

TUESDAY, SEPTEMBER 12TH – MORNING

09:10 **Opening Ceremony**
C. Champeaux (FR) - Chair of the Steering Committee
L. Zajickova (CZ) - Chair of the Scientific Committee

SURF / Plasma-surface interactions **Antipolis Auditorium – Chair: L. Zajickova (CZ)**

09:25 Plasma-surface interactions of atomic-layer processing toward sub-nm node semiconductor devices
Plenary speaker
S. Hamaguchi - Osaka Univ. (JP)

10:05 **Break 30'**

SURF 1 / Plasma-surface interactions **Antipolis Auditorium – Chair: S. Hamaguchi (JP)**

10:35 **#019** - Gas- and plasma-surface interactions in cryogenic conditions: a *quasi in situ* XPS study on Si substrates
F. Cemin, A. Girard, C. Cardinaud
Nantes Univ., CNRS, Institut des Matériaux de Nantes Jean Rouxel (IMN) - Nantes (FR)

10:55 **#034** - Selective cryoetching plasma process of Si₃N₄
R. Dussart, R. Ettouri, J. Nos, G. Antoun, T. Tillocher, P. Lefauchaux
GREMI – Univ. Orléans - CNRS - Orléans (FR)

11:15 **#049** - Photoresist removal in MEMS fabrication process with HDRF®, optimized chemistry by adding hydrogen radical in oxygen process
M. Segers, Y. Pilloux, A. Pageau
Plasma-Therm Europe - Bernin (FR)

11:35 **#108** - Effects of the substitution of Ar by Kr in ALE process of GaN
C. Mannequin^{1,2}, C. Vallée^{3,2}, G. Jacopin⁴, C. Durand⁵, T. Teramoto⁶, K. Akimoto², E. Gheeraert^{4,2}, M. Bonvalor^{3,2}, H. Mariette^{5,7,2}
¹ Nantes Univ., CNRS, Institut des Matériaux de Nantes Jean Rouxel (IMN) - Nantes (FR)
² Faculty of Pure and Applied Sciences, Univ. Tsukuba - Tsukuba (JP)
³ CNRS/LTM, Univ. Grenoble-Alpes - Grenoble (FR)
⁴ CNRS/Institut Néel, Univ. Grenoble-Alpes - Grenoble (FR)
⁵ CEA/IRIG/PHELIQS, Univ. Grenoble-Alpes - Grenoble (FR)
⁶ Air Liquide Laboratories - Yokosuka (JP)
⁷ CNRS/Institut Néel, Univ. Grenoble-Alpes - Grenoble (FR)

11:55 **#081** - Impact of temperature towards the reduction of C₄F₈ passivating gas-flow during bosch processing
J. Nos¹, T. Tillocher¹, P. Lefauchaux¹, R. Dussart¹, M. Boufnichel²
¹ GREMI, Orléans Univ. - CNRS - Orléans (FR)
² STMicroelectronics - Tours (FR)

12:30 **Lunch**

TUESDAY, SEPTEMBER 12TH – MORNING

DEPO 1 / Plasma - deposited coatings

Ella Fitzgerald Room – Chair: G. Abadias (FR)

- 10:35 **#015** - Properties of a new TiTaZrHfW(-N) refractory high entropy film deposited by reactive DC pulsed magnetron sputtering
A. Bouissil¹, S. Achache¹, D.E. Touaibia¹, B. Panicaud², M. Arab Pour Yazdi³, F. Sanchette¹, M. El Garah¹
¹ LASMIS, Antenne de Nogent – Nogent (FR)
² LASMIS, Univ. Technologie de Troyes (UTT) - Troyes (FR)
³ FEMTO-ST, MN2S Department, Univ. Bourgogne Franche-Comté, UTBM, - Montbéliard (FR)
- 10:55 **#045** - Chemical and physical properties of gold-boron Laser Mégajoule target components coated by sputtering Physical Vapor Deposition
E. Brun¹, S. Khieu¹, V. Durand¹, O. Heintz², A. Krystianiak², R. Botrel¹, N. Cermelli¹, A. Royer¹
¹ CEA Valduc - Is sur Tille (FR)
² CNRS Univ. Bourgogne - Dijon (FR)
- 11:15 **#150** - PVD coating on metallic powders: an innovative metallurgical process
A. Besnard¹, Y. Pinot¹, M.R. Ardigo-Besnard², F. Bussière², J.P. Chateau-Cornu², C. Vandabeele³, S. Lucas³
¹ Arts et Métiers Science and Technology - LaBoMaP - Cluny (FR)
² Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB) - Dijon (FR)
³ Innovative Coating Solutions (ICS) - Namur (BE)
- 11:35 **#051** - Group III-nitride semiconductor materials made by low temperature plasma based Atomic Layer Deposition
N. Adjeroud, J. Polesel, Y. Fleming
Luxembourg Institute of Science and Technology (LIST) (LU)
- 11:55 **#115** - Engineering multifunctional thin films by plasma copolymerization
A. Riahi, J. Carneiro de Oliveira, A. Airoudj, V. Roucoules, F. Bally-Le-Gall
CNRS, IS2M UMR 7361, Univ. Haute-Alsace, Univ. Strasbourg - Mulhouse (FR)
- 12:30 **Lunch**

TUESDAY, SEPTEMBER 12TH – AFTERNOON

SOUR / Plasma sources and electrical discharges **Antipolis Auditorium – Chair: L. Stafford (CA)**

- 14:00 Electrical characterization of barrier discharges: linking fundamentals and applications
Plenary speaker
R. Brandenburg – Leibniz-Institute for Plasma Science and Technology (INP), Greifswald (DE)
Institute of Physics, Univ. Rostock (DE)

SOUR 1/ Plasma sources and electrical discharges **Antipolis Auditorium – Chair: L. Stafford (CA)**

