

Program

Session PL1: Speaker: Riccardo Betti

Monday, June 20 08:30-09:30, Eric Harvie Theatre

Session Chair: Farhat Beg, University of California-San Diego

8:30 PL1-1 STATUS AND PROSPECTS FOR BURNING PLASMAS VIA LASER FUSION

R. Betti

Laboratory for Laser Energetics, University of Rochester, Rochester NY, United States

Session 1A: 7.4 Compact Pulsed Power and Application

Monday, June 20 10:00-12:15, KCC 201

Session Chairs: Koichi Takaki, Iwate University

Masahiro Akiyama, Iwate University

10:00 1A-1 (invited) ON THE MECHANISM OF OH RADICAL FORMATION BY NANOSECOND PULSED CORONA DISCHARGE IN WATER

P. Lukes¹, M. Clupek¹, V. Babicky¹, B. Pongrac¹, M. Simek¹, J. F. Kolb²

¹Pulse Plasma Systems, Institute of Plasma Physics CAS, v.v.i., Prague, Czech Republic

²Leibniz Institute for Plasma Science and Technology, Greifswald, Germany

10:30 1A-2 PHYSICAL PROPERTIES OF PLASMA STREAMERS PRODUCED ON WATER SURFACE

P. Hoffer¹, Y. Sugiyama¹, H. Hosseini¹, H. Akiyama¹, M. Akiyama², P. Lukes³

¹Kumamoto University, Kumamoto, Japan

²Iwate University, Iwate, Japan

³Institute of Plasma Physics, Prague, Czech Republic

10:45 1A-3 DEVELOPMENT AND PILOT TEST OF STERILIZATION SYSTEM USING DISCHARGE REACTOR FOR HYDROPONICS SOLUTION

T. Okumura¹, K. Takano¹, Y. Saito¹, K. Takahashi¹, K. Takaki¹, N. Satta², T. Fujio³

¹Faculty of Engineering, Iwate University, Morioka, Japan

²Faculty of Agriculture, Iwate University, Morioka, Japan

³Iwate Agricultural Research Center, Kitakai, Japan

11:00 1A-4 IMPROVEMENT OF ENERGY EFFICIENCY FOR DECOLORIZATION OF ORGANIC DYE BY DISCHARGE INSIDE BUBBLE IN WATER

K. Takahashi¹, R. Konno¹, M. Akiyama¹, K. Takaki¹, N. Satta²

¹Faculty of Engineering, Iwate University, Morioka, Iwate, Japan

²Faculty of Agriculture, Iwate University, Morioka, Iwate, Japan

11:15 1A-5 SURFACE TREATMENT OF POLYTETRAFLUOROETHYLENE FILMS BY ATMOSPHERIC PRESSURE PULSED THREE-DIELECTRIC-LAYER BARRIER DISCHARGE PLASMA

X. Li^{1,2}, J. Li^{1,2}, Y. Xie^{1,2}, P. Dong^{1,2}, J. Long^{1,2}, L. Zhang^{1,2}

¹China Academy of Engineering Physics, Institute of Fluid Physics, Mianyang, Sichuan, China

²China Academy of Engineering Physics, Key Laboratory of Pulsed Power, Mianyang, Sichuan, China

11:30 1A-6 THE FAST-PULSE REPETITIVE FREQUENCY EMISSION CHARACTERISTIC OF HIGH CURRENT CARBON NANOTUBES CATHODE

F. Xiang, G. Wang, C. X. Li

Institute of Applied Electronics. CAEP, Science and Technology on High Power Microwave laboratory, mianyang, China

11:45 1A-7 COMPARISON STUDIES OF ELECTRICAL EXPLOSION OF BARE AND COATED WIRES IN WATER

L. Han, J. Wu, Q. Liu, H. Zhou, J. Wu, X. Li, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shannxi, China

12:00 1A-8 ELECTROPERMEABILIZATION EFFECT OF NANO-ELECTROPULSE ON CANDIDA ALBICANS: AN IN VITRO STUDY

S. Wu¹, K. Wang², J. Guo¹, X. Yang², J. Zhang^{1,2}, J. Fang^{1,2}

¹College of Engineering, Peking University, Beijing, 100871, P. R. China, Beijing, China

²Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, 100871, P. R. China, Beijing, China

Session 1B: 2.1 Intense Beam Microwave Generation / 2.2 Fast-Wave Devices

Monday, June 20 10:00-12:00, KCC 203

Session Chair: Jim Browning, Boise State University

10:00 1B-1 THEORY AND SIMULATION OF A RELATIVISTIC HIGH POWER MICROWAVE METAMATERIAL-ENHANCED RESISTIVE WALL AMPLIFIER

T. Rowe, N. Behdad, J. H. Booske

Electrical And Computer Engineering, University of Wisconsin-Madison, Madison, WI, United States

10:15 1B-2 STUDY ON INFLUENCE OF DIFFERENT VALENCE STATE UNDER SAME PARTICLES ON ELECTROMAGNETIC RADIATION IN BEAM-PLASMA SYSTEM

Q. Zhou¹, J. Jing¹, S. Yang², J. Xu¹, C. Tang², Z. Duan¹, Y. Gong¹

¹National Key Laboratory of Science and Technology on Vacuum Electronics, Sichuan, China

²Key Laboratory of High Energy Density Physics and Technology, Sichuan, China

10:30 1B-3 (invited) ADDITIVELY MANUFACTURED STRUCTURES FOR HIGH POWER MICROWAVE DEVICES

N. M. Jordan¹, G. B. Greening¹, S. C. Exelby¹, R. M. Gilgenbach¹, B. W. Hoff², S. S. Maestas²

¹Nuclear Engineering and Radiological Science, University of Michigan, Ann Arbor, MI, United States

²High Power Electromagnetics Division, Air Force Research Laboratory, Albuquerque, NM, United States

11:00 1B-4 HARMONIC FREQUENCY GENERATION IN THE MULTI-FREQUENCY RECIRCULATING PLANAR MAGNETRON

G. B. Greening, N. M. Jordan, S. C. Exelby, R. M. Gilgenbach, D. H. Simon, Y. Y. Lau

Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, USA

11:15 1B-5 STUDIES OF TRANSIENT PHENOMENA IN THE MAGNETRON INJECTION GUN OF HIGH POWER GYROTRONS USING THE ESRAY BEAM OPTICS CODE

S. Illy, G. Gantenbein, I. G. Pagonakis, T. Rzesnicki, J. Zhang, J. Jelonnek

Institute for Pulsed Power and Microwave Technology, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

11:30 1B-6 DESIGN AND PULSE TEST RESULTS OF W-BAND THIRD HARMONIC GYROTRONS

D. Sun, G. Ma, T. Zhuo, H. Chen

Institute of Applied Electronics, China Academy of Engineering Physics, Mianyang, Sichuan, China

11:45 1B-7 DESIGN AND TESTING OF A DUAL-FREQUENCY 104/140 GHZ
MEGAWATT-CLASS GYROTRON FOR FUSION PLASMA HEATING

S. Cauffman, M. Blank, P. Borchard, K. Felch

Microwave Power Products Division, CPI, Palo Alto, CA, United States

Session 1C: 5.1 Nonequilibrium Plasma Applications I

Monday, June 20 10:00-12:00, KCC 205

Session Chair: Luc Stafford, Universite de Montreal

10:00 1C-1 A STUDY ON PLASMA POLYMERIZED PYRROLE WITH SINGLE
CRYSTALLINE CHARACTERISTICS USING NOVEL ATMOSPHERIC PRESURE
PLASMA POLYMERIZATION DEVICE

D. H. Kim¹, C. -S. Park¹, H. -S. Tae¹, B. J. Shin², J. H. Seo³

¹School of Electrical Engineering, College of IT Engineering, Kyungpook National University, Daegu, South Korea

²Department of Electronics Engineering, Sejong University, Seoul, South Korea

³Department of Electronics Engineering, Incheon National University, Incheon, South Korea

10:15 1C-2 MICRO-WATER DROPLETS IN NON-EQUILIBRIUM ATMOSPHERIC
PRESSURE PLASMA: EVAPORATION AND OH INDUCED CHEMISTRY

G. Oinuma^{1,2}, G. Nayak¹, P. J. Bruggeman¹

¹Mechanical Engineering, University of Minnesota, Minneapolis, MN, United States

²Advanced Technology R&D Center, Mitsubishi Electric Corporation, Amagasaki, Hyogo, Japan

10:30 1C-3 PRE-ELECTROSPINNING POLYMER SOLUTION TREATMENT BY
ATMOSPHERIC-PRESSURE ARGON PLASMA JET

F. Rezaei, N. De Geyter, R. Morent

Department of Applied Physics, Ghent University, Ghent, Belgium

10:45 1C-4 TUNABLE C-H ACTIVATION VIA METAL-PLASMA INTERACTION AT
ELEVATED TEMPERATURES

J. Kim¹, M. S. Abbott¹, D. B. Go², J. C. Hicks¹

¹Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN, United States

²Department of Aerospace and Mechanical Engineering, University of Notre Dame, University of Notre Dame, Notre Dame, IN, United States

11:00 1C-5 (invited) MECHANISM OF SILVER NANOPARICLES PRODUCTION AT THE
PLASMA-LIQUID INTERFACE

V. S. S. K. Kondeti, U. Gangal, P. J. Bruggeman

Department of Mechanical Engineering, University of Minnesota, Minneapolis, Minnesota, United States

11:30 1C-6 ADSORPTION DYNAMICS OF PLASMA-GENERATED N ATOMS ON
GRAPHENE FILMS

G. Robert Bigras, L. Vandsburger, L. Stafford

Universite de Montreal, Montreal, Canada

11:45 1C-7 ATMOSPHERIC PRESSURE PLASMA PRESS FOR IMPROVED ADHESION
BETWEEN FLEXIBLE POLYMER(PREPREG) AND INORGANIC MATERIAL(BATIO3)

M. K. Mun¹, D. S. Kim¹, G. Y. Yeom^{1,2}

¹Department of Materials Science and Engineering, Sungkyunkwan University, Suwon, South Korea

²SKKU Advanced Institute of Nanotechnology(SAINT), Suwon, South Korea

Session 1D: 4.1 Fusion (Inertial, Magnetic and Alternate Concepts)

Monday, June 20 10:00-12:30, KCC 301

Session Chair: Farhat Beg, University of California-San Diego

10:00 1D-1 (invited) PLASMA INTERPENETRATION STUDY ON THE OMEGA LASER FACILITY

S. Le Pape¹, L. Divol¹, R. Steven¹, S. Wilks¹, P. Amendt¹, L. Berzak Hopkins¹, J. Moody¹, A. Mackinnon², G. Huser³, N. Meezan¹

¹Lawrence Livermore National Laboratory, CA, United States

²CEA, DAM, DIF, F-91297 Arpajon, France, Ile de France, France

³SLAC National Accelerator Laboratory, 2575 Sand Hill Road, MS 19, Menlo Park, California 94025, USA, CA, United States

10:30 1D-2 STUDY OF HOT ELECTRON GENERATION USING KILOJOULE-SCALE HIGH POWER LASERS IN SHOCK IGNITION RELEVANT CONDITIONS

M. Wei¹, N. Alexander¹, C. M. Krauland², S. Zhang², J. Peebles², F. N. Beg², W. Theobald³, D. Haberberger³, R. Betti³, C. Ren³, R. Yan³, E. Borwick³, E. M. Campbell³

¹Inertial Fusion Technology, General Atomics, San Diego, CA, United States

²Center for Energy Research, University of California at San Diego, La Jolla, CA, United States

³Laboratory for Laser Energetics, University of Rochester, Rochester, NY, United States

10:45 1D-3 TEMPORAL EVOLUTION OF THE TWO-SHOCK IMPLOSION ON THE NATIONAL IGNITION FACILITY

T. Ma¹, S. MacLaren¹, J. Salmonson¹, S. Khan¹, J. Pino¹, J. Ralph¹, R. Rygg¹, J. Field¹, R. Tommasini¹, D. Turnbull¹, A. Mackinnon¹, K. Baker¹, L. R. Benedetti¹, P. Celliers¹, E. Dewald¹, T. Dittrich¹, L. Berzak Hopkins¹, N. Izumi¹, P. Kervin¹, S. Nagel¹, A. Pak¹, R. Tipton¹, G. Kyrala², J. Kline²

¹Lawrence Livermore National Laboratory, Livermore, CA, United States

²Los Alamos National Laboratory, Los Alamos, NM, United States

11:00 1D-4 ACOUSTICALLY DRIVEN MAGNETIZED TARGET FUSION AT GENERAL FUSION

M. G. Laberge, P. O'Shea

General Fusion Inc., Burnaby, Canada

11:15 1D-5 COAXIAL GUNS FOR THE ARPA-E PLX-ALPHA PROJECT - DESIGN AND INITIAL EXPERIMENTAL RESULTS

F. D. Witherspoon¹, A. Case¹, S. J. Brockington¹, E. J. Cruz¹, M. Luna¹, S. C. Hsu², S. Langendorf², J. P. Dunn²

¹HyperV Technologies Corp., Chantilly, VA, United States

²Los Alamos National Laboratory, Los Alamos, NM, United States

11:30 1D-6 AUTO-MAGNETIZING LINERS FOR MAGLIF EXPERIMENTS

G. A. Shipley, S. A. Slutz, T. J. Awe, D. C. Lamppa, C. A. Jennings, R. D. McBride

Sandia National Laboratories, Albuquerque, NM, United States

11:45 1D-7 ORGANIZED STRUCTURES AND RECONNECTION OF MAGNETIC LINES IN DPF FUSION PLASMA

P. Kubes¹, M. Paduch², B. Cikhardtova¹, J. Cikhardt¹, D. Klir¹, J. Kravarik¹, K. Rezac¹, K. Tomaszewski³, E. Zielinska²

¹Czech Technical University in Prague, FEE, Department of Physics, Prague, Czech Republic

²IPPLM, Warsaw, Poland

³ACS, Warsaw, Poland

12:00 1D-8 A TOKAMAK PILOT PLANT AT WALMART PRICES

J. Freidberg¹, A. Cerfon²

¹Plasma Science and Fusion Center, MIT, Cambridge, MA, United States

²Courant Institute of Mathematical Sciences, NYU, New York City, NY, United States

12:15 1D-9 SPIKE ENERGY AND POWER EFFECTS ON THE IGNITION THRESHOLD AND MAXIMUM GAIN OF THE SHOCK IGNITION SCHEME

M. J. Jafari, S. Rezaei, A. H. Farahbod

Plasma Physics Research School, NSTRI, Tehran, Iran

Session 1E: 5.3 Plasma Thrusters

Monday, June 20 10:00-11:30, KCC 303

Session Chair: Michael Keidar, George Washington University

10:00 1E-1 (invited) TURBULENCE AND STRUCTURES RELATED TO LOW-HYBRID AND ION-SOUND INSTABILITIES IN HALL THRUSTER PLASMAS

A. Smolyakov¹, A. Koshkarov¹, I. Romadanov¹, A. Chapurin¹, M. Umansky², Y. Raitses³,
I. Kaganovich³

¹University of Saskatchewan, Saskatoon, Saskatchewan, SK, Canada

²Lawrence Livermore National Laboratory, Livermore, CA, USA

³Princeton Plasma Physics Laboratory, Princeton, NJ, USA

10:30 1E-2 MICRO-CATHODE ARC THRUSTER FOR SMALL SATELLITES PROPULSION

M. Keidar

Mechanical & Aerospace Engineering, George Washington University, WASHINGTON, United States

10:45 1E-3 THE INFLUENCE OF NEUTRAL FLOW IN THE IONIZATION RATE OF HALL THRUSTER

Y. Ding

Haerbin Institute of Technology, Harbin, China

11:00 1E-4 INFLUENCE OF ANODE POTENTIAL DISTRIBUTION IN A CUSPED FIELD THRUSTER

D. Yu¹, H. Wu², H. Liu¹, Y. Meng², P. Hu¹, P. Chen¹

¹Lab of Plasma Propulsion, Harbin Institute of Technology, Harbin, China

²School of Energy Science and Engineering, Harbin Institute of Technology, Harbin, China

11:15 1E-5 APPLICATION OF THE CUSPED FIELD THRUSTER IN DRAG-FREE FLIGHT

H. Liu, P. Chen, P. Hu, D. Yu

School of Energy Science and Engineering, Harbin Institute of Technology, Harbin, China

Session 1F: 6.2 Particle Diagnostics / 6.1 Optical and X-ray Diagnostics I

Monday, June 20 10:00-11:45, KCC 305

Session Chair: Thomas Mussenbrock, Ruhr University Bochum

10:00 1F-1 (invited) NON-CONVENTIONAL DIAGNOSTICS OF ENERGY AND MOMENTUM TRANSFER AT PARTICLE-SURFACE INTERACTIONS

T. Trottenberg, A. Spethmann, H. Kersten

Institute of Experimental and Applied Physics, University of Kiel, Kiel, Germany

10:30 1F-2 OPTICAL EMISSION SPECTROSCOPY MEASUREMENTS OF ATMOSPHERIC PLASMAS IN CROSS FLOW CREATED VIA DIELECTRIC BARRIER DISCHARGE ACTUATORS

W. C. Schneck, III¹, D. C. Lam², A. M. Ferrar³, A. L. Winfrey³

¹Department of Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

²Nuclear Engineering Program, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

³Nuclear Engineering Program, University of Florida, Gainesville, FL, United States

10:45 1F-3 OPTICAL EMISSION SPECTROSCOPY OF DIELECTRIC BARRIER DISCHARGES WITH MULTIPLE CURRENT PEAKS

V. Pellerin Boudriau, L. Stafford

Physique, Universite de Montreal, Montreal, Canada

11:00 1F-4 OPTICAL EMISSION SPECTROSCOPY MEASUREMENTS OF QUIESCENT ATMOSPHERIC PLASMAS CREATED VIA DIELECTRIC BARRIER DISCHARGE ACTUATORS

D. C. Lam¹, W. C. Schneck, III², A. M. Ferrar³, A. L. Winfrey³

¹Nuclear Engineering Program, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

²Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

³Nuclear Engineering, University of Florida, Gainesville, FL, United States

11:15 1F-5 AN EXPERIMENTAL INVESTIGATION ON DEGRADATION PERFORMANCE AND DECOMPOSITION BEHAVIOR OF POLYTETRAFLUOROETHYLENE INSULATOR MATERIALS

J. Wu, W. Ding, R. Han, Q. Liu, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, China, Xian, China

11:30 1F-6 INVESTIGATION OF AN ATMOSPHERIC PRESSURE 2D-ARRAY OF MICRODISCHARGES IN AIR USING CROSS-CORRELATION SPECTROSCOPY

G. Nayak¹, Y. Du¹, R. Brandenburg², P. J. Bruggeman¹

¹Mechanical Engineering, University of Minnesota, Minneapolis, MN, United States

²Plasma Sources, Leibniz-Institute for Plasma Science and Technology, Greifswald, Germany

Session 1P: 1.1 Basic Phenomena Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: SHANTANU KUMAR KARKARI, INSTITUTE FOR PLASMA RESEARCH

1P-1 X-RAY ABSORPTION VIA ELECTRON-ION SB IN MAXWELLIAN PLASMA AT THE EXACT CONSIDERATION OF COULOMB POTENTIAL

H. K. Avetissian, A. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian

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

1P-2 INVESTIGATION ON COUPLING RELATION OF DIRECT-CURRENT MICRO DISCHARGE PLASMA AND AIR PRESSURE

J. Jiao¹, F. Li², H. Luo¹, F. Lin²

¹Tsinghua University, Beijing, China

²Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China

1P-3 GENERALIZATION OF SCALING LAWS FOR GAS BREAKDOWN TO ACCOUNT FOR PRESSURE

A. M. Loveless, A. L. Garner

Nuclear Engineering, Purdue University, West Lafayette, IN, United States

1P-4 STABILITY AND OPERATION OF LARGE ANODE FIREBALL IN
MAGNETICALLY CONSTRICTED ANODE

S. G. Chauhan, M. Ranjan, M. Bandyopadhyah, S. Mukherjee
FCIPT, Institute for plasma research, Gujarat, India

1P-5 WITHDRAWN

1P-6 SECOND HARMONIC GENERATION BY WHISTLER PULSE IN MAGNETIZED
QUANTUM PLASMA

P. Kumar, N. S. Rathore, S. Singh

Department of Physics, University of Lucknow, Lucknow, India

1P-7 SELF-ORGANIZATION IN DC GLOW MICRODISCHARGES IN THE CATHODE
WELL CONFIGURATION

M. S. Bieniek¹, P. G. C. Almeida¹, M. S. Benilov¹, W. Zhu², P. Niraula²

¹University of Madeira, Funchal, Portugal

²Saint Peter's University, New Jersey, USA

1P-8 TWO STREAM INSTABILITY IN A COLLISIONAL DUSTY PLASMA

M. Alimohamadi

physics, Farhangian University, Tehran, Iran

Session 1P: 1.3 Space Plasmas Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: David Knudsen, University of Calgary

1P-9 EFFECT OF VISCOSITY ON PROPAGATION OF MHD WAVES IN
ASTROPHYSICAL PLASMA

A. M. Cherkos

Institution of Geophysics Space Science and Astronomy, Addis Ababa University, Addis Ababa,
Ethiopia

1P-10 SOLITARY WAVES WITH STREAMING NON-MAXWELLIAN ELECTRONS IN
SPACE PLASMAS

K. H. Shah¹, M. N. S. Qureshi²

¹Department of Physics, Forman Christian College (A Chartered University), Lahore, Pakistan

²Department of Physics, GC University, Lahore, Pakistan

1P-11 TRANSMISSION LINE ANALOGY FOR MAGNETOSPHERE-IONOSPHERE
COUPLING: INSIGHTS AND LIMITATIONS

M. S. Bryant, D. J. Knudsen

Physics and Astronomy, University of Calgary, Calgary, Alberta, Canada

1P-12 SOLAR WIND PLASMA FLOWS AND THEIR SPACE WEATHER ASPECT

S. Kaushik¹, S. C. Kaushik²

¹School of Studies in Physics, Jiwaji University, Gwalior, India

²Department of Physics and Computer Science, Government Autonomous PG College, Datia,
India

1P-13 NONLINEAR ELECTROSTATIC STRUCTURES IN NEGATIVE ION PLASMA IN
THE PRESENCE OF KAPPA DISTRIBUTED ELECTRONS

B. S. Chahal¹, N. S. Saini²

¹PHYSICS, LYALLPUR KHALSA COLLEGE, JALANDHAR, PUNJAB, India

²PHYSICS, GURU NANAK DEV UNIVERSITY, AMRITSAR, PUNJAB, INDIA

1P-14 DYNAMICS OF LARGE AMPLITUDE WHISTLER WAVES AND PARTICLE ACCELERATION IN THE EARTH'S RADIATION BELTS

S. Karbasheski, R. D. Sydora

Physics, University of Alberta, Edmonton, Alberta, Canada

Session 1P: 1.6 Plasma Chemistry Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Vasco Guerra, Instituto Superior Tecnico, Lisbon, Portugal

1P-15 THE EFFECTS OF ELECTRICAL CONDUCTIVITY ON IN-LIQUID PLASMA STREAMERS

A. Dirnberger¹, S. D. Kovaleski¹, P. Norgard¹, S. Thagard², J. Franclemont²

¹Electrical and Computer Engineering, University of Missouri, Columbia, MO, United States

²Chemical Engineering, Clarkson University, Potsdam, NY, United States

1P-16 WITHDRAWN

1P-17 CHARACTERISTICS OF REACTIVE SPECIES PRODUCED BY AC PLASMA GENERATED IN GAS BUBBLES

T. Sugiyama, N. Takeuchi

Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan

1P-18 HYBRID PHOTOCHEMICAL/MICROCHANNEL PLASMA REACTORS DRIVEN BY HIGH POWER (200 MW/CM²) XE2 LAMP

C. Shin, S. -J. Park, G. Eden

Electrical and Computer Engineering, University of Illinois, Urbana, United States

1P-19 DEGRADATION COD IN SEWAGE BY ACTIVE OXYGEN SPECIES

B. Leng

Department of Physics, Dalian Maritime University, Dalian, Liaoning, China

1P-20 INVESTIGATION OF INDUCTIVELY COUPLED SF₆ PLASMA ETCHING OF Si AND SiO₂ THROUGH A GLOBAL MODEL COUPLED WITH LANGMUIR ADSORPTION KINETICS

M. Roberto¹, D. A. Toneli¹, R. S. Pessoa^{1,2}

¹Physics Department, Aeronautic Institute of Technology, Sao Jose dos Campos, Sao Paulo, Brazil

²Research Institute, Paraiba Valley University, Sao Jose dos Campos, Sao Paulo, Brazil

Session 1P: 2.1 Intense Beam Microwave Generation Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Jim Browning, Boise State University

1P-21 EFFECTS OF ELECTRON BEAM FOCUSING ON VIRTUAL CATHODE FORMATION IN VIRTUAL CATHODE OSCILLATOR

S. -H. Kim, C. -J. Lee, J. -H. Rhee, Y. -M. Cho, J. -E. Baek, K. -C. Ko

Hanyang University, Seoul, South Korea

1P-22 ELECTRON EXCURSION IN A COLLISIONAL CROSS-FIELD DIODE

B. S. Stutzman¹, J. P. Verboncoeur²

¹Department of Science, US Coast Guard Academy, New London, CT, United States

²College of Engineering, Michigan State University, East Lansing, MI, United States

1P-23 HIGH POWER MICROWAVE GENERATION WITH NONLINEAR TRANSMISSION LINES

J. R. Prager, T. M. Ziemba, K. E. Miller

Eagle Harbor Technologies, Inc., Seattle, WA, United States

Session 1P: 2.2 Fast-Wave Devices Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Wenlong He, University of Strathclyde

1P-24 45 GHZ/20 KW GYROTRON-BASED SYSTEM FOR ECR ION SOURCE

A. I. Tsvetkov¹, G. G. Denisov^{1,2}, Y. V. Bykov^{1,2}, M. Y. Glyavin^{1,2}, A. G. Ereemeev¹,
V. V. Kholoptsev¹, M. V. Morozkin¹, M. Y. Shmelev¹, D. I. Sobolev¹, A. V. Chirkov¹,
E. M. Tai^{1,2}, E. A. Soluyanov^{1,2}, M. I. Bakulin²

¹Institute of Applied Physics Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

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Session 1P: 2.3 Slow-Wave Devices Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chairs: Theodore C. Grabowski, Air Force Research Laboratory

Will White, Sandia National Laboratories

1P-25 A PHASE-CONTROLLED MAGNETRON USING A MODULATED ELECTRON SOURCE

J. Browning¹, V. Saxena¹, D. Plumlee¹, T. Akinwande², M. Worthington³, B. Hay⁴

¹Electrical Engineering, Boise State University, Boise, ID, United States

²Electrical Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States

³EDD, L-3 EDD Communications, Williamsport, PA, United States

⁴AlloSys Corp., Boise, ID, United States

1P-26 MAGIC3D SIMULATIONS ON OVERMODED W-BAND COUPLED-CAVITY TRAVELING-WAVE TUBE

Y. Hong¹, H. Kim², J. So¹, R. J. Temkin³

¹Defense Advanced Technology Center, Agency for Defense Development, Daejeon, South Korea

²KSTAR Research Center, National Fusion Research Institute, Daejeon, South Korea

³Plasma Science and Fusion Center, Massachusetts Institute of Technology, Cambridge, MA, USA

Session 1P: 3.1 Plasma, Ion and Electron Sources Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: David R Boris, Naval Research Laboratory

1P-27 LASER EFFECT FOR CLUSTER ION COULOMB EXPLOSION AND ENERGY LOSS IN PLASMAS

S. Liu¹, G. Wang¹, Y. Wang¹, Y. Wang²

¹Department of Physics, Dalian Maritime University, Dalian, Liaoning, China

²Department of Physics, Dalian University of Technology, Dalian, Liaoning, China

1P-28 THE DIFFUSION EFFECT OF TRANSVERSE MAGNETIC FIELD ON FILAMENTARY ATMOSPHERIC PRESSURE GLOW DISCHARGE SUSTAINED BY A RESONANT POWER SUPPLY

