Program Key

Conference Topics

A Coatings for Use at High Temperatures
B Hard Coatings and Vapor Deposition Technologies
C Fundamentals and Technology of Multifunctional Materials and Devices
D Coatings for Biomedical and Healthcare Applications
E Tribology and Mechanical Behavior of Coatings and Engineered Surfaces
EX Exhibitors Keynote Lecture
F New Horizons in Coatings and Thin Films
G Surface Engineering - Applied Research and Industrial Applications
H Advanced Characterization Techniques for Coatings and Thin Films
HL Bunshah Award Honorary Lecture
PL Plenary Lecture
SIT Special Interest Talk
SIT2 Special Interest Talk 2
TS Topical Symposia

Program Overview

Room /Time	California	Golden West	Grand Hall	Royal Palm 1-3	Royal Palm 4-6
MoPL					
MoM	D1-1: Surface Coatings and Surface Modifications in Biological Environments	B5-1: Hard and Multifunctional Nanostructured Coatings			E2-1: Mechanical Properties and Adhesion
MoA	D1-2: Surface Coatings and Surface Modifications in Biological Environments	B5-2: Hard and Multifunctional Nanostructured Coatings		TS5: Anti- and De-icing Surface Engineering	E2-2: Mechanical Properties and Adhesion
MoSIT					
TuM	B2-1: CVD Coatings and Technologies	B1-1: PVD Coatings and Technologies		D2: Bio-corrosion, Bio-tribology, and Bio-tribocorrosion D3: Medical Devices,	E1-1: Friction, Wear, Lubrication Effects, and Modeling
TuEx			EX: Exhibition Keynote Lecture		
TuA	B2-2: CVD Coatings and Technologies	B1-2: PVD Coatings and Technologies		D4: Biointerfaces: Improving the Cell Adhesion and Avoiding Bacteria Adhesion. What	E1-2: Friction, Wear, Lubrication Effects, and Modeling
WeM	B6: Coating Design and Architectures	B1-3: PVD Coatings and Technologies		A2: Thermal and Environmental Barrier Coatings	E1-3: Friction, Wear, Lubrication Effects, and Modeling
WeA	B3: Deposition Technologies and Applications for Diamond-like Coatings	B1-4: PVD Coatings and Technologies		A3: Materials and Coatings for Solar Power Concentration Plants	E3: Tribology of Coatings for Automotive and Aerospace Applications
WeHL					
ThM	A1-1: Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling	B4-1: Properties and Characterization of Hard Coatings and Surfaces		H1: Spatially-resolved Characterization of Thin Films and Engineered Surfaces	TS1: Thermal and Kinetic Spray Deposition
ThA	A1-2: Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling	B4-2: Properties and Characterization of Hard Coatings and Surfaces		H2: Advanced Mechanical Testing of Surfaces, Thin Films and Coatings	
ThP			Poster Sessions		
FrM	A1-3: Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling	B4-3: Properties and Characterization of Hard Coatings and Surfaces		H3: Characterization of Coatings in Harsh Environments	TS2: High Entropy and Other Multi-principal-element Materials

Program Overview

Room /Time	San Diego	Sunrise	Sunset	Town & Country
MoPL				PL: Plenary Lecture
MoM	F2-1: HiPIMS, Pulsed Plasmas and Energetic Deposition		G4: Pre-/Post-Treatment and Duplex Technology	
MoA	F2-2: HiPIMS, Pulsed Plasmas and Energetic Deposition	TS4: Materials Modeling and Simulation	G3: Innovative Surface Engineering for Advanced Cutting and Forming Tool Applications	
MoSIT	SIT: Special Interest Talk			
TuM	F2-3: HiPIMS, Pulsed Plasmas and Energetic Deposition	TS3: Coating of Synthetic Materials – Engineering for the Future	G2: Component Coatings for Automotive, Aerospace, Medical, and Manufacturing Applications	
TuEx				
TuA	F1: Nanomaterials and Nanofabrication	C1: Optical Metrology in Design, Optimization, and Production of Multifunctional Materials	G6: Application-driven Cooperation Between industry and Research Institutions	
WeM	F4-1: Functional Oxide and Oxynitride Coatings	C3: Thin Films for Energy-related Applications	G1: Advances in Industrial PVD, CVD, and PCVD Processes and Equipment	
WeA	F4-2: Functional Oxide and Oxynitride Coatings	C4: Energetic Materials and Microstructures for Nanomanufacturing	G5: Hybrid Coatings and Hybrid System Processes	
WeHL				HL: Bunshah Award Honorary Lecture
ThM	F3: 2D Materials: Synthesis, Characterization, and Applications	C2-1: Novel Oxide Films for Active Devices		
ThA	SIT2: Special Interest Talk 2	C2-2: Novel Oxide Films for Active Devices		
ThP				
FrM		C2-3: Novel Oxide Films for Active Devices		

Special Events Monday

Special Events Monday

7:30 AM	Conference Registration/Atlas Foyer
8:00 AM	Plenary Lecture/Town & Country
8:30 AM	Short Courses/TBA
10:00 AM	Technical Sessions/See Room Matrix
12:15 PM	Anton Paar: Focused Topic Session/Town & Country
5:30 PM	Welcome Mixer/Lion Fountain Courtyard

Plenary Lecture
Room Town & Country - Session PL
Plenary Lecture

8:00am	**INVITED: PL-1** Predictive Synthesis and Characterization of Oxide Films with Metastable Structures, ***Gregory Rohrer,*** Carnegie Mellon University, USA	
8:20am	Invited talk continues.	

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B5-1** **Hard and Multifunctional Nanostructured Coatings** **Moderators: Jiri Capek**, University of West Bohemia, **Helmut Riedl**, TU Wien, Institute of Materials Science and Technology	**Coatings for Biomedical and Healthcare Applications** **Room California - Session D1-1** **Surface Coatings and Surface Modifications in Biological Environments** **Moderators: Kerstin Thorwarth**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland, **Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA
10:00am	**B5-1-1** Effect of Boron on the Mechanical Properties, especially Fracture Toughness, of TiN, ***Rainer Hahn,*** CDL-AOS at TU Wien, Austria*; M Bartosik, A Tymoszuk,* TU Wien, Austria*; P Polcik,* Plansee Composite Materials GmbH, Germany*; M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P Mayrhofer,* TU Wien, Austria	**D1-1-1** Highly Porous Scaffolds on TNZT Alloys for Bone Implant Applications, ***Samir Aouadi,*** *E Blackert, S Murguia, M Kramer, S Bakkar, M Young,* University of North Texas, USA
10:20am	**B5-1-2** Evolution of Structure, Residual Stresses and Wear Resistance of Multi-layered AlTiSiN-AlCrN Coatings upon Thermal Loading Revealed by Cross-sectional X-ray Diffraction and Tribological Testing, ***Stefan Klima,*** *N Jäger, M Meindlhumer,* Montanuniversität Leoben, Austria*; H Hruby,* eifeler-Vacotec GmbH, Germany*; C Mitterer, J Keckes, R Daniel,* Montanuniversität Leoben, Austria	**D1-1-2** Improving Cellular Proliferation on the Ti-6Al-4V Alloy by the Formation of Crystalline Nanotubes of Titanium Oxide, ***ItzelPamela Torres-Avila,*** Instituto Politecnico Nacional-Upibi, Mexico*; E Hernández- Sánchez, J Castrejón-Flores,* Instituto politécnico Nacional-UPIBI, Mexico*; J Velazqez,* Instituto Politécnico Nacional-ESIQIE, Mexico*; R Carrera-Espinoza,* Universidad de las Américas Puebla, Mexico*; U Figueroa-López,* Tecnologico de Monterrey, Campus Estado de México, Mexico
10:40am	**INVITED: B5-1-3** Plasma Tailoring for Controlled Compositional and Microstructural Evolution of TiB_2 Coatings from Magnetron Sputtering Techniques and DC Vacuum Arc, ***Johanna Rosen,*** Linköping Univ., IFM, Thin Film Physics Div., Sweden*; N Nedfors, I Zhirkov,* Linköping University, IFM, Thin Film Physics Division, Sweden	**D1-1-3** Effects of Nb and Ti on the Corrosion and Biocompatibility Behavior of Zr-based and Fe-based Thin Film Metallic Glasses, ***Jhong-Bo Wang,*** *Y Yang,* National Taipei University of Technology, Taiwan*; J Lee,* Ming Chi University of Technology, Taiwan
11:00am	Invited talk continues.	**D1-1-4** Tribological Behavior of Nanotubes Grown on Ti-35Nb Alloy by Anodization, *A Luz,* UFPR, Brazil*;* ***Carlos Lepienski,*** Universidade Tecnológica Federal do Paraná, Brazil*; C Siqueira,* Universidade Federal do Paraná, Brazil*; G Souza,* Universidade Estadual de Ponta Grossa, Brazil*; N Kuromoto,* Universidade Federal do Paraná, Brazil
11:20am	**B5-1-5** Development of Novel Gradient C-CrAlSiN Based Cathodic Arc PVD Coatings for High Speed/dry Machining Applications, ***Puneet Chandran,*** *V Krishna,* International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), India*; A VenuGopal,* NIT Warangal, India	**INVITED: D1-1-5** Designing Hydrogels to Enhance Biomedical Implant Performance, ***Stephanie Bryant,*** University of Colorado, Boulder, USA, United States of America
11:40am		Invited talk continues.
12:00pm		**D1-1-7** Fabrication and Properties of Ca, P Containing Coating on Magnesium Alloy by Micro-arc Oxidation, ***Hui Tang,*** University of Electronic Science and Technology of China, China

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E2-1** **Mechanical Properties and Adhesion** **Moderators: Gerhard Dehm**, Max-Planck Institut für Eisenforschung, **Megan Cordill**, Erich Schmid Institute of Materials Science, **Ming-Tzer Lin**, National Chung Hsing University, Taiwan	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F2-1** **HiPIMS, Pulsed Plasmas and Energetic Deposition** **Moderators: Tiberiu Minea**, Université Paris-Sud, **Jon Tomas Gudmundsson**, University of Iceland
10:00am	**INVITED: E2-1-1** In-situ Mechanical Testing of Hierarchical and Gradient Nanostructures, *J Wardini, O Donaldson,* ***Timothy Rupert,*** University of California, Irvine, USA	**F2-1-1** On Recycling in High Power Impulse Sputtering Magnetrons, ***Jon Tomas Gudmundsson,*** University of Iceland, Iceland; *N Brenning, M Raadu,* KTH-Royal Institute of Technology, Sweden; *T Petty, T Minea, D Lundin,* Université Paris–Sud, France
10:20am	Invited talk continues.	**F2-1-2** Electron Density at the Sheath Edge of a HiPIMS Plasma, *A Hecimovic,* ***Julian Held,*** *V Schulz-von der Gathen, W Breilmann, C Maszl, A von Keudell,* Ruhr-Universität Bochum, Germany
10:40am	**E2-1-3** Mechanical Properties of Molybdenum Incorporated β-Ga_2O_3 Nanocrystalline Films for Extreme Environment Applications, ***Anil Krishna Battu,*** *S Manandhar, R Chintalapalle,* University of Texas at El Paso, USA	**F2-1-3** Spatially Resolved Investigation of Transport and Redeposition Processes during HiPIMS by Means of Optical Diagnostics and In-vacuum XPS Analysis of Magnetron Targets, ***Sascha Monje,*** *V Layes, A von Keudell,* Ruhr-University Bochum, Germany; *T de los Arcos,* University Paderborn, Germany; *V Schulz-von der Gathen, C Corbella,* Ruhr-University Bochum, Germany
11:00am	**E2-1-4** Experimental Characterization and Finite Element Simulation of Damage in Thin Hard DLC Coatings, *A Choleridis,* Ecole Nationale Supérieure des Mines de St-Etienne, France; *C Héau, M Leroy,* Institut de Recherche en Ingénierie des Surfaces, Groupe HEF, France; *S Sao-Joao, G Kermouche,* Ecole Nationale Supérieure des Mines de St-Etienne, France; *C Donnet,* Université de Lyon, Université Jean Monnet, France; ***Helmut Klöcker,*** Ecole Nationale Supérieure des Mines de St-Etienne, France	**F2-1-4** Time-resolved Ion Energy and Charge Distributions in Pulsed Cathodic Arc Plasmas of Nb-Al Cathodes in High Vacuum., ***Siegfried Zoehrer,*** Montanuniversität Leoben, Austria; *A Anders,* Lawrence Berkeley National Laboratory, USA, and now at Leibniz Institute of Surface Engineering (IOM), Germany; *R Franz,* Montanuniversität Leoben, Austria
11:20am		**F2-1-5** Investigations on the Substrate Bias Influence on Reactive High Performance Plasmas, *K Bobzin, T Brögelmann, N Kruppe,* ***Martin Engels,*** Surface Engineering Institute - RWTH Aachen University, Germany
11:40am		**F2-1-6** The Impact of a Positive Pulse in HIPIMS Films, ***Jason Hrebik,*** Kurt J. Lesker Company, USA

Surface Engineering - Applied Research and Industrial Applications
Room Sunset - Session G4
Pre-/Post-Treatment and Duplex Technology
Moderators: Hiroshi Tamagaki, NIRO (The New Industry Research Organization), **Wan-Yu Wu**, Da-Yeh University, **Chris Stoessel**, Eastman Chemical Company, Inc., USA

10:00am	**G4-1** Mechanical Pretreatment before Electroplating of Aluminium Alloy AlSi12*, E Uhlmann,* ***Robert Jaczkowski,*** Technische Universität Berlin, Germany	
10:20am	**G4-2** Microstructure Characterization and Mechanical Properties of Gradient AlCrSiN hard Coatings Using Ternary Alloy Targets*, Y Chang,* ***Liang-Chan Chao,*** National Formosa University, Taiwan	
10:40am	**G4-3** Integrated Shot Peening, Plasma Nitriding and Gradient PVD TiAlSiN Coating on AISI H13 Molds for Al Die Casting*,* ***Venice Mascariñas,*** University of the Philippines, Philippines*; D Quinto,* Beta Nanocoating Philippines Inc., Philippines*; A Salvador,* University of the Philippines, Philippines	
11:00am	**G4-4** Effect of Nano-penning Surface Texturing on Self-clean Function*,* ***Nicolas Coniglio,*** Arts et Métiers ParisTech d'Aix-en-Provence, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; S Mezghani,* Arts et Métiers ParisTech de Châlons-en-Champagne, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; M El Mansori,* Arts et Métiers ParisTech d'Aix en Provence, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; J Cabrero,* Saint Gobain, CREE, France	
11:20am	**INVITED: G4-5** Hard Coating and Surface ModificationTechnologies for Piston Ring*,* ***Hideaki Kamiyama,*** Nippon Piston Ring Co., Ltd., Japan	
11:40am	Invited talk continues.	

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B5-2** **Hard and Multifunctional Nanostructured Coatings** **Moderators: Jiri Capek**, University of West Bohemia, **Helmut Riedl**, TU Wien, Institute of Materials Science and Technology	**Coatings for Biomedical and Healthcare Applications** **Room California - Session D1-2** **Surface Coatings and Surface Modifications in Biological Environments** **Moderators: Kerstin Thorwarth**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland, **Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA
1:30pm	**B5-2-1** Mechanical and Optical Properties of Nanoscale Transparent Metal Oxide Multilayers, ***Chelsea Appleget***, *A Hodge,* University of Southern California, USA	**D1-2-1** Optimisation of Antimicrobial Silver Nanocomposite Coatings on Orthopaedic Grade Cobalt Chromium Alloys and the Related Simulator Analyses in Knee Surgery, ***Liuquan Yang***, Wallwork Cambridge Ltd, UK; *L Richards,* MatOrtho Limited, UK; *J Shelton,* Queen Mary University of London, UK; *H Hothi,* University College London, UK; *S Collins,* MatOrtho Limited, UK; *J Housden,* Wallwork Cambridge Ltd, UK; *A Hart,* University College London, UK; *L Espitalier,* Wallwork Cambridge Ltd, UK
1:50pm	**B5-2-2** Structure and Properties of Nanocluster Composite Arc Coatings for Hot Die Forging, ***Marcus Morstein***, *T Schär, J Wehrs,* PLATIT AG Advanced Coating Systems, Switzerland; *M Colliander,* Chalmers University of Technology, Sweden; *J Best,* University of New South Wales, Australia; *M Polyakov, J Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**D1-2-2** Structure and Properties of Novel Hydrophobic Cr-Ag Antibacterial Coatings Deposited by Closed-field Unbalanced Magnetron Sputtering, ***MohammadSharear Kabir***, University of New South Wales, Australia; *A Karami,* University of Adelaide, Australia; *P Munroe,* University of New South Wales, Australia; *Z Zhou,* City University of Hong Kong, Hong Kong; *Z Xie,* University of Adelaide, Australia
2:10pm	**B5-2-3** New Insights in High Temperature Properties and Oxidation Behaviour of $AlCrSi_xN$ Coatings, ***Nikolaus Jäger***, *S Klima, M Meindlhumer,* Montanuniversität Leoben, Austria; *H Hruby,* eifeler-Vacotec GmbH, Germany; *C Mitterer, J Keckes, R Daniel,* Montanuniversität Leoben, Austria	**D1-2-3** Thin Film Metallic Glass : A Lubricated Coating on Medical Needle for Reducing Fracture Toughness and Damage of Phantom Materials, ***Berhane Gebru***, *J Chu, C Yu,* National Taiwan University of Science and Technology (NTUST), Taiwan
2:30pm	**B5-2-4** Magnetron Sputtered High-temperature Hf-B-Si-X-C-N (X = Y, Ho, Mo) Films with Controlled Optical Transparency and Electrical Conductivity, ***Michal Prochazka***, *V Simova, J Vlček, M Kotrlova, R Čerstvý, J Houska,* University of West Bohemia, Czech Republic	**D1-2-4** Biocompatibility and Antimicrobial Performance of a Durable Super-hydrophobic Surface Modified Stainless Steel, ***Cheng-Wei Lin***, Feng Chia University; Central Taiwan University of Science and Technology, Taiwan; *C Chou,* Taichung Veterans General Hospital; National Yang-Ming University, Taiwan; *C Chung,* Central Taiwan University of Science and Technology, Taiwan; *J He,* Feng Chia University, Taiwan
2:50pm	**INVITED: B5-2-5** Holistic Design of Multifunctional Nitrides, Oxides, and Oxynitrides, ***Denis Music***, *J Schneider,* RWTH Aachen University, Germany	**D1-2-5** Immobilization of Carboxylic Acid Groups on Polymeric Substrates by Plasma-enhanced Chemical Vapor or Atmospheric Pressure Plasma Deposition of Acetic Acid, ***Wei-Yu Chen***, *A Matthews,* University of Manchester, UK; *F Jones,* University of Sheffield, UK; *K Chen,* Tatung University, Taiwan
3:10pm	Invited talk continues.	**D1-2-6** Coatings Deposition by RF Magnetron Sputtering of Loosely Packed Hydroxyapatite Powder Target, ***Laurynas Lukosevicius***, The University of Manchester, UK; *S Mráz, J Schneider,* RWTH Aachen University, Germany; *A Matthews,* The University of Manchester, UK
3:30pm	**B5-2-7** Improved Mechanical Properties and Thermal Stability of Ti-Al-N through Alloying with La-borides, ***Hidetoshi Asanuma***, Mitsubishi Materials Corporation, Austria; *P Polcik, S Kolozsvári,* Plansee Composite Materials GmbH, Germany; *F Klimashin, H Riedl, P Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**INVITED: D1-2-7** Advanced Medical Biosensing Systems with Soft/Stretchable Materials and Assemblies, *J Rogers,* ***Roozbeh Ghaffari***, Northwestern University, USA
3:50pm	**B5-2-8** Thermal Evolution of Nanometallic Multilayers, ***J. Sebastian Riano Z.***, *A Hodge,* University of Southern California, USA	Invited talk continues.
4:10pm	**B5-2-9** Nanostructured TiAlN/TaN Multilayer Coatings Deposited by DC Magnetron Sputtering: Effect of Bilayer Period, ***Elbert Contreras***, *M Gómez,* Universidad de Antioquia, Colombia	**D1-2-9** Cyclic Voltammetry Study of Electrolytic Plasma Processing of Porous Ti, *M Shbeh,* University of Sheffield, UK; ***Aleksey Yerokhin***, University of Manchester, UK; *R Goodall,* University of Sheffield, UK
4:30pm	**B5-2-10** The Relationship between Mechanical Property and Phase Composition of Cr-Al-C Coating, ***Jingzhou Liu***, *P Ke, A Wang,* Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China	**D1-2-10** Corrosion and Degradation Behavior of dahp pre-treated PCL Composite Coatings on Pure Magnesium, ***Yuyun Yang***, Institute for Corrosion Science and Surface Technology, China; *K Zheng,* Institute of Biomaterials, Germany; *G Jin, X Cui,* Institute for Corrosion Science and Surface Technology, China; *S Virtanen,* Institute for Surface Science and Corrosion, Germany; *A Boccaccini,* Institute of Biomaterials, Germany
4:50pm	**B5-2-11** Microstructure and Mechanical Properties of Ta-Si-N Coatings Prepared by Reactive Magnetron Sputtering, ***Anna Zaman***, *Y Shen, E Meletis,* University of Texas at Arlington, USA	
5:10pm	**B5-2-12** Five Typical Mistakes during the Nanoindentation of Coatings, ***Esteban Broitman***, SKF Engineering and Research Centre, Netherlands	

