

CONFERENCE PROGRAM

TUESDAY 24 OCTOBER

8:00 **Welcome of the participants**
Registration and badges pick-up

8:45 **Opening ceremony**
Nikola Radic, Chair of Scientific Committee

Session I - Nanomaterials and nanostructured thin films 1 / Magnetron sputtering

9:00 **The materials science of fullerene-like carbon nitride (CNx) thin films;**
- Effects of doping on structure and mechanical resiliency

Plenary speaker

L. Hultman

Thin Film Physics Division, Department of Physics, (IFM), Linköping Univ. (SE)

9:45 #85 - Towards a better understanding of Titanium Nitride thin film growth microstructures obtained by GLAD: computational vs. experiments

G. Abadias¹, B. Bouaouina¹, R. Mareus¹, F. Nita¹, C. Mastail¹, A. Besnard²

¹ *Institut Pprime, CNRS-Univ. Poitiers-ENSMA - Chasseneuil-Futuroscope (FR)*

² *ENSAM, LaBoMAP - Cluny (FR)*

10:05 #51 - Evolution of structure, residual stresses and mechanical properties of nanocrystalline multi-layered AlCrN-AlTiN coatings upon thermal loading revealed by cross-sectional X-ray diffraction

S. Klima¹, N. Jäger¹, M. Meindlhumer¹, H. Hruby², C. Mitterer³, J. Keckes⁴, R. Daniel¹

¹ *Montanuniversität Leoben - Leoben (AT)*

² *Eifeler-Vacotec GmbH - Düsseldorf (DE)*

³ *Department Physical Metallurgy and Materials Testing, Montanuniversität Leoben (AT)*

⁴ *Montanuniversität Leoben and Erich Schmid Institute for Materials Science, Leoben (AT)*

10:25 #78 - Structural and mechanical properties of ZrMo thin films: from the nano-crystalline to the amorphous state

A. Borroto Ramirez¹, S. Bruyère¹, N. Thurieau¹, C. Gendarme¹, E. Jimenez-Piqué², J.J. Roa², J.F. Pierson¹, F. Mücklich³, D. Horwat¹

¹ *Institut Jean Lamour, Univ. Lorraine, Nancy (FR)*

² *Department of Materials Science and Engineering, Univ. Politecnica de Catalunya, Barcelona (SP)*

³ *Department of Materials Science and Engineering, Saarbrücken (DE)*

10:45 **Coffee break 30'**

11:15 Catalytic nanomaterials for fuel cell by magnetron sputtering

Keynote speaker

A. Caillard, S. Cuynet, J. Berndt, T. Lecas, A.-L. Thomann, P. Brault

GREMI, Univ. Orléans (FR)

11:45 #69 - Structural characterization and opto-electronical properties of copper carbon composite thin films

A. Lelong¹, M. Lejeune¹, A. Zeinert¹, S.E. Rodil², J. Perez Álvarez², R. Mirabal-Rojas²

¹ *Laboratoire de Physique de la Matière Condensée, Univ. Picardie Jules Verne - Amiens (FR)*

² *Instituto de Investigaciones en Materiales, Univ. Nacional Autónoma de México - Mexico (MX)*

12:05 #90 - Novel preparation route for thin electrolyte films for cathode supported solid oxide fuel cells

G. Tsimekas, C. Savaniu, P. Connor, J. Irvine

School of Chemistry, Univ. St. Andrews (UK)