Y. Wang, W. Ding, Y. Wang, J. Yan, Y. Gou, K. Qian

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

1P-29 THE DIFFUSION EFFECT OF INPUT VOLTAGE ON FILAMENTARY ATMOSPHERIC PRESSURE GLOW DISCHARGE SUSTAINED BY A RESONANT POWER SUPPLY

Y. Wang, W. Ding, J. Yan, Y. Wang, Y. Gou, K. Qian

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

1P-30 CHARACTERIZATION OF AN ELECTROTHERMAL PLASMA SOURCE WITH AN ELONGATED PULSE LENGTH

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²Fusion and Materials for Nuclear Science Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States

1P-31 HIGH VOLTAGE INDUCTION PLASMA SOURCE WITH A PULSED GAS INJECTION FOR GENERATION OF INTENSE ION BEAMS

A. V. Petrov, G. E. Remnev, S. K. Pavlov, I. D. Rumantsev

Institute of high-technology physics, Tomsk Polytechnic University, Tomsk, Russian Federation

1P-32 EFFECT OF ATOMIC NUMBER OF THE GAS ON ION BEAM EMISSION AND HARD X-RAY RADIATION IN A PLASMA FOCUS DEVICE

R. Alibazi Behbahani, D. Mccoll, A. Hirose, C. Xiao

UNIVERSITY OF SASKATCHEWAN, SASKATOON, Canada

1P-33 ON ELECTRON DRIFT CURRENT IN HALL PLASMA DEVICES WITH INHOMOGENEOUS AND ANISOTROPIC PLASMAS

O. Chapurin, A. Smolyakov

Physics & Engineering Physics, University of Saskatchewan, Saskatoon, SK, Canada

Session 1P: 4.1 Fusion (Inertial, Magnetic and Alternate Concepts) Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Farhat Beg, University of California-San Diego

1P-34 WITHDRAWN

1P-35 BENCHMARKING SIMULATIONS OF PLASMA-LINER-DRIVEN MAGNETO-INERTIAL FUSION WITH ADVANCED EQUATION OF STATE

P. H. Stoltz¹, M. Kundrapu¹, K. R. C. Beckwith¹, S. Langendorf², S. C. Hsu²

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²Los Alamos National Laboratory, Los Alamos, NM, United States

1P-36 COAXIAL HELICITY INJECTION PLASMA START-UP AND MAGNETIC RECONNECTION ON HIST

M. Nagata

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1P-37 CONTROLLED FUSION REACTOR BASED ON STABILIZED LINER COMPRESSION OF MAGNETIZED PLASMA

P. J. Turchi, S. D. Frese, M. H. Frese

NumerEx, Corrales, NM, United States

1P-38 STABILIZED LINER COMPRESSOR: 2-1/2 D MULTIPHYSICS SIMULATIONS

S. D. Frese, M. H. Frese, P. J. Turchi

NumerEx, Corrales, NM, United States

1P-39 SPECTROSCOPIC STUDY OF IMPURITY ION RADIAL DISTRIBUTION IN AN ADVANCED BEAM-DRIVEN FIELD REVERSED CONFIGURATION

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Session 1P: 4.4 High Energy Density Matter Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Alla Safronova, University of Nevada, Reno

1P-40 X-RAY RADIATION FROM PUFF-ON-WIRE IMPLOSIONS ON THE COBRA GENERATOR

N. Quart¹, J. Giuliani¹, A. Dasgupta¹, A. Velikovich¹, J. Engelbrecht², P. de Grouchy², N. Qi², T. Shelkovenko², S. Pikuz², B. Kusse², D. Hammer², J. Apruzese³, R. Clark⁴

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³Engility Corp., Chantilly, VA, United States

⁴Berkeley Research Associates, Beltsville, MD, United States

1P-41 HOT SPOT FORMATION IN THE DIVERGENT GAS-PUFF Z PINCH

K. Takasugi¹, S. Hakamatsuka¹, V. Shlyaptseva²

¹Institute of Quantum Science, Nihon University, Tokyo, Japan

²Physics Department, University of Nevada Reno, Reno, Nevada

1P-42 INTERACTION OF A CONVERGING SHOCK WAVE WITH A PLASMA

S. Efimov¹, M. Nitishinsky¹, O. Antonov¹, D. Yanuka¹, V. T. Gurovich¹, Y. E. Krasik¹, V. Bernshtam², V. Fisher²

¹Department of Physics, Technion, Haifa, Israel

²Weizmann Institute of Science, Rehovot, Israel

1P-43 LABORATORY ASTROPHYSICS WITH SUPERSONIC MAGNETISED PLASMAS: EXPERIMENTS ON THE MAGPIE PULSED-POWER FACILITY

G. C. Burdiak, S. V. Lebedev, T. Clayson, J. D. Hare, L. G. Suttle, F. Suzuki-Vidal

Imperial College London, London, United Kingdom

1P-44 EQUATION OF STATE FOR SILICA AT HIGH ENERGY DENSITIES

K. V. Khishchenko

Joint Institute for High Temperatures RAS, Moscow, Russian Federation

Session 1P: 5.1 Nonequilibrium Plasma Applications Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Luc Stafford, Universite de Montreal

1P-45 SiO₂-LIKE FILM DEPOSITION ON COPPER SURFACE BY ATMOSPHERIC PRESSURE DIFFUSE DISCHARGE

W. Li¹, C. Ren², C. Zhang², R. Wang², J. Li¹, T. Shao²

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²Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

1P-46 TEMPORAL EVOLUTION OF ATMOSPHERE PRESSURE DIFFUSE DISCHARGES SUSTAINED BY MICROSECOND AND NANOSECOND PULSES IN A BLADE KNIFE-TO-PLATE GAP

X. Hou, C. Zhang, P. Yan, T. Shao

Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

1P-47 DUAL PLASMA MODES OPERATION OF HOLLOW CATHODE ELECTRODE SYSTEM FOR REMOTE PLASMA REMOVALS FOR SEMICONDUCTOR MANUFACTURING

T. S. Cho, S. Park, D. Lubomirsky, S. Venkataraman

Patterning & Packaging Group, Applied Materials, Santa Clara, United States

1P-48 INFLUENCE OF DRIVING METHOD ON DISCHARGE MODE OF DAMAGE FREE REMOTE PLASMA REMOVAL PROCESS FOR SEMICONDUCTOR MANUFACTURING

T. S. Cho, Q. Han, S. Park, D. Lubomirsky, S. Venkataraman

Patterning & Packaging Group, Applied Materials, Santa Clara, United States

1P-49 DUSTY PLASMA OF DC DISCHARGE: THE ELECTRICAL CHARACTERISTICS AND THE ION PLASMA TRAP

D. N. Polyakov, V. V. Shumova, L. M. Vasilyak

Joint Institute for High Temperatures RAS, Moscow, Russian Federation

1P-50 MICROSTRUCTURAL, MECHANICAL AND OPTICAL PROPERTIES OF NANOCRYSTALLINE TIN THIN FILMS ON SILICON SUBSTRATE

O. Singh, R. P. Dahiya, H. K. Malik

Centre for Energy Studies, Indian Institute of Technology Delhi, New Delhi, India

1P-51 WITHDRAWN

1P-52 GAS BREAKDOWN AND PLASMA GENERATION BY DIELECTRIC RESONATOR ARRAYS

J. Hopwood¹, S. Dennison¹, A. Chapman¹, W. Luo², M. Lanagan²

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²Pennsylvania State University, University Park, PA, United States

1P-53 TARGET INTERACTING WITH AN ATMOSPHERIC PRESSURE HELIUM DBD

A. S. Kone, B. Caillier, P. Guillot

DPHE Plasma Laboratory, Institut National Universitaire Champollion, Albi, France

1P-54 CF₄/AIR PLASMA TREATMENT IN SUB-ATMOSPHERIC PRESSURE TO IMPROVE SURFACE FLASHOVER STRENGTH OF EPOXY RESIN

S. -L. Chen, C. -W. Yao, G. -M. Xu, Z. -S. Chang, P. Li, G. -J. Zhang

Xi'an Jiaotong University, State Key Lab of Electrical Insulation & Power Equipment, Xi'an, Shaanxi, China

1P-55 SPECTROSCOPIC INVESTIGATION OF PLASMA SUSTAINED IN CONDUCTIVE ELECTROLYTE SOLUTIONS APPLIED TO THE CHEMICAL ENGRAVING OF GLASS SUBSTRATE

F. Charbonneau¹, R. Gangwar², R. Wuthrich¹, L. Stafford²

¹Concordia University, Quebec, Canada

²Universite de Montreal, Quebec, Canada

1P-56 WITHDRAWN

1P-57 A NOVEL PLASMA ACTUATED UNMANNED AERIAL VEHICLES (UAV)

M. Thiyagarajan, H. Xu, C. Avalos, A. Matheson, E. Swinny, M. Martinez

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Session 1P: 5.2 High-Pressure and Thermal Plasma Processing Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Anthony B Murphy, CSIRO Materials Science & Engineering

1P-58 CONTRIBUTION TO EVALUATION OF THE INTERRUPTION CAPABILITY OF CF3I/METAL THERMAL PLASMAS: PRELIMINARY STUDY OF TRANSPORT COEFFICIENTS

Y. Cressault¹, S. Xiao², P. Teulet¹, X. Zhang²

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²State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing, China

1P-59 HIGH-SPEED IMAGING AND ELECTRICAL DIAGNOSTICS OF INTERACTING ARCS IN DUAL-CATHODE ELECTRIC ARC FURNACE

D. Burkat, F. Aristizabal, S. Coulombe

Chemical Engineering, McGill University, Montreal, Quebec, Canada

1P-60 STUDY ON THE IGNITION PROCESS OF PLASMA TORCH WITH SEGMENTED ANODE

X. Cao, D. Yu, J. Yao

School of Manufacturing Science and Engineering, Sichuan University, Chengdu, Sichuan, China

1P-61 HEAT TRANSFER DECREMENT AFFECTED BY LATERAL GAS FLOW VELOCITY IN TIG ARC WELDING

Y. Maeda, S. Yamamoto, T. Iwao

Electrical and Electronics/Engineering, Tokyo City University, Setagaya, Tokyo, Japan

1P-62 TWO MODES OF ANODE OPERATION IN ARC WITH ABLATING ANODE

V. Nemchinsky¹, Y. Raitses²

¹Keiser University, Fort Lauderdale FL, United States

²Princeton Plasma Physics Lab, Princeton NJ, United States

1P-63 GENERAL COLOR RENDERING INDEX AS FUNCTION OF CURRENT CHANGE RATIO IN WALL-STABILIZED ARC OF WATER-COOLED VORTEX TYPE WITH SMALL CALIBER

Y. Shimizu, T. Nakamura, K. Yanagi, S. Yamamoto, T. Iwao

Electrical and Electronics/Engineer, Tokyo City University, Setagaya, Tokyo, Japan

Session 1P: 5.3 Plasma Thrusters Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Jean-Pierre Boeuf, LAPLACE, CNRS, Toulouse

1P-64 PERFORMANCE ANALYSIS OF NESTED HALL THRUSTERS

S. E. Cusson, S. J. Hall, E. T. Dale, A. D. Gallimore

Aerospace Engineering, University of Michigan, Ann Arbor, MI, United States

1P-65 ACCELERATION REGION MEASUREMENTS IN A NESTED CHANNEL HALL THRUSTER

M. P. Georjin¹, V. Dhaliwal², A. D. Gallimore²

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²Aerospace Engineering, University of Michigan, Ann Arbor, MI, United States

1P-66 NONLOCAL REGIMES OF LARGE SCALE INSTABILITIES OF INHOMOGENEOUS HALL PLASMAS

I. Romadanov¹, A. Smolyakov¹, O. Koshkarov¹, Y. Raitses², I. Kaganovich²

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²Princeton Plasma Physics Laboratory, Princeton, NJ, USA

1P-67 NONLINEAR SIMULATIONS AND ANOMALOUS TRANSPORT IN HALL THRUSTER PLASMA

O. Koshkarov¹, W. Frias Pombo¹, A. I. Smolyakov¹, Y. Raitses², I. D. Kaganovich²,
M. V. Umansky³

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²Princeton Plasma Physics Laboratory, Princeton, USA

³Lawrence Livermore National Laboratory, Livermore, USA

1P-68 THE PHYSICS OF THE VERSATILE PINCH HELICON PLASMA EXPERIMENT VPHPX

C. Ribeiro

Consultant in Plasma Physics, San Jose, Costa Rica

Session 1P: 5.5 Environmental and Industrial Applications Poster I

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Sylvain Coulombe, McGill University

1P-69 OPTICAL, ELECTRICAL, AND STRUCTURAL STUDIES OF ATMOSPHERIC PRESSURE PLASMA POLYMERIZED AND IODINE-DOPED NANO SIZE POLYANILINE

C. -S. Park¹, D. H. Kim¹, H. -S. Tae¹, B. J. Shin²

¹School of Electronics Engineering, College of IT Engineering, Kyungpook National University, Daegu, South Korea

²Department of Electronics Engineering, Sejong University, Seoul, South Korea

1P-70 LASER TRIGGERED AIR GAP FOR APPLICATIONS IN THE FIELD OF POWER SYSTEM

Q. Dong¹, Z. Yang², Z. Liu¹, J. Han², J. Wu², X. Li²

¹China Electric Power Research Institute, Beijing, China

²College of Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shannxi, China

1P-71 CONVERSION OF METHANE TO METHANOL BY AN IMPULSE DISCHARGE ON THE SURFACE OF WATER

S. Iizuka, M. Mukawa

Tohoku University, Sendai, Japan

1P-72 OXIDES YIELD COMPARISON BETWEEN DBD AND APPJ IN WATER-GAS MIXTURE

B. Chen¹, X. Gao², W. Cai³, Y. Gan³, C. Zhu³

¹Hohai University Nantong Institute of Marine and Offshore Engineering, Nantong, Jiangsu, China

²Jiangsu Province Key Laboratory of Environmental Engineering, Nanjing, Jiangsu, China

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1P-73 ELECTRODE LENGTH EFFECT ON THE ABATEMENT EFFICIENCY OF N₂O IN LOW-PRESSURE PLASMA REACTOR

J. -O. Lee, J. Y. Lee, W. S. Kang, M. Hur, Y. -H. Song

Korea Institute of Machinery and Materials, Daejeon, South Korea

1P-74 THERMAL POWER PLANT BOILERS USING MICROWAVE IGNITION OF PULVERIZED COAL MIXTURE

A. Danilenko¹, I. Ibragimoglu², C. Dindar², B. Ibragimoglu², V. Ibragimoglu²

¹Ukrplasma, Kharkov, Ukraine

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1P-75 EFFECT OF HMDSO FLOW RATE IN NITROGEN ATMOSPHERIC PLASMA ON THE SUPERHYDROPHOBIC CHARACTERISTICS OF ORGANOSILICON-BASED COATINGS

S. Asadollahi, R. Jafari, M. Farzaneh

Canada Research Chair on Atmospheric Icing Engineering of Power Networks (INGIVRE), University of Quebec at Chicoutimi, Chicoutimi, QC, Canada

1P-76 ISOLATED, HIGH VOLTAGE ARBITRARY PULSE GENERATOR

K. E. Miller, T. M. Ziemba, J. R. Prager, I. Slobodov, J. Picard

Eagle Harbor Technologies, Inc., Seattle, WA, United States

1P-77 PRELIMINARY STUDY FOR PLASMA-CATALYTIC DECOMPOSITION OF NITROGEN OXIDE

K. -T. Kim

Department of Plasma Engineering, Korea Institute of Machinery & Materials, Daejeon, South Korea

1P-78 NON THERMAL ATMOSPHERIC PRESSURE AIR PLASMA TREATMENT FOR FOOD SAFETY

M. Thiagarajan, J. Turner, L. Pinnell, J. Tallman, E. Moreno

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Session 1P: 7.1 Insulation and Dielectric Breakdown Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: James Dickens, Texas Tech University

1P-79 EXPERIMENTAL STUDY ON ELECTRICAL CHARACTERISTICS OF NANOSECOND SLIDING DISCHARGE WITH THREE ELECTRODES DRIVEN BY NEGATIVE DC AND NANOSECOND-PULSE POWER SUPPLIES

Y. Wang¹, L. Han², C. Zhang², R. Wang², P. Yan², T. Shao²

¹North China Electric Power University, Baoding, China

²Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

1P-80 ANODE BREAKDOWN INITIATION IN WATER WITH NANOSECOND TIME SCALE UNDER UNIFORM ELECTRIC FIELDS

V. P. Gajula, R. Kumar, S. Kumar, A. Shyam

Pulsed power, Institute for Plasma Research, Gandhinagar, India

1P-81 DISCHARGE MORPHOLOGY AS A FUNCTION OF DIELECTRIC CONSTANT IN A 2-DIMENSIONAL PACKED BED ARRAY

K. W. Engeling, J. E. Foster, J. A. Kruszelnicki, M. J. Kushner

Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

1P-82 INFLUENCE OF ELECTRONIC POLARON EFFECT ON THE CURRENT OF HIGH-VOLTAGE THERMIONIC EMISSION

Y. A. Barenholts¹, S. I. Beril²

¹Dept. of Mathematical Analysis, Shevchenko Dniester State University, Tiraspol, Moldova

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Session 1P: 7.2 Opening and Closing Switches Poster

Poster Session

Monday, June 20 14:30-16:00, KCC 101, 103, 105

Session Chair: Hidenori Akiyama, Kumamoto University

1P-83 HIGH-POWER GAAS PHOTOCONDUCTIVE SEMICONDUCTOR SWITCHES TRIGGERED BY A LASER DIODE

C. Ma, W. Shi, H. Liu, Y. Ji, M. Xu, L. Hou

Xi'an University of Technology, Xi'AN, China

1P-84 SPREADING OF THE INITIAL PLASMA OF TRIGGERED VACUUM SWITCH

J. Sun, X. Yao, W. Xu, J. Chen, Y. Wu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

1P-85 ELECTRON EMISSION CHARACTERISTICS OF BATIO₃ SURFACE FLASHOVER TRIGGER DEVICE OF PSEUDOSPARK SWITCH

Z. Huang, X. Yao, J. Chen, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi Province, China

1P-86 THE SELF-BREAKDOWN CHARACTERISTICS OF THE MAGNETIC DELAYED PSEUDOSPARK SWITCH

J. Yan, W. Ding, Y. Wang, Y. Wang, Y. Gou, K. Qian

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1P-87 LIGHT EMISSION AND SPECTROSCOPY CHARACTERISTICS OF AN UNCONVENTIONAL GAS SPARK SWITCH

J. Wu, W. Ding, R. Han, Q. Liu, H. Zhou, Y. Wang, Y. Jing

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xian, China

1P-88 HIGH GAIN OPERATION OF GAAS PHOTOCONDUCTIVE SEMICONDUCTOR SWITCH WITH DIFFERENT TEMPERATURE

M. Xu, H. Liu, L. Hou, C. Ma, W. Shi

Applied Physics, Xi'an University of Technology, Xi'an, China

1P-89 EXPERIMENTAL CHARACTERIZATION OF A LASER-TRIGGERED SPARK-GAP SWITCH

J. F. Camacho¹, D. J. Brown¹, E. L. Ruden², M. T. Domonkos²

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1P-90 ARC-LESS COMMUTATION IN HYBRID DC CIRCUIT BREAKER

K. Yasuoka, K. Ikeda, Y. Tsuboi, T. Hayakawa, N. Takeuchi

Dept. of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan

1P-91 PULSED CHARACTERIZATION OF A UV LED FOR PULSED POWER APPLICATIONS

N. A. Wilson, D. L. Mauch, J. C. Dicken, A. A. Neuber

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

1P-92 ANALYSIS ON THE DISCHARGE PROCESS OF A PARTICLE BEAM TRIGGERED GAS SWITCH

W. Tie¹, L. Zhou¹, Y. Zhang², Q. Zhang², R. Han²

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²Xi'an Jiaotong University, Xi'an, China

1P-93 NEW GENERATION OF HIGH-CURRENT SWITCHING DEVICES

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²St. Petersburg State University, Saint-Petersburg, Russian Federation

Session PL2: Speaker: David Knudsen

Monday, June 20 13:30-14:30, Eric Harvie Theatre

Session Chair: Miles Turner, Dublin City University

13:30 PL2-1 AURORAL CURRENT SYSTEMS AND ARC FORMATION:

OBSERVATIONS AND THEORY

D. Knudsen

Physics and Astronomy, University of Calgary, Calgary, Alberta, Canada

Session 2A: 1.3 Space Plasmas / 1.5 Dusty and Strongly Coupled Plasmas

Monday, June 20 16:00-18:15, KCC 201

Session Chairs: David Knudsen, University of Calgary

Peter Hartmann, Wigner Research Centre for Physics

16:00 2A-1 CONSTRUCTION OF KEDA SPACE PLASMA EXPERIMENT (KSPEX) FOR INVESTIGATION OF BOUNDARY LAYER PROCESSES OF IONOSPHERIC DEPLETION

Y. Liu, J. Lei, J. Cao

School of Earth and Space Science, university of science and technology of china, Hefei, Anhui, China

16:15 2A-2 LOW FREQUENCY INSTABILITIES BASED ON ELECTRON AND ION TEMPERATURE ANISOTROPIES IN NON-MAXWELLIAN PLASMAS

M. N. S. Qureshi, S. Saeed

Department of Physics, GC University, Lahore, Lahore, Pakistan

16:30 2A-3 TRANSIENT SOLAR WIND PLASMA EVENTS AND ASSOCIATED GEOIMPACTS DURING THE PROLONGED SOLAR CYCLE 23

S. C. Kaushik

Department of Physics and Computer Science, Government PG College, Datia, India

16:45 2A-4 NUMERICAL INVESTIGATION ON NANOPARTICLE FORMATION AND INFLUENCE ON SIZE DISTRIBUTION IN WIRE EXPLOSION PROCESS

J. Bai, Z. Shi, S. Jia, X. Li, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

17:00 2A-5 (invited) NUMERICAL STUDIES OF SYNTHESIS OF SILICON NANOPARTICLES IN CAPACITIVELY-COUPLED RADIOFREQUENCY PLASMAS

A. H. Markosyan¹, R. Le Picard², D. H. Porter², S. L. Girshick², M. J. Kushner¹

¹University of Michigan, Ann Arbor, MI, United States

²University of Minnesota, Minneapolis, MN, United States

17:30 2A-6 A NEW STROUHAL-REYNOLDS NUMBER RELATIONSHIP FOR STRONGLY COUPLED YUKAWA LIQUIDS: AN ATOMISTIC STUDY

H. Charan, R. Ganesh

Fusion Theory, Simulation and Modelling, Institute For Plasma Research, Gandhinagar, Gujarat, India

17:45 2A-7 PARAMETRIC STUDY OF THE ELECTRON TEMPERATURE AND DENSITY IN DUSTY LOW-PRESSURE RF PLASMAS WITH PULSED INJECTION OF HEXAMETHYLDISILOXANE

V. Garofano¹, B. Despax², R. Clergereaux², K. Makasheva², L. Stafford¹

¹Universite de Montreal, Montreal, Canada

²CNRS-LAPLACE, Toulouse, France

18:00 2A-8 NOVEL NUMERICAL TECHNIQUE FOR DUSTY PLASMA DYNAMICS (YUKAWA LIQUIDS): ROLE OF HEAT TRANSPORT

A. Shahzad¹, M. He²

¹Physics, GC University Faisalabad, Faisalabad, Punjab, Pakistan

²Key Laboratory of Thermo-Fluid Science and Engineering, Ministry of Education (MOE), Xi'an Jiaotong University, Xi'an, China, Xi'an, Shaanxi, China

Session 2B: 2.5 Codes and Modeling I

Monday, June 20 16:00-18:00, KCC 203

Session Chair: Lars Ludeking, Alliant Techsystems, LLC

16:00 2B-1 FREQUENCY TUNABILITY OF A REFLEX-TRIODE VIRCATOR USING PARTICLE-IN-CELL MODELING

P. M. Kelly, C. F. Lynn, J. M. Parson, J. Dickens, A. Neuber, J. J. Mankowski

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

16:15 2B-2 PARTICLE-IN-CELL MODELING OF A REFLEX-TRIODE VIRCATOR USING ICEPIC

P. M. Kelly, J. Dickens, A. Neuber, J. J. Mankowski

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

16:30 2B-3 PIC-DSMC SIMULATIONS OF PLASMA PLUME EXPANSIONS WITH IONIZATION AND RECOMBINATION PROCESSES

S. M. Coplestone¹, C. -D. Munz¹, M. Pfeiffer²

¹Institute of Aerodynamics and Gas Dynamics, University of Stuttgart, Stuttgart, Germany

²Institute of Space Systems, University of Stuttgart, Stuttgart, Germany

16:45 2B-4 AN ARBITRARY ORDER, FULLY IMPLICIT, HYBRID KINETIC SOLVER FOR RADIATIVE TRANSPORT USING INTEGRAL DEFERRED CORRECTION

M. Crockatt¹, K. Garrett², C. Hauck³

¹Michigan State University, East Lansing, MI, United States

²Los Alamos National Laboratory, Los Alamos, NM, United States

³Oak Ridge National Laboratory, Oak Ridge, TN, United States

17:00 2B-5 VALIDATION OF CONFORMAL FINITE DIFFERENCE TIME DOMAIN METHOD FOR ACCURATE HIGHER ORDER MODE SIMULATIONS

M. C. Lin^{1,2}, S. Illy², M. Thumm², J. Jelonnek²

¹Department of Electrical and Biomedical Engineering, Hanyang University, Seoul, South Korea

²Institute for Pulsed Power and Microwave Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany

17:15 2B-6 AN IMPROVED FORM OF BESSEL FUNCTIONS FOR EFFICIENTLY AND ACCURATELY NUMERICAL COMPUTATION

M. C. Lin

Department of Electrical and Biomedical Engineering, Hanyang University, Seoul, South Korea

17:30 2B-7 GLOBAL MODELLING OF CYLINDRICAL SURFACE-WAVE DISCHARGES:
ARGON OR OXYGEN

E. H. Kemaneci, R. P. Brinkmann

Theoretical Electrical Engineering, Ruhr University Bochum, Bochum, Germany

17:45 2B-8 A FAST IMPLICIT VARIABLE SPEED 2D WAVE EQUATION SOLVER

M. Thavappiragasam, A. Viswanathan, A. Christlieb

Michigan State University, East Lansing, MI, United States

Session 2C: 3.1 Plasma, Ion and Electron Sources

Monday, June 20 16:00-18:15, KCC 205

Session Chair: David R Boris, Naval Research Laboratory

16:00 2C-1 STUDY OF THE ELECTRIC FIELD SCREENING EFFECT ON LOW NUMBER
OF CARBON FIBER FIELD EMITTERS

W. Tang¹, D. Shiffler¹, M. LaCour², K. Golby², T. Knowles³

¹Directed Energy Directorate, Air Force Research Laboratory, Albuquerque, NM, United States

²Leidos Inc., Albuquerque, NM, United States

³Energy Science Laboratories Inc., San Diego, CA, United States

16:15 2C-2 ELECTRON EXTRACTION FROM AN EXPANDING LASER INDUCED
PLASMA CATHODE

F. Gobet, X. Raymond, M. Versteegen, M. Tariesien, F. Hannachi

CENBG/University of Bordeaux, bordeaux, France

16:30 2C-3 (invited) ROBUST, LONG-LIFE, HIGH QE PHOTOCATHODES

L. Ives¹, E. Montgomery², G. Collins¹, L. Falce¹, R. Karimov¹

¹Calabazas Creek Research, Inc., San Mateo, CA, United States

²Institute for Research in Electronics and Applied Physics, University of Maryland, College
Park, MD, United States

17:00 2C-4 THEORETICAL ANALYSIS OF RESONANT EFFECT IN ION-ENHANCED
FIELD EMISSION ON MICROPLASMA CATHODE SURFACE

X. Tan¹, N. Griggs², P. Rumbach¹, K. L. Jensen³, D. B. Go^{1,4}

¹Department of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame,
IN, United States

²Department of Physics, University of Notre Dame, Notre Dame, IN, United States

³Materials Science and Technology Division, Naval Research Laboratory, Washington, DC,
United States