Monday Afternoon, April 23, 2018

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E2-2** **Mechanical Properties and Adhesion** **Moderators: Gerhard Dehm**, Max-Planck Institut für Eisenforschung, **Megan Cordill**, Erich Schmid Institute of Materials Science, **Ming-Tzer Lin**, National Chung Hsing University, Taiwan	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F2-2** **HiPIMS, Pulsed Plasmas and Energetic Deposition** **Moderators: Tiberiu Minea**, Université Paris-Sud, **Jon Tomas Gudmundsson**, University of Iceland
1:30pm	**E2-2-1** Controlling the Chemomechanical Effects in Sapphire by Ion-implantation, ***Steve Bull,*** *A Yadav,* Newcastle University, UK	**F2-2-1** Effect of Bias Voltage during Deposition by Deep Oscillation Magnetron Sputtering of AlN Films for Acoustic Biosensors, *L Melo-Máximo,* ITESM-CEM, Mexico*; J Lin,* Southwest Research Institute, USA*;* ***AbrilErendira Murillo****, O Salas, J Oliva-Ramírez, J Oseguera, B Garcia-Farrera,* ITESM-CEM, Mexico*; D Melo-Máximo,* Tecnológico de Monterrey-Campus Estado de México, Mexico
1:50pm	**E2-2-2** Magnetron Sputtering of Refractory Metal Thin Films on NiTi Shape Memory Alloy Sheets, ***Fabian Seifried,*** Karlsruhe Institute of Technology (KIT), Germany*; H Riedl,* Technische Universität Wien, Austria*; S Baumgaertner, H Leiste, R Schwaiger, S Ulrich, H Seifert,* Karlsruhe Institute of Technology (KIT), Germany*; P Mayrhofer,* Technische Universität Wien, Austria*; M Stüber,* Karlsruhe Institute of Technology (KIT), Germany	**F2-2-2** Modification of Niobium Surface Properties by High-temperature Nitrogen Plasma based Ion Implantation Aiming Aerospace Applications, ***Rogerio Oliveira****, O Aguiar,* National Institute for Space Research - INPE, Brazil*; A Oliveira,* Federal University of São Paulo, Brazil*; L Hoshida,* Plasma Laboratory, Brazil*; M Araujo, M Silva, C Mello, E Ferreira,* National Institute for Space Research - INPE, Brazil*; V Liccardo,* Aeronautical Institute of Technology, Brazil
2:10pm	**INVITED: E2-2-3** Quantitative *In Situ* SEM MEMS High Cycle Fatigue: the Critical Role of Oxygen on the Nanoscale-Void-Driven Nucleation and Propagation of Small Cracks in Ni Microbeams, *A Barrios Santos, S Gupta,* Georgia Institute of Technology, USA*; G Castelluccio,* Cranfield University, UK*;* ***Olivier Pierron,*** Georgia Institute of Technology, USA	**F2-2-3** High-Power Impulse Magnetron Sputtering Coatings for Extreme Environments, ***Frédéric Schuster,*** CEA, France*; A Ferrec,* Institut des Matériaux Jean Rouxel (IMN), Université de Nantes, CNRS, France*; J Wang,* Nanyang Technological University, Singapore*; M Ougier,* CEA, France*; A Quenardel,* Institut des Matériaux Jean Rouxel (IMN), Université de Nantes, CNRS, France*; M Sall, M Schlegel, F Lomello, A Michau, H Maskrot, F Balbaud,* CEA, France
2:30pm	Invited talk continues.	**F2-2-4** Reactive High-power Impulse Magnetron Sputtering of Al-O-N Films with Tunable Composition and Properties, ***Jaroslav Vlček****, A Belosludtsev, J Houska, R Čerstvý, S Haviar,* University of West Bohemia, Czech Republic
2:50pm	**E2-2-5** Role of Microstructure on the Interface Stability of Copper Thin Films on Brittle Substrates, ***Alice Lassnig,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; V Terziyska,* Montanuniversität Leoben, Austria*; C Gammer,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; D Kiener, C Mitterer,* Montanuniversität Leoben, Austria*; M Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria	**F2-2-5** Fabrication of Ti BC N Coatings using a Superimposed HiPIMS and MF Deposition System, ***Yu-Wen Su****, J Lee,* Ming Chi University of Technology, Taiwan
3:10pm	**E2-2-6** Mechanical Reliability of Barrier Films for Flexible Electronics, ***Kyungjin Kim****, H Luo, T Zhu, S Graham, O Pierron,* Georgia Institute of Technology, USA	**F2-2-6** Effect of Peak Current on the Ti-Cu Thin Film Deposition by High Power Impulse Magnetron Sputter Deposition, ***Ying-Chai Chen****, Y Lin,* National Changhua University of Education, Taiwan*; W Wu,* Da-Yeh University, Taiwan
3:30pm	**E2-2-7** Molecularly Grafted, Structurally Integrated Multifunctional Polymer Thin Films with Improved Adhesion, *A Lassnig,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; P Smith,* Carnegie Mellon University, USA*; M Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*;* ***B.Reeja Jayan,*** Carnegie Mellon University, USA	**F2-2-7** Deposition of Ag-Cu Thin Film on Flexible Substrate using High Power Impulse Magnetron Sputtering, ***Yu-Hsuan Hsu****, W Wu,* Da-Yeh University, Taiwan
3:50pm	**E2-2-8** Thin-film Adhesion Characterization by Colored Picosecond Acoustics, ***Arnaud Devos,*** IEMN UMR CNRS 8520 / MENAPiC, France*; P Emery,* MENAPiC, 41 Bd Vauban, France	**F2-2-8** Preparation of Anatase TiO_2 Thin Films by Reactive HiPIMS, *F Cemin,* Université Paris-Sud, France*; J Keraudy,* Linköping University, Sweden*; T Minea,* Université Paris-Sud, France*;* ***Daniel Lundin,*** Université Paris-Sud/CNRS, France
4:10pm	**E2-2-9** Imaging Thin Film Adhesion with Picosecond Ultrasonics, ***Allaoua Abbas****, X Tridon, J Michelon,* Neta, France	**INVITED: F2-2-9** Vapor Phase Nanoparticle Synthesis, Guiding and Self-assembly, ***Ulf Helmersson,*** Linköping University, Sweden
4:30pm	**E2-2-10** Mechanical Property Evaluation of Zr-Ti- Fe Thin Film Metallic Glasses, ***Yi-Jie Liao,*** Ming Chi University of Technology, Taiwan*; D Tseng, T Wu, M Lin,* National Chung Hsing University, Taiwan*; J Lee,* Ming Chi University of Technology, Taiwan	Invited talk continues.
4:50pm	**E2-2-11** Mechanical Properties Measurement of Submicron Ti-Ni Shape Memory Alloys Thin Films, *T Wu,* ***Ming-Tzer Lin,*** National Chung Hsing University, Taiwan*; T Chen,* Chaoyang University of Technology, Taiwan*; T Lin,* National Chung Hsing University, Taiwan	

Monday Afternoon, April 23, 2018

	Surface Engineering - Applied Research and Industrial Applications **Room Sunset - Session G3** **Innovative Surface Engineering for Advanced Cutting and Forming Tool Applications** **Moderators: Heidrun Klostermann**, Fraunhofer FEP, **Holger Gerdes**, Fraunhofer Institute for Surface Engineering and Thin Films IST, **Mirjam Arndt**, OC Oerlikon Balzers AG, Liechtenstein	**Topical Symposia** **Room Sunrise - Session TS4** **Materials Modeling and Simulation** **Moderators: Thomas Mussenbrock**, BTU Cottbus, **David Holec**, Montanuniversität Leoben, Austria
1:30pm	**INVITED: G3-1** On the Synergies Between Coating and Tool Material Substrate: A Strategy to Optimize Coated Tools Performance in Cold Forming, *D Casellas,* Fundació CTM Centre Tecnològic, Spain*; A Mueller,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*;* ***Giselle Ramirez****, M Vilaseca,* Fundació CTM Centre Tecnològic, Spain	**INVITED: TS4-1** From the Atomic Interaction to Thermodynamic and Mechanical Properties of Materials, ***Ralf Drautz****,* Ruhr-Universität Bochum, Germany
1:50pm	Invited talk continues.	Invited talk continues.
2:10pm	**G3-3** Deposition of ta-C Coating by Arc Ion Plating for Machining of Al Alloys, ***Yoshiyuki Isomura****, T Takahashi, S Kujime,* Kobe Steel, Ltd., Japan	**TS4-3** Molecular Dynamics Study of Titanium Oxynitride Surface Properties, ***Tobias Gergs****, J Trieschmann,* Ruhr University Bochum, Germany*; T Mussenbrock,* BTU Cottbus, Germany
2:30pm	**G3-4** Laser Structured High Performance PVD Coatings for Injection Molds*, K Bobzin, T Brögelmann, N Kruppe,* ***Mona Naderi****,* Surface Engineering Institute - RWTH Aachen University, Germany	**TS4-4** Distribution of O Atoms on Partially Oxidized Metal Surfaces According to Ab-initio Calculations, and the Consequences for Sputtering of Individual Metal Oxides, ***Jiri Houska****, T Kozak,* University of West Bohemia, Czech Republic
2:50pm	**G3-5** Effect of Layer Sequence on Wear Behavior of AlTiSiN Hard Coatings, ***Joern Kohlscheen****, C Bareiss,* Kennametal GmbH, Germany*; C Charlton, D Banerjee,* Kennametal Inc., USA	**TS4-5** First-principles Study of Adsorption and Diffusion of Oxygen on the Surface of TiN, ZrN, HfN and the Effect of Al on Oxidation Resistance of TiN Coatings, ***Fangyu Guo****,* Central South University, China
3:10pm	**G3-6** Structural, Mechanical, and Cutting Properties of AlCrN Coatings Deposited by Arc Ion Plating, *N Ohba, T Takahashi,* ***Susumu Kujime****,* Kobe Steel, Ltd., Japan	**TS4-6** Metastable Phase Formation of Pt-X (X= Ir, Au) Thin Films, ***Aparna Saksena****, Y Chien, K Chang, P Kuemmerl, M Hans,* RWTH Aachen University, Germany*; B Völker,* Max-Planck-Institut für Eisenforschung GmbH, Austria*; J Schneider,* RWTH Aachen University, Germany
3:30pm	**G3-7** Physical Properties and Cutting Performances Relation to Coating Conditions of AlCrN Coating Deposited by HiPIMS and Cathodic Arc, ***Keizo Tanaka****, S Imamura, M Setoyama, H Fukui,* Sumitomo Electric Hardmetal Corp., Japan	**INVITED: TS4-7** From Plasmas Towards Surfaces: How Plasma Simulation Supports Materials Development, ***Mark J. Kushner****,* University of Michigan, USA
3:50pm		Invited talk continues.
4:10pm		**TS4-9** Numerical Estimation of Intrinsic Stress in Physical Vapor Deposited Thin-Films, ***Anurag Chakraborty****, R Anderson, J Ash,* South Dakota School of Mines and Technology, USA*; F Kustas,* Arbegast Materials Processing and Joining Laboratory (AMP), USA*; S Ahrenkiel,* South Dakota School of Mines and Technology, USA
4:30pm		**TS4-10** Modeling of UHMWPE Surface Texture for Reducing Wear on a Knee Prosthesis, ***Tomas De la Mora Ramírez****,* Universidad Autónoma Metropolitana, Mexico*; I Hilerio Cruz,* Universidad Autónoma Metropolitana-Azcapotzalco, Mexico*; M Doñu Ruiz,* Universidad Politécnica del Valle de Mexico, Mexico*; N Lopez Perrusquia,* Universidad Politecnica Del Valle De Mexico, Mexico*; E García Bustos,* Universidad de Guadalajara, CUCEI, Mexico, México*; D Maldonado Onofre,* Tecnológico de Estudios Superiores de Jocotitlán, Mexico
4:50pm	**INVITED: G3-11** Nanoscale Multilayer PVD Coatings to Serve in Demanding Environments, ***Papken Hovsepian****, A Ehiasarian,* Sheffield Hallam University, UK	**TS4-11** Perturbation Analysis Of Glassy Alloy Film Formation, ***Rahul Basu****,* Adarsha Insitute of Technology, VTU, India
5:10pm	Invited talk continues.	**TS4-12** First Principles Study of the Nb-Al Intermetallic System, ***David Holec****,* Montanuniversität Leoben, Austria*; N Koutna,* TU Wien, Institute of Materials Science and Technology, Austria*; K Preininger, S Zoehrer, R Franz,* Montanuniversität Leoben, Austria

Topical Symposia
Room Royal Palm 1-3 - Session TS5
Anti- and De-icing Surface Engineering
Moderators: Alina Agüero Bruna, Instituto Nacional de Técnica Aeroespacial (INTA), **Jolanta Klemberg-Sapieha**, Polytechnique Montréal

1:30pm	**TS5-1** Multi-step Modification of TI-Alloy and Stainless Steel Surfaces for Icephobic Applications, ***Stephen Brown***, *J Lengaigne, A Riera, L Martinu, J Klemberg-Sapieha,* Polytechnique Montreal, Canada	
1:50pm	**TS5-2** Design and Characterization of Super-low Ice Adhesion Surfaces, ***Zhiliang Zhang***, Norwegian University of Science and Technology (NTNU), Norway	
2:10pm	**TS5-3** Icephobic Nanocomposites for Aeronautics, *F Martín,* ***Silvia Larumbe***, *M Monteserin, G Garcia Fuentes,* Asociación de Industria Navarra, Spain*; J Mora Nogues, P García Gallego, A Agüero Bruna, R Atienza,* INTA, Spain	
2:30pm	**TS5-4** Development of Hydrophobic/icephobic Poly (Dimethylsiloxane) Based Composite Coating for Application in Ice Protection, ***Junpeng Liu***, *J Wang,* University of Nottingham, UK*; H Memon,* University of nottingham, UK*; T Barman, B Turnbull, K Choi, X Hou,* University of Nottingham, UK	
2:50pm	**TS5-5** Correlation Between Room Temperature Characteristics and Ice Adhesion, ***Jianying He***, Norwegian University of Science and Technology (NTNU), Norway	
3:10pm	**TS5-6** Impact Dynamics and Icing Behavior of Supercooled Water Microdroplets on Surfaces of Different Wettabilities Ranging from Superhydrophilic to Superhydrophobic, ***Jacques Lengaigne***, Polytechnique Montreal, Canada*; E Bousser,* Polytechnique Montreal, UK*; A Riera,* Polytechnique Montreal, Canada*; D Batory,* Lodz University of Technology, Poland*; S Brown,* Polytechnique Montreal, Canada*; A Dolatabadi,* Concordia University, Canada*; L Martinu, J Klemberg-Sapieha,* Polytechnique Montreal, Canada	
3:30pm	**TS5-7** Quasicrytalline Coatings by HVOF to Improve the Ice Accretion and Durability in Aerostructures Components, *R Muelas Gamo,* ***Julio Mora Nogues***, *P García Gallego, A Agüero Bruna,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain	

Special Interest Talk
Room San Diego - Session SIT
Special Interest Talk

5:45pm **SIT-1** Tracing the Recorded History of Thin-Film Sputter Deposition: from the 1800s to 2018*,* ***Joe Greene****,* University of Illinois at Urbana-Champaign, USA

Special Events Tuesday

Special Events Tuesday

7:30 AM	Conference Registration/Atlas Foyer
8:00 AM	Technical Sessions/See Room Matrix
8:30 AM	Short Course/TBA
11:00 AM	Exhibition Keynote Lecture/Town & Country
12:00 PM	Exhibition/Grand Hall
12:15 PM	Exhibits Light Luncheon Refreshments/Grand Hall
5:30 PM	Exhibition Reception/Grand Hall

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B2-1** **CVD Coatings and Technologies** **Moderators: Michel Pons**, University Grenoble Alpes, SIMAP, CNRS, **Makoto Kambara**, The University of Tokyo	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B1-1** **PVD Coatings and Technologies** **Moderators: Joerg Vetter**, Oerlikon Balzers Coating Germany GmbH, **Qi Yang**, National Research Council of Canada, **Jyh-Ming Ting**, National Cheng Kung University
8:00am	**B2-1-1** Microstructure Investigation on CVD $Ti_{1-x}Al_xN$ Hard Coatings, ***Ren Qiu**, O Bäcke, M Hassine, M Halvarsson,* Chalmers University of Technology, Sweden*; D Stiens, T Manns, J Kümmel, V Janssen,* Walter AG, Germany	**INVITED: B1-1-1** Boon and Bane of Internal Interfaces and Microstructure Defects, ***David Rafaja**,* TU Bergakademie Freiberg, Germany
8:20am	**B2-1-2** Elaboration and Characterization of (TI,AL)N Coatings Deposited by Thermal CVD for Protection in Severe In-service Conditions, ***Florent Uny**, S Achache, S Lamri, G Raine,* Nogent International Center for CVD Innovation, LRC CEA-ICD LASMIS UMR6281, UTT, Antenne de Nogent, France*; Z Dong,* Nanyang Technological University, Singapore*; M Pons, E Blanquet,* Université Grenoble Alpes, CNRS, Grenoble INP, SIMaP, France*; F Schuster,* Commisariat à l'Energie Atomique et aux énergies alternatives (CEA) Saclay - Nogent International Center for CVD Innovation, France*; F Sanchette,* Nogent International Center for CVD Innovation, LRC CEA-ICD LASMIS UMR6281, UTT, Antenne de Nogent, France	Invited talk continues.
8:40am	**INVITED: B2-1-3** Investigation of CVD-AlTiN Films with High Al Content, ***Kenichi Sato**, S Tatsuoka, K Yanagisawa, T Ishigaki, K Yamaguchi,* Mitsubishi Materials Corporation, Japan	**B1-1-3** The Material (in) Dependency of Impurity Affected Thin Film Growth, *F Cougnon, D Altangerel, R Dedoncker,* ***Diederik Depla**,* Ghent University, Belgium
9:00am	Invited talk continues.	**B1-1-4** Stress in Sputtered Metal Thin Films: Dependence on Growth Rate and Pressure, *T Kaub,* University of Alabama, USA*; Z Rao,* Brown University, USA*; G Thompson,* University of Alabama, USA*;* ***Eric Chason**,* Brown University, USA
9:20am	**B2-1-5** Microstructural Investigation of CVD Titanium Aluminium Nitride – Kappa Alumina Coatings, ***Olof Bäcke**, M Halvarsson, H Petersson,* Chalmers University of Technology, Sweden*; D Stiens, T Manns, J Kümmel,* Walter AG, Germany	**B1-1-5** Improved Ionization Fraction and Film Quality Using a Serpentine Linear Magnetron and a Modified HiPIMS Waveform, ***Ian Haehnlein**, B Wu, I Schelkanov,* University of Illinois at Urbana-Champaign, USA*; J McLain,* Starfire Industries LLC, USA*; D Patel,* University of Illinois at Urbana-Champaign, USA*; B Jurczyk,* Starfire Industries LLC, USA*; D Ruzic,* University of Illinois at Urbana-Champaign, USA
9:40am	**B2-1-6** Deep Electron Microscopy Investigation of $Ti_{1-x}Al_xN$/TiCN Multilayer CVD Coatings, ***Mohamed Ben Hassine**, O Bäcke,* Chalmers University of Technology, Sweden*; D Stiens, T Manns, J Kümmel, W Janssen,* Walter AG, Germany*; M Halvarsson,* Chalmers University of Technology, Sweden	**B1-1-6** Microstructural, Mechanical and Erosion Properties of Cylindrical Magnetrons Sputter Deposited TiSiCN, TiAlVN and TiAlVSiCN Coatings on Inner Surface of Cylinder, ***Ronghua Wei**, E Langa, J Lin,* Southwest Research Institute, USA*; W Zhao, L Li,* Beijing Sanju Enviro. Protect. & New Matls., China
10:00am	**B2-1-7** Some Guidelines for the Determination of Texture Coefficients in CVD α-Al_2O_3 Coatings, ***Rafael Stylianou**, M Tkadletz,* Montanuniversität Leoben, Austria*; M Penoy,* CERATIZIT Luxembourg S.à r.l., Luxembourg*; C Czettl,* CERATIZIT Austria GmbH, Austria*; C Mitterer,* Montanuniversität Leoben, Austria	**B1-1-7** Template Effect on Texture Evolution of VN Thin Films Deposited by Unbalanced Magnetron Sputtering, ***Po-Chi Su**, J Huang, G Yu,* National Tsing Hua University, Taiwan
10:20am	**B2-1-8** Hot Filament CVD Diamond and HIPIMS-Diamond Coating Technology on Cemented Carbide Substrates for Cutting Tool Applications, ***Michael Woda**, W Puetz, M Frank, S Bolz, W Koelker, O Lemmer, T Leyendecker,* CemeCon AG, Germany	**B1-1-8** *IN SITU* High Resolution Stress Measurement Coupled with Interrupted Deposition in Case of Völmer-Weber Thin Film Growth, ***Quentin Herault**, S Grachev, J Wang, I Gozhyk,* Saint-Gobain Recherche, France*; R Lazzari,* Université Pierre et Marie Curie, France
10:40am		**B1-1-9** High-Frequency Properties of Soft Ferromagnetic Films on Cemented Carbide Substrates an Approach for Sensor Applications, ***Stefan Beirle**, K Seemann, H Leiste, S Ulrich,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany

Room Royal Palm 1-3

8:00am **INVITED: D2-1** Magnetic Abrasive Finishing of Additively Manufactured Components for Biomedical Applications, ***Hitomi Yamaguchi,*** University of Florida, USA

8:20am Invited talk continues.

