Program

Fundamentals and Applications of Microplasmas

March 1-6, 2009
Catamaran Resort Hotel, San Diego, California
Tel: 1-858-488-1081

Conference Co-chairs:
J. Gary Eden
University of Illinois, USA

Sung-Jin Park
University of Illinois, USA

Kunihide Tachibana
Kyoto University, Japan

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Ruhr Universitât Bochum, Germany

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SUNDAY, MARCH 1, 2009

16:00 - 18:00   Registration (Kon Tiki Foyer)
18:00 – 19:00   Welcome Reception (Aviary Foyer)
19:00 – 21:00   Dinner (Aviary Ballroom)

NOTES

• Conference participants taking part in all conference meals will have a special sticker placed on their badges. Participants who have opted out of meals will only have access to coffee breaks and social hours.

• Technical sessions will be held in the Kon Tiki Ballroom.

• Posters may be hung in the Rousseau Suite.

• Breakfats locations will change during the conference - please refer to the daily reader board in the main lobby for the location.

• Lunches – at Beach North (outdoor area). Please bring sunglasses and a light jacket.

• Dinners – at Beach North (outdoor area). Please bring a jacket.

• Audiotaping, videotaping and photography of presentations are strictly prohibited.

• Speakers – Please leave at least 5 minutes for questions and discussion.

• Please do not smoke at any conference functions.

• Turn your cellular telephones to vibrate or off during technical sessions.

• Be sure to make any corrections to your name/contact information on the Master Participant List or confirm that the listing is correct. A corrected copy will be sent to all participants after the conference.
### MONDAY, MARCH 2, 2009

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<td>08:30 – 08:40</td>
<td>Welcome and Introduction</td>
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<td>08:40 – 09:20</td>
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<td>Ulrich Kogelschatz</td>
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<td>&quot;Microplasmas: Fundamental Aspects and Future Prospects&quot;</td>
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<td>09:25 – 09:55</td>
<td>Tsuyohito Ito</td>
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<td>&quot;Electric Field Measurement in High Pressure Hydrogen Microdischarges&quot;</td>
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<td>&quot;Spectroscopy Based Investigation of Heating Mechanisms in Microscale Atmospheric Pressure Plasma Discharges&quot;</td>
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<td>Pohang University of Science and Technology, Korea</td>
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<td>11:25 – 11:55</td>
<td>Zoran Lj. Petrovic</td>
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<td>Institute of Physics, Serbia</td>
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<td>&quot;Volt-Ampere Characteristics And Diagnostics Of Micro Discharges&quot;</td>
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<td>11:55 - 12:25</td>
<td>Yi-Kang Pu</td>
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<td>Tsinghua University, China</td>
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<td>&quot;Comparison Between Atmospheric Pressure Microdischarges and Low Pressure Discharges from an OES Perspective&quot;</td>
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<td>17:00 – 17:30</td>
<td>Kay Niemax</td>
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<td>ISAS – Institute for Analytical Sciences, Dortmund, Germany</td>
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<td>&quot;Laser-Induced Microplasmas&quot;</td>
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<td>17:30 – 18:00</td>
<td>Yuri Noma</td>
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<td>University of Tokyo, Japan</td>
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<td>&quot;Gas Temperature Dependent Generation and Diagnosis of Cryoplasma Using Dielectric Barrier Discharge (DBD) Microplasma&quot;</td>
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<td>18:00 – 18:30</td>
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TUESDAY, MARCH 3, 2008

07:30 – 08:30  Breakfast

08:30 – 08:35  Announcements / Session Overview

08:35 – 12:35  SESSION III: MICROPLASMA JETS AND TORCHES
Session Chair:  J. Winter

08:35 – 09:05  Wei-Dong Zhu
Saint Peter’s College, USA
“Atmospheric Pressure Plasma Micro Jet”

09:05 – 09:35  Han S. Uhm
Ajou University, Korea
“Various Microplasma Jets and Their Application to Sterilization”

09:35 – 10:05  Katsuhisa Kitano
Osaka University, Japan
“Low Frequency Microplasma Jet and its Application to Plasma Induced
Chemical Processes in Liquids”

