

# CIP 09

17<sup>th</sup> International Colloquium on Plasma Processes  
Marseille, France

**TUESDAY, JUNE 23**

**2.00 pm Introduction to the Conference - (Room CALLELONGUE)**  
**Agnès Granier, Chair of the Steering Committee**  
**Richard van de Sanden, Chair of the Scientific Committee**

## **TOPIC 1: ADVANCED PLASMA SOURCES (Room CALLELONGUE)**

**Chairs: Gilles CARTRY – Luis Lemos ALVES**

**2.20 pm I-1.1 The study of plasma chemistry in microplasma jets for thin film deposition**  
*(Invited lecture)*  
**J. Benedikt**  
*Ruhr-University Bochum (D)*

**3.00 pm O-1.1 Ignition and characterization of micro hollow cathode discharges in Helium**  
**T. Dufour<sup>1</sup>, R. Dussart<sup>1</sup>, L.J. Overzet<sup>2</sup>, M. Mandra<sup>2</sup>, J.B. Lee<sup>2</sup>, M. Goeckner<sup>2</sup>, P. Lefauchaux<sup>1</sup>, P. Ranson<sup>1</sup>**  
<sup>1</sup>*GREMI, Université d'Orléans (F)*  
<sup>2</sup>*PAL/University of Texas at Dallas, Richardson (USA)*

**3.20 pm O-1.2 Argon-oxygen microwave plasmas at atmospheric pressure: from filamentation to micro-CVD**  
**T. Belmonte, C. Noël, G. Henrion, G. Arnoult, R.P. Cardoso, F. Kosior, T. Gries**  
*Institut Jean Lamour, Nancy Université (F)*

**3.40 pm O-1.3 Microwave micro-plasma sources at atmospheric pressure: experiments and simulations**  
**J. Gregório<sup>1,2</sup>, O. Leroy<sup>1</sup>, P. Leprince<sup>1</sup>, L.L. Alves<sup>2</sup>, C. Boisse-Laporte<sup>1</sup>**  
<sup>1</sup>*LPGP, Université de Paris-Sud, Orsay (F)*  
<sup>2</sup>*Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Lisboa (P)*

**4.00 pm O-1.4 High-speed, low-cost atmospheric-pressure plasma processing using diffuse coplanar surface barrier discharge**  
**M. Černák<sup>1,2</sup>, D. Kováčik<sup>1</sup>, A. Zahoranová<sup>1</sup>, Ľ. Černáková<sup>3</sup>, J. Ráhel<sup>1,2</sup>**  
<sup>1</sup>*Department of Experimental Physics, Comenius University, Bratislava (SK)*  
<sup>2</sup>*Department of Physical Electronics, Masaryk University, Brno (CZ)*  
<sup>3</sup>*Faculty of Chemical and Food Technology, University of Technology, Bratislava (SK)*

**- Break -**

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**2.00 pm** Introduction to the Conference - (Room CALLELONGUE)  
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**Richard van de Sanden, Chair of the Scientific Committee**

### TOPIC 4: PLASMA DEPOSITION PROCESSES (Room MORGIOU)

**Chairs: Nicolas GHERARDI – Mark HOFMANN**

**2.20 pm** **I-4.1** Transport of non-thermal deposition particles in an argon plasma at low pressures, in connection with the thin film nanostructure  
(Invited lecture)

**A. Palmero**

*Instituto de Ciencia de Materiales de Sevilla, CSIC/University of Sevilla (E)*

**3.00 pm** **O-4.1** Direct measurement of energy transfers during deposition of sputtered metal atoms  
**L. Bedra, A.L. Thomann, R. Dussart, N. Semmar, J. Mathias**  
*GREMI, Université d'Orléans (F)*

**3.20 pm** **O-4.2** A model for sputter deposition using a rotating cylindrical magnetron  
**K. Van Aeken<sup>1</sup>, S. Mahieu<sup>1</sup>, R. Persoons<sup>2</sup>, D. Depla<sup>1</sup>**  
<sup>1</sup> *Gent University, Department of Solid State Sciences, Gent (B)*  
<sup>2</sup> *VITO, Mol (B)*

**3.40 pm** **O-4.3** Influence of plasma parameters on Copper layers properties in an IPVD process  
**I. Guesmi<sup>1</sup>, L. de Pouques<sup>2</sup>, L. Teule-Gay<sup>3</sup>, J. Bretagne<sup>1</sup>, C. Boisse-Laporte<sup>1</sup>**  
<sup>1</sup> *LPGP, Université de Paris-Sud, Orsay (F)*  
<sup>2</sup> *Institut Jean Lamour, Nancy Université (F)*  
<sup>3</sup> *ICMCB, Pessac (F)*

**4.00 pm** **O-4.4** Atomic hydrogen induced defect kinetics in hydrogenated amorphous silicon  
**F.J.J. Peeters, J. Zheng, I.M.P. Aarts, A.C.R. Pipino, W.M.M. Kessels, M.C.M. van de Sanden<sup>1</sup>**  
*Eindhoven University of Technology (NL)*

**- Break -**

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## TOPIC 8: PLASMA FOR MICROELECTRONICS, MICRO AND NANOTECHNOLOGY (Room CALLELONGUE)

