based on Sealed-off Discharge Chambers with Hollow Cathode
A. E. Dubinov[1], I. Y. Kornilova[1], I. L. L'vov[1], S. A. Sadovoy[1], V. D. Selemir[1], D. V. Vyalykh[1], V. S. Zhdanov[1], V. D. Bochkov[2], V. G. Ushich[2]
[1]*Russian Federal Nuclear Center - VNIIEF, Sarov, Russian Federation*
[2]*Pulsed Technologies Ltd., Ryazan, Russian Federation*

IP2L-50 Dissipating Screen of Generators Based on Transformer Storage -Amplify
O. G. Egorov
Atomic agency, TRINITI, Moscow Reg., Troitsk, Russian Federation

IP2L-51 Simulation and Measurement of Very Fast Transient Overvoltage up to 2.5MV
L. Zhang[1], Q. Zhang[1], S. Liu[1], L. Li[1], F. Liu[1], Y. Yin[2], W. Shi[2]
[1]*High Voltage Division, Xi'an Jiaotong University, Xi'an, China*
[2]*High Voltage Division, China Electric Power Research Institute, Beijing, China*

IP2L-52 Ultrashort and Ultrafast Electrical Pulse Generator Based on Photoconductive Semiconductor Switch for Biomedical Applications
J. Yuan, H. Liu, W. Xie, H. Li, J. Liu, P. Jiang
Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China

Session IP2M: Switching (p)

Poster Session
Tuesday, June 28 13:00-15:00, CC12 A-D
Session Chair: Stephen Bayne, Texas Tech. University

IP2M-53 Compact GaAs Photoconductive Semiconductor Switches Triggered by Laser Diode
J. Yuan[1], H. Liu[1], W. Xie[1], H. Li[1], J. Liu[1], X. Wang[2], W. Jiang[2]
[1]*Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China*
[2]*Department of Electrical Engineering, Tsinghua University, Beijing, China*

IP2M-54 Experimental Study of High Power GaAs Photoconductive Semiconductor Switch with Bulk Structure
H. Liu, J. Yuan, J. Liu, H. Li, W. Xie
Institute of Fluid Physics, CAEP, Mianyang, China

IP2M-55 Device Development and Pulse Performance of Super-12 Si SGTO
A. Ogunniyi[1], H. O'Brien[1], C. Scozzie[1], W. Shaheen[2], V. Temple[3]

[1]US Army Research Laboratory, Adelphi, MD, United States
[2]Berkeley Research Associate, Beltsville, MD, United States
[3]Silicon Power Corporation, Clifton Park, NY, United States

IP2M-56 Diffusive Radial Expansion Effect on Long-Rail Spark Dynamical Impedances
L. S. N. Wang
Electromagnetic Survivability Division, Survivability & Vulnerability Assessment Division/WSMR, White Sands Missile Range, NM, United States

IP2M-57 Three-Dimensional MHD Simulations of a Plasma Switch Opening
M. H. Frese, V. Makhin
NumerEx, Albuquerque, NM, United States

Session IO4A: Fusion - Inertial, Magnetic & Alternate Concepts (o)

Tuesday, June 28 15:00-17:00, Pullman Room
Session Chair: Jeremy P Chittenden, Imperial College

15:00 IO4A-1 (invited) Performance of NIF Ignition Type Implosions
J. D. Kilkenny
General Atomics, San Diego, CA, United States

15:30 IO4A-2 Neutron Time-of-Flight Measurements on the National Ignition Facility
J. P. Knauer[1], V. Y. Glebov[1], C. Stoeckl[1], T. C. Sangster[1], D. D. Meyerhofer[1], J. A. Caggiano[2], M. J. Moran[2], R. Hatarik[2], J. M. McNaney[2], S. Friedrich[2], E. J. Bond[2], M. J. Eckart[2], S. J. Padalino[3], J. D. Kilkenny[4]
[1]Laboratory for Laser Energetics, University of Rochester, Rochester, NY, United States
[2]Lawrence Livermore National Laboratory, Livermore, CA, United States
[3]Physics and Astronomy, State University of New York, Geneseo, Geneseo, NY, United States
[4]General Atomics Inc, La Jolla, CA, United States

15:45 IO4A-3 Uncertainty Analysis for Ablator Areal Density Measurements Using Gamma-Ray Emission of Imploded Capsules at the OMEGA Laser
N. M. Hoffman[1], Y. Kim[1], H. W. Herrmann[1], D. C. Wilson[1], C. S. Young[1], J. M. Mack[1], S. C. Evans[1], T. J. Sedillo[1], M. S. Rubery[2], C. J. Horsfield[2], W. Stoeffl[3], E. Grafil[4], E. K. Miller[5], V. Y. Glebov[6], T. Duffy[6]
[1]Los Alamos National Laboratory, Los Alamos, NM, United States
[2]AWE, Aldermaston, Berks, United Kingdom
[3]Lawrence Livermore National Laboratory, Livermore, CA, United States
[4]Colorado School of Mines, Golden, CO, United States
[5]NSTec, Santa Barbara, CA, United States
[6]University of Rochester LLE, Rochester, NY, United States

16:00 IO4A-4 Initiation of Quasi Spherical Direct Drive Capsules for Inertial Fusion
J. P. VanDevender, R. W. Stinnett, R. A. Vesey, D. B. Sinars, C. Nakhleh, G. A. Rochau, B. M. Jones, M. C. Herrmann
Sandia National Laboratories, Albuquerque, NM, United States

16:15 IO4A-5 (invited) Imploding Plasma Liners as a Standoff Driver for Magneto-Inertial Fusion
S. C. Hsu[1], T. J. Awe[1], J. P. Dunn[1], C. S. Adams[1], G. Kagan[1], X. Tang[1], F. D. Witherspoon[2], S. Brockington[2], A. Case[2], S. J. Messer[2], D. van Doren[2], J. T. Cassibry[3], M. Stanic[3], M. A. Gilmore[4], A. G. Lynn[4], E. C. Merritt[4]
[1]Los Alamos National Laboratory, Los Alamos, NM, United States
[2]HyperV Technologies Corp., Chantilly, VA, United States
[3]University of Alabama, Huntsville, AL, United States
[4]University of New Mexico, Albuquerque, NM, United States

16:45 IO4A-6 Advanced Fusion Reactors for Space Propulsion and Power Systems
J. J. Chapman
Engineering Division, NASA, Hampton, VA, United States

Session IO4B: Codes & Modeling (o)

Tuesday, June 28 15:00-16:30, CC23 AB
Session Chair: Keith Cartwright, Sandia

15:00 IO4B-1 Modeling of Drive Induced Oscillation in a Coupled Cavity TWT
A. N. Vlasov[1], B. Levush[1], J. Legarra[2], T. M. Antonsen Jr.[3], I. A. Chernyavskiy[4], D. Chernin[4]

[1]Naval Research Laboratory, Washington, DC, United States
[2]Communications and Power Industries, Palo Alto, CA, United States
[3]University of Maryland, College Park, MD, United States
[4]Science Applications Iinternational Corporation, McLean, VA, United States

15:15 IO4B-2 Modeling of the Wide-Band Coupled-Cavity TWTs with the Large-Signal Code TESLA-CC
I. A. Chernyavskiy[1], D. Chernin[1], A. N. Vlasov[2], B. Levush[2], T. M. Antonsen[3], J. Legarra[4]
[1]Science Applications International Corporation, McLean, VA, United States
[2]Vacuum Electronics Branch, Naval Research Laboratory, Washington, DC, United States
[3]University of Maryland, College Park, MD, United States
[4]Communications and Power Industries, Palo Alto, CA, United States

15:30 IO4B-3 Effects of Non-Periodic Variations in Periodic RF Structures
V. Jabotinski[1], D. Chernin[2], K. Nguyen[1], T. M. Antonsen, Jr.[3], B. Levush[4]
[1]Beam-Wave Research, Bethesda, MD, United States
[2]Science Applications International Corporation, McLean, VA, United States
[3]University of Maryland, College Park, MD, United States
[4]Naval Research Laboratory, Washington, DC, United States

15:45 IO4B-4 Status of the Michelle Code and Applications to RF Guns
J. Petillo[1], C. Kostas[1], D. Panagos[1], S. Ovtchinnikov[1], A. Burke[1], E. Wright[2], K. Nguyen[2], T. Antonsen[3], E. Nelson[4], B. Held[5], J. DeFord[5], K. Jensen[6], B. Levush[6]
[1]Electromagnetic Science, SAIC, Billerica, MA, United States
[2]Beam-Wave Research, Inc, Bethesda, MD, United States
[3]University of Maryland, College Park, MD, United States
[4]Nelson-VED, Los Alamos, NM, United States
[5]STAAR, Mequon, WI, United States
[6]Vacuum Electronics Branch, Naval Research Laboratory, Washington, DC, United States

16:00 IO4B-5 (invited) GPU-Accelerated 3D Electromagnetic PIC Simulations
S. J. Cooke[1], B. Levush[1], I. A. Chernyavskiy[2], T. M. Antonsen[3]
[1]Vacuum Electronics Branch, Naval Research Laboratory, Washington, DC, United States
[2]SAIC, McLean, VA, United States
[3]IREAP, University of Maryland, College Park, MD, United States

16:30 IO4B-6 Study on Low-Frequency Oscillations in a Gyrotron Using a 3D CFDTD PIC Method
M. C. Lin, D. N. Smithe
Tech-X Corporation, Boulder, CO, United States

16:45 IO4B-7 Temporal Particle-in-Cell in Beam Optics Analyzer
T. Bui, M. Read, L. Ives
Calabazas Creek Research, Inc., Mountain View, CA, United States

Session IO4C: Dusty Plasmas (o)

Tuesday, June 28 15:00-17:00, CC22 BC
Session Chair: John Goree, University of Iowa

15:00 IO4C-1 Single-File Diffusion in a Dusty Plasma
T. E. Sheridan, D. J. Pleshinger, W. L. Theisen
Physics and Astronomy, Ohio Northern University, Ada, OH, United States

15:15 IO4C-2 Wave Phenomena in Complex Plasmas
D. Samsonov[1], C. Durniak[1], P. Harvey[1], S. Zhdanov[2], G. Morfill[2]
[1]Electrical Engineering and Electronics, The University of Liverpool, Liverpool, United Kingdom
[2]Max-Planck-Institute for Extraterrestrial Physics, Garching, Germany

15:30 IO4C-3 (invited) Viscosity Quantified in 2D Dusty Plasma Experiment
Y. Feng
University of Iowa, Iowa City, IA, United States

16:00 IO4C-4 Observation of Cusp Structures in Dusty Plasma Simulations
S. K. Tiwari, A. Das, P. Kaw, A. Sen
Basic Theory and Simulation, Institute for Plasma Research, Gandhinagar, India

16:15 IO4C-5 Dust Acoustical Waves under Microgravity and Microgravity-like Conditions
S. A. Wissel[1], A. Merali[2], A. Zwicker[1]
[1]Science Education, Princeton Plasma Physics Laboratory, Princeton, NJ, United States
[2]Physics, The College of New Jersey, Ewing, NJ, United States