10:05 – 10:35  Coffee Break

10:35 – 11:05  Jan Benedikt
Ruhr – Universität Bochum, Germany
“Analysis of Microplasma Jets by Means of Molecular Beam Mass Spectrometry”

11:05 – 11:35  Timothy Grotjohn
Michigan State University, USA

11:35 – 12:05  Juergen Kolb
Old Dominion University, USA
“Microplasma Jet for Medical Applications”

12:05 – 12:35  Albrecht Brockhaus
Bergische Universität Wuppertal, Germany
“Plasma Bullets in Cylindrical DBDs and Piezo-Electric Surface Discharges”

12:35 – 14:00  Lunch

14:00 – 16:00  Ad hoc sessions and/or free time

16:00 – 18:00  SESSION IV: Poster Session with Afternoon Coffee

18:15 – 20:15  Dinner on William D. Evans (steamship)
Be prompt as ship will leave at 18:45
WEDNESDAY, MARCH 4, 2009

07:30 – 08:30  Breakfast
08:30 – 08:35  Announcements / Session Overview
08:35 – 12:35 SESSION V: SURFACE ENGINEERING AND MATERIALS SYNTHESIS
Session Chair:  S.-J. Park
08:35 – 09:05  Michael Thomas
Fraunhofer Institute for Surface Engineering and Thin Films, Germany
“Applications of DBD-Type Cavity Microplasmas for Patterned Surface Treatment or Coating”
09:05 – 09:35  Paul Bryant
University of Liverpool, UK
“Atmospheric Pressure Micro-Cavity Discharge Array Treatment of Hydrophobic Polymers to Generate Hydrophilic Surfaces”
09:35 – 10:05  Yoshiki Shimizu
National Institute of Industrial Science and Technology, Japan
“Application of Atmospheric Pressure, Ultra-High Frequency Microplasma Jet to Preparation and Deposition of Inorganic Nanoparticles”
10:05 – 10:35 Break
10:35 – 11:05  Mohan Sankaran
Case Western Reserve University, USA
“Nanotechnological Applications of Microplasmas”
11:05 – 11:35  Ying-Yi Lin
National Cheng Kung University, Taiwan
“Non-Lithographic Fabrication of Surface Enhanced Raman Scattering Substrates Combining Atmospheric Pressure Micro-Plasma Source and Au Nanoparticles”
11:35 – 12:05  Hiroyuki Miyazoe
University of Tokyo, Japan
“Microplasma Assisted Focused Electron Beam Direct Patterning”
12:05 – 12:35  Andrew Marchesseault
Technical University Braunschweig, Germany
“Scale-Up of Dielectric Barrier Discharge Micro-Plasma Stamps for Area Selective Surface Treatment in Biological and Chemical Applications”
12:35 – 13:30 Lunch
13:30 – 16:30  Ad hoc sessions and/or free time
16:30 – 17:00  Coffee Beak
17:00 – 18:30 SESSION VI: PHOTONIC DEVICES AND APPLICATIONS
Session Chair:  V. Schulz-von der Gathen
17:00 – 17:30  Osamu Sakai
Kyoto University, Japan
“Metamaterials Activated by Microplasmas”
WEDNESDAY, MARCH 4, 2009 (continued)

17:30 – 18:00  Sung-Jin Park
Eden Park Illumination, Inc., USA
“Microplasma Lighting: Innovative and Green Solutions for Future Lighting Applications”

18:00 – 18:30  Yong Seog Kim
Hongik University, Korea
“Recent Advances In AC-PDPs”

18:30 – 20:00  Sponsored Reception with SESSION VII: Poster Session

20:00 – 22:00  Dinner
THURSDAY, MARCH 5, 2009

07:30 – 08:30  Breakfast

08:30 – 08:35  Announcements / Session Overview

08:30 - 12:05  SESSION VIII: BIOMEDICAL AND ENVIRONMENTAL APPLICATIONS
Session Chair:  M. J. Kushner

08:35 – 09.05   Michael Kong
Loughborough University, UK
“Cold Atmospheric Plasma Jet Arrays: Fundamental Characterization and Treatment of 3D Surgical Instruments”

09:05 – 09:35  Jeffrey Hopwood
Tufts University
“Frequency Scaling of Microplasmas from 450 MHz to 1.9 GHz”

09:35 – 10:05 Graciela Brelles-Mariño
California State Polytechnic University, USA
“Is Gas Discharge Plasma a New Solution to the Old Problem of Biofilm Inactivation?”