⁴Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre
Dame, IN, United States

17:15 2C-5 ELECTRON DENSITY UNIFORMITY COMMENSURATE WITH B-DOT
UNIFORMITY VERIFICATION MEASUREMENTS FOR A PHASE-LOCKED, RF
DISTRIBUTED CURRENT SOURCE CONTROL SYSTEM

D. J. Coumou¹, S. C. Shannon²

¹Power Solutions, MKS Instruments, Rochester, NY, United States

²Department of Nuclear Engineering, North Carolina State University, Raleigh, NC, United
States

17:30 2C-6 NOVEL HIGH-POWER RADIO-FREQUENCY SOURCES FOR MOBILE
IONOSPHERIC HEATING

B. L. Beaudoin, J. A. Karakkad, C. Turner, A. H. Narayan, C. Thompson, N. Goyal,

G. S. Nusinovich, T. M. Antonsen Jr.

IREAP, University of Maryland, College Park, United States

17:45 2C-7 TIME-RESOLVED ANALYSES OF MICROTURBULENCE IN HALL AND PLANAR MAGNETRON PLASMAS

S. Tsikata¹, A. Heron², C. Honore³, T. Minea⁴

¹ICARE, UPR 3021 CNRS, 1C ave. de la Recherche Scientifique, 45071, Orleans, France

²CPHT, UMR 7644 CNRS, Ecole Polytechnique, Universite Paris-Saclay, 91128, Palaiseau, France

³LPP, UMR 7648 CNRS, Ecole Polytechnique, Universite Paris-Saclay, 91128, Palaiseau, France

⁴LPGP, UMR 8578 CNRS, Universite Paris-Sud, Universite Paris-Saclay, 91405, Orsay, France

18:00 2C-8 CARBON NANOTUBE FIBER ARRAY FIELD EMISSION CATHODES

S. B. Fairchild¹, M. A. Lange¹, T. C. Back¹, P. T. Murray¹, N. P. Lockwood¹, D. Marincel²

¹Air Force Research Laboratory, Dayton, OH, United States

²Rice University, Houston, TX, United States

Session 2D: 4.7 Plasma Material Interactions

Monday, June 20 16:00-18:15, KCC 301

Session Chair: Sivanandan Harilal, Pacific Northwest National Laboratory

16:00 2D-1 (invited) 3-D POROUS HIERARACHICAL NANOSTRUCTURED MATERIALS BY LOW TEMPERATURE GREEN PLASMA CHEMISTRY AND PLASMA-SURFACE INTERACTIONS FOR APPLICATIONS IN ENERGY STORAGE

R. S. Rawat, B. Ouyang

National Institute of Education, Nanyang Technological University, Singapore, Singapore

16:30 2D-2 DYNAMICS OF NANOSECOND LASER PRODUCED PLASMA

J. Wu, X. Li, Z. Yang, S. Jia, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

16:45 2D-3 EMISSION SPECTRA OF BINARY PLASMA MIXTURES FROM VISIBLE TO X-RAY RANGE

G. Miloshevsky, A. Hassanein

School of Nuclear Engineering, Purdue University, West Lafayette, IN 47907, United States

17:00 2D-4 EFFECT OF CHARGING ON THE ON THE SECONDARY ELECTRON EMISSION

M. Belhaj¹, K. Makasheva², G. Teysseire², D. Payan³

¹Onera The French Aerospace Lab, Toulouse, France

²Laplace Laboratory, Toulouse, France

³CNES, Toulouse, France

17:15 2D-5 REALISTIC SURFACE REACTION MODELING FOR 3D FEATURE PROFILE SIMULATION OF FLUOROCARBON-BASED PLASMA ETCH PROCESS

Y. -G. Yook¹, H. S. You¹, W. -S. Chang², Y. H. Im¹

¹School of Semiconductor and Chemical Engineering, Chonbuk National University, Jeonju, South Korea

²Plasma Technology Research Center, National Fusion Research Institute, Gunsan, South Korea

17:30 2D-6 LASER SURFACE MELTING OF STAINLESS STEEL ANODES FOR REDUCED HYDROGEN OUTGASSING

P. T. Murray¹, S. B. Fairchild², T. C. Back¹, D. Gortat³, M. R. Sparkes³, G. J. Gruen¹,

N. P. Lockwood⁴

¹Research Institute, University of Dayton, Dayton, OH, United States

²Materials and Mfgr Directorate, Air Force Research Laboratory, WPAFB, OH, United States

³Institute for Manufacturing, University of Cambridge, Cambridge, UK

⁴Directed Energy Directorate, Air Force Research Laboratory, Albuquerque, NM, United States

17:45 2D-7 EFFECT OF PLASMA DENSITY ENHANCEMENT DURING PLASMA ION IMPLANTATION

M. P. Bradley

Physics & Engineering Physics, University of Saskatchewan, Saskatoon, SK, Canada

18:00 2D-8 CAPACITIVELY COUPLED OXYGEN PLASMA TREATMENT OF GALLIUM ZINC OXIDE

J. W. Lee¹, E. J. Lee¹, H. W. Jin¹, G. S. Cho¹, K. Y. Shon¹, Y. Yoo², S. J. Pearton³

¹Department of Nano Science and Engineering, Inje University, Gimhae, GyeongNam, South Korea

²R&D Center, DUKSAN HI-Metal Co.,Ltd, Ulsan, South Korea

³Department of Materials Science and Engineering, University of Florida, Gainesville, Florida, USA

Session 2E: 4.6 Fast Z pinches I

Monday, June 20 16:00-17:45, KCC 303

Session Chair: Riccardo Betti, University of Rochester

16:00 2E-1 (invited) EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF AN AXIAL MAGNETIC FIELD ON THE MAGNETO RAYLEIGH-TAYLOR, SAUSAGE AND KINK INSTABILITIES IN IMPLODING LINER-PLASMAS

D. A. Yager-Elorriaga, A. M. Steiner, P. C. Campbell, S. G. Patel, N. M. Jordan, P. Zhang, Y. Y. Lau, R. M. Gilgenbach

University of Michigan, Ann Arbor, MI, United States

16:30 2E-2 ION JET PRODUCED BY ANOMALOUS RESISTANCE IN PLASMA FOCUS DISCHARGE

L. K. Lim¹, S. L. Yap¹, M. Z. Khan², S. S. Yap³

¹Department of Physics/Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia

²Applied Physics Department, Federal Urdu University of Arts, Science and Technology, Karachi, Pakistan

³Faculty of Engineering, Multimedia University, Cyberjaya, Selangor, Selangor

16:45 2E-3 CYLINDRICAL AND QUASI-SPHERICAL WIRE ARRAY INVESTIGATION ON ANGARA-5-1

E. V. Grabovski¹, V. P. Smirnov², V. V. Aleksandrov¹, A. N. Gritsuk¹, K. N. Mitrofanov¹, G. M. Oleinik¹, V. I. Zaitsev¹, G. S. Volkov¹, A. P. Lototsky¹, A. N. Gribov¹, V. V. Djangobegov¹, A. O. Schishlov¹, S. F. Medovschikov¹, A. V. Branitskii¹, V. A. Gasilov³, O. G. Olkhovskay³, P. V. Sasorov³, V. G. Novikov³, M. M. Basko³, A. P. Shevelko⁴

¹SRC RF TRINITI, Moscow, Russian Federation

²Rosatom State Corporation, Moscow, Russian Federation

³Institute of Applied Mathematics, Moscow, Russian Federation

⁴Lebedev Physical Institute, Moscow, Russian Federation

17:00 2E-4 PLASMOID PRODUCED IN A LOW ENERGY PLASMA FOCUS AND ITS SOFT X-RADIATION

S. L. Yap¹, M. C. Lee¹, H. S. Poh¹, L. K. Lim¹, S. S. Yap²

¹Department of Physics, University of Malaya, Kuala Lumpur, Malaysia

²Faculty of Engineering, Multimedia University, Selangor, Malaysia

17:15 2E-5 PLASMA SHEATH DYNAMICS ON THE AXIAL PHASE OF A PLASMA FOCUS DEVICE

L. S. Caballero Bendixsen¹, S. C. Bott-Suzuki¹, S. Cordaro¹, M. Krishnan², S. Chapman², P. Coleman³, J. Chittenden⁴

¹Center for Energy Research, University of California San Diego, La Jolla, CA, United States

²Alameda Applied Science Corporation, San Leandro, CA, United States

³Evergreen Hill Sciences, Philomath, OR, United States

⁴The Blackett Laboratory, Imperial College London, London, United Kingdom

17:30 2E-6 INITIAL BEHAVIORS OF THE PRECONDITIONED WIRE ARRAY Z-PINCHES

J. Wu, X. Li, Y. Li, Z. Yang, Y. Lu, A. Qiu

College of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China

Session 2F: 5.6 Medical and Biological Applications I

Monday, June 20 16:00-18:30, KCC 305

Session Chair: Yuichi Setsuhara, Osaka University

16:00 2F-1 DEVELOPMENT AND TESTING OF CORONA ARRAY AND NANOSECOND PULSED POWER SYSTEM FOR ELECTROPORATION

M. Burnette, D. Staack

Texas A&M University, College Station, TX, United States

16:15 2F-2 PLASMA TREATMENT OF TOOTH ROOT CANAL FOR ENHANCEMENT OF BOND STRENGTH OF DENTAL ADHESIVE SYSTEM

V. Colombo¹, D. Forgione², M. Gherardi¹, R. Laurita¹, E. Simoncelli¹, A. Stancampiano¹, R. Tonini²

¹Department of Industrial Engineering, Alma Mater Studiorum - University of Bologna, Bologna, Italy

²AlmaPlasma s.r.l., Bologna, Italy

16:30 2F-3 (invited) PLASMA TREATMENT INDUCES BLOOD CLOT FORMATION; PROTEIN AGGREGATION AND HEMOLYSIS

Y. Ikehara¹, S. Ikehara¹, T. Yamaguchi¹, Y. Akimoto², H. Sakakita³, J. Kim³, K. Ishikawa⁴, M. Hori⁴, H. Nakanishi⁵, N. Shimizu⁶

¹Biotechnology Research Institute for Drug Discovery, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

²Department of Anatomy, Kyorin University School of Medicine, Mitaka, Japan

³Electronics and Photonics Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

⁴Graduate School of Engineering, Nagoya University, Nagoya, Japan

⁵Aichi Cancer Center Hospital, Nagoya, Japan

⁶SANNO Hospital, Akasaka, Japan

17:00 2F-4 RADIOSENSITIZATION OF ORAL TONGUE SQUAMOUS CELL CARCINOMA BY NANOSECOND PULSED ELECTRIC FIELDS

J. Liu¹, J. Guo², Y. Wang¹, K. Wang¹, J. Wang³, J. Zhang^{1,2}, J. Fang^{1,2}

¹Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China

²College of Engineering, Peking University, Beijing, China

³Department of Oral Medicine, School of Stomatology, Lanzhou University, Lanzhou, Gansu, China

17:15 2F-5 AN ARRAY OF ATMOSPHERIC PRESSURE PLASMA JETS FROM A SINGLE IONIZATION WAVE

A. M. Lietz, M. J. Kushner

University of Michigan, Ann Arbor, MI, United States

17:30 2F-6 A STUDY ON ATMOSPHERIC PRESSURE NON-THERMAL PLASMA TIRCH FOR BIOMEDICAL APPLICATIONS

B. Bora

Departamento de Plasma Termonuclear, Comision Chilena de Energoi_{1/2}a Nuclear, Santiago, Chile

17:45 2F-7 ENHANCED EFFICACY OF A NOVEL ATMOSPHERIC NON-THERMAL MICROPLASMA BRUSH FOR SURFACE STERILIZATION

J. Neuber^{1,2}, S. Song^{1,2}, C. Jiang^{1,2}

¹Old Dominion University, Norfolk, VA, United States

²Frank Reidy Research Center for Bioelectrics, Norfolk, VA, United States

18:00 2F-8 DETERMINING THE EFFECT OF NON-THERMAL ATMOSPHERIC PRESSURE PLASMA ON INACTIVATION OF BEANS AND OIL-SEED BACTERIA

P. Khorshid¹, S. Khosravi¹, F. Khamseh¹, M. Nakhaei Moghaddam²

¹Department of Physics, Islamic Azad University, Mashhad, Iran

²Department of Biology, Islamic Azad University, Mashhad, Iran

18:15 2F-9 FULLY COUPLED SIMULATION OF PLASMA-LIQUID SYSTEMS: DEPENDENCE ON INTERFACIAL PROPERTIES

A. Lindsay¹, D. Graves², S. Shannon¹

¹Nuclear Engineering, North Carolina State University, Raleigh, NC, United States

²Chemical Engineering, University of California, Berkeley, Berkeley, CA, United States

Session PL3: Speaker: Graeme Lister

Tuesday, June 21 08:30-09:30, Eric Harvie Theatre

Session Chair: Georges Zissis, CNRS LAPLACE, Toulouse

8:30 PL3-1 ELECTRODELESS DISCHARGE LIGHTING

G. Lister

Ceravision Limited, Tibrook, Milton Keynes, UK

Session 3A: 1.1 Basic Phenomena I

Tuesday, June 21 10:00-12:00, KCC 201

Session Chair: SHANTANU KUMAR KARKARI, INSTITUTE FOR PLASMA RESEARCH

10:00 3A-1 IDENTIFICATION OF ANOMALOUS IONIZATION IN AN ULTRASHORT PULSE LASER-GENERATED XENON PLASMA

J. Elle¹, E. Iglesias², J. Wahlstrand³, S. Zahedpour³, H. Milchberg³

¹RDHP, Air Force Research Lab, Kirtland AFB, NM, United States

²Department de Fisica, Universidad Simon Bolivar, Caracas, Venezuela

³IREAP, University of Maryland, College Park, MD, United States

10:15 3A-2 OBSERVATION OF STREAMER PROGRESS, BUBBLE PRODUCTION, REPETITIVE PLASMAS AND MOVING ELECTRODE IN UNDERWATER DISCHARGES

M. Akiyama, M. Fue, T. Oikawa, H. Akiyama

Electrical and Electronic Engineering, Iwate University, Morioka, Japan

10:30 3A-3 STREAMER BRANCHING CHARACTERISTICS IN TRANSFORMER OIL

Y. Li, J. -Y. Wen, G. -Q. Su, G. -J. Zhang

State Key Lab of Electrical Insulation & Power Equipment, School of Electrical Engineering,
Xi'an Jiaotong University, Xi'an Jiaotong University, Xi'an, Shaanxi, China

10:45 3A-4 START-UP OF A PULSED PLASMA JET: FROM BRANCHING TO GUIDED
STREAMERS

M. van der Schans¹, R. G. J. Jongen¹, S. Nijdam¹, W. L. IJzerman²

¹Eindhoven University of Technology, Eindhoven, Netherlands

²Philips Lighting, Eindhoven, Netherlands

11:00 3A-5 (invited) MATCHED ASYMPTOTIC ANALYSIS OF ATMOSPHERIC
PRESSURE GAS BREAKDOWN FROM NANOSCALE TO MICROSACLE

A. M. Loveless, A. L. Garner

Nuclear Engineering, Purdue University, West Lafayette, IN, United States

11:30 3A-6 PHOTOIONIZATION IN DEVELOPING LOW TEMPERATURE PLASMA
STREAMER DISCHARGES IN AIR

J. C. Stephens, A. A. Neuber

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

11:45 3A-7 LENGTH SCALES OF THE ELECTRON SHEATH AND PRESHEATH

B. T. Yee¹, B. Scheiner², S. D. Baalrud², E. V. Barnat¹, M. M. Hopkins¹

¹Applied Optical and Plasma Sciences, Sandia National Laboratories, Albuquerque, NM, United
States

²Physics and Astronomy, University of Iowa, Iowa City, IA, United States

Session 3B: 2.7 Special Session - Microwave Generated Plasmas on Spacecraft

Tuesday, June 21 10:00-12:00, KCC 203

Session Chair: Timothy Graves, The Aerospace Corporation

10:00 3B-1 PHYSICS-BASED STANDARD FOR RF BREAKDOWN PREVENTION IN
SPACECRAFT COMPONENTS

T. P. Graves, A. A. Hubble, P. T. Partridge

The Aerospace Corporation, El Segundo, CA, United States

10:15 3B-2 RF BREAKDOWN ANALYSIS ACCORDING TO INTERNATIONAL
STANDARDS

S. Anza, C. P. Vicente, J. Gil

Aurora Software and Testing S. L., Valencia, Spain

10:30 3B-3 MULTIPACTOR CHAOS

R. A. Kishek

IREAP, University of Maryland, College Park, MD, United States

10:45 3B-4 REDUCTION IN MULTIPACTOR BREAKDOWN THRESHOLD DUE TO A
PARALLEL MAGNETIC FIELD

V. H. Chaplin, A. A. Hubble, R. Spektor, P. T. Partridge, T. Bhattacharjee, T. P. Graves

The Aerospace Corporation, El Segundo, CA, United States

11:00 3B-5 HANDBOOK FOR RF IONIZATION BREAKDOWN PREVENTION IN
SPACECRAFT COMPONENTS

J. P. Tate

Raytheon Space and Airborne Systems, El Segundo, CA, United States

11:15 3B-6 CNES - CHALMERS - IAP - ONERA ACTIVITIES IN THE DOMAIN OF HIGH
RF POWER BREAKDOWN PHENOMENA

J. Puech¹, V. E. Semenov², E. I. Rakova², D. Anderson³, M. Belhaj⁴

¹CNES - Centre National d'Etudes Spatiales, Toulouse, France

²Institute of Applied Physics, Nizhny-Novgorod, Russia

³Chalmers University, Goteborg, Sweden

⁴ONERA, Toulouse, France

11:30 3B-7 INNOVATIONS IN RADIO FREQUENCY BREAKDOWN DETECTION METHODS

J. T. Farrell¹, T. E. Musselman¹, A. A. Hubble²

¹The Boeing Company, El Segundo, CA, United States

²The Aerospace Corporation, El Segundo, CA, United States

11:45 3B-8 DESIGN, MANUFACTURE AND TEST TECHNIQUES FOR MULTIPACTOR FREE RF DEVICES

T. Rodriguez, K. Shamsaifar, J. Haas

Sierra Microwave Technology, Gerogetown, TX, United States

Session 3C: 4.6 Fast Z pinches II

Tuesday, June 21 10:00-12:00, KCC 205

Session Chair: John L Giuliani, NAVAL RESEARCH LABORATORY

10:00 3C-1 NUMERICAL AND EXPERIMENTAL INVESTIGATION OF THE ELECTRICAL EXPLOSION OF ALUMINUM WIRE

Z. Shi, K. Wang, Y. Shi, S. Jia

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

10:15 3C-2 PARTICLE ORBIT THEORY OF MAGNETO-RAYLEIGH-TAYLOR INSTABILITY RESPONSIBLE FOR HELICAL INSTABILITY STRUCTURE OF Z-PINCH DRIVEN PREMAGNETIZED LINER

J. K. Dan, X. B. Huang, Q. Xu

Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, Sichuan, China

10:30 3C-3 (invited) ELECTROTHERMAL INSTABILITY EVOLUTION ON Z-PINCH RODS AND IMPLODING LINERS PULSED WITH INTENSE CURRENT

T. J. Awe¹, E. P. Yu¹, G. Yelton¹, K. J. Peterson¹, R. D. McBride¹, D. B. Sinars¹, M. R. Gomez¹, C. A. Jennings¹, M. R. Martin¹, S. E. Rosenthal¹, A. B. Sefkow¹, S. A. Slutz¹, R. A. Vesey¹, K. C. Yates², B. S. Bauer², T. M. Hutchinson², S. Fuelling²

¹High Energy Density Experiments, Sandia National Laboratories, Albuquerque, NM, United States

²Physics, University of Nevada, Reno, Reno, NV, United States

11:00 3C-4 NUMERICAL INVESTIGATIONS ON ELECTRICAL EXPLOSION OF THIN ALUMINUM WIRES IN VACUUM

Y. Shi, Z. Shi, K. Wang, S. Jia, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

11:15 3C-5 10 KEV TO 100 KEV NON-THERMAL RADIATION FROM HIGH-Z EXPLODING WIRES

B. V. Weber¹, R. J. Comisso¹, S. L. Jackson¹, D. Mosher²

¹Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

²Engility, Inc., Alexandria, VA, United States

11:30 3C-6 EXPERIMENTAL RESEARCH ON WIRE-ARRAY IMPLOSIONS ON PTS FACILITY

J. Yang, F. Ye, F. Chen, Z. Huang, S. Meng, Q. Hu, J. Ning, S. Jiang, Y. Qin, R. Xu, Z. Xu, Z. Li

Institute of Nuclear Physics and Chemistry, Mianyang, China

11:45 3C-7 NUMERICAL SIMULATION OF Z-PINCH EXPERIMENTS ON THE PTS

N. Ding, C. Xue, J. Wu, Y. Zhang, Z. Dai, D. Xiao, L. Yin, S. Sun

Institute of Applied Physics and Computational Mathematics (IAPCM), Beijing, China

Session 3D: 4.2 Particle Acceleration with Laser and Beams

Tuesday, June 21 10:00-11:30, KCC 301

Session Chair: Mingsheng Wei, General Atomics

10:00 3D-1 (invited) FAST ELECTRON TRANSPORT IN DIFFERENT ALLOTROPES OF SHOCK-HEATED CARBON

C. M. Krauland¹, M. Wei², J. Santos³, S. Zhang¹, W. Theobald⁴, F. Beg¹

¹Center for Energy Research, University of California, San Diego, La Jolla, CA, United States

²Inertial Fusion Technology, General Atomics, San Diego, CA, United States

³Center for Intense Lasers and Applications, University of Bordeaux, Bordeaux, France

⁴Laboratory for Laser Energetics, Rochester, NY, United States

10:30 3D-2 ROLE OF IONIZATION DYNAMICS ON COPPER ION ACCELERATION

DRIVEN BY INTENSE SHORT PULSE LASER AND ULTRA-THIN FILM INTERACTION

J. Yu, C. McGuffey, F. N. Beg

Center for Energy Research, University of California, San Diego, CA, United States

10:45 3D-3 DEFLECTION OF LASER ACCELERATED PROTONS FROM CRYOGENIC HYDROGEN JETS DUE TO SELF-GENERATED MAGNETIC FIELDS

C. B. Curry^{1,2}, M. Gauthier¹, R. Mishra¹, J. Kim¹, B. Aurand³, S. Goede¹, C. Goyon⁴, S. Kerr^{2,4}, A. Propp¹, B. Ramakrishna⁵, J. Ruby⁴, G. J. Williams⁴, A. E. Pak⁴, K. Zeil⁶, L. Obst⁶, T. Cowan⁶, U. Schramm⁶, Y. Y. Tsui², O. Willi³, C. Roedel^{1,7}, F. Fiuza¹, S. H. Glenzer¹

¹SLAC National Accelerator Laboratory, Menlo Park, CA, United States

²University of Alberta, Edmonton, AB, Canada

³Heinrich-Heine-University Dusseldorf, Dusseldorf, Germany

⁴Lawrence Livermore National Laboratory, Livermore, CA, United States

⁵Indian Institute of Science Education and Research, Bhopal, India

⁶Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

⁷Friedrich-Schiller-University Jena, Jena, Germany

11:00 3D-4 EFFECT OF ION SPACE CHARGE FIELD ON ELECTRON ACCELERATION IN A MAGNETIC PLASMA CHANNEL

M. Kaur¹, K. Gopal¹, D. N. Gupta¹, H. Suk²

¹Department of Physics & Astrophysics, University of Delhi, Delhi, India

²Department of Physics & Photon Science, Gwangju Institute of Science & Technology, Gwangju, South Korea

11:15 3D-5 A KINETIC INVESTIGATION OF SHORT-PULSE LASER INTERACTION WITH A RELATIVISTIC UNDER-DENSE PLASMA

A. Kargarian

Department of Physics and Institute for Plasma Research, Kharazmi University, Tehran, Iran

Session 3E: 5.5 Environmental and Industrial Applications

Tuesday, June 21 10:00-12:00, KCC 303

Session Chair: Sylvain Coulombe, McGill University

10:00 3E-1 COMPARATIVE INVESTIGATION OF WASTE RAPSEED OIL DERIVED CARBON MATERIAL FABRICATED BY ROTATING GLIDING ARC AND AEROSOL FAST PYROLYSIS

A. Wu, X. Li, F. Zhu, J. Yan

department of energy, State Key Laboratory of Clean Energy Utilization, Zhejiang University, Hangzhou, China

10:15 3E-2 OPTICAL EMISSION SPECTROSCOPY OF HIGH VOLTAGE, COLD ATMOSPHERIC PRESSURE PLASMAS

R. S. Brayfield II¹, A. Jassem¹, M. Lauria¹, A. J. Fairbanks¹, A. L. Garner¹, K. M. Keener²

¹Nuclear Engineering, Purdue University, West Lafayette, IN, United States

²Iowa State University, Ames, IA, United States

10:30 3E-3 PLASMA BASED WATER TREATMENT: DESIGN GUIDELINES FOR CONTROLLING INTERFACE DYNAMICS

G. R. Stratton¹, S. Mededovic Thagard¹, F. Dai², T. M. Holsen², C. L. Bellona³

¹Chemical and Biomolecular Engineering, Clarkson University, Potsdam, NY, United States

²Civil and Environmental Engineering, Clarkson University, Potsdam, NY, United States

³Civil and Environmental Engineering, Colorado School of Mines, Golden, CO, United States

10:45 3E-4 PROPERTIES OF ATMOSPHERIC PRESSURE PLASMAS IN PACKED BED REACTORS

J. Kruszelnicki, K. W. Engeling, J. E. Foster, M. J. Kushner

University of Michigan, Ann Arbor, MI, United States

11:00 3E-5 (invited) NANOSECOND PULSED PLASMA DISCHARGE OVER A FLOWING WATER FILM: PLASMA CHARACTERIZATION, HYDRODYNAMIC ANALYSIS, AND HYDROGEN PEROXIDE GENERATION

R. J. Wandell, H. Wang, P. Breslend, B. R. Locke

Chemical and Biomedical Engineering, Florida State University, Tallahassee, FL, United States

11:30 3E-6 DESTRUCTION OF TOLUENE BY ROTATING GLIDING ARC DISCHARGE

F. Zhu, X. Li, H. Zhang, J. Yan, M. Ni

Institute for Thermal Power Engineering, Zhejiang University, Hangzhou, China

11:45 3E-7 ENERGY-EFFICIENT MICROBIOLOGICAL DECONTAMINATION IN COLD PLASMA COMBINED WITH UV

E. Agarwal, I. Bosneaga

Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova

Session 3F: 6.3 Electrical (Probe) Diagnostics / 6.1 Optical, FIR and Microwave Diagnostics II
Tuesday, June 21 10:00-12:00, KCC 305

Session Chair: Yakov E Krasik, Physics Department, Technion

10:00 3F-1 (invited) DIAGNOSTICS OF NON-EQUILIBRIUM ATMOSPHERIC PLASMA JETS FOR CANCER THERAPY

M. Keidar

George Washington University, Washington, United States

10:30 3F-2 THEORETICAL CALCULATION AND SIMULATION STUDIES FOR SIDEWAYS FORCE ON VACUUM VESSEL DURING VDES IN EAST TOKAMAK

S. U. Khan¹, Y. Song¹, S. U. Khan²

¹institute of plasma physics,, Tokamak design devision, hefei, anhui, China

²Sustainable Energy Technologies Center, King Saud University, Riyadh, Kingdom of Saudi Arabia

10:45 3F-3 LEVERAGING SMALL SCALE ELECTRON DENSITY OSCILLATIONS IN RF PLASMAS TO SIMPLIFY HAIRPIN RESONATOR PROBE MEASUREMENTS

S. C. Shannon¹, D. Coumou²

¹Nuclear Engineering, North Carolina State University, Raleigh, NC, United States

²ENI Power Division, MKS Instruments, Rochester NY, United States

11:00 3F-4 MEASUREMENTS OF ELECTRON DENSITY IN DIFFERENT LOW PRESSURE PLASMAS USING THE MULTIPOLE RESONANCE PROBE, LANGMUIR PROBE AND OPTICAL EMISSION SPECTROSCOPY

M. Oberberg, S. Ries, N. Bibinov, P. Awakowicz

Institute of Electrical Engineering and Plasma Technology, Ruhr-University Bochum, Bochum, Germany