- 14:45 **#048** - Self-organization of HiPIMS plasma investigated by high-speed camera
M. Panjan
Jozef Stefan Institute - Ljubljana (SI)
- 15:05 **#084** - Angular distribution of ions and neutrals in High Power Impulse Magnetron Sputtering of titanium
J. Fischer^{1,2}, M. Renner¹, J.T. Gudmundsson^{3,4}, M. Rudolph⁵, H. Hajihoseini⁶, D. Lundin¹
¹ Linköping Univ. - Linköping (SE)
² Evatec AG - Trübbach (CH)
³ KTH Royal Institute of Technology - Stockholm (SE)
⁴ Univ. Iceland - Reykjavik (IS)
⁵ Leibniz Institute of Surface Engineering (IOM) - Leipzig (DE)
⁶ Univ. Twente - Enschede (NL)
- 15:25 **#163** - A comparison between simulation & experimental results of a low-pressure argon plasma generated by ECR
Y. Fermi, T. Maho, P. Guillot
Laboratoire Diagnostics des Plasmas Hors Equilibre, Univ. Toulouse, INU Champollion - Albi (FR)

15:45 **Break 30'**

PROC 2 / Process control **Antipolis Auditorium – Chair: S. Béchu (FR)**

- 16:15 **#088** - Studying the transport of atoms sputtered from a compound NBC target in HiPIMS discharges: plasma diagnostics and modelling
Keynote lecture
T. Kozak¹, M. Farahani¹, A.D. Pajdarova¹, A. Bahr², R. Hahn², H. Riedl^{2,3}, P. Zeman¹
¹ Department of Physics and NTIS-European Centre of Excellence, Univ. West Bohemia - Plzen (CZ)
² Christian Doppler Lab. for Surface Engineering of High-performance Components, TU Wien - Wien (AT)
³ Institute of Materials Science and Technology, TU Wien - Wien (AT)
- 16:45 **#082** - Sputtered atom density – target heating correlation in hot magnetron sputtering discharge
K. Leonova¹, S. Konstantinidis¹, N. Britun²
¹ Plasma-Surface Interaction Chemistry (ChIPS), Univ. Mons - Mons (BE)
² Center for Low-Temperature Plasma Sciences, Nagoya Univ. - Nagoya (JP)
- 17:05 **#169** - Characterization of a helium micro-plasma jet by means of ps-TALIF and a streak camera
K. Gazeli¹, L. Invernizzi¹, C. Anastassiou², J. Franzke³, C. Duluard¹, S. Prasanna¹, K. Hassouni¹, G. Lombardi¹
¹ LSPM, CNRS, Univ. Sorbonne Paris Nord, UPR 3407 - Villetaneuse (FR)
² ENAL Electromagnetics and Novel Applications Lab, Univ. Cyprus, - Nicosia (CY)
³ ISAS-Leibniz-Institut für Analytische Wissenschaften - Dortmund (DE)

TUESDAY, SEPTEMBER 12TH – AFTERNOON

SOUR / Plasma sources and electrical discharges **Antipolis Auditorium – Chair: L. Stafford (CA)**

- 14:00 Electrical characterization of barrier discharges: linking fundamentals and applications
Plenary speaker
R. Brandenburg – Leibniz-Institute for Plasma Science and Technology (INP), Greifswald (DE)
Institute of Physics, Univ. Rostock (DE)

DEPO 2 / Plasma - deposited coatings **Ella Fitzgerald Room – Chair: M. Richard-Plouet (FR)**

- 14:45 **#058** - Plasma polymer-metal composites: relations between chemical structure, topography and electrical properties
P. Lottin^{1,2}, J.F. Coulon², D. Debarnot¹
¹ Institut des Molécules et Matériaux du Mans, UMR 6283 CNRS, Le Mans Univ., Le Mans (FR)
² ECAM RENNES – Louis de Broglie, Campus de Ker Lann, Bruz (FR)
- 15:05 **#074** - Double tube configuration of atmospheric pressure plasma jet for deposition of organic coatings in open air
F. Arefi-Khonsari¹, A. Anagri², A. Baitukha³, J. Pulpytel¹, S. Mori²
¹ Lab. Interfaces et Systèmes Electrochimiques LISE UMR8235, Sorbonne Univ., CNRS - Paris (FR)
² Department of Chemical Science and Engineering Tokyo Institute of Technology - Tokyo (JP)
³ DIAM CONCEPT, ACCELAIR - Les Loges en Josas (FR)
- 15:25 **#161** - Environmentally-friendly plasma polymers to get durable water-repellent textile fabrics: a comprehensive study on coating structure-performance relationship
F. Bally-Le Gall¹, S. Jebali^{1,2}, J. Oliveira¹, A. Airoudj¹, A. Riahi¹, I. Ferreira², V. Roucoules¹
¹ Institut de Science des Matériaux de Mulhouse (IS2M) - CNRS/UHA - Mulhouse (FR)
² Institut Français du Textile et de l'Habillement (IFTH) - Mulhouse (FR)

15:45 **Break 30'**

NANO 1 / Nanomaterials & nanostructured thin films **Ella Fitzgerald Room – Chair: R. Clergereaux (FR)**

- 16:15 **#121** - Investigation by TEM and XPS of the thermal stability of multi-layer solar selective absorber
M. Richard-Plouet¹, F. Chabanais¹, A. Goulet¹, J. Hamon¹, N. Gautier¹, A. Diop^{3,4}, B. Diallo², B. Plujat³, A. Bousquet⁴, T. Sauvage², A. Soum-Glaude³, E. Tomasella⁴, L. Thomas³
Keynote lecture
¹ Nantes Univ. - IMN UMR 6502 CNRS - Nantes (FR)
² CEMHTI-CNRS UPR 3079 - Orléans (FR)
³ PROMES CNRS UPR 8521 - Univ. Perpignan - Perpignan (FR)
⁴ Université Clermont Auvergne - ICCF CNRS UMR 6296 CNRS - Clermont-Ferrand (FR)
- 16:45 **#140** - Pulsed laser processes for the development of gold/silver nanocomposites for plasmonic applications
M. Gireau¹, C. Champeaux¹, F. Dumas-Bouchiat¹, S. Zeng², G. Humbert², F. Beffara²
¹ CNRS IRCER UMR 7315 - Limoges (FR)
² CNRS XLIM UMR 7252 - Limoges (FR)
- 17:05 **#102** - Influence of Cu nanoparticles addition on fracture properties of sputter deposited nanostructured refractory MoNbTaVW HEA coatings
M. Zitek, T. Ziegelwanger, J. Keckes, R. Daniel
Department of Materials Science, Montanuniv. Leoben - Leoben (AT)

TUESDAY, SEPTEMBER 12TH – AFTERNOON

17:30 **POSTER SESSION 1** (until 19:30)

