20th BIENNIAL EUROPEAN CONFERENCE
ON CHEMICAL VAPOR DEPOSITION

EuroCVD20

Program

Sempach, Switzerland
July 13 – 17, 2015

Conference information: ***http://eurocvd20.empa.ch***

CO-ORGANIZERS
OF THE CONFERENCE

EURO CVD TWENTY

cost
EUROPEAN COOPERATION
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COST action MP1402
HERALD
Hooking together European Research in Atomic Layer Deposition

SVMT
Schweizerischer Verband für Materialwissenschaft und Technologie
Association Suisse pour la Science et la Technologie des Matériaux
Associazione Svizzera per la Scienza e Tecnologia dei Materiali
Swiss Association for Materials Science and Technology

WELCOME NOTE

Dear friends and colleagues,

The EuroCVD20 conference takes place at Sempach in Switzerland from 12. July 2015 until 17. July 2015. We are pleased to announce that contributions from all five continents have been accepted by the scientific committee, and 65 of them will be presented as oral presentations in the single Symposium program. More than 100 posters will be shown and explained by the authors in 4 separate poster sessions, giving time for in depth discussions of the presented findings. Most of the relevant CVD topics are covered in the program, guaranteeing a broad overview of advances in classical thermal CVD and related fields such as liquid injection CVD, Atomic Layer Deposition (ALD), assisted CVD by plasma, or localized by focused electron beam induced deposition (FEBID).

I am very grateful to the co-organization of the conference by the COST actions HERALD and the Swiss Association for Materials Science and Technology – SVMT, and to the sponsors of the conference.

Following the tradition, we will start with a welcome reception on Sunday evening and finishing with a common lunch on Friday. The conference excursion, which takes you on a boat trip on the Lake Lucerne, is planned on Wednesday afternoon and the conference banquet will take place on Thursday evening, with several announcements such as the best PhD contribution price, best poster award, the announcement of the next EuroCVD conference place, and more.

We hope you will enjoy the conference and continue the spirit of EuroCVD: Traditional high quality combined with creativity and innovation.

Patrik Hoffmann
Chair of EuroCVD20

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GENERAL INFORMATION

CONFERENCE VENUE

Festhalle Seepark Sempach
Seestrasse 16
6204 Sempach
Switzerland
www.seepark-sempach.ch

DATE

July 13 – 17, 2015

CONFERENCE CHAIR

Patrik Hoffmann
Empa, Dübendorf, Switzerland

LOCAL ORGANIZING COMMITTEE

Patrik Hoffmann, Empa, Switzerland

Yury Kuzminykh, Empa, Switzerland

Sylvain Nicolay, CSEM, Switzerland

Anja Pauling, Empa Academy, Switzerland

Anne Satir, Empa Academy, Switzerland

CONGRESS OFFICE

Empa-Akademie
Anne Satir
anne.satir@empa.ch

CONFERENCE WEBSITE

http://eurocvd20.empa.ch

CONFERENCE LANGUAGE

The official congress language will be English

PROCEEDINGS

The papers presented at the conference will be published in "physica status solidi" in Wiley Online Library

CONFERENCE FEES

600 € (300 € for students)	before May 2, 2015
650 € (350 € for students)	between May 2 and June 26, 2015
700 € (400 € for students)	after June 26, 2015

GENERAL INFORMATION

SCIENTIFIC COMMITTEE

Sergey E. Alexandrov, SPbSTU, Russia

Patrik Hoffmann, Empa, Switzerland

Mato Knez, nanoGUNE, Spain

Constantin Vahlas, CIRIMAT-CNRS, France

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Francis Maury, France

Martyn Pemble, Ireland

Mikko Ritala, Finland

TOPICS

– UHV-CVD, MO-MBE, HV-CVD, LP-CVD, AP-CVD, Pulsed Pressure CVD, ALD (COST action HERALD)

– Energy assistance: RF, Microwave, Plasma, Ions, Electrons, Lasers, Lamps, Reactive gases, in direct exposure or remote

– Metallurgical coatings, protective coatings, infiltration coatings, catalyst production, organic coatings

– Graphene CVD

– focused electron beam induced processing (FEBID + FEBIE) COST action CELINA

– atomic layer etching - cleaning

– Reactor modelling, numerical simulations

– In-situ characterization methods

– Precursor synthesis, property characterization, precursor supply systems, exhaust gas treatment, ecological aspects

– Other processes related to CVD, Nitridation, …

Application fields

– Opto-electronics

– IT hardware

– Energy generation, fuel cell, storage, transformation,

– Tribological coatings

– Decorative coatings

– …

PROGRAM OVERVIEW

Schedule	12.07.2015	13.07.2015	14.07.2015	15.07.2015	16.07.2015	17.07.2015
09.00h		**Opening Ceremony**	**Session 3** CVD of graphene, CNT, and related materials **Invited** H. G. Park	**Session 5** In-situ observation – CVD process dev. **Invited** T. Noguchi	**Session 6** CVD of Nitrides - electronics, hard coatings **Invited** D.-S. Kim	**Session 9** Structured Deposition - FEBID **Invited** H.D. Wanzenboeck
		Session 1 CVD for Energy				
		Orals	Orals	Orals	Orals	Orals
10.10h			Coffee Break	Coffee Break	Coffee Break	Coffee Break
10.20h		Coffee Break				
10.40h			Orals	Orals	Orals	Orals
10.50h		**Invited** M. Grätzel				
11.30h		Orals				
12.00h						**Closing Ceremony**
12.20h			Lunch Break	Lunch Break	Lunch Break	Lunch Break
12.30h		Lunch Break				
13.50h			Orals	**Poster Session 3** Catalysis and photo-catalysis, sensors and detectors, functional coatings	**Session 7** Functional layers, multiferroics, highly functional materials CVD **Invited** J.L. Deschanvres	
14.00h		**Session 2** CVD for nanomaterials production **Invited** J.R. van Ommen				
					Orals	
14.30h		Orals	**Session 4** CVD modeling **Invited** A. G. Boudouvis			
			Orals			
15.20h			Coffee Break			
15.30h		Coffee Break				
15.40h					Coffee Break	
15.50h			Orals	**Excursion**		
16.00h	Set-up booths Exhibitors till 20.00h	Orals				
16.10h					**Session 8** CVD processes deposits, characterization	
17.20h		**Poster Session 1** CVD mechanisms and modelling, protective coatings, powder coating, infiltration				
17.30h			**Poster Session 2** Electronic applications; epitaxy; in-situ observation		Orals	
17.50h					**Poster Session 4** Focused electron beam deposition; patterning, noble metal precursors	
18.00h	**Reception Aperitif** till ~ 21.00h					
18.50h					M2 meeting	
19.20h					Board meeting	
19.50					**Conference Dinner**	

MONDAY, JULY 13, 2015

PROGRAM

09.00 **Opening Ceremony**

SESSION 1: CVD for Energy
Chairman: Sergei Alexandrov

09.20 **Spatial atmospheric atomic layer deposition of Zn(O,S) buffer layers for CIGS solar cells**
C.H. Frijters*, A. Illiberi, F. Grob, P.J. Bolt, P. Poodt
Solliance / TNO, High Tech Campus 21, 5656 AE Eindhoven, The Netherlands

09.40 **Infiltration of 3D colloidal photonic crystals with ZnO:Al by atomic layer deposition**
J. Kinsella, S. O'Brien, M.E. Pemble*, and I.M. Povey
Tyndall National Institute, University College Cork, Lee Maltings, Cork, Ireland

10.00 **Deposition of transparent conducting oxides by CVD**
A. Catherall*, M. Hill, A. Johnson
Chemistry Department, University of Bath, Bath, BA2 7AY, UK

10.20 **Coffee Break**

10.50 **KEY NOTE**
CVD for energy applications
Michael Grätzel
EPFL, Swiss Federal Institute of Technology Lausanne

11.30 **Temperature-step atomic layer deposition for morphology and crystallinity control of titanum oxide films on multiwall carbon nanotubes: Towards next generation solar cells**
Carlos Guerra[1, 2*], Yucheng Zhang[1], Meng Li[2], Vipin Chavala[1], Hyung Gyu Park[2], Vanessa Wood[3], and Ivo Utke[1]
[1]Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland.
[2]ETH Zürich, Nanoscience for Energy Technology and Sustainability, Zürich, Switzerland
[3]ETH Zürich, Laboratory for Nanoelectronics, Zürich, Switzerland

11.50 **Comparative analysis of ALD-In_xS_y and PEALD-$In_xS_yO_z$ films: Microstructures and growth mechanisms**
C. Bugot[1*], M.Bouttemy[2], N.Schneider[1], A.Etcheberry[2], D.Lincot[1], F.Donsanti[1]
[1]Institut de Recherche et Développement sur l'Energie Photovoltaïque (EDF-CNRS-Chimie ParisTech – UMR 7174), 6 quai Watier, 78401Chatou, France
[2]Institut Lavoisier de Versailles (CNRS-UVSQ - UMR 8180), 45 avenue des Etats-Unis, 78035 Versailles cedex, France

PROGRAM

12.10 **Effect of O_2 flow rate and deposition period on the thermochromic performance of VO_2 coatings grown by atmospheric pressure CVD**

D. Louloudakis[1,2*], D. Vernardou[1], E. Spanakis[3], M. Panagopoulou[4], G. Raptis[4], G. Kiriakidis[2,5], N. Katsarakis[1,5,6], E. Koudoumas[1,6]

[1]Center of Materials Technology & Photonics, School of Applied Technology, Technological Educational Institute of Crete, 710 04 Heraklion, Crete, Greece

[2]Department of Physics, University of Crete, 711 00 Heraklion, Crete, Greece

[3]Department of Materials Science & Technology, University of Crete, 711 00 Heraklion, Crete, Greece

[4]School of Applied Mathematical and Physical Sciences, National Technical University of Athens, GR 157 80, Zografou Campus, Athens, Greece