12:25 **Lunch**

Session II – Innovative characterization techniques

14:00 Live investigations of thin film deposition by advanced scanning tunneling microscopy*Plenary speaker***J.W.M. Frenken***Advanced Research Center for Nanolithography, Amsterdam (NL)***14:45 #65 - Study on metal nitride mono- and multi-layered films by spherical aberration corrected TEM****Z. Zhang***Erich Schmid Institute of Materials Sciences, Austrian Academy of Sciences - Leoben (AT)***15:05 #59 - EnviroESCA – Routine surface analysis under environmental conditions****L. Socaciu-Siebert, M. Meyer, P. Dietrich, S. Bahr, A. Thissen***SPECS Surface Nano Analysis GmbH - Berlin (DE)***15:25 #36 - Measurement system for thermophysical properties of thin films in a broad temperature range****H-W. Marx¹, V. Linseis²**¹*Linseis Messgeräte GmbH - Selb (DE)*²*Universität Hamburg - Hamburg (DE)***15:45 Coffee break 30'****16:15 Probing interface-driven properties in oxide heterostructured thin films by scanning transmission electron microscopy***Keynote speaker***O. Stephan***LPS, Univ. Paris Sud, Orsay (FR)***16:45 #96 - Quantifying the phase separation in mixed TiO₂/SiO₂ thin films with X-ray photo-electron spectroscopy - combined experimental and computational study****P. Ondracka¹, M. Richard², D. Necas¹, D. Holec³, S. Elisabeth², A. Goulet², L. Zajicková¹**¹*CEITEC, Masaryk Univ. - Brno (CR)*²*Univ. Nantes (FR)*³*Montanuniversität Leoben - Leoben (AT)***17:05 #84 - Photoelectric properties of brush electrodeposited CuIn_{0.7}Ga_{0.3}S₂ films****A. Panneerselvam¹, B. Kajamaideen², K.R. Murali³**¹*Department of Physics, Paavai Engineering College, Pachal - Namakkal (IN)*²*Department of Physics, Kalaignar Karunanidhi Institute of Technology - Coimbatore (IN)*³*Department of Theoretical Physics, Univ. Madras - Chennai (IN)***17:25 #31 - Influence of RE concentration in TiO₂ thin films on the anatase to rutile phase transformation****D. Scoca¹, V. Antunes¹, S. Cucatti¹, A. Zanatta², F. Alvarez¹**¹*UNICAMP - Campinas (BR) -*²*São Carlos Institute of Physics (USP) - São Carlos (BR)***17:45 Flash Exhibitors presentations****18:00 Cocktail***sponsored by the exhibitors*

WEDNESDAY 25 OCTOBER

Session III – Nanomaterials and nanostructured thin films III / Renewable Energies

- 08:30 Atomic layer deposition for photovoltaics - ALD4PV**
Plenary speaker
E. Kessels
Department of Applied Physics, Eindhoven Univ. of Technology (NL)
- 09:15 #79 - Atomic layer deposition of copper oxide and metallic copper thin films on ZnO
C. De Melo Sanchez¹, M. Jullien¹, J.F. Pierson¹, Y. Battie², A. En Naciri², F. Mücklich³
¹ *Institut Jean Lamour, Univ. Lorraine, Nancy (FR)*
² *LCP-A2MC, Institut Jean Barriol, Univ. Lorraine, Metz (FR)*
³ *Department of Materials Science and Engineering, Saarland Univ. Saarbrücken (DE)*
- 09:35 #67 - Study of the structure and the growth mechanism in hexagonal nickel thin films deposited via plasma-enhanced atomic layer deposition
P. Motamedi¹, K. Bosnick¹, K. Cui¹, K. Cadien², J. Hogan³
¹ *National Research Council Canada – National Institute for Nanotechnology - Edmonton (CA)*
² *Department of Chemical and Materials Engineering, Univ. Alberta - Edmonton (CA)*
³ *Department of Mechanical Engineering, Univ. Alberta, Edmonton (CA)*
- 09:55 #39 - Phase stability and morphology in the vapor transport growth of Bi₂Te₃ using elemental Bi and Te sources
O. De Melo Pereira¹, O. Concepción², A. Escobosa³, J. Roque⁴, V. Torres Costa⁵, M. Manso Silván⁵
¹ *Univ. La Habana (CU) &, Univ. Madrid (ES)*
² *CINVESTAV, IPN, Mexico (MX)*
³ *Sección de Electrónica del Estado Sólido, Departamento de Ingeniería Eléctrica, Mexico (MX)*
⁴ *Laboratorio Avanzado de Nanoscopía Electrónica, CINVESTAV, IPN, Mexico (MX)*
⁵ *Departamento de Física Aplicada, Univ. Madrid (ES)*
- 10:15 Coffee break 30'**
- 10:45 What are the benefits of functional surface engineering partnerships and cross sectorial alliances for academia and industry?
Keynote speaker
J.L. Endrino
SENTI, Cranfield Univ. (UK)
- 11:15 #48 - Roll-to-Roll low-temperature (70 °C) ambient air plasma processing of inkjet printed mesoporous TiO₂ flexible photoanodes
T. Homola¹, P. Dzik², M. Shekargoftar¹, R. Krumpolec¹, J. Kelar¹, Z. Durašová¹, M. Veselý¹, M. Cernák¹
¹ *CEPLANT, Masaryk Univ., Brno (CZ)*
² *Faculty of Chemistry, Brno Univ. of Technology, Brno (CR)*
- 11:35 #33 - Evidence of vacancies enhanced nitrogen diffusion in Xe ion bombarded AISI 316L
S. Cucatti¹, C.M. Menezes², V.G. Antunes¹, C.A. Figueroa², F. Alvarez¹
¹ *IFGW - Unicamp - Campinas (BR)*
² *PGMAT – Univ. Caxias do Sul - Caxias Do Sul (BR)*
- 11:55 #32 - Electrochemical synthesis of nanostructured coatings and nanomaterials in molten salts
S. Kuznetsov
I.V. Tananaev Institute of Chemistry, Kola Science Centre RAS - Apatity (RU)
- 12:25 Lunch**