**Chairs:** Pierre RANSON – Christophe CARDINAUD

- 4.40 pm**     **I-8.1 Fast silicon etching by negative ions**  
(Invited lecture)  
**E. Stamate**  
*Plasma Physics and Technology Programme, Risø National Laboratory for Sustainable Energy, Roskilde (DK)*
- 5.20 pm**     **O-8.1 Gan etching by inductively coupled plasma**  
**J. Ladroue<sup>1,2</sup>, A. Meritan<sup>2</sup>, M. Boufnichel<sup>2</sup>, P. Lefauchaux<sup>1</sup>, P. Ranson<sup>1</sup>, R. Dussart<sup>1</sup>**  
<sup>1</sup> GREMI, Université d'Orléans (F)  
<sup>2</sup> STMicroelectronics, Tours (F)
- 5.40 pm**     **O-8.2 Profile evolution and redeposition during platinum sputtering in a low-pressure, high-density argon plasma**  
**J. Saussac<sup>1</sup>, J. Margot<sup>1</sup>, M. Chaker<sup>2</sup>**  
<sup>1</sup> Université de Montréal, Québec (CND)  
<sup>2</sup> INRS-Énergie, Varennes (CND)
- 6.00 pm**     **O-8.3 Laser and discharge produced plasmas for nanolithography**  
**A. Hassanein, V. Sizyuk, T. Sizyuk, S. Harilal**  
*Purdue University, West Lafayette (USA)*
- 6.00 pm**     **O-8.4 Nanostructured magnetic films deposited by UHV hollow cathode plasma jet system**  
**6.20 pm**     **F. Fendrych<sup>1</sup>, J. PoltieroVa Vejpravova<sup>2</sup>, A. Lancok<sup>1</sup>, P. Repa<sup>2</sup>, L. Peksa<sup>2</sup>, Z. KluiBer<sup>1,3</sup>, K. Seemann<sup>4</sup>, R. Schaefer<sup>5</sup>**  
<sup>1</sup> Institute of Physics, Academy of Sciences CR, Prague (CZ)  
<sup>2</sup> Faculty of Math & Physics, Charles University in Prague, Prague (CZ)  
<sup>3</sup> Faculty of Biomedical Engineering, Czech Technical University, Kladno (CZ)  
<sup>4</sup> Forschungszentrum Karlsruhe in der Helmholtz-Gemeinschaft, Karlsruhe (D)  
<sup>5</sup> Leibniz Institute IFW Dresden, Dresden (D)
- 6.20 pm**     **O-8.5 Ferromagnetic nanosize layers obtained by localized gas discharge**  
**6.40 pm**     **A.V. Abramov<sup>1</sup>, A.P. Lazarev<sup>1</sup>, A.S. Sigov<sup>2</sup>**  
<sup>1</sup> Voronezh State University, Voronezh (RUS)  
<sup>2</sup> MIREA, Moscow (RUS)

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## TOPIC 7: PLASMA FOR SURFACE ENGINEERING (Room MORGIUO)

**Chairs:** Richard ENGELN – Gilbert LEGEAY

- 4.40 pm**     **I-7.1** Thin films by means of homogeneous dielectric barrier discharges at atmospheric pressure  
(Invited lecture)  
**N. Gherardi**<sup>1,2</sup>  
<sup>1</sup> *Université Paul Sabatier, INPT, LAPLACE, Toulouse (F)*  
<sup>2</sup> *CNRS; LAPLACE; Toulouse (F)*
- 5.20 pm**     **O-7.1** Low pressure plasma treatments of vulcanized styrene-butadiene rubbers for improved adhesion to silicone adhesives  
**M. Moreno-Couranjou, P. Choquet, J. Guillot, H.N. Migeon**  
*CRPGP, Belvaux (L)*
- 5.40 pm**     **O-7.2** Improvement of chemical grafting on cellulose powder by DBD afterglows generated in pulsed electrical conditions  
**E. Lecoq<sup>1</sup>, F. Clément<sup>1</sup>, J. Desbrières<sup>2</sup>, A. Castetbon<sup>3</sup>, J.F. Loiseau<sup>1</sup>, B. Held<sup>1</sup>**  
<sup>1</sup> *LEGP, Université de Pau et des Pays de l'Adour, Pau (F)*  
<sup>2</sup> *IPREM, EPCP, Université de Pau et des Pays de l'Adour, Pau (F)*  
<sup>3</sup> *IPREM, LCABIE, Université de Pau et des Pays de l'Adour, Pau (F)*
- 6.00 pm**     **O-7.3** Atmospheric pressure plasma processing of glass surface  
**T. Homola<sup>1</sup>, A. Zahoranová<sup>1</sup>, D. Kováčik<sup>1</sup>, M. Černák<sup>1,2</sup>**  
<sup>1</sup> *Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava (SK)*  
<sup>2</sup> *Department of Physical Electronics, Masaryk University, Brno (CZ)*
- 6.20 pm**     **O-7.4** Efficiency of flame and atmospheric cold plasma technologies for surface pretreatment of natural fibre reinforced thermoplastic composites applied to aluminium-thermoplastic composite joints  
**D. Gallant<sup>4</sup>, M. Eskandarian<sup>4</sup>, M.T. Ton-That<sup>2</sup>, J. Denault<sup>2</sup>, B. Arsenault<sup>4</sup>**  
<sup>4</sup> *Structural Adhesives and Corrosion Group, ATC/IMI/NRC, Quebec (CND)*  
<sup>2</sup> *Bioproduct Group, Industrial Materials Institute, IMI/NRC, Quebec (CND)*
- 6.20 pm**     **O-7.5** Steel coating by plasma-modified PE powder  
**P. Špatenka<sup>1,2</sup>, J. Hladík<sup>1</sup>, A. Poláchová<sup>2</sup>, V. Kurzová<sup>3</sup>**  
<sup>1</sup> *Technical University of Liberec, Department of Material Science, Liberec (CZ)*  
<sup>2</sup> *University of South Bohemia, Pedagogical faculty, České Budějovice (CZ)*  
<sup>3</sup> *Institute of Technology and Business, České Budějovice (CZ)*

