

09:00 - 09:40

Official Opening

Wolfgang Möller, Conference Chairman

Welcome Address

Hannes Krätz, 3rd Mayor of Garmisch-Partenkirchen

Surface Engineering and Tribology Contribution to Energy Policy for Europe

Piotr Swiatek

FP7 National Contact Point, Energy, FZJ/PTJ, Jülich, Germany

09:40 - 10:30

Chair: Roel Tietema, Venlo, Netherlands

Opening Plenary Lecture**Use of DLC-Coatings to Reduce Friction in the Powertrain of Passenger Cars**

PL0000

Johann Schnagl¹, Karsten Stahl¹¹ BMW Group, München, Germany

10:30 - 11:05

Coffee break

Oral Session**Session 1 - Optical Coatings**

Chairs: Hans-Karl Pulker, Innsbruck, Austria

Ludvik Martinu, Montreal, Canada

11:05 - 11:35

Keynote Lecture**Dye luminescent thin films prepared by plasma deposition**

KN0100

Agustín R. González-Elipe¹, Francisco Aparicio², Iwona Blaszczyk-Lezak²,Ana Borrás², Angel Barranco², Agustín R. González-Elipe²¹ Inst.Ciencia de Material. Sevilla CSIC, Sevilla, Spain, ² ICMSE (CSIC-U. Sevilla), Sevilla, Spain

11:35 - 11:55

OR0101

Correlation between experimental results and ab initio calculations in TiN-based decorative coatingsJean-François Pierson¹, Abbas HODROJ², Mouna BEN YAHIA³,Marie-Liesse DOUBLET³¹ Institut Jean Lamour - Dpt CP2S, NANCY, France, ² Institut Jean Lamour, Nancy, France, ³ Institut Charles Gerhardt, Montpellier, France

11:55 - 12:15

OR0102

Tailoring optical properties of chromium-silicon mixed oxides by oxygen ion beam implantationRamon Escobar Galindo¹, Lucia Vergara¹, Olga Sanchez¹, Gonzalo Fuentes², David Duday³, Nathalie Valle³, Antonio Arranz⁴, Carlos Palacio⁴¹ Instituto Ciencia Materiales Madrid, Madrid, Spain, ² Asociacion Industria Navarra, Pamplona, Spain, ³ Centre de Recherche Public - Gabriel Lippmann, BELVAUX, Luxembourg, ⁴ Universidad Autonoma de Madrid, Madrid, Spain

12:15 - 12:35
OR0103

Thin film growth on nanostructured polymer webs for anti-reflection purposes

Peter Munzer¹, Ulrike Schulz¹, Norbert Kaiser¹, Waldemar Schönberger²,
Matthias Fahland²

¹ Fraunhofer Institute for Applied Optics, Jena, Germany, ² Fraunhofer Institute for
Electron Beam and Plasma Technology, Dresden, Germany

