

**XXIX  
INTERNATIONAL CONFERENCE ON  
PHENOMENA IN IONIZED GASES**

**Cancún, México**

**12-17 July, 2009**



Sponsored by

International Union of Pure and Applied Physics  
Universidad Nacional Autónoma de México  
Universidad Autónoma Metropolitana  
Universidad Autónoma Metropolitana-A  
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**CONFERENCE PROGRAMME**

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## INTERNATIONAL SCIENTIFIC COMMITTEE

Representative	Geographical areas
Jean-Paul Booth, <i>Chairman</i>	<b>France</b> , Andorra, Spain, Portugal and North Africa
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Andrey Starostin	<b>Russia</b> , Armenia, Belarus, Georgia, Ukraine and the other new states of the former Soviet Union

## LOCAL ORGANIZING COMMITTEE

J. de Urquijo	<b>Chair</b> , Universidad Nacional Autónoma de México
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M. Pacheco	Instituto Nacional de Investigaciones Nucleares
A. Robledo	Universidad Autónoma Metropolitana-A

# **CONFERENCE TOPICS**

## **A. Fundamentals**

1. Elementary processes and fundamental data
2. Thermodynamics and transport phenomena
3. Plasma wall interactions, electrode and surface effects
4. Collective and Nonlinear Phenomena

## **B. Modeling, Simulation, and Diagnostics**

5. Modeling and simulation techniques
6. Plasma diagnostic methods

## **C. Plasma Sources and Discharge Regimes**

7. Astrophysical, geophysical and other natural plasmas
8. Low pressure discharges
9. High frequency discharges
10. Non-equilibrium plasmas and microplasmas at high pressures
11. Thermal plasmas
12. Complex and dusty plasmas

## **D. Applications**

13. Plasma processing of surfaces and particles
14. High pressure and thermal plasma processing
15. Plasma lamps and radiation sources
16. Medical, biological, and environmental applications
17. Plasma power and pulsed power technology, particle sources

# CONFERENCE LOGISTICS

All participants and registered accompanying persons are kindly requested to wear their badges while in the sessions, welcome reception, excursion and banquet.

All **invited speakers** are requested to provide their presentations (Power Point or Adobe Acrobat files) either on a CD or a USB memory, at least one day ahead of their presentation.

**Poster sessions** will start after lunch at 1:30 pm on Monday 13 and Thursday 16 July, and end at 3:30 pm. Participants are requested to put up their posters before 11:30 am (coffee break may be a good time to do this), and to remove them before 9:00 am on the next day.

Key identifiers to all sessions:

xx - Consecutive number  
yy - Topic number

**Gxx** General Invited talk  
**TAx or TBxx** Topical invited talk A or B number  
**WAxx or WBxx** Workshop talk A or B  
**PAyy-xx** Poster session A on Monday  
**PByy-xx** Poster session B on Thursday

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*Front page logo by Carolina de Urquijo-Isoard*

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SUNDAY, 12 July

*Sunday*

13:00 – 22:00 **Registration** at the Cancún Convention Centre

19:00 – 21:00 **Welcome reception** at the terrace of the Cancún Convention Centre

8:40 – 9:00

**OPENING CEREMONY**

*Costa Maya A  
J. P. Booth, Chair*

**GENERAL INVITED LECTURES**

*Costa Maya, A  
N. Braithwaite, Chair*

9:00 – 9:45

**G1 Akihiro Kono**

*Nagoya University, Japan*

Plasma boundary phenomena in electronegative plasmas

9:45 – 10:30

**G2 Remigio Cabrera-Trujillo**

*Instituto de Ciencias Físicas, UNAM, México*

Helium and hydrogen charge exchange collisions at keV Energies

10:30 – 11:00

*Coffe break*

**TOPICAL LECTURES**

*Session A*

*Costa Maya A*

*I. Tanarro, Chair*

*Session B*

*Costa Maya B*

*W. Graham, Chair*

**11:00 – 11:30**

**TA1**

**Anatoly Napartovich**

*SRC RF Troitsk, Russia*

The value of swarm data for practical modeling of plasma devices

**TB1**

**Gordana Malović**

*Institute of Physics, Belgrade, Serbia*

Mass analysis of atmospheric pressure discharges

11:30 – 12:00

TA2

**Vincent Giovangigli**

*Ecole Polytechnique, CMAP,  
CNRS, France*  
Multicomponent transport in  
weakly ionized gases

TB2

**Sabine Paulussen**

*Vlaamse Instelling voor  
Technologisch Onderzoek, Belgium*  
Plasma-assisted conversion of  
greenhouse gases

12:00 - 12:30

TA3

**Vasco Guerra**

*IPFN, Instituto Superior Técnico,  
Lisboa, Portugal*  
Atom recombination at surfaces on  
plasmas

TB3

**Victor Law**

*NCPST, Dublin City University,  
Ireland*  
Non-invasive VHF monitoring of  
atmospheric pressure plasma

12:30 – 13:30 *Lunch*

13:30 – 15:30 **POSTER SESSION A**

Hall of Costa Maya  
*A.M. Juárez, J.L. Hernández Ávila, Chairs*

**TOPIC 1**

*Elementary processes and fundamental data*

- PA1-1** Low kinetic energy photoelectron angular distributions of  $n=2$  to  $n=6$  Helium satellite states using a velocity map imaging spectrometer  
*L.M. Hoyos, E.C. Red, A. Aguilar, M. Hoener, A.M. Juarez*
- PA1-2** Excitation of Ar atoms into  $(3p^5 4p)$  states at low-energy Ar-Ar collisions  
*S.Yu. Kurskov, A.S. Kashuba*
- PA1-3** Confinement potentials and ultra-cold plasma trapping in atomic chips: A numerical approach  
*J. López-Miranda, R. Cabrera-Trujillo, B.D. Esry*
- PA1-4** Numerical approach towards the study of laser-assisted atomic collisions  
*F.J. Domínguez-Gutiérrez, R. Cabrera-Trujillo*

- PA1-5** Study of VUV emission of krypton using two-photon absorption laser induced fluorescence (TALIF) technique  
*F. Marchal, G. Jabbour, M. Yousfi, G. Ledru, N. Sewraj*
- PA1-6** Spectral Data for Chlorine Cl i - Cl xvii  
*L.I. Podobedova*
- PA1-7** Absolute single photoionization of  $\text{Se}^{3+}$  ions for the determination of elemental abundances in astrophysical nebulae  
*D.A. Esteves, N.C. Sterling, A.L.D. Kilcoyne, R. C. Bilodeau, E. Red, R.A. Phaneuf, B.M. McLaughlin, C.P. Ballance, A. Aguilar*
- PA1-8** Determination of collisional quenching rate coefficient of  $(\text{N}_2 (\text{A}^3\text{S}_u^+))$  by formaldehyde  
*S.Suzuki, D. Shibuya, M. Aoyagi, H.Itoh*
- PA1-9** Double electron capture by protons from Ar,  $\text{H}_2$  and He  
*O. González-Magaña, R. Cabrera-Trujillo, M.Salazar, C. Gleason, E. González, G. Hinojosa*
- PA1-10** Collision induced fragmentation cross sections of  $\text{CO}_2^+$  on He: Experiment and theory  
*O. González-Magaña, R. Cabrera-Trujillo, G. Hinojosa*