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## TOPIC 2: PLASMA DIAGNOSTICS AND MODELLING (Room CALLELONGUE)

**Chairs:** Richard van de SANDEN – Thierry CZERWIEC

**9.00 am I-2.1 Experimental and modelling study of recombination reactions on dynamic surfaces in low-pressure plasmas**

*(Invited lecture)*

**L. Stafford**

*Département de physique, Université de Montréal, Québec (CND)*

**9.40 am O-2.1 Experimental studies of plasma and catalyst material interaction**

**X. Duten, M. Redolfi, A. Vega, K. Hassouni**

*LIMHP, Université Paris 13, Villetaneuse (F)*

**10.00 am O-2.2 In situ diagnostic in etch plasmas for process control with quantum cascade laser absorption spectroscopy**

**N. Lang<sup>1</sup>, J. Röpcke<sup>1</sup>, S. Wege<sup>2</sup>, A. Steinbach<sup>2</sup>**

<sup>1</sup>*Leibniz Institute for Plasma Science and Technology, Greifswald (D)*

<sup>2</sup>*Qimonda, Dresden (D)*

**- Break -**

**10.50 am O-2.3 Velocity distribution function of Ga atoms sputtered from a radio-frequency biased GaAs substrate in low pressure high density Ar plasma**

**E. Despiau-Pujo<sup>1</sup>, P. Chabert<sup>1</sup>, R. Ramos<sup>2</sup>, G. Cunge<sup>2</sup>, N. Sadeghi<sup>2</sup>**

<sup>1</sup>*LPP, Ecole Polytechnique, Palaiseau (F)*

<sup>2</sup>*LTM, CNRS-UJF-INPG, Grenoble (F)*

**11.10 am O-2.4 Energy distributions of ions bombarding the pulse biased conductive and dielectric substrate**

**P. Kudlacek, R.F. Rumphorst, M.C.M. van de Sanden**

*Department of Applied Physics, Eindhoven University of Technology (NL)*

**11.30 am O-2.5 A new diagnostic tool of EEDF in capacitive mode of radio-frequency plasmas**

**H. Shindo, Y. Nakazaki, S. Sato, K. Ishihara**

*Department of Electronics, Tokai University, Hiratsuka (J)*

**- Lunch -**

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**WEDNESDAY, JUNE 24**

## TOPIC 3: MULTIPHASE PLASMAS (Room MORGIUO)

**Chairs:** Eugene STAMATE – Christophe HEAU

### 9.00 am I-3.1 Dusty plasmas: synthesis, structure and dynamics

*(Invited lecture)*

**M. Mikikian**

*GREMI, Université d'Orléans (F)*

### 9.40 am O-3.1 Agglomeration of mesoscopic particles in plasma

**B. M. Annaratone, Y. Elskens, C. Arnas**

*PIIM, Université de Provence, Marseille (F)*

### 10.00 am O-3.2 1D fluid modeling speed-up for dust dynamic analysis

**W. Morscheidt<sup>1</sup>, G. Golshiri<sup>1,2</sup>, F. Arefi-Khonsari<sup>1</sup>, K. Hassouni<sup>2</sup>**

<sup>1</sup> *Chimie Paristech, Paris (F)*

<sup>2</sup> *Université Paris 13, Villetaneuse (F)*

**- Break -**

## INDUSTRIAL SESSION (Room MORGIUO)

**Chairs:** Eugene STAMATE – Christophe HEAU

### 10.50 am O-IND.1 Eco efficient activation for hyper functional surfaces

**M. Perucca<sup>1</sup>, G. Buyle<sup>2</sup>**

<sup>1</sup> *Environment Park S.p.A., Clean NT Lab, Torino (I)*

<sup>2</sup> *Centexbel (B)*

### 11.20 am O-IND.2 Inter pixel passivation of a CZT thermal sensitive radiation detector using a high radical plasma source for radical generation

**M. Segers<sup>1</sup>, R.A. Morgan<sup>1</sup>, D. Prendergast<sup>2</sup>, F. Hamouda<sup>3</sup>**

<sup>1</sup> *Nanoplas, Centre Université Paris Sud, Orsay (F)*

<sup>2</sup> *Innovation Physics, Essex (UK)*

<sup>3</sup> *IEF, Centre Université Paris Sud, Orsay (F)*

### 11.40 am O-IND.3 New developments on ECR-sources and the potential of their future industrial application

**D. Rost, M. Hanf, M. Zeuner, J. Mai**

*Roth&Rau AG, Hohenstein-Ernstthal (D)*

**- Lunch -**

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2.00 pm **POSTER SESSION A (topics 1, 5, 7, 9, 10)**