11:15 3F-5 PLASMA ASSISTED COMBUSTION OF LEAN PREMIXED FLAMES: HIGH-SPEED IMAGING OF STREAMER AND FLAME DYNAMICS

M. D. G. Evans^{1,2}, J. M. Bergthorson², S. Coulombe¹

¹Chemical Engineering, McGill University, Montreal, Quebec, Canada

²Mechanical Engineering, McGill University, Montreal, Quebec, Canada

11:30 3F-6 LEVERAGING SAMPLE RATE, SAMPLE TIME, AND TEST REPLICATION FOR REDUCING UNCERTAINTY IN OPTICAL EMISSION SPECTROSCOPY MEASUREMENTS OF PLASMA TEMPERATURE AND NUMBER DENSITY

A. M. Ferrar, A. L. Winfrey

Nuclear Engineering Program, University of Florida, Gainesville, FL, United States

11:45 3F-7 HIGH SPEED IMAGING OF PROPAGATING BRUSH DISCHARGES

D. Nikic, A. C. Day

The Boeing Company, Seattle, WA, United States

Session 2P: 1.1 Basic Phenomena Poster II

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: SHANTANU KUMAR KARKARI, INSTITUTE FOR PLASMA RESEARCH

2P-1 PLASMA DYNAMICS EXPERIMENTS AT VIRGINIA TECH

C. S. Adams, M. Schneider, M. Popescu, I. Bean, C. Bluhm, J. Korsness, E. Palacio, M. Sherburne

Aerospace and Ocean Engineering, Virginia Tech, Blacksburg, VA, United States

2P-2 THE INFLUENCE OF AIR PRESSURE ON GLOW DISCHARGE IN A PIN-TO-PLATE GAP SUSTAINED BY A RESONANT POWER SUPPLY

Y. Wang, W. Ding, Y. Wang, J. Yan, Y. Gou, K. Qian

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

2P-3 DIELECTRIC-DIRECTED SURFACE FLASHOVER UNDER ATMOSPHERIC CONDITIONS

P. G. Clem, L. B. Biedermann, H. P. Hjalmarson, C. H. Moore, R. S. Coats

Sandia National Laboratories, Albuquerque, New Mexico, United States

2P-4 NONLINEAR ELECTRON RESONANCE HEATING IN ASYMMETRIC CAPACITIVE DISCHARGES

S. Wilczek, R. P. Brinkmann, T. Mussenbrock

Institute of Theoretical Electrical Engineering, Ruhr-University Bochum, Bochum, Germany

2P-5 VOLUME MODE EXCITATION IN SUBMERGED BUBBLES: TOWARDS
REDUCING BREAKDOWN VOLTAGE FOR PLASMA GENERATION IN LIQUIDS

J. R. Groele, J. E. Foster

Nuclear Engineering, University of Michigan, Ann Arbor, United States

Session 2P: 1.2 Computational Plasma Physics Poster I

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Thomas Mussenbrock, Ruhr University Bochum

2P-6 MODELING THE CHEMICAL KINETICS OF DUAL PULSED PLASMA SOURCES
FOR REDUCTION OF NOX EMISSION

H. Y. Kim^{1,2}, H. J. Lee¹

¹Department of Electrical Engineering,, Pusan National University, Busan, South Korea

²National Core Research Center for Hybrid Materials Solution, Pusan National University,
Busan, South Korea

2P-7 EFFECT OF ELECTRON KINETICS ON GLOBAL SIMULATIONS FOR
INDUCTIVELY COUPLED PLASMA SOURCES

D. -C. Kwon, M. -Y. Song, J. -S. Yoon

Plasma Technology Research Center, National Fusion Research Institute, Gunsan, Jeonbuk,
South Korea

2P-8 STUDY OF EM WAVE PROPAGATION AND MODULATION IN INDUCTIVELY
COUPLED PLASMA

W. Xiaolong, X. Haojun

Science and Technology of Plasma Dynamics Laboratory, Air Force Engineering University,
Xi'an Shannxi, China

2P-9 PHYSICS-BASED PRECONDITIONERS FOR MULTI-FLUID PLASMA
SIMULATIONS

K. Beckwith, P. H. Stoltz, M. Kundrapu

Tech-X Corp., Boulder, CO, United States

2P-10 EVAPORATION SPEED AFFECTED BY MOVING SPEED OF VACUUM ARC
CATHODE SPOT OF COPPER

S. Kaneda, S. Yamamoto, T. Iwao

Tokyo City University, Setagaya-ku, Oyamadai, Japan

2P-11 NUMERICAL SIMULATION OF THE INITIAL EXPANSION PROCESS OF
CATHODE SPOTS IN HIGH-CURRENT TRIGGERED VACUUM ARC

C. Wang, Z. Shi, B. Wu, S. Jia, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University,
Xi'an, China

2P-12 REFLECTION OF ELECTROMAGNETIC SOLITON

A. Sharma, H. K. Malik, H. Kumar

physics, IIT DELHI, new delhi, India

2P-13 NONLINEAR STOPPING FOR IONS IN PLASMAS

G. Wang¹, S. Liu¹, Y. Wang¹, Y. Wang²

¹Department of Physics, Dalian Maritime University, Dalian, Liaoning, China

²Department of Physics, Dalian University of Technology, Dalian, Liaoning, China

2P-14 MODELING OF NANOSECOND PULSED DBD PLASMA ACTUATOR FOR FLOW CONTROL

J. Chae¹, S. Ahn¹, H. -J. Kim¹, K. H. Kim¹, S. Y. Jung²

¹Department of Mechanical and Aerospace Engineering, Seoul National University, Seoul, South Korea

²Agency for Defence Development, Daejeon, South Korea

2P-15 STUDIES ON PLASMA SERIES RESONANCE EFFECT IN DUAL FREQUENCY CAPACITIVELY COUPLED RADIO FREQUENCY PLASMA

B. Bora

Departamento de Plasma Termonuclear,, Comision Chilena de Energia Nuclear, Santiago, Chile

Session 2P: 1.4 Partially Ionized Plasmas Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Andrey Starikovskiy, Princeton University

2P-16 THERMODYNAMIC PROPERTIES OF HYDROGEN THERMAL PLASMA IN LOCAL THERMODYNAMIC EQUILIBRIUM INCLUDING PRESSURE DERIVATIVE OF PARTITION FUNCTION

R. Sharma¹, G. Singh², K. Singh³

¹Satyam Institute of Engineering & Technology, Amritsar, India

²DAV College, Bhatinda, India

³Guru Nanak Dev University, Amritsar, India

2P-17 ON USING A GUIDED IONIZATION WAVE FROM A PLASMA JET TO IGNITE A LARGE VOLUME PLASMA AT REDUCED PRESSURE

M. Laroussi, H. Razavi

Old Dominion University, Norfolk, VA, United States

2P-18 TEMPORAL AND SPATIAL DYNAMICS OF A BIPOLAR PULSED PLASMA AT AUDIO FREQUENCY

R. Tang, E. V. Barnat, M. M. Hopkins, P. A. Miller

Sandia National Laboratories, Albuquerque, NM, United States

2P-19 STUDY OF LIGHT SOURCE CHEMISTRY IN PURE XENON FOR VUV EMISSION RADIATION

H. Loukil

Physics, student, Oran, Algeria

2P-20 MEASUREMENT OF THE CURRENT IN A STREAMER HEAD AND THE TRANSITION TO ELECTRICAL BREAKDOWN IN ATMOSPHERIC AIR

J. Lehr

ECE, University of New Mexico, Albuquerque, NM, USA

Session 2P: 2.4 Vacuum Microelectronics and THz Devices Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: James P Anderson, General Atomics

2P-21 DETECTING TERAHERTZ WAVES USING MICRO-PLASMA ARRAY

L. Hou, X. Han, W. Shi, H. Liu, M. Xu, C. Ma

Applied Physics Department, Xi'an University of Technology, Xi'an, China

Session 2P: 2.5 Codes and Modeling Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Andrew J. Woods, Orbital ATK, Inc. National Capital Region

2P-22 ONE DIMENSIONAL PARTICLE-IN-CELL SIMULATION OF RELATIVISTIC BUNEMAN INSTABILITY

R. S. Rajawat, S. Sengupta

Basic theory and simulation group, Institute For Plasma Research, Gandhinagar, Gujarat, India

2P-23 KINETIC FULL WAVE ANALYSIS INCLUDING WAVE-PARTICLE INTERACTIONS IN AN INHOMOGENEOUS PLASMA

S. A. Khan, A. Fukuyama

Department of Nuclear Engineering,, Kyoto University, Kyoto 615-8540, Japan

2P-24 DEVELOPMENT OF PIC-DSMC MODEL FOR LASER-TRIGGERED VACUUM SWITCH

L. B. Biedermann, C. H. Moore, S. G. Moore, A. S. Fierro, M. M. Hopkins, J. M. Elizando-Decanini

Sandia National Laboratories, Albuquerque, NM, United States

2P-25 REVIEW OF PAST, PRESENT, AND FUTURE PLASMA MODELS FOR ELECTROTHERMAL PLASMA DISCHARGE SIMULATION

M. J. Esmond¹, A. L. Winfrey²

¹Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

²Materials Science and Engineering, University of Florida, Gainesville, FL, United States

2P-26 MODELING PLASMA CHEMISTRY, SPUTTERING, AND RF SHEATH EFFECTS IN LOW-TEMPERATURE AND FUSION PLASMAS

T. G. Jenkins, J. R. Cary, B. D. Davidson, S. E. Kruger, J. M. McGugan, A. Y. Pankin, C. M. Roark, D. N. Smithe, P. H. Stoltz

Tech-X Corporation, Boulder, CO, United States

2P-27 THE FDTD SIMULATION FOR SCATTERING CHARACTERISTICS IN VACUUM TUBES

X. Gu, X. Jin, B. Li

School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu, China

2P-28 PLASMA FORMING BY SPREADING OF PULSED ELECTRON BEAM IN HIGH PRESSURE GASES

N. E. Aktaev¹, G. E. Remnev¹, A. P. Yalovets²

¹Laboratory № 1, National Research Tomsk Polytechnic University, Tomsk, Russian Federation

²General and theoretical physics department, SOUTH URAL STATE UNIVERSITY, Chelyabinsk, Russian Federation

2P-29 MAGIC3D FDTD EM-PIC CODE ANALYSIS OF A MANY-LOOP SERPENTINE WITH PARTIAL CELLS

A. J. Woods, L. D. Ludeking

Orbital ATK, Inc. National Capital Region, Newington, VA, United States

Session 2P: 3.2 Intense Electron Ion Beams Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Mark D Johnston, Sandia National Laboratories

2P-30 EMITTED ELECTRON BEAMS FROM VELVET CATHODES

L. Courtois, J. Gardelle, E. Pasini

CEA/CESTA, Le Barp, France

2P-31 NUMERICAL INVESTIGATIONS OF RADIALLY CONVERGING ELECTRON BEAM GENERATED IN CYLINDRICAL GESA IV FACILITY

R. Fetzer, W. An, A. Weisenburger, G. Mueller

Karlsruhe Institute of Technology (KIT), 76344 Eggenstein-Leopoldshafen, Germany

2P-32 MEASUREMENTS OF MAGNETIC AND ELECTRIC FIELDS IN HIGH ENERGY ELECTRON BEAM DIODES

M. D. Johnston¹, S. G. Patel¹, M. L. Kiefer¹, S. Biswas², R. Doron², V. Bernshtam²,
E. Stambulchik², Y. Maron²

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²Weizmann Institute of Science, Rehovot, Israel

2P-33 MODELING NITROGEN PLASMA PRODUCED BY INTENSE ELECTRON BEAMS

J. R. Angus¹, S. B. Swanekamp¹, J. W. Schumer¹, D. Mosher², P. F. Ottinger²

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2P-34 THE VISUALIZATION OF ENERGY LOSS OF AN ELECTRON BEAM IN THE DRIFT TUBE WALL

G. Kholodnaya, R. Sazonov, D. Ponomarev, V. Ezhov

High Technology Physics Institute, Tomsk Polytechnic University, Tomsk, Russian Federation

Session 2P: 4.1 Fusion (Inertial, Magnetic and Alternate Concepts) Poster II

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Farhat Beg, University of California-San Diego

2P-35 WITHDRAWN

2P-36 KINETIC SIMULATION OF DIRECT-DRIVE CAPSULE IMPLOSION AND EXPERIMENTAL COMPARISON

T. J. T. Kwan, A. Y. Le, M. J. Schmitt, H. W. Herrmann, S. H. Batha

Plasma Theory and Applications, Los Alamos National Laboratory, Los Alamos, NM, United States

2P-37 A MODEL OF THE FUEL TARGET IMPLOSION IN THE EXTERNAL MAGNETIC FIELD

S. V. Ryzhkov, V. V. Kuzenov, P. A. Frolko

Thermal Physics Department, Bauman Moscow State Technical University (BMSTU), Thermal

Physics Department (E6), Moscow, Russian Federation

2P-38 TRANSPORT AND PENETRATION DEPTH OF HOT ELECTRONS INTO THE PRE COMPRESSED TARGET OF THE SHOCK IGNITION

S. Rezaei, M. J. Jafari, A. H. Farahbod

Plasma Physics Research School, Tehran, Iran

2P-39 ELECTROMAGNETIC ELECTRON TEMPERATURE GRADIENT MODE AND ANOMALOUS ELECTRON ENERGY TRANSPORT

J. Zielinski¹, A. Smolyakov¹, M. Umansky²

¹Department of Physics and Engineering Physics, University of Saskatchewan, Saskatoon, SK, Canada

²Department of Physics, Lawrence Livermore National Laboratory, Livermore, CA, United States

Session 2P: 4.5 Laser Produced Plasmas Poster I

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Mingsheng Wei, General Atomics

2P-40 LASER PLASMAS FROM PICOSECOND LASER FILAMENTATION IN THE ATMOSPHERE AND ITS APPLICATION ON GUIDED HIGH VOLTAGE DISCHARGES

A. Schmitt-Sody¹, J. Elle¹, M. Domonkos¹, A. Ting², V. Hasson³, A. Lucero⁴

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²Navy Research Laboratory, Washington, DC, United States

³University of Arizona, Tucson, AZ, United States

⁴Boeing DES, Albuquerque, NM, United States

2P-41 MEASUREMENTS AND MODELING OF LASER INDUCED PLASMA DYNAMICS IN GASES AND LIQUIDS

M. Thiyagarajan, A. Rhoden, D. Denny

Plasma Engineering Research Lab (PERL), Texas A&M University - Corpus Christi, Corpus Christi, TX, United States

2P-42 REGIMES OF SUPRATHERMAL ELECTRON TRANSPORT

M. E. Glinsky

Sandia National Laboratories, Albuquerque, NM, United States

2P-43 CONFIGURATION OF PLASMA WAVES UNDERGOING A WEAK LANDAU DAMPING IN TWO-PLASMON DECAY INSTABILITY OF AN ELECTROMAGNETIC WAVE IN A FLUID PLASMA

G. S. Cho¹, J. Lee¹, Y. Y. Tsui²

¹Nanoscience and Engineering, Inje University, Gimhae, Gyeongnam, South Korea

²Electrical and Computer Engineering, University of Alberta, Edmonton, Alberta, Canada

2P-44 INVERSE FARADAY EFFECT MAGNETIC FIELD GENERATION IN LASER INDUCED PLASMA

F. T. J. Liza, L. Manzoor, A. Longman, S. Kerr, H. Tiedje, R. Fedosejevs

ECE, University of Alberta, Edmonton, AB, Canada

2P-45 RELATIVISTIC SELF FOCUSING OF SUPERGAUSSIAN LASER BEAM IN PLASMA

L. Devi, H. K. Malik

PHYSICS, Indian Institute of Technology, Delhi, NEW DELHI, DELHI, India

2P-46 PLASMA PARAMETER INVESTIGATIONS OF CALCITE AND DOLOMITE MARBLES USING LASER INDUCED BREAKDOWN SPECTROSCOPY

M. Fahad

Electrical Engineering, COMSATS Institute of Information Technology, Abbottabad, Pakistan

Session 2P: 4.6 Fast Z pinches Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Pierre Gourdain, University of Rochester

2P-47 NEUTRON ANISOTROPY MEASUREMENTS IN DENSE PLASMA FOCUS DEVICE BY MEANS OF DEUTERON BEAM OBSTACLE

A. Talebitaher¹, S. V. Springham², P. Lee², R. S. Rawat²

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2P-48 EFFECTS OF A XE DOPANT ON AN AR GAS-PUFF IMPLOSION ON Z

J. P. Apruzese¹, J. L. Giuliani¹, N. D. Ouart¹, V. Tangri¹, A. J. Harvey-Thompson², B. Jones², C. A. Jennings²

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²Sandia National Laboratories, Albuquerque NM, United States

2P-49 EXPERIMENTAL INVESTIGATIONS ON ELECTRICAL EXPLOSION OF ALUMINUM WIRES IN VACUUM

Y. Shi, Z. Shi, K. Wang, J. Wu, S. Jia, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

2P-50 EFFECT OF MEDIUM PRESSURE AND CHARGING VOLTAGE ON PLASMA CHARACTERISTICS DURING MICROSECOND EXPLOSION OF SINGLE METALLIC WIRE

J. Bai, Z. Shi, S. Jia, X. Li, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

2P-51 THE INFLUENCE OF INSULATING COATINGS ON THE ENERGY DEPOSITION AND PLASMA MORPHOLOGY OF THE ELECTRICAL EXPLOSION OF ALUMINUM AND TUNGSTEN WIRE

K. Wang, Z. Shi, Y. Shi, J. Wu, S. Jia

State Key Laboratory of Electrical Insulation and Power Equipment, Dept. of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China

2P-52 COMPARATIVE ANALYSIS OF X-RAY EMISSION AND DYNAMICS OF CU FOIL AND WIRE X-PINCHES

G. W. Collins¹, J. C. Valenzuela-Ahumada¹, F. N. Beg¹, M. S. Wei², C. T. Reed², A. C. Forsman²

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2P-53 HIGH VOLTAGE COAXIAL GAP BREAKDOWN FOR PULSED POWER LINERS

S. W. Cordaro¹, S. C. Bott-Suzuki¹, L. S. Caballero Bendixsen¹, L. Atoyán², T. Byvank², W. Potter², B. R. Kusse², J. B. Greenly², C. A. Jennings³

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2P-54 SIMULATIONS OF XE DOPED AR GAS-PUFF IMPLOSIONS ON Z

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2P-55 CHARACTERIZATION OF A COMPACT GAS-PUFF NOZZLE AND PLASMA GUN ASSEMBLY FOR STAGED Z-PINCH EXPERIMENTS

F. Conti¹, J. Valenzuela¹, I. Krashennikov¹, V. Fadeev¹, J. Narkis¹, F. Beg¹, F. Wessel², H. Rahman², P. Ney², E. McKee³, T. Darling³, A. Covington³

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2P-56 DESIGN AND OPTIMIZATION OF A LINER-ON-TARGET INJECTOR FOR STAGED Z-PINCH EXPERIMENTS USING COMPUTATIONAL FLUID DYNAMICS AND MHD SIMULATIONS

J. C. Valenzuela¹, J. Narkis¹, F. Conti¹, I. Krasheninnikov¹, V. Fadeev¹, F. N. Beg¹, F. J. Wessek², H. U. Rahman², P. Ney², E. McKee³, T. Darling³, A. Covington³

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2P-57 MAGNETIC FLUX AND HEAT LOSS BY DIFFUSIVE, ADVECTIVE, AND THERMOELECTRIC EFFECTS

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2P-58 EFFECTS OF TEMPERATURE DEPENDENCE OF ELECTRICAL AND THERMAL CONDUCTIVITIES ON THE HEATING OF A ONE DIMENSIONAL CONDUCTOR

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Session 2P: 5.2 High-Pressure and Thermal Plasma Processing Poster II

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Anthony B Murphy, CSIRO Materials Science & Engineering

2P-59 DISTRIBUTION OF AR ARC CONTAMINATED WITH NITROGEN IN PULSED TIG WELDING

H. Takahashi

Tokyo City University, Setagaya, Japan

2P-60 CONSTRUCTION, CHARACTERIZATION AND OPTIMIZATION OF A PLASMA WINDOW BASED ON A CASCADE ARC DESIGN FOR FAIR AT THE GSI HEMHOLTZ CENTER

B. F. Bohlender, J. Wiechula, M. Iberler, O. Kester, J. Jacoby

Institute for Applied Physics, Goethe University Frankfurt, Frankfurt, Germany

2P-61 USING EXTERNAL MAGNETIC FIELDS FOR HIGH-PRESSURE ARC MOTION OVER ELECTRODE SURFACES

V. I. Kolobov¹, R. R. Arslanbekov¹, A. Rabinovich², A. Fridman²

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2P-62 AXIAL MOTION OF MAGNETICALLY DRIVEN ROTATING ARC

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²CFD Research Corporation, Huntsville, AL, United States

2P-63 ARC CONDUCTANCE AND FLOW VELOCITY AFFECTED BY WALL RADIUS OF WALL-STABILIZED ARC

S. Ono, D. Suzuki, K. Sato, T. Iwao, S. Yamamoto

Electrical and Electronic, Tokyo City University, Setagaya, Tokyo, Japan

Session 2P: 5.4 Plasmas for Lighting and Flat-Panel Displays Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Georges Zissis, CNRS LAPLACE, Toulouse

2P-64 COMPUTER MODELLING OF CHARACTERISTICS OF A MICROWAVE ELECTRODELESS LAMPS WITH DIFFERENT FILL

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Dept. of Physical Foundations of Electronic Engineering, Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

Session 2P: 5.6 Medical and Biological Applications Poster I

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Yuzuru Ikehara, National Institute of Advanced Industrial Science and Technology (AIST)

2P-65 PLASMA MEDICAL INNOVATION USING NON-THERMAL ATMOSPHERIC PRESSURE PLASMA

M. Hori

Nagoya University, Nagoya, Japan

2P-66 MAIN BACTERICIDAL FACTORS OF ESCHERICHIA COLI IN SOLUTIONS TREATED WITH NEUTRAL OXYGEN RADICALS

M. Ito¹, T. Kobayashi¹, T. Ohta¹, H. Hashizume², K. Ishikawa², M. Hori²

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²Institute of Innovation for Future Society, Nagoya University, Nagoya, Japan

2P-67 MECHANISM OF BACTERIA INACTIVATION BY AN ATMOSPHERIC PRESSURE PLASMA JET

V. S. S. K. Kondeti¹, K. Wende¹, U. Gangal¹, P. J. Bruggeman¹, C. Phan², R. C. Hunter², A. Schauer³, J. Granick³

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2P-68 ATMOSPHERIC PRESSURE AIR PLASMA JET ENHANCING NITIC OXIDE GENERATION

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³Physics, Tanta University, Tanta, Egypt

⁴Physics, Beni-Suef University, Beni-Suef, Egypt

2P-69 INCREASE IN GALECTIN EXPRESSION IN HEALING WOUNDED SKIN TREATED WITH LOW-TEMPERATURE PLASMA: COMPARISON WITH TREATMENT BY ELECTRONICAL COAGULATION

Y. Akimoto¹, S. Ikehara², T. Yamaguchi², J. Kim³, H. Kawakami¹, N. Shimizu⁴, M. Hori⁵, H. Sakakita³, Y. Ikehara²

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⁴International University of Health and Welfare, Sanno Hospital, Akasaka, Tokyo, Japan

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2P-70 AERIAL OZONE CONCENTRATION IN THE PENCIL-TYPE ATMOSPHERIC PLASMA JETS WITH THE VARIOUS WORKING GASES

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2P-71 PLASMA IRRADIATION EFFECTS IN THE ABDOMINAL ADHESION MOUSE MODEL.

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³Department of Anesthesiology and Pain Relief Center, The University of Tokyo Hospital, The University of Tokyo, Tokyo, Japan

⁴Sanno Hospital, International University of Health and Welfare, Tokyo, Japan

2P-72 ATMOSPHERIC-PRESSURE PLASMA-INDUCED CELLULAR RESPONSES IN HUMAN COLORECTAL ADENOCARCINOMA CACO-2 CELLS: A STUDY OF COMPREHENSIVE QUANTITATIVE PROTEOMICS

M. Tachikawa¹, D. Sano¹, S. Sasaki², M. Kanzaki³, T. Terasaki¹, T. Kaneko²

¹Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan

²Graduate School of Engineering, Tohoku University, Sendai, Japan

³Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan

2P-73 TREATMENT WITH LOW-TEMPERATURE ATMOSPHERIC PRESSURE PLASMA ENHANCES CUTANEOUS DELIVERY OF EPIDERMAL GROWTH FACTOR BY REGULATING E-CADHERIN-MEDIATED CELL JUNCTIONS

J. -W. Hong¹, H. -J. Lee², J. -H. Choi^{1,3}, G. -C. Kim³

¹Department of Internal Medicine, School of Korean Medicine, Pusan National University, Yangsan, South Korea

²Department of Electrical Engineering, Pusan National University, Busan, South Korea

³Department of Anatomy and Cell Biology, School of Dentistry, Pusan National University, Yangsan, South Korea

2P-74 EFFECTS OF NANOSECOND PULSED ELECTROMAGNETIC FIELD ON MITOCHONDRIAL MEMBRANE POTENTIAL

W. Xu, X. Yao, J. Chen

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi, China

2P-75 SMART PHOTOIONIZATION ANALYZERS FOR CONTINUOUS PERSONAL BIOMEDICAL DIAGNOSTICS

A. Mustafaev¹, I. Rastvorova¹, K. Khobnya¹, E. Maksimova²

¹Faculty of Basic Sciences and Humanities, National Mineral Resources University (Mining University), St. Petersburg, Russian Federation

²Institute of Natural Resources, National Research Tomsk Polytechnic University, Tomsk, Russian Federation

Session 2P: 6.1 Optical, X-ray, FIR and Microwave Diagnostics Poster
Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Ed Barnat, Sandia National Laboratories

2P-76 CHARACTERIZATION OF A SPARK DISCHARGE OF SPARK PLUGS BY
SPECTRAL LINE BROADENING

S. Groeger, P. Awakowicz

Institute for Electrical Engineering and Plasma Technology, Ruhr-University Bochum, Bochum, Germany

2P-77 COMPARISON BETWEEN MEASURED AND SIMULATED ELECTRON DENSITY
OF AIR PLASMA GENERATED AT ATMOSPHERIC PRESSURE BY MULTI-MEV
PULSED X-RAY

M. Maulois^{1,2}, M. Ribiere², O. Eichwald¹, M. Yousfi¹, B. Azais³, R. Pouzalgues², A. Garrigues²,
C. Delbos²

¹UMR 5312 CNRS, Laplace, University Paul Sabatier Toulouse, Toulouse, France

²CEA/DAM, Gramat, France

³DGA, Paris, France

2P-78 WITHDRAWN

2P-79 WITHDRAWN

2P-80 EXPERIMENTAL TEST STAND FOR OPTICAL MEASUREMENT OF PLASMA-
FLUID INTERACTIONS IN ATMOSPHERIC DIELECTRIC BARRIER DISCHARGES IN
LOW REYNOLDS FLOWS

D. C. Lam¹, W. C. Schneck², W. F. O'Brien², A. L. Winfrey³

¹Nuclear Engineering Program, Virginia Tech, Blacksburg, VA, United States

²Mechanical Engineering, Virginia Tech, Blacksburg, VA, United States

³Nuclear Engineering Program, University of Florida, Gainesville, FL, United States

2P-81 A SINGLE-PROBE-BEAM, DUAL-FREQUENCY PLASMA POLARIMETER

N. K. Hicks, B. S. Munro

Physics & Astronomy, University of Alaska Anchorage, Anchorage, AK, United States

2P-82 TIME-RESOLVED IMAGING OF ELECTRICAL DISCHARGE DEVELOPMENT IN
UNDERWATER BUBBLES

Y. Tu, Y. Yang, H. Xia, X. Lu

Huazhong University of Science and Technology, Wuhan, China

2P-83 USING PLASMA PROPAGATION SPEED MODEL FOR INVESTIGATION OF
ELECTRON TEMPERATURE OF AR/N₂ IN NON-THERMAL ATMOSPHERIC PRESSURE
INDIRECT-PLASMA JET