## **TOPIC 4** *Collective and Nonlinear Phenomena*

- PA4-1** Electron collisions in dissipative drift wave instability  
*J. Vranjes, S. Poedts*
- PA4-2** Sheath theory in hot two-ion electron plasma  
*J. Vranjes, S. Poedts*
- PA4-3** Instability-enhanced collisional friction determines the Bohm criterion in multiple-ion-species plasmas  
*S.D. Baalrud, C.C. Hegna, J.D. Callen*
- PA4-4** Modeling of Aftereffect Phenomena in Modified Ionosphere Plasma  
*A. V. Kochetov*
- PA4-5** Dynamics of cavitations induced by tandem shock waves in water  
*P. Hoffer, P. Sunka, V. Stelmashuk*
- PA4-6** Existence and stability of one-dimensional bright solitons in warm plasmas  
*M.A. Maza-Palacios, J.J.E. Herrera*

## **TOPIC 5** *Modeling and simulation techniques*

- PA5-1** Reactive sputter deposition of TiOx films in a magnetron discharge, described with a particle-in-cell/Monte Carlo collisions model  
*E. Bultinck and A. Bogaerts*

- PA5-2** Computer simulations in electronegative plasma  
*P. Bartoš, R. Hrach, V. Hrachová, M. Švarc, J. Harvalík*
- PA5-3** Necessity to well validating plasma and material characteristics in a simple configuration before investigation in complex geometries  
*J.J. Gonzalez, P. Freton, M. Masquère, R. Valdivia, M. Pacheco*
- PA5-4** Modeling of the effect of radicals on plasmas used for etching in microelectronics  
*Ž. Nikitović, M. Radmilović-Rađenović, V. Stojanović and Z. Lj. Petrović*
- PA5-5** Modeling of self organized filaments in dielectric barrier discharge Xe excimer lamp  
*H. Akashi, A. Oda and Y. Sakai*
- PA5-6** Modeling of motions of fast protons in filamentary pinches  
*M.J. Sadowski, M. Scholz, W. Stepniewski, K. Malinowski*
- PA5-7** An alternative description of ion motion in a plasma sheath  
*J. Blažek, P. Bartoš, J. Harvalík, P. Špatenka,*
- PA5-8** Large Eddy Numerical Simulation of MHD Mixing Layers  
*L. Bilbao, F.T. Gratton, G. Gnani*

## **TOPIC 6** *Plasma diagnostic methods*

- PA6-1** Inner shell photoionization of laser-ablated Sulphur clusters  
*J. Alvarez Ruiz, A. Casu, M. Coreno, M. de Simone, L. M. Hoyos, A. M. Juárez, A. Kivimäki, S. Orlando, M. Sanz, C. Spezzani, M. Stankiewicz, D.M. Trucchi*
- PA6-2** Analysis of VUV emission from a mono-filamentary dielectric barrier discharge in pure nitrogen  
*P. Rodriguez Akerreta, G. Ledru, F. Marchal, N. V. Sewraj, M. Yousfi*
- PA6-3** Laser induced fluorescence of xenon ions in a magnetized plasma  
*I. A. Biloiu, E. E. Scime, C. Biloiu*
- PA6-4** Optical spectroscopy of plasma streams and plasma-target interactions  
*E. Skladnik-Sadowska, M.J. Sadowski, K. Czaus, K. Malinowski, M. Scholz*
- PA6-5** Optical emission spectroscopy parallel to the axis of RF discharge: Application to  $N_2^*(C_3P_u)$  vibrational temperature estimation  
*P. Svarnas, J.W. Bradley*
- PA6-6** Spectroscopic characterization of electrical discharge plasma in liquids used for nanoparticles fabrication  
*V. Burakov, N. Tarasenko, A.A. Nevar, V.I. Nedelko*
- PA6-7** Langmuir probe and optical emission spectroscopy studies of low-pressure gas mixture of  $O_2$  and  $N_2$   
*L. Flores, A. Gomez, C. Torres, P.G. Reyes, M. Calixto, H. Martínez*
- PA6-8** Diagnostic studies of  $N_2-O_2-Ar$  glow discharge mixture  
*A. Gomez, L. Flores, C. Torres, P.G. Reyes, F. Castillo, H. Martínez*

- PA6-9** Low-pressure plasma discharge of Ar/N<sub>2</sub>/CO<sub>2</sub> ternary mixture  
*G. García-Cosío, M. Calixto-Rodríguez, H. Martínez*
- PA6-10** OES investigation of microhollow cathode discharge in argon  
*G. Xia, N. Sadeghi*
- PA6-11** Determination of plasma parameters in neon RF discharge by optical emission spectroscopy  
*Z Navrátil, D Trunec*
- PA6-12** LIF and absorption in a high electron density plasma  
*A.E. Shumack, J. Biesheuvel, R.A.H. Engeln, W.J. Goedheer, N.J. Lopes Cardozo, H.J. van der Meiden, J. Rapp, D.C. Schram, W.A.J. Vijvers, J. Westerhout, G.M. Wright, G.J. van Rooij*
- PA6-13** Investigation of atmospheric pressure air plasma by two-photon laser induced fluorescence  
*F. Kaddouri, G. D. Stancu, D. A. Lacoste, C. O. Laux*
- PA6-14** Optical emission spectroscopy study of dc discharges in ternary mixtures of N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub> and H<sub>2</sub>O at low pressure  
*M. Tapia-Gaspar, M. Hernández-Hernández, E. Basurto, C. Vargas, and J. L. Hernández-Ávila*

## **TOPIC 7**      *Astrophysical, geophysical and other natural plasmas*

- PA7-1** Excitation of Rossby Waves by HF electromagnetic seismic emissions in the earth's mesosphere  
*N. L. Tsintsadze, T. D. Kaladze L.V. Tsamalashvili*
- PA7-2** Excitation of dust-lower-hybrid wave and cusp soliton  
*Z. Ehsan, N.L. Tsintsadze*
- PA7-3** Nonlinear Landau Damping of Circularly Polarized EMW Propagating in Dusty Plasmas  
*Z. Ehsan, N. L. Tsintsadze, J. Vranjes, S. Poedts*
- PA7-4** The Polarization Jet influence on the subauroral ionospheric structure  
*Ye. Bondar, I. Golikov, V. Khalipov, A. Koryakin, V. Popov, T. Solovyev, A. Stepanov*
- PA7-5** An investigation of the mechanisms of Auroral Kilometric Radiation through comparative 3D PiC modelling and laboratory experiments  
*K.M. Gillespie, K. Ronald, D.C. Speirs, S.L. McConville, A.D.R. Phelps, A.W. Cross, C.W. Robertson, C.G. Whyte, R. Bingham, B.J. Kellett, I. Vorgul, R.A. Cairns*
- PA7-6** Vibrational kinetics of air plasmas induced by Sprites in the mesosphere of the Earth  
*F.J. Gordillo-Vázquez*
- PA7-7** Propagation of Fast Coronal Mass Ejections and Interplanetary Shocks  
*J.A. González-Esparza, P. Corona-Romero, E. Aguilar-Rodríguez*