- Break -

**TOPIC 5: PLASMA FOR FUNCTIONAL AND MULTIFUNCTIONAL COATINGS  
(Room CALLELONGUE)**

**Chairs:** Patrice RAYNAUD – Alberto PALMERO

4.10 am **I-5.1 Low temperature deposition of alumina thin films**

*(Invited lecture)*

**J.M. Schneider**

*Materials Chemistry, RWTH Aachen University (D)*

4.50 am **O-5.1 New sensitive layers of ammonia detection:  
pulsed-plasma polyaniline and polyfluoroaniline**

**T. Mérian<sup>1</sup>, D. Debarnot<sup>1</sup>, V. Rouessac<sup>2</sup>, F. Poncin-Epaillard<sup>1</sup>**

<sup>1</sup> *LPCI, Université du Maine, Le Mans (F)*

<sup>2</sup> *IEM, Montpellier (F)*

5.10 am **O-5.2 Synthesis of ultra thin resistive layers by magnetron sputtering for the development of  
calculable AC resistance standards**

**A. Morilhat<sup>1</sup>, F. Lapostolle<sup>1</sup>, A. Billard<sup>1</sup>, A. Bounouh<sup>2</sup>**

<sup>1</sup> *LERMPS, UTBM, Belfort (F)*

<sup>2</sup> *LNE, Trappes (F)*

5.30 am **O-5.3 First synthesis of chalcogenide thin layers by magnetron sputtering**

**E. Souchier<sup>1</sup>, M.P. Besland<sup>1</sup>, B. Corraze<sup>1</sup>, P. Moreau<sup>1</sup>, C. Estournès<sup>2</sup>, T. Skotnicki<sup>3</sup>,  
P. Mazoyer<sup>3</sup>, L. Cario<sup>1</sup>, E. Janod<sup>1</sup>**

<sup>1</sup> *IMN, Université de Nantes (F)*

<sup>2</sup> *CIRIMAT, Toulouse (F)*

<sup>3</sup> *STMicroelectronics, Crolles (F)*

~~5.50 am **O-5.4 Superhard DLC-MeN composite films synthesized by pulsed bias arc ion plating**~~

~~**H. Li, G. Lin, C. Dong**~~

~~*Key Laboratory for Material Modification by Laser, Dalian University of Technology (PRC)*~~

6.15 pm **COCKTAIL**

8.00 pm **COLLOQUIUM DINNER**

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## WEDNESDAY, JUNE 24

2.00 pm **POSTER SESSION A (topics 1, 5, 7, 9, 10)**

- Break -

### TOPIC 10: LOW TEMPERATURE PLASMAS FOR ITER (Room MORGIOU)

Chairs: Jean BRETAGNE – Michel MOISAN

4.10 am **I-10.1 Interactions of plasma with carbon walls in magnetic fusion devices**

*(Invited lecture)*

**P. Roubin**

*PIIM, Université de Provence, Marseille (F)*

4.50 am **O-10.1 CVD diamond coatings for fusion plasma facing components**

**J.I.B. Wilson<sup>1</sup>, G. De Temmerman<sup>2</sup>, P. John<sup>1</sup>, S. Lisgo<sup>2</sup>, S. Porro<sup>1</sup>, I. Villalpando<sup>1</sup>**

<sup>1</sup> *School of Engineering & Physical Sciences, Heriot-Watt University, Edinburgh (UK)*

<sup>2</sup> *UKAEA Euratom Fusion Association, Oxfordshire (UK)*

5.10 am **O-10.2 Study of hydrocarbon flakes redeposited from T-10 tokamak deuterium plasma discharges**

**V.G. Stankevich<sup>1</sup>, N.Yu. Svechnikov<sup>1</sup>, Y.V. Zubavichus<sup>1</sup>, A.A. Veligzhanin<sup>1</sup>,**

**L.P. Sukhanov<sup>1</sup>, K.A. Menshikov<sup>1</sup>, A.M. Lebedev<sup>1</sup>, B.N. Kolbasov<sup>1</sup>, K.Yu. Vukolov<sup>1</sup>,**