P. Suanpoot¹, J. Sornsakdanuphap², H. S. Uhm², G. S. Cho², E. H. Choi²

¹General Basic Science, Maejo University Phrae Campus, Phrae, Thailand

²Department of Electrical and Biological Physics, Kwangwoon University, Seoul, South Korea

2P-84 ON THE OH DENSITY OPTIMIZATION IN COLD ATMOSPHERIC-PRESSURE
PLASMA

Y. Yue

Huazhong University of Science and Technology China, Wuhan, China

2P-85 SCHLIEREN HIGH SPEED IMAGING OF FLUID FLOW IN LIQUID INDUCED BY PLASMA-DRIVER INTERFACIAL FORCES

J. Lai, J. E. Foster

Department of Nuclear Engineering & Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

2P-86 VISIBLE AND UV RADIATIONS OF MERCURY DC AND MW DISCHARGE LAMPS

M. Hamady¹, G. Lister², B. Preston²

¹Physics and Electronics Department, Lebanese University, Beirut, Lebanon

²Ceravision Limited, Ceravision Limited, Tilbrook, United Kingdom

Session 2P: 7.3 Generators and Applications Poster

Poster Session

Tuesday, June 21 14:30-16:00, KCC 101, 103, 105

Session Chair: Bruce V Weber, Naval Research Laboratory

2P-87 FOURIER SERIES ANALYSIS AND SYNTHESIS OF TYPE-E PFNS FOR TIME-VARYING LOADS

C. R. Rose

J-5, Los Alamos National Laboratory, Los Alamos, NM, United States

2P-88 GENERATION AND MEASUREMENT OF STRONG PULSED MAGNETIC FIELDS OF MICROSECOND TIMESCALE

D. Yanuka, S. Efimov, M. Nitishinskiy, A. Rososhek, Y. E. Krasik

Physics, Technion - Israel Institute of Technology, Haifa, Israel

2P-89 SHOCK WAVE CHARACTERISTICS GENERATED BY ELECTRICAL EXPLOSION OF DIFFERENT WIRES IN WATER

R. Han, H. Zhou, J. Wu, Q. Liu, Y. Jing, Y. Zhang, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

2P-90 DEVELOPMENT OF HIGH STEP-UP CONVERTER BASED ON ELECTRIC DOUBLE-LAYER CAPACITORS FOR DC PLASMA POWER SUPPLY

J. -H. Hwang, J. -E. Baek, K. -C. Ko

Hanyang University, Seoul, South Korea

2P-91 SPLIT-POST DIELECTRIC RESONATOR PLASMA GENERATORS

Z. Cohick¹, W. Luo¹, D. Wolfe¹, J. Hopwood², M. Lanagan¹

¹Department of Engineering Science and Mechanics, The Pennsylvania State University, University Park, PA, United States

²Department of Electrical and Computer Engineering, Tufts University, Medford, MA, United States

2P-92 PULSE POWER SYSTEMS FOR PLASMA EXPERIMENTS AT GENERAL FUSION

B. Rablah, M. Laberge, W. Zawalski, J. Wilkie

General Fusion Inc., Burnaby, B.C., Canada

2P-93 INVESTIGATION ON THE CHARACTERISTICS OF DIELECTRIC BARRIER DISCHARGE IN METHANE WITH PARALLEL-PLATE AND MULTI NEEDLE-PLATE ELECTRODE IN LOW PRESSURE

P. Li, H. B. Mu, C. Y. Yu, C. W. Yao, G. M. Xu, S. L. Chen, G. J. Zhang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi, China

2P-94 SURFACE DIELECTRIC BARRIER DISCHARGE PLASMA ACTUATOR WITH COMPOSITE DIELECTRIC

S. Ma, Y. Wu

Xi'an Jiaotong University, Xi'an, Shaanxi, China

2P-95 NUMERICAL SIMULATION OF EXPLODING WIRES DRIVEN BY PULSED CAPACITIVE DISCHARGE

K. -J. Chung¹, K. Lee¹, Y. S. Hwang¹, D. K. Kim²

¹Department of Nuclear Engineering, Seoul National University, Seoul, South Korea

²Agency for Defense Development, Daejeon, South Korea

2P-96 SIMULATIONS OF A 1MV LINEAR TRANSFORMER DRIVER FOR FLASH X-RAY RADIOGRAPHY

R. Maissonny, M. Toury, M. Caron, M. Ribiere, G. Auriel, T. D'Almeida

CEA/DAM/Gramat, Commissariat a l'energie atomique et aux energies alternatives, Gramat, France

2P-97 EXPERIMENTS AND DIAGNOSTICS FOR INVESTIGATION OF SHOCK FORMATION IN COLLIDING HYPERSONIC MAGNETIZED PLASMA FLOWS

A. Hamilton, J. Caplinger, V. Sotnikov

RYM, Air Force Research Laboratory, WPAFB, OH, United States

Session PL4: PSAC Award Winner - Christine Coverdale

Tuesday, June 21 13:30-14:30, Eric Harvie Theatre

Session Chair: Don Shiffler, Air Force Research Laboratory

13:30 PL4-1 THE PHYSICS OF MULTI-KEV EMISSIONS FROM Z-PINCHES AT THE Z ACCELERATOR*

C. A. Coverdale

Sandia National Laboratories, Albuquerque, NM, United States

Session 4A: 3.2 Intense Electron Ion Beams

Tuesday, June 21 16:00-18:30, KCC 201

Session Chair: Mark D Johnston, Sandia National Laboratories

16:00 4A-1 (invited) CATHODE PLASMA AS ELECTRON SOURCE IN LONG PULSE ACCELERATOR GESA

W. An, R. Fetzer, A. Weisenburger, G. Mueller

Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

16:30 4A-2 PULSED, INTENSE ELECTRON BEAMS FOR MATERIAL RESPONSE STUDIES WITHOUT THE USE OF EXTERNAL MAGNETIC FIELDS

R. J. Comisso¹, J. R. Angus¹, D. D. Hinshelwood¹, S. L. Jackson¹, D. Mosher¹, P. F. Ottinger¹, J. W. Schumer¹, B. V. Weber¹, N. R. Barnes², J. S. Neal², M. Sinclair²

¹Code 6770, Naval Research Laboratory, Washington, DC, United States

²Atomic Weapons Establishment, Aldermaston, UK

16:45 4A-3 AN EXACT THEORY OF ULTRAFAST ELECTRON EMISSION ON A BIASED METAL SURFACE

P. Zhang, Y. Y. Lau

NERS, University of Michigan, Ann Arbor, United States

17:00 4A-4 CURRENT DENSITY SCALING EXPRESSIONS FOR A BIPOLAR SPACE-CHARGE-LIMITED CYLINDRICAL DIODE

I. M. Rittersdorf¹, P. F. Ottinger², R. J. Allen¹, J. W. Schumer¹

¹Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

²Engility Corporation, Alexandria, VA, United States

17:15 4A-5 CONTRIBUTION OF THE BACKSTREAMING IONS TO THE SELF-MAGNETIC PINCH (SMP) DIODE CURRENT

M. G. Mazarakis¹, M. E. Cuneo¹, S. D. Fournier¹, M. D. Johnston¹, M. L. Kiefer¹, J. J. Leckbee¹,
D. S. Nielsen¹, B. V. Oliver¹, S. Simpson¹, T. J. Renk¹, T. J. Webb¹, D. Ziska¹, N. Bennett²,
D. W. Droemer², R. E. Cignac², R. J. Obregon², C. C. Smith², F. L. Wilkins², D. R. Welch³

¹1656, Sandia National Laboratories, Albuquerque, NM, United States

²National Security Technologies, LLC, Las Vegas, NV, United States

³Voss Scientific, LLC, Albuquerque, NM, United States

17:30 4A-6 MAGNETIC FIELD MEASUREMENTS ON THE SELF MAGNETIC PINCH DIODE AT SNL USING ZEEMAN SPLITTING

S. G. Patel^{1,2}, M. D. Johnston², T. J. Webb², D. J. Muron², N. L. Bennett², M. L. Kiefer²,
Y. Maron³, R. M. Gilgenbach¹

¹University of Michigan, Ann Arbor, MI, United States

²Sandia National Labs, Albuquerque, NM, United States

³Weizmann Institute of Science, Rehovot, Israel

17:45 4A-7 EFFECTS OF PULSED ANODE HEATING ON SELF-MAGNETIC-PINCH RADIOGRAPHIC PERFORMANCE USING NRL'S MERCURY IVA

J. C. Zier¹, B. V. Weber¹, C. N. Boyer², G. Cooperstein³, D. D. Hinshelwood¹,
A. S. Richardson¹, I. M. Rittersdorf⁴, J. W. Schumer¹, S. B. Swanekamp¹

¹Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

²Engility Corporation, Chantilly, VA, United States

³Independent Contractor, Engility Corporation, Chantilly, VA, United States

⁴Naval Research Laboratory, National Research Council Postdoctoral Associate, Washington, DC, United States

18:00 4A-8 DEFLECTION ANALYSIS OF INTENSE RELATIVISTIC ELECTRON BEAMS IN THE GAP OF A PILLBOX CAVITY

H. Huang^{1,2}, L. Schachter²

¹Science and Technology on High Power Microwave Laboratory, Institute of Applied Electronics, CAEP, Mianyang, China

²Department of Electrical Engineering, Technion - Israel Institute of Technology, Haifa, Israel

18:15 4A-9 IN-SITU ANODE HEATING AND PLASMA GLOW DISCHARGE CLEANING AND ITS EFFECTS ON ATOMIC CONSTITUENTS IN THE A-K GAP IN SELF-MAGNETIC PINCH (SMP) EXPERIMENTS

S. C. Simpson¹, M. D. Johnston¹, M. G. Mazarakis¹, T. J. Renk¹, R. Tang¹, T. J. Webb¹,
D. S. Nielsen¹, D. R. Ziska¹, M. L. Kiefer¹, S. Patel², J. C. Zier³, B. V. Weber³

¹Advanced Radiographic Technologies, Sandia National Laboratories, Albuquerque, NM, United States

²Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, United States

³Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

Session 4B: 2.5 Codes and Modeling II

Tuesday, June 21 16:00-17:45, KCC 203

Session Chair: John J Petillo, Leidos

16:00 4B-1 (invited) DEVELOPMENTS IN PARALLELIZATION AND THE USER ENVIRONMENT OF THE MICHELLE CHARGED PARTICLE BEAM OPTICS CODE

J. J. Petillo¹, S. Ovtchinnikov¹, C. Kostas¹, D. Panagos¹, A. Burke¹, E. Nelson¹,
G. M. Stantchev², S. J. Cooke², B. Held¹, A. Nichols¹, S. Ayala¹

¹Leidos, Inc, Billerica, MA, United States

²Naval Research Laboratory, Washington, DC, United States

16:30 4B-2 A HIGH-PERFORMANCE DISTRIBUTED COMPUTING FRAMEWORK FOR PARAMETRIC DESIGN OPTIMIZATION OF RF DEVICES

G. M. Stantchev¹, S. J. Cooke¹, J. J. Petillo², S. Ovtchinnikov², A. T. Burke², C. Kostas²,
D. Panagos², T. M. Antonsen, Jr²

¹Naval Research Laboratory, Washington, DC, United States

²Leidos, Inc, Billerica, MA, United States

16:45 4B-3 ACCURATE, TIME-DOMAIN, ELECTROMAGNETIC SIMULATION OF EMBEDDED DIELECTRIC INTERFACES IN NEPTUNE

S. J. Cooke¹, G. M. Stantchev¹, T. M. Antonsen²

¹Naval Research Laboratory, Washington, DC, United States

²Leidos Inc., Billerica, MA, United States

17:00 4B-4 ADVANCED LARGE SIGNAL MODELING OF VACUUM ELECTRONIC DEVICES BASED ON IMPEDANCE CHARACTERIZATION OF SLOW-WAVE STRUCTURES

I. A. Chernyavskiy¹, J. C. Rodgers¹, A. N. Vlasov¹, B. Levush¹, T. M. Antonsen, Jr.²

¹Electromagnetic Technology Branch, U.S. Naval Research Laboratory, Washington, DC, United States

²Leidos, Inc., Reston, VA, United States

17:15 4B-5 DEVELOPMENT OF LARGE SIGNAL CODES FOR MODELING OF MULTIPLE BEAM FOLDED WAVEGUIDE TWTS

A. N. Vlasov¹, I. A. Chernyavskiy¹, J. C. Rodgers¹, S. J. Cooke¹, J. Pasour¹, T. M. Antonsen Jr.²,
D. Chernin²

¹Naval Research Laboratory, Washington, DC, United States

²Leidos Inc., Reston, VA,, United States

17:30 4B-6 WIDEBAND MATCHING OF FDTD-PIC USING A MULTI-PHASE VELOCITY OPERATOR

L. D. Ludeking

Orbital ATK, NEWINGTON, VA, United States

Session 4C: 5.4 Plasmas for Lighting and Flat-Panel Displays

Tuesday, June 21 16:00-18:00, KCC 205

Session Chair: Georges Zissis, CNRS LAPLACE, Toulouse

16:00 4C-1 (invited) PERFORMANCE ENHANCEMENT OF A DIELECTRIC BARRIER DISCHARGE VACUUM-ULTRAVIOLET PHOTON SOURCE USING SHORT-PULSED ELECTRICAL EXCITATION

R. J. Carman¹, N. Goldberg², S. C. Hansen², N. Gore²

¹Physics and Astronomy, Macquarie University, Sydney, NSW, Australia

²Agilent Technologies Inc, Santa Clara CA, USA

16:30 4C-2 (invited) IMPROVEMENT OF CERAMIC-HALIDE HIGH INTENSITY DISCHARGE LAMPS: STUDY OF THE UV RADIATION THAT COULD BE CONVERTED INTO VISISBLE LIGHT

Y. Cressault, P. Teulet, G. Zissis

LAPLACE, Univ. Toulouse 3, Toulouse, France

17:00 4C-3 MICROCAVITY PLASMA UV LAMPS: EFFICIENT VUV, UV-C AND UV-B GENERATION WITH FLAT FORM FACTOR

S. -J. Park^{1,2}, C. M. Herring², J. G. Eden^{1,2}

¹Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

²Eden Park Illumination, Champaign, IL, USA

17:15 4C-4 CHARACTERISTICS OF KRYPTON DIELECTRIC BARRIER DISCHARGE LAMP

B. Caillier¹, P. Guillot¹, I. Z. Ait Menguellat², N. Larbi Daho Bachir², A. Belasri²

¹DPHE, Universite de Toulouse, Institut National Universitaire, Albi, France

²Faculte de Physique, Laboratoire de Physique des PlasmasMateriaux Conducteurs et leurs Applications, Universite des Sciences et de la Technologie d Oran, Oran, Algeria

17:30 4C-5 SPATIAL AND TEMPORAL EVOLUTION OF A DBD PLASMA LAMP

B. Caillier¹, P. Guillot¹, I. Medjahed², S. A. Beldjilali², A. Belasri²

¹DPHE, Universite de Toulouse, Institut National Universitaire Champollion, Albi, France

²Facult? de Physique, Laboratoire de Physique des Plasmas, Mat?riaux Conducteurs et leurs Applications, Universit? des Sciences et de la Technologie d?Oran, Oran, Algeria

17:45 4C-6 SPECTRAL VARIATIONS OF METAL HALIDE LAMPS DURING ACOUSTIC RESONANCE

F. Lei¹, P. Dupuis^{1,2}, G. Zissis¹, P. Maussion¹

¹LAPLACE, Universite de Toulouse, Toulouse, France

²FM-Lighthouse, Toulouse, France

Session 4D: 4.4 High Energy Density Matter I

Tuesday, June 21 16:00-18:30, KCC 301

Session Chair: Alla Safronova, University of Nevada, Reno

16:00 4D-1 (invited) LATTICE STABILITY IN ULTRAFAST LASER EXCITED GOLD

Z. Chen¹, Y. Tsui², V. Recoules³, M. Mo¹, P. Hering¹, S. Glenzer¹, A. Ng⁴

¹SLAC National Accelerator Laboratory, Menlo Park, CA, United States

²University of Alberta, Edmonton, Canada

³CEA Bruyeres le-Chatel, Paris, France

⁴University of British Columbia, Vancouver, Canada

16:30 4D-2 ULTRAFAST PUMP-PROBE MEASUREMENTS OF DENSE PLASMA CONDITIONS USING AN ULTRA-BRIGHT X-RAY LASER

S. H. Glenzer

HED, SLAC National Accelerator Laboratory, Menlo Park, CA, United States

16:45 4D-3 CHARACTERIZATION AND STUDY OF SUPERSONIC PURE AND MIXED NOBLE GAS JETS AS A TARGET FOR A SUB-PS LASER

K. A. Schultz¹, V. L. Kantsyrev¹, V. V. Shlyaptseva¹, I. K. Shrestha¹, E. E. Petkov¹,

A. S. Safronova¹, J. J. Moschella¹, A. Stafford¹, M. C. Cooper¹, G. M. Petrov²

¹Physics Department, University of Nevada, Reno, Reno, NV, United States

²Naval Research Laboratory, Washington, D.C., United States

17:00 4D-4 EXTREME STATES OF WATER OBTAINED BY GENERATING CONVERGING SHOCK WAVES BY UNDERWATER ELECTRICAL EXPLOSIONS OF WIRE ARRAYS

D. Yanuka, S. Efimov, M. Kozlov, H. Zinowits, D. Shafer, Y. E. Krasik

Physics Department, Technion - Israel Institute of Technology, Haifa, Israel

17:15 4D-5 HIGH FIELD ASSISTED X-RAY SOURCE

P. A. Gourdain^{1,2}, M. Adams^{1,2}, D. Barnak^{1,2}, R. Betti^{1,2}, J. Davies², S. Regan², G. Rochau³,
D. Meyerhofer⁴

¹Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA

²Laboratory for Laser Energetics, University of Rochester, Rochester, NY, USA

³Sandia National Laboratories, Albuquerque, NM, USA

⁴Los Alamos National Laboratory, Los Alamos, NM, USA

17:30 4D-6 EXPERIMENTS ON ELECTROTHERMAL INSTABILITY AS A SEED FOR
MAGNETO-RAYLEIGH-TAYLOR INSTABILITY ON ACCELERATING, ABLATING
FOILS

A. M. Steiner, D. A. Yager-Elorriaga, P. C. Campbell, S. G. Patel, N. M. Jordan, Y. Y. Lau,
R. M. Gilgenbach

Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, United
States

17:45 4D-7 RELATIVISTIC MODELING CAPABILITIES IN PERSEUS EXTENDED-MHD
SIMULATION CODE FOR HED PLASMAS

N. D. Hamlin, C. E. Seyler

School of Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States

18:00 4D-8 Warm Dense Matter Experiments at DARHT

J. E. Coleman¹, T. J. Burris-Mog¹, M. J. Berninger², D. R. Welch³, C. L. Miller³

¹Los Alamos National Laboratory, Los Alamos, NM, United States

²National Security Technologies, Los Alamos, NM, United States

³Voss Scientific, Albuquerque, NM, United States

18:15 4D-9 KILOJOULE LASER SYSTEM FOR HEDP DIAGNOSTIC CALIBRATION
EXPERIMENTS AT CAEP

J. Mu¹, Q. Yang¹, D. Liu¹, X. Xie², W. Deng²

¹Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, China

²Research Center of Laser Fusion, China Academy of Engineering Physics, Mianyang, China

Session 4E: 7.1 Insulation and Dielectric Breakdown

Tuesday, June 21 16:00-17:45, KCC 303

Session Chair: James Dickens, Texas Tech University

16:00 4E-1 SUPPRESSING WINDOW MULTIPACTOR UNDER ARBITRARY
ELECTROMAGNETIC MODE BY PERIODIC WAVY PROFILE

C. Chang^{1,2}, C. Chen¹, J. Verboncoeur³, Y. Liu¹

¹Science and Technology on High Power Microwave Laboratory, Xi'an, Shaanxi, China

²Key Laboratory of Physical Electronics and Devices of Ministry of Education, Xi'an
Jiaotong University, Xi'an, Shaanxi, China

³Department of Electrical and Computer Engineering, Michigan State University, East Lansing,
Michigan, China

16:15 4E-2 HIGH ELECTRIC FIELD ATMOSPHERIC BREAKDOWN OF AIR AT HIGH
FREQUENCY FOR LARGE GAPS

A. R. Chowdhury, H. K. Nguyen, R. P. Joshi, J. J. Mankowski, J. C. Dickens, A. A. Neuber
ECE Dept, P3E Center, Texas Tech University, Lubbock, TX, United States

16:30 4E-3 (invited) WHEN AND WHY ARE STREAMERS ATTRACTED TO
DIELECTRIC SURFACES?

D. Trienekens¹, S. Nijdam¹, G. Akkermans¹, I. Plompen¹, M. Merckx¹, T. Christen², U. Ebert³
¹Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands

²Corporate Research, ABB Switzerland Ltd., Baden-Datwill, Switzerland

³Multiscale Dynamics, CWI, Amsterdam, Netherlands

17:00 4E-4 SECOND HARMONIC GENERATION OF COSH-GAUSSIAN LASER BEAM
IN COLLISIONAL PLASMA WITH QUANTUM CORRECTION TO COLLISIONAL
FREQUENCY

N. Gupta, A. Singh

National Institute of Technology Jalandhar, Jalandhar, Punjab, India

17:15 4E-5 Simulation of micro hollow cathode gas discharge with COMSOL

Y. Long

Institute of Fluid Physics, Mianyang, China

17:30 4E-6 SPECTRAL ANALYSIS OF THE PLASMA PRODUCED BY COMPOSITE
METAL BRIDGE FOIL EXPLODING

J. Wu

school of mechatronical engineering, Beijing institute of technology, beijing, China

Session 4F: 5.6 Medical and Biological Applications II

Tuesday, June 21 16:00-18:30, KCC 305

Session Chair: Aram Markosyan, University of Michigan

16:00 4F-1 SPATIO-TEMPORAL BEHAVIORS OF ATMOSPHERIC-PRESSURE PLASMA
JETS FOR INVESTIGATION OF REACTIVE-SPECIES PRODUCTION IN LIQUID

Y. Setsuhara¹, A. Nakajima¹, G. Uchida¹, T. Ito¹, K. Takenaka¹, J. Ikeda²

¹JWRI, Osaka University, Ibaraki, Osaka, Japan

²Graduate School of Medicine, Osaka University, Suita, Osaka, Japan

16:15 4F-2 WEARABLE PLASMA-PADS FOR HEALTHCARE APPLICATIONS: PLASMA
PATCH, PLASMA BANDAGE, PLASMA SOCKS, AND PLASMA CAP

Y. Kim, H. Cho, J. -G. Kim, Y. Kim, G. -H. Han, E. -H. Choi, G. Cho

Kwangwoon University, Seoul, South Korea

16:30 4F-3 PLASMA-IRRADIATED SOLUTION AS DRUG PERMEATION ENHANCER

T. Kaneko¹, K. Kikuchi¹, S. Sasaki¹, M. Kanzaki²

¹Department of Electronic Engineering, Tohoku University, Sendai, Japan

²Department of Biomedical Engineering, Tohoku University, Sendai, Japan

16:45 4F-4 BACTERICIDAL AND PHYSICO-CHEMICAL PROPERTIES OF PLASMA
ACTIVATED WATER STORED AT DIFFERENT TEMPERATURES

Y. Tian¹, K. Wang¹, S. Wu², R. Ma¹, Q. Zhang¹, J. Zhang^{1,2}, J. Fang^{1,2}

¹Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China

²College of Engineering, Peking University, Beijing, China

17:00 4F-5 (invited) COLD PLASMA APPLICATION IN CANCER THERAPY

M. Keidar

Mechanical & Aerospace Engineering, George Washington University, WASHINGTON, United States

17:30 4F-6 REACTIVE SPECIES GENERATION AND BIOCIDAL EFFICIENCY OF AN
ASYMMETRIC DBD APPJ

F. P. Sainct, C. Muja, A. S. Kone, B. Caillier, P. Guillot

DPHE Plasma Laboratory, Institut National Universitaire Champollion, Albi, France

17:45 4F-7 GENERATION AND TRANSPORT OF LIQUID-PHASE REACTIVE SPECIES
DUE TO PLASMA-LIQUID INTERACTION

K. Ikuse, T. Ito, S. Hamaguchi

Center for Atomic and Molecular Technologies, Osaka University, Osaka, Japan

18:00 4F-8 INACTIVATION OF FELINE CALICIVIRUS BY AN ATMOSPHERIC
PRESSURE 2D MICRODISCHARGE ARRAY IN AIR

G. Nayak¹, H. A. Aboubakr², S. M. Goyal², P. J. Bruggeman¹

¹Mechanical Engineering, University of Minnesota, Minneapolis, MN, United States

²Veterinary Diagnostic Laboratory, University of Minnesota, Minneapolis, MN, United States

18:15 4F-9 ENDODONTIC PLASMA-JETS FOR ROOT-CANAL DISINFECTION

J. Kim¹, Y. -J. Kim¹, Y. Kim¹, J. Kim¹, K. Y. Baik¹, J. Lim², Y. -S. Kim², B. -H. Cho², G. Cho¹

¹Electrical and Biological Physics, Kwangwoon University, Seoul, South Korea

²R&D Platform for Dental Instrumentation, Seoul National University Dental Hospital, Seoul, South Korea

Session PL5: Speaker: James Irby

Wednesday, June 22 08:30-09:30, Eric Harvie Theatre

Session Chair: Will White, Sandia National Laboratories

8:30 PL5-1 FIR POLARIMETRY ON THE ALCATOR C-MOD TOKAMAK

J. H. Irby

Plasma Science and Fusion Center, Massachusetts Institute of Technology, Cambridge, MA, United States

Session 5A: 1.2 Computational Plasma Physics I

Wednesday, June 22 10:00-12:15, KCC 201

Session Chair: Thomas Mussenbrock, Ruhr University Bochum

10:00 5A-1 (invited) TO THE ROLE OF SURFACE WAVES IN THE PHYSICS OF A
LARGE CCP REACTOR

D. Eremin

Ruhr-University Bochum, Bochum, Germany

10:30 5A-2 IMPLICIT TIME INTEGRATION FOR PARTICLE TREATMENT WITHIN A
PARTICLE-IN-CELL SOLVER

P. Ortwein, C. -D. Munz

Institute of Aerodynamics and Gas Dynamics, Stuttgart, Germany

10:45 5A-3 NUMERICAL THERMALIZATION TIME SCALING OF 2D
ELECTROMAGNETIC COLLISIONAL PLASMAS

W. S. Koh, W. Ding

A*STAR Institute of High Performance Computing, Singapore, Singapore, Singapore

11:00 5A-4 VARIATIONAL FORMULATION OF PARTICLE ALGORITHMS FOR
KINETIC E&M PLASMA SIMULATIONS

A. B. Stamm¹, B. A. Shadwick²

¹U.S. Naval Research Laboratory, Washington, D.C., United States

²Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States

11:15 5A-5 SPEED-LIMITED PARTICLE-IN-CELL (SLPIC) METHOD

J. R. Cary¹, G. R. Werner²

¹Department of Physics, University of Colorado and Tech-X Corporation, Boulder, CO, United States

²Department of Physics, University of Colorado, Boulder, CO, United States

11:30 5A-6 NOVEL APPROACHES TO SUPPRESS THE NUMERICAL CHERENKOV INSTABILITY IN PSEUDO-SPECTRAL PARTICLE-IN-CELL PLASMA SIMULATION CODES

B. B. Godfrey^{1,2}, M. Kirchen³, R. Lehe², J. -L. Vay²

¹IREAP, University of Maryland, College Park, MD, United States

²Applied Physics and Accelerator Technologies Division, Lawrence Berkeley National Lab, Berkeley, CA, United States

³Dept of Physics, University of Hamburg, Hamburg, Germany

11:45 5A-7 A High Order MOL Transport Approach for Vlasov Simulation with WENO Methodology

Y. Jiang, A. Christlieb, W. Guo

Department of Mathematics, Michigan State University, East Lansing, United States