ITEC 1 / Innovation & Technologies

Ella Fitzgerald Room – Chair: C. Champeaux (FR)

- 17:30 **#006** - A plasma for multidimensional elemental and molecular analysis of surfaces & interfaces
P. Chapon, A. Stankova
Horiba - Palaiseau (FR)
- 17:45 **#009** - Advanced patterning – ion beam etching for nano structuring
M. Loetsch
scia Systems - Chemnitz (DE)
- 18:00 **#172** - Advanced retarding field energy analyzer for accurate measurement of ion energy and flux in plasma-assisted thin film deposition tools
C. Linnane, A. Verma, T. Gilmore, A. McCarter
Impedans Ltd - Dublin (IE)
- 18:15 **#151** - How to identify the optimal plasma treatment length for different surfaces
V. Schloupt¹, N. Heil², S. Schaubach², Q. Liu²
¹ *DataPhysics Instruments GmbH - Metz (FR)*
² *DataPhysics Instruments GmbH - Filderstadt (DE)*
- 18:30 End of the session and Poster session 1 until 19:30
- 19:30 **Industrial evening** (until 22:30)

WEDNESDAY, SEPTEMBER 13TH – MORNING

NANO / Nanomaterials & nanostructured thin films **Antipolis Auditorium – Chair: T. Belmonte (FR)**

08:40 Nonthermal plasma synthesis of photonic silicon nanocrystals

Plenary speaker

U. Kortshagen – Univ. Minnesota (US)

NANO 2 / Nanomaterials & nanostructured thin films

Antipolis Auditorium – Chair: F. Arefi-Khonsari (FR)

09:25 **#100** - ZnO nanoparticles thin films and evolution of their photoluminescence under oxygen plasma treatment

J. Chevet¹, A. Granier¹, M. Feron^{2,3}, F. Massuyeau¹, M.L. Kahn², R. Clergereaux³, A. Goulet¹, M. Richard-Plouet¹

¹ Nantes Univ., CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN - Nantes (FR)

² Laboratoire de Chimie de Coordination UPR8241, CNRS - Toulouse (FR)

³ Laplace, Univ. Toulouse, CNRS, UPS, INPT - Toulouse (FR)

09:45 **#075** - Optical study of metallic nanoparticles generated by thin-layer ion irradiation

V. Goffinet¹, S. Lucas², P. Roquiny³

¹ Unamur/AGC - Namur (BE)

² Unamur - Namur (BE)

³ AGC - Gosselies (BE)

10:05

Break 30'

NANO 3 / Nanomaterials & nanostructured thin films

Antipolis Auditorium – Chair: U. Kortshagen (US)

10:35 **#073** - Plasmonic Cu nanoparticles embedded in semiconductor heterostructures for photoconversion applications

Y. Rodríguez Martínez^{1,2}, J. Ghanbaja¹, S. Migot¹, Y. Battie¹, S. Hamady³, M. Eriksson⁴, N. Almqvist⁴, A. Vomiero⁴, L. Vaillant², D. Horwat¹

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

² Institute of Materials Science and Technology, Univ. Havana - Havana (CU)

³ LMOPS, Univ. Lorraine - Metz (FR)

⁴ Department of Engineering Sciences and Mathematics, Luleå Univ. Technology - Luleå (SE)

10:55 **#092** - Development of a microwave microplasma process for the elaboration of nanodiamonds

A. Siby, S. Prasanna, K. Hassouni

Laboratoire des Sciences des Procédés et des Matériaux - Villetaneuse (FR)

11:15 **#076** - Dielectric Barrier Discharge in nitrogen for the realization of nanocomposite layers using multifrequency excitation and gold salt precursors

E. Bizeray¹, A. Belinger¹, S. Dap¹, F. Fanelli², N. Naudé¹

¹ LAPLACE, Univ. Toulouse, CNRS, INPT, UPS - Toulouse (FR)

² National Research Council (CNR), NANOTEC, Univ. Bari 'Aldo Moro' - Bari (IT)

WEDNESDAY, SEPTEMBER 13TH – MORNING

NANO 3 / Nanomaterials & nanostructured thin films

Antipolis Auditorium – Chair: U. Kortshagen (US)

- 11:35 **#120** - Synthesis of gold/polymer nanocomposites in an atmospheric pressure plasma
A. Perdrau^{1,2}, N. Barros^{1,2}, H. Glénat¹, F. Fanelli³, B. Plujat^{1,2}, R. Rincón⁴, F. Massines¹
¹ CNRS PROMES, Rambla de la thermodynamique - Perpignan (FR)
² Univ. Perpignan Via Domitia - Perpignan (FR)
³ CNR-Nanotec, Bari Unit - Bari (IT)
⁴ Univ. Córdoba, Department of Physics - Córdoba (ES)
- 11:55 **#146** - Au nanoparticles decoration of different TiO₂ nanostructures using atmospheric pressure cold plasma
A. Bjelajac¹, A.M. Phillipe¹, R. Petrovic², M. Stefanovic³, Y. Fleming¹, J.B. Chemin¹, P. Choquet¹, S. Bulou¹
¹ Luxembourg Institute of Science and Technology, Esch-sur-Alzette (LU)
² Univ. Belgrade, Faculty of Technology and Metallurgy, Belgrade (RS)
³ Univ. Belgrade, Innovation Centre of the Faculty of Technology and Metallurgy, Belgrade (RS)

12:30 **Lunch**

WEDNESDAY, SEPTEMBER 13TH – MORNING

NANO / Nanomaterials & nanostructured thin films **Antipolis Auditorium – Chair: T. Belmonte (FR)**

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Plenary speaker

U. Kortshagen – Univ. Minnesota (US)

DEPO 3 / Plasma - deposited coatings **Ella Fitzgerald Room – Chair: T. Belmonte (FR)**

09:25 **#040** - VN coatings for supercapacitor, an innovative approach to improve stability
E. Hays¹, Y. Miao², D. Pilloud³, C. Douard⁴, R. Boukherroub², J.F. Pierson³, T. Brousse⁴, S. Lucas¹, L. Houssiau¹, J.J. Pireaux¹, A. Achour¹

¹ UNamur (BE)

² IEMN Lille (FR)

³ IJL Nancy (FR)

⁴ IMN Nantes (FR)