## TOPIC 8 *Low pressure discharges*

- PA8-1** Experimental investigations and modeling of low-temperature plasma reactor for simulating discharges such as those expected under Tokamak divertor dome  
*L. Colina Delacqua, M. Redolfi, G. Lombardi, A. Michau, X. Bonnin, K. Hassouni*
- PA8-2** The temporal evolution of the ion bombarding energy at the substrate in a HiPIMS discharge  
*Anurag Mishra, P J Kelly, J W Bradley*
- PA8-3** Isotope mixing in plasmas of H<sub>2</sub> and D<sub>2</sub> by ion processes and wall reactions  
*I. Tanarro, V. J. Herrero*
- PA8-4** Study of an afterglow of a low-pressure dc discharge in air  
*C. D. Pintassilgo, V. Guerra, O. Guaitella, A. Rousseau*
- PA8-5** Low Pressure Breakdown in Water Vapour  
*D. Marić, N. Škoro, G. Malović, W.G. Graham, Z. Lj. Petrović*
- PA8-6** Fluorescence and plasma created by a relativistic electron beam in air  
*A. Gleizes, P. Teulet, R. Worbel, S. Darbon, A. Piquemal, A. Binet, V. Le Flanchec*
- PA8-7** Rotation of plasma in magnetic field  
*B. M. Annaratone, A. Escarguel, C. Rebont, N. Claire*
- PA8-8** High current plasma electron sources  
*Ya. E. Krasik, J. Z. Gleizer, D. Yarmolich, V. Vekselman, Y. Hadas, and J. Felsteiner*
- PA8-9** Pseudospark-sourced electron beam for terahertz radiation generation  
*A.W. Cross, H. Yin, W. He, D. Bowes, K. Ronald, A. D. R. Phelps, D. Li, J. Zhou, X. Chen, J. Protz, M. Verdiel, M. Reynolds, T. Schuhmann*
- PA8-10** Current-voltage characteristics and Paschen's-like law for dc discharges in ternary mixtures of N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub> and H<sub>2</sub>O at low pressures  
*M. Hernández-Hernández, M. Tapia-Gaspar, E. Basurto, C. Vargas, and J. L. Hernández-Ávila*

## TOPIC 10 *Non-equilibrium plasmas and microplasmas at high pressures*

- PA10-1** Interactions between atmospheric pressure plasma jets  
*Q. Th. Algwari, C. O'Neill, D. O'Connell*
- PA10-2** Fluid modelling of the constriction of the dc columns plasma in rare gases  
*M. Gnybida, D. Loffhagen, D. Uhrlandt, F. Sigeneger*
- PA10-3** Modelling of a pulsed argon discharge near a flat dielectric surface  
*A. Sobota, J. van Dijk, E.M. van Veldhuizen, W.W. Stoffels, J Hendriks, F. Manders, M. Haverlag*
- PA10-4** Coupled plasma and gas dynamics in dc microplasmas  
*M. Jugroot*

- PA10-5** Numerical simulations of atmospheric pressure discharge using a three-dimensional fluid model  
*M. M. Iqbal, M. M. Turner*
- PA10-6** Characteristics of atmospheric pressure discharge using a two-dimensional fluid model  
*M. M. Iqbal, M. M. Turner*
- PA10-7** Energy coupling to the plasma in a spatially uniform nanosecond pulse discharge  
*Igor V. Adamovich and Munetake Nishihara*
- PA10-8** Vibrational temperature and vibrational relaxation of molecular oxygen in the afterglow of pulsed corona discharge  
*R. Ono, Y. Teramoto, T. Oda*
- PA10-9** Measurement of  $N_2(A^3\Sigma^+ u)$  metastable in  $N_2$  pulsed positive corona discharge with trace amounts of additives  
*Y. Teramoto, R. Ono, T. Oda*
- PA10-10** A high efficiency bipolar pulsed power source for DBD discharges  
*R. Valdivia-Barrientos, M. Pacheco-Pacheco, J. Pacheco-Sotelo, N. Estrada-Martínez, F. Ramos-Flores, J. García-García, Pierre Freton*
- PA10-11** Effect of applied voltage parameters on the electric characteristics of a DBD in coaxial electrode configuration  
*D. Petrovic, T. Martens, C. De Bie, J. Van Dijk, W. Brok, A. Bogaerts*
- PA10-12** Dielectric barrier-free atmospheric pressure radio-frequency glow discharges in narrow gaps  
*J. Laimer, H. Reicher, Qurat-ul-Ain*
- PA10-13** Diameters of positive streamers in pure  $N_2/O_2$  mixtures  
*S. Nijdam, F.M.J.H. van de Wetering, E.M. van Veldhuizen, U. Ebert*
- PA10-14** Development of a trielectrode plasma curtain at atmospheric pressure with different dielectric configuration  
*D. Grondona, R. Sosa, A. Márquez, G. Artana, H. Kelly*
- PA10-15** Electrical modeling of a trielectrode sliding discharge  
*F.O. Minotti, D. Grondona, P. Allen, H. Kelly*
- PA10-16** Atmospheric pressure molecular gas glow discharges in a three-electrode configuration  
*V.I. Arkhipenko, A.A. Kirillov, Ya.A. Safronau, L.V. Simonchik*
- PA10-17** Self-sustained normal DC atmospheric pressure glow discharges in noble and molecular gases: from microampere discharge up to high current one  
*V.I. Arkhipenko, A.A. Kirillov, Ya.A. Safronau, L.V. Simonchik, S.M. Zgirouski*
- PA10-18** Physical and chemical characteristics of the plasma bullets  
*M. Laroussi, A. Begum, E. Karakas, J. Jarrige, N. Mericam-Bourdet, S. Dahli*
- PA10-19** Simulation of the optical emission of a discharge in air at atmospheric pressure between two point electrodes  
*Z. Bonaventura, S. Celestin, A. Bourdon*

## TOPIC 12 *Complex and dusty plasmas*

- PA12-1** Electron beam driven surface plasma waves in a magnetized dusty plasma cylinder  
*S.C. Sharma, V. Prakash*
- PA12-2** Ion focusing behind finite size objects in flowing plasmas; numerical studies in two and three dimensions  
*W.J. Miloch, H.L. Pécseli, J. Trulsen*
- PA12-3** Properties of dust formations in stratified helium-argon dc discharge  
*T.T. Daniyarov, T.S. Ramazanov, S.K. Kodanova, M.K. Dosbolayev, E.B. Zhankarashev*
- PA12-4** Fluid Computer Simulations in Plasma Physics: Electrical Charging of Micron-sized Particulates in Plasma Sheath  
*P. Bartoš, M. Švarc, J. Harvalík, J. Blažek, P. Špatenka*
- PA12-5** PIC-MC code for the transport of plasma particles and surface produced negative ions across a magnetic field  
*D. Wunderlich, R. Gutser, U. Fantz*
- PA12-6** Fluid model of ion-ion plasma formation and magnetic electron filtering  
*G. Leray, P. Chabert, A. J. Lichtenberg, M. A. Lieberman*
- PA12-7** Possible acceleration of dust particles in fusion devices  
*Z. Ehsan, M. Coppins, J. E. Allen*