16:30 IO4C-6 Theoretical Studies for the CARE II Rocket Experiment to Excite Plasma Waves in the Ionosphere by High Speed Dust Injection
P. A. Bernhardt[1], M. Rosenberg[2]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]Electrical and Computer Engineering, University of California San Diego, San Diego, CA, United States

16:45 IO4C-7 Permeability Characteristics of Hollow Nanoparticles Fabricated by Low-Pressure Plasma Deposition
A. Shahravan, T. Matsoukas
Department of Chemical Engineering, The Pennsylvania State University, University Park, PA, United States

Session IO4D: Plasma Material Interactions (o)

Tuesday, June 28 15:00-17:00, CC21 BC
Session Chair: Jeffrey Brooks, Purdue University

15:00 IO4D-1 (invited) Aerosol/Cluster Formation and Hydrogen Co-Deposition by Colliding Ablation Plasma Plumes of Lithium and Lead
Y. Hirooka[1], N. Omoto[2], T. Kono[2], T. Oishi[2], K. A. Tanaka[2]
[1]National Institute for Fusion Science, Toki, Japan
[2]Osaka University, Suita, Japan

15:30 IO4D-2 Effects of Plasma Exposure on Defects in Novel Dielectric Materials
H. Ren[1], M. T. Nichols[1], G. Jiang[2], G. A. Antonelli[3], Y. Nishi[4], J. L. Shohet[1]
[1]Electrical & Computer Engrg., University of Wisconsin-Madison, Madison, WI, United States
[2]Novellus Systems, Tualatin, OR, United States
[3]Novellus Systems, Albany, NY, United States
[4]Electrical Engineering, Stanford University, Stanford, CA, United States

15:45 IO4D-3 Screening and Electric Double Layer in Strongly Coupled Plasmas
I. V. Morozov, G. E. Norman
Joint Institute for High Temperatures of Russian Academy of Sciences (JIHT RAS), Moscow, Russian Federation

16:00 IO4D-4 Time-Resolved Study and Comparison of Plasmas in High Power Pulsed and Modulated Pulse Power Magnetron Sputtering
L. Meng, T. S. Cho, S. Jung, D. N. Ruzic
Center for Plasma-Material Interactions, University of Illinois at Urbana-Champaign, Urbana, IL, United States

16:15 IO4D-5 Separation of Ion and Photon Damage Effects on Novel Dielectric Materials During Plasma Exposure
H. Ren[1], G. A. Antonelli[2], Y. Nishi[3], J. L. Shohet[1]
[1]Electrical & Computer Engrg., University of Wisconsin-Madison, Madison, WI, United States
[2]Novellus Systems, Albany, NY, United States
[3]Electrical Engineering, Stanford University, Stanford, CA, United States

16:30 IO4D-6 (IP3J-4) Integrated Approach in Predicting Damage to Components in ITER-like Fusion Devices during Plasma Instabilities
V. Sizyuk, A. Hassanein
Purdue University, West Lafayette, IN, United States

June 29: WEDNESDAY

Session IPL1: PSAC Award Plenary

Wednesday, June 29 08:00-09:00, Ballroom AB
Session Chair: Brendan Godfrey, University of Maryland

8:00 IPL1-1 (invited) Hanging Ten to the Tenth on a Plasma Wave: the Grand Challenge of Extending the High Energy Frontier
T. Katsouleas
Pratt School of Engineering, Duke University, Durham, NC, United States

Session IO5A: Basic Phenomena II (o)

Wednesday, June 29 9:30-12:00, Pullman Room
Session Chair: David D Blackwell, U.S. Naval Research Laboratory

9:30 IO5A-1 A Large Area VHF Plasma Source for Atmospheric Air Plasma Treatment of Coated Surfaces
B. R. Byrns, D. Wooten, S. Shannon
Dept. of Nuclear Engineering, North Carolina State University, Raleigh, NC, United States

9:45 IO5A-2 Characteristics of Impurity-Dependent Breakdown in Helium Dielectric Barrier Discharge Jets
T. -C. Tsai, D. Staack
Mechanical Engineering, Texas A&M University, College Station, TX, United States

10:00 IO5A-3 Chaos in Atmospheric Pressure Plasma Jets
J. L. Walsh[1], N. B. Janson[2], F. Iza[3], M. G. Kong[3]
[1]Department of Electrical Engineering & Electronics, University of Liverpool, Liverpool, United Kingdom
[2]School of Mathematics, Loughborough University, Loughborough, United Kingdom
[3]Department of Electronic & Electrical Engineering, Loughborough University, Loughborough, United Kingdom

10:15 IO5A-4 Maxwell Demon and Its Instabilities
C. -S. Yip, N. Hershkowitz
Nuclear Engineering and Engineering Physics, University of Wisconsin - Madison, Madison, WI, United States

10:30 IO5A-5 Real-Time Observation of Runaway-Electron Breakdown of Air in the Laboratory Conditions
A. V. Gurevich[1], G. A. Mesyats[1], K. P. Zybin[1], A. G. Reutova[2], V. G. V.G. Shpak[2], S. A. Shunailov[2], M. I. Yalandin[2]
[1]Lebedev Physical Institute of Russian Academy of Sciences, Moscow, Russian Federation
[2]Institute of Electrophysics, Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russian Federation

10:45 IO5A-6 On the Generation Mechanism of Supershort Avalanche Electron Beam During a Nanosecond Discharge in High Pressure Gases
V. F. Tarasenko
LOI, High Current Electronics Institute, Tomsk, Russian Federation

11:00 IO5A-7 Generation of High Frequency O-Wave in Inhomogeneous Plasma in Presence of Drift Wave Turbulence
P. Deka, A. Borgohain
Mathematics, Dibrugarh University, Dibrugarh, Assam, India

11:15 IO5A-8 Effects of Inter-Electrodes Gap and Voltage on EUV Emitted from Tin Vacuum Spark Discharges
S. Saboohi
Department of Physics, University of Malaya, Kuala Lumpur, Malaysia

Session IO5B: Compact Pulsed Power/Insulation & Breakdown/Switching (o)

Wednesday, June 29 9:30-12:00, CC23 AB
Session Chairs: Keith LeChien, NNSA
Heather K O'Brien, ARL

9:30 IO5B-1 (invited) Experiments on MA Linear Transformer Drivers
R. M. Gilgenbach[1], J. C. Zier[1], M. R. Gomez[1], S. G. Patel[1], D. A. Chalenski[1], D. M. French[1], A. M. Steiner[1], M. Weis[1], Y. Y. Lau[1], M. G. Mazarakis[2], M. E. Cuneo[2], M. R. Lopez[2], A. A. Kim[3]
[1]Nuclear Engineering & Radiological Sciences, University of Michigan, Ann Arbor, MI, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States
[3]Institute of High Current Electronics, Tomsk, Russia

10:00 IO5B-2 Modeling High-Voltage DC Breakdown for Single- and Multi-Stack Insulators
M. P. Aldan, J. P. Verboncoeur
Nuclear Engineering, UC Berkeley, Berkeley, CA, United States

10:15 IO5B-3 Physics Investigations of Vacuum Ultraviolet Emission from Pulsed Atmospheric Discharges
G. R. Laity, A. S. Fierro, A. A. Neuber, L. L. Hatfield, J. C. Dickens

Center for Pulsed Power and Power Electronics, Texas Tech University, Lubbock, TX, United States

10:30 IO5B-4 Main Factors Influencing the Effect of Suppressing Multipactor by Periodic Surface Profiles and Resonant Magnetic Field
C. Chang[1,2]
[1]SLAC, Stanford University, Menlo Park, United States
[2]Department of Engineering Physics, Tsinghua University, Beijing, China

10:45 IO5B-5 Breakdown of Semi-Insulating GaAs under Pulsed Electric Field
J. Liu, H. Liu, C. Wang, J. Yuan, H. Li, W. Xie
Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China

11:00 IO5B-6 Review of High Voltage Silicon Carbide Device Research at the Army Research Laboratory
H. K. O'Brien[1], A. Ogunniyi[1], C. J. Scozzie[1], W. Shaheen[2], A. Agarwal[3], J. Zhang[3], V. K. Temple[4]
[1]RDRL-SED-P, US Army Research Laboratory, Adelphi, MD, United States
[2]Berkeley Research Associates, Beltsville, MD, United States
[3]Cree, Inc., Durham, NC, United States
[4]Silicon Power Corp., Clifton Park, NY, United States

11:15 IO5B-7 20 kV IGBT Module for All Solid-State Marx Generator
H. Li, W. Xie, C. Wang, P. Jiang, Q. Tian, J. Liu, J. Yuan
Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China

11:30 IO5B-8 Magnesium Based Photocathode for Back-Lighted Thyratron
E. B. Sozer, C. Jiang, M. A. Gundersen
Electrical Engineering/Electrophysics, University of Southern California, Los Angeles, CA, United States

Session IO5C: Plasma Medicine I (o)

Wednesday, June 29 9:30-12:00, CC22 BC
Session Chair: Mounir Laroussi, Old Dominion University

9:30 IO5C-1 (invited) Cold Atmospheric Plasma for Clinical Purposes, Promising Results in Patients and Future Applications
G. Isbary[1], W. Stolz[1], T. Shimizu[2], B. Steffes[2], J. Zimmermann[2], W. Bunk[2], R. Monetti[2], Y. Li[2], H. -U. Schmidt[3], J. Heinlin[4], S. Karrer[4], M. Landthaler[4], G. Morfill[2]
[1]Dermatology, Allergology and Environmental Medicine, Hospital Munich Schwabing, Munich, Germany
[2]Extraterrestrial Physics, Max Planck Institute, Garching, Germany
[3]Microbiology, Hospital Munich-Schwabing, Munich, Germany
[4]Dermatology, University of Regensburg, Regensburg, Germany

10:00 IO5C-2 Depth of Penetration of Plasma Produced Active Species: ex vivo Measurements and in vitro Model
D. Dobrynin
Drexel University, Philadelphia, PA, United States

10:15 IO5C-3 Sterilization Effects of Biofilms by Ar/O_2 Plasma Jet
L. Taghizadeh[1], G. Brackman[2], A. Y. Nikiforov[1], T. Coenye[2], C. Leys[1]
[1]Applied Physics Department, Ghent University, Ghent, Belgium
[2]Laboratory for Pharmaceutical Microbiology, Ghent University, Ghent, Belgium

10:30 IO5C-4 Direct and Indirect Treatment of Living Tissue: Dielectric Barrier Discharges vs. Plasma Jets
N. Y. Babaeva, M. J. Kushner
Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States

10:45 IO5C-5 On the Mechanism of Plasma Inducing Cell Apoptosis
X. Lu, F. Zou
CEEE, HuaZhong University of Science & Technology, China, WuHan, China

11:00 IO5C-6 Robust Hydrogen Peroxide Enhanced Plasma Effluent for the Clinical Setting
M. Golkowski[1], C. Golkowski[2], B. McCollister[3]
[1]Electrical Engineering, University of Colorado Denver, Denver, CO, United States
[2]Super Pulse, Ithaca, NY, United States
[3]Infectious Diseases Division, University of Colorado Denver, Denver, CO, United States