12:00 5A-8 NUMERICAL SOLUTION OF THE QUANTUM LENARD-BALESCU EQUATION

C. R. Scullard

Lawrence Livermore National Laboratory, Livermore CA, United States

Session 5B: 2.4 Vacuum Microelectronics / 2.6 Non-Fusion Microwave Systems / 2.8 THz Sources

Wednesday, June 22 10:00-12:15, KCC 203

Session Chair: David Abe, NRL

10:00 5B-1 ECH/EBW HEATING OF PROTO-MPEX PLASMAS

T. S. Bigelow, J. B. Caughman, S. J. Diem, R. H. Goulding, T. M. Biewer, J. Rapp

Oak Ridge National Laboratory, Oak Ridge, TN, United States

10:15 5B-2 A PHOTONIC BAND GAP MULTI-BEAM BASED KLYSTRON

R. Seviour¹, Y. Xu²

¹Huddersfield University, Huddersfield, United Kingdom

²Shanghai United-Imaging Healthcare Co, Shanghai, China

10:30 5B-3 REFLEX TRIODE VIRCATOR DESIGN FOR EXTENDED FREQUENCY TUNING CAPABILITIES

C. F. Lynn, D. H. Barnett, K. Rainwater, A. A. Neuber, J. C. Dickens, J. Mankowski

Electrical and Computer Engineering, Texas Tech University P3E, Lubbock, Tx, United States

10:45 5B-4 COMPACT REFLEX TRIODE WITH MULTI CAVITY ADJUSTMENT

D. H. Barnett, K. Rainwater, C. F. Lynn, J. Dickens, A. Neuber, J. Mankowski

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

11:00 5B-5 NEW COMPACT HIGH-POWER MICROWAVE PHASE SHIFTER AND ITS APPLICATION

C. Chang^{1,2}, L. Guo², W. Huang^{1,2}, C. Chen²

¹Key Laboratory of Physical Electronics and Devices of Ministry of Education, Xi'an Jiaotong University, Xi'an, Shaanxi, China

²Science and Technology on High Power Microwave Laboratory, Xi'an, Shaanxi, China

11:15 5B-6 RADIOFREQUENCY ELECTROMAGNETIC PULSES GENERATED BY ULTRAFast LASER FILAMENTS

A. Englesbe^{1,2}, J. Elle¹, A. Lucero¹, K. Poole¹, M. Domonkos¹, A. Schmitt-Sody¹,
K. Krushelnick²

¹Directed Energy Directorate, Air Force Research Laboratory, Kirtland AFB, New Mexico, United States

²Center for Ultrafast Optical Science, University of Michigan, Ann Arbor, Michigan, United States

11:30 5B-7 OPTIMIZING OPERATION OF A 220 GHZ FOLDED WAVEGUIDE TRAVELING WAVE TUBE USING A 3-D EM PIC SIMULATION

M. C. Lin¹, H. Song², J. Shin³, J. So³

¹YHKISTI, Boulder, CO, USA

²Department of Electrical and Computer Engineering, University of Colorado, Colorado Springs, CO, USA

³Agency for Defense Development, Daejeon, Korea

11:45 5B-8 ON THE USE OF PLASMA METASURFACES AS TUNABLE THZ WAVE REFLECTORS

R. A. Colon Quinones, T. C. Underwood, M. A. Cappelli

Mechanical Engineering, Stanford University, Stanford, CA, United States

12:00 5B-9 SMITH-PURCELL TERAHERTZ SOURCES

J. Gardelle¹, P. Modin¹, H. P. Bluem², R. H. Jackson², J. D. Jarvis², A. M. M. Todd²,
J. T. Donohue³

¹CEA/CESTA, Le Barp, France

²AES, Princeton, NJ, USA

³CENBG, Gradignan, France

Session 5C: 4.5 Laser Produced Plasmas

Wednesday, June 22 10:00-12:30, KCC 205

Session Chair: Tammy Ma, Lawrence Livermore National Laboratory

10:00 5C-1 KAERI LASER FACILITY FOR HIGH ENERGY DENSITY PLASMA RESEARCH

C. Lim, S. -M. Nam, J. -M. Han, M. -S. Kim, S. -Y. Ha

KAERI (Korea Atomic Energy Research Institute), Daejeon, South Korea

10:15 5C-2 INTENSE UNDERWATER LASER PROPAGATION, IONIZATION AND HEATING FOR REMOTE SHAPED PLASMA GENERATION

T. G. Jones¹, D. Kaganovich¹, M. H. Helle¹, R. Fischer¹, T. Ting¹, J. Palastro¹, L. Johnson¹,
B. Hafizi¹, D. Gordon¹, J. Penano¹, Y. -H. Chen²

¹Plasma Physic Div., U.S. Naval Research Laboratory, Washington, DC, USA

²Research Support Instruments, Inc., Lanham, MD, USA

10:30 5C-3 (invited) PROGRESS IN LASER PRODUCED PAIR PLASMA JETS FOR LABORATORY ASTROPHYSICS ON THE NATIONAL IGNITION FACILITY

H. Chen

LLNL, Livermore, California

11:00 5C-4 TRAJECTORY CONTROL OF SMALL ROTATING PROJECTILES BY LASER DISCHARGES

A. Starikovskiy, C. Limbach, R. Miles

Princeton University, Princeton, NJ, United States

11:15 5C-5 TRANSIENT PLASMA PHOTONIC CRYSTALS FOR HIGH-POWER LASERS

G. Lehmann, K. -H. Spatschek

Theoretical Physics I, Heinrich-Heine University Duesseldorf, Duesseldorf, Germany

11:30 5C-6 DYNAMICS OF ATOMIC AND MOLECULAR EMISSION FEATURES FROM NANOSECOND, FEMTOSECOND LASER AND FILAMENT PRODUCED PLASMAS

S. S. Harilal¹, J. Yeak², B. E. Brumfield¹, M. C. Phillips¹

¹Pacific Northwest National Laboratory, Richland, WA, United States

²PM & AM, Inc., Tucson, AZ, United States

11:45 5C-7 MULTI-BEAM LASER-PLASMA INTERACTIONS: FROM ICF TO "PLASMA PHOTONICS" APPLICATIONS

P. Michel, D. Turnbull, C. Goyon, L. Divol, T. Chapman, B. B. Pollock, J. S. Ross, D. Mariscal, J. D. Moody

LLNL, Livermore, CA, United States

12:00 5C-8 APPLICATIONS OF LASER PLASMA DEPOSITION

M. Gupta, M. Shen, Z. Tchir, Y. Y. Tsui

ELECTRICAL AND COMPUTER ENGINEERING, University of Alberta, EDMONTON, AB, CANADA

12:15 5C-9 ENHANCEMENT OF BETATRON X-RAYS IN A LASER-PLASMA ACCELERATOR

L. Chen

Institute of Physics, Chinese Academy of Sciences, Beijing, China

Session 5D: 4.3 Special Session on Shiva Star

Wednesday, June 22 10:00-12:00, KCC 301

Session Chair: Don Shiffler, Air Force Research Laboratory

10:00 5D-1 (invited) ORIGIN AND EARLY HISTORY OF THE SHIVA PROGRAM FOR HIGH-POWER SOFT X-RAY GENERATION

P. J. Turchi¹, W. L. Baker²

¹Retired, Santa Fe, NM, United States

²Retired, Albuquerque, NM, United States

10:30 5D-2 (invited) RESULTS FROM COMPRESSION OF FIELD REVERSED CONFIGURATION USING IMPLODING SOLID LINER

J. H. Degnan¹, C. Grabowski¹, M. T. Domonkos¹, E. L. Ruden¹, D. J. Amdahl¹, M. H. Frese², S. D. Frese², G. A. Wurden³, T. E. Weber³

¹Directed Energy Directorate, Air Force Research Laboratory, Kirtland AFB, NM, United States

²NumerEx LLC, Albuquerque, NM, United States

³Los Alamos National Laboratory, Los Alamos, NM, United States

11:00 5D-3 (invited) THE FIELD-REVERSED CONFIGURATION HEATING EXPERIMENT ON SHIVA STAR

C. Grabowski¹, J. H. Degnan¹, M. Domonkos¹, D. Amdahl¹, E. Ruden¹, G. A. Wurden², T. E. Weber²

¹Directed Energy Directorate, Air Force Research Laboratory, Kirtland AFB, NM, United States

²Los Alamos National Laboratory, Los Alamos, NM, United States

11:30 5D-4 (invited) SHIVA STAR: PIONEERING MEGAGAUSS SCIENCE AND TECHNOLOGY

M. T. Domonkos¹, J. H. Degnan¹, W. Baker¹, T. C. Grabowski¹, P. J. Turchi²

¹RDHP, AFRL, Kirtland AFB, NM, United States

²NA, NA, Santa Fe, NM, United States

Session 5E: 1.6 Plasma Chemistry I

Wednesday, June 22 10:00-12:30, KCC 303

Session Chair: Miles Turner, Dublin City University

10:00 5E-1 (invited) DIRECT CONVERSION OF METHANE BY AN ATMOSPHERIC-PRESSURE DIELECTRIC BARRIER DISCHARGE MICROPLASMA

J. Toth, D. Lacks, M. Sankaran

Case Western Reserve University, Cleveland, OH, USA

10:30 5E-2 OPTIMIZING REMOTE PLASMA SOURCES FOR SELECTIVE ETCHING

S. Huang¹, M. J. Kushner¹, V. Volynets², S. Lee², I. -C. Song², S. Lu², J. R. Hamilton²,

J. Tennyson²

¹University of Michigan, Ann Arbor, MI, United States

²Samsung Electronics Co., Ltd., Suwon, Republic of Korea

10:45 5E-3 THE CURRENT WAVEFORM IN REACTIVE HIGH POWER IMPULSE MAGNETRON SPUTTERING

J. T. Gudmundsson^{1,2}, D. Lundin³, M. A. Raadu², T. M. Minea³, N. Brenning²

¹Department of Space and Plasma Physics, KTH Royal Institute of Technology, Stockholm, Sweden

²Science Institute, University of Iceland, Reykjavik, Iceland

³Laboratoire de Physique des Gaz et Plasmas - LPGP,, Universite Paris-Sud, Orsay, France

11:00 5E-4 Different impacts of working gas and shielding gas on atomic O density in cold plasma jets

Y. Xian, Y. Yue

State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China

11:15 5E-5 STUDY OF NITROGEN REACTION KINETICS IN AN INDUSTRIAL OZONE GENERATOR

D. E. Guerrero¹, M. T. Feurer¹, A. Freilich¹, J. L. Lopez¹, S. Seyrling², L. Ramoino²

¹Physics, Seton Hall University, South Orange, NJ, United States

²Degremont Technologies, Dubendorf, Switzerland

11:30 5E-6 PLASMA KINETICS OF A NANOSECOND PULSED HUMID ATMOSPHERIC PRESSURE PLASMA JET

S. Yatom, Y. Luo, Q. Xiong, P. J. Bruggeman

university of Minnesota, Minneapolis, United States

11:45 5E-7 EFFECT OF TRANSLATIONAL NONEQUILIBRIUM AND "HOT" ATOMS REACTIONS ON ACTIVE SPECIES PRODUCTION IN HIGH-VOLTAGE PULSED DISCHARGES

A. Starikovskiy¹, A. Ponomarev², N. Aleksandrov³

¹Princeton University, Princeton, NJ, United States

²SSC Keldysh Research Center, Moscow, Russia

³Moscow Institute of Physics and Technology, Dolgoprudny, Russia

12:00 5E-8 THE ROLE OF THE SINGLET METASTABLES IN CAPACITIVELY COUPLED OXYGEN DISCHARGES

J. T. Gudmundsson^{1,2}, H. Hannesdottir¹

¹Science Institute, University of Iceland, Reykjavik, Iceland

²Department of Space and Plasma Physics, KTH - Royal Institute of Technology,, Stockholm, Sweden

12:15 5E-9 ZERO DIMENSIONAL MODEL OF ATMOSPHERIC SMD DISCHARGE AND AFTERGLOW IN HUMID AIR

R. T. Smith¹, E. Kemaneci¹, B. Offerhaus², K. Stapelmann², R. -P. Brinkmann¹

¹Theoretische Elektrotechnik, Ruhr Universitaet Bochum, Bochum, NRW, Germany

²Allgemeine Elektrotechnik und Plasmatechnik, Ruhr Universitaet Bochum, Bochum, NRW, Germany

Session 5F: 6.1 Optical, X-ray, FIR and Microwave Diagnostics III

Wednesday, June 22 10:00-12:00, KCC 305

Session Chair: Ed Barnat, Sandia National Laboratories

10:00 5F-1 DEVELOPMENT OF AN ISOELECTRONIC LINE RATIO TECHNIQUE FOR IMPROVED DIAGNOSING OF TEMPERATURE AND TEMPERATURE GRADIENTS IN PHOTOIONIZED PLASMA

T. Lane¹, M. Koepke¹, M. Flaugh¹, T. Steinberger¹, G. Loisel², J. Bailey², G. Rochau²

¹Physics, West Virginia University, Morgantown, WV, United States

²Sandia National Labs, Albuquerque, NM, United States

10:15 5F-2 DEVELOPMENT OF CAVITY ENHANCED RAMAN AND THOMSON SCATTERING DIAGNOSTICS

A. J. Friss, C. M. Limbach, A. P. Yalin

Mechanical Engineering, Colorado State University, Fort Collins, CO, United States

10:30 5F-3 DEVELOPMENT AND CALIBRATION OF ELECTRON DENSITY MEASUREMENTS IN ARGON PLASMA USING LASER COLLISION-INDUCED FLUORESCENCE

E. Barnat

Sandia National Laboratories, Albuquerque, NM, United States

10:45 5F-4 TEMPERATURE AND ABSOLUTE OH DENSITY MEASUREMENT BY THE RELATIVE EMISSION SPECTROSCOPY IN DIFFUSE ATMOSPHERIC PRESSURE RF GLOW DISCHARGES

Y. Du^{1,2}, Z. Peng², Y. Ding², N. Sadeghi³, P. J. Bruggeman¹

¹Mechanical Engineering, University of Minnesota, Minneapolis, MN, United States

²Thermal Engineering, Tsinghua University, Beijing, China

³Université Grenoble-Alpes & CNRS, Grenoble, France

11:00 5F-5 A COMPUTATIONALLY ASSISTED SPECTROSCOPIC TECHNIQUE TO MEASURE SECONDARY ELECTRON EMISSION COEFFICIENTS IN TECHNOLOGICAL RF PLASMAS

M. Daksha¹, B. Berger^{1,2}, E. Schuengel¹, M. Koepke¹, J. Schulze¹, I. Korolov³, A. Derzsi³, Z. Donko³

¹Department of Physics, West Virginia University, Morgantown, WV, United States

²Institute for Electrical Engineering, Ruhr-University Bochum, Bochum, Germany

³Wigner Research Centre for Physics, Hungarian Academy of Sciences, Budapest, Hungary

11:15 5F-6 EXPERIMENTAL STUDY OF ULTRA-FAST ELECTRIC FIELD IN AN ATMOSPHERIC PRESSURE DISCHARGE IN A PIN TO PLATE GEOMETRY

S. Iseni, S. Dozias, J. -M. Pouvesle, E. Robert

CNRS/Universite d'Orleans, GREMI, Orleans, France

11:30 5F-7 (invited) THE DIFFERENTIAL ABSORPTION HARD X-RAY (DAH) SPECTROMETER AT THE Z FACILITY*

K. S. Bell, C. A. Coverdale, D. J. Ampleford, J. E. Bailey, G. P. Loisel, V. Harper-Slaboszewicz, J. Schwarz, E. Christener, C. Turner, L. A. McPherson, C. J. Bourdon, M. D. Kernaghan, M. A. Sullivan, C. M. Kirtley, M. E. Cuneo

Sandia National Laboratories, Albuquerque, NM, United States

Session 3P: 1.2 Computational Plasma Physics Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Thomas Mussenbrock, Ruhr University Bochum

3P-1 NUMERICAL THERMALIZATION IN ONE- AND TWO-DIMENSIONAL PARTICLE-IN-CELL SIMULATIONS WITH MONTE-CARLO COLLISIONS

P. Y. Lai¹, Y. R. Linliu¹, L. Chen², S. -H. Chen¹

¹Department of Physics, National Central University, Jhongli, Taiwan

²Department of Physics and Astronomy, University of California, Irvine, Irvine, CA, USA

3P-2 A PARALLEL ELECTROSTATIC SOLVER FOR XOOPIC CODE

Y. Choi¹, J. P. Verboncoeur²

¹Institute for Cyber-Enabled Research, Michigan State University, East Lansing, MI, United States

²Computational Mathematics, Science and Engineering Department, Michigan State University, East Lansing, MI, United States

3P-3 INCORPORATING RADIATION TRANSPORT INTO PARTICLE-BASED PLASMA SIMULATIONS

A. Fierro¹, B. Scheiner^{1,2}, C. Moore¹, B. Yee¹, M. Hopkins¹

¹Sandia National Laboratories, Albuquerque, NM, United States

²Department of Physics and Astronomy, University of Iowa, Iowa City, IA, United States

3P-4 NOVEL TECHNIQUES FOR MODELING OF LASER-PLASMA INTERACTIONS IN PARTICLE-IN-CELL CODES FOR USE IN HOHLRAUM SIMULATIONS

C. H. Thoma, D. R. Welch, R. E. Clark, D. V. Rose

Voss Scientific, LLC, Albuquerque, NM, United States

3P-5 STUDY OF THE DISSIPATION OF RESIDUAL PLASMA WITH A ONE-DIMENSIONAL PARTICLE-IN-CELL MODEL IN A VACUUM CIRCUIT BREAKER

Y. Mo, Z. Shi, S. Jia, L. Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

3P-6 LANDAU-FLUID CLOSURES AND THEIR IMPLEMENTATION IN BOUT++ WITH NON-FOURIER METHODS

O. Chapurin¹, A. Smolyakov¹, M. Umansky²

¹University of Saskatchewan, Saskatoon, Canada

²Lawrence Livermore National Laboratory, Livermore, USA

3P-7 BENCHMARKING MULTI-FLUID PLASMA-ELECTROMAGNETIC MODELS

K. Beckwith¹, P. H. Stoltz¹, M. Kundrapu¹, J. W. Luginsland²

¹Tech-X Corp., Boulder, CO, United States

²Air Force Office of Scientific Research, Arlington, VA, United States

3P-8 NERNST EFFECT IN HYDRA

J. M. Koning¹, M. M. Marinak²

¹STE-ENG/CED, LLNL, Livermore, CA, United States

²WCI-DP/DPD, LLNL, Livermore, CA, United States

3P-9 GPU BATEMAN SOLVER FOR NUCLEAR BURN UP CALCULATIONS

J. C. Chorley¹, L. Morgan², R. M. Sharples¹, N. A. Dipper¹, R. J. Akers²

¹Department of Physics, Durham University, Durham, United Kingdom

²Culham Centre for Fusion Energy, Oxfordshire, United Kingdom

3P-10 SOLUTION OF BOLTZMANN EQUATION WITH LANDAU COLLISION

INTEGRAL AND ITS APPLICATION TO PLASMA WITH HIGH LEVEL OF COLLISIONS

E. V. Rostomyan

theoretical, Institute of Radiophysics & Electronics National Ac Sci of Armenia, Ashtarak, Armenia

3P-11 DEVELOPMENT OF PIC-DSMC AIR BREAKDOWN MODEL IN THE PRESENCE OF A DIELECTRIC: BREAKDOWN TIME SENSITIVITY TO SELF-ABSORPTION AND PHOTOEMISSION

C. H. Moore, A. S. Fierro, H. P. Hjalmarnson, R. E. Jorgenson, M. M. Hopkins, L. B. Biedermann
Sandia National Labs, Albuquerque, NM, United States

Session 3P: 1.5 Dusty Plasmas and Strongly Coupled Plasmas Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Peter Hartmann, Wigner Research Centre for Physics

3P-12 SIMULATIONS OF THE NEON DC DISCHARGE WITH DUST-VOID

V. V. Shumova, D. N. Polyakov, L. M. Vasilyak

Joint Institute for High Temperatures RAS, Moscow, Russian Federation

3P-13 DYNAMIC PROPERTIES OF DUSTY PLASMAS CONSISTING OF FINITE-SIZE PARTICLE

Y. V. Arkhipov¹, A. Askaruly¹, A. E. Davletov¹, L. T. Yerimbetova¹, I. M. Tkachenko²

¹Faculty of physics and technology, Al-Farabi Kazakh National University, IETP, Almaty, Kazakstan

²Instituto de Matematica Pura y Aplicada, Universidad Politecnica de Valencia, Valencia, Spain

3P-14 HOW THE EMISSION SPECTROSCOPY CAN DETERMINE THE EFFECTS OF DUST PARTICLES ON THE PLASMA

S. Labidi¹, E. Von Wahl², J. -F. Lagrange³, T. Lecas¹, H. Kersten¹, T. Gibert², M. Mikikian¹

¹UMR7344 CNRS/UNIV ORLEANS, GREMI Laboratory, Orleans, France

²IEAP, Leibnitzstrabe, Universiity of kiel, Kiel, Allemagne

³UMR7344 CNRS/UNIV ORLEANS, GREMI Laboratory, Bourges, France

3P-15 DIFFUSION IN SINGLE LAYER QUASI-MAGNETIZED STRONGLY COUPLED DUSTY PLASMAS

P. Hartmann¹, J. C. Reyes², L. S. Matthews², T. W. Hyde²

¹Dept. of Complex Fluids, Wigner Research Centre of the Hungarian Academy of Sciences, Budapest, Hungary

²Center for Astrophysics, Space Physics and Engineering Research, Baylor University, Waco, TX, USA

3P-16 INTERACTION OF TWO DUST ACOUSTIC SOLITARY WAVES IN A MULTICOMPONENT SUPERHERMAL PLASMA

K. Singh, B. S. Chahal, N. S. Saini

Department of Physics, Guru Nanak Dev university, Amritsar, Punjab, India

3P-17 MASS SPECTROMETRY TO CONTROL DUST PARTICLE GROWTH IN AN ACETYLENE PLASMA

S. Labidi¹, E. Von Wahl², H. Kersten², T. Gibert¹, M. Mikikian¹

¹UMR7344 CNRS/Univ, GREMI Laboratory, Orleans, France

²IEAP, Leibnitzstraße, University of Kiel, Kiel, Germany

Session 3P: 1.6 Plasma Chemistry Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Vasco Guerra, Instituto Superior Tecnico, Lisbon, Portugal

3P-18 MODELING OF REDUCED AIR PLASMA REACTIONS FOR NANOSECOND-PULSE DIELECTRIC BARRIER DISCHARGE

S. Ahn¹, J. Chae¹, H. -J. Kim¹, K. H. Kim¹, S. Y. Jung²

¹Department of Mechanical and Aerospace Engineering, Seoul National University, Seoul, South Korea

²Agency for Defence Development, Daejeon, South Korea

3P-19 INDUTIVELY PLASMA ETCHING OF GAAS IN CL₂/AR/O₂ CHEMISTRY WITH PHOTORESIST MASK

K. Liu, X. M. Ren, Y. Q. Huang, S. W. Cai, X. F. Duan, Q. Wang, C. Kang, J. S. Li, Q. T. Chen, J. R. Fei

State Key Laboratory of Information Photonics and Optical Communications, Beijing University of Posts and Telecommunications, Beijing, China

3P-20 EFFECT OF THE IRON PRECURSOR ON THE IN-SITU FUNCTIONALIZATION OF DEPOSITED GRAPHENE NANOFLEAKS FOR CATALYST APPLICATIONS

U. Legrand, J. -L. Meunier, D. Berk

Chemical Engineering, McGill University, Montreal, Canada

3P-21 PLASMA CRACKING METHANE FOR HYDROGEN PRODUCTION IN A PULSED DIELECTRIC BARRIER DISCHARGE

Y. Gao¹, S. Zhang², R. Wang², C. Ren², X. Tu³, T. Shao²

¹School of Chemical Engineering & Pharmacy, Wuhan Institute of Technology, Wuhan, China

²Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

³Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, UK

3P-22 KINETIC MODELLING OF NON-EQUILIBRIUM AIR PLASMA GENERATED BY ENERGETIC PHOTON FLASH AND ELECTRON BEAM

M. Maulois^{1,2}, M. Ribiere², O. Eichwald¹, M. Yousfi¹, B. Azais³

¹LAPLACE, University Paul Sabatier, TOULOUSE, France

²CEA/DAM, GRAMAT, France

³DGA, PARIS, France

3P-23 PRODUCTION OF OXYGEN PLASMA BY A STRONG IONIZATION DISCHARGE AND APPLICATION FOR NITRIC OXIDE CONTROL

M. Bai

Department of Physics, Dalian Maritime University, Dalian, Liaoning, China

Session 3P: 2.6 Non-Fusion Microwave Systems Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: David Abe, NRL

3P-24 NEXT GENERATION IONOSPHERIC HEATER ANTENNA

B. Esser, J. Dickens, J. Mankowski, A. Neuber

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

3P-25 EXPERIMENTAL ANALYSIS ON HAZARDNESS OF RF FRONT-END SYSTEM DAMAGED BY HIGH POWER ELECTROMAGNETIC PULSE

Y. -M. Cho, J. -H. Rhee, J. -E. Baek, S. -H. Kim, C. -J. Lee, K. -C. Ko

Hanyang University, Seoul, South Korea

Session 3P: 2.7 Microwave Plasma Interaction Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Remington Reid, US AFRL

3P-26 ATTENUATION OF ELECTROMAGNETIC WAVES BY PLASMA-COVERED CAVITY

X. He¹, Y. Zhang²

¹College of Science, Hohai university, Nanjing, China

²College of Science, Nanjing University of Science & Technology, Nanjing, China

3P-27 LOW DENSITY, LOW TEMPERATURE PLASMAS GENERATED AND SUSTAINED INDEFINITELY USING A FOCUSED MICROWAVE BEAM.

R. Reid¹, B. Hoff¹, D. French², P. Lepell²

¹US AFRL, Albuquerque, NM, United States

²Leidos, Albuquerque, NM, United States

3P-28 TOWARD AN EXPERIMENT OF PLASMA WAKEFIELD FORMATION BY HIGH POWER MICROWAVES

G. Shafir¹, M. Siman-Tov¹, A. Shlapakovski¹, Y. Bliokh¹, R. Gad¹, Y. Hadas¹, A. Fisher¹, Y. E. Krasik¹, D. Zolotukhin², V. Godyak³, V. V. Rostov⁴

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3P-29 A TUNABLE MICROSTRIP PHOTONIC CRYSTAL BANDGAP DEVICE WITH PLASMA ELEMENTS

B. Wang, M. Cappelli

Mechanical Engineering, Stanford University, Stanford, United States

Session 3P: 2.8 THz Sources, Radiation & Applications Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Eric R Mueller, Coherent, Inc.