09:45 **#065** - Plasma-assisted segregation of self-grown catalytic nanoparticles in perovskites for H₂ production by photoelectrocatalysis

T. Gries¹, V. Guigoz¹, S. Migot¹, S. Bruyère¹, R. Schneider²

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

² Laboratoire Réactions et Génie des Procédés, CNRS, Univ. Lorraine - Nancy (FR)

10:05

Break 30'

DEPO 4 / Plasma - deposited coatings **Ella Fitzgerald Room – Chair: L. Martinu (CA)**

10:35 **#079** - W/W-SiCH/TaO_xN_y solar selective absorber coatings for concentrated solar power
A. Mahammou¹, A. Diop¹, D. Ngoue¹, B. Diallo², B. Plujat¹, A. Bousquet³, S. Quoizola¹, M. Richard-Plouet⁴, T. Sauvage², A. Gouillet⁴, A. Soum-Glaude¹, E. Tomasella³, L. Thomas¹

¹ PROMES - CNRS, Perpignan / Font-Romeu - Odeillo - Via - Univ. Perpignan - Perpignan (FR)

² CEMHTI (Conditions Extrêmes et Matériaux) - Orléans (FR)

³ ICCF, Institut de Chimie de Clermont-Ferrand - Clermont-Ferrand (FR)

⁴ IMN, Institut des Matériaux Jean Rouxel - Nantes (FR)

10:55 **#148** - PVD coatings for PEMFC bipolar plates functionalization

M-A. Leroy, M. Ougier, C. Cambier, C. Pupier

IREIS / HEF Group, Andrézieux-Bouthéon (FR)

11:15 **#128** - Characterization of CuBi₂O₄ thin films deposited by RF magnetron sputtering

L. Presmanes, B. Duployer, Y. Thimont, A. Barnabé, C. Tenaillon

CIRIMAT CNRS - Toulouse (FR)

WEDNESDAY, SEPTEMBER 13TH – MORNING

DEPO 4 / Plasma - deposited coatings

Ella Fitzgerald Room – Chair: L. Martinu (CA)

11:35 **#166** - High-rate reactive deposition of ultrawide bandgap Ga₂O₃ by liquid metal target sputtering

J. Purans, M. Zubkins, A. Azens, E. Butanovs, E. Strods

Institute of Solid State Physics Univ. Latvia - RIGA (LV)

11:55 **#124** - Non-equilibrium synthesis of Si_{1-x}Mn_x thin films for magnetic application

A. Bénédict-Cardenas¹, T. Fox², S. Bruyère¹, C. Pauly², S. Migot¹, T. Hauet¹, S. Petit-Watlot¹, D. Horwat¹, A. Nominé¹

¹ Univ. Lorraine - Nancy (FR)

² Saarland Univ. - Saarbrücken (DE)

12:30 **Lunch**

WEDNESDAY, SEPTEMBER 13TH – AFTERNOON

PLACC / Plasmas for conversion and catalysis **Antipolis Auditorium – Chair: R. Brandenburg (DE)**

- 14:00 Plasma-assisted CO₂ recycling: investigation on volume and surface kinetic
Plenary speaker
T. Silva – Instituto Superior Técnico, Lisbon (PT)

PLACC 1 / Plasmas for conversion and catalysis **Antipolis Auditorium – Chair: T. Silva (PT)**

- 14:45 **#133** - Interplay of transport, plasma concentration and chemistry in microwave discharges
G. van Rooij, M. Azevedo, T. Righart, T. Butterworth
Maastricht Univ. - Maastricht (NL)
- 15:05 **#119** - Plasma-assisted CO₂ hydrogenation over Ir/TiO₂ catalytic thin films in a DBD reactor
J. Gregory¹, N. Pourali¹, Y. Gong¹, R. Walton¹, V. Hessel², E. Rebrov^{1,3}
¹ Univ. Warwick - Coventry (UK)
² Univ. Adelaide - Adelaide (AU)
³ Eindhoven Univ. Technology - Eindhoven (NL)
- 15:25 **#173** - Discharges in honeycomb monoliths and capillary tubes
K. Hensel, S. Kukura, R. Cimerman, M. Janda
Comenius Univ. - Bratislava (SK)
- 15:45 **#027** - Synthesis and effect of BiVO₄ thin films heterojunctions deposited by reactive magnetron co-sputtering on photogenerated charges for visible light photocatalysis
M. Goutte¹, A. Bousquet¹, E. Tomasella¹, G. Monier², T. Sauvage³
¹ Univ. Clermont Auvergne, Clermont Auvergne INP, CNRS, Institut de Chimie de Clermont-Ferrand (ICCF), Clermont-Ferrand (FR)
² Univ. Clermont Auvergne, Clermont Auvergne INP, CNRS, Institut Pascal, Clermont-Ferrand (FR)
³ CNRS, UPR 3079, CEMHTI, Univ. Orléans (FR)

- 16:05 **Break 30'**

WEDNESDAY, SEPTEMBER 13TH – AFTERNOON

PLACC / Plasmas for conversion and catalysis Antipolis Auditorium – Chair: R. Brandenburg (DE)

- 14:00 Plasma-assisted CO₂ recycling: investigation on volume and surface kinetic
Plenary speaker
T. Silva – Instituto Superior Técnico, Lisbon (PT)

HELIAG 1 / Plasmas for health, agriculture and life science Ella Fitzgerald Room – Chair: R. Brandenburg (DE)