11:15 IO5C-7 Application of a Bifilar Helix Discharge in Endoscope Biopsy Channels for Plasma Decontamination and Biomedical Aspects
J. Winter[1], S. Reuter[1], K. Masur[1], S. Hasse[1], M. Polak[2], U. Schnabel[2], J. Ehlbeck[2], K. -D. Weltmann[2], R. Schneider[3]
[1]Center for Innovation Competence plasmatis, Leibniz Institute for Plasma Science and Technology, Greifswald, Germany
[2]Leibniz Institute for Plasma Science and Technology, Greifswald, Germany
[3]XION GmbH, Berlin, Germany

11:30 IO5C-8 Treatment of Water and E. coli Suspensions by Dielectric Barrier Discharge in Argon/Oxygen Atmospheres
K. Oehmigen[1], J. Winter[2], C. Wilke[1], K. -D. Weltmann[1], T. von Woedtke[1]
[1]INP - Leibniz Institute for Plasma Science and Technology e. V., Greifswald, Germany
[2]ZIK - plasmatis at the INP, Greifswald, Germany

11:45 IO5C-9 Methicillin Resistant Staphyloccus Pseudintermedius Do Not Develop Resistance to Atmospheric Pressure Cold Plasma Discharges
I. Alexeff, S. A. Kania, R. J. Kania, D. A. Bemis
Electrical Engineering, University of Tennessee, Knoxville, TN, United States

Session IO5D: Plasma, Ion & Electron Sources (o)

Wednesday, June 29 9:30-12:00, CC21 BC
Session Chair: Evgeniya Lock, NRL

9:30 IO5D-1 Short Pulse ECR Ion Sources of Multicharged Ions
I. V. Izotov, S. V. Razin, A. V. Sidorov, V. A. Skalyga, V. G. Zorin
Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

9:45 IO5D-2 Runaway Electron Preionized Diffuse Discharges in Atmospheric Pressure Air with Point-to-Plane and Point-to-Point Gaps in Repetitive Pulsed Mode
V. F. Tarasenko, E. H. Baksht, A. G. Burachenko, I. D. Kostyrya, Y. V. Shutko
LOI, High Current Electronics Institute, Tomsk, Russian Federation

10:00 IO5D-3 (invited) Advanced Dispenser Cathodes
R. L. Ives[1], L. Falce[2], G. Collins[1], D. Marsden[1]
[1]Calabazas Creek Research, Inc., San Mateo, CA, United States
[2]Consultant, Surprise, AZ, United States

10:30 IO5D-4 Frequency Probe Measurements in Processing Plasmas
D. R. Boris, R. F. Fernsler, S. G. Walton
Plasma Physics, Naval Research Laboratory, Washington, DC, United States

10:45 IO5D-5 Studies of Electronegative Ar/O_2 Discharge in a Constricted Hollow Anode Plasma Source using Dual Probe Technique
M. A. Mujawar[1], S. K. Karkari[1,2], M. M. Turner[1]
[1]National Center for Plasma Science and Technology, School of Physical Sciences, Dublin City University, Dublin 9, Ireland
[2]Institute for Plasma Research, Bhat, Gandhinagar, Gujarat, 382428, India

11:00 IO5D-6 Investigation of the Current Density Properties of an Ion Beam Extracted from a Low Pressure Wire Discharge
R. Gueroult[1,2], P. Q. Elias[2], D. Packan[2]
[1]LPP École Polytechnique, Palaiseau, France
[2]DMPH/FPA, Onera, Palaiseau, France

11:15 IO5D-7 Plasma Cloud Generation with Intense Electric Fields Inside a Porous Spherical Cavity Resonator Excited by an External Plane Wave
P. A. Bernhardt, R. F. Fernsler, A. W. Fliflet
Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

11:30 IO5D-8 Engineering an RF Antenna for Use in Transparent Conducting Oxide Deposition
E. Ritz, D. E. Andruczyk, D. N. Ruzic
Center for Plasma-Material Interactions, University of Illinois at Urbana-Champaign, Urbana, IL, United States

11:45 IO5D-9 Experimental Investigations on the Magnetized Inductively Coupled Plasma for 450mm Semiconductor Wafer Processing

Y. -G. Kim, H. -J. Lee
School of Electrical Engineering, Pusan National University, Busan, South Korea

Session IP3A: Computational Plasma Physics II (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: John P Verboncoeur, Michigan State University

IP3A-1 Study of an Asymmetric Capacitive Radio Frequency Discharge in Oxygem at Low Pressure
S. Parada, M. Roberto, R. Pessoa, G. Petraconi
Physics Department, Instituto Tecnologico da Aeronautica, Sao Jose dos Campos, SP, Brazil

IP3A-2 Modeling of Atmospheric Pressure Plasmas
H. W. Lee, J. K. Lee
Department of Electronic and Electrical Engineering, Pohang University of Science and Technology, Pohang 790-784, South Korea

IP3A-3 Particle-In-Cell Simulations of Microdischarges with Extremely Small Characteristic Sizes
Y. Li, D. B. Go
Department of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame, IN, United States

IP3A-4 Development of a Parallelized Two-Dimensional Axisymmetric Capacitively Coupled Plasma Simulator Using Graphics Processing Units
I. C. Song, H. W. Bae, S. W. Hwang, H. -J. Lee, H. J. Lee
Dept. of Electrical Engineering, Pusan National University, Busan, South Korea

IP3A-5 Numerical Study of the Electron Dynamics in Radio-Frequency Plasmas at Atmospheric Pressure
T. Hemke, M. Gebhardt, A. Wollny, R. P. Brinkmann, T. Mussenbrock
Ruhr-University Bochum, Bochum, Germany

IP3A-7 The Effect of Electron Cyclotron Resonance Heating on Breakdown for Start-up of a Tokamak
S. B. Shim[1], M. -G. Yoo[2], Y. -S. Na[2], S. W. Hwang[1], H. J. Lee[1]
[1]Dept. of Electrical Engineering, Pusan National University, Busan, South Korea
[2]Dept. of Energy System Engineering, Seoul National University, Seoul, South Korea

IP3A-8 Dynamics of Micro Cavity Plasma Arrays: Simulation of Ionization Wave Propagation
A. Wollny, T. Hemke, M. Gebhardt, T. Mussenbrock, R. P. Brinkmann
Intitute for Theoretical Electrical Engineering, Ruhr University Bochum, Bochum, Germany

IP3A-9 Some Results of Particle in Cell Simulations of Initial Argon Dielectric Barrier Discharges
M. A. Huerta[1], L. D. Ludeking[2]
[1]Physics Department, University of Miami, Coral Gables, FL, United States
[2]ATK Mission Systems Group, Newington, VA, United States

Session IP3B: Intense Beam Microwave Generation (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Michael D. Haworth, AFRL

IP3B-10 Amplification and Self-Compression of Ultrashort Electromagnetic Pulse Propagating along Quasi-Stationary Electron Beam
M. I. Yalandin[1], A. G. Reutova[1], M. R. Ulmaskulov[1], K. A. Sharypov[1], S. A. Shunailov[1], N. S. Ginzburg[2], A. S. Sergeev[2], I. V. Zotova[2]
[1]Institute of Electrophysics, Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russian Federation
[2]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

IP3B-11 Studies of a Ka-Band Two-Dimensional Cylindrical Lattice
I. V. Konoplev[1], A. W. Cross[1], C. W. Robertson[1], C. G. Whyte[1], A. D. R. Phelps[1], M. Thumm[2]
[1]Department of Physics, SUPA, University of Strathclyde, Glasgow, United Kingdom
[2]IHM, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

IP3B-12 Study of Small Scaled Pseudospark-Sourced Electron Beams for a 94 GHz Klystron

H. Yin[1], D. Bowes[1], A. W. Cross[1], W. He[1], K. Ronald[1], A. D. R. Phelps[1], C. Whyte[1], D. Li[2], X. Chen[2]
[1]Physics, University of Strathclyde, Glasgow, United Kingdom
[2]School of Electronic Engineering & Computer Science, Queen Mary, University of London, London, United Kingdom

IP3B-13 Electron Beam Relaxation under Weak Beam-Plasma Coupling
E. V. Rostomyan
Institute of Radiophysics & Electronics National Ac Sci of Armenia, Ashtarack, Armenia

Session IP3C: Slow-Wave Devices (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: David Abe, NRL

IP3C-14 Progress on a 94 GHz Omniguide Traveling-Wave Tube Gain Experiment
D. Y. Shchegolkov, D. A. Dalmas, L. M. Earley, W. B. Haynes, R. M. Renneke, E. I. Simakov
ISR-6, Los Alamos National Laboratory, Los Alamos, NM, United States

IP3C-15 Compact and Lightweight S-Band TWT for Phased Antenna Array Radar Applications
H. Song[1], L. Tekamp[1], F. Francisco[2], M. -C. Lin[3], P. Stoltz[3], D. Smith[3], H. J. Kim[4], G. W. Choi[4], J. J. Choi[4], S. J. Kim[5], S. H. Jang[5]
[1]Electrical and Computer Engineering, Univ. of Colorado at Colorado Springs, Colorado Springs, CO, United States
[2]Electron Technology Division, Triton Services Inc., Easton, PA, United States
[3]Tech-X Corporation, Boulder, CO, United States
[4]Radio Science and Engineering, Kwangwoon University, Seoul, South Korea
[5]Agency for Defense Development, Daejon, South Korea

IP3C-16 Heat Transfer Characteristics of a Compact and Lightweight S-Band Traveling-Wave Tube for Microwave Power Module
L. Resley[1], H. Song[1], F. Francisco[2], H. J. Kim[3], G. W. Choi[3], J. J. Choi[3], S. J. Kim[4], S. H. Jang[4]
[1]Electrical and Computer Engineering, Univ. of Colorado at Colorado Springs, Colorado Springs, CO, United States
[2]Electron Technology Division, Triton Services Inc., Easton, PA, United States
[3]Radio Science and Engineering, Kwangwoon University, Seoul, South Korea
[4]Agency for Defense Development, Daejon, South Korea

IP3C-17 Ka-Band Output Impedance Transformer Using Klopfenstein Tapering Method for High Power Devices
L. Resley[1], H. Song[1], F. Francisco[2], H. J. Kim[3], G. W. Choi[3], J. J. Choi[3], S. J. Kim[4], S. H. Jang[4]
[1]Electrical and Computer Engineering, Univ. of Colorado at Colorado Springs, Colorado Springs, CO, United States
[2]Electron Technology Division, Triton Services, Inc., Easton, PA, United States
[3]Radio Science and Engineering, Kwangwoon University, Seoul, South Korea
[4]Agency for Defense Development, Daejon, South Korea

IP3C-18 Cavity Excitation Described by the Van Der Pol Equation in Transit-Time Microwave Tubes
J. J. Barroso
Associate Plasma Laboratory, National Institute for Space Research, Sao Jose dos Campos, Brazil

IP3C-19 Coupled-Cavity 6.7 GHz Monotron
J. J. Barroso
Associated Plasma Laboratory, National Institute for Space Research, Sao Jose dos Campos, Brazil

