

# ICPAT – 10

## Tentative Agenda

Monday, 7 March

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8.30 – 9.00 Registration: Iberostar Hotel, Blvd. Kukulcan Km 17 Zona Hotelera, Cancun, Quintana Roo, Mexico, CP:77500, Tel (front desk): 52-998 881 8000

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9.00 – 9.20

### ICPAT-10 OPENING

Welcome remarks from *Dr. Igor Matveev* (ICPAT-10 Chair, Applied Plasma Technologies, LLC)

Presentation of volume 2 of the PAC book, announcements

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9.20 – 11.00

### PLASMA GENERATION, DIAGNOSTICS, AND MODELING

Chaired by *Dr. Igor Matveev*  
Applied Plasma Technologies, LLC; USA

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9.20 – 10.00

#### **Progress in High Power ICP/RF Plasma for Gasification, New Materials Production, and Tests**

*Dr. Igor Matveev, Svetlana Matveyeva* (Applied Plasma Technologies, LLC; USA)

*Dr. Sergey Zverev* (St.-Petersburg State Polytechnic University, Russia)

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10.00 – 10.30

#### **Computational Study of Analyte Transport Through an Inductively Coupled Plasma Torch**

*Dr. M. Aghaei, A. Bogaerts* (Research group PLASMANT, University of Antwerp, Antwerp, Belgium)

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10.30 – 11.00

Round Table on Plasma Generation, Diagnostics, and Modeling

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11.00 – 11.15

Coffee break

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11.15 – 16.00

### PLASMA IGNITION AND FLAME CONTROL FUEL REFORMATION AND ACTIVATION

Chaired by *Prof. Alexander Ustimenko*  
Research Institute of Experimental and Theoretical Physics of Kazakhstan National University, Almaty, Kazakhstan  
Co-chair *Dr. Edbertho Leal-Quiros*, California State University Fresno USA

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11.15 – 11.45

#### **Prospective Solutions for Ignition and Flame Control in Gas Turbines: Plasma Igniters, Pilots, Plasma Fuel Nozzles**

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*Dr. Igor Matveev, Svetlana Matveyeva* (Applied Plasma Technologies, LLC; USA)

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11.45 – 12.15 **Development of a Plasma Assisted Lean Premixed Fuel Injector for Gas Turbine Engines**

*Felipe Gomez del Campo and Joseph Heebner*  
(FGC Plasma Solutions and Case Western Reserve University, Cleveland, United States)

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12.15 – 14.00 Lunch

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14.00 – 14.30 **Time-resolved Emission Measurement of Laser-induced Breakdown in Hydrocarbon Fuel Mixtures**

*Kazunobu Kobayashi and Hiroki Tanaka*  
(Energy Technology Laboratories, Osaka Gas Co., Ltd., Osaka, Japan)  
*Moon Soo Bak* (Sungkyunkwan University, Republic of Korea)  
*Campbell Carter* (Air Force Research Laboratory, Wright-Patterson Air Force Base, USA)  
*Hyungrok Do* (Seoul National University, Seoul, Republic of Korea)

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14.30– 15.00 **Plasma-Aided Processing of Solid Fuel Organic and Mineral Mass**

*V.E. Messerle* (Combustion Problems Institute, Almaty, Kazakhstan, Institute of Thermophysics of SB RAS, Novosibirsk, Russia)  
*A.L. Mosse* (A.V. Luikov Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus, Minsk, Belarus)  
*A.B. Ustimenko* (Research Institute of Experimental and Theoretical Physics of Kazakhstan National University, Almaty, Kazakhstan)

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15.00– 15.30 **Small Scale Gas to Liquids (SS GTL)**

*Dr. Igor Matveev* (Applied Plasma Technologies, LLC; USA)

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15.30 – 16.00 Round Table on Plasma Ignition and Flame Control, Fuel Activation and Reformation

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16.00 – 16.15 Break

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16.15 – 17.45

**PLASMA TREATMENT FOR COATINGS AND SURFACE MODIFICATION**

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Chaired by *Dr. Rajan Bamola*  
Surface Modifications, Inc., USA

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16.15 – 16.45 Plasma Modification for the Deposition of Hard and Adherent Diamond-like Carbon Coatings using an Active Screen as an Additional Cathode  
*Dr. G. Capote* (National University of Colombia, Bogota D.C., Colombia)  
  
*V. J. Trava-Airoldi* (Institute for Space Research, Sao Jose dos Campos, Brazil)