## TOPIC 13 *Plasma processing of surfaces and particles*

- PA13-1** Two-step in-situ RF plasma process for surface conditioning of organic electronic patterned substrates  
*P. Svarnas, J.W. Bradley, A.G. Shard*
- PA13-2** Thin film deposition with a cold atmospheric pressure plasma jet for corrosion protection of aluminum and for tailoring adhesion properties  
*U. Lommatzsch, J. Ihde*
- PA13-3** Plasma treatment of polydimethylsiloxane thin films studied by infrared reflection absorption spectroscopy  
*V. Danilov, C. Dölle, M. Ott, H.-E. Wagner, and J. Meichsner*
- PA13-4** Plasma generation induced by triboelectrification  
*Y. Kusano, S.V. Singh, P.K. Michelsen*
- PA13-5** High-speed cleaning/treatment of metal surface using an atmospheric damage-free plasma source  
*S. Yamasaki, H. Miyahara, R. Sasaki, R. Shimada, E. Hotta, A. Okino*
- PA13-6** Plasma deposition and diagnostics of photo-catalytic effects of TiO<sub>x</sub>-based thin solid films  
*J. Harvalík, Z. Michalčík, P. Bartoš, P. Špatenka M. Švarc*

- PA13-7** Morphology of particles of nanodispersed titanium dioxide and compositional powder  $(\text{SiO}_2)_x(\text{TiO}_2)_{1-x}$   
*G.E.Remnev, A.I.Pushkarev, D.V.Ponomarev, R.V.Sazonov, Yu. S. Martinez*
- PA13-8** Plasma damage mechanism of porous SiOCH films evaluated by in-situ measurement system for film properties and absolute radical-density  
*H.Yamamoto, K. Takeda, M. Sekine, M. Hori*
- PA13-9** Plasma power dependence of properties of amorphous fluorocarbon films composed by PECVD using perfluorooctane  
*K. Mizuno, H. Sugawara, Y. Sakai, A. Murayama*
- PA13-10** Nitrogen plasma treatments on chemically deposited CdS thin films  
*M. Calixto-Rodriguez, H. Martínez, C. Cortés, M.E. Calixto, H.E. Esparza-Ponce, B.D. Castrejón*

## **TOPIC 14**      *High pressure and thermal plasma processing*

- PA14-1** Decolouration of organic dye in aqueous solution using a pulsed-discharge plasma  
*K. Satoh, S. Ikoma, H. Itoh*

## **TOPIC 16**      *Medical, biological, and environmental applications*

- PA16-1** UV radiation in Ar-O<sub>2</sub>, N<sub>2</sub>-O<sub>2</sub> and Ar-O<sub>2</sub>-N<sub>2</sub> microwave discharges and post-discharges  
*K. Kutasi, V. Guerra, P. Sá, J. Loureiro*
- PA16-2** Emission spectra of plasmas generated by electrostatic discharges on solar array surfaces  
*Boris Vayner*
- PA16-3** Development of biofunctional coatings on titanium implants to improve biocompatibility and osteoinductivity  
*C. Schrader, J. Bossert, U. Finger, A.Henning, A. Hüppner, K.-D. Jandt, M. Pfister, J. Schmidt, S. Zankovych*
- PA16-4** Magnetron sputtering deposition of biocompatible coatings  
*S. E. Rodil, G. Ramirez, H. Arzate, S. Muhl, E. Camps, L. Escobar-Alarcón*
- PA16-5** Sterilization of polymeric material by plasma-based ion implantation  
*N. Sakudo, N. Ikenaga, F. Ikeda, Y. Nakayama, Y. Kishi, Z. Yajima*
- PA16-6** Development of multi-gas inductively coupled plasma source and its application for anesthetic gas decomposition  
*H. Miyahara, Y. Goto, R. Sasaki, E. Hotta, A.Okino*
- PA16-7** Decontamination of a rotating cutting tool during operation by means of atmospheric pressure plasmas  
*F. Leipold, Y. Kusano, F. Hansen, T. Jacobsen*
- PA16-8** Sustainable waste management using plasma gasification at the campus of the University of California-Merced  
*G. Diaz, E. Leal-Quiros*

- PA16-9** Double and single dielectric barrier discharge for toxic gas removal  
*N. Estrada, M. Pacheco, J. Pacheco, R. Valdivia*
- PA16-10** Partial oxidation of methane to liquid oxygenates using atmospheric pressure non-equilibrium plasma microreactor  
*M. Nakase, A. Agiral, T. Nozaki, J.G.E. (Han) Gardeniers, K. Okazaki*
- PA16-11** Electric wind produced by a surface plasma discharge energized by a burst modulated high voltage  
*N. Benard, E. Moreau*
- PA16-12** Chemical activity of coplanar DBD with alumina and alumina+TiO<sub>2</sub> electrodes tested on VOC decomposition  
*Z. Machala, K. Hensel, J. Sic, J. Rahel*
- PA16-13** Plasma coal ignition for utility power plants  
*Edbertho Leal-Quirós, Igor Matveed*

**GENERAL INVITED LECTURES**

Costa Maya, Room A  
T. Gans, Chair

- 9:00 – 9:45      **G3**      **Gilles Cunge**  
*Laboratoire des Technologies de la Microélectronique,  
Grenoble, France*  
Reaction mechanisms in industrial silicon plasma etch reactors
- 9:45 – 10:30    **G4**      **Juergen Meichsner**  
*Institute of Physics, University of Greifswald, Germany*  
Reactive Plasma-Surface Interaction
- 10:30 – 11:00    *Coffe break*

**TOPICAL LECTURES**

*Session A*

Costa Maya A  
A. Bogaerts, Chair

*Session B*

Costa Maya B  
P. Chabert, Chair

**11:00-11:30**

**TA4**

**Erwin Kessels**  
*Eindhoven University of  
Technology, Netherlands*

Plasma-assisted atomic layer  
deposition of ultrathin oxide and  
metal films

**TB4**

**Åshild Fredriksen**  
*University of Tromsø, Norway*

The formation of beams and  
instabilities in Njord – a new plasma  
device for space related experiments

**11:30-12:00**

**TA5**

**Jeon G. Han**  
*Sungkyunkwan University,  
Korea*

**TB5**

**Shunjiro Shinohara**  
*Kyushu University, Japan*

Microstructure control of thin film  
by plasma diagnostics in  
magnetron sputtering

Large area high-density helicon  
plasma source

**12:00-12:30**

**TA6**

**Larry Overzet**

*The University of Texas at Dallas,  
USA*

Direct injection of liquid precursors  
into low pressure plasmas

**TB6**

**Beatrice M. Annaratone**

*Université de Provence, Campus St.  
Jérôme France*

Collective effects in complex plasma

12:30 – 13:30

*Lunch*

## **WORKSHOPS**

### *Workshop A*

Interactions of electrons,  
positrons and ions in gases:  
beam/swarm studies and  
applications

*Costa Maya A*

Z. Petrovic, A. Robledo, Chairs

13:30 -14:00

**WA1**

**Ron D. White**

*James Cook University, Australia*

Transport of positrons and  
electrons in gases

### *Workshop B*

Non-thermal Plasmas Relevant  
to Fusion

*Costa Maya B*

U. Fantz, J. Herrera, Chairs

13:30 -14:15

**WB1**

**Sergei Krasheninnikov**

*Univ of California - San Diego, USA*

Multifaceted physics of edge plasma  
in magnetic fusion devices

14:00 - 14:30

**WA2**

**Olivera Šašić**

*Institute of Physics, University of  
Belgrade, Serbia*

Low energy electron scattering  
cross sections and transport  
coefficients

14:15 - 15:00

**WB2**

**Guido Van Oost**

*Ghent University, Belgium*

The plasmatron VISION I for  
Plasma-Wall interaction studies at  
SCK•CEN with deuterium/tritium  
plasma