Session IV – Process Control

14:00 **Poster session**

15:55 **Coffee break 30'**

16:25 **Quantum mechanically guided materials design for surface engineering**

Plenary speaker

J.M. Schneider

Materials Chemistry, RWTH Aachen Univ., Aachen (DE)

17:10 #94 - PEO processing with sequential bipolar pulsed current waveforms

V. Ntomprougkidis, J. Martin, A. Nominé, G. Henrion

Institut Jean Lamour, CNRS - Nancy (FR)

17:30 #76 - Plasma instabilities during low power magnetron sputtering

A. Nominé, R. Romain, N.S.J. Braithwaite

The Open Univ. - Milton Keynes (UK)

17:50 #47 - Hydrogen effect of the low-resistive ITO films on plastic substrates

T. Fukuda, Y. Kamada, T. Maeda, T. Shingu

Department of Physical Electronics and Informatics, Osaka City Univ. - Osaka (JP)

18:10 #14 - Molecular layer deposition of polyurethane on native Al deposition regime and layer properties

F. Fug, H. Jost, A. Ahmed, C. Pirro, W. Possart

Saarland Univ. - Chair for Adhesion and Interphases in Polymers - Saarbruecken (DE)

19:30 **Gala dinner**

THURSDAY 26 OCTOBER

Session V – Nanomaterials and nanostructured thin films II / large area

08:30 Plasma assisted PVD approaches for synthesis 2D electronic materials

Plenary speaker

A.A. Voevodin

UNT, Denton (USA)

09:15 #46 - Elaboration of nanostructured coatings on large surfaces **O. Sublemontier¹, Y. Rousseau¹, Y. Leconte¹, C. Petit², E. Monsifrot³, F. Perry³, J.P. Gaston⁴, P. Chapon⁴, M. Stchakovski⁴, P. Briois⁵, A. Billard⁵, F. Torrent⁶**

¹CEA-IRAMIS-NIMBE, Saclay (FR)

²SOCRATE-INDUSTRIE, Le Belieu (FR)

³DEPHIS, Etupes (FR)

⁴HORIBA-JOBIN YVON, Palaiseau (FR)

⁵UTBM/FEMTO-ST, Montbéliard (FR)

⁶DECAYEUX-STI, Saucourt (FR)

09:35 #49 - Large area Au films permeated through hexagonal close packed Si pillars

M. Manso Silvan¹, P. Pellacani¹, D. Gallach Pérez¹, C. Morasso², L. Fornasari³, F. Marabelli³

¹Univ. Madrid (ES)

²Fondazione Don Carlo Gnocchi - Milan (IT)

³Univ. Pavia (IT)

09:55 #81 - Synthesis and characterization of Ni-based nanoparticles by low-pressure plasma treatment of a solid precursor

E. Haye¹, Y. Busby¹, M. Da Silva Pires¹, N. Job², J.J. Pireaux¹

¹LISE, PMR, Univ. Namur (BE)

²Univ. Liège, Department of Chemical Engineering – NCE - Liège (BE)

10:15 Coffee break 30'

Session V – Nanomaterials and nanostructured thin films II / large area

10:45 Reactive magnetron sputtering –process control and hysteresis-free? Reactive HiPIMS

Keynote speaker

T. Kubart

Angstrom Laboratory, Uppsala Univ. (SE)

11:15 #102 - Enhancement of the surface plasmon polariton modes of thin films stack

M. Achlan, G. Raseev, E. Boer-Duchemin, E. Le-Moal

ISMO, Univ. Paris Sud, CNRS - Orsay (FR)

11:35 #63 - Synthesis of CdO nanostructures by nanosecond-pulsed discharges in liquid nitrogen

M. Trad¹, A. Nominé¹, J. Ghanbaja¹, C. Noël¹, M. Tabbal², T. Belmonte¹

¹Institut Jean Lamour, CNRS - Université de Lorraine - Nancy (FR)

²American Univ. Beirut (LY)

11:55 #57 - Atomic Layer Deposition, a new tool to explore new applications

G. Ribette

MICROTEST - Serignan Du Comtat (FR)