IP3C-20 Some Unusual Properties of the Cylindrical Brillouin Flow
D. H. Simon[1], Y. Y. Lau[1], M. Franzi[1], D. M. French[1], R. M. Gilgenbach[1], W. Tang[2], B. Hoff[2], K. L. Cartwright[2], J. W. Luginsland[3]
[1]Nuclear Engineering, University of Michigan, Ann Arbor, MI, United States
[2]Air Force Research Laboratory, Kirkland AFB, NM, United States
[3]Air Force Office of Scientific Research, Arlington, VA, United States

IP3C-21 Miniaturized Microstrip Filter Loaded with Rectangular Stubs for Compact Advanced Microwave Systems
H. Song[1], L. Tekamp[1], H. J. Kim[2], G. W. Choi[2], J. J. Choi[2], S. J. Kim[3], S. H. Jang[3]
[1]Electrical and Computer Engineering, Univ. of Colorado at Colorado Springs, Colorado Springs, CO, United States
[2]Radio Science and Engineering, Kwangwoon University, Seoul, South Korea
[3]Agency for Defense Development, Daejon, South Korea

IP3C-22 Recirculating Planar Magnetron Modeling and Experiments
M. A. Franzi[1], R. M. Gilgenbach[1], D. M. French[2], Y. Lau[1], D. Simon[1], B. W. Hoff[2], J. W. Luginsland[3]

[1]University of Michigan, Ann Arbor, MI, United States
[2]Air Force Research Laboratory, Kirtland AFB, NM, United States
[3]Air Force Office of Scientific Research, Arlington, VA, United States

Session IP3D: Codes & Modeling (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Keith Cartwright, Sandia

IP3D-23 Oscillation Thresholds in Coupled-Cavity TWTs
G. Stantchev[1], D. Chernin[1], T. Antonsen, Jr.[2], B. Levush[3]
[1]Science Applications International Corp, McLean, VA, United States
[2]University of Maryland, College Park, MD, United States
[3]US Naval Research Laboratory, Washington, DC, United States

IP3D-24 High Accuracy Charged Beam Model Development in MICHELLE-eBEAM
S. G. Ovtchinnikov[1], S. J. Cooke[2], M. M. Mkrtchyan[1], R. Shtokhamer[1], A. N. Vlasov[2], C. Kostas[1], J. J. Petillo[1], B. Levush[2]
[1]Science Applications International Corp., Billerica, MA, United States
[2]Naval Research Laboratory, Washington, DC, United States

IP3D-25 Effects of Random Circuit Fabrication Errors on Small Signal Gain in a Traveling Wave Tube
I. M. Rittersdorf[1], T. M. Antonsen Jr.[2], D. Chernin[3], Y. Y. Lau[4,1]
[1]University of Michigan, Ann Arbor, MI, United States
[2]University of Maryland, College Park, MD, United States
[3]Science Applications International Corporation, McLean, VA, United States
[4]Naval Research Laboratory, Washington, DC, United States

IP3D-26 Verification of Emission Models for Finite Element and Finite Difference Time Domain Particle-in-Cell towards the Understanding of Variability of Field Emission Cathodes
K. L. Cartwright[1], M. M. Hopkins[1], M. T. Bettencourt[2], D. A. Shiffler[2], W. W. Tang[2], K. Nichols[3], E. Schamiloglu[3]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]Air Force Research Laboratory, Albuquerque, NM, United States
[3]University of New Mexico, Albuquerque, NM, United States

IP3D-27 An Arbitrary Curvilinear Coordinate Particle-in-Cell Method
C. A. Fichtl[1], J. M. Finn[1], K. L. Cartwright[2]
[1]Los Alamos National Laboratory, Los Alamos, NM, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States

IP3D-28 An Application of Particle-in-Cell Simulation to the Analysis of Chaotic Dynamics in Microwave Sources
J. P. Tate
Strategic Signal Processing, Raytheon Space and Airborne Systems, El Segundo, CA, United States

IP3D-29 Thermal Axisymmetric Waves in Vortex-Free Beams from Diodes and Tetrodes
A. Theiss
L-3 Communications, San Carlos, CA, United States

Session IP3E: THz Sources, Radiation, & Applications (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Kenneth Kreischer, Northrop Grumman

IP3E-30 THz Sheet Beam Traveling Wave Tube Amplifier for Microwave Power Module (MPM) Application: MEMS-Fabrications and Characteristic Analysis
R. Barchfeld, D. Gamzina, A. Baig, L. R. Barnett, N. C. Luhmann Jr., Y. -M. Shin
Applied Science, University of California - Davis, Davis, CA, United States

Session IP3F: Fusion - Inertial, Magnetic & Alternate Concepts II (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Jeremy P Chittenden, Imperial College

IP3F-32 ePLAS Modeling of Plasma Jets
R. J. Mason, R. J. Faehl, R. C. Kirkpatrick
Research Applications Corporation, Los Alamos, NM, United States

IP3F-33 Ion Kinetic Effects in Hybrid-PIC Simulations of Merging Plasma Jets in the Plasma Liner Experiment
C. H. Thoma[1], N. Bruner[1], R. E. Clark[1], J. J. MacFarlane[2], I. E. Golovkin[2]
[1]Voss Scientific, LLC, Albuquerque, NM, United States
[2]Prism Computational Sciences, Inc., Madison, WI, United States

IP3F-34 2.5 KJ KSU-Dense Plasma Focus under High Pressure Regime
A. E. Mohamed[1], A. E. Abdou[1], M. I. Ismail[1], S. Lee[2], S. H. Saw[2]
[1]Department of Mechanical and Nuclear Engineering, Kansas State University, Manhattan, KS, United States
[2]INTI International University, Nilai, Malaysia

IP3F-35 Kansas State University Dense Plasma Focus (KSU-DPF) Initial Neutron Results
M. I. Ismail[1], A. E. Abdou[1], A. E. Mohamed[1], S. Lee[2,3,4], S. H. Saw[2,3]
[1]Mechanical and Nuclear Engineering Department, Kansas State University, Manhattan, KS, United States
[2]INTI International University, Nilai, Malaysia
[3]Institute for Plasma Focus Studies, Melbourne, Australia
[4]National Institute of Education, Nanyang Technological University, Singapore, Singapore

IP3F-36 Short Circuit Test - Complete Analysis for the Dense Plasma Focus
A. E. Mohamed[1], A. E. Abdou[1], M. I. Ismail[1], S. Lee[2], S. H. Saw[2]
[1]Department of Mechanical and Nuclear Engineering, Kansas State University, Manhattan, KS, United States
[2]INTI International University, Nilai, Malaysia

IP3F-37 X-Ray Spectrum from a Mega-Amp Dense Plasma Focus Device - Focus Fusion-1 and Its Correlation to the Plasmoid Formation
S. Krupakar Murali, E. J. Lerner, A. M. Blake, D. Shannon, F. V. Roessel
Lawrenceville Plasma Physics, Berkeley Heights, NJ, United States

IP3F-38 Dynamics of a Microscale Dense Plasma Focus
W. Pollard, Jr., D. Staack, A. Duggleby
Mechanical Engineering, Texas A&M University, College Station, TX, United States

Session IP3G: Particle Acceleration with Lasers & Beams (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Hui Chen, LLNL

IP3G-39 Laser Excitation of Electrostatic Eigen Mode of a Plasma in Azimuthal Magnetic Field and Electron Acceleration
M. Kumar, V. K. Tripathi
Physics, IIT Delhi, New Delhi, Delhi, India

IP3G-40 A Computational Investigation of Synchrotron Radiation Generation in Laser-Wakefield Acceleration Experiments
P. G. Cummings, A. G. R. Thomas
Center for Ultrafast Optical Science, University of Michigan, Ann Arbor, MI, United States

IP3G-41 Effects of Coherent Synchrotron Radiation on Highly Energetic Electron Beams for X-Ray Free Electron Laser Applications
T. J. T. Kwan[1], B. E. Carlsten[1], D. R. Welch[2]
[1]Computational Physics, Los Alamos National Laboratory, Los Alamos, NM, United States
[2]Voss Scientific, Albuquerque, NM, United States

IP3G-42 Observation of Energetic Deuteron Ions Accelerated from the Rear Surface of Laser-Irradiated Flat-Foil Targets
E. W. McCary[1], J. T. Morrison[1], C. R. Willis[1], K. Akli[1], M. Storm[1], R. R. Freeman[1], L. D. Van Woerkom[1], S. H. Feldman[2], G. Dyer[2], A. C. Bernstein[2], T. Ditmire[2]
[1]Physics, The Ohio State University, Columbus, Ohio, United States
[2]Physics, The University of Texas At Austin, Austin, Texas, United States

Session IP3H: Radiation Physics (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Alla Safronova, University of Nevade, Reno

IP3H-45 Analysis of New Mid-Atomic Number Precursor Wire Array Experiments on the 1-MA Pulsed Power Generator at UNR
A. Stafford[1], A. S. Safronova[1], V. L. Kantsyrev[1], A. A. Esaulov[1], M. E. Weller[1], K. M. Williamson[1], G. C. Osborne[1], I. Shrestha[1], V. Shylaptseva[1], C. A. Coverdale[2], N. D. Ouart[3], S. C. Bott[4]
[1]University of Nevada, Reno, Reno, NV, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States
[3]Naval Research Laboratory, Washington, DC, United States
[4]Center for Energy Research, University of California, San Diego, San Diego, CA, United States

IP3H-46 Enhanced X-ray Bremsstrahlung Emission from Xenon Plasmas Irradiated by an Intense KrF Laser
J. Davis[1], T. B. Petrova[1], K. G. Whitney[2], G. M. Petrov[1]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]Berkeley Research Associates, Beltsville, MD, United States

IP3H-47 Diagnosing Copper Wire Array Implosions on Refurbished Z with Detailed Radiation-Hydrodynamic Models
R. W. Clark[1], A. Dasgupta[2], J. L. Giuliani[2], B. M. Jones[3], D. J. Ampleford[3], C. A. Coverdale[3], S. B. Hansen[3]
[1]Berkeley Research Assoc, Beltsville, MD, United States
[2]Plasma Physics, Naval Research Laboratory, Washington, DC, United States
[3]Sandia National Laboratories, Albuquerque, NM, United States

IP3H-48 Application of Triboluminescence Caused by Peeling Tapes to Roentgen Diagnosis
S. Furuya, Y. Arai, N. Tashiro
Gunma University, Maebashi, Japan

Session IP3I: Plasma Thrusters (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC11 AB
Session Chair: Laxminarayan Raja, University of Texas, Austin

IP3I-49 Thruster Evaluation of the MadHex Helicon Source
J. E. Scharer, M. D. Wiebold, Y. -T. Sung
Electrical and Computer Engineering, University of Wisconsin, Madison, Madison, WI, United States

IP3I-50 Miniaturized Electric Propulsion in Low Temperature Co-Fired Ceramic
S. Shawver, J. Browning, D. Plumlee, S. M. Loo, C. Lee, J. Taff, M. Yates, J. Woldtvedt, L. Knowles, D. Reis
Boise State University, Boise, ID, United States