12:35 - 12:55
OR0104

Large area AR-coating on plastic substrate using roll to roll methods

Ronny Kleinhempel¹, Andre Wahl¹, Roland Thielsch¹

¹ Southwall Europe GmbH, Großröhrsdorf, Germany

12:55 - 14:20

Lunch Break

Oral Session Session 2 - Computer Modeling of Film Growth and Structure

Chairs: Diederik Depla, Ghent, Belgium

Jiri Houska, Plzen, Czech Republic

**11:05 - 11:35 Growth kinetics of plasma deposited microcrystalline silicon thin
Keynote Lecture films**

KN0200

Dimitrios Mataras¹, Ergina Farsari¹, Eleftherios Amanatides¹, Dimitrios Mataras¹¹ University of Patras, Patras, Greece**11:35 - 11:55 Molecular dynamics simulations and experimental study of complex
OR0201 oxide thin film growth**Violeta Georgieva¹, Marta Saraiva², Neerushana Jehanathan¹, Gustaaf Van Tendeloo¹, Diederik Depla², Annemie Bogaerts¹¹ University of Antwerp, Wilrijk-Antwerp, Belgium, ² Ghent University, Ghent, Belgium**11:55 - 12:15 The effects of oxygen on Ti2AlC elastic properties: a computational
OR0202 investigation**Myles Cover¹, David McKenzie¹, Marcela Bilek¹¹ School of Physics, University of Sydney, Sydney, Australia**12:15 - 12:35 Nanostructured Surface of Metals and Alloys Induced by Ar Ion
OR0203 Bombardment**Kweta-Ryeol Lee¹, Sang-Pil Kim², Byung-Hyun Kim², Yong-Chae Chung³¹ Korea Institute of Science and Technology, Seoul, SouthKorea, ² Korea Institute of Science and Technology / Hanyang University, Sydney, South Korea, ³ Hanyang University, Antwerp, South Korea**12:35 - 12:55 Experimental Studies vs. FEM Simulation Results of the Dry Cutting
OR0204 Behaviour of MW-CVD Diamond-Nanocomposite coatings**Stefan Groß¹, Holger Hoche¹, Christina Berger¹, Georg Dinger², Christoph Friedrich², Carsten Muders³, Xin Jiang³, Patrick Pfeiffer⁴, Eberhard Abele⁴¹ MPA-IFW, TU Darmstadt, Darmstadt, Germany, ² Institut für Konstruktion, Fachbereich MB, Universität Siegen, Siegen, Germany, ³ Lehrstuhl für Oberflächen- und Werkstofftechnik, FB MB, Universität Siegen, Siegen, Germany, ⁴ PTW, TU-Darmstadt, Darmstadt, Germany

12:55 - 14:20 Lunch Break

- Oral Session** **Session 3 - Electro and Magneto Functional Films**
Chairs: Per Eklund, Linköping, Sweden
Michael Stüber, Karlsruhe, Germany
- 11:05 - 11:35 **Nanocomposite Thin Films as Sensor Material for Strain Gauges**
Keynote Lecture Ulrike Heckmann¹, Ralf Bandorf¹, Mirjana Petersen², Günter Bräuer¹
KN0300 ¹ Fraunhofer IST, Braunschweig, Germany, ² Technische Universität Braunschweig, Braunschweig, Germany
- 11:35 - 11:55 **Microstructure and properties of magnetron-sputtered**
OR0301 **multifunctional FeCo/TiN nanolaminated thin films with combined wear resistance and ferromagnetic properties for real-time wear control**
Christian Klever¹, Harald Leiste¹, Klaus Seemann¹, Michael Stüber¹, Sven Ulrich¹
¹ Institute for Materials Research I/KIT, Eggenstein-Leopoldshafen, Germany
- 11:55 - 12:15 **Deposition of PZT thin films onto copper-coated polymer films by**
OR0302 **means of pulsed-DC and RF reactive sputtering**
Gunnar Suchanek¹, Oleg Volkonskiy¹, Rainer Labitzke², Eberhard Schultheiß², Gerald Gerlach¹
¹ TU Dresden, Dresden, Germany, ² Fraunhofer-Institut für Elektronenstrahl- und Plasmatechnik, Dresden, Germany
- 12:15 - 12:35 **Reactive pulse magnetron sputter deposition of piezoelectric AlN**
OR0303 **layers**
Hagen Bartzsch¹, Matthias Gittner Gittner¹, Daniel Glöß¹, Peter Frach¹, Eberhard Schultheiß¹
¹ Fraunhofer FEP, Dresden, Germany
- 12:35 - 12:55 **Fabrication and electrochemical properties of polymer bilayered**
OR0304 **membranes**
Liubov Kravets¹, Serguei Dmitriev¹, Veronica Satulu², Bogdana Mitu², Gheorghe Dinescu²
¹ Joint Institute for Nuclear Research, Dubna, Russian Federation, ² National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania
- 12:55 - 14:20 Lunch Break