[5]Institute of Electronic Structure & Laser, Foundation for Research & Technology - Hellas, P.O. Box 1527, Vassilika Vouton, 711 10 Heraklion, Crete, Greece

[6]Department of Electrical Engineering, School of Applied Technology, Technological Educational Institute of Crete, 710 04 Heraklion, Crete, Greece

12.30 Lunch Break

SESSION 2: CVD for nanomaterials production
Chairman: Patrik Hoffmann

14.00 **INVITED**

Scalable production of nanostructured particles using atomic layer deposition

J.R. van Ommen*

Delft University of Technology, ChemE, Julianalaan 136, 2628 BL Delft, the Netherlands

14.30 **Plasma-assisted synthesis of iron oxide-based nanomaterials: Interplay between processing parameters and PEC performances**

M.E.A. Warwick[1*], K. Kaunisto[1,2], D. Barreca[3], G. Carraro[1], E. Bontempi[4], A. Gasparotto[1], C. Maccato[1], C. Sada[5], T.-P. Ruoko[2], S. Turner[6], G. Van Tendeloo[6]

[1]Department of Chemistry, Padova University and INSTM - 35131 Padova, Italy

[2]Department of Chemistry and Bioengineering, Tampere University of Technology - 33101 Tampere, Finland

[3]CNR-IENI and INSTM, Department of Chemistry, Padova University - 35131 Padova, Italy

[4]Chemistry for Technologies Laboratory, Brescia University - 25123 Brescia, Italy

[5]Department of Physics and Astronomy, Padova University - 35131 Padova, Italy

[6]EMAT, Antwerp University - 2020 Antwerpen, Belgium

MONDAY, JULY 13, 2015

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14.50 **Iron deposition on multi-walled carbon nanotubes by fluidized bed MOCVD for aeronautic applications**

P. Lassègue[1], L. Noé[2], M. Monthioux[2], B. Caussat[1*]
[1]LGC, ENSIACET – INP Toulouse, UMR CNRS 5503, 4 allée Emile Monso, BP 44362, 31432 Toulouse Cedex 4, France
[2]CEMES, UPR CNRS 8011, 29 rue Jeanne Marvig, BP 94347, 31005 Toulouse Cedex 4, France

15.10 **Growth mechanism of tungsten oxide thin film with planar or nanorod structure deposited via aerosol-assisted CVD**

M. Ling, R. Palgrave, C. Blackman*
Department of Chemistry, University College London, 20 Gordon Street, London WC1H 0AJ, UK

15.30 **Coffee Break**

16.00 **CVD and analysis of thermally insulating ZrO_2 layers on injection molds**

Victoria Khlopyanova[1*], Simon Mausberg[2], Frank Mumme[2], Burak Atakan[1]
[1]Thermodynamik, IVG, Fakultät für Ingenieurwissenschaften, Universität Duisburg-Essen, Lotharstr. 1, 47048 Duisburg, Germany
[2]Kunststoff-Institut Lüdenscheid, Karolinenstraße , D-58507 Lüdenscheid, Germany

16.20 **Structure-activity relation of spinel-type Co-Fe oxides for low temperature applications**

Patrick Mountapmbeme Kouotou[1,2], Zhen-Yu Tian[2,4*], Henning Vieker[3]
[1]Higher Institute of the Sahel, University of Maroua P.O.Box: 46 Maroua, Cameroon
[2]Department of Chemistry, Bielefeld University, Universitätsstraße 25, D-33615 Bielefeld, Germany
[3]Department of Physics, Bielefeld University, Universitätsstraße 25, D-33615 Bielefeld, Germany
[4]Institute of Engineering Thermophysics, Chinese Academy of Sciences, 100190 Beijing, China

16.40 **"Seedless" gallium oxide nanowire growth by pulsed chemical vapor deposition**

S. Barry*, P. Pallister, S. Buttera
Chemistry Department, Carleton University, 1125 Colonel, Ottawa, Ontario, K1S 2S4, Canada

17.00 **A new class of molecular alkoxide precursors and their behaviour in gas-phase processes**

S. Barth*, F. Biegger
Institute of Materials Chemistry, Vienna University of Technology, Getreidemarkt 9, 1060 Vienna, Austria

MONDAY, JULY 13, 2015

POSTER SESSION 1

17.20 **POSTER SESSION 1:**
CVD mechanisms and modelling, protective coatings, powder coating, infiltration

P1.1 **Problems of hydrogen high-temperature activation when CVD**
A.K.Rebrov*, I.B. Yudin
Kutateladze Institute of Thermophysics, 1 Ave. Lavrentiev, Novosibirsk 630090, Russia

P1.2 **The computational view of vapour phase coagulation of nanoparticles synthesized by atmospheric pressure PECVD**
M.V. Mishin*[1], K. Zamotin[1], A.A. Uvarov[1], V.S. Protopopova[2], S.E. Alexandrov[1]
[1]Saint Petersburg State Polytechnical University, Polytechnicheskaya st. 29, Saint Petersburg 195251, The Russian Federation
[2]Aalto University, Address, P.O.Box 16200, FI-00076, Aalto, Espoo, Finland

P1.3 **The computational view of the formation mechanism of clear-cut micron particles from nanoparticles synthesized by atmospheric pressure PECVD**
M.V. Mishin*[1], K. Zamotin[1], I.K. Boricheva[1], V.S. Protopopova[2], S.E. Alexandrov[1]
[1]Saint Petersburg State Polytechnical University, Polytechnicheskaya st. 29, Saint Petersburg 195251, The Russian Federation
[2]Aalto University, Address, P.O.Box 16200, FI-00076, Aalto, Espoo, Finland

P1.4 **The automatic experimental design for modeling the reaction mechanisms of chemical vapor deposition processes**
Takahiro Takahashi*, Yoshinori Ema
Dept. of Electrical and Electronic Eng., Graduate School of Eng., Shizuoka University, 3-5-1 Johoku, Naka-ku, Hamamatsu 432-8561, Japan

P1.5 **A calculation method of deposition profiles in chemical vapor deposition reactors using bio-inspired algorithms**
Takahiro Takahashi[1*], Taeka Inagaki[2], Shingo Nariai[2], Junichi Kodama[2], Masamoto Arakawa[3], Yoshinori Ema[1]
[1]Dept. of Electrical and Electronic Eng., Graduate School of Eng., Shizuoka University, 3-5-1 Johoku, Naka-ku, Hamamatsu 432-8561, Japan
[2]Dept. of Electrical and Electronic Eng., Faculty of Eng., Shizuoka University, 3-5-1 Johoku, Naka-ku, Hamamatsu 432-8561, Japan
[3]Dept. of Business Administration, Ube National College of Technology, 2-14-1 Tokiwadai, Ube 755-8555, Japan

P1.6 **Multi-scale analysis of chemical vapor deposition for SiC from organosilane precursors**

Hidetoshi Sugiura[1*], Noboru Sato[1], Yuichi Funato[1], Kohei Shima[1], Yasuyuki Fukushima[2], Takeshi Momose[1], and Yukihiro Shimogaki[1]
[1]Department of Materials Engineering, The University of Tokyo,7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan
[2]Advanced Applied Science Department Research Laboratory, IHI Corporation, 1, Shin-Nakahara-Cho, Isogo-ku, Yokohama 235-8501, Japan

P1.7 **Construction of overall reaction model of silicon carbide chemical vapor infiltration for process design**

Yuichi Funato[1*], Noboru Sato[1], Kohei Shima[1], Hidetoshi Sugiura[1], Yasuyuki Fukushima[2], Takeshi Momose[1], and Yukihiro Shimogaki[1]
[1]Department of Materials Engineering, The University of Tokyo,7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan
[2]Advanced Applied Science Department Research Laboratory, IHI Corporation, 1, Shin-Nakahara-Cho, Isogo-ku, Yokohama 235-8501, Japan

P1.8 **Kinetic study on chemical vapor infiltration of silicon carbide using high-aspect-ratio features**

Kohei Shima[1*], Noboru Sato[1], Yuichi Funato[1], Hidetoshi Sugiura[1], Yauyuki Fukushima[2], Takeshi Momose[1], and Yukihiro Shimogaki[1]
[1]Department of Materials Engineering, The University of Tokyo,7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan
[2]Advanced Applied Science Department Research Laboratory, IHI Corporation, 1, Shin-Nakahara-Cho, Isogo-ku, Yokohama 235-8501, Japan

P1.9 **Reactivity of silicon nitride surface sites with silicon chloride precursors during atomic layer deposition**

Luchana L. Yusup[1], Jae-Min Park[1], Sora Park[2], Young-Kyun Kwon[2#], and Won-Jun Lee[1*]
[1]Department of Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul, 143-747, Korea
[2]Department of Physics, Research Institute for Basic Sciences, Kyung Hee University, Seoul 130–701, Korea

P1.10 **Image transfer simulation in slot structures in MOCVD processes**

I. Golovnev[1], E. Golovneva[1], B. Kuchumov[2*], Y. Shevtsov[2], I. Igumenov[2]
[1]Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Institutskaya str. 4/1, Novosibirsk, 630090, Russian Federation
[2]Nikolaev Institute of Inorganic Chemistry, SB RAS, Lavrentiev ave. 3, Novosibirsk, 630090, Russian Federation

P1.11 **Protective Al_2O_3 thin film coatings for beryllium optics: structural and adhesion features under white beam synchrotron irradiation**

O. Yurkevich[1*], K.Maksimova[1], A.Goikhman[1], I. Snigireva[2], A. Snigirev[2]
[1]Immanuel Kant Baltic Federal University, Nevskogo st.14, Kaliningrad, 236041 Russia
[2]European Synchrotron Radiation Facility (ESRF), 71 avenue des Martyrs, 38000 Grenoble, France

P1.13 **Synthesis and characterization of titanium aluminium nitride thin films deposited by reactive-CVD**