12:25 Lunch

Session IV – Health & life sciences

14:00 Plasma-assisted surface engineering of electrospun materials for tissue engineering purposes*Plenary speaker***N. De Geyter***Ghent Univ. (BE)***14:45 #75 - Role of corrosion phenomenon in surfaces' anti-bacterial properties: a case study on copper based co-sputtered thin films****J. Luo¹, C. Hein², M. Solioz³, J.F. Pierson⁴, F. Mücklich¹**¹ *Functional Materials, Saarland Univ. - Saarbruecken (DE)*² *Inorganic Solid State Chemistry, Saarland Univ. - Saarbruecken (DE)*³ *Department of Clinical Research, Univ. Bern (CH)*⁴ *Institut Jean Lamour, Univ. Lorraine - Nancy (FR)***15:05 #55 - Development of antibacterial Zr-Cu-based thin film metallic glasses****A. Etienne¹, G.I. Nkou Bouala², C. Der Loughian², C. Langlois², S. Cardinal², J.M. Pelletier², S. Philippe², J.F. Pierson¹**¹ *Institut Jean Lamour, Univ. Lorraine - Nancy (FR)*² *Mateis, Insa-Lyon - Villeurbanne (FR)***15:25 #50 - Biomedical properties of Ti doped ZnO thin films produced by MW plasma annealing sol-gel process****M. Manso Silvan, R. Ramadan, J.P. García Ruiz***Univ. Madrid (ES)***15:45 Coffee break 30'****16:15 Subsurface effects in plasma coatings by means of vertical chemical gradients***Keynote speaker***D. Hegemann***EMPA, St Gallen (CH)***16:45 #100 - Antibacterial thin films prepared by means of low temperature plasma****J. Kratochvíl¹, D. Kahoun², H. Langhansová², J. Lieskovská², P. Fojtíková², J. Šterba², A. Kuzminová³, J. Kousal³, J. Hanuš³, O. Kylián³, V. Stranák², H. Biedermann³**¹ *Charles Univ., Prague & Univ. South Bohemia in České Budejovice (CZ)*² *Univ. South Bohemi, České Budejovice (CZ)*³ *Charles Univ. Faculty of Mathematics and Physics - Prague (CZ)***17:05 #7 - Porous silicon nanowire (PSiNW_r) film elaborated and modified by organic species for mercury detection****C. Yaddaden, N. Gabouze, M.A. Benamar***CRTSE - Algiers (DZ)*

FRIDAY 27 OCTOBER

Session VII – Nanomaterials and nanostructured thin films II / large area

- 09:00 Atomic shadowing in HiPIMS: role of the ionized species
Keynote speaker
J. Oliveira¹, F. Ferreira¹, A. Anders², A. Cavaleiro¹
¹ Department of Mechanical Engineering, Univ. Coimbra (PT)
² Lawrence Berkeley National Laboratory, Berkeley (USA)
- 09:30 #98 - Influence of adatom mobility on residual stress generation, evolution and relaxation for high mobility metal thin film growth
A. Jamnig¹, K. Sarakinos², G. Abadias¹
¹ Institut Pprime, Département Physique et Mécanique des Matériaux, Poitiers (FR)
² Nanoscale Engineering Division, Linköping Univ. (SE)
- 09:50 #54 - Study on bilayer yttria stabilized zirconia / gadolinia doped ceria deposits manufactured by reactive magnetron sputtering
P. Coddet¹, J. Vulliet², A. Caillard³, T. Sauvage⁴, T. Lecas³, A.L. Thomann³
¹ GREMI / Univ. Orléans (FR)
² CEA DAM - Monts (FR)
³ GREMI / CNRS - Orléans (FR)
⁴ CEMHTI - Orléans (FR)
- 10:10 Coffee break 30'**
- 10:40 PVD coating research and job coating service: benefits and issues of doing both
Keynote speaker
M. Cekada
Jozef Stefan Institute, Ljubljana (SI)
- 11:10 #34 - Ductile behavior of hard MoBC and WBC nanolaminated coatings
**P. Vasina¹, P. Soucek¹, S. Mirzaei¹, M. Alishahi¹, L. Zabransky¹, J. Bursik²
V. Perina³, V. Bursikova¹**
¹ Masaryk Univ. - Brno (CZ)
² Institute of Physics of Materials of CAS - Brno (CZ)
³ Nuclear Physics Institute of CAS - Prague (CZ)
- 11:30 #92 - Amorphous carbon thin films for long vacuum chambers in particle accelerators to mitigate electron-cloud phenomenon
W. Vollenberg, P. Costa Pinto, M. Taborelli, M. Van Gompel, A. Sapountzis, P. Cruikshank
CERN - Geneva (CH)
- 11:50 #71 - Contribution of RBS analysis for the characterization of PVD-CVD coatings used in mechanical applications
B. Canut¹, C. Bernard², E. Damond³
¹ Institut des Nanotechnologies de Lyon (FR)
² Institut de Physique Nucléaire de Lyon (FR)
³ Ionbond France SAS, Chassieu (FR)
- 12:10 Closing Ceremony**
Ceremony for "SFV Student Grant"