14:30 - 15:00

**WA3**

**Antonio M. Juárez-Reyes**

*Instituto de Ciencias Físicas,  
UNAM, México*

Ion transport, cross sections and  
reactivity in gases

**15:00 - 15:30**

*Coffee break*

15:30 - 16:00

**WA4**

**Mohammed Yousfi**

*Université de Toulouse, Laplace,  
France*

Basic data needed for atmospheric  
pressure non-thermal plasma  
investigations in environmental  
and biological applications

15:30 - 16:15

**WB3**

**Gilles Cartry**

*Université de Provence, Centre de St  
Jérôme, France*

Hydrogen plasma interaction with  
materials of interest for ITER

16:00 - 16:30

**WA5**

**Paulo Fonte**

*Laboratório de Instrumentação e  
Física Experimental de Partículas,  
Coimbra, Portugal*

The physics and technology of  
gaseous particle detectors

16:15 - 17:00

**WB4**

**Guillaume Lombardi**

*Laboratoire d'Ingenierie des  
Materiaux et des Hautes Pressions,  
Université Paris 13*

Experimental investigations and  
modeling of low-temperature plasma  
reactor for simulating discharges  
such as those expected under a  
Tokamak divertor dome

**GENERAL INVITED LECTURES**

*Costa Maya A  
Gary J. Eden, Chair*

9:00 – 9:45      **G5**            **Erwin Kettlitz**  
*INP Greifswald, Germany*  
Comparison of surface and volume breakdown in high pressure xenon model lamps

9:45 – 10:30    **G6**            **Uwe Kortshagen**  
*University of Minnesota, USA*  
The physics of semiconductor nanocrystal synthesis in plasmas and nanocrystal applications in renewable energy technology

10:30 – 10:00    *Coffe break*

**TOPICAL TALKS**

*Session A*  
*Costa Maya A*  
L. Boufendi, Chair

*Session B*  
*Costa Maya B*  
L.C. Pitchford, Chair

**11:00-11:30**

**TA7**  
**Yasuaki Hayashi**  
*Kyoto Institute of Technology, Japan*

Developments of fine-particle plasma systems for basic and application researches

**TB7**  
**Anne Bourdon**  
*Ecole Centrale Paris, France*

Modeling and simulation of repetitively pulsed streamer discharges between pin electrodes in preheated air at atmospheric pressure

**11:30-12:00**

**TA8**

**Miran Mozetic**

*Jozef Stefan Institute, Slovenia*

Plasma techniques for  
nanotechnologies

**TB8**

**Francisco J. Gordillo-Vázquez**

*Instituto de Astrofísica de Andalucía,  
CSIC, Spain*

Vibrational kinetics of air plasmas  
induced by Sprites in the mesosphere  
of the Earth

**12:00-12:30**

**TA9**

**Bogdana Mitu**

*National Institute for Laser, Plasma  
and Radiation  
Physics, Romania*

Plasma techniques for  
nanostructured carbon materials  
synthesis

**TB9**

**María J. Faria**

*Universidade da Madeira, Portugal*

Understanding bifurcations  
encountered in numerical modelling  
of current transfer to cathodes of DC  
glow and arc discharges

12:30 – 23:30

*Excursion to Chichén Itzá*

**GENERAL INVITED LECTURES**

*Costa Maya A  
Andrey Starostin, Chair*

- 9:00 – 9:45      **G7**      **Nigel Woolsey**  
*University of York, United Kingdom*  
Shocks and particle acceleration in magnetised laser  
plasmas for astrophysics
- 9:45 – 10:30    **G8**      **Vladimir E. Fortov**  
*Joint Institute for High Temperature, Russian Academy  
of Sciences, Russia*  
Extreme states of plasmas in laboratory and in space
- 10:30-11:00    *Coffe break*

**TOPICAL LECTURES**

*Session A*

*Costa Maya A  
L. Boufendi, Chair*

*Session B*

*Costa Maya B  
G. Malović, Chair*

**11:00-11:30**

**TA10**

**Kinga Kutasi**  
*Research Institute for Solid State  
Physics and Optics, Hungarian  
Academy of Sciences*

UV radiation in Ar-O<sub>2</sub>, N<sub>2</sub>-O<sub>2</sub> and  
Ar-O<sub>2</sub>-N<sub>2</sub> microwave discharges and  
post-discharges

**TB10**

**R. Mohan Sankaran**  
*Case Western Reserve University, USA*

Microplasma synthesis of nanoparticles

**11:30-12:00**

**TA11**

**Vladimir Zorin**

**TB11**

**Zdenko Machala**

*Institute of Applied Physics RAS,  
Russia*

Plasma generated by millimeter  
wave beams. Study and applications

*Comenius University, Faculty of  
Mathematics, Physics and Informatics,  
Slovak Republic*

Bio-decontamination by DC discharges  
at atmospheric pressure: various  
methods for identification of microbial  
inactivation mechanisms

**12:00-12:30**

**TA12**

**Yakov Krasik**

*Physics Department, Technion,  
Israel*

Underwater electrical wire explosion

**TB12**

**Josef Rahel**

*Department of Experimental Physics,  
Comenius University, Slovak Republic*

Use of volume and surface barrier  
discharges for material treatment: A  
comparison

12:30 – 13:30

*Lunch*

13:30 – 15:30

**POSTER SESSION B**

Hall of Costa Maya  
*M. Pacheco, H. Martínez, Chair*

**TOPIC 1**

*Elementary processes and fundamental data*

- PB1-1** Boltzmann equation analysis of the off-diagonal elements of the diffusion tensor in electric and magnetic fields in gases  
*S. Dujko, R.D. White, R.E. Robson, Z.Lj. Petrović*
- PB1-2** On the effect of runaway electrons in partially ionized hydrogen dense plasma  
*T.S. Ramazanov, K.M. Turekhanova*
- PB1-3** Swarm Data of  $(\text{H}_2\text{O})_n\text{H}^+$  Ions in  $\text{N}_2$ ,  $\text{O}_2$  and Dry Air  
*A. Bekstein, M. Benhenni, M. Yousfi*
- PB1-4** Mobility of daughter negative ions in iodo-fluorocarbon, fluorocarbon, and hydrofluorocarbon parent gases  
*J. de Urquijo, A. M. Juarez*
- PB1-5** Electron detachment and ion conversion in  $\text{SF}_6$ : Simulation of time-resolved pulsed Townsend pulses  
*O. Ducasse, J.C. Rodriguez, J. de Urquijo*

- PB1-6** The electron drift velocity and effective ionization in the mixtures of CF<sub>3</sub>I with Xe  
*J.L. Hernández-Ávila, E. Basurto, A. Juárez, J. de Urquijo*
- PB1-7** Pressure-dependent electron attachment in H<sub>2</sub>O-Air mixtures  
*G. Ruíz-Vargas, J. de Urquijo*
- PB1-8** Calculation and measurement of electron swarm parameters in CO<sub>2</sub>-air mixtures  
*M. Benhenni, J.L. Hernández-Ávila, A. Bekstein, E. Basurto, N. Merbahi, A.M. Juárez, O. Eichwald, M. Yousfi, J. de Urquijo*
- PB1-9** Influence of cathode material and breakdown current in glow discharges  
*L. Ledernez, F. Olcaytug, H. Yasuda, G. Urban*
- PB1-10** Modification of Paschen's law for Argon  
*L. Ledernez, F. Olcaytug, H. Yasuda, G. Urban*