**D. Rajarathnam<sup>2</sup>, L.N. Khimchenko<sup>1</sup>**

<sup>1</sup> *Russian Research Center Kurchatov Institute, Moscow (RUS)*

<sup>2</sup> *National University of Singapore (SGP)*

5.30 am **O-10.3 Caesium free negative ion source for Neutral Beam Injectors:**

**H- and D- produced on a HOPG sample in a helicon reactor**

**M. Carrère, G. Cartry, L. Schiesko, J.M. Layet**

*Equipe Plasma Surface, PIIM, Université de Provence, Marseille (F)*

5.50 am **O-10.4 Auto-oscillations in complex plasmas**

**S.K. Zhdanov, H.M. Thomas, G.E. Morfill**

*Max-Planck-Institut für extraterrestrische Physik, Garching (D)*

6.15 pm **COCKTAIL**

8.00 pm **COLLOQUIUM DINNER**

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**THURSDAY, JUNE 25**

## TOPIC 4: PLASMA DEPOSITION PROCESSES (Room CALLELONGUE)

**Chairs:** Luc STAFFORD – Agnès GRANIER

- 9.00 am **I-4.2** Liquid-phase laser ablation plasmas and their applications  
(Invited lecture)  
**K. Sasaki**  
*Plasma Nanotechnology Research Center, Nagoya University (J)*
- 9.40 am **O-4.5** Silicon carbon nitride thin films produced in N<sub>2</sub>/CH<sub>4</sub>/Ar/hexamethyldisilazane plasma  
**S. Bulou<sup>1</sup>, L. Le Brizoual<sup>2</sup>, R. Hugon<sup>1</sup>, L. de Poucques<sup>1</sup>, M. Belmahi<sup>1</sup>**  
<sup>1</sup> *Institut Jean Lamour, Nancy Université (F)*  
<sup>2</sup> *IMN, Université de Nantes (F)*
- 10.00 am **O-4.6** Fabrication of copper polypyrrole films by dual PECVD/PVD process  
**C. Walter, V. Brüser, A. Quade, K.D. Weltmann**  
*Leibniz Institute for Plasma Science and Technology, Greifswald (D)*
- 10.20 am **O-4.7** Influence of oxygen pressure on morphology and crystallinity of ZnO thin film grown by pulsed laser ablation  
**S. Lemlikchi<sup>1</sup>, S. Abdelli-Messaci<sup>1</sup>, T. Kerdja<sup>1</sup>, A. Guittoum<sup>2</sup>**  
<sup>1</sup> *Advanced technology development centre, Algiers (DZ)*  
<sup>2</sup> *The nuclear research centre of Algiers (DZ)*
- Break -**
- 11.10 am **O-4.8** Plasma chemical and physical influences in plasma polymerization  
**D. Hegemann, U. Schütz, E. Körner, S. Guimond**  
*Empa, St.Gallen (CH)*
- 11.30 am **O-4.9** Theoretical and experimental characterization during the pulsed plasma polymerization of primary amine-based precursors  
**L. Denis<sup>1</sup>, P. Marsal<sup>2</sup>, T. Godfroid<sup>3</sup>, J. Cornil<sup>2</sup>, M. Hecq<sup>1,3</sup>, R. Lazzaroni<sup>2,3</sup>, R. Snyders<sup>1,3</sup>**  
<sup>1</sup> *LCIA, Université de Mons (B)*  
<sup>2</sup> *SCMN, Université de Mons (B)*  
<sup>3</sup> *Materia Nova Research Center, Mons (B)*
- 11.50 am **O-4.10** Preparation of polyaniline films by means of atmospheric pressure plasma polymerization promoted by platinum nanoparticles  
**M. Michel, J. Bour, J. Petersen, D. Ruch**  
*LTI, CRPHT, Esch sur Alzette (L)*

**- Lunch -**

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## THURSDAY, JUNE 25

### TOPIC 1: ADVANCED PLASMA SOURCES (Room MORGIOU)

Chairs: Jan BENEDIKT – Maxime MIKIKIAN

- 9.00 am **I-1.2 High-power pulsed magnetron sputtering: experiments and modelling**  
(Invited lecture)  
**J. Vlcek**  
*University of West Bohemia, Plzen (CZ)*
- 9.40 am **O-1.5 Transition between the discharge regimes of high power impulse magnetron sputtering and conventional direct current magnetron sputtering**  
**D. Lundin<sup>1</sup>, N. Brenning<sup>2</sup>, D. Jädernäs<sup>1</sup>, P. Larsson<sup>1</sup>, E. Wallin<sup>1</sup>, M. Lattemann<sup>3,4</sup>, M.A. Raadu<sup>2</sup>, U. Helmersson<sup>1</sup>**  
<sup>1</sup> *Plasma & Coatings Physics Division, IFM-Materials Physics, Linköping (S)*  
<sup>2</sup> *Division of Space and Plasma Physics, Royal Institute of Technology, Stockholm (S)*  
<sup>3</sup> *Joint Research Laboratory Nanomaterials, Darmstadt (D)*  
<sup>4</sup> *Institute for Nanotechnology, Karlsruhe (D)*
- 10.00 am **O-1.6 Reactive HIPIMS plasma analysis for aluminium nitride thin films deposition**  
**A. Soussou<sup>1</sup>, S. Tricot<sup>1</sup>, L. Le Brizoual<sup>1</sup>, P.Y. Jouan<sup>1</sup>, C. Cardinaud<sup>1</sup>, M. Ganciu<sup>2</sup>, M.A. Djouadi<sup>1</sup>**  
<sup>1</sup> *IMN, Université de Nantes (F)*  
<sup>2</sup> *National Institute for Laser, Plasma and Radiation Physics, Magurele Bucharest (RO)*
- 10.20 am **O-1.7 Frequency coupling, relative phase effects and influence on deposition behavior in dual frequency capacitive discharges**  
**E. Semmler<sup>1</sup>, D. Ziegler<sup>2</sup>, T. Mussenbrock<sup>2</sup>, P. Awakowicz<sup>1</sup>, A. von Keudell<sup>3</sup>, R.P. Brinkmann<sup>2</sup>**  
<sup>1</sup> *Institute for Electrical Engineering and Plasma Technology, Ruhr-Universität Bochum (D)*  
<sup>2</sup> *Institute for Theoretical Electrical Engineering, Ruhr-Universität Bochum (D)*  
<sup>3</sup> *Research Group Reactive Plasmas, Ruhr-Universität Bochum (D)*