IP3I-51 Design, Fabrication and Electromechanical Modeling of Pulsed Plasma Thruster
A. Ebadati[1], M. Shariat[2], B. Shokri[1,2]
[1]Physics Department, Shahid Beheshti University, Tehran, Evin, Iran
[2]Laser Plasma Research Institute, Shahid Beheshti University, Tehran, Evin, Iran

IP3I-52 Plasma Characteristics of the Ferroelectric Plasma Thruster
B. T. Hutsel, S. D. Kovaleski, J. W. Kwon
Dept. of Electrical and Computer Engineering, University of Missouri, Columbia, MO, United States

IP3I-53 Addressing Issues in Probing the Magnetic Cusp Region
A. A. Hubble, J. E. Foster
Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

IP3I-54 Cross-Field Electron Transport Through a Rotating Spoke in the Cylindrical Hall Thruster
C. L. Ellison, Y. Raitses, N. J. Fisch
Princeton Plasma Physics Laboratory, Princeton, NJ, United States

IP3I-55 Ion Energy Distribution Measurements of a Radiofrequency Plasma Source Immersed in Vacuum
A. Shabshelowitz, A. D. Gallimore
Aerospace Engineering, University of Michigan, Ann Arbor, MI, United States

Session IP3J: Plasma Material Interactions (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: Jeffrey Brooks, Purdue University

IP3J-1 Atmospheric-Pressure Air Plasma Jet and Its Application to Photoresist Material Etching
L. Wang[1], N. Fox-Lyon[2], F. Weilnboeck[2], S. Jia[1], G. Oehrlein[2]
[1]State Key Laboratory of Electrical Insulation and Power Equipment, Dept. of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China
[2]Department of Materials Science and Engineering, Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, Maryland, United States

IP3J-2 A Two Dimensional Capillary Discharge Model Considering the Ablation-Deposition Process
X. Li, R. Li, S. Jia
School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China

IP3J-3 Amorphous Silicon & Silicon Nitride Etching with NF_3 DBD Plasma
D. C. Seok[1], T. Lho[1], S. R. Yoo[1], B. J. Lee[1], G. -H. Kim[2]
[1]National Fusion Research Institutes, Daejeon, South Korea
[2]Seoul National University, Seoul, South Korea

IP3J-4 Integrated Approach in Predicting Damage to Components in ITER-like Fusion Devices during Plasma Instabilities
V. Sizyuk, A. Hassanein
Purdue University, West Lafayette, IN, United States

IP3J-5 Surface Resistivity Modification of Polyimide Film by Plasma Source Ion Implantation*
B. Park[1,2], M. Cho[1], W. Namkung[1], S. J. Kim[2], H. Y. Yoo[2]
[1]POSTECH, Pohang, South Korea
[2]Dawonsys Co. Ltd., Siheung, South Korea

IP3J-6 Study of Plasma in Bias Pulse Duty Ratio at ICP Etch Chamber
T. -H. Jo, M. -S. Yun, B. -I. Jeon, G. Cho, G. -C. Kwon
Tae-Hoon Jo, Seoul, South Korea

IP3J-7 Aerodynamically Enhanced Atmospheric Pressure Plasma Jet for Polymer Treatment
K. U. Sawlani, J. E. Foster
Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

IP3J-8 Field Emission Characteristics of Cone-Shaped Carbon Nanotube Bundle by Plasma Treatments
S. T. Lim, G. H. Kim
Seoul National University, Seoul, South Korea

IP3J-9 Experimental Study of Plasma Cutting Torch
E. Ozen, F. Bozduman, T. Aktan, L. Oksuz
Physics, Süleyman Demirel University, Isparta, Turkey

IP3J-10 Plasma Deposition for Lubrication
E. Teke, T. Aktan, L. Oksuz
Physics, Süleyman Demirel University, Isparta, Turkey

Session IP3K: Non-equilibrium Plasma Applications II (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: Michael Kong, Loughborough University

IP3K-12 Plasma Diffusion in the Atmospheric Pressure Plasma Jets
Y. Kim, J. Jeong, G. Han, D. Jin, J. Kim, G. Cho
Department of Electrophysics, Kwangwoon University, Seoul, South Korea

IP3K-13 Downstream Characterization of an Oxygen Atmospheric Pressure Plasma Jet
Y. J. Yang, H. C. Li, C. C. Hsu
Dept. of Chemical Engineering, National Taiwan University, Taipei, Taiwan

IP3K-14 Optical and Electrical Diagnostics on Extended Dielectric Barrier Discharge Source
J. Hong, Y. L. Wu, Z. Ouyang, T. S. Cho, D. N. Ruzic
Nuclear, Plasma and Radiological Engineering, University of Illinois at Urbana Champaign, Urbana, IL, United States

IP3K-15 An Ozone Microplasma Reactor for Water Treatment
J. H. Lozano-Parada
Chemical and Process Eng., The University of Sheffield, Sheffield, United Kingdom

IP3K-16 Non Equilibrium Plasma Conversion of Pyrogas into Synthesis Gas
F. Odeyemi, A. Rabinovich, A. Fridman
Mechanical Engineering, Drexel University, Philadelphia, PA, United States

IP3K-17 Modification of Hydrophobicity of Metallic Surfaces with an Atmospheric Plasma Jet
R. Palma, M. Nieto-Perez, G. Ramos
CICATA Querétaro, Instituto Politécnico Nacional, Querétaro, Mexico

IP3K-18 Effect of Atmospheric Plasma Treatment on Edible Grains
M. Nieto-Perez[1], P. Vazquez-Landaverde[2], B. Arevalo-Torres[1], A. de la Rosa-Medina[2]
[1]Alternative Energy Div., CICATA-IPN Unidad Querétaro, Querétaro, Mexico
[2]Biotechnology Div., CICATA-IPN Unidad Querétaro, Querétaro, Mexico

IP3K-19 Narrow Tube Sterilization Using Plasma and Air Circulating System for Medical Instrument Sterilization
M. S. Kim[1], G. Y. Park[2], Y. S. Seo[1], J. K. Lee[1]
[1]Electrical Engineering Dept., POSTECH, Pohang, South Korea
[2]Institute of Health Science, Gyeongsang National University, Jinju, South Korea

IP3K-20 Comparison of Hydrophilization Effect by Various Gas Atmospheric Plasma
R. Sasaki, H. Hirai, T. Takamatsu, M. Shibata, H. Miyahara, A. Okino
Tokyo Institute of Technology, Yokohama, Japan

IP3K-21 Angular Dependences of Si_3N_4 Etch Rates and SiO_2-to-Si_3N_4 Etch Selectivity in $C_4F_6/Ar/O_2/CH_2F_2$ Plasmas
S. -W. Cho, C. -K. Kim
Ajou University, Korea, Suwon, South Korea

IP3K-22 Microwave Plasma Jet System Development at Atmospheric Pressure using 2.45 GHz GaN HEMT Devices
J. D. Kim[1], Y. H. Na[2], Y. J. Hong[2], H. S. Uhm[2], J. J. Choi[1], E. H. Choi[2]
[1]Department of Wireless Communications Engineering, High Power Microwave Engineering Laboratory/Plasma Bioscience Research Center, Kwangwoon University, Seoul, South Korea
[2]Department of Electrophysics, Charged Particle Beam and Plasma Laboratory/Plasma Bioscience Research Center, Kwangwoon University, Seoul, South Korea

IP3K-23 Investigation of Methane Flow Rate to Crack N-Hexadecane by using Cylindrical Dielectric Barrier Discharge Reactor
B. Shokri[1], M. R. Khani[1], S. H. Razavi Barzoki[1], M. Sahba Yaghmaee[2]
[1]Shahid Beheshti University, Tehran, Iran
[2]Materials and Energy Research Center, Tehran, Iran

Session IP3L: Environmental & Industrial Applications II (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: XinPei Lu, HuaZhong University of Science & Technology

IP3L-24 Synthesis of Sulfonated Copolymers of Acrylamide by Plasma-Initiated Copolymerization Using Microwave Plasma
F. Ghomashi[1], S. Kooshki[1], B. Shokri[1,2]
[1]Physics Department, Shahid Beheshti University, Tehran, Evin, Iran
[2]Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Evin, Iran

IP3L-25 RF Atmospheric Plasma Based Air Filtration Using Porous Metals
D. D. Wooten
Nuclear Engineering, North Carolina State University, Raleigh, United States

IP3L-26 Power Studies of an Underwater DBD Plasma Jet
S. M. Nowak, J. E. Foster
University of Michigan, Ann Arbor, MI, United States

IP3L-27 Microchannel Plasma Reactor for Gaseous Remediation and Destruction
B. C. Masters, T. P. Garvin, C. P. Marsh
Construction Engineering Research Laboratory - Engineer Research and Development Center, US Army Corps of Engineers, Champaign, IL, United States

IP3L-29 Study on the Discharge under Water and Micro Bubble Generation
T. Lho[1], S. -R. Yoo[1], J. -S. Park[1], Y. -C. Hong[1], D. -C. Seok[1], B. -J. Lee[1], G. -H. Kim[2]
[1]Center for Convergence Plasma, National Fusion Research Institutes, Daejeon, South Korea
[2]Nuclear Engineering, Seoul National University, Seoul, South Korea

IP3L-30 Influence of Pulsed Electric Field (PEF) Treatment on the Extraction of Lipids from the Microalgae Auxenochlorella Protothecoides
M. Goettel, C. Eing, C. Gusbeth, W. Frey, G. Mueller
Institute for Pulsed Power and Microwave Technology (IHM), Karlsruhe Institute of Technology, Karlsruhe, Germany

IP3L-31 Plasma Engineering of Gases in Micro Ion Atomic Clocks
T. K. Statom
Sandia National Laboratories, Albuquerque, NM, United States

IP3L-32 Atmospheric Argon Plasma Effects on Microbial Load of Wet-Blue Leathers
T. Aktan[1], S. M. Gokalp[2], A. Gulec[1], L. Oksuz[1], A. Aslan[2], I. Yasa[3]
[1]Physics, Süleyman Demirel University, Isparta, Turkey
[2]Leather Engineering, Ege University, Izmir, Turkey
[3]Biology, Ege University, Izmir, Turkey

IP3L-33 Plasma Water Treatment by Electrical Discharge Methods
K. Ozaltin[1], F. Bozduman[1], T. Aktan[1], L. Oksuz[1], G. Tinaz[2]
[1]Physics, Süleyman Demirel University, Isparta, Turkey
[2]Biology, Süleyman Demirel University, Isparta, Turkey

Session IP3M: High Energy Density Matter (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: David Ampleford, Sandia National Laboratories

IP3M-34 Hydrodynamic and Magnetically Driven Jets on the MAGPIE Generator
F. Suzuki-Vidal[1], S. V. Lebedev[1], G. Swadling[1], M. Bocchi[1], P. De Grouchy[1], G. Burdiak[1], S. N. Bland[1], G. N. Hall[1], A. J. Harvey-Thompson[1], E. Khoory[1], L. Pickworth[1], J. Skidmore[1], J. P. Chittenden[1], M. Krishnan[2], K. Wilson Elliott[2], R. Madden[2], A. Ciardi[3]
[1]Imperial College London, London, United Kingdom
[2]Alameda Applied Sciences Corporation, San Leandro, CA, United States
[3]LERMA, Observatoire de Paris and École Normale Supérieure, Paris, France