8:40am **D2-3** Investigating Some New Coatings to Improve the Modular Junction of Total Hip Prostheses, *S Ehsani-Majd,* Mines Saint-Etienne, France*; V Fridrici,* Ecole centrale de Lyon, LTDS, France*; C Desrayaud,* Mines Saint-Etienne, France*; P Kapsa,* Ecole centrale de Lyon, LTDS, France*; A Boyer,* ***Jean Geringer,*** Mines Saint-Etienne, France

9:00am **D2-4** Tribological Coatings on Titanium Alloy (Ti6Al4V) for Orthopedic Applications., ***Kai-yuan Cheng,*** University of Illinois at Chicago, USA*; N Pagan,* Auburn High School, USA*; M McNallan,* University of Illinois at Chicago, USA*; D Bijukumar, M Mathew,* University of Illinois College of Medicine, USA

Coatings for Biomedical and Healthcare Applications
Session D2
Bio-corrosion, Bio-tribology, and Bio-tribocorrosion
Moderators: Anna Igual Munoz, Universitat Politècnica de València UPV, **Steve Bull**, Newcastle University, **Nuria Espallargas**, Norwegian University of Science and Technology (NTNU)

9:20am **INVITED: D3-5** Osteochondral Tissue Regeneration into Porous PCL Scaffolds With and Without Chitosan Coatings of 98% or 80% Degree of Deacetylation, ***Caroline Hoemann,*** George Mason University, USA*; J Guzmán-Morales, G Chen, J Rodriguez-Gonzales, E Jalali Dil, B Favis,* Ecole Polytechnique de Montreal, Canada*; J Henderson,* McGill University, Canada

9:40am Invited talk continues.

10:00am **D3-7** Vancomycin-Phosphatidylcholine Spray Coatings for Delivery of Antimicrobials from Implants, ***Rukhsana Awais,*** *B Barr, R Gopalakrishnan, J Jennings,* University of Memphis, USA

Coatings for Biomedical and Healthcare Applications
Session D3
Medical Devices, Biosensors, and Biodegradation
Moderators: Jessica Jennings, University of Memphis, USA, **Robin Pourzal**, Rush University Medical Center

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E1-1** **Friction, Wear, Lubrication Effects, and Modeling** **Moderators: Albano Cavaleiro**, University of Coimbra, **Carsten Gachot**, Vienna University of Technology, **Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F2-3** **HiPIMS, Pulsed Plasmas and Energetic Deposition** **Moderators: Tiberiu Minea**, Université Paris-Sud, **Jon Tomas Gudmundsson**, University of Iceland
8:00am	**E1-1-1** Tribologically Induced Oxidation of High-purity Copper as a Function of Sliding Distance*, C Greiner, S Becker,* ***Christian Haug,*** Karlsruhe Institute of Technology (KIT), Germany	**F2-3-1** Ultra-thick CrN/AlN Superlattice Coatings Deposited by a Combination of Plasma Enhanced Magnetron Sputtering and High Power Impulse Magnetron Sputtering*,* ***Jianliang Lin****, R Wei,* Southwest Research Institute, USA
8:20am	**E1-1-2** Investigation on the Reason for Low Friction between Diamond-like Carbon Coating and Ti-6Al-4V under Fretting Conditions*,* ***Haohao Ding****, V Fridrici, P Kapsa,* Ecole centrale de Lyon, LTDS, France	**F2-3-2** Deposition of DLC Coatings by HIPIMS to Arc Mixed Mode*,* ***Holger Gerdes****, R Bandorf, J Rösler, M Vergöhl, G Braeuer,* Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany
8:40am	**E1-1-3** Tribological and Wettability Evaluation of Magnetron Sputtered WS-C/F Coatings*,* ***Simone Pereira Rodrigues****,* University of Coimbra, Portugal*; S Carvalho,* University of Minho, Portugal*; A Cavaleiro,* University of Coimbra, Portugal	**F2-3-3** Performance Improvements of Tungsten and Zinc Doped Indium Oxide Thin Film Transistor by Fluorine Based Mixing Plasma Treatment with a High-K Gate Dielectric*,* ***Yu-Chuan Chiu****, P Liu, D Ruan, M Yu, K Gan, T Chien, Y Chen, P Kuo, S Sze,* National Chiao Tung University, Taiwan
9:00am	**E1-1-4** Tribological Properties and Oxidation Resistance of WN_x Thin Films at High Temperatures up to 500°C*,* ***Daniel Javdošňák****, J Musil, Z Soukup, R Čerstvý, S Haviar, J Houska,* University of West Bohemia, Czech Republic	**F2-3-4** Effect Of Craters Formation On Deep Hardening Under Pulsed Electron Beam Treatment*,* ***Thierry Grosdidier****,* LABoratoied'ExcellenceDesign des Alliages Métalliques pour Allègement de Structures (Labex DAMAS), France*; Y Samih,* Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux (LEM3), France*; C Dong,* Key Laboratory of Materials Modification, Dalian University of Technology, China
9:20am	**E1-1-5** Correlation between Evolution of Roughness Parameters and Micropitting of Carburized Steel Surfaces under Boundary Lubrication Condition*,* ***Sougata Roy****, D White, S Sundararajan,* Iowa State University, USA	**F2-3-5** Mechanical Property Evaluation of ZrCN Films Deposited by a Hybrid Superimposed High Power Impulse- Middle Frequency Sputtering System*, Q Tang, Y Wu,* National Taipei University of Technology, Taiwan*;* ***Jyh-Wei Lee****,* Ming Chi University of Technology, Taiwan
9:40am	**E1-1-6** The Influence of Temperature on the Wear Mechanisms of a Cobalt-based Alloy Contact Subjected to Fretting: from an Abrasive Tribo-oxydation Process to the Glaze Layer Response*,* ***Alixe Dreano****, S Fouvry, G Guillonneau,* LTDS - Ecole Centrale de Lyon, France	
10:00am	**INVITED: E1-1-7** Coated Surface Wear Resistance Design by Comutational Modelling*,* ***Kenneth Holmberg****, A Laukkanen, T Hakala,* VTT Technical Research Centre of Finland Ltd, Finland	
10:20am	Invited talk continues.	
10:40am	**E1-1-9** Room and Elevated Temperature Sliding Wear Behavior and Mechanisms of a Cold Sprayed Ni-WC Composite Coating*,* ***Tyler Torgerson****, M Harris,* University of North Texas, USA*; S Alidokht,* McGill University, Canada*; T Scharf, S Aouadi,* University of North Texas, USA*; R Chromik,* McGill University, Canada*; J Zabinski,* Army Research Laboratory, USA*; A Voevodin,* University of North Texas, USA	

Tuesday Morning, April 24, 2018

	Topical Symposia **Room Sunrise - Session TS3** **Coating of Synthetic Materials – Engineering for the Future** **Moderators: Klaus Böbel**, Bosch GmbH, **Fred Fietzke**, Fraunhofer FEP	**Surface Engineering - Applied Research and Industrial Applications** **Room Sunset - Session G2** **Component Coatings for Automotive, Aerospace, Medical, and Manufacturing Applications** **Moderators: Osman Levent Eryilmaz**, Argonne National Laboratory, USA, **Jolanta Klemberg-Sapieha**, Polytechnique Montréal
8:00am	**TS3-1** Development of PVD Coatings by R2R on Basis of TI/AG, TI/ZN and TI/AG/ZN on Textile Fabrics, ***Martin Fenker,*** *H Kappl,* FEM Forschungsinstitut Edelmetalle & Metallchemie, Germany	**G2-1** The Effects of Temperature and Gas Mixture Composition on the Microstructure and Tribological Properties of the Plasma Nitrocarburized DIN 100 CR6 Steel, *M Fontes,* Federal University of Sao Carlos, Brazil*; V Baggio-Scheid,* Sao Jose dos Campos, Brazil*; D Machado,* Tecumseh Products Company, Brazil*; L Casteletti,* University of Sao Paulo, Brazil*;* ***Pedro Nascente,*** Federal University of Sao Carlos, Brazil
8:20am	**TS3-2** Coating of Plastic Components by Electron-beam Evaporation, ***Fred Fietzke,*** *H Klostermann, J Heinß,* Fraunhofer FEP, Germany	**G2-2** Selected Aspects of Industrial Applications of Hydrogen Free DLC Coatings Deposited by CVAE, ***Joerg Vetter,*** Oerlikon Balzers Coating Germany GmbH, Germany*; J Karner,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; J Becker, M Markus,* Oerlikon Balzers Coating Germany GmbH, Germany*; N Beganovic,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; E Billot,* Oerlikon Balzers Coating Germany GmbH, Germany*; H Rudigier,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, Switzerland
8:40am	**INVITED: TS3-3** Aspects of Coatings on Plastic products for Decorative and automotive parts., ***Roel Tietema,*** IHI Hauzer Techno Coating BV, Netherlands*; D Doerwald, C Trivedi, I Kolev, J Landsbergen,* IHI Hauzer Techno Coating B.V., Netherlands	**G2-3** Erosion Resistant PVD Coatings for Gas Turbine Compressor Blades, ***Lin Shang,*** *C Acikgoz,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S Moser, G Szyndelman,* Oerlikon Metco AG, Switzerland*; O Jarry,* Oerlikon Balzers, Oerlikon Balzers Coating Germany GmbH, Germany*; M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein
9:00am	Invited talk continues.	**G2-4** Synthesis and Characterization of Ta-C, Hf-C and Ta-Hf-C Coatings Obtained by Cathodic Magnetron Sputtering in Reactive Conditions, ***Alexis de Monteynard,*** Nogent International Center for CVD Innovation, LRC CEA-ICD LASMIS UMR6281, UTT, Antenne de Nogent, France*; A Billard,* Institut FEMTO-ST, CNRS, UTBM, Univ. Bourgogne Franche-Comté, Site de Montbéliard, France*; F Sanchette,* Nogent International Center for CVD Innovation, LRC CEA-ICD LASMIS UMR6281, UTT, Antenne de Nogent, France
9:20am	**INVITED: TS3-5** Combined Impact and Sliding Testing for Evaluation of Surfaces on Different Materials, ***Claus Rebholz,*** University of Cyprus, Cyprus	**INVITED: G2-5** Thin and Thick Coatings and Applications in Aerospace Industry, ***Satish Dixit,*** Plasma Technology Inc., USA
9:40am	Invited talk continues.	Invited talk continues.
10:00am	**TS3-7** Interfacial Stability of the Aluminium-Polyimide Interface Against Thermal Treatments, ***Barbara Putz,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; G Milassin, Y Butenko,* European Space Research and Technology Centre, Netherlands*; B Völker, C Gammer,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; C Semprimoschnig,* European Space Research and Technology Centre, Netherlands*; M Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Monanuniversität Leoben, Austria	**G2-7** HNT-Containing Ceramic PEO Coatings for Active Corrosion Protection of Magnesium Alloys, *B Mingo,* ***Yue Guo,*** *A Matthews, A Yerokhin,* The University of Manchester, UK

Exhibitors Keynote Lecture
Room Grand Hall - Session EX
Exhibition Keynote Lecture

11:00am	**INVITED: EX-1** Enabling Tomorrow's Transportation Mobility with Surface Technology, ***Nazlim Bagcivan,*** Schaeffler AG, Germany	
11:20am	Invited talk continues.	

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B1-2** **PVD Coatings and Technologies** **Moderators: Joerg Vetter**, Oerlikon Balzers Coating Germany GmbH, **Qi Yang**, National Research Council of Canada, **Jyh-Ming Ting**, National Cheng Kung University	**Hard Coatings and Vapor Deposition Technologies** **Room California - Session B2-2** **CVD Coatings and Technologies** **Moderators: Michel Pons**, University Grenoble Alpes, SIMAP, CNRS, **Makoto Kambara**, The University of Tokyo
1:30pm		
1:50pm		**B2-2-2** Highly Efficient Light trapping by Fractal, MOCVD Processed CoO-based Surfaces on Polymers, *E Amin-Chalhoub, O Debieu, D Samelor,* ***Thomas Duguet****, C Vahlas,* CIRIMAT, CNRS - University of Toulouse, France
2:10pm	**B1-2-3** Impact Analysis of Power Source Operating Parameters on Hardness, Adhesion and Film Composition of TiN Functional Coatings, *K Ruda, W Gajewski,* ***Jakub Świątnicki****, A Oniszczuk,* TRUMPF Huettinger Sp. z o.o., Poland	**B2-2-3** Deposition Kinetics, Gas Phase Analysis and Film Characterization of Silicon Carbide by Low Pressure Chemical Vapor Deposition using Vinyltrichlorosilane and Hydrogen, ***Anthony Desenfant****,* LCTS-University of Bordeaux, France*; G Laduye,* AIR LIQUIDE, Paris-Saclay Research & Development, France*; C Descamps,* Safran Ceramics, France*; G Vignoles, G Chollon,* LCTS-University of Bordeaux, France
2:30pm	**B1-2-4** Substitution of Commercially Coated Tungsten Carbide Tools in Dry Cylindrical Turning Process by HiPIMS Coated Niobium Carbide Cutting Inserts, *E Uhlmann,* ***Daniel Hinzmann****, K Kropidlowski,* Institute for Machine Tools and Factory Management - Technical University Berlin, Germany*; P Meier,* Institute for Machine Tools and Factory Management - Technical University Berlin*; L Prasol,* Institute for Machine Tools and Factory Management - Technical University Berlin, Germany*; M Woydt,* BAM Berlin, Germany	**B2-2-4** Hydrothermal Corrosion Behaviors of CVD Silicon Carbides and Cr-based Alloy Coated CVI SiC_f/SiC Composites, ***Jung Ho Shin****, D Kim, H Lee, J Park, J Park, W Kim,* Korea Atomic Energy Research Institute, Republic of Korea
2:50pm	**INVITED: B1-2-5** Controlled Deposition of Alpha, Beta, and FCC Tantalum Thin Films by Magnetron Sputtering, ***Qiaoqin Yang****, S Shiri,* University of Saskatchewan, Canada	**B2-2-5** Temperature Driven Microstructural Evolution of Nano–lamellar CVD fcc–$Ti_{1-x}Al_xN$, ***Michael Tkadletz****, C Hofer,* Montanuniversität Leoben, Austria*; C Wüstefeld,* Technische Universität Bergakademie Freiberg, Germany*; N Schalk,* Montanuniversität Leoben, Austria*; M Motylenko,* Technische Universität Bergakademie Freiberg, Germany*; D Rafaja,* Technische Universität Bergakademie Freiberg, Gustav-Zeuner-Straße 5, 09599 Freiberg, Germany*; C Giacobbe, C Dejoie,* ESRF, France*; H Holzschuh, W Bürgin,* SuCoTec AG, Switzerland*; B Sartory,* Materials Center Leoben Forschung GmbH (MCL), Austria*; C Mitterer,* Montanuniversität Leoben, Austria*; C Czettl,* CERATIZIT Austria GmbH, Austria
3:10pm	Invited talk continues.	**B2-2-6** Dense, Uniform, Transparent SIO_2/TIO_2 Coatings Derived from a Single Precursor Source of Tetrabutyl Titanate Modified Perhydropolysilazane, ***Zongbo Zhang****,* Institute of Chemistry, Chinese Academy of Science, China*; D Wang,* University of Chinese Academy of Sciences, China*; Y Luo, C Xu,* Institute of Chemistry, Chinese Academy of Sciences, China
3:30pm	**B1-2-7** High Power Impulse Plasma Magnetron Sputtering: Review of Critical Parameters Ensuring Successful Industrialization, *W Gajewski, P Różański, P Lesiuk, P Ozimek,* ***AnnaWiktoria Oniszczuk****,* TRUMPF Huettinger Sp. z o.o., Poland	**B2-2-7** Emerging Photoluminescence in Chemical Vapor Deposition Grown $MoSe_2$/*h*-BN Van der Waals Heterostructure, ***Pramoda K. Nayak****,* Indian Institute of Technology Madras, India*; S Ahn, C Hyun, K Ma, H Shin,* Ulsan National Institute of Science and Technology (UNIST), Republic of Korea
3:50pm	**B1-2-8** Investigation of the Formation of Ni-Ti Intermetallic Layers Produced by Cathodic Arc Electron-metal Ion Treatment, ***Nagihan Sezgin****, E Kacar, K Kazmanli, M Urgen,* Istanbul Technical University, Turkey	**B2-2-8** Innovative Concepts for Advanced CVD Carbide Coatings Grown by Direct Liquid Injection of Metalorganic Precursors, ***Francis Maury****,* CIRIMAT, CNRS - University of Toulouse, France*; A Michau,* CEA Saclay, France*; G Boisselier,* CIRIMAT, France*; F Schuster,* CEA Saclay, France
4:10pm	**B1-2-9** Exploring the High-temperature Stability of Nanocrystalline Cu-W Coatings, ***Yao Du****,* Northwestern University, USA*; L Li,* Northwestern Polytechnical University, China*; J Pureza,* Universidade do Estado de Santa Catarina, Brazil*; Y Chung,* Northwestern University, USA*; K Pradeep, S Sen, J Schneider,* RWTH Aachen University, Germany	**B2-2-9** Computational Fluid Dynamics (CFD) Simulation of CVD Process for $(Ti,Si)_x(C,N)_y$ Coating, ***Lianchang Qiu****,* Central South University, China*; S Wang,* Shijiazhuang Tiedao University, China*; Y Du, Z Zhong,* Central South University, China*; H Shi,* Ganzhou Achteck Tool Technology Co., Ltd., China*; L Albir,* Layyous Consulting Ltd., Israel
4:30pm	**B1-2-10** Governing the Wettability Properties of the Nanostructured Surfaces of Metallic Coatings Fabricated by Thermal Annealing, ***Feras Alzubi****, A Alkandary,* Kuwait Institute for Scientific Research, Kuwait	**B2-2-10** Tribological Evaluation and Behavior of DLC Coatings on Steel in PE-CVD System with TiO_2 Over Layer using ALD Technique, ***Marco A. Ramirez R.,*** Univap, Brazil*; E Saito,* Federal University of São Paulo, Brazil*; N Fukumasu,* University of São Paulo, Brazil

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Sunrise - Session C1** **Optical Metrology in Design, Optimization, and Production of Multifunctional Materials** **Moderators: Nikolas Podraza**, University of Toledo, **Juan Antonio Zapien**, City University of Hong Kong	**Coatings for Biomedical and Healthcare Applications** **Room Royal Palm 1-3 - Session D4** **Biointerfaces: Improving the Cell Adhesion and Avoiding Bacteria Adhesion. What Kinds of Coatings Should be Used?** **Moderators: Marcela Bilek**, The University of Sydney, **Margaret Stack**, University of Strathclyde, **Vincent Fridrici**, Ecole Centrale de Lyon - LTDS
1:30pm		
1:50pm	**C1-2** Design Principles for Binary and Multicomponent Conductive Nitrides for Applications in Electronics Plasmonics and Photonics, ***Panos Patsalas,*** Aristotle University of Thessaloniki, Greece; *N Kalfagiannis,* Nottingham Trent University, UK; *S Kassavetis,* Aristotle University of Thessaloniki, Greece; *G Abadias,* Université de Poitiers, France	
2:10pm	**INVITED: C1-3** Tip Enhanced Optical Microscopy and Spectroscopy Based on Near Field Force Detection – a Review, ***H. Kumar Wickramasinghe,*** University of California, Irvine, USA	**INVITED: D4-3** Titanium Oxide Coatings to Improve Cell Adhesion and Differentiation, *V Garcia-Perez, A Almaguer-Flores,* Universidad Nacional Autónoma de México, Mexico; *R Olivares-Navarrete,* Virginia Commonwealth University, USA; *A Fonseca-Garcia,* ***Sandra Rodil,*** Universidad Nacional Autónoma de México, Mexico
2:30pm	Invited talk continues.	Invited talk continues.
2:50pm	**C1-5** Crystallite Grain Orientation Manipulation through Deposition Flux Angle and Composition in $CdSe_{1-x}Te_x$, ***Dipendra Adhikari,*** *M Junda, C Grice, P Koirala, Y Yan, R Collins, N Podraza,* University of Toledo, USA	**D4-5** Antibacterial Thin Films with Controlled Antibiotics Release Based on Plasma Polymer, ***Vitezslav Stranak,*** *J Kratochvil, D Kahoun, J Sterba, H Langansova, J Lieskovska,* University of South Bohemia, Czech Republic; *J Hanus, J Kousal, A Kuzminova, O Kylian,* Charles University in Prague, Czech Republic
3:10pm	**C1-6** Durable Electrochromic Coating Systems for Advanced Smart Windows and Security Devices, *F Blanchard, B Baloukas, S Loquai, J Klemberg-Sapieha,* ***Ludvik Martinu,*** Polytechnique Montréal, Canada	**D4-6** Development of a Microfluidic Based Multianalyte Biosensor Device for Medical Diagnostics, ***Emma MacHugh,*** Dublin Institute of Technology, Centre for Research in Engineering Surface Technology (CREST), Ireland; *B Duffy, M Oubaha,* Centre for Research in Engineering Surface Technology (CREST), Ireland
3:30pm	**C1-7** From "n" and "k" to Solar Cell Functionality: The Importance of Optical Property Characterization, ***Nikolas Podraza,*** *M Junda, I Subedi, K Ghimire,* University of Toledo, USA	**D4-7** Bactericidal Activity and Cytotoxicity of a Zinc Doped PEO Titanium Coating, ***Luciane Santos,*** Pontificia Universidade Católica do Paraná, Brazil; *K Popat,* Colorado State University, USA; *P Soares,* Pontificia Universidade Católica do Paraná, Brazil
3:50pm	**C1-8** Bipolar Resistive Switching Performance of MoS_2 Based ReRAM Devices using WN as Bottom Electrode for Non-volatile Memory Application, ***Ravi Prakash,*** *S Sharma, D Kaur,* Indian Institute of Technology Roorkee, India	**D4-8** Antibacterial Effects of Titanium Embedded with Silver Nanoparticles Based on Electron-Transfer-Induced Reactive Oxygen Species, ***Guomin Wang,*** *W Jin, A Qasim, A Gao, X Peng, W Li, H Feng, P Chu,* City University of Hong Kong, Hong Kong
4:10pm		**D4-9** Tribocorrosion and Cytotoxicity of FeB-Fe_2B Layers on AISI 316 L Steel, *I Campos-Silva,* Instituto Politecnico Nacional, Surface Engineering Group, Mexico; *M Palomar-Pardavé,* Universidad Autonoma Metropolitana-A, Mexico; *R Perez Pasten-Borja,* Instituto Politecnico Nacional, ENCB Zacatenco, Mexico; *O Kahvecioglu,* Argonne National Laboratory, USA; *D Bravo-Bárcenas,* Universidad Autonoma Metropolitana-A, Mexico; *C López-García,* ***RodolfoYael Reyes-Helguera,*** Instituto Politecnico Nacional, Surface Engineering Group, Mexico
4:30pm		**D4-10** Optical Spectroscopic study for Atmospheric Pressure Plasma by Radio Frequency Power, ***Chuan Li,*** National Yang Ming University, Taiwan; *J Hsieh,* Ming Chi University of Technology, Taiwan; *C Yu,* National Yang Ming University, Taiwan