H. Shimoda[1,2,3], F. Mercier[1,2*], S. Lay[1,2], E. Blanquet[1,2]
[1]Univ. Grenoble Alpes, SIMAP, F- 38000 Grenoble, France
[2]CNRS, SIMAP, F-38000 Grenoble, France
[3]Tohoku Univ., 41 Kawauchi, Aoba-ku, Sendai 980-8576, Japan

P1.14 **Highly tunable metaloxidic CVD coatings of alumina nanoparticles in a fluidized bed reactor**

L. Pasin[1*], M. Vranceanu[2], M. Seipenbusch[1], M. Schäfer[2], B. Sachweh[2], G. Kasper[1]
[1]Institute of Mechanical Process Engineering and Mechanics Karlsruhe, Institute of Technology, Straße am Forum 8, Karlsruhe 76131, Germany
[2]Joint Lab IP3, BASF SE, Ludwigshafen 67056, Germany

P1.15 **Kinetic and phase stability of stabilized zirconia coating doped with yttria by chemical vapor deposition**

Yonglong Xu, Wei Sun[*], Xiang Xiong
State Key Laboratory of Powder Metallurgy, Central South University, Changsha, 410083, China

P1.16 **Adhesion and hardness characteristics of SiCN/Si(100) prepared by HWCVD**

T. Yamamoto[1], T. Iseda, T. Yamada[1,2], Y. Kadtani[3], A. Izumi[1,3*]
[1]Kyushu Institute of Technology, 1-1 Sensui, Tobata, Fukuoka 804-8550, Japan
[2]Fukuyama Polytechic Colleage, 4-8-48 Kitahonjo, Fukuyama, Hiroshima 720-0074, Japan
[3]Top Macoat Co., Ltd., 631-1 Mizuki, Dazaifu, Fukuoka 818-0131, Japan

P1.17 **Study of precursor chemistry and solvent systems in pp-MOCVD processing with alumina case study**

S. Krumdieck[1*], Y. Kehyati[1], H. Murthy[1], S. L. Masters[2], N. R. Gunby[2], S. Miya[1]
[1]Department of Mechanical Engineering, Private Bag 4800, University of Canterbury, Christchurch, 8041, New Zealand
[2]Department of Chemistry, Private Bag 4800, University of Canterbury, Christchurch, 8041, New Zealand

MONDAY, JULY 13, 2015

POSTER SESSION 1

P1.18 **Synthesis of carbon nanotubes by fluidized-bed with synthesis gases**
M. Gürsoy[1*], O.M. Dogan[2], B.Z. Uysal[2]
[1]Selcuk University, Department of Chemical Engineering, Konya and 42075, Turkey
[2]Gazi University, Eti Mh. Yükselis Sk. No: 5, Maltepe, Ankara and 06500, Turkey

P1.19 **Mass-spectrometric and kinetic study of NiO films MOCVD from bis-(ethylcyclopentadienyl) Nickel**
A.S. Kondrateva*, S.E. Alexandrov
Saint Petersburg State Polytechnic University, Department of Physical Chemistry and Technology of Microsystem Devices, Polytechnicheskaya st. 29, St. Petersburg 195251, Russia

P1.20 **How to supply a CVD reactor with a steady-state mixture of two precursors evaporated from a single heated boat**
G. Peev*, D. Peshev
University of Chemical Technology and Metallurgy, "Kl. Ohridski" 8, Sofia-1756, Bulgaria

P1.21 **Evolution of microstructure in titanium dioxide layers**
M. Baryshnikova*, L. Filatov, S. Alexandrov
Department of Physical Chemistry and Technology of Microsystem Devices, St. Petersburg Polytechnical University, 29 Polytechnicheskaya st., St. Petersburg, 195251, Russia

P1.22 **Formation of hydroxyapatite on CVD deposited titania layers**
M. Baryshnikova[1*], L. Filatov[1], I. Kasatkin[2], S. Alexandrov[1]
[1]Department of Physical Chemistry and Technology of Microsystem Devices, St. Petersburg Polytechnical University, 29 Polytechnicheskaya st., St. Petersburg, 195251, Russia
[2]Research Centre for X-ray Diffraction Studies, St. Petersburg State Polytechnical University, 16 Decabristov lane, St. Petersburg, 199155, Russia

P1.23 **Numerical evaluation of silicon epitaxial growth for 450mm Ø substrate**
Misako Matsui and *Hitoshi Habuka
Yokohama National University, Tokiwadai, Hodogaya, Yokohama 240-8501, Japan

P1.24 **Morphology of Germanium nanostructures prepared by LPCVD on unseeded stainless steel substrate**
L. Krabac[1,2*], R. Fajgar[1], J. Brenner[2], N. Doerr[2], R. Medlin[3], V. Drinek[1]
[1]Institute of Chemical Process Fundamentals of the ASCR, v. v. i., Rozvojova 135, 165 02 Prague, Czech Republic
[2]AC2T research GmbH, Viktor Kaplan Straße 2, 2700 Wiener Neustadt, Austria
[3]University of West Bohemia, New Technologies - Research centre, Univerzitni 8, 06 14 Plzen, Czech Republic

P1.25 **The effect of non-ionic surfactant addition in the production of titanium dioxide thin films via aerosol-assisted chemical vapour deposition**

A-L. Anderson*, R. Binions
School of Engineering and Materials Science, Queen Mary University of London, Mile End Road, London, UK

P1.27 **CVD of boron nitirde on silicon carbide substrates**

Mikhail Chubarov[1], Henrik Pedersen[1], Zsolt Czigány[2], Hans Högberg[1], Anne Henry[1*]
[1]Department of Physics, Chemistry and Biology, Linköping University, SE-581 83, Linköping, Sweden
[2]Research Centre for Natural Sciences of Hungarian Academy of Sciences, Konkoly Thege Miklós út 29-33, H-1121, Budapest, Hungary

P1.28 **Investigation of the kinetics of the chemical vapor deposition of aluminum from dimethylethylamine alane: experiments and computations**

Ioannis G. Aviziotis[*1,2], Thomas Duguet[2], Khaled Soussi[3], George Kokkoris[4,1], Nikolaos Cheimarios[5], Constantin Vahlas[2], Andreas G. Boudouvis[1]
[1]School of Chemical Engineering, National Technical University of Athens, Heroon Polytechniou 9, 15780 Zografou, Greece
[2]CIRIMAT, CNRS - Université de Toulouse, 4 allée Emile Monso BP44362, 31030 Toulouse cedex 4, France
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[4]Institute of Nanoscience and Nanotechnology, NSCR Demokritos, Athens 15310, Greece
[5]Scienomics SARL, 16 rue de l' Arcade, 75008 Paris, France

TUESDAY, JULY 14, 2015

PROGRAM

SESSION 3: CVD of graphene, CNT, and related materials
Chairman: Naoufal Bahlawane

09.00 **INVITED**
Evolution of Mono- and Bilayer Graphene in Chemical Vapor Deposition
Hyung Gyu Park
Nanoscience for Energy Technology and Sustainability, Department of Mechanical and Process Engineering (D-MAVT), ETH Zürich, 8092 Zürich, Switzerland

09.30 **CVD synthesis, characterization and application of 3-dimensional graphene**
V. Shanov[1,2*], L. Zhang[2], N. Alvarez[1], M. Zhang[2], M. Haase[1], R. Malik[2], D. Mast[3]
[1]Department of Biomedical, Chemical and Environmental Engineering, University of Cincinnati, Cincinnati, OH 45221, USA
[2]Department of Mechanical and Materials Engineering, University of Cincinnati, OH 45221, Cincinnati, OH 45221, USA
[3]Department of Physics, University of Cincinnati, OH 45221, Cincinnati, OH 45221, USA

09.50 **From planar to fluidized bed reactors: ALD-CVD for the controlled growth of carbon nanotubes**
D. Arl*, M. Sarr, N. Adjeroud, N. Bahlawane, D. Lenoble
Luxembourg Institute of Science and Technology (LIST), 5, avenue des Hauts-Fourneaux, L-4362 Esch/Alzette, Luxembourg

10.10 **Coffee Break**

10.40 **Development of ultra-thin diamond like carbon overcoat for the hard disk drive applications**
B. Tomčik[1*], B. Marinković[1], B. Predojević[2]
[1]Institute of Physics, University of Belgrade, 11080 Belgrade, Serbia
[2]Faculty of Natural Sciences, University of Banja Luka, Republic of Srpska, Banja Luka, Bosnia and Herzegovina

11.00 **CVD diamond deposition on carbon fiber composites**
R. Haubner*, M. Lessiak
[1]University of Technology Vienna, Institute of Chemical Technologies and Analytics, Getreidemark 9/164-CT, A-1060 Vienna, Austria

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PROGRAM

11.20 **Diamond structures deposition from interacting jets**
A.K.Rebrov[1*], A.A. Emelyanov[1], S.S. Kosolobov[2], I.B. Yudin[1]
[1]Kutateladze Institute of Thermophysics, Pr. Lavrentieva 1, Novosibirsk 630090, Russia
[2]Rzhanov Institute of Semiconductor Physics, Pr. Lavrentieva 13, Novosibirsk 630090, Russia

11.40 **Densification and hydration of HMDSO plasma polymer films**
N. Blanchard[1*], M. Heuberger[1,2], D. Hegemann[1]
[1]Empa, Swiss Federal Laboratories for Materials Science and Technology,
Lerchenfeldstr. 5, 9014 St. Gallen, Switzerland
[2]ETH Zürich, Laboratory for Surface Science, Vladimir-Prelog-Weg 5, 8093 Zürich, Switzerland

12.00 **Deposition of thin composited films from fluoropolymer and silver nanoparticles having surface plasmon resonance**
A.I. Safonov[1*], V.S. Sulyaeva[2], N.I. Timoshenko[1], S.V. Starinskiy[1]
[1]Kutateladze Institute of Thermophysics SB RAS, Ave. Lavrentyev, 1, Novosibirsk, 630090, Russia
[2]Nikolaev Institute of Inorganic Chemistry SB RAS, Ave. Lavrentyev, 3, Novosibirsk, 630090, Russia