IP3M-35 Plasma Focus Generated by Radial Foils on COBRA
J. M. Milhone, B. Eshel, A. Y. Gorenstein, P. -A. Gourdain, J. B. Greenly, D. A. Hammer, J. E. Kim, B. R. Kusse, C. E. Seyler
Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States

IP3M-36 Interactions Between Two Plasma Bubbles Using Radial Foil Configurations
A. Y. Gorenstein, J. E. Kim
Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States

IP3M-37 Computational Aspects of Simulating Megagauss-Magnetic-Field-Induced Plasma Formation on Thick-Wire Metallic Surfaces
I. R. Lindemuth[1], R. E. Siemon[1], B. S. Bauer[1], W. L. Atchison[2]
[1]University of Nevada, Reno, NV, United States
[2]Los Alamos National Laboratory, Los Alamos, NM, United States

IP3M-38 Magnetic Implosion Simulations of Impacting Liners Accelerated to ~ 20 km/s
A. M. Buyko, S. F. Garanin, V. V. Zmushko, N. A. Kudryavtseva, A. I. Panov, P. V. Rybachenko, S. S. Sokolov
All-Russian Research Institute of Experimental Physics (VNIIEF), Sarov, Russian Federation

IP3M-39 High Resolution Imaging of K-Alpha X-Rays Using an Elliptically Bent Crystal
P. X. Belancourt, K. Akli, M. Storm, R. R. Freeman
Physics, Ohio State University, Columbus, OH, United States

IP3M-40 Laser Interferometric Measurement for Astrophysics Diagnostics on Sphinx
D. Plouhinec, D. Sol, T. d'Almeida, H. Calamy, F. Zucchini
CEA, Gramat, France

Session IP3N: Optical & X-ray Diagnostics II (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: Daniel B Sinars, Sandia National Laboratories

IP3N-41 Development of an All Fiber Velocity Interferometer Dedicated to Measurement of Thermal Stress Waves on Samples Irradiated by Sphinx Z-Pinch Source
F. Zucchini, F. Lassalle, T. d'Almeida, S. Ritter, R. Lample, J. -M. Delchie
CEA, Gramat, France

IP3N-42 Absolute Calibration Method for Nanosecond-Resolved, Time-Streaked, Fiber Optic Light Collection, Spectroscopy Systems
M. D. Johnston[1], B. V. Oliver[1], D. W. Droemer[2], Y. Maron[3]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]National Security Technologies, Las Vegas, NV, United States
[3]Weizmann Institute of Science, Rehovot, Israel

IP3N-43 Optical Emission Spectroscopy Measurements of Electron Beam-Generated Plasma in Argon
E. H. Lock[1], J. Franek[2], D. R. Boris[1], S. G. Walton[1], R. F. Fernsler[1], I. L. Singer[3]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]Global Strategies Group, Inc., Washington, DC, United States
[3]Chemistry Division, Naval Research Laboratory, Washington, DC, United States

IP3N-44 Influence of Ne-Xe Gas Mixture Ratio on the Extreme Ultraviolet (EUV) Emission and Electron Temperature from the Coaxially Focused Plasma
S. H. Lee, Y. J. Hong, D. I. Choi, H. S. Uhm, E. H. Choi
Kwangwoon University, Seoul, South Korea

IP3N-45 High-Sensitivity Interferometric Measurements of Gas Density Distributions from a PRS Nozzle Synchronized with a Heterodyne Interferometer
D. G. Phipps, B. V. Weber, R. J. Commisso
Pulsed Power, US Naval Research Laboratory, Washington, DC, United States

IP3N-46 Continued Development of Triple Plena Gas Puff Nozzles for Z
R. E. Madden[1], M. Krishnan[1], K. Wilson Elliott[1], P. Coleman[2]
[1]Alameda Applied Sciences Corporation, San Leandro, CA, United States
[2]Evergreen Hill Sciences, Philomath, OR, United States

IP3N-47 Measurement of Neutral Hydrogen Density in a Helicon Plasma
M. E. Galante[1], R. M. Magee[1], D. W. McCarren[1], E. E. Scime[1], N. Brooks[2], R. Boivin[2]
[1]West Virginia University, Morgantown, WV, United States
[2]General Atomics, San Diego, CA, United States

IP3N-48 Calculation of RF Field Characteristics using Non-perturbative Optical Diagnostics with a Generalized Dynamic Stark Effect Model
E. H. Martin[1], S. C. Shannon[2], J. B. O. Caughman[1], R. C. Isler[1], C. C. Klepper[1]
[1]Fusion Energy Division, ORNL, Oak Ridge, TN, United States
[2]Nuclear Engineering, NCSU, Raleigh, NC, United States

IP3N-49 Etch Rate Monitoring with Optical Emission Spectra in Dry Etching Process
S. W. Park, G. J. Seong, K. H. Baek, Y. J. Kim, K. S. Shin, Y. G. Shin, H. K. Kang
Semiconductor R&D Center, Samsung Electronics, Hwaseong-si, Gyeonggi-do, Republic of Korea

Session IP3O: Microwave & FIR Diagnostics (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: Calvin W Domier, University of California, Davis

IP3O-50 Study of Resonant Properties of Hairpin Probe for High-Density Operation
G. S. Gogna[1], S. K. Karkari[1,2], M. M. Turner[1]
[1]School of Physical Sciences, Dublin City University, Dublin, Ireland
[2]Basic Plasma Group, Institute for Plasma Research, Bhat Gandhinagar, Gujarat, India

IP3O-51 A High Wavenumber Poloidal Scattering System for the NSTX Tokamak
C. W. Domier[1], L. Yu[1], K. Lee[1], N. C. Luhmann, Jr.[1], Y. Ren[2]
[1]Applied Science, University of California, Davis, Davis, CA, United States
[2]Princeton Plasma Physics Laboratory, Princeton, NJ, United States

Session IP3P: Charged Particle & Nuclear Diagnostics (p)

Poster Session
Wednesday, June 29 13:00-15:00, CC12 A-D
Session Chair: Hans Hermann, LANL

IP3P-52 Measurement of D-T Branching Ratio Based on Cross-Calibration to D-^{3}He
Y. Kim, H. Herrmann, J. Mack, C. Young, J. Langenbrunner, S. Evans, T. Sedillo
Los Alamos National Laboratory, Los Alamos, NM, United States

IP3P-53 Proton Probing of Magnetic Fields in Exploding Wire Experiments
D. A. Mariscal[1], S. C. Bott[1], M. Wei[1], F. N. Beg[1], R. Presura[2], N. Renard-LeGalloudec[2], P. Wiewior[2], A. Covington[2], J. P. Chittenden[3]
[1]UC San Diego, La Jolla, CA, United States
[2]Nevada Terawatt Facility, University of Nevada Reno, Reno, NV, United States
[3]Imperial College, London, UK

IP3P-54 Alignment Commissioning of the Neutron Imager for the National Ignition Facility
O. B. Drury[1], D. E. Bower[1], S. C. Burkhart[1], J. M. Dzenitis[1], B. Felker[1], D. N. Fittinghoff[1], M. Frank[1], D. H. Kalantar[1], J. L. Klingmann[1], R. A. Buckles[2], C. P. Munson[3], D. Esquibel[3], V. E. Fatherley[3], G. P. Grim[3], F. E. Merrill[3], J. A. Oertel[3], C. H. Wilde[3]
[1]Lawrence Livermore National Laboratory, Livermore, CA, United States
[2]National Security Technologies, Livermore, CA, United States
[3]Los Alamos National Laboratory, Los Alamos, NM, United States

IP3P-55 Coded Aperture Imaging Technique for Investigation of Fusion Source Spatial Distribution in Plasma Focus Device
A. Talebitaher, S. V. Springham, P. M. E. Shutler, R. S. Rawat, P. Lee
NIE, NTU, Singapore, Singapore

IP3P-56 In-Situ Preparation of Radioactive Tracers in NIF Capsules
M. A. Stoyer
LLNL, Livermore, CA, United States

Session IO6A: Fast Z-Pinches I/Laser-Produced Plasmas II (o)

Wednesday, June 29 15:00-17:00, Pullman Room
Session Chair: Brian L Bures, Alameda Applied Sciences Corp

15:00 IO6A-1 Scaling of Bright Spots in X Pinches from 1 MA to 6 MA
D. B. Sinars[1], R. D. McBride[1], D. F. Wenger[1], M. E. Cuneo[1], E. P. Yu[1], E. Harding[1], S. B. Hansen[1], D. J. Ampleford[1], C. A. Jennings[1], S. A. Pikuz[2], T. A. Shelkovenko[2], J. P. Chittenden[3]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]Laboratory of Plasma Studies, Cornell University, Ithaca, NY, United States
[3]Blackett Laboratory, Imperial College, London, United Kingdom

15:15 IO6A-2 Experimental Investigations of Single-Layer and Nested X-Pinches at 1-MA
J. Wu[1], M. Lv[1], G. Wu[2], L. Wang[2], J. Han[2], M. Li[2], N. Guo[2], P. Cong[2], M. Qiu[2], H. Yang[2], A. Qiu[2]
[1]Department of Engineering Physics, Tsinghua University, Beijing, China
[2]Northwest Institute of Nuclear Technology, Xi'an, China

15:30 IO6A-3 Optimization of Dense Plasma Focus for Higher Neutron Yield
S. M. Hassan[1], P. Lee[2], R. S. Rawat[2], S. Lee[2], S. H. Saw[3], M. Tatarakis[4], S. S. Harilal[1], A. Hassanein[1]
[1]School of Nuclear Engineering, Purdue University, West Lafayette, IN 47907, United States
[2]NSSE/NIE, Nanyang Technological University, Singapore 637616, Singapore
[3]Center for Plasma Research, INTI University College, Nilai, Malaysia
[4]Center for Plasma Physics and Lasers, TEI of Crete, Chania 73133, Crete, Greece

15:45 IO6A-4 High Performance Repetitive Low Energy Miniature Plasma Focus Neutron Source: Record Yield, Scaling Laws and Yield Stability
R. Verma[1,2], R. S. Rawat[1], P. Lee[1], S. V. Springham[1], T. L. Tan[1]
[1]Natural Sciences and Science Education, National Institute of Education, Nanyang Technological University, Singapore, Singapore
[2]Institute for Plasma Research, Bhat, Gandhinagar, India

16:00 IO6A-5 (invited) Laser-Produced Directed Neutron Beams
G. M. Petrov[1], J. Davis[1], T. B. Petrova[1], L. Willingale[2], A. Maksimchuk[2], K. Krushelnick[2]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]CUOS, University of Michigan, Ann Arbor, MI, United States

16:30 IO6A-6 Experiments to Characterize a >100 keV, High Resolution X-Ray Backlighter for Cylindrical Imploding Liners at the Z Machine
T. J. Webb[1], M. Geissel[1], B. V. Oliver[1], D. G. Flicker[1], R. W. Lemke[1], R. B. Campbell[1], C. L. Miller[2]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]Voss Scientific LLC, Albuquerque, NM, United States