Tuesday Afternoon, April 24, 2018

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E1-2** **Friction, Wear, Lubrication Effects, and Modeling** **Moderators: Albano Cavaleiro**, University of Coimbra, **Carsten Gachot**, Vienna University of Technology, **Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F1** **Nanomaterials and Nanofabrication** **Moderators: Ulf Helmersson**, Linköping University, **Vitezslav Stranak**, University of South Bohemia
1:30pm		
1:50pm		**F1-2** Kinetic Engineering of Crystal Phases in Core-shell Nanowires: Heteroepitaxial Radial Growth of Wurtzite and Zincblende Structured AlSb Shells on InAs Nanowires, ***Hanna Kindlund***, *R Zamani, A Persson, S Lehmann, R Wallenberg, K Dick,* Lund University, Sweden
2:10pm	**E1-2-3** Physical Mechanisms for Nanoscale Friction of a-C:H/D Thin Films, *F Echeverrigaray, S de Mello,* UCS, Brazil; *F Alvarez,* UNICAMP, Brazil; *A Michels,* ***Carlos Figueroa***, UCS, Brazil	**F1-3** Understanding the Friction of Sub-nanometer Thick Ionic Liquids (Ils), *A Lertola,* ***Lei Li***, University of Pittsburgh, USA
2:30pm	**E1-2-4** Relocation Profilometry of Micro-tribology Experiments of Uncoated and DLC Coated Steel, *M Gee, J Nunn, L Crocker,* National Physical Laboratory, UK; *K Holmberg,* VTT Technical Research Centre of Finland Ltd, Finland; *L Li,* City University of Hong Kong, Hong Kong; *G Stachowiak,* Curtin University, Australia; *C Gachot,* Vienna University of Technology, Austria; ***Tony Fry***, National Physical Laboratory, UK	**F1-4** Facile Synthesis of $MoSe_2$ Nanoplates on Black Phosphorus Nanosheets for Enhanced Hydrogen Evolution Reaction Performance, ***Wan Li***, City University of Hong Kong, Hong Kong; *D Liu, J Wang,* Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China; *M Huang,* City University of Hong Kong, Hong Kong; *N Yang,* Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China; *L Liu,* Peking University Shenzhen Graduate School, China; *X Peng, G Wang,* City University of Hong Kong, Hong Kong; *X Yu,* Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China; *P Chu,* City University of Hong Kong, Hong Kong
2:50pm	**E1-2-5** Microstructural Design of Self-lubricating Laser Claddings for use in High Temperature Sliding Applications, ***Carsten Gachot***, TU Wien, Austria; *M Rodríguez Ripoll, H Torres,* AC²T Research GmbH, Austria; *B Prakash,* Lulea University of Technology, Sweden	**F1-5** Synthesis and Magnetic Properties of $Mn_xZn_yFe_{3-x-y}O_4$ Nanoparticles Prepared using a Co-precipitation Method, ***Kuan-Wei Chen***, *J Ting,* National Cheng Kung University, Taiwan
3:10pm	**E1-2-6** Fretting Wear Behavior of Duplex PEO-Chameleon Coating on an Al Alloy, ***Andrey A. Voevodin***, University of North Texas, USA; *Y Liu,* University of Leeds, UK; *A Yerokhin,* University of Manchester, UK; *A Korenyi-Both,* Tribologix, Inc., USA; *M Lin,* University of Manchester, UK; *J Zabinski,* Army Research Laboratory, USA; *A Matthews,* University of Manchester, UK; *T Liskiewicz,* University of Leeds, UK	**F1-6** Effects of Nano Particles on the Thermal Stability and Scratch Resistances of Epoxy Coatings, ***Mourad Boumaza***, *K Rawaiz,* King Saud University, Saudi Arabia
3:30pm	**INVITED: E1-2-7** Lubricant/Coating Interactions and Their Effect on Tribological Performance: In-situ XAS Analysis of a Dynamic Lubricated Interface, ***Ardian Morina***, University of Leeds, UK	**F1-7** Corrosion Study of Silane-functionalized Graphene Oxide Coatings on Copper, ***Mohsin Ali Raza***, *Z Rehman, F Ghauri,* University of the Punjab, Lahore, Pakistan
3:50pm	Invited talk continues.	**F1-8** Growth of MnO_2 on Carbon Materials for Electrochemical Capacitor, ***Chia-Jung Tu***, *M Wu,* National Changhua University of Education, Taiwan; *W Wu,* Da-Yeh University, Taiwan
4:10pm	**E1-2-9** Friction and Wear Mechanism of MoS_2/C Composite Coatings under Atmospheric Environment, ***Peiling Ke***, *S Cai, A Wang,* Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China	**F1-9** Fabrication of a CMOS Compatible Ferroelectric Tunnel Junction Memory, ***Fabian Ambriz-Vargas***, Énergie, Matériaux et Télécommunications, Canada; *G Kolhatkar,* Institut National De La Recherche Scientifique, Canada; *R Nouar, A Sarkissian,* PLASMIONIQUE Inc, Canada; *M Gauthier, A Ruediger,* Institut National De La Recherche Scientifique, Canada
4:30pm	**E1-2-10** Adhesion and Mechanical Properties of Ti Films Deposited by DC Magnetron Sputtering, ***RobertoCarlos Vega-Morón***, *G Rodríguez-Castro,* Instituto Politecnico Nacional, Surface Engineering Group, Mexico; *D Melo-Máximo,* Tecnológico de Monterrey-Campus Estado de México, Mexico; *J Méndez-Méndez,* Instituto Politécnico Nacional, Mexico; *L Melo-Máximo,* Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico; *J Oseguera,* Tecnológico de Monterrey-Campus Estado de México, Mexico	**F1-10** Polyacrylonitrile Nanofibers Prepared via Electrospinning for High-efficiency PM2.5 Capture Application, ***Kuan-Nien (G.N.) Chen***, Unaffiliated; *J Ting,* National Cheng Kung University, Taiwan
4:50pm	**INVITED: E1-2-11** Tribology of New Surface Modifications for Cold Rolling Mill Rolls, ***Henara Costa***, Universidade Federal do Rio Grande, Brazil; *J Gonçalves Jr., J de Mello,* Universidade Federal de Uberlandia, Brazil	
5:10pm	Invited talk continues.	

Surface Engineering - Applied Research and Industrial Applications
Room Sunset - Session G6
Application-driven Cooperation Between industry and Research Institutions
Moderators: Tobias Brögelmann, Surface Engineering Institute - RWTH Aachen University, **Joern Kohlscheen**, Kennametal GmbH, **S.P. Kumar Yalamanchili**, Oerlikon Balzers, Oerlikon Surface Solutions AG

1:30pm		
1:50pm	**G6-2** Performance Evaluation of Precious Metal Coatings in Precision Glass Molding, ***Marcel Friedrichs****, A Saksena, M Hans,* RWTH Aachen University, Germany*; O Dambon,* Fraunhofer Institute for Production Technology IPT, Germany*; J Schneider, F Klocke,* RWTH Aachen University, Germany	
2:10pm	**G6-3** Plasma-dependent Phase Formation of TiAlN Coatings, ***Anders Eriksson****,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; M Hans, S Mráz, J Schneider,* RWTH Aachen University, Germany*; M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	
2:30pm	**G6-4** Reactive HiPIMS Deposition of Ti-Al-N: How to Adjust the Cubic to Wurtzite Transition, ***Helmut Riedl****, L Zauner, P Ertelthaler,* CDL-AOS at TU Wien, Austria*; T Wojcik,* TU Wien, Institute of Materials Science and Technology, Austria*; H Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S Kolozsvári,* Plansee Composite Materials GmbH, Germany*; P Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	
2:50pm	**G6-5** AlTiN Coatings deposited by HIPIMS: A Study of Mechanical Properties, Tribological and Wear Performance during Machining of Superduplex Stainless Steel*, J Paiva,* ***Edinei Locks****, Y Seid Ahmed, P Stolf, J Dosbaeva,* McMaster University, Canada*; C Bork,* IFSul - Federal Institute Sul-rio-grandense, Brazil*; G Fox-Rabinovich, S Veldhuis,* McMaster University, Canada	
3:10pm	**G6-6** FunMat-II – an Industry-Academia Competence Center for Research on Coating Materials for Advanced Applications, ***Lina Rogström****, M Odén, I Abrikosov, G Greczynski, P Eklund, E Björk,* Linköping University, IFM, Sweden	
3:30pm	**G6-7** Oxygen Diffusion Pathways in High Temperature Oxidation Resistant Ti-Al-N/Mo-Si-B Multilayer Coatings, ***Elias Aschauer****,* CDL-AOS at TU Wien, Austria*; P Felfer,* Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*; M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P Polcik,* Plansee Composite Materials GmbH, Germany*; H Riedl,* CDL-AOS at TU Wien, Austria*; P Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria	
3:50pm	**G6-8** Novel ta-C Coatings with Outstanding Tunable Properties Deposited by Industrially Scaled PLD, ***Martin Hess****,* Fritz Stepper GmbH & Co. KG, Germany*; S Weißmantel, R Bertram,* Hochschule Mittweida, Germany	
4:10pm	**INVITED: G6-9** Application-driven Cooperation Between Industry and Research Institutions: Success Factors, Obstacles and Success Stories, ***Oliver Lemmer****, W Koelker,* CemeCon AG, Germany	
4:30pm	Invited talk continues.	

Special Events Wednesday

Special Events Wednesday

7:30 AM	Conference Registration/Atlas Foyer
8:00 AM	Technical Sessions/See Room Matrix
8:30 AM	Short Courses/TBA
9:30 AM	Breakfast Forum: Exhibitors Only/Grand Hall
10:00 AM	Exhibition/Grand Hall
12:15 PM	Exhibition Light Luncheon Refreshments/Grand Hall
5:45 PM	Awards Convocation/Town & Country
7:30 PM	Awards Buffet Reception/Poolside near Tiki Pavilion

Wednesday Morning, April 25, 2018

	Coatings for Use at High Temperatures **Room Royal Palm 1-3 - Session A2** **Thermal and Environmental Barrier Coatings** **Moderators: Kang Lee**, NASA Glenn Research Center, USA, **Lars-Gunnar Johansson**, Chalmers University of Technology, Sweden, **Pantcho Stoyanov**, Pratt & Whitney, USA	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B1-3** **PVD Coatings and Technologies** **Moderators: Joerg Vetter**, Oerlikon Balzers Coating Germany GmbH, **Qi Yang**, National Research Council of Canada, **Jyh-Ming Ting**, National Cheng Kung University
8:00am	**INVITED: A2-1** Corrosion Degradation of High Temperature Coatings: Similarities and Differences for Marine and Aero-Turbine Applications, ***Daniel Mumm,*** University of California, Irvine, USA	
8:20am	Invited talk continues.	**B1-3-2** High Quality Oxide Films Deposited at Room Temperature by Ion Beam Sputtering, ***Gerard Henein,*** National Institute of Standards and Technology, USA*; J Topolancik,* Roche Sequencing Solutions, USA
8:40am	**A2-3** Evolution of Microstructures and Interfaces in Doped, Layered, and Composite Coatings Exposed to Sand Laden Flows in a Gas Turbine Engine, ***Andy Nieto,*** *M Walock, A Ghoshal, M Murugan,* US Army Research Laboratory, USA*; D Zhu,* NASA Glenn Research Center, USA*; W Gamble, J Swab, B Barnett, M Pepi,* US Army Research Laboratory, USA*; R Pegg, C Rowe,* US Navy Naval Air Systems Command, USA	**INVITED: B1-3-3** van der Waals Oxide Heteroepitaxy, ***Ying-Hao Chu,*** National Chiao Tung University, Taiwan
9:00am	**A2-4** The Effect of HVOF Bond Coating with APS Flash Coating on TBC Performance, ***Michael Lance,*** *J Haynes, B Pint,* Oak Ridge National Laboratory, USA	Invited talk continues.
9:20am	**A2-5** Influence of Process Conditions and Ceramic Doping on the Performances of Advanced TBCs Based on Al Slurry, ***Germain Boissonnet,*** *B Grégoire, J Balamain, G Bonnet, F Pedraza,* University of La Rochelle, France	**B1-3-5** Color Controllable TiO_xN_y Coatings Deposited by Magnetron Sputtering, ***Tun-Yi Chang,*** *J Ting,* National Cheng Kung University, Taiwan
9:40am	**A2-6** Synthesis and Characterization of Combined Oxides and Ni Superalloy Coatings by Cathodic Arc Evaporation for Bond Coat Application, *X Maeder, J Ast,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Döbeli,* ETH Zurich, Switzerland*; K von Allmen, A Neels, A Dommann,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; H Rudigier,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, Switzerland*; B Widrig,* ***Jürgen Ramm,*** Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	**B1-3-6** $SiO_2/Sc_{0.31}Al_{0.69}N/LiNbO_3$ Multilayer Structure for SAW Device Applications, ***Chun-Ting Shen,*** National Cheng Kung University, Taiwan*; S Wu,* Tung-Fang Design University, Taiwan*; J Huang,* National Cheng Kung University, Taiwan
10:00am	**A2-7** Steam Oxidation Behavior of $Yb_2Si_2O_7$-Based Environmental Barrier Coatings, ***Kang Lee,*** NASA Glenn Research Center, USA	**B1-3-7** Self-lubricant CrO-Ag Coatings for Machining Tools, ***Filipe Fernandes,*** University of Minho, Portugal*; A Cavaleiro,* University of Coimbra, Portugal
10:20am	**A2-8** The Fatigue Behavior of TiCrAlTaSiN Coated and Uncoated Titanium Alloys, *B Lerch,* ***Dongming Zhu,*** *S Kalluri,* NASA Glenn Research Center, USA	
10:40am	**A2-9** Crack Propagation Behavior of Thermal Barrier Coatings with Cyclic Thermal Fatigue Tests, ***Dowon Song,*** *T Song,* Hanyang University, Republic of Korea*; H Park, Y Jung,* Changwon National University, Republic of Korea*; J Zhang,* Indiana University Purdue University Indianapolis, USA	

Wednesday Morning, April 25, 2018

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B6** **Coating Design and Architectures** **Moderators: Nina Schalk**, Montanuniversität Leoben, **Shou-Yi Chang**, National Tsing Hua University	**Fundamentals and Technology of Multifunctional Materials and Devices** **Room Sunrise - Session C3** **Thin Films for Energy-related Applications** **Moderator: Per Eklund**, Linköpings Universitet
8:00am	**B6-1** Ab Initio Inspired Design of Ternary Boride Thin Films, ***Vincent Moraes***, *D Holec,* CDL-AOS at TU Wien, Austria; *H Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P Polcik,* Plansee Composite Materials GmbH, Germany; *H Riedl, P Mayrhofer,* CDL-AOS at TU Wien, Austria	**C3-1** Synthesis and Optical Characterization of Cds Thin Film Obtained by Colloidal Technique, ***Laura Reyes***, *C Villa, R Villa, B Valdez, D Mateos, M Curiel, S Romero,* Instituto de Ingeniería, Universidad Autónoma de Baja California, Mexico
8:20am	**B6-2** Enthalpy/Entropy-driven Segregation of Solute Elements of Cu Alloy Films to Self-form < 2 nm Unitary V to Quinary V-Nb-Mo-Ta-W Diffusion Barrier Layers, ***Yu-Ting Hsiao***, *S Chang,* National Tsing Hua University, Taiwan	**C3-2** Electrochemical Characteristics of Ni_xN Thin Films Deposited by DC and HiPIMS Reactive Magnetron Sputtering, *J Keraudy, L Athouel, J Hamon,* IMN - Nantes, France; *B Girault, D Gloaguen,* GeM - Saint-Nazaire, France; *M Richard-Plouet,* IMN - Nantes, France; ***Pierre-Yves Jouan***, Université de Nantes, CNRS, France
8:40am	**B6-3** Mechanical Properties of $V_{0.5}Mo_{0.5}N_{1-x}O_x$ Thin Films, ***Daniel Edström***, *D Sangiovanni, L Landälv, L Hultman,* Linköpings Universitet, Sweden; *I Petrov, J Greene,* University of Illinois, USA; *P Eklund, V Chirita,* Linköpings Universitet, Sweden	**C3-3** Photovoltaic Properties of Cu_2O-based Heterojunction Solar Cells using n-type Oxide Thin Films Prepared by Magnetron Sputtering System with Loading Chamber, *K Watanabe, H Tokunaga,* ***Toshihiro Miyata***, *T Minami,* Kanazawa Institute of Technology, Japan
9:00am	**B6-4** Hard Transparent Coatings in the Al-Si-O-N System, ***Maria Fischer***, *M Trant, K Thorwarth,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; *J Patscheider,* Ruebsteinstrasse 25, 8706 Meilen, Switzerland; *D Scopece, C Pignedoli, D Passerone, H Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**C3-4** Synthesis of Tungsten Bronze by a Solution-based Chemical Route and the Near-Infrared Shielding Properties of Tungsten Bronze Thin Films, ***Pin-Jhen Wu,*** National Cheng Kung University, Taiwan; *H Lu,* National Chin-Yi University of Technology, Taiwan; *S Brahma, J Huang,* National Cheng Kung University, Taiwan
9:20am	**INVITED: B6-5** Exploitation of Surface Modification and Architecture Control for Multi-Functional Coatings via Nano-Composite, Multilayer, Hybrid Organic/Inorganic and Bio-Inspired Approach, *J Lee, H Chen, J Lee, P Chen,* ***Jenq-Gong Duh***, National Tsing Hua University, Taiwan	**C3-5** ZnO Nano-structures Growth and Investigation, ***Alexander Axelevitch***, *I Lapsker,* Holon Institute of Technology (HIT), Israel
9:40am	Invited talk continues.	**C3-6** Nitrogen Doping of ZnO Films by Decomposition of NO Gas using Heated Ir Wire in Catalytic Reaction-assisted CVD, *Y Adachi, S Ono, A Kato,* Nagaoka University of Technology, Japan; *A Hashim,* MJIIT, Universiti Teknologi Malaysia, Malaysia; ***Kanji Yasui***, Nagaoka University of Technology, Japan
10:00am	**B6-7** The Effect of Hybrid PVD Process on the Mechanical and Antistatic Properties of TiO_2 Based Nanocomposite Thin Film, ***Ding-Shiang Wang***, *M Leu, T Chen, H Lai, J Chang, J Shih,* Industrial Technology Research Institute, Taiwan	**C3-7** Morphology-Controlled Growth of ZnO Nanorods by Chemical Bath Deposition and Seed Layer Dependence on Their Structural and Optical Properties, ***Tomoaki Terasako***, *S Obara, S Sakaya, M Tanaka, R Fukuoka,* Ehime University, Japan; *M Yagi,* National Institute of Technology, Kagawa College, Japan; *J Nomoto, T Yamamoto,* Kochi University of Technology, Japan
10:20am	**B6-8** Optical, Electrical and Structural Characteristics of Mg-doped $CuCrO_2$ Transparent Conductive Thin Films, ***Ruei-Sung Yu***, *C Chu,* Asia University, Taiwan	**C3-8** Piezoelectric Coefficient and Morphology Investigation of the Wurtzite Ga-doped MgZnO Thin Films via RF Magnetron Sputtering, ***Ping-Han Lee***, *C Liu, J Huang,* National Cheng Kung University, Taiwan
10:40am	**B6-9** Brittle Film-induced Cracking of Ductile Substrates, ***Xiaolu Pang***, University of Sceience and Technology Beijing, China	**INVITED: C3-9** Growth of $Al_{1-x}Sc_xN$ Thin Films for Pyroelectric and Piezoelectric Applications, ***Agnė Žukauskaitė***, *Y Lu,* Fraunhofer Institute for Applied Solid State Physics IAF, Germany; *N Kurz,* IMTEK, University of Freiburg, Germany; *M Reusch, A Ding, L Kirste, V Lebedev, V Cimalla,* Fraunhofer Institute for Applied Solid State Physics IAF, Germany
11:00am	**B6-10** Ultra-high Vacuum dc Magnetron Sputter-deposition and Microstructural Characterization of Zr and ZrC_x Thin Films, ***Hicham Zaid***, *K Tanaka, J Fankhauser, A Aleman,* UCLA, USA; *M Mato,* Nagoya University, Japan; *D Yu, A Ebnonnasir, C Li,* UCLA, USA; *M Kobashi,* Nagoya University, Japan; *M Goorsky, S Kodambaka,* UCLA, USA	Invited talk continues.
11:20am		**C3-11** A Simple Non-toxic Simultaneous Selenization/Sulfurization Process for the $Cu(In,Ga)(S,Se)_2$ Thin Film Solar Cells, *H Wei,* ***Yuan-Chun Liang***, *Y Lin,* National Changhua University of Education, Taiwan
11:40am		**C3-12** Thin Films for Transparent Thermoelectric Modules, *F Correia, J Ribeiro, P Salvador,* University of Minho, Portugal; *A Mendes,* University of Porto, Portugal; ***Carlos Tavares***, University of Minho, Portugal
12:00pm		**C3-13** Efficiency Enhancement in Dye Sensitized Solar Cells using Silver Ion Embedded TiO_2 Photoanodes, ***Navdeep Kaur***, *A Mahajan,* Guru Nanak Dev University, Amritsar, India; *F Singh,* Inter University Accelerator Center, India; *S Kumar, D Singh,* Guru Nanak Dev University, Amritsar, India