12.20 **Lunch Break**

13.50 **Synthesis, characterization and kinetic analysis of polymeric nano-coatings deposited by initiated plasma enhanced chemical vapor deposition**
M. Karaman[1,2*], M. Gürsoy[1], T. Uçar[1], E. Demir[1], E. Sevgili[1]
[1]Selcuk University, Department of Chemical Engineering, Konya and 42075, Turkey
[2]Selcuk University, Adv. Research & Application Center, Konya and 42075, Turkey

14.10 **Immobilisation of human serum albumin onto PVA/P(HEMA-co-GMA) thin film hydrogel membranes prepared by initiated chemical vapor deposition**
Fatma Sariipek[1,2*], Esra Maltas[3], Mustafa Karaman[1,2]
[1]Department of Chemical Engineering, Selcuk University, Konya 42031, Turkey
[2]Advanced Technology Research & Application Center, Selcuk University Konya 42075, Turkey
[3]Department of Chemistry, Selcuk University, Konya 42130, Turkey

SESSION 4: CVD modeling
Chairman: Constantin Vahlas

14.30 **INVITED**
Multiscale analysis of CVD processes: modeling, computations, experiments
Andreas G. Boudouvis
School of Chemical Engineering, National Technical University of Athens, Athens, Greece

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15.00 **Time-scale analysis for atomic layer deposition kinetics modeling**
E. Remmers, R.A. Adomaitis*
Chemical and Biomolecular Engineering, University of Maryland, College Park, MD 20742, USA

15.20 **Coffee Break**

15.50 **Detailed 3D CFD modeling of a horizontal hot-wall CVD reactor**
P. Randell, Ö. Danielsson*
Department of Physics, Chemistry and Biology, Linköping University, SE – 581 83 Linköping, Sweden

16.10 **A simplified reaction model and numerical analysis for Si deposition from $SiHCl_3$ in vertical rotating disk reactors**
S. Makino*, M. Inagaki, K. Nakashima, T. Kozawa, N. Horinouchi
Toyota Central R&D Labs. Inc., 41-1 Yokomichi, Nagakute, Aichi, 480-1192, Japan

16.30 **Gas phase and surface reaction simulation on chemical vapor infiltration of silicon carbide**
Noboru Sato[1*], Yuichi Funato[1], Kohei Shima[1], Yasuyuki Fukushima[2], Takeshi Momose[1], Mitsuo Koshi[1], Yukihiro Shimogaki[1]
[1]School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan
[2]Advanced Applied Science Department Research Laboratory, IHI Corporation, 1, Shin-Nakahara-Cho, Isogo-ku, Yokohama 235-8501, Japan

16.50 **Process-structure-properties relationship in direct liquid injection chemical vapor deposition of amorphous alumina from aluminum tri-isopropoxide**
P.-L. Etchepare[1*], L. Baggetto[1], H. Vergnes[2], D. Samélor[1], D. Sadowski[1], B. Caussat[2], C. Vahlas[1]
[1]Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux, ENSIACET/INPT, Université de Toulouse, France
[2]Laboratoire de Génie Chimique, ENSIACET/INPT, Université de Toulouse, France

17.10 **In-situ observation of chemical vapor deposition using $SiHCl_3$ and BCl_3 Gases**
Ayumi Saito, Kento Miyazaki, Misako Matsui, and *Hitoshi Habuka
Yokohama National University, Tokiwadai, Hodogaya, Yokohama 240-8501, Japan

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POSTER SESSION 2

17.30 **POSTER SESSION 2:**
Electronic applications; epitaxy; in-situ observation

P2.1 **Epitaxy of high mobility strained Ge quantum well heterostructures**
Maksym Myronov
The University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, UK

P2.3 **Aluminium nitride as a capping layer for rare-earth nitride thin films**
S. Cwik[1*], M. Krasnopolski[1], Stefanie Hoffmann[1], Alexander Sadlo[1], Kevin Schiemann[1], Detlef Rogalla[2], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr-University Bochum, 44801 Bochum, Germany
[2]Dynamitron-Tandem-Laboratory (DTL) of RUBION, Ruhr-University Bochum, 44801 Bochum, Germany

P2.4 **Study of organic-polymerized thin films for low-k insulator using PECVD**
Hyeon Jin Seo[1], Ki-Hwan Hwang[2], Jee Yun Lee[2], Yong Min Lee[1], Sang Hun Nam[2], Jin-Hyo Boo[1*]
[1]Department of Chemistry, Sungkyunkwan University 440-746 Suwon, Republic of Korea
[2]Institute of Basic Science, Sungkyunkwan University 440-746 Suwon, Republic of Korea

P2.5 **Electrical characteristics of TiO_2-capped HfO_2 film on n-type InP**
S. Choi, C. Lee, Y. An, C.-W. Yang, H. Kim*
School of Advanced Materials Science & Engineering, Sungkyunkwan University, Suwon, 440-746, Korea

P2.6 **Self-cleaning effect of half-cycle diethylzinc treatment on the electrical properties of $HfO_2/In_{0.53}Ga_{0.47}As$**
C. Lee, Y. An, S. Choi, H. Kim*
School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon 440-746, Korea

P2.7 **A simple MOCVD approach to the growth of $Pr_{1-x}Ca_xMnO_3$ films on single crystal $SrTiO_3$ substrates**
Maria R. Catalano[1*], Giuseppe Cucinotta[2], Emanuela Schilirò[3], Matteo Mannini[2], Andrea Caneschi[2], Raffaella Lo Nigro[3], Guglielmo G. Condorelli[1], Graziella Malandrino[1]
[1]Dipartimento di Scienze Chimiche, Università degli Studi di Catania, and INSTM UdR di Catania, Catania, 95125, Italy
[2]Dipartimento di Chimica "Ugo Schiff", Università degli Studi di Firenze, INSTM UdR di Firenze, Via della Lastruccia 3, Sesto Fiorentino, (FI) 50019, Italy
[3]Istituto per la Microelettronica e Microsistemi, IMM-CNR, Strada VIII n. 5, 95121 Catania, Italy

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P2.8 **Combinatorial high vacuum CVD of Barium tri-isopropyl cyclopentadienyl and Titanium tetra isopropoxide**

M. Reinke, Y. Kuzminykh*, P. Hoffmann
Laboratory for Advanced Materials Processing, Empa, Swiss Federal Laboratories for Materials Science and Technology, Feuerwerkerstr. 39, 3602 Thun, Switzerland
and Laboratory for Photonic Materials and Characterization, Ecole Polytechnique Fédérale de Lausanne, Station 17, 1015 Lausanne, Switzerland

P2.9 **Metal-organic chemical vapour deposition and atomic layer deposition of ZnO using zinc ketoiminates**

R.O'Donoghue[1*], D. Peeters[1], K. Schiemann[1], D. Rogalla[2], H. Parala[1], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr-University Bochum, 44801, Bochum, Germany
[2]Dynamitron-Tandem-Laboratory (DTL) of RUBION, Ruhr-University Bochum, 44801 Bochum, Germany

P2.10 **Intermolecular interaction between rare earth and manganese precursors in metalorganic chemical vapor deposition of perovskite manganite films**

Toshihiro Nakamura
Department of Engineering Science, Osaka Electro-Communication University, 18-8 Hatsu-cho, Neyagawa, Osaka 572-8530, Japan

P2.11 **Effect of noble gases and hydrogen addition to nitrogen in ICP RPECVD of silicon nitride**

L. Filatov*, A. Uvarov, K. Tyurikov, S. Alexandrov
Department of Physical Chemistry and Technology of Microsystem Devices, St. Petersburg Polytechnical University, 29 Polytechnicheskaya str., St. Petersburg, 195251, Russia

P2.12 **Low pressure chemical vapor deposition of graphene on copper substrates using different alcohols as carbon sources**

E. Citak*, M. Gürsoy, M. Karaman
Selcuk University, Department of Chemical Engineering, Konya and 42075, Turkey

P2.13 **Secondary electron emission characteristics of multicomponent structures based on magnesia thin films**

S.V. Zabuslayev*, Yu.V. Shevtsov, B.M. Kuchumov, Yu.V. Shubin, I.K. Igumenov
Nicolaev Institute of Inorganic Chemistry, SB RAS, Lavrentiev Ave. 3, 630090 Novosibirsk, Russia

P2.14 **Atomic layer deposition of silicon nitiride thin films using octachlorotrisilane**

Jae-Min Park[1], Han-Gyeol Lee[1], Luchana L. Yusup[1], Byeol Han[1], Wongyong Koh[2], Won-Jun Lee[1*]
[1]Department of Nanotechnology and Advanced Material Engineering, Sejong University, Seoul, 143-747, Korea
[2]UP chemical Co. Ltd., Gyeonggido, 459-050, Korea

P2.15 **Effect of AlN buffer layer on GaN crystallinity on patterned sapphire substrate**

W.S. Jeong[1], B.H. Kang[1], C.M. Lee[1], D.-S. Kim[1], S.J. Jung[1], S. Bae[1], J. Lee[1], J. Jhin[2], D. Byun[1*]
[1]Materials Science & Engineering, Korea University, Anam-dong 5-1, Seongbuk-gu, Seoul, 136-713, Republic of Korea
[2]Department of Chip Development, LG Innotek, 1493 Naepo-ri, Moonsan-eup, Paju-si, Gyeonggi-do, 413-901, Republic of Korea

P2.16 **Structural evolution and control of defect in ultrathin nitride film grown on 4H-SiC(0001) surface by direct N plasma**

Dae-Kyoung Kim, Yu-Seon Kang, and Mann-Ho Cho*
Institute of Physics and Applied Physics, Yonsei University, Seoul 120-749, Korea