16:45 IO6A-7 Observations of Strong Areal Mass Oscillations in a Rippled Target Hit by a Short Pulse on the Nike Laser
Y. Aglitskiy[1], M. Karasik[2], A. L. Velikovich[2], V. Serlin[2], J. L. Weaver[2], T. J. Kessler[2], A. J. Schmitt[2], S. P. Obenschain[2], N. Metzler[3], J. Oh[4]
[1]Science Applications International Corporation, McLean, VA, United States
[2]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[3]Artep, Inc., Columbia, MD, United States
[4]Research Support Instruments, Lanham, MD, United States

Session IO6B: Fast-Wave Devices (o)

Wednesday, June 29 15:00-17:00, CC23 AB
Session Chair: Steven H Gold, Naval Research Laboratory

15:00 IO6B-1 (invited) Wideband Fast Wave Amplifiers
C. G. Whyte, C. W. Robertson, K. Ronald, A. R. Young, W. He, A. W. Cross, P. MacInnes, A. D. R. Phelps
SUPA, Physics, University of Strathclyde, Glasgow, United Kingdom

15:30 IO6B-2 Recent Tests on a Multi-Megawatt 95 GHz Gyrotron
S. Cauffman, M. Blank, P. Borchard, P. Cahalan, K. Felch
Communications and Power Industries, Palo Alto, CA, United States

15:45 IO6B-3 Experimental Results of the Start-up Scenario for a 1.5 MW, 110 GHz Pulsed Gyrotron
D. S. Tax, W. C. Guss, I. Mastovsky, M. A. Shapiro, R. J. Temkin
Plasma Science and Fusion Center, MIT, Cambridge, MA, United States

16:00 IO6B-4 Ultimate Choice of Operating Modes in High-Power Gyrotrons
O. V. Sinitsyn, G. S. Nusinovich, T. M. Antonsen, Jr.
IREAP, University of Maryland, College Park, MD, United States

16:15 IO6B-5 Second Harmonic Gyrotron Based on a 12 T Superconducting Magnet
A. W. Fliflet, S. H. Gold
Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

16:30 IO6B-6 Fundamental and Harmonic Mode Competition in Gyrotron Oscillator
S. -H. Kao, C. -C. Chiu, K. -F. Pao, K. -R. Chu
Physics, National Taiwan University, Taipei, Taiwan

16:45 IO6B-7 Destabilization of Backward Waves by Space Charge in Gyrotron Beams
J. Yu[1], T. M. Antonsen[1], G. S. Nusinovich[1], A. N. Vlasov[2]

[1]Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, United States
[2]Naval Research Laboratory, Washington DC 20375, United States

Session IO6C: Partially Ionized Plasmas/Space Plasmas (o)

Wednesday, June 29 15:00-16:45, CC22 BC
Session Chair: Natalia Y. Babaeva, University of Michigan

15:00 IO6C-1 Reformulation of Gas Discharge Theory Using Data from ICPs and Helicons
F. F. Chen, D. Curreli
Electrical Engineering, UCLA, Los Angeles, CA, United States

15:15 IO6C-2 Verification of Collisionless Model of Capacitive Rf Discharges by Particle-in-Cell Simulations
Y. Wang[1], M. A. Lieberman[1], A. Wu[1], J. P. Verboncoeur[2]
[1]Nuclear Engineering, University of California - Berkeley, Berkeley, CA, United States
[2]Electrical Engineering, Michigan State University, East Lansing, MI, United States

15:30 IO6C-3 (invited) Probe Diagnostics of RF Plasmas for Material Processing*
V. Godyak
RF Plasma Consulting, Brookline, MA, United States

16:00 IO6C-4 Analysis of the Interaction of Free and Bound Microplasmas
Y. H. Kim, S. H. Sung, H. E. Lee, S. -J. Park, J. G. Eden
Electrical and Computer Engineering, University of Illinois, Urbana, IL, United States

16:15 IO6C-5 Communication Through a Plasma Sheath Around a Fast Moving Vehicle
V. Sotnikov[1], S. Mudaliar[1], T. Genoni[2], B. V. Oliver[3], T. A. Mehlhorn[4]
[1]Air Force Research Laboratory, Hanscom AFB, MA, United States
[2]Voss Scientific, Albuquerque, NM, United States
[3]Sandia National Laboratories, Albuquerque, NM, United States
[4]Naval Research Laboratory, Washington, DC, United States

16:30 IO6C-6 Controlled Study of Acoustic Gravity Waves (AGW) Generated by Anomalous Heat Sources
R. Pradipta[1], M. -C. Lee[2], B. Watkins[3], C. Fallen[3], S. Kuo[4]
[1]Department of Nuclear Sciences and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States
[2]Department of Electrical and Computer Engineering, Boston University, Boston, MA, United States
[3]Geophysical Institute, University of Alaska Fairbanks, Fairbanks, AK, United States
[4]Department of Electrical and Computer Engineering, New York University, Brooklyn, NY, United States

Session IO6D: Intense Electron & Ion Beams/Fusion II (o)

Wednesday, June 29 15:00-17:00, CC21 BC
Session Chair: Scott Kovaleski, University of Missouri-Columbia

15:00 IO6D-1 Room Scattering Effects on the Measured Spatial Distribution of Delayed Photofission Neutrons from Depleted Uranium
J. P. Apruzese, R. J. Commisso, J. W. Schumer, D. Mosher, S. B. Swanekamp, S. L. Jackson, D. D. Hinshelwood, F. C. Young, G. Cooperstein, R. J. Allen
Plasma Physics Division, Naval Research Laboratory, Washington DC, United States

15:15 IO6D-2 New Reflex Triode Configuration for Improved Moderate-Energy X-Ray Production
B. V. Weber[1], R. J. Commisso[1], D. D. Hinshelwood[1], D. G. Phipps[1], S. J. Stephanakis[2], S. B. Swanekamp[1]
[1]Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States
[2]L-3 Communications, Chantilly, VA, United States

15:30 IO6D-3 Load Impedance Dynamics in the RITS-6 Self-Magnetic-Pinch Diode
T. J. Renk[1], M. D. Johnston[1], B. V. Oliver[1], N. Bruner[2], D. R. Welch[2]
[1]Sandia National Laboratories, Albuquerque, NM, United States
[2]Voss Scientific LLC, Albuquerque, NM, United States

15:45 IO6D-4 3-D Green's Function Modeling for Moderately Relativistic Charged-Particle Beams in Cylindrical Geometry
K. Ilyenko, T. Y. Yatsenko
Department of Vacuum Electronics, Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine

16:00 IO6D-5 (invited) Study on Behaviors of Laser Produced Plumes for Fusion Material Ablation
K. A. Tanaka[1], K. Kikuyama[1], K. Kono[1], S. Misaki[1], T. Ohishi[1], N. Ohmoto[1], M. Osada[1], A. Sunahara[2], Y. Hirooka[3]
[1]Grad. Schl. Eng., Osaka University, Suita, Osaka, Japan
[2]Institute for Laser Technology, Osaka, Osaka, Japan
[3]National Institute of Fusion Science, Toki, Gifu, Japan

16:30 IO6D-6 Measurement of Spatial Distribution of Fusion Reactions in an Inertial Electrostatic Confinement Fusion Device Driven by a Ring-Shaped Magnetron Ion Source
T. Kajiwara, K. Masuda, J. Kipritidis, K. Nagasaki
Institution of Advanced Energy, Kyoto University, Gokasho, Uji, Kyoto, Japan

16:45 IO6D-7 Modeling and Simulation of the Erosion Damage in Tokamak Devices During Plasma Instabilities
F. Genco, A. Hassanein
School of Nuclear Engineering, Purdue University, CMUXE, Lafayette, IN, United States

June 30: THURSDAY

Session IPL2: ICOPS Plenary 2

Thursday, June 30 08:00-09:00, Ballroom AB
Session Chair: Steven H Gold, Naval Research Laboratory

8:00 IPL2-1 (invited) Probing the Ionosphere with Rockets and Radio Waves: A Study of Plasma Waves and Instabilities in the Upper Atmosphere
P. A. Bernhardt
Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

Session IO7A: Fast Z-Pinches II (o)

Thursday, June 30 9:30-12:00, Pullman Room
Session Chair: Simon C Bott, University of California, San Diego

9:30 IO7A-1 The Study of Ablation and Implosion Dynamics in Closely Coupled Nested Cylindrical and Star Wire Array Z Pinches
D. Papp[1], V. I. Ivanov[1], A. Haboub[1], A. A. Anderson[1], S. D. Altemara[1], B. Jones[2], J. P. Chittenden[3]
[1]University of Nevada, Reno, Reno, NV, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States
[3]Blackett Laboratory, Imperial College, London, UK

9:45 IO7A-2 End-on Laser Probing of the Ablation Phase of Wire Array Z-Pinch Implosions on the MAGPIE Generator
G. F. Swadling, S. V. Lebedev, S. N. Bland, G. N. Hall, F. Suzuki-Vidal, A. J. Harvey Thompson, M. Bocchi, N. P. Niasse, G. C. Burdiak, L. Pickworth, E. Khoory, P. de Grouchi, L. Suttle
Plasma Physics, Imperial College London, London, United Kingdom

10:00 IO7A-3 Atomic Model and Synthetic Diagnostics for Large Scale Parallel Simulations of Wire Array Z-Pinches
N. P. Niasse, J. P. Chittenden
Imperial College, London, United Kingdom

10:15 IO7A-4 Modeling of Gas Puff Z-Pinch Experiments at the ZR Facility
C. S. Kueny[1], C. A. Coverdale[2], D. G. Flicker[2], M. Krishnan[3], P. L. Coleman[3]
[1]Hewlett-Packard Company, Albuquerque, NM, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States
[3]Alameda Applied Sciences Corp., San Leandro, CA, United States

10:30 IO7A-5 (invited) Plasma Instability Measurements on Planar Al Foil Loads Driven Using the MAIZE 1-MA LTD Facility
J. C. Zier[1], S. G. Patel[1], D. M. French[1], M. R. Gomez[1], R. M. Gilgenbach[1], Y. Y. Lau[1], D. A. Chalenski[1], A. M. Steiner[1], M. A. Franzi[1], I. M. Rittersdorf[1], M. Weis[1], M. G. Mazarakis[2], M. R. Lopez[2], M. E. Cuneo[2]
[1]Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States
[2]Sandia National Laboratories, Albuquerque, NM, United States

11:00 IO7A-6 Ablation Dynamics, Precursor Formation, and Instability Studies on Thin Foil Copper Liners
I. C. Blesener[1], K. S. Blesener[1], J. B. Greenly[1], D. A. Hammer[1], B. R. Kusse[1], C. E. Seyler[1], B. Blue[2]

[1]*Cornell University, Ithaca, NY, United States*
[2]*General Atomics, San Diego, CA, United States*