Wednesday Morning, April 25, 2018

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E1-3** **Friction, Wear, Lubrication Effects, and Modeling** **Moderators: Albano Cavaleiro**, University of Coimbra, **Carsten Gachot**, Vienna University of Technology, **Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F4-1** **Functional Oxide and Oxynitride Coatings** **Moderators: Jörg Patscheider**, Evatec AG, **Anders Eriksson**, Oerlikon Balzers, Oerlikon Surface Solutions AG, **Marcus Hans**, RWTH Aachen University
8:00am	**E1-3-1** A Study on the Tribological Behavior of the AISI 316L Steel Exposed to Boriding to Reduce its Friction Coefficient and Enhance its Wear Resistance, ***Enrique Hernández- Sánchez,*** Instituto politécnico Nacional-UPIBI, Mexico*; J Velazqez,* Instituto Politécnico Nacional-ESIQIE, Mexico*; A Chino-Ulloa,* Instituto politécnico Nacional-UPIBI, Mexico*; I Torres-Avila,* Instituto Politecnico Nacional-UPIBI, Mexico*; J Castrejón-Flores,* Instituto politécnico Nacional-UPIBI, Mexico*; H Herrera-Hernández,* Universidad Autónoma del Estado de Mexico, Mexico	**INVITED: F4-1-1** Self-healing Thermal Barrier Coating System for Prolonged Lifetime, ***Willem Sloof,*** Delft University of Technology, Netherlands
8:20am	**E1-3-2** Immersion Time-affected Tribocorrosion Behavior of Cr/GLC Multilayer Coating in Artificial Seawater, ***Lei Li,*** *L Liu, P Ke, A Wang,* Chinese Academy of Sciences, China	Invited talk continues.
8:40am	**E1-3-3** A Comparison of the Galling Wear Behaviour of PVD Cr and Electroplated Hard Cr Thin Films, ***Jaimie Daure****, P Shipway, G McCartney,* The University of Nottingham, UK	**F4-1-3** TiO_2 Thin Films Deposited onto PET by High Power Impulse Magnetron Sputtering for Photocatalytic Degradation of Carbendazim*, R Marcelino,* Universidade Federal de Minas Gerais, UFMG, Brazil*; M Ratova, B Delfour-Peyrethon,* Manchester Metropolitan University, UK*; C Amorim,* Universidade Federal de Minas Gerais, UFMG, Brazil*;* ***Peter Kelly,*** Manchester Metropolitan University, UK
9:00am	**E1-3-4** Microstructural Evolution of Cold-sprayed Copper Coating during Reciprocating Sliding Wear, ***Yinyin Zhang,*** McGill University, Canada*; C Greiner,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany*; D Chern, R Chromik,* McGill University, Canada	**F4-1-4** Thermal Stability of Structure and Enhanced Properties of Zr-Ta-O Films with Low and High Ta Content, ***Petr Zeman****, S Zuzjakova, J Vlček, J Rezek, R Čerstvý, J Houska, S Haviar,* University of West Bohemia, Czech Republic
9:20am	**E1-3-5** Scratch Adhesion Resistance of Nickel Boride Layers on Inconel 718 Superalloy, *I Campos-Silva,* ***Alan Contla-Pacheco****, A Ruiz-Rios, J Martínez-Trinidad, G Rodríguez-Castro, A Meneses-Amador, W Wong-Angel,* Instituto Politecnico Nacional, Surface Engineering Group, Mexico	**F4-1-5** Electrophysical Properties of Nanoparticle-Added PEO Coatings on Aluminium, ***Noratiqah Yaakop****, B Mingo, L Qiang, Z Wang, A Yerokhin, A Matthews,* University of Manchester, UK
9:40am	**E1-3-6** Comparison of Surface Treatments for Adhesive Force Measurements Between Magnetron Sputtered TiW Thin Films and Alumina Substrates*, B Atabay,* ***Elif Apaydin****,* Aselsan Inc., Turkey	**F4-1-6** Titania Films Deposited by Constant Current High Power Impulse Magnetron Sputtering, ***Arutiun P. Ehiasarian****, D Loch,* Sheffield Hallam University, UK*; A Heisig, J Neidhardt,* Von Ardenne Anlagen Technik, Germany
10:00am	**E1-3-7** Influence Of Microstructure on Wear of Boroaluminized-Hot-Work Tool Steels, ***Undrakh Mishigdorzhiyn****, N Ulakhanov,* East Siberia State University of Technology and Management, Russian Federation*; Y Chen, H Liang,* Texas A&M University, USA	**F4-1-7** Study on Silicon Carbide Based Metal Oxide Semiconductor Capacitor with Magnetron Sputtered ZrO_2 High-k Gate Dielectric*, S Mourya, J Jaiswal, G Malik, B Kumar,* ***Ramesh Chandra****,* Indian Institute Of Technology Roorkee, India
10:20am		**F4-1-8** On the Importance of the Energy of Negative Ions in Achieving Uniform and High-quality Magnetron Sputtered AZO Films, ***Fanping Meng****,* Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences,, China
10:40am		
11:00am		
11:20am		**INVITED: F4-1-11** Combinatorial Thin Film Materials Science: Limitations and Opportunities for Combining Experiments and DFT Based Theory, ***Jochen M. Schneider,*** RWTH Aachen University, Germany
11:40am		Invited talk continues.

Surface Engineering - Applied Research and Industrial Applications
Room Sunset - Session G1
Advances in Industrial PVD, CVD, and PCVD Processes and Equipment
Moderators: Emmanuelle Göthelid, Sandvik Machining Solutions, **Ladislav Bardos**, Uppsala University, Sweden

8:00am	**G1-1** Enhanced PVD Process Control by Online Substrate Temperature Measurement, *K Bobzin, T Brögelmann,* ***Nathan Kruppe,*** RWTH Aachen University, Germany	
8:20am	**G1-2** A Compact, Symmetrical and Efficient Filtered Cathodic Arc Source that uses Permanent Magnets, ***Paul Sathrum,*** Fluxion Inc., USA	
8:40am	**G1-3** HiPIMS Meets Diamond, *T Leyendecker, O Lemmer, W Kölker,* ***Christoph Schiffers,*** CemeCon AG, Germany	
9:00am	**G1-4** Functional DLC by HiPIMS and Pulsed DC-magnetron Sputtering in an Industrial Coating System, *I Fernandez Martinez, A Wennberg,* Nano4energy, Spain*; F Papa,* Gencoa, Ltd, USA, Spain*; J Santiago,* Nano4energy, Spain*; N Dams,* PVT GmbH, Germany*;* ***Herbert Gabriel,*** PVT Plasma und Vakuum technik GmbH, Germany	
9:20am	**INVITED: G1-5** Microwave Assisted PVD and PECVD Systems for Carbon-Based Nano Composites, ***Sven Ulrich,*** *C Poltorak, M Rinke, H Leiste, M Stüber,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany	
9:40am	Invited talk continues.	
10:00am	**G1-7** Correlation Between Plasma Nitriding of Several Steels and Active Nitrogen Concentration Correlated through Optical Emission Spectroscopy and Atomic Nitrogen Partial Pressure, *F Papa,* Gencoa, Spain*;* ***Joaquin Oseguera,*** TRAMES S.A. de C.V., Mexico	
10:20am	**G1-8** CVD Technology & Machinery – Tribological Applications and High Temperature Potential, ***Hristo Strakov,*** *V Papageorgiou, M Auger,* IHI Ionbond AG, Switzerland	
10:40am	**G1-9** Vacuum Barrel Coating: An Opportunity to Performance Increase for Various Small Parts, ***Heidrun Klostermann,*** *B Kraetzschmar, F Fietzke,* Fraunhofer FEP, Germany	
11:00am	**G1-10** Scaling Up Graphene-like Carbon Film: Insights into the Deposition Process in a Roll-to-roll rf Plasma CVD System, ***Majed Alrefae,*** *A Kumar, D Zemlyanov,* Purdue University, USA*; T Fisher,* UCLA, USA	
11:20am	**G1-11** TAOS Based Cu/TiW/IGZO/Al_2O_3/Pt Bilayer CBRAM for Low-power Display Technology, ***Kai-Jhih Gan,*** *P Liu, W Chang, D Ruan, T Chien, Y Chiu, S Sze,* National Chiao Tung University, Taiwan	

Wednesday Afternoon, April 25, 2018

	Coatings for Use at High Temperatures **Room Royal Palm 1-3 - Session A3** **Materials and Coatings for Solar Power Concentration Plants** **Moderators: Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, **Gustavo García-Martín**, REP-Energy Solutions	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B1-4** **PVD Coatings and Technologies** **Moderators: Joerg Vetter**, Oerlikon Balzers Coating Germany GmbH, **Qi Yang**, National Research Council of Canada, **Jyh-Ming Ting**, National Cheng Kung University
1:30pm		
1:50pm		
2:10pm		**B1-4-3** Particles in PVD-Coatings: Imperfection or Functional Add-on Feature?, ***Uwe Beck****, J Baier, M Sahre, M Weise, G Hidde,* BAM Berlin, Germany
2:30pm	**A3-4** Corrosion Impact Of Alkali Carbonate At 750°C On Nickel Base, Stainless Steel And Alumina Forming Ferritic Steels, ***Christine Geers,*** Chalmers University of Technology, Sweden	**B1-4-4** Gradient Coating for NIF Double Shell Targets, ***Hongwei Xu,*** General Atomics, USA
2:50pm	**INVITED: A3-5** Challenges of New Materials and Coatings for Solar Receivers and Reflectors in Concentrated Solar Power Plants, ***Florian Sutter,*** German Aerospace Center (DLR), Spain; *Y Binyamin,* Brightsource Industries, Israel; *A Agüero Bruna,* Instituto Nacional de Tecnica Aeroespacial (INTA), Spain; *C Hildebrandt,* Fraunhofer ISE, Germany; *D Fähsing,* DECHEMA Forschungsinstitut, Germany; *A Morales, A Fernandez-Garcia,* CIEMAT, Spain; *F Pérez-Trujillo,* Universidad Complutense de Madrid, Spain	**B1-4-5** Growth Morphology and Piezoelectric Properties of AlN Thin Films Deposited by Reactive DC Magnetron Sputtering, ***Mathis Trant****, M Fischer, K Thorwarth, H Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
3:10pm	Invited talk continues.	**B1-4-6** Plasma Generation and Coating Composition from Ti-C, Ti-Al, and Ti-W Cathodes used in DC Vacuum Arc, ***Igor Zhirkov****,* Linköping University, Sweden; *P Polcik, S Kolozsvári,* Plansee Composite Materials GmbH, Germany; *J Rosen,* Linköping University, Sweden
3:30pm	**A3-7** Corrosion Testing of Diffusion-coated Steel in Molten Salt for Concentrated Solar Power Plants, ***Diana Fähsing****, T Meissner, M Galetz,* DECHEMA-Forschungsinstitut, Germany	**B1-4-7** Improved Adhesion Strength of the Gradient Zn-Mg Coating on TRIP Steel, ***MyeonKyu Song****, J La, H Kim, S Lee,* Korea Aerospace University, Republic of Korea
3:50pm	**A3-8** High Temperature Molten Salt Corrosion Behavior of Aluminide and Nickel-aluminide Coatings for Heat Storage in Concentrated Solar Power Plants, ***Pauline Audigié****, S Rodríguez, M Gutiérrez,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain; *V Encinas-Sánchez, F Pérez-Trujillo,* Complutense University of Madrid, Spain; *A Agüero Bruna,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain	
4:10pm	**A3-9** High-Temperature Coatings for Protection of Steels in Contact with a Novel Molten Salt under Static and Flow-Accelerated Conditions for CSP Technology, *V Encinas-Sánchez, M Lasanta, M de Miguel, G García-Martín,* ***Francisco Javier Pérez-Trujillo,*** Complutense University of Madrid, Spain	

Wednesday Afternoon, April 25, 2018

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B3** **Deposition Technologies and Applications for Diamond-like Coatings** **Moderators: Frank Papa**, Gencoa, **Konrad Fadenberger**, Robert Bosch GmbH	**Fundamentals and Technology of Multifunctional Materials and Devices** **Room Sunrise - Session C4** **Energetic Materials and Microstructures for Nanomanufacturing** **Moderators: Karsten Woll**, Karlsruhe Institute of Technology (KIT), **Ibrahim Emre Gunduz**, Purdue University, USA
1:30pm	**INVITED: B3-1** Tribology of Diamondlike Carbons in Various Application Environments, ***Gary Doll,*** University of Akron, USA	
1:50pm	Invited talk continues.	
2:10pm	**B3-3** Synthesis and Comparison of Highly Tetrahedral Amorphous Carbon by Arc-mixed HiPIMS and Arc-free HiPIMS Modes, *H Hug,* ***Rajesh Ganesan****, K Thorwarth,* EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Tucker, N Marks,* Curtin University, Australia*; M Stüber, S Ulrich,* Karlsruhe Institute of Technology (KIT), Germany*; D McKenzie, M Bilek,* The University of Sydney, Australia*; S Guimond, M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	**C4-3** High Surface Area Silicon Quantum Dots for Energetic Materials, ***Philip M. Guerieri****, N Piekiel, S Adams, M Ervin, C Morris,* U.S. Army Research Laboratory, USA
2:30pm	**B3-4** Evaluation of Superhard ta-C Coatings for the Machining of Synthetic Materials, ***Frank Kaulfuss****,* Fraunhofer Institute for Material and Beam Technology (IWS), Germany*; D Hoesel,* Fraunhofer Institute for Machine Tools and Forming Technology (IWU), Germany*; V Weihnacht, A Leson,* Fraunhofer Institute for Material and Beam Technology (IWS), Germany	**C4-4** Investigating Transport Processes in Multilayer Films, ***David Adams****, M Abere, C Sobczak,* Sandia National Laboratories, USA
2:50pm	**B3-5** Selection of DLC Coatings for Application in Wrist-watch Mechanisms, ***Steve Franklin****,* Steve Franklin Consultancy, Netherlands	**C4-5** Analytical Modelling of Propagation Velocity in Non-stoichiometric and Impact Compressed Nanolaminates, ***Michael Abere****, D Adams,* Sandia National Laboratories, USA
3:10pm	**B3-6** The Role of HIPIMS and Discharges with a Positive Voltage Reversal on Coating Properties in Industrial Applications such as Hard Coatings and DLC, ***Ivan Fernandez****, A Wennberg, F Papa,* Nano4energy Sl, Spain*; G Eichenhofer,* HiP-V, Germany	**C4-6** On the Fly Mixing and 3D Printing of Al/CuO Thermite for Controlling Reactivity, ***Alexandra Golobic****, M Durban,* Lawrence Livermore National Laboratory, USA*; E Duoss,* Lawrence Livermore National Laboratory, USA, US*; A Gash, K Sullivan,* Lawrence Livermore National Laboratory, USA
3:30pm	**INVITED: B3-7** Towards New Horizon for DLC Coating Technology for Automotive Components, ***Tetsuya Takahashi****,* Kobe Steel, Ltd., Japan	**C4-7** Tin-based Composites Combined with Reduced Graphene Oxide via a Simple Chemical Treatment as Anode Material for Rechargeable Lithium Ion Batteries, ***Yi-Zhu Wu****,* National Cheng Kung University, Taiwan*; C Chang,* National University of Tainan, Taiwan*; S Brahma, J Huang,* National Cheng Kung University, Taiwan
3:50pm	Invited talk continues.	**C4-8** Additive Manufacturing of a Composite Solid Propellant with High Solids Loadings, ***Monique McClain****, I Gunduz, S Son,* Purdue University, USA
4:10pm	**B3-9** DC/Pulsed Cathodic Arc Discharge for Deposition of ta-C Coatings, ***Xiubo Tian****, P Wan, H Liu, C Gong,* State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology, China	**C4-9** Manufacturing and Characterization of Nanocomposite WC-based Powders, ***Abdulsalam Alhazza****, L Al-Hajji, S El-Eskandarani, A Al-Rowayyeh,* Kuwait Institute for Scientific Research, Kuwait
4:30pm	**B3-10** A General Engineering Applicable Superlubricity: Hydrogenated Amorphous Carbon Film Containing Nano Diamond Particles, ***Junyan Zhang****, Z Cao,* State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China	**INVITED: C4-10** Ternary Reactive Ru/Al/X Multilayers - The Effect of Stacking Sequence on Ignition, Propagation and Microstructure Evolution, ***Christoph Pauly****,* Saarland University, Germany*; K Woll,* Karlsruhe Institute of Technology (KIT), Germany*; I Gallino,* Saarland University, Germany*; M Stüber,* Karlsruhe Institute of Technology (KIT), Germany*; F Mücklch,* Saarland University, Germany
4:50pm		Invited talk continues.