P2.17 **MOCVD of TiO_2 thin films from modified Titanium alkoxides**

S.J. Kim[1*], V.S. Dang[1], D. Barreca[2], C. Maccato[3], R.K. Bhakta[1], K. Xu[1], M. Winter[1], D. Rogalla[4], H.W. Becker[4], C. Sada[5], R.A. Fischer[1], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr University Bochum - 44801 Bochum, Germany
[2]CNR-IENI and INSTM, Department of Chemistry, Padova University - 35131 Padova, Italy
[3]Department of Chemistry, Padova University and INSTM - 35131 Padova, Italy
[4]Dynamitron Tandem Laboratory of RUBION, Ruhr University Bochum - 44801 Bochum, Germany
[5]Department of Physics and Astronomy, Padova University - 35131 Padova, Italy

P2.18 **Investigation of structural and morphological properties of APCVD vanadium oxide thin films**

G. Papadimitropoulos[1*], I. Kostis[1,2], S. Trantallidis[1], M. Vasilopoulou[1], D. Davazoglou[1]
[1]NCSR Demokritos, Institute of Nanoscience and Nanotetechnology, Terma Patriarchou Grigoriou Aghia Paraskevi, 15310, Greece
[2]Technological and Educational Institute of Pireaus, Department of Electronics, 12244, Aegaleo,Greece

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P2.19 **Hot-wire vapor deposition of MoS_2 thin films**

G. Papadimitropoulos[1*], N. Vourdas[1], M. Vasilopoulou[1], D.N. Kouvatsos[1], D. Barreca[2], A. Gasparotto[3], D. Davazoglou[1]

[1]NCSR Demokritos, Institute of Nanoscience and Nanotetechnology, Terma Patriarchou Grigoriou Aghia Paraskevi, 15310, Greece

[2]CNR-IENI and INSTM, Department of Chemistry, Padova University, 35131 Padova, Italy

[3]Department of Chemistry, Padova University and INSTM, 35131 Padova, Italy

P2.20 **Electrical characteristics of two-terminal vapor deposited MoS_2 structures with Al, Au, Cu and Ni-Au contacts**

D.N. Kouvatsos[1], G. Papadimitropoulos[1*], Th. Spiliotis[1], M. Vasilopoulou[1], D. Barreca[2], A. Gasparotto[3], D. Davazoglou[1]

[1]NCSR Demokritos, Institute of Nanoscience and Nanotetechnology, Terma Patriarchou Grigoriou, Aghia Paraskevi, 15310, Greece

[2]CNR-IENI and INSTM, Department of Chemistry, Padova University, 35131 Padova, Italy

[3]Department of Chemistry, Padova University and INSTM, 35131 Padova, Italy

P2.21 **Electrochromic redox devices based on APCVD pre-lithiated WO_3 thin films and comparison with reference wet sprayed and sol-gel derived WO_3 prototypes**

G. Bodurov[1*], T. Ivanova[1], Y.E. Romanyuk[2], K. Gesheva[1]

[1]Central Laboratory of Solar Energy and New Energy Sources at the Bulgarian Academy of Sciences, 72 Tzarigradsko chaussee Blvd., 1784 Sofia, Bulgaria

[2]Laboratory for Thin Films and Photovoltaics at Empa, Ueberlandstrasse 129, CH-8600 Dübendorf, Switzerland

P2.22 **PECVD synthesis of SiCN films from phenyl-containing precursor**

E. Ermakova[1*], M. Kosinova[1], Y. Rumyantsev[1], K. Mogilnikov[2], S. Sysoev[1]

[1]Nikolaev Insitute of Inorganic Chemistry SB RAS, Novosibirsk, 630090, Russia

[2]Rzhanov Institute of Semiconductor Physics SB RAS, 630090, Novosibirsk, Russia

P2.23 **Effects of surface treatments on AlGaN/GaN substrates for plasma Enhanced Atomic Layer deposition of Al_2O_3 gate dielectric thin films**

E. Schilirò[1,2*], G. Greco[1], P. Fiorenza[1], C. Tudisco[2], G.G. Condorelli[2], G. Malandrino[2], F. Roccaforte[1], R. Lo Nigro[1]

[1]Istituto per la Microelettronica e Microsistemi (IMM)- Consiglio Nazionale delle Ricerche, Strada VIII 5, Catania 95121, Italy

[2]Dipartimento di Scienze Chimiche, Università di Catania, Viale Andrea Doria 6, Catania 95125, Italy

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POSTER SESSION 2

P2.24 **Silicon oxide thin films prepared with high rates at room temperature using atmospheric-pressure very high-frequency plasma**

T. Sakaguchi*, S. Tamaki, W. Lin, T. Yamada, H. Ohmi, H. Kakiuchi, K. Yasutake
Department of Precision Science and Technology, Graduate School of Engineering,
Osaka University, 2–1 Yamada-Oka, Suita, Osaka 565–0871, Japan

P2.25 **Investigation on the deposition characteristics of silicon and silicon oxide thin films in atmospheric-pressure very high-frequency plasma for their application to thin film transistors**

H. Kakiuchi*, H. Ohmi, T. Yamada, W. Lin, T. Sakaguchi, S. Tamaki, K. Yasutake
Department of Precision Science and Technology, Graduate School of Engineering,
Osaka University, 2–1 Yamada-Oka, Suita, Osaka 565–0871, Japan

P2.26 **Growth of ß-gallium oxide films and nanostructures by atmospheric-pressure CVD**

T. Terasako[1*], H. Ichinotani[2], M. Yagi[3]
[1]Graduate School of Science & Engineering, Ehime University, 3 Bunkyo-cho, Matsuyama, Ehime 790-8577, Japan
[2]Faculty of Engineering, Ehime University, 3 Bunkyo-cho, Matsuyama, Ehime 790-8577, Japan
[3]National Institute of Technology, Kagawa College, 551 Koda, Takuma-cho, Mitoyo, Kagawa, 769-1192, Japan

P2.27 **Polytype of sp^2-BN thin films as dictated by the substrate crystal structure**

Mikhail Chubarov[1], Henrik Pedersen[1], Zsolt Czigány[2], Magnus Garbrecht[1], Hans Högberg[1], Anne Henry[1*]
[1]Department of Physics, Chemistry and Biology, Linköping University, SE-581 83, Linköping, Sweden
[2]Research Centre for Natural Sciences of Hungarian Academy of Sciences, Konkoly Thege Miklós út 29-33, H-1121, Budapest, Hungary

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SESSION 5: in-situ observation – CVD process development
Chairman: Andreas G. Boudouvis

09.00 **INVITED**
A Ge/Si core/shell nanowire with controlled low temperature grown Si shell thickness
T. Noguchi[1*], M.D.K. Simanullang[1], Z. Xu[1], K. Usami[1], Y. Kawano[1,2], T. Kodera[2], S. Oda[1,2]
[1]Quantum Nanoelectronics Research Center, Tokyo Institute of Technology, 2-12-1, O-okayama, Meguro-ku, Tokyo, Japan
[2]Department of Physical Electronics, Tokyo Institute of Technology, 2-12-1, O-okayama, Meguro-ku, Tokyo, Japan

09.30 **Low pressure metal organic chemical vapor deposition of amorphous alumina thin films using DMAI precursor in a direct liquid injection system**
Loïc Baggetto[1*], Hugues Vergnes[2], Diane Samelor[1], Alain Gleizes[1], Brigitte Caussat[2], Constantin Vahlas[1]
[1]Centre Inter-universitaire de Recherche et d'Ingénierie des Matériaux (CIRIMAT), UMR5085, CNRS, 4 allée Emile Monso, 31030 Toulouse Cedex 4, France
[2]Laboratoire de Génie Chimique (LGC), ENSIACET/INPT, 4 allée Emile Monso, 31030 Toulouse Cedex 4, France

09.50 **Durable high performance antireflection coatings via combinational atmospheric pressure processing**
J.L. Hodgkinson[1*], P.E. Sheel[2], P. Evans[2], H.M. Yates[1], D.W. Sheel[1,2]
[1]Materials & Physics Research Centre, University of Salford, Salford, M5 4WT, UK
[2]CVD Technologies Ltd, Cockcroft Building, University of Salford, M5 4WT, UK

10.10 **Coffee Break**

10.40 **Low temperature chemical vapor deposition using atomic layer deposition chemistry**
M. Reinke*, Y. Kuzminykh, P. Hoffmann
Laboratory for Advanced Materials Processing, Empa, Swiss Federal Laboratories for Materials Science and Technology, Feuerwerkerstrasse 39, CH-3602 Thun, Switzerland
Laboratory for Photonic Materials and Characterization, Ecole Polytechnique Fédérale de Lausanne, Station 17, CH-1015 Lausanne, Switzerland

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11.00 **Electric field assisted atmospheric pressure chemical vapour deposition of functional metal oxide thin films**

L. Romero[1], M.E.A. Warwick[2], R. Binions[1*]
[1]School of Engineering and Materials Science, Queen Mary University of London, Mile End Road, London, UK
[2]Department of Chemistry, University of Padova,Via Marzolo 1, 35131 Padova, Italy

11.20 **Deposition of TiO_2 microflowers by aerosol assisted MOCVD**

S. Biswas[1,2], C. Jiménez[2], J.L. Deschanvres[2], A.K. Kar[1], D. Muñoz-Rojas[2*]
[1]Indian School of Mines, Dhanbad-826004, Jharkhand, India
[2]Univ. Grenoble Alpes, LMGP, F-38000 Grenoble, France CNRS, LMGP, F-38000 Grenoble, France

11.40 **Novel yttrium ketoiminate complexes as potential precursors for atomic vapor deposition of Y_2O_3 thin films**

S. Cwik[1*], K. Xu[1], D. Rogalla[2], T. de los Arcos[3], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr-University Bochum, 44801 Bochum, Germany
[2]Dynamitron-Tandem-Laboratory (DTL) of RUBION, Ruhr-University Bochum, 44801 Bochum, Germany
[3]Experimental Physics II, Ruhr-University Bochum, 44801 Bochum, Germany

12.00 **In-situ FTIR analysis on the atomic layer deposition of metal oxide films**