- 14:20 - 15:05
Plenary Lecture
PL0001
Chair: Thierry Czerwiec, Nancy Cedex, France
Nanocomposites and Nanostructures based on Plasma Polymers
Hynek Biederman¹
¹ Charles University in Prague, MFF, Praha, CzechRepublic
- 15:15 - 16:25
Poster Session 1, Foyer
- 16:25 - 16:45
Coffee break
- Oral Session**
Session 4 - HiPIMS I
Chairs: Jochen Schneider, Aachen, Germany
Daniel Lundin, Linköping, Sweden
- 16:45 - 17:15
Keynote Lecture
KN0400
Understanding of HiPIMS through modeling and measurements
Nils Brenning¹, Michael Raadu¹, Huo Chunqing¹, Daniel Lundin², Ulf Helmersson², Catalyn Vitelaru³, Gabi D. Stancu³, Tiberiu Minea³
¹ Royal Institute of Technology, Stockholm, Sweden, ² Linköping University, Linköping, Sweden, ³ Universite Paris-Sud, Orsay-Ville, France
- 17:15 - 17:35
OR0401
Studies of hysteresis effect in reactive HiPIMS deposition of oxides
Tomas Kubart¹, Montri Aiempanakit², Joakim Andersson¹, Tomas Nyberg¹, Soren Berg¹, Ulf Helmersson²
¹ Ångström Laboratory / Uppsala University, Uppsala, Sweden, ² IFM-Materials Physics, Linköping University, Linköping, Sweden
- 17:35 - 17:55
OR0402
Two pulsed magnetron systems – characterization and application
Jaroslav Vlcek¹, Jan Lazar¹, Jiri Rezek¹, Pavel Calta¹, Petr Steidl¹
¹ University of West Bohemia, Pízen, CzechRepublic
- 17:55 - 18:15
OR0403
Single Cathode Superimposed High Power Impulse Magnetron Sputtering
Mattias Samuelsson¹, Daniel Lundin², Ulrika Isaksson², Fredrik Björefors³, Hans Högberg⁴, Henrik Ljungcrantz⁴, Ulf Helmersson²
¹ Impact coatings/Linköping University, Linköping, Sweden, ² Plasma and Coatings Physics division, Linköping University, Linköping, Sweden, ³ Division of Molecular Physics, Linköping University, Linköping, Sweden, ⁴ Impact Coatings AB, Linköping, Sweden
- 18:15 - 18:35
OR0404
The effect of magnetic field on the deposition rate in a HiPIMS discharge
Anurag Mishra¹, Peter Kelly², James Bradley¹
¹ University of Liverpool, Liverpool, United Kingdom, ² Manchester Metropolitan University, Manchester, United Kingdom
- 18:35 - 18:55
OR0405
On the deposition rate during High-Power Impulse Magnetron Sputtering.
Stephanos Konstantinidis¹, Adil Balhamri¹, Maria Palmucci¹, Stanislav Mraz², Jens Emmerlich², Jochen M. Schneider², Rony Snyders¹
¹ University of Mons, Mons, Belgium, ² RWTH Aachen University, Aachen, Germany

14:20 - 15:05 Plenary Lecture PL0001, Room Richard-Strauss

15:15 - 16:25 Poster Session 1, Foyer

16:25 - 16:45 Coffee break

Oral Session **Session 5 - Plasma and Ion Etching and Activation**

Chairs: Yuichi Setsuhara, Osaka, Japan

George Dinescu, Bucharest, Romania

16:45 - 17:15 **A novel pulsed biasing approach and its benefits for plasma material processing**

Keynote Lecture

KN0500

Pavel Kudlacek¹, Rein Rumphorst¹, Richard van de Sanden¹

¹ Technical University of Eindhoven, Eindhoven, Netherlands

17:15 - 17:35 **Simulation of high-rate Plasma Jet Machining**

OR0501

Johannes Meister¹, Thomas Arnold¹

¹ IOM Leipzig, Leipzig, Germany

17:35 - 17:55 **Glass surface modification by lithography-free reactive ion etching in an Ar/CF₄-plasma for controlled diffuse optical scattering**

OR0502

Eric Hein¹, Dennis Fox², Henning Fouckhardt²

¹ Kaiserslautern University of Technology, Kaiserslautern, Germany, ² Kaiserslautern University of Technology, Integrated Optoelectronics and Microoptics Research Group, Physics Department, Kaiserslautern, Germany