- Break -

### INDUSTRIAL SESSION (Room MORGIOU)

Chairs: Jan BENEDIKT – Maxime MIKIKIAN

- 11.10 am **O-IND.4 Power supply features to enable HIPIMS processes**  
**G. Hintz<sup>1</sup>, P. Ozimek<sup>2</sup>**  
<sup>1</sup> *Hüttinger Elektronik GmbH, Freiburg (D)*  
<sup>2</sup> *Hüttinger Electronic Sp. z.O.O., Zielonka (P)*
- 11.30 am **O-IND.5 The use of a remote, high density plasma source for the deposition of thin film materials**  
**S. Thornley<sup>1</sup>, S.J. Wakeham<sup>1</sup>, R. Mollicone<sup>2</sup>**  
<sup>1</sup> *Plasma Quest Ltd, Hook (UK)*  
<sup>2</sup> *Plasma Quest France, Juan les Pins (F)*
- 11.50 am **O-IND.5 Recent advances in the characterisation of surfaces and thin films by RF GD-OES**  
**O. Bonnot, C. Tauziède, A. Tempez, P. Chapon, O. Rogerieux**  
*HORIBA Scientific, Longjumeau (F)*

- Lunch -

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# CIP 09

17<sup>th</sup> International Colloquium on Plasma Processes  
Marseille, France

**THURSDAY, JUNE 25**

2.00 pm **POSTER SESSION B (topics 2, 4, 6, 8)**

- Break -

**TOPIC 6: PLASMA FOR LIFE SCIENCE (Room CALLELONGUE)**

**Chairs:** Laurent THOMAS – Bill GRAHAM

4.10 pm **I-6.1 Application of low-pressure non-equilibrium plasma discharges for sterilization and decontamination of surfaces**

*(Invited lecture)*

**O. Kylián-**

*Charles University, Faculty of Mathematics and Physics, Prague (CZ)*

4.50 pm **O-6.1** Inhibition of fungi by application of DBD afterglows generated in pulsed electrical conditions

**E. Lecoq<sup>1</sup>, C. Leclaire<sup>2</sup>, G. Oriol<sup>2</sup>, F. Clément<sup>1</sup>**

<sup>1</sup>*LEGP, Université de Pau et des Pays de l'Adour, Pau (F)*

<sup>2</sup>*LRMH, Champs Sur Marne (F)*

5.10 pm **O-6.2** Microwave plasma based sterilisation at low-pressure and at atmospheric pressure conditions

**J. Schneider, A. Schulz, M. Walker, U. Stroth**

*Institut fuer Plasmaforschung, Universitaet Stuttgart (D)*

5.30 pm **O-6.3** Bacterial spore inactivation efficiency and mechanisms in N<sub>2</sub>-O<sub>2</sub> plasma afterglow

**A. Soum-Glaude<sup>1</sup>, D. Carignan<sup>1</sup>, K. Boudam<sup>1</sup>, J. Séguin<sup>2</sup>, M. Moisan<sup>1</sup>**

<sup>1</sup>*Groupe de Physique des Plasmas, Université de Montréal, Québec (CND)*

<sup>2</sup>*LMCI, Université de Montréal, Québec (CND)*

5.50 pm **O-6.4** Functionalization by plasma techniques of biomaterials used for the storage and the detection of proteinic derivatives

**A. Coudreuse<sup>1</sup>, G. Legeay<sup>1</sup>, W. Zorzi<sup>2</sup>, B. Elmoualij<sup>2</sup>, F. Poncin Epailard<sup>3</sup>**

<sup>1</sup>*CTTM, Le Mans (F)*

<sup>2</sup>*Centre de Recherche sur les Protéines Prion, Université de Liège (B)*

<sup>3</sup>*LPCI-CNRS Université du Maine, Le Mans (F)*

6.10 pm **O-6.5** New mechanically responsive and bioactive materials

**A. Airoudj, L. Ploux, M.F. Vallat, V. Roucoules**

*Institut de Science des Matériaux de Mulhouse (F)*

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**THURSDAY, JUNE 25**

2.00 pm **POSTER SESSION B (topics 2, 4, 6, 8)**

- Break -

**TOPIC 9: PLASMA FOR ENERGY AND ENVIRONMENTAL APPLICATIONS  
(Room MORGIUO)**

**Chairs:** Jochen SCHNEIDER – Pascal CHABERT

4.10 pm **I-9.1 Dry plasma processing for industrial crystalline silicon solar cell production**

*(Invited lecture)*

**M. Hofmann**

*Fraunhofer Institute for Solar Energy Systems, Freiburg (D)*

4.50 pm **O-9.1 Influence of the substrate tilt on the morphological and optical properties of reactively sputter-deposited TiO<sub>2</sub> coatings dedicated to dye sensitized solar cells**

**A. Benyoucef<sup>1,2</sup>, F. Lapostolle<sup>1</sup>, A. Billard<sup>1</sup>, D. Klein<sup>1</sup>, B. Benyoucef<sup>2</sup>**

<sup>1</sup> LERMPS-UTBM, Belfort (F)

<sup>2</sup> URMER, Université Abou-bakr Belkaid de Tlemcen (DZ)

5.10 pm **O-9.2 All-plasma PEMFC: new polymer membrane and high performance of ultra low PT loaded electrodes**

**M. Cavarroc<sup>1</sup>, A. Ennajaoui<sup>1,3</sup>, M. Vogt<sup>1</sup>, P. Brault<sup>2</sup>, R. Escalier<sup>2</sup>, Y. Tessier<sup>2</sup>, J. Durand<sup>3</sup>, S. Roualdès<sup>3</sup>**