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Royal Palm 4-6 - Session E3** **Tribology of Coatings for Automotive and Aerospace Applications** **Moderators: Sebastien Guimond**, Oerlikon Balzers, Oerlikon Surface Solutions AG, **Nicolas Argibay**, Sandia National Laboratories, **Christian Greiner**, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM)	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F4-2** **Functional Oxide and Oxynitride Coatings** **Moderators: Jörg Patscheider**, Evatec AG, **Anders Eriksson**, Oerlikon Balzers, Oerlikon Surface Solutions AG, **Marcus Hans**, RWTH Aachen University
1:30pm		
1:50pm		**F4-2-2** On the Thermal Stability of Cathodic Arc Evaporated $(Al_{1-x}Cr_x)_2O_3$ Thin Films, ***Valentin Dalbauer,*** CDL-AOS at TU Wien, Austria; *J Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S Kolozsvári,* Plansee Composite Materials GmbH, Germany; *C Koller,* CDL-AOS at TU Wien, Austria; *P Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria
2:10pm	**E3-3** Cladding Tribaloy T400 on Steel Substrates using a High Power Nd:YAG Laser, ***Wei Ya,*** *B Pathiraj, D Matthews,* University of Twente, Netherlands; *M Bright,* Tata Steel, Netherlands; *S Melzer,* Tata Steel Research & Development, Netherlands	**F4-2-3** Phase Evolution of RF Magnetron Sputtered Cr-rich $(Cr,Zr)_2O_3$ Coatings Studied by *In-Situ* Synchrotron Experiments during Annealing in Air or Vacuum Conditions, ***Ludvig Landälv,*** Linköping Univ., IFM, Thin Film Physics Div. and Sandvik Coromant R&D, Sweden; *J Lu,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *D Ostach,* Zentrum für Material- und Küstenforschung GmbH, Germany; *M Ahlgren, E Göthelid,* Sandvik Coromant R&D, Sweden; *B Alling,* Linköping Univ., IFM, Theoretical Physics division and Zentrum für Material- und Küstenforschung GmbH, Sweden; *L Hultman,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *M Stüber,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; *J Birch, P Eklund,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
2:30pm	**E3-4** Tribological Properties of HVOF-Sprayed WCCoCr Coatings for Applying to Sliding Rings of Mechanical Seals, ***Aleksander Iwaniak,*** Silesian University of Technology, Poland; *G Wieclaw,* Certech Sp. z o.o., Poland; *L Norymberczyk,* ANGA Sp. z o.o., Poland	**F4-2-4** Thick HS-PVD γ-Al_2O_3 Coatings for Challenging Cutting and Die Casting Applications, *K Bobzin, T Brögelmann, C Kalscheuer,* ***Martin Welters,*** Surface Engineering Institute - RWTH Aachen University, Germany
2:50pm	**E3-5** The Effects of Relative Humidity on Fretting Corrosion Behaviors of Silver-plated Electrical Contacts, ***Florent Pompanon,*** *S Fouvry,* LTDS, CNRS UMR 5513, Ecole Centrale de Lyon, Ecully, France; *O Alquier,* PSA, Vélizy – Villacoublay, France	**F4-2-5** HiPIMS Deposition of Ta-O-N Coatings for Water Splitting Application, ***Jiří Čapek,*** *Š Batková, J Houska, S Haviar,* University of West Bohemia, Czech Republic; *T Duchoň,* Charles University, Czech Republic
3:10pm	**E3-6** Evaluation of Solid Particle Erosion Resistant Coatings for Gas Turbine Engine Applications, ***Qi Yang,*** National Research Council of Canada, Canada	**F4-2-6** Evolution of Microstructure and Mechanical Properties of Graded TiAlON Thin Films Investigated by Cross-sectional Characterization Techniques, ***Nina Schalk,*** *M Tkadletz, V Terziyska,* Montanuniversität Leoben, Austria; *M Deluca,* Materials Center Leoben Forschung GmbH, Austria; *J Keckes, C Mitterer,* Montanuniversität Leoben, Austria
3:30pm	**E3-7** Influence of Sliding Induced Defects on the Frictional Properties of Molybdenum Disulfide (MoS_2) and Graphene, ***Zaixiu Yang,*** *S Bhowmick, G Sun,* University of Windsor, Canada; *F Sen,* Argonne National Laboratory, USA; *A Alpas,* University of Windsor, Canada	**INVITED: F4-2-7** Hard Transition Metal Oxynitride Thin Films: From Synthesis to Applications, ***Filipe Vaz,*** *J Borges,* Minho University, Portugal
3:50pm	**E3-8** Analysis of Tribo-mechanical Behavior of a Low Temperature Plasma Nitrided Austenitic 316L Stainless Steel, *J Oseguera,* ITESM-CEM, Mexico; *R Meza,* TEROMOINNOVA, Finland; ***Fernando Santiago,*** ITESM-CEM, Mexico	Invited talk continues.
4:10pm	**INVITED: E3-9** Tribological Systems Solutions for Gas Turbine Engines, ***Pantcho Stoyanov,*** *A Wusatowska-Sarnek, T Kasprow,* Pratt & Whitney, USA	
4:30pm	Invited talk continues.	
4:50pm	**E3-11** The Friction and Wear Performance of DLC Coatings Deposited on Plasma Nitrided AISI 4140 Steel by Magnetron Sputtering under Air and Vacuum Conditions, ***Halim Kovacı,*** Atatürk University, Turkey; *O Baran,* Erzincan University, Turkey; *A Yetim,* Erzurum Teknik University, Turkey; *Y Bozkurt, L Kara,* Erzincan University, Turkey; *A Çelik,* Atatürk University, Turkey	

Surface Engineering - Applied Research and Industrial Applications
Room Sunset - Session G5
Hybrid Coatings and Hybrid System Processes
Moderators: Hana Barankova, Uppsala University, Sweden,
Sang-Yul Lee, Korea Aerospace University

1:30pm		
1:50pm	**G5-2** Propagation of Electric Field Waves in a DC Magnetron Plasma, ***Rachel Broughton****, S Kirkpatrick,* Rose-Hulman Institute of Technolgy, USA	
2:10pm	**INVITED: G5-3** From Surface to Coating - Tools for Surface Engineering, ***Frank Papa****,* Gencoa Ltd, USA, Spain*; V Bellido-Gonzalez,* Gencoa Ltd, UK*; I Fernandez Martinez,* Nano4energy SLNE, Spain*; F Meyer, H Li, D Monaghan, T Sgrilli,* Gencoa Ltd, UK	
2:30pm	Invited talk continues.	
2:50pm	**G5-5** Nb – Doped TiO_2 Deposited by Hybrid HIPIMS – CVD Process, ***Justyna Kulczyk-Malecka****,* Manchester Metropolitan University, UK*; D Donaghy,* University of Liverpool, UK*; B Delfour-Peyrethon,* Manchester Metropolitan University, UK*; P Chalker, J Bradley,* University of Liverpool, UK*; P Kelly,* Manchester Metropolitan University, UK	
3:10pm	**G5-6** Potential of Sequent and Simultaneous PVD PeCVD Hybrid Technology Combination. Investigations Aside Well-known Technologies in Duplex DLC and Co-deposition by Simultaneous Arc, Sputtering Evaporation, ***Pierre Collignon****, R Scheibe,* PD2i Europe GmbH, Germany	
3:30pm	**G5-7** TiN Deposition using the Magnetized Hollow Cathode Activated Magnetron, *H Barankova,* ***Ladislav Bardos****,* Uppsala University, Sweden	
3:50pm	**G5-8** Structural and Tribological Properties of Mixed Iron-titanium Borides Produced with Cathodic Arc Assisted Alloying and Electrochemical Boriding, ***Erkan Kacar****, C Yelkarasi, S Timur, M Urgen,* Istanbul Technical University, Turkey	

Bunshah Award Honorary Lecture
Room Town & Country - Session HL
Bunshah Award Honorary Lecture

5:45pm	**INVITED: HL-1** A Retrospective View of Plasma-assisted PVD Innovations Since the 1960's, ***Allan Matthews,*** University of Manchester, UK	
6:05pm	Invited talk continues.	

Special Events Thursday

Special Events Thursday

7:30 AM	Conference Registration/Atlas Foyer
8:00 AM	Technical Sessions/See Room Matrix
8:30 AM	Short Course/TBA
12:15 PM	2018 ICMCTF Informational Meeting/California
12:15 PM	Elsevier Authors: Focused Topic Session "How to Get Published"/Golden West
5:00 PM	Poster Session/Grand Hall
6:00 PM	Poster Reception/Grand Hall

Thursday Morning, April 26, 2018

	Special Interest Talk **Room California - Session A1-1** **Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling** **Moderators: Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, **Shigenari Hayashi**, Hokkaido University, **Sebastien Dryepondt**, Oak Ridge National Laboratory, USA	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B4-1** **Properties and Characterization of Hard Coatings and Surfaces** **Moderators: Ulrich May**, Robert Bosch GmbH, Diesel Systems, **Fan-Bean Wu**, National United University, Taiwan, **Farwah Nahif**, eifeler-Vacotec GmbH
8:00am	**INVITED: A1-1-1** Degradation of Protective Coatings at High Temperatures, ***Michael Schütze,*** DECHEMA-Forschungsinstitut, Germany	**B4-1-1** Contact Fatigue Performance of Cobalt Boride Coatings, *A Meneses-Amador, D Sandoval-Juárez, G Rodríguez-Castro, D Fernández-Valdés, I Campos-Silva,* IPN, Mexico*; A Mouftiez,* ICAM Lille, Matériaux, France*;* ***JoséLuis Arciniega-Martínez,*** IPN, Mexico
8:20am	Invited talk continues.	**B4-1-2** Revisiting the Nanocomposite Structure of Sputtered TiSiN Films, *F Fernandes,* University of Coimbra, Portugal*; S Calderon, P Ferreira,* International Iberian Nanotechnology Laboratory, Portugal*;* ***Albano Cavaleiro,*** University of Coimbra, Portugal
8:40am	**A1-1-3** Development of a New Slurry Coating Design for the Surface Protection of Gas Turbine Components, ***Benjamin Grégoire,*** *G Bonnet, F Pedraza,* University of La Rochelle, France	**INVITED: B4-1-3** Nanostructured Functional Coatings – From Process Diagnostics in High Power Pulsed Plasmas to Coating Properties and Performance, ***Tobias Brögelmann,*** *K Bobzin, N Kruppe, M Arghavani, M Engels,* Surface Engineering Institute - RWTH Aachen University, Germany
9:00am	**A1-1-4** Slurry Formulation for Industrial Large Scale Aluminum Diffusion Coatings, *M Kimmich,* Fraunhofer ICT, Germany*;* ***Vladislav Kolarik,*** Fraunhofer Institute for Chemical Technology ICT, Germany*; J Bermejo Sanz, M Juez Lorenzo,* Fraunhofer ICT, Germany	Invited talk continues.
9:20am	**A1-1-5** Structural Properties of Hybrid Sol-gel Coatings for Corrosion Protection of Low-carbon Steel, ***Marie-Joëlle Menu,*** CIRIMAT, Université de Toulouse UPS INP CNRS, France*; C Lavollee, R Noiville, M Gressier,* CIRIMAT, France*; J Garcia, J Sobrino,* CETIM, France	**B4-1-5** Mechanical and Tribological Properties of Gradient and Multilayered CrVN/CrMoN Coatings, *Y Chang,* ***Chih-Cheng Chuang,*** National Formosa University, Taiwan
9:40am	**A1-1-6** Diffusion Coatings for Corrosion Protection of Ferritic-martensitic Steels for Co-firing Combustion Plants, ***Tobias Meissner,*** *D Fähsing, M Galetz,* DECHEMA-Forschungsinstitut, Germany	**B4-1-6** Synthesis and Characterization of Multilayered Coatings in the Ti-Al-N System by a Reactive Gas Pulsing Process, ***Ahmed El Mouatassim,*** *M Pac, P Henry,* LPMT, France*; C Rousselot,* FEMTO-ST, France*; C Tromas, F Pailloux, T Cabioc'h,* SP2MI, France
10:00am	**A1-1-7** Biomass Corrosion Behavior of Steels and Coatings in Contact with KCl/K_2SO_4 at 550°C: a Screening Laboratory Test, *M Gutiérrez,* ***Alina Agüero Bruna,*** *I Baraibar,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain*; M Hernández,* Instituto Nacional de Técnica Aeroespacial (INTA),, Spain*; R Muelas Gamo, S Rodríguez,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain	**B4-1-7** Tribological Behavior of Transition Metal Nitride Films with Crystalline and Noncrystalline Tailored Multilayer Structure, *Z Lin,* ***Fan-Bean Wu,*** National United University, Taiwan
10:20am	**A1-1-8** In-situ Post-Annealing of Si-Al Coatings for the Oxidation Protection of γ-TiAl, *K Bobzin, T Brögelmann, C Kalscheuer,* ***Tiancheng Liang,*** Surface Engineering Institute - RWTH Aachen University, Germany	**B4-1-8** Investigation of Microstructure and Properties of Magnetron Sputtered Zr-Si-N Thin Films with Different Si Content, ***Daniel Fernandez,*** Universidade Federal de Sergipe, Brazil*; F Freitas,* Universidade Federal de Sergipe, Brazil, Brasil*; L Félix, A Terto,* Universidade Federal de Sergipe, Brazil*; A Junior,* Universidade Federal do Rio Grande do Sul, Brazil*; F Mendes,* Instituto Nacional de Tecnologia, Brazil*; E Tentardini,* Universidade Federal de Sergipe, Brazil, Brasil
10:40am	**A1-1-9** Fatigue Performance of Bare and Coated 31V Alloy, ***Sebastien Dryepondt,*** *B Armstrong,* Oak Ridge National Laboratory, USA*; Y Zhang,* Tennessee Technological University, USA*; S Sampath,* Stony Brook University, USA*; J Haynes,* Oak Ridge National Laboratory, USA	**INVITED: B4-1-9** Low Temperature Surface Modification on Selected Thin Films Using HIPIMS for Antibacterial and Bio Applications, ***Wan-Yu Wu,*** Da-Yeh University, Taiwan
11:00am		Invited talk continues.
11:20am		**B4-1-11** Using Nano-impact Method to Predict Erosion Performance of Advanced DLC Coating Systems, ***Samuel McMaster,*** *T Liskiewicz, A Neville,* University of Leeds, UK*; B Beake,* Micro Materials Ltd, UK
11:40am		**B4-1-12** A Novel Methodology for Damage Characterization in Thin Hard Coatings Submitted to Extreme Loadings, ***Antonios Choleridis,*** Ecole Nationale Supérieure des Mines de St-Etienne, France*; C Héau, M Leroy,* Institut de Recherche en Ingénierie des Surfaces, Groupe HEF, France*; S Sao-Joao, G Kermouche,* Ecole Nationale Supérieure des Mines de St-Etienne, France*; C Donnet,* Université de Lyon, Université Jean Monnet, France*; H Klöcker,* Ecole Nationale Supérieure des Mines de St-Etienne, France

Thursday Morning, April 26, 2018

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Sunrise - Session C2-1** **Novel Oxide Films for Active Devices** **Moderators: Marko Tadjer**, Naval Research Laboratory, USA, **Vanya Darakchieva**, Linkoping University, Sweden	**New Horizons in Coatings and Thin Films** **Room San Diego - Session F3** **2D Materials: Synthesis, Characterization, and Applications** **Moderators: Eli Sutter**, University of Nebraska-Lincoln, USA, **Liping Wang**, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences
8:00am	**C2-1-1** Characteristic of the bionic synapse on Lithium Aluminate Non-Volatile Resistive Random Access Memory, ***Wan-Ching Su***, *T Chang, Y Hung, B Yan, S Huang, Y Tsao, T Tsai,* National Sun Yat-Sen University, Taiwan	**F3-1** Crystallization Kinetics of Photonically Annealed Two Dimensional Materials and Heterostructures, *R Vila,* Stanford University, USA; *R Rao, B Maruyama,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; *E Bianco,* Air Force Research Laboratory, Materials and Manufacturing Directorate/Rice University, USA; *N Glavin,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; ***Chris Muratore***, University of Dayton, USA
8:20am	**C2-1-2** Compared with the Different Thickness of Switch Layer on Resistive Random Access Memory, ***Chih-Cheng Yang***, *T Chang, W Chen, C Lin, H Zheng, Y Chien,* National Sun Yat-Sen University, Taiwan	**F3-2** The Application of Pulsed Laser Deposited a-BN for Temperature and Oxidation Resistance of 2D $MoTe_2$ Semiconducting Devices, ***Benjamin Sirota***, University of North Texas, USA, United States of America; *N Glavin,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; *C Muratore,* University of Dayton, USA; *S Krylyuk, A Davydov,* National Institute of Standards and Technology, USA; *A Voevodin,* University of North Texas, USA
8:40am	**C2-1-3** Investigating Abnormal Hump Under Positive Bias Temperature Stress for Hydrogenated a-InGaZnO Thin Film Transistors, ***Yu-Chieh Chien***, *T Chang, T Tsai, H Chiang, Y Yang, Y Tsao, M Tai,* National Sun Yat-Sen University, Taiwan	**F3-3** A Predictive Thermokinetic Model of Friction in MoS_2, ***John Curry***, *A Hinkle,* Sandia National Laboratories, USA; *T Babuska, B Krick,* Lehigh University, USA; *M Dugger, N Argibay, M Chandross,* Sandia National Laboratories, USA
9:00am	**C2-1-4** Optical and Electronic Properties of Monoclinic Ga_2O_3 Unravelled, ***Mathias Schubert***, Linkoping University, Sweden, USA; *A Mock, R Korlacki, S Knight,* University of Nebraska-Lincoln, USA; *V Darakchieva,* Linköping University, Sweden; *B Monemar,* Linkoping University, Sweden; *Y Kumagai,* Tokyo University of Agriculture and Technology, Japan; *K Goto,* Tamura Corp., Japan; *M Higashiwaki,* National Institute of Information and Communications Technology, Japan	**F3-4** Supercritical Fluid Assisted Synthesis of V_2O_5/VS_2 Nanocomposites for use in Supercapacitor, ***Yen-Chun Liu***, *J Ting,* National Cheng Kung University, Taiwan
9:20am	**INVITED: C2-1-5** Ga_2O_3 for Ultra-High Power Rectifiers and MOSFETs, ***Stephen Pearton***, *F Ren, J Yang, P Carey,* University of Florida, USA; *M Tadjer, M Mastro,* Naval Research Laboratory, USA	**INVITED: F3-5** 2D and Layered Metal Chalcogenide Semiconductors: Growth, Electronic Structure, Light-Matter Interactions, ***Peter Sutter***, University of Nebraska-Lincoln, USA
9:40am	Invited talk continues.	Invited talk continues.
10:00am	**C2-1-7** Fabrication and Characterization of Pulsed-Laser Deposited $Ba_{0.8}Ca_{0.2}Ce_xTi_{1-x}O_3$ (BCCT) Thin Films, ***Cristian Grijalva***, The University of Texas at El Paso, USA; *J Jones,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; *R Chintalapalle,* The University of Texas at El Paso, USA	**F3-7** Fabrication and Photocatalytic Application of Functional group Modification of Carbon Nitride Derivatives nanosheets, ***ChunHung Chen***, *K Chang,* National Cheng Kung University (NCKU), Taiwan
10:20am	**C2-1-8** Thermo-Chemical Stability Evaluation of Titanium Doped β-Ga_2O_3 Thin Films, *S Manandhar, A Battu,* ***Ramana Chintalapalle***, University of Texas at El Paso, USA	**F3-8** Enhanced Photocatalytic Performance for g-C_3N_4 through the Addition of α-MoO_3 Nanobelts and Mesoporous TiO_2 Beads, ***Yen Duong***, *J Ting,* National Cheng Kung University, Taiwan
10:40am		**F3-9** Fabrication of Nanostructured MoS_2 Thin Films on Porous Silicon Substrate for Ammonia Gas Sensing Properties, *S Sharma, A Kumar,* ***Davinder Kaur***, Indian Institute of Technology Roorkee, India
11:00am		**F3-10** Wettability, Sructural and Optical Examination of Sputtered Zirconium Oxide Thin Films, ***Uttkarsh Patel***, McMaster University, Canada; *P Dave,* Gujarat forensic science university, India; *K Chauhan,* Charotar University of Science and Technology (CHARUSAT), India; *S Rawal,* McMaster University, Canada
11:20am		**INVITED: F3-11** Synthesis and Characterization of Molybdenum-based Thin Films for Flexible Electronics, *T Jörg,* Montanuniversität Leoben, Austria; *M Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria; *D Music,* RWTH Aachen University, Germany; *R Franz,* Montanuniversität Leoben, Austria; *H Köstenbauer, J Winkler,* Plansee SE, Austria; *J Schneider,* RWTH Aachen University, Germany; ***Christian Mitterer***, Montanuniversität Leoben, Austria
11:40am		Invited talk continues.