Tirta R. Mayangsari, Jae-Min Park, Won-Jun Lee*
Department of Nanotechnology and Advanced Material Engineering, Sejong University, Seoul, 143-747, Korea

12.20 **Lunch Break**

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POSTER SESSION 3

13.50 **POSTER SESSION 3:**
Catalysis and photo-catalysis, sensors and detectors, functional coatings

P3.1 **Metal nanoparticle modified ceria thin films deposited via aerosol assisted chemical vapour deposition**
M. Evans, F. Di Maggio, C. Blackman*, G. Sankar
[1]Department of Chemistry, University College London, 20 Gordon Street, London, WC1H 0AJ, UK

P3.2 **Aerosol Assisted Chemical Vapour Deposition of Zinc Oxide and Zinc Cyanamide**
K. Kaye, G. Hyett*
[1]University of Southampton, Highfield, Southampton, SO17 1BJ, UK

P3.3 **Tuning the oxygen fluorescence response in gas and liquids of ZnO prepared by PECVD**
J.R. Sanchez-Valencia, M. Alcaire, P. Romero-Gomez, M. Macias-Montero, F.J. Aparicio, A. Borras, A. Barranco, A.R. Gonzalez-Elipe*
[1]Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla). c/Américo Vespucio 49. 41092 Sevilla, Spain

P3.4 **Synthesis of vanadium dioxide thin films with controlled morphologies**
S. Kumar[1*], D.Lenoble[1], F. Maury[2], N. Bahlawane[1]
[1]Luxembourg Institute of Science and Technology (LIST), 5, avenue des Hauts-Fourneaux, L-4362 Esch/Alzette, Luxembourg
[2]CIRIMAT, ENSIACET - 4 alle´e E. Monso, Toulouse – 31432, France

P3.5 **AACVD and ALD of vanadium pentoxide thin films for electrochromic applications**
I.I. Kazadojev, S. O'Brien, M.E. Pemble and I.M. Povey*
Tyndall National Institute, University College Cork, Lee Maltings, Cork, Ireland

P3.6 **Remote plasma assisted vacuum deposition of organic nanocomposite multifunctional thin films**
M. Alcaire, F.J. Aparicio, A. Borras, A.R. González-Elipe, A. Barranco*
Consejo Superior de Investigaciones Científicas. Instituto de Ciencia de Materiales de Sevilla (CSIC-Universidad de Sevilla). c/Américo Vespucio 49, 41092 Sevilla, Spain

P3.7 **Atomic layer deposition of germanium antimony alloys for Ge-Sb-Te compounds**
Yu-Jin Kim[1], Byeol Han[1], Jae-Min Park[1], Wongyong Koh[2], Won-Jun Lee[1*]
[1]Department of Nanotechnology and Advanced Material Engineering, Sejong University, Seoul, 143-747, Korea
[2]UP chemical Co. Ltd., Gyeonggido, 459-050, Korea

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POSTER SESSION 3

P3.8 **Synthesis of Cu_2O by CVD for deep oxidation of VOCS**
Guan-fu Pan, Jing Liang, Shi-Bin Fan, Yue-Xi Liu, Zhen-Yu Tian*
Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

P3.9 **Preparation and catalytic combustion application of chromium oxide film**
Jing Liang[1,2], Guan-fu Pan[1], Shi-Bin Fan[1], Wei-Liang Cheng[2], Zhen-Yu Tian[1*]
[1]Institute of Engineering Thermophysics, Chinese Academy of Sciences, 100190 Beijing, China
[2]School of Energy, Power and Mechanical Engineering, North China Electric Power University, Beijing 102206, China

P3.10 **Tailored synthesis of Cu_2O thin films with PSE-CVD for CO oxidation**
Achraf El Kasmi[1,2], Mhamed Assebban[1], Henning Vieker[3], André Beyer[3], Tarik Chafik[1], Zhen-Yu Tian[2,4*]
[1]Laboratory LMVR, Faculty of Sciences and Techniques, University Abdelmalek Essaadi, B.P. 416 Tangier, Morocco
[2]Department of Chemistry, Bielefeld University, Universitätsstraße 25, D-33615 Bielefeld, Germany
[3]Department of Physics, Bielefeld University, Universitätsstraße 25, D-33615 Bielefeld, Germany
[4]Institute of Engineering Thermophysics, Chinese Academy of Sciences, 100190 Beijing, China

P3.11 **Effect of substrate temperature on initiated plasma enhanced chemical vapor deposition of PHEMA thin films**
M. Gürsoy*, T. Uçar, M. Karaman
[1]Selcuk University, Department of Chemical Engineering, Konya and 42075, Turkey

P3.12 **Organic-inorganic nano laminate thin films obtaining lag time effect for encapsulation layer**
Kwan Hyuck Yoon, Jin Won Jung, Myung Mo Sung*
Chemistry, Hanyang University, 222 Wangsimni-ro, Seongdong-gu, Seoul 133-791, South Korea

P3.13 **Atmospheric pressure chemical vapor deposition of Ti-doped ZnO films**
C.H. Frijters*, F.T.J. Grob, P.J. Bolt, A. Illiberi
Solliance / TNO, High Tech Campus 21, 5656 AE Eindhoven, The Netherlands

P3.14 **Deposition characterization of inorganic thin films by using UV-enhanced Atomic Layer Deposition**
Jin Won Jung, Kwan Hyuck Yoon, Myung Mo Sung*
Chemistry, Hanyang University, Haengdang-dong, Seongdong-gu, Seoul, Korea

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POSTER SESSION 3

P3.15 **Si-C-N-Fe thin films, obtained by thermal decomposition of volatile tris(diethylamino)silane and ferrocene mixture**

R. Pushkarev[1*], N. Fainer[1], E. Maximovskii[1], Y. Rumyantsev[1], V. Nadolinnyy[1], V. Kaichev[1,2], A. Gutakovskii[3]

[1]Nikolaev Institute of Inorganic Chemistry, Novosibirsk, 630090, Russia

[2]Boreskov Institute of Catalysis, Novosibirsk, 630090, Russia

[3]Rzhanov Institute of Semiconductor Physics, Novosibirsk, 630090, Russia

P3.16 **PECVD BC_xN_y films with tunable optical properties**

V.S. Sulyaeva*, Y.M. Rumyantsev, I.V. Yushina, E.N. Ermakova, M.L. Kosinova

Nikolaev Institute of Inorganic Chemistry, 3, Ac. Lavrentiev Pr., Novosibirsk, 630090, Russia

P3.17 **PECVD synthesis and optical properties of nanocrystalline h-BN films**

I.S. Merenkov*, M.L. Kosinova, V.R. Shayapov

Nikolaev Institute of Inorganic Chemistry SB RAS, 3, Acad. Lavrentiev Ave., Novosibirsk, 630090, Russia

P3.18 **ALD surface functionalization of nanostructured Fe_2O_3 polymorphs for light-assisted applications**

M.E.A Warwick[1*], A. Gasparotto[1], G. Carraro[1], C. Maccato[1], D. Barreca[2], F. Rossi[3], G. Salviati[3], M. Tallarida[4], F. Fresno[5], U. Lavrenčič Štangar[5]

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[5]Laboratory for Environmental Research, Nova Gorica University, 5001 Nova Gorica, Slovenia

P3.19 **Nanostructured Iron (III) oxides as photocatalysts for wastewater treatment and air purification**

G. Carraro[1], C. Maccato[1*], A. Gasparotto[1], D. Barreca[2], C. Sada[3], M. Cruz-Yusta[4], L. Sánchez[4]

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[3]Department of Physics and Astronomy, Padova University - 35131 Padova, Italy

[4]Departamento de Química Inorgánica e Ingeniería Química, Universidad de Córdoba - 14071 Córdoba, Spain

P3.20 **Fe_2O_3/CuO nanocomposites through hybrid CVD/sputtering approaches**

G. Carraro[1], A. Gasparotto[1], C. Maccato[1], E. Bontempi[2], F. Bilo[2], C. Sada[3], D. Barreca[4*]

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[2]Chemistry for Technologies Laboratory, Brescia University and INSTM - 25123 Brescia, Italy

[3]Department of Physics and Astronomy, Padova University - 35131 Padova, Italy

[4]CNR-IENI and INSTM, Department of Chemistry, Padova University - 35131 Padova, Italy

P3.21 **One pot PE-CVD route to F-doped iron oxides on Al_2O_3(0001) single crystals**

A. Gasparotto[1*], D. Barreca[2], E. Bontempi[3], G. Carraro[1], C. Maccato[1], O. I. Lebedev[4], C. Sada[5], S. Turner[6], G. Van Tendeloo[6]

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[6]EMAT, Antwerp University, 2020 Antwerpen, Belgium

P3.22 **Au/ε-Fe_2O_3 nanocomposite NO_2 gas sensors**

A. Gasparotto[1*], D. Barreca[2], G. Carraro[1], E. Comini[3], C. Maccato[1], C. Sada[4], G. Sberveglieri[3]

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P3.23 **Aerosol assisted chemical vapour deposition of Ga-doped ZnO films for energy efficient glazing: Effects of doping concentration on the film growth behaviour and opto-electronic properties**

S.Q. Chen[1], R. Grau-Crespo[2], R. Binions[1*]

[1]School of Engineering and Materials Science, Queen Mary University of London, Mile End Road, London, UK

[2]Department of Chemistry, University of Reading, Whiteknights, Reading RG6 6AD, UK

WEDNESDAY, JULY 15, 2015

POSTER SESSION 3

P3.24 **Co_3O_4/ TiO_2 heterostructures by hybrid method**

N. El Habra[1*], F. Visentin[1], R. Gerbasi[1], M. Favaro[1], M. M. Natile[1], L. Colazzo[2], M. Sambi[2]

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[2]Dipartimento di Scienze Chimiche - Università di Padova, Via Marzolo 1, 35131 Padova, Italy

P3.25 **Effect of O_2 flow rate and temperature on the electrochromic response of WO_3**