<sup>1</sup> Made In Dreux, Vernouillet (F)

<sup>2</sup> GREMI, Université d'Orléans (F)

<sup>3</sup> IEM, Montpellier (F)

5.30 pm **O-9.3 An experimental and modelling study of acetaldehyde oxidation by an atmospheric non-thermal discharge**

**A. Vega, C. Klett, S. Touchard, M. Redolfi, K. Hassouni, X. Duten**

*LIMHP, Université Paris 13, Villetaneuse (F)*

5.50 pm **O-9.4 Non thermal plasma coupling with hydrophobic zeolite for butane removal**

**J. Youssef<sup>1,2</sup>, K. Bouamra-Benzahra<sup>1</sup>, M. Touaty<sup>1</sup>, O. Guaitella<sup>2</sup>, A. Rousseau<sup>2</sup>**

<sup>1</sup> RENAULT SAS-1, Guyancourt (F)

<sup>2</sup> LPP, Ecole Polytechnique, Palaiseau (F)

6.10 pm **O-9.5 Carbon dioxide reforming of methane using a non-thermal plasma: effect of power supply on plasma-catalyst interaction**

**V. Goujard, J.M. Tatibouët, C. Batiot-Dupeyrat**

*LACCO ESIP, Poitiers (F)*

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# CIP 09

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**FRIDAY, JUNE 26**

## TOPIC 2: PLASMA DIAGNOSTICS AND MODELLING (Room CALLELONGUE)

**Chairs:** Jaroslav VLCEK – Michel HECQ

- 8.30 am **I-2.2 Carbon erosion by an argon-hydrogen plasma jet: a plasma spectroscopy study**  
(Invited lecture)  
**R. Engeln**  
*Department of Applied Physics, Eindhoven University of Technology (NL)*
- 9.10 am **O-2.6 Expansion and homogenization of rare gas tubular discharges at pressures higher than 1kPa**  
**E. Castaños-Martínez, M. Moisan**  
*Groupe de physique des plasmas, Université de Montréal, Québec (CND)*
- 9.30 am **O-2.7 Pressure dependence of stable krypton mono-filamentary dielectric barrier discharges**  
**N. Merbahi, N. Sewraj, F. Marchal, G. Jabbour**  
*LAPLACE, Toulouse (F)*
- 9.50 am **O-2.8 Cold magnetic hollow cathodes for plasma assisted surface treatment: plasma diagnostics using optical emission spectroscopy and Langmuir probe**  
**G. Marcos<sup>1</sup>, H. Chavanne<sup>2</sup>, L. Monteux<sup>2</sup>, F. Kosior<sup>1</sup>, G. Henrion<sup>1</sup>, T. Czerwicz<sup>1</sup>**  
<sup>1</sup> *Institut Jean Lamour, Nancy Université (F)*  
<sup>2</sup> *HEF, Andrézieux-Bouthéon (F)*
- 10.10 am **O-2.9 Acoustic spectra characteristics of atmospheric pressure plasma using optical wave microphone**  
**T. Nakamiya<sup>1</sup>, F. Mitsugi<sup>2</sup>, S. Suyama<sup>2</sup>, T. Ikegami<sup>2</sup>, Y. Sonoda<sup>1</sup>, Y. Iwasaki<sup>1</sup>, R. Tsuda<sup>1</sup>**  
<sup>1</sup> *Tokai University, Kumamoto (J)*  
<sup>2</sup> *Kumamoto University (J)*

**- Break -**

# CIP 09

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**FRIDAY, JUNE 26**

## TOPIC 3: MULTIPHASE PLASMAS (Room MORGIUO)

**Chairs:** Koichi SASAKI – Xavier DUTEN

### 8.30 am I-3.2 Making flashes in bubbles in liquids

*(Invited lecture)*

**W.G. Graham**

*Centre for Plasma Physics, Queen's University Belfast (UK)*

### 9.10 am O-3.3 Time resolved schlieren imaging of a pulsed filamentary plasma discharge in water

**P. Ceccato, O. Guaitella, A. Rousseau**

*LPP, Ecole Polytechnique, Palaiseau (F)*

## TOPIC 1: ADVANCED PLASMA SOURCES

**Chairs:** Koichi SASAKI – Xavier DUTEN

### 9.30 am O-1.8 Advances and drawbacks of microwave plasmas for surface processing

**A. Lacoste<sup>1</sup>, J. Pelletier<sup>1</sup>, M. Moisan<sup>2</sup>, C. Héau<sup>3</sup>, B. Schmidt<sup>3</sup>**

<sup>1</sup> *LPSC, Université Joseph Fourier, Grenoble (F)*

<sup>2</sup> *GPP, Université de Montréal, Québec (CND)*

<sup>3</sup> *HEF, Andrézieux-Bouthéon (F)*

<sup>1,2</sup> *Also, Laboratoire International de Technologies et Applications des Plasmas (LIA-LITAP)*

### 9.50 am O-1.9 Production of N-atoms in a pulsed N<sub>2</sub> gas microwave flowing post-discharge

**A. Ricard<sup>1</sup>, F. Moser<sup>1</sup>, S. Cousty<sup>1</sup>, S. Villeger<sup>2</sup>**

<sup>1</sup> *LAPLACE, Toulouse (F)*

<sup>2</sup> *Acteon-Satelec, Mérignac (F)*

### 10.10 am O-1.10 Power optimisation of optical emission of plasma produced by intense large-area surface discharges

**V. Tcheremiskine<sup>1</sup>, T. Moskalev<sup>2</sup>, O. Uteza<sup>1</sup>, G. Cheriaux<sup>3</sup>, M. Sentis<sup>1</sup>, L. Mikheev<sup>2</sup>**