3P-30 RESEARCH ON TRANSMISSION CHARACTERISTIC OF TERAHERTZ WAVES IN HOMOGENEOUS PLASMA GENERATED BY DC GLOW DISCHARGE

S. Wei, C. S. Guo, H. Lei, L. Hong, X. Ming, M. Cheng

Applied Physics Department, Xi'an Uniecersity of Technology, Xi'an Shaanxi, China

3P-31 EFFECT OF RELATIVISTIC NONLINEARITY ON THE GENERATION OF TERAHERTZ RADIATION

R. Gill, H. K. Malik

DEPARTMENT OF PHYSICS, INDIAN INSTITUTE OF TECHNOLOGY DELHI (IITD), NEW DELHI, India

Session 3P: 4.2 Particle Acceleration with Laser and Beams Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Louise Willingale, university of Michigan

3P-32 DEPHASING LENGTH OPTIMIZATION BY CONTROLLING PLASMA DENSITY
IN LASER WAKEFIELD ACCELERATORS

M. Kaur, D. N. Gupta

Department of Physics & Astrophysics, University of Delhi, Delhi, India

3P-33 WITHDRAWN

3P-34 EFFECT OF PREPLASMA ON DOUBLE PULSE IRRADIATION OF TARGETS FOR
PROTON ACCELERATION

S. Kerr¹, M. Z. Mo¹, R. Masud¹, X. Jin¹, L. Manzoor¹, H. F. Tiedje¹, Y. Tsui¹, R. Fedosejevs¹,
A. Link², P. Patel², H. S. McLean², A. Hazi², H. Chen², L. Ceurvorst³, P. Norreys³

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³Department of Physics, University of Oxford, Oxford, UK

Session 3P: 4.3 Radiation Physics & X-ray Lasers Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Gregory A Rochau, Sandia National Laboratories

3P-35 1-D NON-LTE K- AND L-SHELL SPECTROSCOPIC SIMULATION OF KR GAS
PUFF ON Z

A. Dasgupta¹, J. L. Giuliani¹, N. D. Ouart¹, R. W. Clark², J. P. Apruzese³, D. J. Ampleford⁴,
S. B. Hansen⁴

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⁴Sandia National Laboratories, Albuquerque, NM, United States

Session 3P: 4.5 Laser Produced Plasmas Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Mingsheng Wei, General Atomics

3P-36 PULSED LASER PRODUCED PLASMA FOR SELF-ASSEMBLED GROWTH OF AL-
DOPED ZNO NANOSTRUCTURES AT ROOM TEMPERATURE

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¹Multimedia University, Selangor, Malaysia

²University of Malaya, Kuala Lumpur, Malaysia

3P-37 APPLICATION OF LASER INDUCED BREAKDOWN SPECTROSCOPY (LIBS) FOR
DETECTION OF LEAD CONTAMINANTS IN WATER USING WOOD SAMPLE
SUBSTRATES

T. A. Keyeta, H. F. Tiedje, R. Fedosejevs

Electrical and Computer Engineering, University of Alberta, Edmonton, Canada

3P-38 INTERFEROMETRIC CHARACTERIZATION OF PREPLASMA DENSITY FOR
HIGH INTENSITY LASER PLASMA INTERACTION STUDIES

L. Manzoor, A. Longman, C. Curry, F. Liza, H. Tiedje, R. Fedosejevs

ECE, University of Alberta, Edmonton, Canada

3P-39 GENERATION OF INTENSE MAGNETIC FIELDS USING ORBITAL ANGULAR MOMENTUM MODES OF LIGHT IN PLASMAS

A. Longman, F. Liza, R. Fedosejevs

Electrical and Computer Engineering, University of Alberta, Alberta, Canada

3P-40 SPATIOTEMPORAL EVOLUTION OF GAUSSIAN LASER PULSE IN MULTI-IONS INHOMOGENEOUS PLASMAS

M. R. Jafari Milani

Plasma Physics Research School, NSTRI, Tehran, Iran

3P-41 EFFECT OF LASER BEAM EVOLUTION ON THE ELECTRON ACCELERATION IN PLASMA

M. R. Jafari Milani

Plasma Physics Research School, NSTRI, Tehran, Iran

3P-42 ROLE OF COULOMB FORCES AND RADIATION FRICTION IN LASER PRODUCTION OF HIGH DENSITY ELECTRON BEAMS FROM SOLID PLAZMA-TARGETS

H. K. Avetissian, S. S. Israelyan, G. F. Mkrтчian, K. V. Sedrakian

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

Session 3P: 4.7 Plasma Material Interactions Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Sivanandan Harilal, Pacific Northwest National Laboratory

3P-43 SYNTHESIS OF FREE-STANDING CARBON NANOTUBE ELECTRODES USING PLASMA-ENHANCED CHEMICAL VAPOR DEPOSITION

W. S. Chang

Nanomechanics, Korea Institute of Machinery and Materials, Daejeon, South Korea

3P-44 GREEN PLASMA ROUTE FOR NITROGEN FUNCTIONALIZED VERTICAL GRAPHENE SYNTHESIS USING SUSTAINABLE RESOURCES

R. S. Rawat¹, Y. L. Woo¹, B. Ouyang¹, S. Bhatti¹, Z. Zheng²

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3P-45 EFFECT OF TARGET POISONING ON THE GROWTH OF INTERFACIAL LAYER DURING THE INITIAL STAGE OF DC MAGNETRON SPUTTERING DEPOSITION

J. Y. Lee, W. S. Kang, M. Hur, J. -O. Lee, Y. -H. Song

Extreme environment/Plasma laboratory, Korea Institute of Machinery and Materials, Dae jeon, South Korea

3P-46 CHARACTERIZATION OF LASER PLASMA INDUCED ALUMINUM OXIDE NANOPARTICLES IN WATER

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3P-47 INFLUENCE OF NITROGEN FLOW RATE ON OPTICAL AND STRUCTURAL PROPERTIES OF SIOXNY THIN FILMS AND PLASMA PREPARED BY CAPACITIVELY COUPLED PLASMA

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Laser & plasma research institute, Shahid Beheshti university, Tehran, Iran, Tehran, Iran

3P-48 WITHDRAWN

3P-49 WITHDRAWN

3P-50 SIMULATIONS OF PLASMA SHEATHS USING CONTINUUM KINETIC MODELS

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¹Aerospace and Ocean Engineering, Virginia Tech, Blacksburg, VA, United States

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3P-51 EXPERIMENTAL EVALUATION OF ANODE SURFACE COOLING ON SELF-ORGANIZATION PATTERN FORMATION IN ATMOSPHERIC DC GLOWS

Y. E. Kovach, J. E. Foster

Nuclear Engineering and Radiological Science, University of Michigan-Ann Arbor, Ann Arbor, MI, United States

3P-52 STUDY OF THE LASER PRODUCED PLASMAS USING THE DUAL-WAVELENGTHS INTERFEROMETRY

Z. Yang¹, Q. Wang², X. Li¹, J. Wu¹, J. Han¹, S. Jia¹, A. Qiu¹

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²School of Sciences, Xi'an University of Technology, Xi'an, China

Session 3P: 5.1 Nonequilibrium Plasma Applications Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Luc Stafford, Universite de Montreal

3P-53 DEVELOPMENT OF A PLASMA ASSISTED LEAN PREMIXED FUEL INJECTOR FOR GAS TURBINE ENGINES

F. Gomez del Campo, D. Weibel, J. Heebner

Mechanical and Aerospace Engineering, Case Western Reserve University, Cleveland, Ohio, United States

3P-54 DEVELOPMENT OF A HIGHLY POROUS ALUMINA-BASED STRUCTURE ON AN ALUMINUM SURFACE USING APPJ TREATMENT

S. Asadollahi¹, M. Farzaneh¹, L. Stafford²

¹Canada Research Chair on Atmospheric Icing Engineering of Power Networks (INGIVRE), University of Quebec at Chicoutimi, Chicoutimi, QC, Canada

²Departement of Physics, University of Montreal, Montreal, QC, Canada

3P-55 NONEQUILIBRIUM HIGH PRESSURE HELIUM PLASMA PRODUCED BY PIEZOELECTRIC TRANSFORMER

P. Norgard, S. D. Kovaleski

Department of Electrical and Computer Engineering, University of Missouri Columbia, Columbia, MO, United States

3P-56 THE EFFECT OF SEED ELECTRONS ON THE REPEATABILITY OF FAST IONIZATION WAVE

L. Nie, Y. Qiu, X. Lu

State Key Laboratory of Advanced Electromagnetic, Huazhong University of Science & Technology, Wuhan, China

3P-57 MICROWAVE PLASMA-ASSISTED DEPOSITION OF BORON DOPED SINGLE CRYSTAL DIAMOND

T. A. Grotjohn, A. Bhattacharya, S. Zajac

ECE Dept., Michigan State University, East Lansing, MI, United States

3P-58 THE INFLUENCE OF GAS PRESSURE, VOLTAGE AND FREQUENCY ON PLASMA PROPAGATION IN TUBE

Y. Qiu, L. Nie, X. Lu

Huazhong University of Science & Technology, Wuhan, Hubei, China

3P-59 THE EFFECT OF MIXING OXYGEN TO ARGON COLD ATMOSPHERIC PRESSURE PLASMA JET

A. H. Basher¹, J. Q. Almarashi¹, A. -A. H. Mohamed¹, S. A. Ouf²

¹Physics, Taibah University, Madina, Saudi Arabia

²Botany, Cairo University, Giza, Egypt

3P-60 ON THE MECHANISMS OF COLD ATMOSPHERIC PRESSURE DIRECT CURRENT DRIVEN AIR/N₂ PLASMA JETS

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²INP Greifswald, Greifswald, Germany

3P-61 A MULTI-ELECTRODE RF CAPACITIVELY COUPLED HE/O₂ PLASMA JET - EXPERIMENTAL AND SIMULATION STUDY

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¹Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan

²Industrial Technology Research Institute, Hsinchu, Taiwan

Session 3P: 5.5 Environmental and Industrial Applications Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Sylvain Coulombe, McGill University

3P-62 NON-LTE TIME-DEPENDENT PLASMA CHEMISTRY MODEL OF E-BEAM NOX REMEDIATION FROM SURROGATE FLUE GAS MIXTURES

T. B. Petrova¹, M. F. Wolford¹, G. M. Petrov¹, J. L. Giuliani¹, F. Hegeler¹, M. C. Myers¹,

J. D. Sethian¹, B. T. Fisher², H. D. Ladouceur²

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²Chemistry Division, NRL, Washington, United States

3P-63 REMOVAL OF MICROCYSTIN-LR VIA ADVANCED OXIDATION PROCESSES USING A BUBBLING PLASMA JET

J. Lai, J. E. Foster

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3P-64 RESEARCH OF DEPOSITING SiO₂-LIKE FILM ON EPOXY RESIN SURFACE USING ATMOSPHERIC PRESSURE PLASMA JET

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²Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

3P-65 RF TEST AND THERMAL ANALYSIS ON HIGH POWER WATERLOAD FOR 30 KW MICROWAVE OF 2450 MHZ APPLICATIONS

H. Kim¹, H. Wi¹, S. Park¹, S. Seon¹, Y. Hong¹, J. Kim², S. Choi²

¹KSTAR Research Center, National Fusion Research Institute, Daejeon, South Korea

²Research and Development Division, Korea RF Co., Ltd., Anyang, South Korea

3P-66 PLASMA ENHANCED ATOMIC LAYER DEPOSITION AND LASER PLASMA DEPOSITION OF ULTRA-THIN ZNO FILMS FOR SCHOTTKY BARRIER DEVICES

M. Wei¹, T. Muneshwar², Y. Tsui¹, D. Barlage¹, K. Cadien²

¹Electrical and Computer Engineering, University of Alberta, Edmonton, Canada

²Chemical and Mineral Engineering, University of Alberta, Edmonton, Canada

3P-67 ASSESSMENT OF EFFICACY AND REACTIVE GAS SPECIES GENERATION FOR ORANGE JUICE DECONTAMINATION USING HIGH VOLTAGE ATMOSPHERIC COLD PLASMA

L. Xu¹, S. M. Sanders¹, B. Tao¹, K. M. Keener², A. L. Garner¹

¹Purdue University, West Lafayette, IN 47907, USA

²Iowa State University, Ames, IA 50011, USA

3P-68 OPTICAL ABSORPTION SPECTROSCOPY OF HIGH VOLTAGE, COLD ATMOSPHERIC PRESSURE PLASMAS

R. S. Brayfield II¹, S. M. Sanders¹, A. Jassem¹, M. Lauria¹, A. L. Garner¹, K. M. Keener²

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Session 3P: 5.6 Medical and Biological Applications Poster II

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Michael Keidar, George Washington University

3P-69 EFFECTS OF LOW TEMPERATURE ATMOSPHERIC PRESSURE PLASMA ON SKIN WOUND HEALING OF MICE IN VIVO

G. Xu¹, J. Cai², S. Chen¹, C. Yao¹, P. Li¹, X. Shi², G. -J. Zhang¹

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²Environment and Genes Related to Diseases Key Laboratory of Education Ministry, Xi'an, Shaanxi, China

3P-70 WITHDRAWN

3P-71 SURFACE MODIFICATION OF STARCH BY A DBD DISCHARGE WITH THE AID OF A FLUIDIZED BED.

E. A. Garcia-Guerrero, G. Lopez-Echavarria, M. Nieto-Perez, J. A. Huerta Ruelas, G. Mendez-Montealvo, G. Velazquez-delaCruz

CICATA Queretaro, Instituto Politecnico Nacional, Queretaro, Mexico

3P-72 PLASMA-ACTIVATED MEDIUM AND ITS MEDICAL AND BIOLOGICAL APPLICATIONS

H. Tanaka, M. Mizuno, F. Kikkawa, M. Hori

Nagoya University, Nagoya, Japan

3P-73 ANALYSIS OF DNA STRAND BREAKS INDUCED BY EXPOSURE TO AN ATMOSPHERIC PRESSURE PLASMA JET

H. Kurita, S. Miyachika, H. Yasuda, K. Takashima, A. Mizuno

Department of Environmental and Life Sciences, Toyohashi University of Technology, Toyohashi, Japan

3P-74 IMPACT OF SYNERGISM OF NITRITE AND HYDROGEN PEROXIDE ON CELL SURVIVALS IN PLASMA-ACTIVATED-MEDIUM (PAM)

N. Kurake¹, H. Tanaka¹, K. Ishikawa¹, K. Nakamura¹, H. Kajiyama¹, F. Kikkawa¹, T. Kondo², M. Mizuno¹, K. Takeda¹, H. Kondo¹, M. Sekine¹, M. Hori¹

¹Nagoya University, Nagoya, Japan

²Toyama University, Toyama, Japan

3P-75 ABOUT SELECTIVE NONTHERMAL STERILIZATION EFFECT OF HIGH INTENSITY PULSED ELECTRIC FIELDS IN AQUEOUS MEDIUM

E. Agarwal, I. Bosneaga

Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova

3P-76 NON-THERMAL PLASMA JET FOR TREATMENT OF NEUROBLASTOMA CANCER CELLS

M. Thiyagarajan, K. Patel

Plasma Engineering Research Lab (PERL), Texas A&M University - Corpus Christi, Corpus Christi, United States

3P-77 EFFECTIVE DECONTAMINATION OF SOFT RELINE-BASED ORAL CANCER OBTURATORS BY MEANS OF COLD ATMOSPHERIC PLASMA

V. Colombo¹, M. Gherardi¹, R. Laurita¹, A. Liguori¹, A. Stancampiano¹, B. Azzimonti², A. Cochis³, M. Petri³, R. Sorrentino², L. Rimondini³

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²Laboratory of Applied Microbiology, University of Piemonte Orientale, Novara, Italy

³Laboratory of Biomedical Materials, University of Piemonte Orientale, Novara, Italy

3P-78 EFFECTS OF LOW TEMPERATURE ATMOSPHERIC PRESSURE PLASMA ON CELL VIABILITY AND COLLAGEN SYNTHESIS OF FIBROBLASTS

X. -M. Shi, H. Ren, J. Liu, J. Cai

School of Public Health of Xi'an Jiaotong University, Xi'an, Shaanxi Province, China

3P-79 SELECTIVE PLASMA ACTIVATION OF SURFACES FOR BIO-SENSING APPLICATIONS

S. S. Rezaie^{1,2}, U. Rengarajan^{1,2}, H. Hoi^{1,2}, C. Montemagno^{1,2}, M. Gupta^{3,2}

¹CHEMICAL AND MATERIALS ENGINEERING, University of Alberta, EDMONTON, AB, Canada

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³INGENUITY LAB, UNIVERSITY OF ALBERTA, EDMONTON, AB, CANADA

Session 3P: 6.3 Electrical (Probe) Diagnostics Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chair: Yakov E Krasik, Physics Department, Technion

3P-80 HOW TO APPLY FLAT PROBE IN ASYMMETRICAL PLASMA?

A. Mustafaev¹, V. Soukhomlinov², A. Strakhova¹, A. Grabovskiy¹

¹National Mineral Resources University (Mining University), Saint-Petersburg, Russian Federation

²St. Petersburg State University, Saint-Petersburg, Russian Federation

3P-81 MEASUREMENTS OF ANISOTROPIC ION VELOCITY DISTRIBUTION FUNCTIONS: HOW TO ACHIEVE RELIABLE RESULTS?

V. Soukhomlinov¹, A. Mustafaev², O. Murillo²

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²National Mineral Resources University (Mining University), Saint-Petersburg, Russian Federation

3P-82 PLASMA ELECTRON SPECTROSCOPY IN MICROHOLLOW DISCHARGE WITH INTEGRATED WALL PROBE

S. F. Adams¹, J. A. Miles¹, V. I. Demidov¹, B. A. Tolson², A. L. Hensley²

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²UES Inc., Dayton, Ohio, United States

3P-83 INVESTIGATION OF PLASMA PARAMETERS IN DUAL ANTENNA CF₄/AR/O₂ INDUCTIVELY COUPLED PLASMA

S. Park¹, D. Han¹, S. Y. Moon^{1,2}

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²Department of Quantum System Engineering, CHONBUK NATIONAL UNIVERSITY, CHONBUK JEONJUSI, South Korea

3P-84 ELECTRIC PROBE DIAGNOSTICS OF DC ARC STREAM-ARGON PLASMA JET IN ATMOSPHERIC PRESSURE

O. Hurba, M. Hrabovsky

Thermal Plasma, Institute of Plasma Physics AS CR, v.v.i., Prague, Czech Republic

3P-85 PHOTOELECTRIC CHARACTERISTICS OF VOLUME DIFFUSE DBD IN AIR AND WATER MIST

Y. Gan^{1,2}, B. Chen^{2,3}, L. Wang^{2,3}, C. Zhu¹, W. Cai^{2,3}, X. Gao^{2,3}, J. Fei¹, X. He^{2,3}, Y. Jiang³

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³Hohai University Nantong Institute of Marine and Offshore Engineering, Nantong 226300, China

3P-86 A FAST METHOD FOR OBTAINING ELECTRON ENERGY DISTRIBUTION FUNCTION BY USING SAVITZKY GOLAY TECHNIQUE

D. -H. Kim¹, I. -S. Park², H. -J. Kang², K. -H. Kim², C. -W. Chung²

¹Nanoscale Semiconductor Engineering, Hanyang University, Seoul, South Korea

²Electrical Engineering, Hanyang University, Seoul, South Korea

3P-87 TRIPLE PROBE MEASUREMENTS IN HIPIMS PLASMA

F. Lockwood Estrin, J. W. Bradley

Dept. of Electrical Engineering and Electronics, University of Liverpool, Liverpool, UK

3P-88 REDUCING UNCERTAINTY IN RELATIVE LINE INTENSITY METHOD CALCULATIONS OF ELECTRON TEMPERATURE MEASUREMENTS FROM OPTICAL EMISSION SPECTROSCOPY

A. M. Ferrar, A. L. Winfrey

Nuclear Engineering Program, University of Florida, Gainesville, FL, United States

Session 3P: 7.4 Compact Pulsed Power and Applications Poster

Poster Session

Wednesday, June 22 14:30-16:00, KCC 101, 103, 105

Session Chairs: Koichi Takaki, Iwate University

Masahiro Akiyama, Iwate University

3P-89 DESIGN OF MAGNETIC SWITCH RESET CIRCUIT USING CIRCUIT ELEMENTS IN MPC SYSTEMS

J. -H. Hwang, J. -H. Rhee, K. -C. Ko

Hanyang University, Seoul, South Korea

3P-90 FRACTURING EFFECT OF UNDERWATER SHOCK WAVES GENERATED BY PLASMA-IGNITED ENERGETIC MATERIALS EXPLOSION

Q. Liu, H. Zhou, J. Wu, R. Han, Y. Jing, Y. Zhang, A. Qiu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

3P-91 INFLUENCE OF ELECTRICAL CONDUCTIVITY AND PH ON HYDROGEN PRODUCTION USING PULSED DISCHARGE OVER THE WATER SURFACE

T. Ihara¹, Y. Ide¹, H. Nagata², Y. Yagyu¹, T. Ohshima¹, H. Kawasaki¹, Y. Suda¹

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²Department of Chemical and Biological Engineering, National Institute of Technology, Sasebo College, Sasebo, Nagasaki, Japan

3P-92 OPTICAL RESEARCH OF NANOSECOND PULSE DISCHARGES IN OVERSTRAINED AIR GAPS

E. J. Gurbanov

"Azersu" OJSC, Baku, Azerbaijan

3P-93 PULSED PLASMA ACCELERATOR FOR STEEL SAMPLES SURFACE MODIFICATION

A. Zhukeshov, A. Gabdullina, A. Amrenova, Z. Moldabekov, K. Serik

Plasma physics, Research Institute of Experimental and Theoretical Physics, Almaty, Kazakstan

3P-94 TRIBOLUMINESCENCE X-RAY SOURCE BY CONTACTING DIFFERENT MATERIALS AND ROTATING IT

S. Furuya

Saitama Institute of Technology, Fukaya, Japan

3P-95 HIGH VOLTAGE, FAST RISE NANOSECOND PULSERS

T. M. Ziemba, K. E. Miller, J. R. Prager, I. Slobodov, J. Picard

Eagle Harbor Technologies, Inc., Seattle, WA, United States

Session PL6: NPSS Birdsall Award - Mark Kushner

Wednesday, June 22 13:30-14:30, Eric Harvie Theatre

Session Chair: Don Shiffler, Air Force Research Laboratory

13:30 PL6-1 ENABLING TECHNOLOGY INNOVATION THROUGH PLASMA MODELING: BIOTECHNOLOGY AS THE NEXT FRONTIER

M. J. Kushner

University of Michigan, Ann Arbor, MI, United States

Session 6A: 1.1 Basic Phenomena II

Wednesday, June 22 16:00-18:00, KCC 201

Session Chair: SHANTANU KUMAR KARKARI, INSTITUTE FOR PLASMA RESEARCH

16:00 6A-1 NONLINEAR CONVECTIVE HEAT TRANSPORT IN MULTIPLE INTERACTING MAGNETIZED ELECTRON TEMPERATURE FILAMENTS

R. D. Sydora¹, B. Van Compernelle², G. Morales², J. Maggs², S. Karbasheski¹

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²Physics and Astronomy, University of California, Los Angeles, California, USA

16:15 6A-2 THEORY OF SHEATHS NEAR POSITIVELY BIASED ELECTRODES

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²Sandia National Laboratories, Albuquerque, New Mexico, United States

16:30 6A-3 (invited) HYSTERESIS EFFECTS AND CONFINEMENT OF BEAM ELECTRONS IN CAPACITIVE DISCHARGES

S. Wilczek¹, J. Trieschmann¹, R. P. Brinkmann¹, J. Schulze², E. Schuengel², A. Derzsi³, I. Korolov³, P. Hartmann³, Z. Donko³, T. Mussenbrock¹

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²Department of Physics, West Virginia University, Morgantwon, USA

³Institute for Solid State Physics and Optics, Wigner Research Centre for Physics, Budapest, Hungary

17:00 6A-4 WIGGLER ASSISTED HARMONIC GENERATION IN QUANTUM PLASMA

P. Kumar, S. Singh, N. S. Rathore

Physics, University of Lucknow, Lucknow, India

17:15 6A-5 PLASMA POTENTIAL LOCKING

M. M. Hopkins¹, B. T. Yee¹, E. V. Barnat¹, S. D. Baalrud², B. Scheiner²

¹Applied Optical and Plasma Sciences, Sandia National Labs, Albuquerque, NM, United States

²Department of Physics and Astronomy, University of Iowa, Iowa City, IA, United States

17:30 6A-6 2D SIMULATIONS OF HALL-DRIVEN MAGNETIC FIELD PENETRATION IN ELECTRON-MAGNETOHYDRODYNAMICS

A. S. Richardson¹, J. R. Angus¹, S. B. Swanekamp¹, J. W. Schumer¹, P. F. Ottinger²

¹Plasma Physics Division, Naval Research Laboratory, Washington, DC, United States

²Engility Corporation, Chantilly, VA, United States

17:45 6A-7 EVIDENCE OF MIXED-MODE OSCILLATIONS AND FAREY ARITHMETIC IN DOUBLE PLASMA SYSTEM IN PRESENCE OF FIREBALL

A. Sarma, V. Mitra, B. Sarma

Physics, School of Advanced Sciences (SAS), VIT University Chennai, Chennai, India

Session 6B: 2.7 Microwave Plasma Interaction

Wednesday, June 22 16:00-18:00, KCC 203

Session Chair: Nicholas M Jordan, University of Michigan

16:00 6B-1 (invited) MICROWAVE INTERACTIONS WITH LASER-GENERATED AIR PLASMA FILAMENTS AND ACOUSTIC SHOCKS

J. R. Penano, M. H. Helle, B. Rock, J. P. Palastro, D. F. Gordon, A. Ting

Plasma Physics Division, U.S. Naval Research Laboratory, Washington, DC, United States

16:30 6B-2 GENERATING MICROWAVE PULSES WITH PLASMA

D. Biggs, M. Cappelli

Mechanical Engineering, Stanford University, Stanford, CA, United States

16:45 6B-3 LASER IGNITION OF PLASMA INTERFERENCE SWITCH FOR MICROWAVE PULSE EXTRACTION FROM A RESONANT CAVITY

A. Shlapakovski¹, Y. E. Krasik¹, S. Gorev²

¹Physics Department, Technion, Haifa, Israel

²Institute of Physics and Technology, Tomsk Polytechnic University, Tomsk, Russia

17:00 6B-4 3D FULLY ELECTROMAGNETIC FIELD AND PLASMA FLUID SIMULATION OF INNER SURFACE BREAKDOWN ON MICROWAVE WINDOW

Y. Dong

Institute of Applied Physics and Computational Mathematics, Beijing, China

17:15 6B-5 TUNABLE RF ELECTRONICS BASED ON LOW TEMPERATURE PLASMA

A. Semnani¹, S. O. Macheret², D. Peroulis¹

¹Electrical and Computer Engineering, Purdue University, West Lafayette, IN, United States

²Aeronautics & Astronautics, Purdue University, West Lafayette, IN, United States

17:30 6B-6 PLASMA PHOTONIC CRYSTALS WITH TUNABLE BANDGAP AND CONFIGURABLE TRANSMISSION MODES

B. Wang, M. Cappelli

Mechanical Engineering, Stanford University, Stanford, CA, United States

17:45 6B-7 TIME-RESOLVED INVESTIGATIONS OF HIGH POWER MICROWAVE PLASMAS

E. Yan, F. Qiu, H. Yang, Q. Zheng, F. Meng, H. Ma

Institute of Applied Electronics. CAEP, Science and Technology on High Power Microwave laboratory,, mianyang, China

Session 6C: 1.4 Partially Ionized Plasmas I

Wednesday, June 22 16:00-17:45, KCC 205

Session Chair: Andrey Starikovskiy, Princeton University

16:00 6C-1 CUSTOMIZING ARRAYS OF MICROPLASMAS FOR CONTROLLING PROPERTIES OF ELECTROMAGNETIC WAVES

C. Qu, P. Tian, M. J. Kushner

University of Michigan, Ann Arbor, MI, United States

16:15 6C-2 CHIRPED PULSED BIAS POWER IN INDUCTIVELY COUPLED PLASMA REACTORS

S. J. Lanham¹, M. J. Kushner²

¹Chemical Engineering, University of Michigan, Ann Arbor, MI, United States

²Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, United States

16:30 6C-3 (invited) TRANSVERSE 2D GLIDING ARC MODELING

A. F. Gutsol¹, S. Gangoli²

¹Chevron Energy Technology Company, Richmond, CA, United States

²Air Products and Chemicals, Inc., Allentown, PA, United States

17:00 6C-4 ELECTRON POWER ABSORPTION DYNAMICS AND ION ENERGY DISTRIBUTIONS IN CAPACITIVE DISCHARGES DRIVEN BY CUSTOMIZED VOLTAGE WAVEFORMS IN ARGON AND CF₄

B. Berger^{1,2}, S. Brandt¹, J. Franek¹, E. Schuengel¹, M. Koepke¹, J. Schulze¹, T. Mussenbrock², B. Bruneau³, E. Johnson³, T. Lafleur⁴, J. -P. Booth⁴, D. O'Connell⁵, T. Gans⁵, I. Korolov⁶, A. Derzsi⁶, Z. Donko⁶

¹Department of Physics, West Virginia University, Morgantown, WV, United States

²Institute for Electrical Engineering, Ruhr-University Bochum, Bochum, Germany

³LPICM-CNRS, Ecole Polytechnique, Palaiseau, France

⁴LPP-CNRS, Ecole Polytechnique, Palaiseau, France

⁵Department of Physics, York Plasma Institute, York, United Kingdom

⁶Wigner Research Centre for Physics, Hungarian Academy of Sciences, Budapest, Hungary