K. Psifis[1,2], D. Louloudakis[1,3*], D. Vernardou[1,2], E. Spanakis[4], G. Papadimitropoulos[5], D. Davazoglou[5], N. Katsarakis[1,3,6], E. Koudoumas[1,3]

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[6]Institute of Electronic Structure and Laser, Foundation for Research & Technology- Hellas, P.O. Box 1527, Vassilika Vouton, 711 10 Heraklion, Crete, Greece

P3.26 **Enhanced optical performance of APCVD zinc oxide via post growth plasma treatment at atmospheric pressure**

J.L. Hodgkinson[*], H.M. Yates, D.W. Sheel

Materials & Physics Research Centre, University of Salford, Salford, M5 4WT, UK

P3.27 **Atomic layer deposition of TiO_2 and Al_2O_3 on nano-graphite films produced by PECVD: structure and field emission properties**

Rinat R. Ismagilov[1*], Victor I. Kleshch[1], Alexander N. Obraztsov[1,2]

[1]M.V. Lomonosov Moscow State University, Leninskie Gory 1, Moscow 119991, Russia

[2]University of Eastern Finland, Yliopistokatu 7, Joensuu 80100, Finland

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POSTER SESSION 3

P3.28 **Titania-based antimicrobial coatings on stainless steel hospital fixtures**

S. Krumdieck*, S. Davies-Telwar[2], D. Lee[2], C. Bishop[1], S. Miya[1]
[1]Department of Mechanical Engineering, Private Bag 4800, University of Canterbury, Christchurch, 8041, New Zealand
[2]Koti Technologies, Inc., PO Box 29519, Christchurch, 8041, New Zealand

P3.29 **Low temperature synthesis of iron oxide for photocatalytic application**

D. Peeters[1*], R. Beranek[2], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr-University Bochum, Universitätsstrasse 150, 44801 Bochum, Germany
[2]Photoactive Materials Group, Ruhr-University Bochum, Universitätsstrasse 150, 44801 Bochum, Germany

P3.30 **Tungsten and Rhenium coating by CVD on graphite and carbon composite materials for high temperature and high strengh applications**

G. Huot*, A. Petitjean, P-O. Robert, and H. Poirel
Acerde, 354 voie Magellan, 73800, Ste Hélène du Lac, France

15.50 **Excursion**
boat trip on Lake Lucerne

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SESSION 6: CVD of Nitrides – electronics and hard coatings
Chairman: J.L. Deschanvres

09.00 **INVITED**
Epitaxial lateral overgrowth of GaN on patterned sapphire substrate by growth mode control
D.-S. Kim[1], W. S. Jeong[1], S.J. Jung1, B.H. Kang[1], C.M. Lee[1], S. Bae[1], J. Lee[1], J. Jhin[2], D. Byun[1*]
[1]Materials Science and Engineering, Korea University, Anam-dong 5-1, Seongbuk-gu, Seoul, 163-713, Republic of Korea
[2]Department of Chip Development, LG Innotek, 1493 Naepo-ri, Moonsan-eup, Paju-si, Gyeonggi-do, 413-901, Republic of Korea

09.30 **A combined ALD-CVD route for group 13 nitride based high frequency devices**
Henrik Pedersen*, Erik Janzén
Department of Physics, Chemistry and Biology, Linköping University, SE-581 83 Linköping, Sweden

09.50 **PEALD AlN: controlling growth and film crystallinity**
S. Banerjee*, A.A.I. Aarnink, A.Y. Kovalgin, J. Schmitz
MESA+ Institute for Nanotechnology, University of Twente, P.O Box 217, 7500 AE Enschede, The Netherlands

10.10 **Coffee Break**

10.40 **Aluminum nitride thin films deposited by plasma enhanced atomic layer deposition**
M. Benz[1,2*], S. Ponton[1,2], A. Crisci[1,2], S.Coindeau[3], H. Roussel[3], R. Martin[3], E. Blanquet[1,2], A. Mantoux[1,2]
[1]Univ. Grenoble Alpes, SIMAP, F-38000 Grenoble, France
[2]CNRS, SIMAP, F-38000 Grenoble, France
[3]CMTC, Grenoble INP-CNRS, 38402 Saint Martin d'Hères, France

11.00 **Crystallinity optimisation of boron nitride obtained by CVD in the system $BCl_3/NH_3/H_2$: Influence of the gas phase composition**
P. Carminati*, P. Weisbecker, M. Cabantous, F. Rebillat, S. Jacques
Laboratoire des Composites Thermostructuraux, UMR-5801, 3 allée de la Boétie, Domaine Universitaire, 33600 Pessac, France

11.20 **Deposition, structure and properties of boron carbide coatings**

G. Chollon[1*], C. Pallier[1], F. Teyssandier[1], B.J. Nordell[2], S. Karki[2], M.M. Paquette[2], A.N. Caruso[2], W.A. Lanford[3], S.W. King[4]

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[2]Department of Physics and Astronomy, University of Missouri-Kansas City, Kansas City, MO 64110, USA

[3]Department of Physics, University of Albany, Albany, NY 12222, USA

[4]Logic Technology Development, Intel Corporation, 5200 NE Elam Young Parkway, Hillsboro, OR 97124, USA

11.40 **Deposition of composite matrix grade silicon carbide from $SiHCl_3/C_3H_8/H_2$**

G. Laduye[1], L. David[1], C. Descamps[1,2], A. Delcamp[1], G. Vignoles[1], G. Chollon[1]

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[2]Herakles, Les Cinq Chemins, Le Haillan 33185, France

12.20 **Lunch Break**

SESSION 7: functional layers, multiferroics, highly functional materials CVD
Chairman: D. Byun

13.50 **INVITED**

In situ X-ray synchrotron and optical analysis of ZnO growth by atomic layer deposition and metal organic chemical vapor deposition

J.L. Deschanvres[1*], H. Renevier[1], R. Boichot[2], A. Crisci[2], A. Claudel[1], L. Tian[1], A. Chaker[1], C. Jimenez[1], V. Consonni[1], V. Cantelli[1], E. Blanquet[2], M.I. Richard[3], T. Ouled[3], C. Guichet[3], O. Thomas[3], S. Margueron[4], G. Ciatto[5], N. Aubert[5], M.H. Chu[5], D.D. Fong[6]

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[4]LMOPS / Supelec, Univ. De Lorraine, 2 rue Edouard Belin F-57070 Metz, France

[5]Synchrotron SOLEIL - Beamline SIRIUS L'Orme des Merisiers, Saint Aubin, F-91192, Gif sur Yvette, France

[6]Argonne National Laboratory, Bldg 212/C222, 9700 S. Cass Ave., Argonne, IL, USA

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14.20 **Silicon coating on very dense tungsten particles by fluidized bed CVD for nuclear application**

F. Vanni[1], B. Caussat[2*], C. Ablitzer[1*], X. Iltis[1], M. Brothier[1]
[1]CEA, DEN, DEC/SPUA/LCU, F-13108 Saint-Paul-lez-Durance, France
[2]LGC, ENSIACET/INP Toulouse – UMR CNRS 5503, 4 allée Emile Monso, BP 44362, 31432 Toulouse Cedex 4, France

14.40 **Study on the growth of silicon films in very high-frequency plasma under atmospheric pressure**

S. Tamaki*, T. Sakaguchi, W. Lin, T. Yamada, H. Ohmi, H. Kakiuchi, K. Yasutake
Department of Precision Science and Technology, Graduate School of Engineering, Osaka University, 2–1 Yamada-Oka, Suita, Osaka 565–0871, Japan

15.00 **Pulsed-injection MOCVD of multiferroic $BaMgF_4$ thin films**

S. Battiato[1*], B. Doisneau[2], H. Roussel[2], G.G. Condorelli[1], J.L. Deschanvres[2], C. Jimenez[2], D. Muñoz-Rojas[2], G. Malandrino[1]
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[2]Univ. Grenoble Alpes, LMGP, F-38000 Grenoble, France CNRS, LMGP, F-38000 Grenoble, France

15.20 **Relationship between Dy doping and multiferroic properties of MOCVD grown $Bi_{(1-x)}Dy_xFeO_3$**

M.R. Catalano[1], G. Spedalotto[1], R. Lo Nigro[2], G.G. Condorelli[1], G. Malandrino[1*]
[1]Dipartimento di Scienze Chimiche, Universitá Catania, and INSTM UdR Catania, Viale A. Doria 6, I-95125 Catania, Italy
[2]Istituto per la Microelettronica e Microsistemi, IMM-CNR, Strada VIII 115, 95121 Catania, Italy

15.40 **Coffee Break**

SESSION 8: CVD processes deposits and characterization
Chairman: T. Noguchi

16.10 **Highly conductive p-type $CuCrO_2$ thin films deposited by direct liquid injection metal-organic chemical vapour deposition**

J.Crêpellière[1*], N. Bahlawane[1], S. Siebentritt[2], D.Lenoble[1]
[1]Luxembourg Institute of Science and Technology (LIST), 5 avenue des Hauts-Fourneaux, L-4362 Esch-sur-Alzette, Luxembourg
[2]Laboratory for Photovoltaics Physics and Materials Science Research Unit (University of Luxembourg), 162a avenue de la faïencerie ,L-1511 Luxembourg, Luxembourg

16.30 **Surface kinetics of titanium isopropoxide in high vacuum chemical vapor deposition**

M. Reinke, Y. Kuzminykh*, P. Hoffmann

Laboratory for Advanced Materials Processing, Empa, Swiss Federal Laboratories for Materials Science and Technology, Feuerwerkerstr. 39, 3602 Thun, Switzerland and Laboratory for Photonic Materials and Characterization, Ecole Polytechnique Fédérale de Lausanne, Station 17, 1015 Lausanne, Switzerland

16.50 **Chemical vapor deposition of niobium nitride and niobium titanium nitride thin films**