Thursday Morning, April 26, 2018

	Advanced Characterization Techniques for Coatings and Thin Films **Room Royal Palm 1-3 - Session H1** **Spatially-resolved Characterization of Thin Films and Engineered Surfaces** **Moderators: Xavier Maeder**, Empa, Swiss Federal Laboratories for Materials Science and Technology, **Michael Tkadletz**, Montanuniversität Leoben	**Topical Symposia** **Room Royal Palm 4-6 - Session TS1** **Thermal and Kinetic Spray Deposition** **Moderators: Andrew Vackel**, Sandia National Laboratories, USA, **Charles Kay**, ASB Industries, Inc., USA
8:00am		**INVITED: TS1-1** Latest Developments for Turbomachinery Coatings, ***Kirsten Bobzin,*** *L Zhao, F Linke, S Wiesner, B Yildirim, T Liang, M Welters,* Surface Engineering Institute - RWTH Aachen University, Germany
8:20am		Invited talk continues.
8:40am		**INVITED: TS1-3** Repair of Nickel Base Superalloys by Cold Spray, ***Robert Vaßen,*** *R Singh, T Kalfhaus, G Mauer, O Guillon,* Forschungszentrum Jülich GmbH, Germany*; J Gibmeier,* Karlsruhe Institute of Technology (KIT), Germany
9:00am	**H1-4** Spatially Resolved Depth Profiling Of Residual Stress By Micro-Ring-Core Method, ***Marco Sebastiani,*** Roma TRE University, Italy	Invited talk continues.
9:20am	**H1-5** Quantitative Depth Profiling from the First Nanometers Down to the Substrate within Minutes using RF GD-OES, ***Philippe Hunault,*** HORIBA Instruments, USA*; M Chausseau, K Savadkouei,* HORIBA Scientific, USA*; P Chapon, S Gaiaschi,* HORIBA Scientific, France	**TS1-5** Multi-layer Metallization of Polymer Materials via Thermal Spray, ***Andrew Vackel,*** *M Smith, A Miller,* Sandia National Laboratories, USA*; B Peter, B Post,* Oak Ridge National Laboratories, USA
9:40am	**H1-6** Analysis of Thin Film Surface Stress Distribution using Raman Spectroscopy near Cohesive Cracks During Bending Tests, ***Newton Fukumasu,*** *G Francisco, R Souza,* University of São Paulo, Brazil	**TS1-6** Dielectric Ceramic Thick Films produced via Aerosol Deposition, ***EricA. Patterson,*** ASEE Postdoc, US Naval Research Lab, USA*; S Johnson, E Gorzkowski,* U.S. Naval Research Laboratory, USA
10:00am	**INVITED: H1-7** *In situ* Nanomechanical Characterization of Transition Metal Carbides, *M Chen,* ETH Zurich, Laboratory for Nanometallurgy, Switzerland*; D Sangiovanni,* Linköping University, IFM, Germany, Sweden*; J Wheeler,* ETH Zurich, Laboratory for Nanometallurgy, Switzerland*;* ***Suneel Kodambaka,*** *G Po,* University of California Los Angeles, USA	**INVITED: TS1-7** Tribological Properties of Cold Sprayed Metal Matrix Composite Coatings, ***Richard Chromik,*** McGill University, Canada
10:20am	Invited talk continues.	Invited talk continues.
10:40am		**TS1-9** Assessment of Magnetic Orientation of Barium Hexaferrite Thick Films Deposited by Aerosol Deposition with *in situ* Magnetic Field, ***ScooterD. Johnson,*** Naval Research Laboratory, USA*; D Park,* Korean Institute of Material Science, Korea*; A Hauser, S Ranjit, K Law,* University of Alabama, USA*; H Newman, S Shin, S Qadri, E Gorzkowski,* Naval Research Laboratory, USA
11:00am		**TS1-10** Development of Repair Methods for Nickel Based Super Alloys using Cold Gas Spray, ***Tobias Kalfhaus,*** *R Vaßen,* Forschungszentrum Jülich GmbH, Germany
11:20am		**TS1-11** Microstructure-scale Simulations of High-rate Loading of Porous, Thermally-sprayed Metal Coatings, ***Corbett Battaile,*** *N Moore, S Owen,* Sandia National Laboratories, USA
11:40am		**TS1-12** Simulation and Visualization of the Aerosol Deposition Process, ***EdwardP. Gorzkowski,*** *S Johnson, T Martin, R Saunders,* U.S. Naval Research Laboratory, USA*; A Borgdorff,* U.S. Naval Academy, USA*; D Schwer,* U.S. Naval Research Laboratory, USA*; E Patterson,* ASEE Postdoc, U.S. Naval Research Laboratory, USA

	Coatings for Use at High Temperatures **Room California - Session A1-2** **Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling** **Moderators: Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, **Shigenari Hayashi**, Hokkaido University, **Sebastien Dryepondt**, Oak Ridge National Laboratory, USA	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B4-2** **Properties and Characterization of Hard Coatings and Surfaces** **Moderators: Ulrich May**, Robert Bosch GmbH, Diesel Systems, **Fan-Bean Wu**, National United University, Taiwan, **Farwah Nahif**, eifeler-Vacotec GmbH
1:30pm	**INVITED: A1-2-1** Effect of Pre- and Post-Coat Processing on the Fatigue Life of Coated Disk Alloys, ***James Nesbitt***, *T Gabb, B Puleo,* NASA Glenn Research Center, USA; *R Miller,* Vantage Partners, USA	**B4-2-1** Target Race Track Chemistry is Different to What you Think: XPS Findings from Reactive dc and High Power Impulse Magnetron Sputtering Experiments, ***Grzegorz Greczynski***, Linköping University, IFM, Thin Film Physics Division, Sweden; *S Mráz,* RWTH Aachen University, Germany; *L Hultman,* Linköping University, IFM, Thin Film Physics Division, Sweden; *J Schneider,* RWTH Aachen University, Germany
1:50pm	Invited talk continues.	**B4-2-2** Measurement of Residual Stress on TiN/Ti Bilayer Thin Films using Average X-ray Strain (AXS) Combined with Nanoindentation Methods, ***JiaHong Huang***, *S Lei,* National Tsing Hua University, Taiwan; *H Chen,* National Chiao Tung University, Taiwan
2:10pm	**A1-2-3** High-temperature Oxidation Resistance of Chromium-based Coatings Deposited by DLI-MOCVD for Enhanced Protection of the Inner Surface of Long Tubes, ***Alexandre Michau***, CEA, France; *F Maury,* CIRIMAT, France; *F Schuster, J Brachet, E Rouesne, M Le Saux,* CEA, France; *R Boichot, M Pons,* SIMaP, France	**INVITED: B4-2-3** Challenges and Recent Progress in the Development of Arc Evaporated $(Al_{1-x}Cr_x)_2O_3$ Coatings, ***Christian Koller***, *A Kirnbauer, V Dalbauer, R Raab,* CDL-AOS at TU Wien, Austria; *S Kolozsvári,* Plansee Composite Materials GmbH, Germany; *J Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria
2:30pm	**A1-2-4** A New Process to Produce Localized Chrome Coating and Platinum-Modified Chrome Coating for Protection against Type II Hot Corrosion, ***Zhihong Tang***, *J McConnell, K Garing, S Sweeney,* Praxair Surface Technologies, Inc., USA	Invited talk continues.
2:50pm	**A1-2-5** Characterization of Films Fabricated on AZ31 Magnesium Alloy by Heat Treatment and Immersion Methods, ***Hyunju Jeong***, Pohang Iron and Steel Company (POSCO), Republic of Korea	**B4-2-5** Steel Doctor Blade Deposited by HIPIMS-CrN for Protection Purpose, ***Jia-Hong Zhou***, *Y Liou, Y Chen, J He,* Feng Chia University, Taiwan
3:10pm	**A1-2-6** Degradation Processes of LSM Based Interconnector Coatings under the Conditions of Pressurized Steam Electrolysis, ***MariadelMar Juez Lorenzo***, *V Kolarik, V Kuchenreuther-Hummel,* Fraunhofer ICT, Germany; *M Pötschke, D Schimanke,* Sunfire GmbH, Germany	**B4-2-6** In-Line HIPIMS-TiNxOy to Produce Colorful Decorative Coatings, ***Yu-De Liou***, *Y Chen, J He,* Feng Chia University, Taiwan
3:30pm	**A1-2-7** The Hot Corrosion Resistance of Hot-dip Aluminized Low Carbon Steel with Nickel Interlayer under Static Load, ***Huan-Chang Liang***, *C Wang,* National Taiwan University of Science and Technology, Taiwan	**B4-2-7** Property of AIP Deposited Thick TiAlN Coating and Application to Actual Steam Turbine for Solid Particle Erosion Protection, ***Kenji Yamamoto***, *J Munemasa,* Kobe Steel Ltd., Japan; *Y Liang,* National Cheng Kung University, Taiwan; *T Abe,* Toshiba Corporation, Japan; *S Takada, T Takazawa, Y Iwai,* University of Fukui, Japan
3:50pm		**B4-2-8** Stress Evolution during Cr_2AlC Film Growth, ***Andrius Subacius***, *A Matthews,* University of Manchester, UK; *M Hans, S Mráz, J Schneider,* RWTH Aachen University, Germany
4:10pm		**B4-2-9** Composition and Temperature Influence on ZrAlN/TiN Multilayer Structure: In-situ X-ray Scattering during Growth, and Transmission Electron Microscopy Studies, ***Naureen Ghafoor***, Linköping Univ., IFM, Thin Film Physics Div., Sweden; *H Wang,* Linköping Univ., IFM, Thin Film Physics Div. and Max-Planck-Institut für Eisenforschung GmbH, Sweden; *J Muhammad, L Rogström, J Schroeder,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *D Ostach, N Schell,* Helmholtz-Zentrum Geesthacht, Germany; *J Birch,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
4:30pm		**B4-2-10** Self-toughening in the TiAlN System, ***Matthias Bartosik***, TU Wien, Institute of Materials Science and Technology, Austria; *C Rumeau, R Hahn,* TU Wien, Austria; *Z Zhang,* Austrian Academy of Sciences, Austria; *P Mayrhofer,* TU Wien, Austria
4:50pm		**B4-2-11** Load Sensing Characterization of Silicon Oxide Coatings, ***Tomasz Liskiewicz***, Leeds University, UK; *I Kolev,* Hauzer Techno Coating, Netherlands; *E McNulty, A Neville,* Leeds University, UK
5:10pm		**B4-2-12** The Mechanical and Tribological Properties of TiZrNbN and TiZrNbN-Cu Films, ***Ihsan Efeoglu***, Atatürk University, Turkey; *H Aghdam, A Keles,* Ataturk University, Turkey; *O Baran,* Erzincan University, Turkey; *Y Totik,* Atatürk University, Turkey

Thursday Afternoon, April 26, 2018

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Sunrise - Session C2-2** **Novel Oxide Films for Active Devices** **Moderators: Marko Tadjer**, Naval Research Laboratory, USA, **Vanya Darakchieva**, Linkoping University, Sweden	**Advanced Characterization Techniques for Coatings and Thin Films** **Room Royal Palm 1-3 - Session H2** **Advanced Mechanical Testing of Surfaces, Thin Films and Coatings** **Moderators: Benoit Merle**, Friedrich-Alexander-University Erlangen-Nürnberg (FAU), **Marco Sebastiani**, University of Rome "Roma Tre"
1:30pm	**C2-2-1** Investigation of Negative Bias Temperature Instability under Illumination on P-type Low Temperature Poly-crystalline Silicon Thin Film Transistors, ***Shin-Ping Huang,*** *T Chang, A Chu, W Su, W Chen,* National Sun Yat-Sen University, Taiwan*; Y Chen, Y Shih,* National Taitung University, Taiwan*; Y Zheng, Y Wang,* National Sun Yat-Sen University, Taiwan	**H2-1** In Situ Observation of Strain Transfer and Crack Formation in Evaporated and Printed Thin Films and Devices on Compliant Substrates, ***Patric Gruber,*** Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM-WBM), Germany
1:50pm	**C2-2-2** Mechanism of Reset Process with Varying Compliance Current in High-k Spacer Resistance Random Access Memory, ***Yi-Ting Tseng,*** *T Chang, W Huang, Y Guo, T Chang, W Chen,* National Sun Yat-Sen University, Taiwan	**H2-2** Comparison of Different Methods for the Investigation of Thin Film Adhesion, ***Felix Schiebel,*** Fraunhofer Institute for Mechanics of Materials IWM, Germany*; C Eberl,* University of Freiburg, Germany
2:10pm	**C2-2-3** Improve Reliability of Complementary Resistive Switching Induced by Carbon Dopant in Indium-Tin-Oxide as The Insulator in Resistive Random Access Memory, ***Chun-Chu Lin,*** *T Chang, W Chen, Y Tseng, S Huang, H Zheng,* National Sun Yat-Sen University, Taiwan	**H2-3** Electro-Mechanical Characterization of Functional Thin Film Metallic Glasses, *M Mühlbacher,* Montanuniversität Leoben, Austria*; O Glushko,* ***Christoph Gammer,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; C Mitterer, J Eckert,* Montanuniversität Leoben, Austria
2:30pm	**C2-2-4** Study on the Characteristic of Cobalt Silicide Electrode Resistive Random Access Memory, ***Wen-Chung Chen,*** *T Chang, T Tsai, Y Zhang, S Huang, Y Lin, C Lin, H Zheng,* National Sun Yat-Sen University, Taiwan	**H2-4** New Pull-off Tensile Tests for Adherence Assessment in Concrete-formwork Coated and Uncoated Contacts, ***Nicolas Spitz,*** Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; N Coniglio, M El Mansori,* Arts et Métiers ParisTech d'Aix-en-Provence, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; A Montagne,* Arts et Métiers ParisTech de Lille, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; S Mezghani,* Arts et Métiers ParisTech de Châlons-en-Champagne, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France
2:50pm	**INVITED: C2-2-5** Material and Device Engineering for Gallium Oxide Electronics, ***Siddharth Rajan,*** The Ohio State University, USA	**INVITED: H2-5** In-situ-squared: Combined Electro-mechanical Behavior of Thin Films with One Experiment, ***Megan Cordill,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria
3:10pm	Invited talk continues.	Invited talk continues.
3:30pm	**C2-2-7** The Ultra-violet Light Effect on the Off-state Current of InGaZnO Thin Film Transistor with the Different Structure, ***Yu-Ching Tsao,*** *T Chang, Y Tsai, W Su, S Huang, Y Chien,* National Sun Yat-Sen University, Taiwan	**H2-7** Mechanical Behavior of Ductile/Brittle Multilayers Studied with In-situ Straining Methods, ***Patrice Kreiml,*** *M Rausch, V Terziyska,* Montanuniversität Leoben, Austria*; H Köstenbauer, J Winkler,* Plansee SE, Austria*; C Mitterer,* Montanuniversität Leoben, Austria*; M Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria
3:50pm	**C2-2-8** Study on the Characteristics of Device in Copper Ion Movement during Operation Process in Conductive-Bridging Random Access Memory, ***Ming-Hui Wang,*** *T Chang, Y Tseng, H Zheng, C Wu, S Huang,* National Sun Yat-Sen University, Taiwan	**H2-8** Fracture Behavior of Nanocrystalline BCC High-Entropy Alloys, *Y Xiao, H Ma, R Spolenak,* ***JeffreyM. Wheeler,*** ETH Zurich, Laboratory for Nanometallurgy, Switzerland
4:10pm	**C2-2-9** The Degradation Mechanism of Tungsten Electrode on HfO_2-based Resistance Random Access Memory (RRAM), ***Hao-Xuan Zheng,*** *T Chang, T Chu, M Wang, C Lin, C Yang,* National Sun Yat-Sen University, Taiwan	**INVITED: H2-9** Recent Advanves in Microcantilever Bending Experiments, ***Karsten Durst,*** Physical Metallurgy, TU Darmstadt, Germany*; M Göken,* University Erlangen-Nürnberg, Germany*; J Ast,* EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland
4:30pm		Invited talk continues.
4:50pm		**H2-11** Temperature and Loading Rate Influence in Micro-Scale Fracture Experiments, *J Ast,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; J Schwiedrzik,* EMPA, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; J Wehrs,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; J Michler,* EMPA, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*;* ***Xavier Maeder,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
5:10pm		**H2-12** Investigating the Local Fatigue Properties of Materials in Small Dimensions by Dynamic Micropillar Compression, ***Benoit Merle,*** Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany

Thursday Afternoon, April 26, 2018

	Special Interest Talk 2 Room San Diego - Session SIT2 Special Interest Talk 2	
1:30pm		
1:50pm		
2:10pm		
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3:10pm		
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3:50pm		
4:10pm	**SIT2-9** Materials Design Guidelines for Improved Strength, Ductility, and Stability, ***Paul Heinz Mayrhofer,*** TU Wien, Institute of Materials Science and Technology, Austria	

Coatings for Use at High Temperatures
Room Grand Hall - Session AP
Symposium A Poster Session
5:00pm

AP-1 Feasibility of using Rare-earth (La and Ce) Sulfates as Functional Embedding Agents for Thermal Barrier Coatings, *D Song, T Song,* Hanyang University, Republic of Korea*; **HyeonMyeong Park**, Y Jung,* Changwon National University, Republic of Korea*; J Zhang,* Indiana University Purdue University Indianapolis, USA

AP-2 Lifetime Performance of Yb-Gd-Y-based Thermal Barrier Coatings with Buffer Layer in Thermally Graded Mechanical Fatigue Environments, ***Bong-Gu Kim**,* School of Materials Science and Engineering, Changwon National University, Republic of Korea*; G Lyu, S Jung, H Park, Y Jung,* Changwon National University, Republic of Korea*; J Zhang,* Changwon National University, Republic of Korea, USA

AP-3 Thermal Durability of Thermal Barrier Coatings – Effect of Purity and Monoclinic Phase in Feedstock Powder, ***Yeon-Gil Jung**, H Park, S Jeon, G Lyu, S Jung,* Changwon National University, Republic of Korea*; K Park, I Kim, B Yang,* Doosan Heavy Industries and Construction, Republic of Korea*; J Zhang,* Indiana University, USA

AP-6 Integral vs. Local Chemical Composition of (coating) Materials: Is your Solid Solution a Solid Solution?, ***Jochen M. Schneider**,* RWTH Aachen University, Germany

AP-7 Coating Generation and Study for Materials Protection used in Extreme Atmosphere: Sustainability and Energy Efficiency, *A Illana,* Universidad Complutense de Madrid, Spain*; M Gutiérrez, I Baraibar,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain*; S Mato,* Universidad Complutense de Madrid, Spain*; R Muelas Gamo,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain*; M Benito, A Bahillo,* Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Spain*; **Francisco Javier Pérez-Trujillo**,* Universidad Complutense de Madrid, Spain*; A Agüero Bruna,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain

AP-8 The Influence of Reactive Elements on Thermogravimetric Behaviour of New Co-Ni-Al-W Superalloys Dedicated to Bond-coat Deposition*, G Moskal, A Tomaszewska, **Damian Migas**,* Silesian University of Technology, Poland

AP-9 Study the Surface-aluminizing Coating to Enhance High-temperature Oxidation Resistance of T91 Boiler-used Steel*, **Wu Kai**, Y Chen, C Chung,* National Taiwan Ocean University, Taiwan

AP-10 New Insights into the Oxidation Behaviour of AlCrSiN Coatings and an Approach to Avoid Trans-interface Diffusion at Elevated Temperatures*, **Nikolaus Jäger**, S Klima, M Meindlhumer,* Montanuniversität Leoben, Austria*; H Hruby,* eifeler-Vacotec GmbH, Germany*; J Keckes, R Daniel,* Montanuniversität Leoben, Austria

AP-12 Gradient SiBCN Ceramic Coating for High-temperatue Anti-oxidation Protection of Carbon-carbon Composite*, **Zongbo Zhang**,* Institute of Chemistry, Chinese Academy of Science, China

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Hard Coatings and Vapor Deposition Technologies
Room Grand Hall - Session BP
Symposium B Poster Session
5:00pm

BP-1 Electrical and Reliability Characteristics of Dielectric Stack with Low Dielectric Constant SiCOH and Capping SiCNH Films*, C Lee,* National Chi-Nan University, Taiwan*; W Hung, **Yi-Lung Cheng**,* National Chi Nan University, Taiwan

BP-3 Adhesion And Durability Of Multi-Interlayered Diamond-Like Carbon Film Deposited On An Aluminum Alloy*, **Hidenobu Maruno**, A Nishimoto,* Kansai University, Japan

BP-4 The Effect of Cu on Fatigue Properties of TiZrNbN Coatings*, H Aghdam, A Keles,* Ataturk University, Turkey*; O Baran,* Erzincan University, Turkey*; Y Totik,* Atatürk University, Turkey*; **Ihsan Efeoglu**,* Ataturk University, Turkey

BP-5 Thermal Stability of Ni-B/ La_2O_3 Coatings by Electro-brush Plating Technique*, **Dan Zhang**, X Cui, G Jin, Z Cai, M Dong,* Harbin Engineering University, China

BP-6 Properties of CrN_x Thin Films Deposited in Plasma Activated Polymers by Reactive Magnetron Sputtering*, M Rodrigues, P Pedrosa,* Minho University, Portugal*; A Ferreira, L Godinho, M Amaral,* PRIREV, Portugal*; M Neto, F Oliveira, R Silva,* Universidade de Aveiro, Portugal*; J Borges, **Filipe Vaz**,* Minho University, Portugal

BP-9 Influence of Ti on the Phase Stability of Magnetron Sputtered Mo-Si-B Thin Films*, **Elias Aschauer**, H Riedl,* CDL-AOS at TU Wien, Austria*; H Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P Polcik,* Plansee Composite Materials GmbH, Germany*; P Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria

BP-10 Carbide Layer Coating on Titanium by Spark Plasma Sintering Technique*, **Akio Nishimoto**, C Nishi,* Kansai University, Japan

BP-13 Growth Kinetics of Boride Coatings on AISI W2 Steel*, **MarcoAntonio Doñu Ruiz**,* Universidad Politécnica del Valle de Mexico, Mexico*; N Lopez Perrusquia,* Universidad Politecnica Del Valle De Mexico, Mexico*; V Serna Lara, V Cortés Suárez,* Universidad Politécnica del Valle de Mexico, Mexico

BP-15 Study on Steels Boronizing Immersed in Diesel*, **Noe Lopez Perrusquia**, M Doñu Ruiz, G Perez Mendoza,* Universidad Politecnica Del Valle De Mexico, Mexico*; V Cortés Suárez,* Universidad Autónoma Metropolitana- Azcapotzalco, Mexico*; C Torres San Miguel,* Instituto Politécnico Nacional - ESIME, Mexico

BP-17 Deposition of Nanodiamond Coatings on Steel Implant Materials with CrN/Al Interlayer*, Y Li, F Ye, C Zhang, M Taheri, J Corona, **Qiaoqin Yang**,* University of Saskatchewan, Canada

BP-18 MoN/TaN Superlattices: from a Computer Design to a Realization*, N Koutna,* TU Wien, Institute of Materials Science and Technology, Austria*; R Hahn,* CDL-AOS at TU Wien, Austria*; J Zalesak,* Montanuniversität Leoben, Austria*; M Friak,* IPM, Academy of Science, Czech Republic*; M Bartosik,* TU Wien, Institute of Materials Science and Technology, Austria*; M Sob,* Masaryk University, Czech Republic*; J Keckes,* Montanuniversität Leoben, Austria*; P Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria*; **David Holec**,* Montanuniversität Leoben, Austria

BP-20 Effect of Mo Concentration on Structure and Properties of Zr-Mo-N Thin Films Deposited by Reactive Magnetron Sputtering*, A Junior, **Daniel Fernandez**, L Félix,* Universidade Federal de Sergipe, Brazil*; R Hubler,* Pontifícia Universidade Católica do Rio Grande do Sul, Brazil*; F Mendes,* Instituto Nacional de Tecnologia, Brazil*; G Brito,* Universidade Federal de Sergipe, Brazil*; E Tentardini,* Universidade Federal de Sergipe, Brazil, Brasil