<sup>1</sup> *LP3, University Aix-Marseille II, Marseille (F)*

<sup>2</sup> *Laboratory of Photochemical Processes, P.N. Lebedev Physics Institute, Moscow (RUS)*

<sup>3</sup> *Laboratory of Applied Optics, Ecole Polytechnique, Palaiseau (F)*

**- Break -**

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**FRIDAY, JUNE 26**

## TOPIC 5: PLASMA FOR FUNCTIONAL AND MULTIFUNCTIONAL COATINGS (Room CALLELONGUE)

**Chairs:** Fabienne PONCIN-EPAILLARD – Thierry BELMONTE

- 11.00 am **O-5.5** Fire retardant performance of Polyamide 6,6 coated by organosilicon thin films using cold plasma process  
**H. Gallou<sup>1</sup>, M. Jimenez<sup>1</sup>, C. Jama<sup>1</sup>, S. Duquesne<sup>1</sup>, S. Bourbigot<sup>1</sup>, R. Delobel<sup>1</sup>, F. Spéroni<sup>2</sup>, X. Coulliens<sup>2</sup>, J. Mitchell<sup>3</sup>**  
<sup>1</sup> PERF-LSPES, ENSCL, Villeneuve d'Ascq (F)  
<sup>2</sup> Rhodia Engineering Plastics, Ceriano Laghetto (I)  
<sup>3</sup> Rhodia Polyamide, Saint Fons (F)
- 11.20 am **O-5.6** Molecular and chemical structure characterization of organosilicon coatings deposited by means of atmospheric pressure plasma process  
**J. Bour<sup>1</sup>, J. Petersen<sup>1,2</sup>, D. Del Frari<sup>1</sup>, J. Bardon<sup>1</sup>, A. Dinia<sup>2</sup>, D. Ruch<sup>1</sup>**  
<sup>1</sup> LTI, CRPHT, Esch sur Alzette (L)  
<sup>2</sup> IPCMS, Strasbourg (F)
- 11.40 am **O-5.7** Plasma deposition of optical filters on flexible substrate  
**O. Carton<sup>1,2</sup>, M. Lejeune<sup>1</sup>, A. Zeinert<sup>1</sup>, S. Zaidi<sup>2</sup>, F. Lamarque<sup>2</sup>**  
<sup>1</sup> Université de Picardie Jules Verne, LPMC, Amiens (F)  
<sup>2</sup> Université de Technologie de Compiègne, Laboratoire Roberval (F)
- 12.00 am **O-5.8** CaTiO<sub>3</sub>:Pr<sup>3+</sup> thin films deposited by radiofrequency magnetron sputtering for electroluminescent application  
**L. Sarakha<sup>1</sup>, A. Bousquet<sup>1</sup>, J. Cellier<sup>1</sup>, E. Tomasella<sup>1</sup>, P. Boutinaud<sup>1</sup>, R. Mahiou<sup>1</sup>, T. Sauvage<sup>2</sup>**  
<sup>1</sup> LMI, Université Blaise, Aubière (F)  
<sup>2</sup> CNRS/CEMHTI, Orléans (F)
- 12.20 am **CLOSING (Room CALLELONGUE)**

# CIP 09

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**FRIDAY, JUNE 26**

## TOPIC 8: PLASMA FOR MICROELECTRONICS, MICRO AND NANOTECHNOLOGY (Room MORGIOU)

**Chairs:** Rémi DUSSART – Ondrej KYLIAN

- 11.00 am **O-8.6** Inductively coupled RF thermal plasma: a versatile tool for the synthesis of nanoparticles  
**M. Leparoux**  
*Empa, Thun (CH)*
- 11.20 am **O-8.7** Electro-optics properties of carbon nanotubes obtained by plasma chemical vapour deposition  
**R.D. Mansano, A.P. Mousinho**  
*Universidade de São Paulo, (BR)*
- 11.40 am **O-8.8** Surface reaction involving H radicals in Si-Cl<sub>2</sub>/H<sub>2</sub> inductively coupled plasma and application to the anisotropic etching of III-V materials  
**L. Gatilova<sup>1</sup>, G. Curley<sup>1</sup>, S. Guilet<sup>1</sup>, S. Bouchoule<sup>1</sup>, P. Chabert<sup>2</sup>**  
<sup>1</sup>*LPN-CNRS, Marcoussis (F)*  
<sup>2</sup>*LPP-CNRS, Ecole Polytechnique, Palaiseau (F)*
- 12.00 am **O-8.9** Investigations of plasma etching mechanisms: example of HgCdTe inductively coupled plasma etching in CH<sub>4</sub>-H<sub>2</sub> based chemistry  
**F. Boulard<sup>1</sup>, J. Baylet<sup>2</sup>, C. Cardinaud<sup>1</sup>**  
<sup>1</sup>*IMN, Université de Nantes (F)*  
<sup>2</sup>*CEA-LETI, Grenoble (F)*
- 12.20 am **CLOSING (Room CALLELONGUE)**