10:05 – 10:35 Coffee Break

10:35 – 11:05 Alena Hinze
Technical University Braunschweig, Germany
“Microplasma-Based Patterned Amination of Polypropylene-Carbon Composites for the Spot Synthesis of Peptide Libraries”

11:05 – 11:35 Moo-Been Chang
National Central University, Taiwan
“Removal of PFCs from Gas Streams Via Plasma Catalysis”

12:15 – 13:30  Lunch

13:30 – 16:30  Ad hoc sessions and/or free time

16:30 – 17:00  Coffee Beak

17:00 – 19:00  SESSION IX: MICROPLASMA CONSORTIA – OVERVIEW AND FUTURE PROSPECTS
Session Chair:  M. Kong

17:00 – 17:30  Mark J. Kushner
University of Michigan, USA
“Microplasmas and Physics 2010”

17:30 – 18:00  Jörg Winter
Ruhr – Universität Bochum, Germany
“The Research Group ‘Physics of Microplasmas’ at Ruhr – Universität Bochum”

18:00 – 18:30 Kunihide Tachibana
Kyoto University, Japan
THURSDAY, MARCH 5, 2009 (continued)

18:30 – 19:00  James Bradley  
               University of Liverpool, UK 
               “Micro-Plasma Science and Technology in the UK: Towards a New Consortium”

19:00 – 19:45  Social Hour

19:45  Conference Dinner
FRIDAY, MARCH 6, 2009

07:30 – 08:30  Breakfast

08:30 – 08:35  Announcements / Session Overview

08:35 – 12:05  SESSION X: MICROPLASMAS IN LIQUIDS
Session Chair: O. Sakai

08:35 – 09:05  Koichi Yasuoka
Tokyo Institute of Technology, Japan
“Plasma-Water Processes and Electrohydrodynamic Gas Flow Generation Using Micro Plasmas”

09:05 – 09:35  Mark Kushner
University of Michigan, USA
“Self-Contained Multiphase Microplasmas: Bubbles in High Pressure Gases and Liquids”

09:35 – 10:05  Takaaki Tomai
University of Tokyo, Japan
“Atmospheric Pressure Plasma Generation in Microbubbles Formed in Saline Solution”

10:05 – 10:35  Break

10:35 – 11:05  Toshiro Kaneko
Tohoku University, Japan

11:05 – 11:35  Naoki Shirai
Tokyo Institute of Technology, Japan

11:35 – 12:05  Closing Remarks and Future Plans

12:05  Pick up boxed lunch
POSTER SESSION I

1. “Modeling of Atmospheric Pressure Plasmas”
   H. W. Lee, Pohang University of Science and Technology

2. “Self-Consistent Simulation of Plasma and Gas Dynamics in Microplasmas”
   M. Jugroot, Royal Military College of Canada

3. “Modeling Cathode Boundary Layer Discharges”
   E. Munoz-Serrano, University of Cordoba

4. “Fluid Modeling of Microwave Micro-Plasmas at Atmospheric Pressure”
   J. Gregorio, Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Laboratoire de Physique des Gaz et des Plasmas, Université Paris Sud

5. “Study of a Microwave Micro-Plasma Reactor at Atmospheric Pressure”
   J. Gregorio, J. Gregorio, Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Laboratoire de Physique des Gaz et des Plasmas, Université Paris Sud

6. “Impedance of a Microwave Atmospheric Plasma During Ignition”
   S. Kühn, Gerdinand-Braun-Institut für Höchstfrequenztechnik

7. “Spatial and Temporal Resolved Surface Charge Measurement in a Dielectric Barrier Discharge”
   L. Stollenwerk, Institut für Plasmaforschung