- 14:45 **#037** - Bactericidal surface treatments for dental implants based on silver and copper MEVVA ion co-implantation
J. Caro¹, R. Bonet¹, J. Orrit-prat¹, S. Molas¹, A. Concustell¹, M. Bahillo¹, J. Muñoz²
¹ Eurecat, Centre Tecnològic de Catalunya, Unit of Metallic and Ceramic Materials - Manresa (ES)
² Microdent Implant System - Santa Eulàlia de Ronçana (ES)
- 15:05 **#093** - Combination of plasma-polymer thin films and topography to limit bacterial adhesion
A. Whiteley, G. Nonglaton, J. Reche, Z. Mehrez, V. Jousseume
Univ. Grenoble Alpes, CEA Leti - Grenoble (FR)
- 15:25 **#122** - Investigation of the antibacterial properties of silver-doped amorphous carbon coatings produced by low pressure magnetron assisted acetylene discharges
V. Job¹, J. Laloy², V. Maloteau², E. Hays^{1,3}, S. Lucas^{1,3}, S. Penninckx^{1,4}
¹ LARN Laboratory (LARN-NARILIS), Univ. Namur - Namur (BE)
² Laboratory (NNC-NARILIS), Department of Pharmacy, Univ. Namur - Namur (BE)
³ Innovative Coating Solutions (ICS), Univ. Namur, Forville (BE)
⁴ Medical Physics Department, Institut Jules Bordet, Univ. Libre de Bruxelles, Brussels (BE)
- 15:45 **#153** - The role of short- and long-lived reactive species on the anti-cancer action of plasma-treated liquids: *in vitro* and *in vivo* applications
J. Santos Sousa¹, K. Sklias¹, P.M. Girard², T.H. Chung³, A. Stancampiano⁴, G. Bauville¹, M. Fleury¹, K. Gazeli¹, T. Darny¹, S. Dozias⁴, C. Douat⁴, J.M. Pouvesle⁴, E. Robert⁴, L. Mir³
¹ Univ. Paris-Saclay, CNRS, Laboratoire de Physique des Gaz et des Plasmas - Orsay (FR)
² Institut Curie, PSL Univ., Univ. Paris-Saclay, CNRS, INSERM - Orsay (FR)
³ Univ. Paris-Saclay, CNRS, Institut Gustave Roussy, METSY - Villejuif (FR)
⁴ GREMI, CNRS, Univ. Orléans - Orléans (FR)

16:05 **Break 30'**

WEDNESDAY, SEPTEMBER 13TH – AFTERNOON

16:35 **POSTER SESSION 2** (until 18:30)

ITEC 2 / Innovation & Technologies

Ella Fitzgerald Room – Chair: J. Santos Sousa (FR)

From 16:35 until 17:35, 12 min per presentation

#030 - DLC coatings with tailorable functionalities as a function of sp³/sp² hybridization

B. Paul, G. Wahli, A. Lümke

Platit AG - Selzach (CH)

#168 - Optical emission spectroscopy of carbon plasma discharged by constant pulse current
High Power Impulse Magnetron Sputtering

A. Oniszczyk¹, W. Trzewiczyński¹, W. Gajewski¹, J.R. Sobiecki²

¹ *TRUMPF Huettinger sp. z o.o. - Zielonka (PL)*

² *Faculty of Materials Science and Engineering, Warsaw Univ. Technology - Warszawa (PL)*

#078 - Optimized cylindrical inertial electrostatic confinement plasma source for thin film applications

D. Tiedemann¹, J. Emmerlich¹, P. Hofmann¹, M. Müller¹, G. Herdrich², S. Ulrich³

¹ *Robert Bosch Manufacturing Solutions GmbH - Stuttgart (DE)*

² *Institute of Space Systems, Univ. Stuttgart - Stuttgart (DE)*

³ *Institute for Applied Materials, Karlsruhe Institute of Technology - Eggenstein-Leopoldshafen (DE)*

#125 - Deposition of SiO_x based functional thin films for adhesion promotion and corrosion resistance using atmospheric pressure plasma jet

D. Bensalem, M. Buske, P. Delfs

Plasmatreat GmbH - Steinhagen (DE)

#171 - Remote optical gas sensing to improve plasma and thin film quality & repeatability

N. Kaabeche¹, D. Monaghan¹, J. Brindley¹, B. Daniel¹, V. Bellido-Gonzalez¹

Gencoa Limited – Liverpool (UK)

17:35 End of the session and Poster session 2 still in progress until 18:30

THURSDAY, SEPTEMBER 14TH – MORNING

PROC / Process control

Antipolis Auditorium – Chair: D. Hegemann (CH)

08:40 Low temperature plasmas for conductive carbons and multimaterials

Plenary speaker

E. Kovacevic – Univ. Orléans (FR)

PROC 3 / Process control

Antipolis Auditorium – Chair: D. Hegemann (CH)

09:25 **#061** - Investigation of ionized metal flux fraction at industrial conditions

P. Vasina¹, J. Hnilica¹, P. Klein¹, V. Sochora²

¹ Masaryk Univ. - Brno (CZ)

² SHM - Sumperk (CZ)

09:45 **#071** Study of the ion energy distribution in the ALE process of GaN

**A. Crespi¹, L. Hamraoui¹, T. Zhang¹, P. Lefaucheu¹, T. Tillocher¹, M. Boufnichel²,
R. Dussart¹**

¹ GREMI - Orléans (FR)

² ST-Microelectronics - Tours (FR)

10:05

Break 30'

PROC 4 / Process control

Antipolis Auditorium – Chair: E. Kovacevic (FR)

10:35 **#033** - Plasma chemical reactions governed by the specific energy input

D. Hegemann, P. Navascués

Empa, Swiss Federal Laboratories for Materials Science and Technology - St.Gallen (CH)

10:55 **#095** - Analysis of low-pressure misty plasma processes by Optical Emission Spectroscopy

A. Granier¹, S. Chouteau^{1,2}, M. Richard-Plouet¹, L. Stafford²

¹ Nantes Univ., CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, Nantes (FR)

² Département de physique, Univ. Montréal (CA)

11:15 **#105** - How carbon nanoparticles affect the behaviour of the plasma electrolytic oxidation process

**L. Magniez¹, C. Da Silva Tusch¹, J. Martin^{1,2}, S. Fontana¹, S. Cahen¹, G. Marcos^{1,2},
T. Czerwicz^{1,2}, C. Hérold¹, G. Henrion^{1,2}**

¹ CNRS – Univ. Lorraine - Institut Jean Lamour - Nancy (FR)

² Univ. Lorraine, LabEx DAMAS - Metz (FR)

11:35 **#087** - Nanocrystalline diamond coatings of titanium and titanium alloys for biomedical applications using distributed antenna array microwave system

**F. Bénédic¹, A. Valinattaj Omran¹, C. Mahi¹, C. Falentin-Daudré², S. Prasanna³, A. Michau³,
K. Hassouni¹**

¹ Univ. Sorbonne Paris Nord, LSPM, CNRS, UPR 3407 - Villetaneuse (FR)

² LBPS-CSPBAT, UMR 7244, Univ. Sorbonne Paris Nord - Villetaneuse (FR)

³ LSPM, CNRS, UPR 3407, Univ. Sorbonne Paris Nord - Villetaneuse (FR)