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16.45 – 17.15 **Anti-Fogging Properties of Nanostructured Polymer Surface by PECVD**  
*Sun Mi Yoon* (Korea Institute of Science and Technology, Korea University, Seoul, Korea)  
*Gunha Lee* (Seoul National University of Science and Technology, Seoul, Korea)  
*Sahn Nahm* (Korea University, Seoul, Korea)  
*Myoung-Woon Moon* (Korea Institute of Science and Technology, Seoul, Korea)

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17.15 – 17.45 Round Table on Plasma Treatment for Coatings and Surface Modification

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18.00 – 20.00 Welcome party

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Tuesday, 8 March

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9.00 – 11.00 **NEW PLASMA EFFECTS AND PROSPECTIVE APPLICATIONS**

Chaired by *Professor Homero Maciel*  
UNIVAB, Brazil  
Co-chair *Professor Gerardo Diaz*  
University Of California Merced, USA

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9.00 – 9.30 **Protection of Cellulose-Based Cultural Heritage Objects by Plasma Decontamination and Coating**  
*E. G. Ioanid* („Petru Poni” Institute of Macromolecular Chemistry of Iasi), *D. Rusu* („Moldova” National Museum Complex), *S. Dunca and C. Tanase* („Alexandru Ioan Cuza” University of Iasi), *V. Frunză and G. Savin* (S.C. Romcatel Impex Research Design S.A. of Iasi), Romania

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9.30 – 10.00 **Plasma Treatment of Dentin Surfaces for Improving Adhesive/Dentin Interface Bonding**  
*Xiaoqing Dong and Qingsong Yu* (University of Missouri, Columbia, USA), *Meng Chen* (Novano, Inc., Columbia, USA),

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*Yong Wang* (Center for Research on Interfacial Structure & Properties, School of Dentistry, University of Missouri-Kansas City, USA)

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10.00 – 10.30 **A Study on Electrode-less Plasma Light Source Using GaN Transistor**

*Kiho Lee, ChoelJun Kim, Samuel Cho* (RFHIC Corporation, Anyang, South Korea)

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10.30 – 11.00 Round Table on New Plasma Effects and Applications

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11.00 – 11.15 Coffee-break

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11.15 – 17.00

### **WATER TREATMENT**

Chaired by *Dr. Isaiah Blankson*  
*NASA Glenn Research Center, USA*

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11.15 – 11.45 **Water Purification by High-Voltage Nanosecond Plasma: New Developments**

*Dr. Isaiah M. Blankson* (NASA Glenn Research Center, USA)  
*Dr. John E. Foster* (University of Michigan, USA)

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11.45 – 12.15 **Liquid Processing by RF Field**

*Dr. George Paskalov* (Plasma Microsystems, LLC; USA)

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12.15 – 12.45 **Plasma System for Liquid Fertilizer Production From Air and Water**

*Dr. Igor Matveev* (Applied Plasma Technologies, LLC; USA)

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Poster **Degradation of the Dye NA52 Present in Water Using a DC Plasma at Atmospheric Pressure**

*G. F. Salazar, C. Torres, J. Vergara, E. Montiel*  
(Universidad Autónoma del Estado de Morelos, Ayala, Morelos, México), *P. G. Reyes, A. Gómez* (Universidad Autónoma del Estado de México, Toluca, Estado de México, México), *H. Martínez* (Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, Cuernavaca, Morelos, México).

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Poster **Horizontal Water Well Cleaning by Underwater Pulsed Spark Discharges**

*K. J. Chung, Y. S. Hwang, G. C. Park* (Seoul National University, South Korea) and *C. Y. Kim* (Sun & Sea Co. Ltd., Seoul, South Korea)

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12.45 – 14.00 Lunch

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14.00 – 14.30 Round Table on Water Treatment

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14.30 – 16.00

### PLASMA MINERALOGY

Chair *Dr. George Paskalov*  
Plasma Microsystems LLC, Los Angeles, USA

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14.30 – 15.00 **RF Plasma Ore Processing: Development and Commercial Applications**

*Dr. George Paskalov* (Plasma Microsystems LLC, Los Angeles, CA, USA)

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15.00 – 15.30 **Preliminary Estimations of Ore Processing Efficiency**

*Dr. Igor Matveev* (Applied Plasma Technologies, LLC; USA)

*Dr. Sergei Zverev* (Saint-Petersburg Polytechnic University, Russia)

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15.30 - 16.00 Round Table on Plasma Mineralogy

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16.00 – 17.30

### PLASMA KINETICS

Chaired by *Dr. Anatoliy Kudryavtsev*  
Saint-Petersburg State University, Russia