## **TOPIC 2**      *Thermodynamics and transport phenomena*

- PB2-1** Reduced model for atomic thermodynamic properties  
*G. Colonna, P.M. Capitelli*
- PB2-2** Equation of state of weakly nonideal hydrogen plasmas with account of convergent partition function for atoms and molecules  
*A.N. Starostin and V.C. Roerich*
- PB2-3** Burnett coefficients in dense charged and neutral systems  
*G.A. Pavlov*

## **TOPIC 3**      *Plasma wall interactions, electrode and surface effects*

- PB3-1** Erosion of the electrodes in high-current pulsed discharge and formation of micro- and nanostructures  
*V.S.Koidan, E.E.Barkalov, V.M.Gureev, M.N.Kazeev, V.F.Kozlov, Yu.S.Tolstov*
- PB3-2** Investigation of plasma of a magnetically insulated ion diode in bipolar-pulse mode  
*A. Pushkarev, M. Salimakov, R. Sazonov, I. Isakov*
- PB3-3** Field-enhanced, Auger emission of electrons from metals  
*B. Eismann, L.C. Pitchford*
- PB3-4** Measurements of impurity generation using residual gas analysis at the Maryland Centrifugal Experiment  
*C.A. Romero-Talamás, R.F. Ellis, A.B. Hassam, W.C. Young, C. Teodorescu, G. Taylor*
- PB3-5** Spatial structure of plasma and neutral particles near Tungsten target in the Compact PWI Simulator APSEDAS  
*Y. Higashizono, M. Sakamoto, K. Ogawa, K. Ozaki, T. Shoji, N. Ashikawa, M. Tokitani, K. Tokunaga, S. Masuzaki, K. Ohya, A. Sagara and K. N. Sato*

## TOPIC 4 *Collective and Nonlinear Phenomena*

- PB4-1** Understanding bifurcations encountered in numerical modelling of current transfer to cathodes of DC glow and arc discharges  
*P.G.C. Almeida, M.S. Benilov, M.D. Cunha, M.J. Faria*
- PB4-2** Modelling self-organization on DC glow cathodes  
*P.G.C. Almeida, M.S. Benilov, M. J. Faria*
- PB4-3** Self organization phenomenon in DBD generated by piezoelectric transformer and accumulated charges on dielectric Electrode  
*H. Itoh, K. Teranishi, S. Suzuki, N. Shimomura*
- PB4-4** Striations in carbon dioxide, argon and krypton RF plasmas  
*N. Brémare, P. Boubert, C. Rond, V. Morel, B.G. Chéron*
- PB4-5** On the problem of a cylindrical probe in an axial magnetic field  
*J.E. Allen*
- PB4-6** Coaxial Discharge under the Influence of a Magnetic Field  
*T.M.G. Zimmermann, M. Coppins, J.E. Allen*

## TOPIC 5 *Modeling and simulation techniques*

- PB5-1** Modeling of Iodine atom production by pulsed discharges  
*A. Napartovich, I. Kochetov, N. P. Vagin, N. N. Yuryshev*
- PB5-2** Comparison of electron Boltzmann calculations and Monte Carlo simulations for spatially inhomogeneous, bounded plasmas  
*G.K. Grubert, M.M. Becker, F. Sigeneger, D. Loffhagen*
- PB5-3** Influence of reabsorption and inhomogeneous absorption of plasma radiation on the spatial distribution of excited atoms  
*D. Demchuk, Yu. Golubovskii, S. Gorchakov, D. Loffhagen, F. Sigeneger, A Timofeev, D. Uhrlandt*
- PB5-4** The effect of the energy dependence of the charge transfer on the energy of particles bombarding the cathode of glow discharge  
*A.L. Lyapin*
- PB5-5** Negative-ion cluster formation in oxygen close to atmospheric pressure: Measured and simulated pulsed transients  
*O. Ducasse, G. Ruiz-Vargas, J. de Urquijo*
- PB5-6** Unstable operation in inductively coupled chlorine discharges  
*E. Despiau-Pujo, P. Chabert*
- PB5-7** RF discharge characteristics from particle model based on two optimized Monte Carlo methods for collision treatment  
*D. Benyoucef, M. Yousfi, B. Belmadani*

## TOPIC 6 *Plasma diagnostic methods*

- PB6-1** Comparison of laboratory and industrial scale atmospheric pressure plasma processing systems using real-time non-invasive performance analysis tools  
*J. Tynan, V. J. Law, P. Ward, A.M. Hynes, J. Cullen, G. Byrne, D.P. Dowling*
- PB6-2** Development of real-time non-invasive performance analysis tools for atmospheric pressure plasma system monitoring  
*J. Tynan, V. J. Law, B. Twomey, A.M. Hynes, S. Daniels G. Byrne, D.P. Dowling*
- PB6-3** Ion-acoustic wave interaction within a helium plasma linear jet: Calculation of Te  
*V. J. Law, Q. T. N. Al-Gwari, D. O'Connell, M. M. Iqbal, G. Cambell, and S. Daniels*
- PB6-4** Neutral gas temperature measurements in inductively coupled argon plasmas  
*J.S. Poirier, P.M. Bérubé, J. Margot, M. Chaker, L. Stafford*
- PB6-5** Diagnostic based modeling for determining absolute atomic oxygen densities in radio-frequency atmospheric pressure helium-oxygen plasmas  
*K. Niemi, S. Reuter, L. M. Graham, J. Waskoenig, T. Gans*
- PB6-6** Study of the CF radical loss processes in the afterglow phase of pulsed CF<sub>4</sub> + H<sub>2</sub> RF plasmas by means of the IR-TDLAS  
*S. Stepanov, J. Meichsner*
- PB6-7** Experimental quantification of transient heat flux deposited by an electric arc to a carbon anode  
*M. Masquère, R. Ramanantsoa, J-J Gonzalez, P. Freton J. Pacheco*
- PB6-8** Intensity enhancement in Double-Pulse Laser-Induced Breakdown Spectroscopy in vacuum  
*C. Sánchez-Aké, Marduk Bolaños, M. Villagrán-Muñíz*
- PB6-9** Laser creation of aluminium plasma from a solid target: A model  
*V. Morel, A. Bultel, D. Benredjem, B.G. Chéron*
- PB6-10** Tomographic reconstruction on 3D objects  
*P. Freton, J.J. Gonzalez, M. Masquère, J. Benech*
- PB6-11** Measurement of electronic temperature and resistivity in a pulsed CO<sub>2</sub> discharge  
*A. Robledo-Martinez, H. Sobral, A. Ruiz-Meza and H. Granados*

## TOPIC 9 *High frequency discharges*

- PB9-1** Influence of the magnetic filter field on the plasma homogeneity of large rf-driven negative hydrogen ion sources  
*U. Fantz, P. Franzen, W. Kraus, R. Gutser, P. McNeely, D. Wunderlich*
- PB9-2** Study on the length of a resonance cavity, of which the end plate is replaced with high density plasma  
*S. Kogoshi, S. Morioka, N. Katayama, Y. Kudo*
- PB9-3** Measurement of plasma potential waveform in capacitive discharge  
*P. Dvořák*