11:55 **#055** - Reduction of oxide using an electron cyclotron wave resonance Ar/H₂ plasma - towards lunar raw materials use for H₂O production

M. Sikiric, S. Bulou, P. Choquet

Luxembourg Institute of Science and Technology - Esch-Sur-Alzette (LU)

12:30 *Lunch*

THURSDAY, SEPTEMBER 14TH – MORNING

PROC / Process control

Antipolis Auditorium – Chair: D. Hegemann (CH)

08:40 Low temperature plasmas for conductive carbons and multimaterials

Plenary speaker

E. Kovacevic – Univ. Orléans (FR)

GROM 1 / Thin films growth and modelling

Ella Fitzgerald Room – Chair: R. Snyders (BE)

09:25 **#160** - Molecular dynamics approach for the calculation of surface loss probabilities during the growth of C:H films from an argon-methane plasma

G. Otakandza Kandjani¹, M. Mikikian¹, P. Brault¹, G. Tétard², A. Michau², K. Hassouni²

¹ Univ. Orléans / GREMI - Orléans (FR)

² Univ. Sorbonne Paris Nord - Villetaneuse (FR)

09:45 **#116** - Multi-level investigation of the formation of silicide interface during Cu/Si energetic deposition process; a combined ab-initio, molecular dynamic, in-situ stress measurement and kinetic monte carlo simulation study

C. Mastail¹, B. Vernet^{1,2}, F. Nita¹, L. Pizzagalli¹, A. Michel¹, G. Abadias¹

¹ Institut P', Dpt. Physique et Mécanique des Matériaux, CNRS-Univ. Poitiers-ENSMA - Poitiers (FR)

² Lab. des Sciences pour l'Environnement et l'Energie, Dpt. Physique, ENS-Univ. d'Etat d'Haïti (HT)

10:05

Break 30'

GROM 2 / Thin films growth and modelling

Ella Fitzgerald Room – Chair: R. Snyders (BE)

10:35 **#112** - Nanostructured plasma polymers from citronellal: the role of substrate's chemistry

J. Oliveira, A. Airoudj, F. Bally-Le Gall, V. Roucoules

Univ. Haute-Alsace, Univ. Strasbourg, CNRS, IS2M UMR 7361, Mulhouse (FR)

10:55 **#046** - Polymerization mechanisms in complex geometries using HMDSO low-pressure plasmas

P. Navascués¹, M. Buchtelová², L. Zajickova², D. Hegemann¹

¹ Empa - St. Gallen (CH)

² CEITEC BUT - Brno (CZ)

11:15 **#147** - Boron-carbon thin films deposited via Plasma-Enhanced Atomic Layer Deposition (PE-ALD)

N.R. Innis, C. Marichy, C. Bousige, C. Journet

Laboratoire des Multimatériaux et Interfaces, UMR CNRS 5615 - Lyon (FR)

11:35 **#035** - Study of III-V thin films growth directly on silicon by remote-plasma CVD: towards a reduction in solar cell industrialisation costs

L. Watrin^{1,2}, F. Silva¹, C. Jadaud¹, P. Bulkin¹, J.C. Vanel¹, E. Johnson¹, K. Ouaras¹,

P. Roca I Cabarrocas^{1,2}

¹ LPICM, Ecole Polytechnique - Palaiseau (FR)

² Institut Photovoltaïque d'Ile-de-France (IPVF) - Palaiseau (FR)

11:55 **#053** - Sputtering and annealing of Mg₂SiO₄ films as proxy of pristine component of the solar system

V. Guigoz¹, A. Seret², H. Rotella¹, P. Venngues¹, G. Libourel², M. Portail¹

¹ Univ. Côte d'Azur, CRHEA laboratory, UMR 7073 OCA-CNRS - Valbonne (FR)

² Univ. Côte d'Azur, Lagrange laboratory, UMR 7296 OCA-UCA-CNRS - Nice (FR)

12:30 **Lunch**

THURSDAY, SEPTEMBER 14TH – AFTERNOON

LIQU / Plasma and liquids

Antipolis Auditorium – Chair: V. Guerra (PT)

14:00 How reactive species from cold plasma are transported into liquid water bulk/aerosol

Plenary speaker

Z. Machala, M.E. Hassan, K. Hensel, M. Janda

Faculty of Mathematics, Physics and Informatics, Comenius Univ. Bratislava (SK)

LIQU 1/ Plasma and liquids

Antipolis Auditorium – Chair: V. Guerra (PT)

14:45 **#077** - Gas phase properties and plasma-liquid interactions during DC and pulsed sputtering onto glycerol

S. Atmane, A. Caillard, V. Orozco-Montes, P. Brault, A. Sauldubois

GREMI, Univ. Orléans, CNRS, Orléans (FR)

15:05 **#016** - Atmospheric pressure plasma jet in contact with a liquid for the formation of silver and gold nanoparticles and their applications

T. Habib^{1,2}, B. Caillier¹, J.M. Caiut²

¹ *Institut National Universitaire Champollion - Albi (FR)*

² *Univ. Sao Paulo - Ribeirao Preto (BR)*

15:25 **#011** - Growth mechanism of nanosheets by discharges in liquids

T. Belmonte¹, A. Nominé¹, T. Gries¹, C. Noël¹, J. Ghanbaja¹, V. Milichko^{1,2}

¹ *Univ. Lorraine, CNRS, IJL, Nancy (FR)*

² *ITMO Univ., St. Petersburg (RU)*

15:45

Break 30'

GROM 3 / Thin films growth and modelling

Antipolis Auditorium – Chair: E. Hays (BE)

16:15 **#025** - Growth mechanism of metallic foams synthesized by plasma electrolysis deposition: a numerical study

Keynote lecture

B. Dufour¹, C. Noël², R. Botrel¹, F. Durut¹, T. Belmonte²

¹ *Commissariat à l'Energie Atomique et aux Energies Alternatives, Valduc, Is-sur-Tille (FR)*

² *Institut Jean Lamour, Département CP2S, UMR 7198, CNRS-Univ. Lorraine, Nancy (FR)*

16:45 **#041** - *In situ* study of the amorphous-to-crystalline phase transformation of thermochromic SmNiO_{3-δ} thin films