17:15 6C-5 INVESTIGATION OF ION ENERGY DISTRIBUTION FUNCTIONS IN EUV-INDUCED PLASMAS BY ION MASS SPECTROMETRY

T. H. van de Ven¹, P. Reefman¹, E. A. Osorio², V. Y. Banine^{1,2}, J. Beckers¹

¹Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands

²ASML, Veldhoven, Netherlands

17:30 6C-6 TEMPORAL VARIATION OF ELECTRON ENERGY DISTRIBUTION
FUNCTION IN MICROWAVE AIR BREAKDOWN

Q. Zhou

Institute of Applied Physics and Computational Mathematics, Beijing, China

Session 6D: 4.3 Radiation Physics, X-ray Lasers / 4.4 High Energy Density Matter II

Wednesday, June 22 16:00-17:30, KCC 301

Session Chair: Thomas J Awe, Sandia National Laboratories

16:00 6D-1 MO X-PINCH PERFORMANCE FROM A NEW COMPACT AND PORTABLE
1-KA/NS 2-LTD-BRICK DRIVER

R. V. Shapovalov, R. B. Spielman

Physics, Idaho State University, Pocatello, ID, United States

16:15 6D-2 LINE EMISSION FROM MOLYBDENUM HIGH ENERGY DENSITY PLASMA
BENCHMARKED WITH EBIT EXPERIMENTS

A. S. Safronova¹, V. L. Kantsyrev¹, E. E. Petkov¹, V. V. Shlyaptseva¹, U. I. Safronova¹,
I. K. Shrestha¹, M. E. Weller¹, K. A. Schultz¹, M. Cooper¹, A. Stafford¹, P. Beiersdorfer²,
N. Hell², G. Brown²

¹University of Nevada, Reno, NV 89775, United States

²Lawrence Livermore National Laboratory, Livermore, CA 94550, United States

16:30 6D-3 RESULTS OF INTERACTION OF XUV LASER PULSES OF NANOSECOND
DURATION WITH DIFFICULT-ABLATED-MATERIALS

K. Kolacek¹, J. Schmidt¹, O. Frolov¹, J. Straus¹, J. Matejicek², M. Vilemova², A. Choukourov³,
K. Kasuya⁴

¹Pulse Plasma Systems Dept., Institute of Plasma Physics, Academy of Sciences of the Czech
Republic, v.v.i., Prague, Czech Republic

²Materials Engineering Dept., Institute of Plasma Physics, Academy of Sciences of the Czech
Republic, v.v.i., Prague, Czech Republic

³Dept. of Macromolecular Physic, Faculty of Mathematics and Physics, Charles University in
Prague, Prague, Czech Republic

⁴Institute of Applied Flow, Yokohama, Japan

16:45 6D-4 SCALING OF K-ALPHA LINE EMISSION IN Z PINCHES FROM 2 - 60 KEV

D. J. Ampleford, G. P. Loisel, S. B. Hansen, C. A. Coverdale, C. A. Jennings, G. A. Rochau

Sandia National Laboratories, Albuquerque, NM, United States

17:00 6D-5 SUB GV/CM TERAHERTZ RADIATION BY COHERENT TRANSITION
RADIATION IN ULTRASHORT LASER-SOLID INTERACTION

W. -J. Ding¹, Z. -M. Sheng^{2,3}

¹Electronics and Photonics, Institute of High Performance Computing, A*STAR, Singapore,
Singapore

²Department of Physics, University of Strathclyde, Glasgow, UK

³Key Laboratory for Laser Plasmas (MoE) and Department of Physics and Astronomy, Shanghai
Jiao Tong University, Shanghai, China

17:15 6D-6 THE MATTER IN EXTREME CONDITIONS INSTRUMENT AT LCLS: A
PLATFORM FOR HIGH ENERGY DENSITY PHYSICS AND DENSE PLASMA SCIENCE

E. Galtier, B. Nagler, E. Granados, Z. Xing, A. Hashim, A. MacKinnon, F. Tavella, A. Fry,
O. Hickman, S. B. Brown, P. Hart, B. Arnold, H. J. Lee

LCLS, SLAC National Accelerator Laboratory, Menlo Park, CA, United States

Session 6E: 2.5 Special Session - RF Breakdown and Multipactor

Wednesday, June 22 16:00-17:30, KCC 303

Session Chair: John P Verboncoeur, Michigan State University

16:00 6E-1 MIGRATION OF MULTIPACTOR TRAJECTORIES VIA HIGHER-ORDER MODE PERTURBATION

S. Rice, J. Verboncoeur

Electrical and Computer Engineering, Michigan State University, East Lansing, MI, United States

16:15 6E-2 PREDICTION OF MULTIPACTOR BREAKDOWN THRESHOLD FOR ANGLED DIELECTRIC GAPS

P. T. Partridge, V. H. Chaplin, A. A. Hubble, T. P. Graves

The Aerospace Corporation, El Segundo, CA, United States

16:30 6E-3 FRACTIONAL MODEL OF SPACE CHARGE LIMITED CURRENT

L. K. Ang, M. Zubair

engineering product development, Singapore University of Technology and Design, Singapore, Singapore

16:45 6E-4 FAST COMPUTATION OF THRESHOLD OF MULTIPACTION DISCHARGE IN FERRITE CIRCULATOR

Y. Li, Y. Zhai, H. Wang, C. Liu

Xi'an Jiaotong University, Xi'an, China

17:00 6E-5 ENHANCED STATISTICAL MODELLING FOR MULTIPACTOR SUSCEPTIBILITY CHART

S. Lin, Y. Li, H. Wang, C. Liu

Key Laboratory of Physical Electronics and Devices of the Ministry of Education, Xi'an Jiaotong University, Xi'an, China

17:15 6E-6 PARALLELIZATION OF THE SPACE CHARGE MODULE IN SUNRAY 1D USING MPI

A. M. Latha^{1,2}, D. Maurya¹, V. Srivastava¹, S. K. Ghosh^{1,2}

¹MWT, CSIR-Central Electronics Engineering Research Institute, Pilani, India

²AcSIR, Pilani, India

Session 6F: 5.1 Nonequilibrium Plasma Applications II

Wednesday, June 22 16:00-17:45, KCC 305

Session Chair: Luc Stafford, Universite de Montreal

16:00 6F-1 ORIGINS OF ASPECT RATIO DEPENDENT ETCHING IN PLASMA MATERIALS PROCESSING

C. M. Huard¹, M. J. Kushner¹, Y. Zhang², S. Sriraman², J. R. Belen², A. Paterson²

¹University of Michigan, Ann Arbor, MI, United States

²Lam Research, Fremont, CA, United States

16:15 6F-2 ADDITION OF GROUND AND WATER TO A NANOSECOND SINGLE-ELECTRODE PLASMA JET

S. Song¹, C. Jiang²

¹Old Dominion University, frank reidy center for bioelectrics, Norfolk, United States

²Old Dominion University, frank reidy center for bioelectrics, Norfolk, United States

16:30 6F-3 PLASMA FORMATION DURING OPERATION OF DIODE (DPAL) AND EXCIMER (XPAL) PUMPED ALKALI LASERS

A. H. Markosyan, M. J. Kushner

University of Michigan, Ann Arbor, MI, United States

16:45 6F-4 CHARACTERIZATION OF A UV DISCHARGE SOURCE FOR PULSED POWER APPLICATIONS

S. P. Feathers, J. C. Stephens, A. A. Neuber

Center for Pulsed Power, Texas Tech University, Lubbock, Texas, United States

17:00 6F-5 COMPARATIVE STUDY OF NONEQUILIBRIUM PLASMA GENERATION AND PLASMA-ASSISTED IGNITION FOR DIFFERENT C₂ HYDROCARBONS

A. Starikovskiy¹, I. Kosarev², S. Kindysheva², R. Momot², E. Plastinin², N. Aleksandrov²

¹Princeton University, Princeton, NJ, United States

²Moscow Institute of Physics and Technology, Dolgoprudny, Russia

17:15 6F-6 MODELLING & ELECTRICAL CHARACTERISATION OF ATMOSPHERIC PRESSURE DIELECTRIC BARRIER DISCHARGE BASED PLASMA JET USING PIN ELECTRODE CONFIGURATION

G. D. Deepak¹, N. K. Joshi¹, U. N. Pal², R. Prakash²

¹NUCLEAR SCIENCE AND TECHNOLOGY, MODY UNIVERSITY OF SCIENCE AND TECHNOLOGY, LAKSHMANGARH, RAJASTHAN, INDIA

²PLASMA DEVICES TECHNOLOGY, CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE, PILANI, RAJASTHAN, INDIA

17:30 6F-7 NUMERICAL STUDY ON A COLD ATOMPERIC HELIUM PLASMA JET INTERACTION WITH DIELECTRIC MATERIAL

Y. Zheng, L. Wang, S. Jia

Xi'an Jiaotong University, Xi'an, China

Session PL7: Speaker: Gerard van Rooij

Thursday, June 23 08:30-09:30, Max Bell Auditorium

Session Chair: Sylvain Coulombe, McGill University

8:30 PL7-1 (invited) CO₂ CONVERSION BY PLASMOLYSIS: A ROUTE TO SOLAR FUELS

G. van Rooij¹, D. van den Bekerom¹, N. den Harder¹, T. Minea¹, W. Bongers¹, G. Berden², R. Engeln³, R. van de Sanden¹

¹Non-equilibrium Fuel Conversion group, DIFFER, Eindhoven, Netherlands

²Felix Facilities, Radboud University, Nijmegen, Netherlands

³Plasma and Materials Processing Group, Eindhoven University of Technology, Eindhoven, Netherlands

Session 7A: 1.2 Computational Plasma Physics II

Thursday, June 23 10:00-12:15, KCC 101

Session Chair: Denis Eremin, Ruhr-Universitaet-Bochum

10:00 7A-1 DISCHARGE INCEPTION NEAR DIELECTRIC BODIES: MEEK CRITERION REVISITED

A. Dubinova, U. Ebert, C. Rutjes

Centrum Wiskunde & Informatica (CWI), Amsterdam, Netherlands

10:15 7A-2 AN ELECTRIC FIELD MODEL DEVELOPED FOR MULTI-PHYSICS PLASMA-FLUID SIMULATION FOR ATMOSPHERIC DIELECTRIC BARRIER DISCHARGE ACTUATORS

W. C. Schneck III¹, D. C. Lam², A. L. Winfrey³

¹Department of Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

²Nuclear Engineering Program, Virginia Polytechnic Institute and State University, Blacksburg,

VA, United States

³Nuclear Engineering Program, University of Florida, Gainesville, FL, United States

10:30 7A-3 TIME-DEPENDENT COLLISIONAL RADIATIVE MODEL FOR HELIUM

C. Boukandou Mombo, J. Claustre, R. Jbilat, F. Vidal, J. -P. Matte

Energie Matériau et Communication, Institut national de la recherche scientifique, Varennes, Québec, Canada

10:45 7A-4 REDUCTION OF A COLLISIONAL-RADIATIVE ARGON MODEL

COMPARING A MODIFIED BINNING METHOD WITH PRINCIPAL COMPONENT ANALYSIS

A. Bellemans^{1,2,3}, A. Parente², M. Massot³, T. E. Magin¹

¹Aeronautics and Aerospace department, von Karman Institute for Fluid Dynamics, Sint-Genesius-Rhode, Vlaams-Brabant, Belgium

²Service d'Aero-thermo-mecanique, Universite Libre de Bruxelles, Ixelles, Bruxelles, Belgium

³EM2C, Centrale Supélec Paris, Chatenay-Malabry, France

11:00 7A-5 MODELING AND SIMULATIONS OF HIGH-PRESSURE CATHODIC ARCS WITH ADAPTIVE CARTESIAN MESH

V. I. Kolobov¹, R. R. Arslanbekov¹, V. A. Nemchinsky²

¹CFD Research Corporation, Huntsville, AL 35806, United States

²Keiser University, Fort Lauderdale, FL 33309, United States

11:15 7A-6 HIGH ORDER FINITE DIFFERENCE WENO SCHEME FOR IDEAL

MAGNETOHYDRODYNAMICS ON CURVILINEAR MESHES

X. Feng¹, Y. Jiang¹, A. J. Christlieb²

¹Department of Mathematics, Michigan State University, East Lansing, MI, United States

²Department of Computational Mathematics, Science, and Engineering, Michigan State University, East Lansing, MI, United States

11:30 7A-7 AN ASYMPTOTIC PRESERVING MAXWELL SOLVER RESULTING IN THE DARWIN LIMIT OF ELECTRODYNAMICS

W. Guo¹, A. Christlieb¹, Y. Cheng¹, B. Ong²

¹Department of Mathematics, Michigan State University, Easting Lansing, United States

²Department of Mathematical Sciences, Michigan Technological University, Houghton, United States

11:45 7A-8 NUMERICAL SIMULATIONS OF A MICROWAVE DRIVEN LOW PRESSURE PLASMA

D. Szeremley¹, R. P. Brinkmann¹, T. Mussenbrock¹, F. Mitschker², S. Steves², P. Awakowicz², M. Kushner³, D. Eremin¹

¹Theoretical Electrical Engineering, Ruhr University Bochum, Bochum, Germany

²General Electrical Engineering and Plasma Technology, Ruhr University Bochum, Bochum, Germany

³Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, MI, USA

12:00 7A-9 AN EFFICIENT METHOD TO MODEL THERMAL-VELOCITY EFFECTS IN BEAM OPTICS ANALYZER

T. Bui¹, L. Ives¹, M. Read¹, C. McKenzie²

¹Calabazas Creek Research, Inc., Mountain View, CA, United States

²Oxford Instruments X-ray Technology, Inc., Scott Valleys, CA, United States

Session 7B: 2.3 Slow-Wave Devices

Thursday, June 23 10:00-11:30, KCC 103

Session Chairs: Theodore C. Grabowski, Air Force Research Laboratory

Will White, Sandia National Laboratories

10:00 7B-1 (invited) RECENT ADVANCES IN THEORY AND EXPERIMENT OF METAMATERIAL-BASED HIGH POWER RADIATION SOURCES

Z. Duan, Y. Wang, X. Tang, Z. Wang, Y. Gong

Institute of High Energy Electronics, School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China

10:30 7B-2 REVISITING THE RELATIVISTIC A6 MAGNETRON

A. S. Shlapakovski, J. G. Leopold, A. Sayapin, Y. E. Krasik

Physics Department, Technion, Haifa, Israel

10:45 7B-3 A METALLIC METAMATERIAL HIGH POWER MICROWAVE MODE CONVERTOR

F. Qin

Institute of Applied Electronics, China Academy of Engineering Physics, Mianyang, Sichuan, China

11:00 7B-4 DESIGN OF AN S BAND RELATIVISTIC MAGNETRON WITH DIFFRACTION OUTPUT

D. Wang

Institute of Applied Electronics, China Academy of Engineering Physics, Mianyang, China

11:15 7B-5 AN ASYMMETRIC AND HIGHLY EFFICIENT THREE-STAGE DEPRESSED COLLECTOR FOR SPACE TWTS

A. M. Latha^{1,2}, S. K. Ghosh^{1,2}

¹MWT, CSIR-Central Electronics Engineering Research Institute, Pilani, India

²AcSIR, Pilani, India

Session 7C: 1.4 Partially Ionized Plasmas II / 1.6 Plasma Chemistry II

Thursday, June 23 10:00-12:00, KCC 105

Session Chair: Andrey Starikovskiy, Princeton University

10:00 7C-1 A SMOOTH TRANSITION FROM FIELD EMISSION TO A SELF-SUSTAINED PLASMA IN MICROSCALE ELECTRODE GAPS AT ATMOSPHERIC PRESSURE

M. A. Bilici¹, J. R. Haase², C. R. Boyle¹, D. B. Go², R. M. Sankaran¹

¹Department of Chemical and Biomolecular Engineering, Case Western Reserve University, Cleveland, OH, United States

²Department of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame, IN, United States

10:15 7C-2 FIELD EMISSION EXCITATION OF A HIGH PRESSURE NOBLE GAS

N. P. Lockwood¹, G. A. Pitz¹, S. B. Fairchild², M. A. Lange³

¹Directed Energy Directorate, Air Force Research Laboratory, Kirtland AFB, NM, United States

²Materials Directorate, Air Force Research Laboratory, Wright-Patterson AFB, NM, United States

³XLScientific, Albuquerque, NM, United States

10:30 7C-3 DISCUSSION ON THE INFLUENCES OF TOWNSEND IONIZATION COEFFICIENT α AND SECONDARY ELECTRON EMISSION COEFFICIENT γ ON THE CHARACTERISTICS OF DBD

C. W. Yao, Z. S. Chang, H. C. Ma, P. Li, G. M. Xu, H. B. Mu, G. J. Zhang

State Key Laboratory of Electrical Insulation & Power Equipment, Xi'an Jiaotong University, China, Xi'an, China

10:45 7C-4 SUPPRESSION OF LASER BREAKDOWN BY PULSED NONEQUILIBRIUM NS DISCHARGE

A. Starikovskiy¹, I. Semenov², M. Shneider¹

¹Princeton University, Princeton, NJ, United States

²University of Maryland, College Park, MD, United States

11:00 7C-5 ACCURATE QUANTIFICATION OF HYDROXYL RADICALS PRODUCED BY PLASMA USING DISODIUM TEREPHTHALATE SOLUTION

D. Shiraki, N. Takeuchi

Tokyo Institute of Technology, Tokyo, Japan

11:15 7C-6 PROPERTIES OF ULTRAVIOLET AND NEAR-INFRARED LASER INDUCED AIR PLASMAS AND THEIR APPLICATION FOR SPARK IGNITION

C. Dumitrache, C. M. Limbach, A. P. Yalin

Mechanical Engineering, Colorado State University, Fort Collins, United States

11:30 7C-7 COMPOSITION AND DOMINANT SPECIES OF SF₆/N₂ IN A TWO-TEMPERATURE CHEMICAL KINETIC MODEL

Q. Gao, X. Wang, M. Rong, Y. Fu, X. Li

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi Province, China

11:45 7C-8 INVESTIGATIONS ON THE FORMATION OF SOF₂ AND SO₂F₂ IN DECAYING SF₆ ARC PLASMA

Y. Fu, M. Rong, X. Wang, Q. Gao, X. Li, A. Yang, D. Liu

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

Session 7D: 4.6 Fast Z-Pinches III

Thursday, June 23 10:00-11:45, KCC 301

Session Chair: Pierre Gourdain, University of Rochester

10:00 7D-1 AZIMUTHAL CURRENT DENSITY DISTRIBUTION RESULTING FROM A POWER FEED VACUUM GAP IN METALLIC LINER EXPERIMENTS AT 1 MA

S. Bott-Suzuki¹, S. Cordaro¹, L. S. Caballero Bendixsen¹, L. Atoyán², T. Byvank², W. Potter², B. Kusse², D. Hammer², J. Greenly², C. Jennings³

¹U. C. San Diego, La Jolla, CA, United States

²Cornell University, Ithaca, NY, United States

³Sandia National Laboratories, Albuquerque, NM, United States

10:15 7D-2 STUDY OF ENERGY DEPOSITION ASYMMETRY IN WIRE CORES

M. Li, J. Zhang, L. Wang, T. Sun, Y. Li, L. Sheng

Northwest Institute of Nuclear Technology, Xi'an, China

10:30 7D-3 NUMERICAL STUDIES ON THE FORMATION PROCESS OF Z-PINCH DYNAMIC HOHLRUAMS AND KEY ISSUES OF OPTIMIZING DYNAMIC HOHLRAUM RADIATION

D. Xiao, N. Ding, S. Sun, C. Xue, Y. Zhang

Institute of Applied Physics and Computational Mathematics, Beijing, China

10:45 7D-4 LABORATORY PLASMA JET DISRUPTION ABOVE A CRITICAL AXIAL MAGNETIC FIELD

T. Byvank, N. Hamlin, A. D. Cahill, C. E. Seyler, B. R. Kusse

Cornell University, Ithaca, NY, United States

11:00 7D-5 THE EFFECT OF MAGNETIC FIELD ORIENTATION ON THE STRUCTURE AND INTERACTION OF MAGNETISED BOW SHOCKS IN PULSED-POWER DRIVEN EXPERIMENTS

G. C. Burdiak¹, S. V. Lebedev¹, T. Clayson¹, J. D. Hare¹, L. G. Suttle¹, F. Suzuki-Vidal¹, J. P. Chittenden¹, C. Garcia¹, N. Niasse¹, T. Lane²

¹Imperial College London, London, United Kingdom

²West Virginia University, West Virginia, USA

11:15 7D-6 MIXED DOUBLE PLANAR WIRE ARRAYS ON MICHIGAN'S LTD GENERATOR

V. L. Kantsyrev¹, A. S. Safronova¹, V. V. Shlyaptseva¹, I. Shrestha¹, M. Schmidt-Petersen¹, A. Stafford¹, M. Lorange¹, M. Cooper¹, A. M. Steiner², D. A. Yager-Elorriaga², N. M. Jordan², R. M. Gilgenbach², A. S. Chuvatin³

¹University of Nevada, Reno, NV 89557, United States

²University of Michigan, Ann Arbor, MI 48109, United States

³LPP, CNRS, Ecole Polytechnique, Palaiseau 91128, France

11:30 7D-7 TWO-STAGE ALUMINUM WIRE ARRAY Z-PINCH WITH ~100KA CURRENT

J. Zhang

Northwest Institute of Nuclear Technology, Xi'an, China

Session 7E: 5.2 High-Pressure and Thermal Plasma Processing

Thursday, June 23 10:00-12:30, KCC 303

Session Chairs: Vittorio Colombo, Università di Bologna, Department of mechanical engineering

Milan Hrabovsky, Institute of Plasma Physics ASCR

10:00 7E-1 STEAM PLASMA METHANE REFORMING

M. Hrabovsky

Thermal Plasma Department, Institute of Plasma Physics ASCR, Praha, Czech Republic

10:15 7E-2 ROLES OF METAL IONS AND PLASMA RADIATION IN THE INTERACTIONS BETWEEN A CAPILLARY DISCHARGE PLASMA AND PROPELLANTS

X. Li¹, Y. Hang¹, J. Wu¹, S. Jia¹, A. B. Murphy²

¹State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China

²CSIRO Manufacturing, Lindfield, Australia

10:30 7E-3 (invited) STUDY OF PLASMA PROPERTIES IN PULSED PLASMA SPRAYING OF LIQUID FEEDSTOCK

F. Mavier, V. Rat, M. Bienia, M. Lejeune, J. -F. Coudert

University of Limoges, CNRS, ENSCI, SPCTS UMR7315, Limoges, France

11:00 7E-4 DESIGN ORIENTED MODELLING FOR THE SYNTHESIS OF COPPER NANOPARTICLES BY A RADIO-FREQUENCY INDUCTION THERMAL PLASMA

S. Bianconi, M. Boselli, V. Colombo, M. Gherardi

Department of Industrial Engineering, Alma Mater Studiorum-Università di Bologna, Bologna, Italy

11:15 7E-5 A PHYSICALLY BASED MODEL FOR THERMAL PLASMA ARC ATTACHMENT ON A W-THO2 CATHODE

I. Choquet¹, A. Javidi Shirvan¹, H. Nilsson²

¹Dept. Engineering Science, University West, Trollhaettan, Sweden

²Dept. Applied Mechanics, Chalmers University of Technology, Gothenburg, Sweden

11:30 7E-6 INVESTIGATION OF MIXING OF PLASMA SPECIES IN ARGON-WATER
ARC DISCHARGE

J. Jenista¹, H. Takana², S. Uehara², H. Nishiyama², A. B. Murphy³, M. Bartlova⁴, V. Aubrecht⁴

¹Thermal Plasmas, Institute of Plasma Physics AS CR, Praha 8, Czech Republic

²Creative Research Flow Division, Institute of Fluid Science, Sendai, Miyagi, Japan

³Materials Science and Engineering, CSIRO, Lindfield, NSW 2070, Australia

⁴Brno University of Technology, Brno, Czech Republic

11:45 7E-7 DEVELOPMENT OF WALL-STABILIZED ARC OF WATER-COOLED
VORTEX TYPE WITH SMALL CALIBER FOR HIGH INTENSE RADIATION

T. Iwao, Y. Shimizu, K. Sone, Y. Maeda, S. Yamamoto

Electrical and Electronics/Engineering, Tokyo City University, Setagaya, Tokyo, Japan

12:00 7E-8 EXPERIMENTS AND SIMULATION RESEARCH OF VACUUM ARC WITH
TMF-AMF CONTACT

L. Wang, J. Deng, K. Qin, S. Jia, Z. Shi

Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China

12:15 7E-9 EXPERIMENTAL INVESTIGATION OF PLASMA IN ARC-ANODE AREA

P. Ondac^{1,2}, A. Maslani¹, M. Hrabovsky¹

¹Thermal plasma, Institute of Plasma Physics AS CR, Prague, Czech Republic

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Session 7F: 7.2 Opening and Closing Switches / 7.3 Generators and Applications

Thursday, June 23 10:00-12:15, KCC 305

Session Chair: Bruce V Weber, Naval Research Laboratory

10:00 7F-1 (invited) THE PATH TO A TRANSPORTABLE IONOSPHERIC HEATER

A. Neuber¹, D. L. Mauch¹, V. E. Meyers¹, B. Esser¹, R. P. Joshi¹, J. C. Dickens¹,

J. J. Mankowski¹, T. M. Antonsen Jr²

¹P3E Center, Texas Tech University, Lubbock, TX, United States

²IREAP, University of Maryland, College Park, MD, United States

10:30 7F-2 HIGH-VOLTAGE, HIGH REPETITION RATE NANOSECOND PULSE
GENERATOR FOR HIGH-PRESSURE NON-THERMAL PLASMA GENERATION

M. D. G. Evans^{1,2}, J. M. Bergthorson², S. Coulombe¹

¹Chemical Engineering, McGill University, Montreal, Quebec, Canada

²Mechanical Engineering, McGill University, Montreal, Quebec, Canada

10:45 7F-3 NON-EQUILIBRIUM NON-THERMAL ATMOSPHERIC PRESSURE PLASMA
GENERATION AND ITS PROPAGATION THROUGH SINGLE ELECTRODE BENDED
TUBE

T. Ishijima¹, A. Begum², M. Pervez¹, T. Inomata¹, Y. Uesugi¹, Y. Tanaka¹

¹Institute of Science and Engineer, Kanazawa university, Dhaka, Bangladesh

²Department of Physical Sciences, Independent university, bangladesh, Kanazawa, Japan

11:00 7F-4 MICROWAVE PULSE COMPRESSION EXPERIMENTS IN A WAVEGUIDE
CAVITY WITH RF BREAKDOWN TRIGGERED SWITCH

S. P. Savaidis, S. A. Mitiileos, Z. C. Ioannidis, N. A. Stathopoulos

Electronics Engineering, Technological Education Institute of Piraeus, Athens, Greece

11:15 7F-5 LIMITATIONS OF BULK SIC PHOTOCONDUCTIVE SEMICONDUCTOR SWITCHES, AND EVALUATION OF PIN SIC PHOTOCONDUCTIVE SEMICONDUCTOR SWITCHES

D. L. Mauch, V. E. Meyers, R. P. Joshi, A. A. Neuber, J. C. Dickens

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

11:30 7F-6 OPTICAL NONLINEAR ABSORPTION CHARACTERIZATION OF BULK SEMI-INSULATING 4H-SIC AT AND ABOVE THE BAND EDGE

V. Meyers, D. Mauch, J. Mankowski, J. Dickens, R. Joshi, A. Neuber

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

11:45 7F-7 BREAKDOWN CHARACTERISTICS OF A SILICON CARBIDE PHOTOCONDUCTIVE SEMICONDUCTOR SWITCH TRIGGERED SPARK GAP

T. Ihara, D. Mauch, J. Dickens, A. Neuber

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

12:00 7F-8 REPLACEABLE ELECTRODES TRIGGERED VACUUM SWITCH AND ITS APPLICATION IN LIGHTNING CURRENT COMPONENT A GENERATOR

J. Sun, X. Yao, W. Xu, J. Chen

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, Shaanxi Province, China