   K. Urabe, Kyoto University

9. “Electric Field Measurements in Near-Atmospheric Pressure Nitrogen and Air Based on a Four-Wave Mixing Scheme”
   S. Mueller, Ruhr-University Bochum

10. “Coupling of Imaging and Emission Spectroscopy for Microplasma Studies”
    C. Lazzaroni, Ecole Polytechnique

11. “Absolute Atomic Oxygen Density Measurements Inside the Core and Effluent of a Micro-Scaled Atmospheric Pressure Plasma Jet”
    N. Knake, Ruhr-University Bochum

12. “Breakdown Voltage in Radio-Frequency Helium Microdischarges”
    M. Ramlilovic-Radjenovic, Institute of Physics, Belgrade
   M. Radmilovic-Radjenovic, Institute of Physics, Belgrade

14. “Power Deposition Scaling in an Atmospheric Pressure Capillary Dielectric Barrier Discharge”
   B. Sands, UES, Inc.

   H. –J. Lee, Pusan National University

16. “Self-Pulsing of a Micro Hollow Cathode Discharge”
   B. Du, Ruhr University Bochum

   J. Lopez, Saint Peter’s College

   J. Lopez, Saint Peter’s College

   Q. Nie, Loughborough University

20. “Kinetic Alfven Waves in the Presence of Ion Beam in Plasma Sheet Boundary Layer-Particle Aspect Analysis”
   J. Shrivastava, Invertis Institute of Engineering & Technology

21. “Direct Current Cathode Boundary Layer Xenon Discharges”
   W. Zhu, Saint Peter’s College

   A. Nishida, Osaka University
POSTER SESSION II

1. “Cold Atmospheric Plasma Jets Arranged in a Honeycomb Array”
   Z. Cao, Loughborough University

   K. S. Kim, University of Illinois

3. “Hybrid Microcavity and Microchannel Plasma Arrays Fabricated in Aluminum Foil: Large Scale Array Fabrication and Discharge Characteristics”
   K. S. Kim, University of Illinois

   J. Ma, University of Illinois

5. “Formation of Microplasma in Small Capillaries”
   S. Panowitz, University of Stuttgart

   S. H. Sung, University of Illinois

   Paul Tchertchian, University of Illinois

   Je Kwon Yoon, University of Illinois

   B. C. Masters, University of Illinois

10. “Plasma Diagnostics of Underwater Electrical Diaphragm Discharges for Textiles Treatment”
    A. Brablec, Masaryk University

11. “Recent Progress in Applications of Coplanar Surface Barrier Discharges for Low-Cost High-Speed Material Processing”
    M. Cernak, Comenius University

12. “Localized Surface Treatment Using a Microwave Generated Surface Wave Microplasma”
    J. J. Narendra, Michigan State University
13. “Reduction of Gaseous Dimethyl Sulfide (DMS) Using Coaxial Dielectric-Barrier Discharge at Atmospheric Pressure”
H. – H. Chen, National Cheng Kung University

A. Kudryavtsev, St. Petersburg State University

Y. Nagata, Tokyo Institute of Technology

S. Ibuka, Tokyo Institute of Technology

17. “Characterization of Arc Extinction using Pulsed Micro-Arc Discharge with CO$_2$ Gas Blasting”
M. Kanemaru, Tokyo Institute of Technology

18. “New Sustain Waveform for Improving the Luminous Efficacy in a Wide Gap Plasma Display”
J. -H. Seo, University of Incheon

19. “Non-Thermal Plasma Devices at Atmospheric Pressure for Biomedical Applications”
Y. S. Seo, Pohang University of Science and Technology

H. J. Lee, Pusan National University

Y. Sakiyama, University of California at Berkeley

22. “Microplasmas At The Tip Of Al/Al$_2$O$_3$ Microscopic Electrodes In Water Or Saline Solutions”
Y. Sakiyama, University of California at Berkeley

23. “Microplasma Production of Singlet Oxygen at Atmospheric Pressure for DNA Oxidation”
J. Santos Sousa, LPGP, CNRS-UPS and IPFN IST

24. “Inactivation of Bacteria in Aqueous Environment by Atmospheric Pressure Non-Thermal Plasma”
P. Sun, Peking University