Z. Fernandez Gutierrez¹, S. Bruyère¹, D. Pilloud¹, E. Hays², G. Medjahdi¹, S. Barrat¹, F. Capon¹

¹ *Univ. Lorraine, CNRS, IJL, Nancy (FR)*

² *Laboratoire d'Analyse par Réactions Nucléaires (LARN), Namur Institute of Structured Matter (NISM) Univ. Namur (BE)*

THURSDAY, SEPTEMBER 14TH – AFTERNOON

GROM 3 / Thin films growth and modelling

Antipolis Auditorium – Chair: E. Hays (BE)

- 17:05 **#031** - Growth manipulation strategies of ultrathin metallic layers aided by in situ and real-time diagnostics
G. Abadias¹, D. Babonneau¹, A. Michel¹, K. Solanki¹, J. Ramade¹, M. Kaminski², A. Resta³, A. Vlad³, A. Coati³, B. Krause², K. Sarakinos⁴
¹ Institut Pprime, Univ. Poitiers - Poitiers (FR)
² Karlsruhe Institute of Technology (KIT) - Karlsruhe (DE)
³ Synchrotron SOLEIL - Saclay (FR)
⁴ Univ. Helsinki - Helsinki (FI)
- 17:25 **#117** - Study on the effects of N₂ addition during Ag thin film sputtering deposition, using *in situ* and real-time measurements
R. Zapata^{1,2}, R. Lazzari², H. Montigaud¹, M. Balestrieri¹, I. Gozkyk¹
¹ Laboratoire Surface du Verre et Interfaces UMR 125 - Aubervilliers (FR)
² Institut des Nanosciences de Paris UMR 7588 - Paris (FR)
- 17:45 **#062** - Initial phase formation during nitriding of austenitic stainless steel
D. Manova, S. Mändl
Leibniz Institute of Surface Engineering - Leipzig (DE)
- 19:30 **Conference dinner cocktail** (until 22:30)

THURSDAY, SEPTEMBER 14TH – AFTERNOON

LIQU / Plasma and liquids

Antipolis Auditorium – Chair: V. Guerra (PT)

14:00 How reactive species from cold plasma are transported into liquid water bulk/aerosol

Plenary speaker

Z. Machala, M.E. Hassan, K. Hensel, M. Janda

Faculty of Mathematics, Physics and Informatics, Comenius Univ. Bratislava (SK)

TRIB 1 / Plasma - deposited protective and tribological coatings

Ella Fitzgerald Room – Chair: P. Steyer (FR)

14:45 **#060** - Synthesis and characterization of the ceramic refractory metal high entropy carbide thin films from the Cr-Hf-Mo-Ta-W system

S. Debnarova¹, T. Stasiak^{1,2}, V. Buršíková¹, P. Vašina¹, P. Souček¹

¹ Department of Physical Electronics, Faculty of Science, Masaryk Univ. – Brno (CZ)

² National Center for Nuclear Research - Otwock-Swierk (PL)

15:05 **#0206** - High-power-density sputtering of industrial-scale targets: case study of (Al,Cr)N

F.F. Klimashin¹, J. Kluson², M. Ucik², R. Žemlička³, M. Jílek², A. Lümkmann³, J. Michler¹, T.E.J. Edwards¹

¹ EMPA - Swiss Federal Laboratories for Materials Science and Technology - Thun (CH)

² PLATIT a.s. - Šumperk (CZ)

³ PLATIT AG - Selzach (CH)

15:25 **#020** - Oxidation resistance and mechanical properties of AlTiZrHfTa(-N) high entropy films deposited by reactive magnetron sputtering

D. Touaibia¹, S. Achache¹, A. Bouissil¹, J. Ghanbaja², S. Migot², M. Arab Pour Yazdi³, F. Schuster⁴, B. Panicaud⁵, F. Sanchette⁵, M. El Garah⁵

¹ Univ. Technology of Troyes (UTT) - Nogent (FR)

² Institut Jean Lamour (IJL), Univ. Lorraine - Nancy (FR)

³ Anton Paar TriTec SA / FEMTO-ST, Univ. Bourgogne Franche-Comté, UTBM (FR)

⁴ Commissariat à l'Énergie Atomique et aux énergies alternatives (CEA) Saclay (FR)

⁵ Univ. Technology of Troyes (UTT) (FR)

15:45

Break 30'

TRIB 2 / Plasma - deposited protective and tribological coatings

Ella Fitzgerald Room – Chair: T. Czerwiec (FR)

16:15 **#162** - A small-scale approach to characterize Ti-based thin films tribological behavior in *operando* conditions

Keynote lecture

P. Steyer¹, A. Sayilan¹, D. Philippon¹, C. Lopes², F. Vaz², N. Mary¹, S. Descartes¹

¹ INSA Lyon - MATEIS Lab. - Villeurbanne (FR)

² INSA Lyon - MATEIS Lab. - Guimaraes (PT)

16:45 **#141** - Neon enhanced plasma ionization in Cr films deposition by HiPIMS-DOMS

J. Oliveira, S. Adebayo, R. Serra

CEMMPRE – Univ. Coimbra - Coimbra (PT)

THURSDAY, SEPTEMBER 14TH – AFTERNOON

TRIB 2 / Plasma - deposited protective and tribological coatings

Ella Fitzgerald Room – Chair: T. Czerwiec (FR)

- 17:05 **#043** - Tribological characterization of TiO₂ thin films prepared by magnetron sputtering: the link between color change and TiO₂ wear
S. Marion¹, C. Minfray², V. Fridrici², L. Dubost³, M. Lenci^{1,4}, A. Pascale-Hamri⁴, R. Charriere¹, J. Faucheu¹
¹ Mines Saint-Etienne, Univ. Lyon, CNRS, UMR 5307 LGF, Centre SMS - Saint-Etienne (FR)
² Lab. de Tribologie et Dynamique des Systèmes, Univ. Lyon, Ecole Centrale de Lyon - Ecully (FR)
³ IREIS, Andrézieux-Bouthéon (FR)
⁴ Manutech USD, Bâtiment des Hautes Technologies, Saint-Etienne (FR)
- 17:25 **#113** - Role of Ti-Al-based thin films modified wettability on heat transfer exchange during droplet impact onto a heated surface
A. García Wong¹, G. Marcos¹, G. Castanet², O. Caballina², T. Potaufoux², F. Lemoine², J.F. Pierson¹, T. Czerwiec¹
¹ Institut Jean Lamour, Univ. Lorraine - Nancy (FR)
² Laboratoire d'Energétique et de Mécanique Théorique et Appliquée, Univ. Lorraine - Nancy (FR)
- 19:30 **Conference dinner cocktail (until 22:30)**