F. Mercier*, M. Benz, N. Tsavdaris, A. Crisci, R. Boichot, A. Mantoux, E. Blanquet

Univ. Grenoble Alpes, SIMAP, F-38000 Grenoble, France

and CNRS, SIMAP, F-38000 Grenoble, France

17.10 **MO~~CVD growth of high quality c-axis and non-c axis oriented thin films of $Bi_2Sr_2CaCu_2O_8$ superconductor~~**

~~K. Endo[1*], S. Arisawa[2], H. Yamasaki[3], T. Kaneko[1], P. Badica[4]~~

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~~[3]National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki 305-8568, Japan~~

~~[4]National Institute of Materials Physics, Magurele 077125, Romania~~

~~17.30~~ **Glow discharge optical emission spectrometry for ultra fast depth profile characterization of CVD thin and thick films**

Patrick Chapon*, Célia Olivero, Simon Richard, Yuriy Popov

HORIBA Jobin Yvon, rue du canal, 91165 Longjumeau Cedex, France

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POSTER SESSION 4

17.~~50~~ **POSTER SESSION 4:**
Focused electron beam deposition; patterning; noble metal precursors

P4.1 **Combining in-situ etching and deposition – FEBIE modified germanium nanowire devices with electrical contacts by FEBID gold**
M.M. Shawrav, J. Mika, H.D. Wanzenboeck*, P. Taus, Z.G. Gökdeniz, E. Bertagnolli
Institute of Solid State Electronics, Vienna University of Technology, Floragasse 7/1, 1040 Vienna, Austria

P4.2 **Pushing nanomagnet logic into a higher dimension FEBID of 3-dimensional nanomagnetic arrays**
H.D. Wanzenboeck[1*], M.M. Shawrav[1], M. Gavagnin[1], A. Persson[2], K. Gunnarsson[2], P. Svedlindh[2], M. Stöger-Pollach[1], E. Bertagnolli[1]
[1]Vienna University of Technology, Floragasse 7/1-E362, A-1040 Vienna, Austria
[2]Uppsala University, 751 05 Uppsala, Sweden

P4.3 **Coating of nanostructures with ALD and PVD**
Caspar Haverkamp[1,2*], Katja Höflich[1,2], Michael Latzel[2,3], Matthias Büchele[3], Silke Christiansen[1,2]
[1]Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin,Germany
[2]Max Planck Institute for the Science of Light, Erlangen, Germany

P4.4 **Nozzle-based injection systems for FEBID characteristics and limitations**
H.D. Wanzenboeck*, M.M. Shawrav, G. Hochleitner, E. Bertagnolli
Vienna University of Technology, Floragasse 7/1-E362, A-1040 Vienna, Austria

P4.5 **Interaction of WS_2 nanoparticles with ions and electrons studied by exposure to focused ion and electron beams**
A. Laikhtman[1*], A. Fruchtman[1], G. Makrinich[1], A. Zak[1], M. Sezen[2]
[1]Sciences Department, Holon Institute of Technology (HIT),52 Golomb St., 5810201 Holon, Israel
[2]Nanotechnology Research and Application Center, Sabanci University, Orhanli, Tuzla, 34956 Istanbul, Turkey

P4.7 **Electron-induced Formation of Cu nanoparticles from sequentially deposited Copper(II)oxalate**
K. Rückriem[1], H. Vieker[2], A. Beyer[2], A. Gölzhäuser[2], P. Swiderek[1*]
[1]Institute of Applied and Physical Chemistry, University of Bremen, D-28334 Bremen, Germany
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P4.9 **Selective area high vacuum CVD of titania on functionalized surfaces**
M. Reinke*, Y. Kuzminykh, P. Hoffmann
Laboratory for Advanced Materials Processing, Empa, Swiss Federal Laboratories for Materials Science and Technology, Feuerwerkerstrasse 39, CH-3602 Thun, Switzerland
and Laboratory for Photonic Materials and Characterization, Ecole Polytechnique Fédérale de Lausanne, Station 17, CH-1015 Lausanne, Switzerland

P4.10 **Heterobimetallic beta-diketonate complexes as CVD Precursors**
V.V. Krisyuk*, A.E. Turgambaeva, S.V. Trubin, Y.V. Shubin, T.P. Koretskaya, I.K. Igumenov
Nikolaev Institute of Inorganic Chemistry SB RAS , Lavrentiev ave.3, Novosibirsk, 630090, Russian Federation

P4.11 **Deposition of phosphorus-doped ruthenium layers by the single source approach**
J. Jeschke, H. Lang*
Technische Universität Chemnitz, Institute of Chemistry, Inorganic Chemistry, 09107 Chemnitz, Germany

P4.12 **Gaseous ternary Chromium-aluminium complexes as precursor for chemical vapour deposition**
Mario Lessiak[1], Roland Haubner[1*], Reinhard Pitonak[2], Arno Köpf[2], Ronald Weissenbacher[2]
[1]University of Technology Vienna, Institute of Chemical Technologies and Analytics, Getreidemark 9/164-CT, A-1060 Vienna, Austria
[2]Boehlerit GmbH & Co. KG, Forschung & Entwicklung, Werk VI Straße 100, 8605, Kapfenberg, Austria

P4.13 **Absolute cross sections for electronic excitation of furan by electron impact**
K. Regeta*, M. Allan
Université de Fribourg, Chemin du Musée 9, 1700 Fribourg, Switzerland

P4.14 **Monomeric trimethylplatinum beta-diketonate derivatives as MOCVD precursors for platinum film deposition**
Zharkova G.I., Dorovskikh S.I.*, Morozova N.B.
Nikolaev Institute of Inorganic Chemistry SB RAS, 3, Lavrentieva Ave. 630090 Novosibirsk, Russia

P4.15 **Brominated chemistry for CVD of electronic grade SiC**
Henrik Pedersen*, Milan Yazdanfar, Örjan Danielsson, Olle Kordina, Erik Janzén
Department of Physics, Chemistry and Biology, Linköping University, SE-581 83 Linköping, Sweden

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POSTER SESSION 4

P4.16 **Effect of Ag metal on the electrochemical response of vanadium oxides grown by AACVD**

D. Louloudakis[1,2*], D. Vernardou[1], E. Spanakis[3], N. Katsarakis[1,4,5], E. Koudoumas[1,5], I. Kazadojev[6], S. O'Brien[6], I. Povey[6], M. Pemble[6]

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[6]Tyndall National Institute, University College Cork, Lee Maltings, Prospect Row, Cork, Ireland

P4.17 **Low temperature chemical vapor deposition of W-containing films from $W(CO)_6$**

V. Krisyuk[1*], T. Koretskaya[1], A. Turgambaeva[1], S. Trubin[1], O. Debieu[2], T. Duguet[2], I. Igumenov[1], C. Vahlas[2]

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[2]CIRIMAT, UPS/INPT/CNRS, ENSIACET, 4 Allée Emile Monso, 31030 Toulouse cedex 4, France

P4.18 **Formation of hierarchically porous titanium dioxide films using a self-templating mechansim**

G. Hyett*, N. Platt, K. Kaye, G. Limburn

University of Southampton, Highfield Campus, Southampton, SO16 1BJ, UK

P4.19 **Influence of the deposition conditions on the formation of rare earth doped Yttrium oxy-fluoride**

S. Zhang, E.L. Payrer, H. Roussel, C. Jiménez, J.L. Deschanvres*

Univ. Grenoble Alpes, LMGP, F-38000 Grenoble, France and

CNRS, LMGP, F-38000 Grenoble, France

19.50 **Conference Dinner**

FRIDAY, JULY 17, 2015

PROGRAM

SESSION 9: Structured Deposition – FEBID
Chairman: Anjana Devi

09.00 **INVITED**
Carrier gas controlled precursor delivery a way to increase process control in FEBID
H.D. Wanzenboeck*, M.M. Shawrav, S. Wachter, P. Taus, E. Bertagnolli
Vienna University of Technology, Institute for Solid State Electronicss, Floragasse 7/1-E362, A-1040 Vienna, Austria

09.30 **Using energetic jets to enable new modes of focused electron beam induced processing of nanomaterials**
M. Henry, J. Fisher, S. Kim, P.A. Kottke, A.G. Fedorov*
George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0405, USA

09.50 **Optical Properties of Electron-Beam-Induced-Deposition-Based Metamaterial**
P. Wozniak[1,2], K. Hoeflich[3,1*], G. Broenstrup[1,3], P. Banzer[1,2], S. Christiansen[3,1], G. Leuchs[1,2]
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[3]Helmholtz Centre Berlin for Materials and Energy, Institute of Nanoarchitectures for Energy Conversion, Hahn-Meitner-Platz 1, D–14109 Berlin, Germany

10.10 **Coffee Break**

10.40 **HERALD project presentation**

11.00 **Rational design and development of yttrium precursors and their application in MO CVD of Y_2O_3**
S. Karle[1*], T. de los Arcos[2], D. Rogalla[3], A. Devi[1]
[1]Inorganic Materials Chemistry, Ruhr-University Bochum, 44801 Bochum, Germany
[2]Chair of Experimental Physics II, Ruhr-University Bochum, 44801 Bochum, Germany
[3]Dynamitron-Tandem-Laboratory (DTL) of RUBION, Ruhr-University Bochum, 44801 Bochum, Germany

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11.20 **The design of metal-organic and organometallic precursors for gas phase deposition processes**
H. Lang
Technische Universität Chemnitz, Institute of Chemistry, Inorganic Chemistry, 09107 Chemnitz, Germany

11.40 **Hotwire assisted ALD of tungsten films: In-situ study of the interplay between ALD, CVD and etching modes**
Mengdi Yang*, A.A.I. Aarnink, Alexey Y. Kovalgin, Jurriaan Schmitz, Rob Wolters
MESA+ Institute for Nanotechnology, University of Twente, P.O Box 217, 7500AE Enschede, The Netherlands

12.00 **Closing Ceremony**

12.20 **Lunch Break**

Further meetings and information

Thursday, July 16: 18.50 Cost Celina action – M2 meeting

Thursday, July 16: 19.20 EuroCVD board meeting

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