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16.00 – 16.30 **The Influence of Ambipolar Electric Field on the EDF Formation and the Electron Processes in Low Temperature Plasmas**

*M.B. Krasilnikov, A. A. Kudryavtsev* (Saint Petersburg State University, Saint Petersburg, Russia)

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16.30 – 17.00 **Application of High Pressure Helium Microdischarge with Non-Local Plasmas as a Gas-Analysis Sensor**

*A.A. Kudryavtsev, A.I. Saifutdinov* (St. Petersburg State University, Russia)

*M. Stefanova, P. Pramatarov* (Institute of Solid State Physics, Bulgarian Academy of Sciences, Bulgaria)

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17.00 – 17.30 Round Table on Plasma Kinetics

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17.30 – 18.00 Meetings, negotiations

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Wednesday, 9 March

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9.00 – 14.30

**COAL, BIO-MASS, AND WASTE INTO ENERGY PROCESSING**

Chaired by *Prof. Vladimir Messerle*  
Combustion Problems Institute

*Prof. Alexander Ustimenko*  
Research Institute of Experimental and Theoretical Physics of  
Kazakhstan National University, Kazakhstan)

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9.00 – 9.30

**Mercury Removal From Solid Waste by Reactive Plasma and Thermal Desorption Processes**

*G. Petraconi* (Technological Institute of Aeronautics, Brazil)  
*A.C. Cruz* (Recaltech: Plasma Technology, Brazil)  
*A.R. Coutinho* (Piracicaba Methodist University, Brazil)  
*A. Petraconi* (Mogi das Cruzes University, Brazil)

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9.30 – 10.00

**Current Status and Prospects of Waste-to-Energy Process Using Plasma Technology in China**

*Jun Li and Kou Liu* (China TIANYING Inc., Shanghai, China)

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10.30 – 11.00

**Sewage Sludge-to-Power**

*Dr. Igor Matveev* (Applied Plasma Technologies, LLC; USA)  
*Prof. Serhiy Serbin, Prof. Nikolay Washchilenko* (National University of Shipbuilding, Ukraine)

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11.00 – 11.15

Coffee Break

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11.15 – 11.45

**Carbon Containing Waste Plasma Processing**

*V.E. Messerle* (Combustion Problems Institute, Almaty, Kazakhstan, Institute of Thermophysics of SB RAS, Novosibirsk, Russia)  
*A.L. Mosse* (A.V. Luikov Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus, Minsk, Belarus)  
*A.B. Ustimenko* (Research Institute of Experimental and Theoretical Physics of Kazakhstan National University, Almaty, Kazakhstan)

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11.45 – 12.15

**Inertiation of Sludge Produced During Treatment of Landfill Leachate by Thermal Plasma**

*A.L.V. Cubas, M. M. Machado, A. R. A. Dutra, E. H. S. Moecke* (University of Southern Santa Catarina State (Unisul), Brazil)

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12.15 – 12.45

**Plasma Processing of Organic Materials**

*E. Leal-Quiros* (California State University Fresno, USA)

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*G. Diaz* (University Of California Merced, USA)

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12.45 – 14.00 Lunch

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14.00 – 14.30 Round Table on Coal, Bio-mass, and Waste into Energy Processing

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14.30 - 16.00

### **ELECTRIC PROPULSION**

Chair *Professor Paolo Gessini*  
University of Brasilia, Brazil

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14.30 – 15.00 **Simulation of Erosion of Orifice in Hollow Cathode of Stationary Plasma Thruster SPT-100 with Dynamically Changing Geometry**

*E. V. Demidov, S.I.Eliseev, A.A. Kudryavtsev*  
(Saint Petersburg State University, Saint Petersburg, Russia)

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15.00 – 15.30 **Ablative Pulsed Plasma Thrusters for High Delta-V, High Total Impulse Missions with Small Spacecraft**

*Paolo Gessini, Lui T. C. Habl, Gabriela C. Possa*  
(University of Brasília, Brasília, Brazil)

*Stephen B. Gabriel* (University of Southampton, Southampton, UK)

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15.30 – 16.00 Round Table on Electric Propulsion

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16.00 – 16.30

### **BUSINESS FORUM**

Chaired by *Dr. Igor Matveev*, Applied Plasma Technologies, LLC; USA

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16.00 – 16.30 **Five Top List Plasma Technologies for Immediate Development and Marketing**

*Dr. Igor Matveev* (Applied Plasma Technologies, LLC; USA)

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16.30 – 18.00

### **DISCUSSIONS, NEGOTIATIONS**

Conference Closing

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