17:55 - 18:15 **Plasma chemical bromination, functionalization and grafting of organic molecules onto graphene-like carbon materials**

OR0503

Sascha Wettmarshausen¹, Jörg Friedrich¹, Sven Hanelt¹, Asmus Meyer-Plath¹, Eldar Zeynalov², Renate Mix¹, Reinhard Mach¹

¹ BAM, Berlin, Germany, ² National Academy of Sciences, Baku, Azerbaijan

18:15 - 18:35 **Results of the study of chemical-, vacuum drying- and plasma-pretreatment of coconut(Cocos nucifera) lumber sawdust for the adsorption of methyl red in water solution**

OR0504

Roy Tumlos¹, Julie Ting², Elias Osorio³, Leo Rosario⁴, Henry Ramos², April Ulanos², Henry Lee², Gladys Regalado²

¹ University of the Philippines, Manila, Philippines, ² National Institute of Physics, University of the Philippines Diliman, Quezon City, Philippines, ³ National Institute of Physics, University of the Philippines Diliman, Quezon City, Philippines, ⁴ College of Arts, Sciences and Education, FEATI, Manila, Philippines

18:35 - 18:55 **Multipin corona treatment – a new surface activation method for low-temperature direct bonding**

OR0505

Benedikt Michel¹, Marko Eichler², Claus-Peter Klages¹

¹ Institut für Oberflächentechnik, Braunschweig, Germany, ² Fraunhofer Institut für Schicht- und Oberflächentechnik, Braunschweig, Germany

14:20 - 15:05 Plenary Lecture PL0001, Room Richard-Strauss

15:15 - 16:25 Poster Session 1, Foyer

16:25 - 16:45 Coffee break

Oral Session Session 6 - Plasma Polymerization

Chairs: Riccardo d'Agostino, Bari, Italy

Jörg Friedrich, Berlin, Germany

16:45 - 17:15 **Correlation between chemical structure and functional properties of as-deposited and annealed organosilicon plasma polymers**

Keynote Lecture

KN0600

Lenka Zajickova¹, Vilma Bursikova², Daniel Franta², David Necas², Vaclav Pekar², Vratislav Perina³

¹ Masaryk University, Brno, Czech Republic, ² Dept Phys Electronics, Masaryk University, Brno, Czech Republic, ³ Inst Nuclear Physics, Academy of Sciences of the Czech Republic, Rez, Czech Republic

17:15 - 17:35 **Amphiphilic copolymer coatings by Plasma polymerization process: characterization and evaluation of antifouling properties**

OR0601

Farzaneh Arefi-Khonsari¹, Jerome Pulpytel¹, Virendra Kumar¹, Sudhir Bhatt¹, Hubert Rauscher², Giacomo Ceccone², François Rossi²

¹ UPMC-ENSCP, Paris, France, ² EC-JRC, Ispra(VA), Italy

17:35 - 17:55 **Influence of Gas Phase and Surface Reactions on Plasma Polymerization**

OR0602

Dirk Hegemann¹, Enrico Körner¹, Sebastien Guimond¹

¹ Empa, St.Gallen, Switzerland

17:55 - 18:15 **Modification of the acid/base surface adsorption properties of granular carbon black by means of RF glow discharges**

OR0603

Nicoletta De Vietro¹, Francesco Fracassi¹, Riccardo d'Agostino¹

¹ Dep. of Chemistry University of Bari, Bari, Italy

18:15 - 18:35 **Amino-rich plasma polymer films prepared by RF magnetron sputtering**

OR0604

Jan Hanuš¹, Giacomo Ceccone¹, Patricia Lisboa¹, Francois Rossi¹

¹ EC, JRC, IHCP, Ispra, Italy

18:35 - 18:55 **Plasma polymer multilayers of organosilicones and their optical properties controlled by RF power**

OR0605

Vladimir Cech¹, Sona Lichovnikova¹

¹ Brno University of Technology, Brno, Czech Republic