- PB9-4** Langmuir probe measurements of a large scale RF asymmetric capacitive coupled plasma  
*S.Lazović, N. Puač, G.Malović, Z.Lj. Petrović*
- PB9-5** Modelling of capacitively coupled radio-frequency discharges in nitrogen  
*L. Marques, C.D. Pintassilgo, G. Alcouffe, G.Cernogora, L.L. Alves*
- PB9-6** Heating of Metal Products in a Low Pressure Air Capacitive Discharge  
*A.G.Shishkin, G.G.Shishkin, A.P.Plokhii, G.V.Soganova*
- PB9-7** Characterization of a plasmoid in the afterglow of a supersonic flowing microwave discharge  
*D. J. Drake, M. Nikolić, S. Miller, S. Popović, L. Vušković*
- PB9-8** Wave characteristics of a large diameter, high-density helicon plasma: effects of axial boundary conditions  
*T. Motomura, S. Shinohara, T. Tanikawa, K. P. Shamrai*
- PB9-9** Formation of ion-ion plasmas and ion beams in continuously rf generated plasmas  
*A. Aanesland, L. Popelier and P. Chabert*

## **TOPIC 10**      *Non-equilibrium plasmas and microplasmas at high pressures*

- PB10-1**  $O_4^+$  Ions in Dry Air: Swarm Data and Corona Discharge Simulations  
*A. Bekstein, O. Ducasse, M. Benhenni, M. Yousfi, O. Eichwald*
- PB10-2** Comparative analyses of electrical characteristics of surface and volume corona discharges in ambient air at atmospheric pressure  
*J.P. Gardou N. Merbahi, M. Yousfi*
- PB10-3** Spectroscopic investigations of corona discharge in high pressure Helium at 300K  
*N. Bonifaci, Z.-L. Li, A. Denat, V.M. Atrazhev, V.A. Shakhmatov, K van Haeften*
- PB10-4** Corona discharge in fluid Helium: Drastic growth of electron mobility  
*N. Bonifaci, Z.-L. Li, A. Denat, V.M. Atrazhev, A.G. Khrapak*
- PB10-5** Two-dimensional potential and charge distributions on insulator with propagating positive surface streamer  
*D. Tanaka, S. Matsuoka, A. Kumada, K. Hidaka*
- PB10-6** Charge and electric field distributions of surface leader  
*A. Kumada, K. Hidaka*
- PB10-7** Spark channel dynamics of nanosecond repetitively pulsed discharges in air at atmospheric pressure  
*D.Z Pai, M.A. Cappelli, C.O. Laux, D.A. Lacoste*
- PB10-8** Cylindrical RF discharge with a free boundary at atmospheric pressure  
*Y.C. Sutton, G.V. Naidis, P.C. Johnson, J. Moore, D. Sharp, N.St.J. Braithwaite*

- PB10-9** Structure of a micro hollow cathode discharge in the continuous regime in pure Argon  
*C. Lazzaroni, P. Chabert, A. Rousseau, N. Sadeghi*
- PB10-10** Molecular-beam mass spectrometry of atmospheric pressure micro plasmas  
*D. Ellerweg, J. Benedikt, A. von Keudell*
- PB10-11** Formation of low voltage micro-plasmas in a liquid environment  
*L. Schaper, W.G. Graham*
- PB10-12** Measurement of surface potential and discharge power for piezoelectric transformer-based plasma reactors: Improvement of potential divider  
*K. Teranishi, S. Saitoh, N. Shimomura, S. Suzuki, H. Itoh*
- PB10-13** Coupling a gliding electric arc with alternating current generator  
*M. Garduño, J. Pacheco, R. Valdivia, J. Portillo, C. Torres*
- PB10-14** Contouring Flexible Plasma Stamps  
*A. Marchesseault, N. Lucas, S. Büttgenbach*
- PB10-15** Simulation of cathode boundary layer discharges  
*E. Muñoz-Serrano, J.P. Boeuf, L.C. Pitchford*
- PB10-16** High-voltage tangent delta determination for dielectric barrier discharge intended materials  
*J. Rahel, D. Galusek, K. Ghillanyova*
- PB10-17** Silver coating of PP textile by underwater diaphragm discharge  
*G. Neagoe, A. A. Brablec, J. Rahel, P. Slavicek, M. Zahoran*

## **TOPIC 11**      *Thermal plasmas*

- PB11-1** Radiation properties of argon thermal plasma in various spectral regions  
*V. Aubrecht, M. Bartlova, N. Bogatyreva*
- PB11-2** Patterns of current transfer to thermionic cathodes in a wide range of conditions  
*M.S. Benilov, M.D. Cunha, M.J. Faria*
- PB11-3** Comparative analysis of the near-anode and near-cathode boundary layers in high-pressure arc discharges  
*N.A. Almeida and M.S. Benilov*
- PB11-4** Interaction of thermal plasma jet generated by hybrid gas-water torch with the surrounding  
*T. Kavka, A. Maslani, V. Kopecky, M. Hrabovsky, O. Chumak*
- PB11-5** Magnetic effect in two different configurations of plasma reactors  
*C. Torres, J. Pacheco, F. Ramos, M. Garduño, J.J. Gonzalez, M. Masquère*

## TOPIC 13 *Plasma processing of surfaces and particles*

- PB13-1** Influence of different layer microstructures induced by different temperatures on corrosion behaviour of plasma nitrided iron  
*M. Moradshahi, M.B. Mahmoudi, S.Amiri, A.A.Dabirzadeh, S.Vatankhah*
- PB13-2** Influence of humidity on the impact resistance and tribological behaviour of carbon-based composite coatings prepared by a combined PVD/PACVD process  
*J. Grossman, J. Vyskocil, R. Novak, T. Fort, T. Vitu, L. Dupak, J. Sobota*
- PB13-3** Carbon nanofibers synthesis by high frequency glow-arc discharge  
*M. Pacheco, J. Pacheco, R. Valdivia, S. Velazquez, N. Estrada*
- PB13-4** Nanoparticle synthesis in hydrocarbon and silane plasmas  
*G. Wattiaux, I. Chiboub, E. Kovačević, J. Berndt, A. Mezeghrane, L. Boufendi*
- PB13-5** Influence of N<sub>2</sub>/He gas mixtures on the synthesis of carbon encapsulated Ni and Y by arc discharge method  
*M. Razafinimanana, V. Ramarozatovo, M. Monthieux, P. Roge, M. Rakotomalala, J.J. Gonzalez*
- PB13-6** Arc discharge in water for dielectric nanoparticle production  
*D. Delaportas, P. Svarnas, I. Alexandrou*
- PB13-7** Effects of ion irradiation energy on nanoparticle synthesis in plasma-ionic liquid interfacial regions  
*T. Kaneko, T. Harada, Q. Chen, R. Hatakeyama*
- PB13-8** Plasma techniques for nanotechnology  
*M. Mozetic, U. Cvelbar*
- PB13-9** Dual plasma synthesis of single-crystal cubic titanium nitride nanoparticles  
*J. Tavares, S. Coulombe, J. -L Meunier*
- PB13-10** Nanoscale morphology of magnesium doped hydroxyapatite  
*W. Mróz, A. Bombalska, S. Burdyńska, M. Jedyński, A. Prokopiuk, A. Ślósarczyk, A. Zima, E.Menaszek, A. Ścisłowska-Czarnecka, P. Niedzielski*
- PB13-11** Microplasma activation of catalyst for carbon nanofibers incorporation in a microreactor  
*A. Aǵıral, L. Lefferts, J.G.E. (Han) Gardeniers*
- PB13-12** Generation of silicon nanoparticles in plasma  
*A. Consoli, M. Zimmermann, J. Benedikt, A. von Keudell*
- PB13-13** Impact wear resistance of silicon, oxygen and nitrogen containing amorphous carbon films deposited on steel substrates using PECVD  
*T. Fort, J. Sobota, J. Grossman, V. Bursikova, L. Dupak, V. Perina, Petr Klapetek, Jiri Bursik*
- PB13-14** Optimization of discharge conditions for deposition of protective coatings on polymer substrates  
*V. Bursikova, T. Fort, L. Dupak, A. Stoica, T. Gardelka, P. Klapetek, M. Valtr, V. Perina*
- PB13-15** NO production on pyrex under, and after plasma exposure  
*D. Marinov, O. Guaitella, A. Rousseau*