11:15 IO7A-7 Time Evolution of Z-Pinch Dynamics and Radiative Characteristics of Wire Arrays on Zebra at UNR
A. S. Safronova[1], V. L. Kantsyrev[1], A. A. Esaulov[1], M. E. Weller[1], V. V. Shlyaptseva[1], A. Stafford[1], S. F. Keim[1], I. Shrestha[1], G. C. Osborne[1], K. M. Williamson[1], C. A. Coverdale[2], L. I. Rudakov[3]
[1]*University of Nevada, Reno, Reno, NV, United States*
[2]*Sandia National Laboratories, Albuquerque, NM, United States*
[3]*Icarus Research, Bethesda, MD, United States*

11:30 IO7A-8 X-Ray Pulse Shaping from Tungsten-Based Multi-Planar Wire Arrays
G. Osborne, V. Kantsyrev, A. Esaulov, A. Safronova, M. Weller, I. Shrestha, K. Williamson, V. Shlyaptseva
Physics Department, University of Nevada, Reno, Reno, NV, United States

11:45 IO7A-9 X-Ray Yield from Pinch Target Implosions
D. A. Martinez, R. Presura, S. Stein, M. Tooth, S. Haque, L. O'Brien, S. Neff
Nevada Terawatt Facility, Reno, NV, United States

Session IO7B: Vacuum Microelectronics/Microwave Plasma Interactions (o)

Thursday, June 30 9:30-11:45, CC23 AB
Session Chairs: Jim Browning, Boise State University
Tim Bigelow, ORNL

9:30 IO7B-1 Progress in Field Ionization Source Development for Compact Neutron Generators
A. Persaud[1], O. Waldmann[1], T. Schenkel[1], R. Kapadia[2], A. Javey[2]
[1]*Accelerator and Fusion Research Division, E.O. Lawrence Berkeley National Laboratory, Berkeley, CA, United States*
[2]*Department of Electrical Engineering and Computer Sciences, University of Berkeley, Berkeley, CA, United States*

9:45 IO7B-2 The Klein Tunneling Modified Field-Emission Model for a Vertical-Aligned Single-Layer Graphene Sheet
S. Sun, L. K. Ang
School of Electric and Electronic Engineering, Nanyang Technological University, Singapore, Singapore

10:00 IO7B-3 An Exact Formulation of Thin Film Contact Resistance with Dissimilar Materials
P. Zhang, Y. Y. Lau, R. M. Gilgenbach
Nuclear Engineering and Radiological Sciences, University of Michigan - Ann Arbor, Ann Arbor, MI, United States

10:15 IO7B-4 Field Emission from Nanocrystalline Graphite/Carbon Nanotube Emitter from Room Temp to 1000 C
H. H. Busta, R. Gorski, B. Rozansky
Prairie Prototypes, LLC, Park Ridge, IL, United States

10:30 IO7B-5 A Plasma Source for High Power Microwave Interaction Studies
V. P. Anitha, P. J. Rathod, R. Bahl, J. V. Raval, Y. C. Saxena, A. Shyam, A. Das, P. K. Kaw
Microwave Plasma Interaction, Institute for Plasma Research, Gandhinagar,Gujarat, India

10:45 IO7B-6 Statistical Modeling of High Power Microwave Surface Flashover Delay Times
J. Foster, H. Krompholz, A. Neuber
Center for Pulsed Power and Power Electronics, Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States

11:00 IO7B-7 Distributed Microwave Breakdown for Shielding of Sensitive Electronics Against Frontdoor Overloads
F. Christophe, R. Klein, X. Ferrieres, S. Bolioli
DEMR, ONERA, Toulouse, France

11:15 IO7B-8 Preliminary Design of the ITER ECH Upper Launcher
D. C. Strauss[1], G. Aiello[1], R. Chavan[2], S. Cirant[2], M. deBaar[3], D. Farina[4], G. Gantenbein[1], T. Goodman[2], M. A. Henderson[5], W. Kasparek[6], K. Kleefeldt[1], J. -D. Landis[2], A. Meier[1], A. Moro[4], B. Plaum[6], E. Poli[7], G. Ramponi[4], D. Ronden[3], G. Saibene[8], F. Sanchez[2], O. Sautter[2], T. Scherer[1], S. Schreck[1], A. Serikov[1], C. Sozzi[4], P. Spaeh[1], A. Vaccaro[1], H. Zohm[7]
[1]*Institute for Applied Materials, KIT, Karlsruhe, Germany*
[2]*CRPP/EPFL, Lausanne, Switzerland;* [3]*FOM, Rijnhuizen, Netherlands;*[4]*IFP/CNR, Milano, Italy;*[5]*ITER, Cadarache, France*
[6]*IPF, Stuttgart, Germany;*[7]*IPP, Garching, Germany;*[8]*F4E, Barcelona, Spain*

11:30 IO7B-9 Characterizations on a 2.45 GHz Microwave Induced Atmospheric Pressure Plasma Torch
Z. Ouyang, T. S. Cho, Y. L. Wu, V. Surla, D. N. Ruzic

Center for Plasma-Material Interactions, University of Illinois at Urbana-Champaign, Urbana, IL, United States

Session IO7C: Environmental & Industrial Applications (o)

Thursday, June 30 9:30-12:00, CC22 BC
Session Chair: XinPei Lu, College of EEE, HuaZhong University of Science and Technology

9:30 IO7C-1 (invited) Towards the Purification of Liquid Water by Direct Plasma Injection: Technical Challenges and Ongoing Efforts at the University of Michigan Plasma Science and Technology Laboratory
J. E. Foster, S. Nowak, B. Sommers
Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

10:00 IO7C-2 An Investigation of Micron Diameter Exposed-Electrode Single Barrier Dielectric Barrier Discharges
M. U. Siddiqui, N. Hershkowitz, R. Bonazza
Department of Engineering-Physics, University of Wisonsin - Madison, Madison, WI, United States

10:15 IO7C-3 (IP2F-3) Laser-Produced Carbon Plasma Evolution and Lifecycle
M. Polek, S. Harilal, A. Hassanein
CMUXE, Purdue University, W. Lafayette, IN, United States
10:30 IO7C-4 Al/Al_2O_3 Micro Channel Plasma Chemical Reactor for Ozone Synthesis
J. H. Cho, M. H. Kim, S. H. Kim, S. -J. Park, J. G. Eden
Electrical and Computer Engineering, University of Illinois, Urbana, IL, United States

10:45 IO7C-5 Resonant Oscillations of Air Bubbles Driven by a Time Varying Electric Field
B. S. Sommers, J. E. Foster
Nuclear Engineering, University of Michigan, Ann Arbor, MI, United States

11:00 IO7C-6 Adsorption and Decomposition of Perfluorooctane Sulfonic Acid on Plasma-water Interface
N. Takeuchi, R. Oishi, Y. Kitagawa, K. Yasuoka
Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan

11:15 IO7C-7 Removal of Toluene by a Non-Thermal Plasma Generator with Meso-Porous MCM-41-Supported Oxide Catalysts
M. Li[1], K. N. Hui[2], J. Y. Lee[2], K. S. Hui[1]
[1]Manufacturing Engineering and Engineering Management, City University of Hong Kong, Kowloon Tong, Hong Kong
[2]Materials Science and Engineering, Pusan National University, Pusan, Korea

11:30 IO7C-8 Decontamination of Salmonella on Sliced Fruits and Vegetables Surfaces using a Direct-Current, Atmospheric-Pressure Cold Plasma
W. Nian[1], H. Wu[1], Y. Liang[1], Q. Zhang[1], P. Sun[1], J. Zhang[1], J. Fang[1], W. Zhu[2]
[1]Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China
[2]Department of Applied Science and Technology, Saint Peter's College, Jersey City, NJ, United States

11:45 IO7C-9 Water Disinfection Using Dielectric Barrier Discharge
S. Gershman
A. Belkind & Associates, LLC, North Plainfield, NJ, United States

Session IO7D: Non-equilibrium Plasma Applications II/Plasma Medicine II (o)

Thursday, June 30 9:30-12:00, CC21 BC
Session Chair: Chunqi Jiang, University of Southern California

9:30 IO7D-1 Investigation of SiO_2 Etch Properties Using Pulse Power in Capacitively Coupled Plasmas
S. -H. Song[1], M. J. Kushner[2]
[1]Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States
[2]Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States

9:45 IO7D-2 Anomalous Voltage Trends in Electronegative Capacitively Coupled Plasmas
A. Agarwal, S. Rauf, K. Collins
Etch Disruptive Technology and Engineering, Applied Materials Inc., Sunnyvale, CA, United States

10:00 IO7D-3 Temporal Temperature Evolution of Atmospheric Pressure Streamer Discharge in Air
S. J. Pendleton[1], J. Watrous[2], M. A. Gundersen[3]
[1]Department of Physics and Astonomy, University of Southern California, Los Angeles, CA, United States
[2]NumerEx LLC, Albuquerque, NM, United States

[3]*Ming Hsieh Department of Electrical Engineering - Electrophysics, University of Southern California, Los Angeles, CA, United States*

10:15 IO7D-4 Study of Hydrogen Sulfide Dissociation in Corona Discharge
K. Gutsol[1], T. Nunnally[1], A. Rabinovich[1], A. Fridman[1], A. Gutsol[2], A. Kemoun[2]
[1]*Drexel University, Philadelphia, PA, United States*
[2]*Chevron Energy Technology Company, Richmond, CA, United States*

10:30 IO7D-5 Why Homogeneous Dielectric Barrier Discharge in Nitrogen at Atmospheric Pressure Stops at Townsend Discharge
H. Luo, J. Ran, X. Wang
Dept. of Electrical Engineering, Tsinghua University, Beijing, China

10:45 IO7D-6 Atmospheric Pressure Plasma Curer for Skin Cancer, Tooth Whitening, Wound Healing, and Skin Care
Y. -S. Seo, H. -W. Lee, H. -W. Lee, S. -K. Kang, J. -K. Lee
Department of Electronics and Electrical Engineering, POSTECH, Pohang, Gyungbuk, South Korea

11:00 IO7D-7 Efficacy of Air Plasma Microjet for Wound Sterilization
A. M. Mattson[1,2], C. Edelblute[1], X. Hao[1,3], V. Amaismeier[2], K. H. Schoenbach[1], L. Heller[1], J. F. Kolb[1,2]
[1]*Center for Bioelectrics, Old Dominion University, Norfolk, VA, United States*
[2]*Electrical and Computer Engineering, Old Dominion University, Norfolk, VA, United States*
[3]*School of Environmental and Civil Engineering, Jiangnan University, Wuxi, China*

11:15 IO7D-8 An Atmospheric Pressure Non-Thermal Plasma Needle for Endodontic Biofilm Disinfection
C. Jiang[1], C. Schaudinn[2], D. E. Jaramillo[3], P. P. Sedghizadeh[1], P. Webster[2], M. A. Gundersen[1], J. W. Costerton[4]
[1]*University of Southern California, Los Angeles, CA, United States*
[2]*House Ear Institute, Los Angeles, CA, United States*
[3]*Loma Linda University, Loma Linda, CA, United States*
[4]*Allegheny-Singer Research Institute, Pittsburgh, PA, United States*

11:30 IO7D-9 Simulation of Atmospheric Pressure Ionization Waves Propagating Through Flexible Capillary Tubes and Impinging onto a Target
Z. Xiong, M. J. Kushner
Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States