FRIDAY, SEPTEMBER 15TH – MORNING

DEPO / Plasma - deposited coatings

Antipolis Auditorium – Chair: A. Granier (FR)

08:40 Surface engineering for sustainable future: multifunctional coatings for optics, energy, aerospace and manufacturing applications

Plenary speaker

L. Martinu – Polytechnique Montréal, Québec (CA)

DEPO 5 / Plasma - deposited coatings

Antipolis Auditorium – Chair: A. Granier (FR)

09:25 **#167** - VO₂ thin films for thermal devices, the beginnings of a radiative thermal transistor

**I. Alonzo-Zapata¹, C. Champeaux¹, F. Enguehard², J. Ordonez-Miranda²,
F. Dumas-Bouchiat¹**

¹ Univ. Limoges, CNRS, IRCER, UMR 7315, Limoges (FR)

² Institut Pprime, CNRS, Univ. Poitiers, ISAE-ENSMA, Futuroscope Chasseneuil - Poitiers (FR)

09:45 **#135** - Pulsed magnetron sputtering of strongly thermochromic VO₂-based coatings with a low transition temperature

M. Kaufman, S. Farrukh, J. Vlček

Univ. West Bohemia – Plzeň (CZ)

10:05

Break 30'

DEPO 6 / Plasma - deposited coatings

Antipolis Auditorium – Chair: A. Bousquet (FR)

10:35 **#080** - Photochromic properties of rare-earth oxyhydride thin films for smart windows applications

Keynote lecture

D. Moldarev, E. Pitthan, M. Wolff, D. Primetzhofer

Department of Physics and Astronomy, Uppsala Univ. - Uppsala (SE)

11:05 **#010** - Growth mechanisms and properties of magnetron sputtered TiO₂ thin films on complex 3D FOAM substrates

L. Chavée¹, S. Lucas¹, T. Gries², E. Hays¹

¹ Univ. Namur / NISM Institute - Namur (BE)

² Institut Jean Lamour - Nancy (FR)

11:25 **#022** - Plasma diagnostics of a pulsed hollow cathode discharge and deposition of copper nickel oxide thin films

R. Hippler¹, A. Kapran¹, H. Wulff², A. Pisarikova¹, J. Olejnicek¹, M. Cada¹, Z. Hubicka¹

¹ Institute of Physics, Czech Academy of Sciences - Prague (CZ)

² Institute of Physics, Univ. Greifswald - Greifswald (DE)

11:45 **#036** - Reactive D.C. magnetron sputter deposition of crystalline silver niobate thin films

L. Kölbl¹, R. Franz¹, A. Kobald², M. Deluca², C. Mitterer¹

¹ Department of Materials Science, Montanuniv. Leoben, Leoben (AT)

² Materials Center Leoben Forschung GmbH, Leoben (AT)

12:10 **Closing ceremony**

FRIDAY, SEPTEMBER 15TH – MORNING

DEPO / Plasma - deposited coatings

Antipolis Auditorium – Chair: A. Granier (FR)

08:40 Surface engineering for sustainable future: multifunctional coatings for optics, energy, aerospace and manufacturing applications

Plenary speaker

L. Martinu – Polytechnique Montréal, Québec (CA)

SURF 2 / Plasma - surface interactions

Ella Fitzgerald Room – Chair: R. Dussart (FR)

09:25 **#042** - Plasma-surface interactions in oxygen-containing plasmas

V. Guerra¹, J. Afonso¹, J. Silveira¹, A.S. Morillo Candas², L. Vialetto³, P. Viegas¹

¹ Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Univ. Lisboa (PT)

² Laboratoire de Physique des Plasmas (UMR 7648), CNRS, Univ. Paris Saclay, Sorbonne Univ., École Polytechnique, Palaiseau (FR)

³ Theoretical Electrical Engineering, Faculty of Engineering, Univ. Kiel (DE)

09:45 **#109** - Plasma electrolytic oxidation of aluminium with incorporation of carbon black nanoparticles

L. Magniez¹, S. Fontana¹, J. Martin^{1,2}, C. Hérold¹, G. Henrion^{1,2}

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

² Univ. Lorraine, LabEx DAMAS - Metz (FR)

10:05

Break 30'

SURF 3 / Plasma - surface interactions

Ella Fitzgerald Room – Chair: R. Dussart (FR)

10:35 **#068** - Electrochemical characterization of surface damage in n-type GaN induced by Inductively Coupled Plasma Reactive Ion Etching (ICP-RIE) and Atomic Layer Etching (ALE)

Keynote lecture

C. Pernel, W. Berthou, S. Suman, S. Ruel, L. Vauche

CEA - Grenoble (FR)

11:05 **#050** - Deep etching of bulk titanium in fluorinated plasmas for biomedical devices

R. Ettouri¹, T. Tillocher¹, P. Lefauchaux¹, B. Boutaud², R. Dussart¹

¹ Groupe de Recherches sur l'Energétique des Milieux Ionisés (GREMI), CNRS – Univ. Orléans (FR)

² MISTIC SAS - Issy-Les-Moulineaux (FR)

11:25 **#145** - Properties of nitrided layers produced in an active-screen plasma nitriding process

G. Marcos¹, R. Hugon¹, C. Cardinaud², O. Carrivain³, C. Noël¹, T. Czerwicz¹

¹ Institut Jean Lamour - Nancy (FR)

² Institut des Matériaux Jean Rouxel - Nantes (FR)

³ HEPIA/HES-SO - Genève (CH)

11:45 **#104** - Dual-phase nanocomposite coatings based on crystalline ZrN and glassy ZrCu

P. Zeman¹, S. Haviar¹, M. Cervena¹, A. Bondarev², R. Cerstvy¹

¹ Dpt. Physics and NTIS - European Centre of Excellence, Univ. West Bohemia - Plzen (CZ)

² Dpt. Control Engineering, Faculty of Electrical Engineering, Czech Technical Univ. Prague - Prague (CZ)

12:10 **Closing ceremony**

(Antipolis Auditorium)