## TOPIC 15 *Plasma lamps and radiation sources*

- PB15-1** Basic study on mercury-free ultraviolet emitting metal halide lamp  
*A. Tauchi, T. Sakurai, H. Hori*
- PB15-2** Comparison of surface and volume breakdown in high pressure xenon model lamps  
*M. Kettlitz, S. Peters, M. Wendt, A. Kloss*
- PB15-3** Influence of metal halides on the behaviour of electrodes in high intensity discharge lamps  
*M. Schmidt, M. Kettlitz, H. Schneidenbach*
- PB15-4** Characterization of a miniaturized dielectric barrier discharge as source of pulsed XeCl excimer radiation at 308 nm  
*R. Bussiahn, E. Kindel, A. Pipa*
- PB15-5** Soft X-ray radiation generated by fast capillary discharge  
*O. Frolov, K. Kolacek, J. Schmidt, J. Straus, V. Prukner*
- PB15-6** Exploding wire in water – a source of long, dense, hot, and quasi-stable plasma suitable for amplification of EUV/soft X-ray emission  
*K. Kolacek, V. Prukner, J. Schmidt, O. Frolov, J. Straus*
- PB15-7** Capillary pinching discharge as water window radiation source  
*P. Vrba, M. Vrbova, A. Jančárek, M. Nevrkla, M. Tamáš, M. Stefanovic*
- PB15-8** Effect of beam pre-bunching and guide magnetic fields on gain and efficiency in slow wave free electron laser  
*S.C. Sharma, A. Bhasin, R. Walia*
- PB15-9** Characteristics of the moving striations in a fluorescent lamp under the various kinds of operating conditions  
*Y. Watanabe*

## TOPIC 17 *Plasma power and pulsed power technology, particle sources*

- PB17-1** The plasma focus PACO as X-ray source for high definition radiographies  
*M. Milanese, J. Niedbalski, F. Castillo-Mejía, R. Moroso, L. Supan, S. Guichón, H. Acuña, F. Malamud, M. Barbaglia, S. Marcazzó*
- PB17-2** Lower current pulse XUV capillary discharge source  
*A. Jancarek, M. Nevrkla, P. Vrba, M. Vrbova, M. Tamas, L. Pina*
- PB17-3** Differential pumping in the linear plasma generator Magnum-PSI  
*H.J.N. van Eck, W.R. Koppers, G.J. van Rooij, W.J. Goedheer, B. de Groot, P.H.M. Smeets, N.J. Lopes Cardozo, A.W. Kley*
- PB17-4** Temporal correlations between hard X-ray and neutron pulses in the PACO plasma focus device  
*H. Acuña, H. Bruzzone, S. Guichón, F. Malamud, M. Milanese, R. Moroso, J. Niedbalski, L. Supán*

- PB17-5** Underwater electrical wire explosion  
*Ya. Krasik, S. Efimov, A. Fedotov, D. Sheftman, A. Sayapin, V. Tz. Gurovich, A. Grinenko*
- PB17-6** High contrast radiography using a small dense plasma focus  
*F. Castillo, Gamboa-de Buen, J.J.E. Herrera, and J. Rangel*
- PB17-7** Portable neutron generator for field applications based on plasma focus technology  
*L. Soto, C. Pavez, J. Pedreros, L. Altamirano, F. Veloso*
- PB17-8** Scaling laws for plasma focus devices. Studies using plasma focus devices from 70 kJ to tenths of joules  
*L. Soto, C. Pavez, J. Moreno, A. Tarifeño, R. Mayer, F. Veloso*

### *Coffee (15:00-15:30)*

15:30 – 16:30 **IUPAP's Young Scientist Prize ceremony**  
*Costa Maya A*  
*P. Shukla, Chair*

**PR1** **Timo Gans**  
*Queen's University Belfast, United Kingdom*  
The challenge of revealing and tailoring the dynamics of rf plasmas

20:00 – 23:30 ***Banquet at the NH Krystal Hotel***

**GENERAL INVITED LECTURES**

*Costa Maya A  
P. K. Shukla, Chair*

9:00 – 9:45      **G9**      **Hans Pecséli**  
*U. of Oslo, Norway*  
Observations of low-frequency electrostatic waves and  
turbulence in the ionospheric E-region

9:45 – 10:30    **G10**      **Juan R. Sanmartín**  
*Universidad Politécnica de Madrid, Spain*  
A Review of electrodynamic tethers for  
science applications

10:30 - 11:00    *Coffe break*

11:00 – 12:00    **Von Engel Prize Lecture**

*Costa Maya A  
J.P. Booth, Chair*

**PR2**      **Lev D. Tsendin**  
*P.S. Petersburg State Polytechnic University, Russia*  
Analytical approaches to glow discharge problems

12:00 - 12:15    **Poster Prizes**

12:15 – 12:30    **ICPIG 2011 presentation**

12:30 – 12:45    **Closing ceremony**



		Schedule for ICPIG 2009.						
		Sunday 12	Monday 13	Tuesday 14	Wednesday 15	Thursday 16	Friday 17	
8	30	REGISTRATION (12:00 - 22:00)	REGISTRATION					
	45		OPENING					
9	0		Kono	Cunge	Kettlitz	Woolsey	Pecséli	
	15							
10	30		Cabrera-Trujillo	Meichsner	Kortshagen	Fortov	Sanmartín	
	45							
11	0		COFFEE	COFFEE	COFFEE	COFFEE	COFFEE	
	15		TA1 - TA3	TB1 - TB3	TA4 - TA6	TB4 - TB6	TA7 - TA9	TB7 - TB9
12	30							
	45							
13	0		LUNCH	LUNCH			LUNCH	
	15							
14	30	POSTER SESSION A	WORKSHOP A	WORKSHOP B			POSTER SESSION B	
	45							
15	0		COFFEE			COFFEE		
	15							
16	30		WORKSHOP A	WORKSHOP B			IUPAP YSP PRIZE LECTURE	
	45							
17	0							
	15							
18	30							
	45							
19	0	WELCOME RECEPTION						
	15							
20	30							
	45					BANQUET		