BP-21 Anti-staining Coatings on PET Fabrics by Using a Spraying/ Plasma-Polymerization Duplex Technique*, **Cheng-Wei Lin**,* Feng Chia University; Central Taiwan University of Science and Technology, Taiwan*; J He,* Feng Chia University, Taiwan

BP-22 Fracture Resistance of Nanocomposite/Metal Nitride Multilayers: Role of Interfaces*, **Naureen Ghafoor**, P Persson,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; I Petrov,* Linköping University, IFM, Thin Film Physics Division, Sweden, USA*; J Barriero, F Mücklch,* Saarland University and Materials Engineering Center Saarland, Germany*; J Birch,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; W Clegg,* Cambridge University, UK

BP-23 Vacancies in Al-O-N Crystallites*, **Maria Fischer**, D Scopece, C Pignedoli, D Passerone, H Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

BP-26 Effects of Bias Voltage on Microstructure and Properties of Al-doped Hydrogenated Amorphous Carbon Films Prepared by a Hybrid Deposition Technique*, **Songsheng Lin**, W Xu, H Li, M Dai, Q Shi, C Wei, H Wang, K Zhou,* Guangdong Research Institution of New Materials, China

BP-27 Comparison of Chromium Carbide Thin Films Grown by Different Power Supply Systems*, Z Li, C Wang,* National Taiwan University of Science and Technology, Taiwan*; B Lou,* Chang Gung University, Taiwan*; **Jyh-Wei Lee**,* Ming Chi University of Technology, Taiwan

BP-28 Self-organized Formation of Different Nanostructure in Carbon-metal Films Prepared by Reactive Magnetron Sputtering*, **Hongxuan Li**, W Wang, L Ji,* Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China

BP-29 Anticorrosive Properties of (Zr-Si-Ti-N)Ni Thin Films Deposited by Co-Sputtering*, **EstrellaNatali Borja Goyeneche**, J Olaya,* Universidad Nacional De Colombia, Colombia

BP-30 Corrosion Resistance of Stainless Steel Coatings With and Without Silver Deposited by Sputtering*, **ClaudiaLiliana España**, J Olaya,* Universidad Nacional De Colombia, Colombia*; A Candido Recco,* Universidade do Estado de Santa Catarina, Brazil

BP-31 Evolution of Structure and Mechanical Properties of Nanocrystalline Multi-layered Arc-evaporated AlCrN-AlTiN Coatings upon Thermal Loading Revealed by X-ray Nanodiffraction and Tribological Testing*, **Stefan Klima**, N Jäger, M Meindlhumer,* Montanuniversität Leoben, Austria*; H Hruby,* eifeler-Vacotec GmbH, Germany*; J Keckes, R Daniel,* Montanuniversität Leoben, Austria

BP-32 Corrosive Resistance of Nanostructured ZrSiN-Ag Films Deposited by Reactive Sputtering*, H Vanegas Parra, **JhonJairo Olaya**, J Alfonso,* Universidad Nacional De Colombia, Colombia*; S Calderon,* International Iberian Nanotechnology Laboratory, Portugal*; S Carvalho,* University of Minho, Portugal

BP-33 Mechanical Properties of ZrSiN-Ag Thin Films Deposited by Reactive Magnetron Sputtering*, **HenrySamir Vanegas Parra**, J Alfonso, J Olaya,* Universidad Nacional De Colombia, Colombia*; S Calderon,* International Iberian Nanotechnology Laboratory, Portugal*; S Carvalho,* University of Minho, Portugal

BP-34 Hardness and Adhesion of AlSiN Thin Films Deposited by the Simultaneous Laser Ablation of Two Targets, ***Enrique Camps,*** *L Rivera, I Campos-Silva,* Instituto Nacional de Investigaciones Nucleares, Mexico*; S Muhl,* Universidad Nacional Autonoma de Mexico, Mexico

BP-35 Plasma Enhanced Chemical Vapor Deposition of Carbon Film into a Small Hole 100 µm in Diameter with MVP and Source Gas Blowing, *R Ota,* Nagoya University, Japan*;* ***Hiroyuki Kousaka,*** Gifu University, Japan*; L Raja,* University of Texas at Austin, USA*; N Umehara, M Murashima, T Tokoroyama,* Nagoya University, Japan

BP-37 Effect of Silicon Content on Structure and Properties of AlCrSiN Coatings Prepared by Arc Ion Plating for Milling Tools, ***Wangryeol Kim,*** *S Heo,* Korea Institute of Industrial Technology (KITECH), Republic of Korea*; Y Kim, J Kim,* KORLOY, Republic of Korea*; I Park,* Korea Institute of Industrial Technology (KITECH), Republic of Korea

BP-38 Coatings and Performance Evaluation of Ti–Al–Si–N–O Coated Cutting Tools, ***Sungbo Heo,*** *H Kim, U Jung,* Korea Institute of Industrial Technology (KITECH), Republic of Korea*; Y Kim, J Kim,* KORLOY, Republic of Korea*; I Park,* Korea Institute of Industrial Technology (KITECH), Republic of Korea

BP-39 Transparent and Low Resistance Hard Amorphous Carbon Thin Films by HiPIMS for Electronic Applications, ***Kerstin Thorwarth,*** *R Ganesan, A Chacko,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Grein, R Bandorf,* Fraunhofer Institute for Surface Engineering and Thin Films, Germany*; D McKenzie, M Bilek,* The University of Sydney, Australia*; H Hug,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland

BP-40 Reactive Magnetron Sputter Deposition of Bismuth Tungstate Coatings for Water Treatment Applications under Natural Sunlight, *M Ratova,* ***Peter Kelly,*** Manchester Metropolitan University, UK*; R Marcelino, C Amorim, P de Souza,* Federal University of Minas Gerais, Brazil

Fundamentals and Technology of Multifunctional Materials and Devices
Room Grand Hall - Session CP
Symposium C Poster Session
5:00pm

CP-2 Effect of Nitrogen Content on Structure and Properties of MoN_x Coatings, ***Jian Wang,*** University of New South Wales, Australia

CP-3 Stress Metrology for G6 and Larger Flat Panel Displays, ***Wojtek Walecki,*** Frontier Semiconductor, USA*; W Hung,* Frontier Semiconductor, USA, United States of America*; D Kim,* Sejong University, Korea

CP-4 Hydrogen Barrier Properties of Diamond-like Carbon Coatings, ***Motonori Tamura,*** University of Electro-Communications, Japan

CP-5 Effect of N_2 Flow Rate on the Properties of TiN film on Si Substrate for Thermal Detector Application, ***Yi-Ching Huang,*** *K Lin, Y Lai,* National Nano Device Laboratories, National Applied Research Laboratories, Taiwan

CP-6 Gradated Multilayer Thin Film of $BaTiO_3$/PVDF with High Energy Storage Density, ***XiaoHui Wang,*** Tsinghua University, China

CP-7 Synthesis of Bi_2O_3:TiO_2 Nano Structured Thin Films for Photocatalytic Applications, *M Calheiros, F Correia, J Marques,* ***Carlos Tavares,*** University of Minho, Portugal

CP-8 Improvement of Mechanical Properties in 3D Printed Ceramic Core, ***Hye-Yeong Park,*** *B Kim, G Cho, E Kim, Y Jung,* Changwon National University, Republic of Korea*; J Zhang,* Indiana University Purdue University Indianapolis, USA

CP-9 Enhanced Efficiency of Perovskite Solar Cells with Ferroelectricity, *T Nguyen, S Shin, S Kim, H Choi,* ***ChungWung Bark,*** Gachon University, Republic of Korea

CP-10 Improvement in Hygroscopicity of Inorganic Binder through Dual Coating Process, ***Hyun-Hee Choi,*** *H Lee, G Cho, E Kim, Y Jung,* Changwon National University, Republic of Korea*; J Zhang,* Indiana University-Purdue University Indianapolis, USA

CP-11 Synthetic Parameter Influence on Morphological and Electrochemical Properties of Porous NiO Thin Films Prepared by Chemical Bath Deposition, ***Jung-Hoon Yu,*** *H Yang, R Jeong, J Lee, D Kim, K Hwang, H Seo, S Nam, J Boo,* Sungkyunkwan University, Republic of Korea

CP-12 Characteristics of Perovskite Solar Cells Fabricated by using Lead Free Perovskite, *S Shin, C Bark,* ***HyungWook Choi,*** Gachon University, Republic of Korea

CP-14 The Influence of Disordered Grain Boundaries on Carrier Transport in Degenerated Polycrystalline AZO Thin Films Deposited by Magnetron Sputtering, ***Hiroki Tokunaga,*** *T Miyata, T Minami,* Kanazawa Institute of Technology, Japan

CP-15 Physical and Electrochromic Behavior of the $ZnWO_4$ Active Layer synthesized by Co-sputtering Technique for the Energy Harvesting Devices, *G Malik, S Mourya, J Jaiswal,* ***Ramesh Chandra,*** Indian Institute Of Technology Roorkee, India

CP-16 The Influence on Electrical Characteristics of Amorphous Indium Tungsten Oxide Thin Film Transistors with Multi-Stacked Active Layer Structure, ***Kai-Jhih Gan,*** *P Liu, D Ruan, Y Chiu, M Yu, T Chien, Y Chen, P Kuo, S Sze,* National Chiao Tung University, Taiwan

CP-17 Assessment of Structural and Magnetic Properties of Cobalt-Iron-Nickel Thick Films on Copper Formed by Electroforming, ***ScooterD. Johnson,*** *C Joye, H Newman, N Nepal, A Kozen, S Shin,* Naval Research Laboratory, USA

CP-18 Sputter-deposited Nanostructured Metal-Oxide Films for Hydrogen Gas Sensing, *S Haviar,* ***Jiří Čapek,*** *N Kumal, Š Batková, M Fialová, R Čerstvý,* University of West Bohemia, Czech Republic*; T Duchoň, F Dvořák,* Charles University, Czech Republic

CP-19 A Library of Broadband Reference Dielectric Functions, Valence Band Spectra and Raman Spectra of Epitaxial Conductive Nitride Films Grown on MgO, *S Kassavetis, T Zorba, J Arvanitidis, D Christofilos,* Aristotle University of Thessaloniki, Greece*; G Abadias,* Université de Poitiers, France*; D Gall,* Rensselaer Polytechnic Institute, USA*;* ***Panos Patsalas,*** Aristotle University of Thessaloniki, Greece

CP-21 Electrical Properties of Molybdenum Doped β-Ga2O3 Thin Films, *J Galindo,* ***Anil Krishna Battu,*** *R Chintalapalle,* University of Texas at El Paso, USA

INVITED: CP-22 Electron Beam Deposition and Characterization of Transparent WO_3/Al/WO_3 Multilayer Thin Films, *A Leyva, K Makeswaran,* ***Ramana Chintalapalle,*** University of Texas at El Paso, USA

CP-24 Numerical Ellipsometry: Extension of Concepts of n-k Plane Solutions from Isotropic to Anisotropic Films, ***Frank Urban,*** *D Barton,* Florida International University, USA

CP-25 Piezophotocatalytic and Piezoelectric Performance of Titanium Zinc Nitride Nanorod, ***Hsin-Yi Lee,*** *K Chang,* National Cheng Kung University (NCKU), Taiwan

CP-26 Well-alignment $ZnSnO_3$ by Epitaxially Oriented PVDF and Synergistic Piezo-related Performance of the $ZnSnO_3$/PVDF Nanocomposites, ***Chen-Hui Chou,*** *K Chang,* National Cheng Kung University (NCKU), Taiwan

CP-27 Challenges and Limitations for the Optical Characterization of Sub-micron Temperature Fields in Plasmonic Metamaterials, ***Juan Antonio Zapien,*** City University of Hong Kong, Hong Kong

CP-28 The Modification of Refractive Index by using Solid State Diffusion, ***Hung-Pin Chen,*** *W Cho,* Instrument Technology Research Center, National Applied Research Laboratories, Taiwan*; C Lee,* National Central University, Taiwan*; Y Lin,* National Tsing Hua University, Taiwan*; W Chen,* Instrument Technology Research Center, Taiwan

CP-29 Effect of Silicon Content on the Structural, Optical and Electrical Characteristics of SiOx Films Prepared by Sputtering, ***Karim Monfil Leyva,*** *A Salazar Valdez,* Benemérita Universidad Autónoma de Puebla, Mexico*; A Morales Sánchez,* Centro de Investigación en Materiales Avanzados SC, Mexico*; J Luna López, M Domínguez Jiménez, A Muñoz Zurita,* Benemérita Universidad Autónoma de Puebla, Mexico

CP-30 Optical Properties of the TiO_2 Films Grown by Atomic Layer Deposition using Tetrakis(Dimethylamino)Titanium and H_2O, ***Wen-Hao Cho,*** *P Huang, C Chen, Y Yu, C Yang, C Kei,* Instrument Technology Research Center, National Applied Research Laboratories, Taiwan

CP-31 Fractal Analysis of Titanium Nitride Films with Different Morphologies and Evaluation for the Direct Methanol Fuel Cell Applications, ***Kai-Ling Chuang,*** *M Tsai, Y Tsai, F Lu,* National Chung Hsing University, Taiwan

CP-32 Growth Kinetics Behavior and Morphology of Multicomponent Coating on Zirconium Hydride during Oxidizing Atmosphere, *G Yan,* ***Jiandong Zhang,*** *L Wang, S Bai,* GRINM company, China

Coatings for Biomedical and Healthcare Applications
Room Grand Hall - Session DP
Symposium D Poster Session
5:00pm

DP-2 Ti-Nb COATINGS Deposited on AISI 316L Stainless Steel by Magnetron Sputtering for Biomedical Applications, *E Gonzalez, D Tallarico,* Federal University of Sao Carlos, Brazil*; A Gobbi,* Brazilian Center for Research in Energy and Materials, Brazil*; C Afonso,* ***Pedro Nascente,*** Federal University of Sao Carlos, Brazil

DP-4 Investigation of High Performance Hydroxylapatite Coated PEEK Composite Materials for Biomedical Applications, *J Su,* Chang Gung Memorial Hospital, Taiwan*; C Chen,* ***Gwomei Wu,*** Chang Gung University, Taiwan

DP-5 Structural and Morphological Properties of PEO Films Grown on Ti-10Nb and Ti-20Nb and their Cellular Viability, ***Carlos Lepienski,*** Universidade Tecnológica Federal do Paraná, Brazil*; A Luz,* UFPR, Brazil*; N Kuromoto,* Universidade Federal do Paraná, Brazil*; G Lima,* Athlone Institute of Technology, Ireland*; B Pereira,* Universidade Federal do Paraná, Brazil*; M Sá, D Lima,* Universidade Federal de Campina Grande, Brazil

DP-6 Tribocorrosion Behavior of SiC Films with and without TiO_2 Nanoparticles on AISI 316L for Prosthesis Application, *A Vieira, T Santos,* Univap, Brazil*; P Radi,* ITA, Brazil*; S Silva,* IEAv, Brazil*; A da Silva,* Univap, Brazil*; G de Vasconcelos,* IEAv, Brazil*;* ***Marco A. Ramirez R.,*** Universidade do Vale do Paraíba (UNIVAP), Brazil*; L Vieira,* Univap, Brazil

Tribology and Mechanical Behavior of Coatings and Engineered Surfaces
Room Grand Hall - Session EP
Symposium E Poster Session
5:00pm

EP-2 Effect of Power on Soft Magnetic and Tribological Properties of Fe-Co based Coating by Laser Cladding, ***Xiaoshan Yang,*** *X Cui, G Jin, J Liu,* Harbin Engineering University, China

EP-3 Tribological Behavior of the FeB Phase in Boron Coating Formed on an AISI L6 Steel using Ball On Disc with Dry Conditions, ***Daniel Sanchez Huerta,*** CBI, Universidad Autónoma Metropolitana unidad Azcapotzalco, Mexico*; I Hilerio Cruz,* Universidad Autonoma Metropolitana unidad Azcapotzalco, Mexico*; N Lopez Perrusquia,* Universidad Politecnica Del Valle De Mexico, Mexico*; E García Bustos,* Catedras CONACYT, Mexico, México*; M Doñu Ruiz,* Universidad Politecnica del Valle de Mexico, Mexico*; M Flores Martinez,* Universidad de Guadalajara, CUCEI, Mexico

EP-4 Tribocorrosion Behavior of Boronized AISI 4140 Steel, ***Steffen Aichholz,*** *R Torres, M Meruvia, P Soares,* PUCPR, Brazil

EP-5 Influence of Sputter Power Ratio on Microstructure, Mechanical and Tribological Properties of Ti-B-C Coatings Deposited onto AISI M2 Steel, ***Elbert Contreras,*** *M Gómez,* Universidad de Antioquia, Colombia

EP-6 Structural and Mechanical Properties of W-doped HfO_2 Thin Films, *A Uribe, M Garcia, R Chintalapalle,* ***Cristian Orozco,*** University of Texas at El Paso, USA

EP-7 Tribological Studies on Self-Lubricating (Cr,Al)N/MoS_x Coatings at Elevated Temperature, *K Bobzin, T Brögelmann,* ***Nathan Kruppe,*** *D Hoffmann,* Surface Engineering Institute - RWTH Aachen University, Germany*; F Klocke, P Mattfeld, D Trauth, R Hild,* Laboratory for Machine Tools and Production - RWTH Aachen University, Germany

EP-8 Role of Carbon Nanotubes in Reducing Friction between Steel/Steel Contacts, ***Zaixiu Yang,*** *S Bhowmick,* University of Windsor, Canada*; F Sen,* Argonne National Laboratory, USA*; A Alpas,* University of Windsor, Canada

EP-11 Microstructure Change, Element Diffusion and Tribological Properties of Chromium Oxide from RT to 1000 °C, ***Huidi Zhou,*** *N He, X Liu,* Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China

EP-12 Sliding Wear Behaviour of Infiltrated Self-lubricating Polymer Matrix Composites Studied by in-situ Tribometry, ***Yinyin Zhang,*** McGill University, Canada*; R Schulz,* Hydro-Québec Research Institute (IREQ), Canada*; R Chromik,* McGill University, Canada

EP-13 Sputtered B-C-W-Coatings: Composition – Properties – Stability, ***Heidrun Klostermann,*** Fraunhofer FEP, Germany*; J Poetschke,* Fraunhofer IKTS, Germany*; O Zywitzki,* Fraunhofer FEP, Germany

EP-14 Comparison of Tribological and Electrochemical Properties of Titanium Oxided Films Produced on Cp-Ti by Sol-Gel and Silar Methods, *O Çomaklı,* Erzincan University, Turkey*; M Yazıcı,* Erzurum Technical University, Turkey*;* ***Halim Kovacı,*** Atatürk University, Turkey*; T Yetim,* Erzurum Technical University, Turkey*; A Yetim,* Erzurum Teknik University, Turkey*; A Çelik,* Atatürk University, Turkey

EP-18 Mechanical and Tribological Properties of W–C–N Films Using Unbalanced Magnetron Sputtering Assisted by Linear Ion Source, ***Hyundong Kim,*** *S Heo, E An, I Park,* Korea Institute of Industrial Technology (KITECH), Republic of Korea

EP-19 The Influence of Feedstock Powders on Microstructure and Tribological Properties of WC-Co-Cr HVAF Coatings, *K Szymański, G Moskal, D Niemiec,* ***Aleksander Iwaniak,*** *J Wieczorek,* Silesian University of Technology, Poland

EP-20 Microstructure and Mechanical Properties of CuSn10 Alloy Coating Manufactured by Cold Spraying, ***Weihuang Liu,*** *J Cao, Z Yin, H Li, G Gao,* Shanghai Jiao Tong University, China

EP-22 Scratch Induced Thin Film Buckling for Quantitative Adhesion Measurements, *A Kleinbichler,* KAI – Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Austria*; J Zechner,* KAI - Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Austria*;* ***Megan Cordill,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria

EP-23 Study of the Mechanisms of Built-up Edge Formation during Machining of Super Duplex Stainless Steel, ***Yassmin Seid Ahmed,*** *G Fox-Rabinovich, B Bose, D Covelli, J Paiva, G Dosbaeva, S Veldhuis,* McMaster University, Canada

New Horizons in Coatings and Thin Films
Room Grand Hall - Session FP
Symposium F Poster Session
5:00pm

FP-2 Adjusting the Oxidation Behaviour of Arc Evaporated $Al_{1-x}Cr_x$ Intermetallics and Substoichiometric Oxides, ***Valentin Dalbauer,*** CDL-AOS at TU Wien, Austria*; J Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S Kolozsvári,* Plansee Composite Materials GmbH, Germany*; C Koller,* CDL-AOS at TU Wien, Austria*; P Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria

FP-3 Distribution of Dislocations in ZnO Thin Films Grown on a-plane Sapphire Substrates using a Reaction Between Dimethylzinc and High-temperature H_2O Generated by a Catalytic Reaction, *T Saito, R Ibe, A Kato,* Nagaoka University of Technology, Japan*; A Hashim,* MJIIT, Universiti Teknologi Malaysia, Malaysia*;* ***Kanji Yasui,*** Nagaoka University of Technology, Japan

FP-4 Structural and Optical Properties of ZnO Films Grown on Ion-Plated Ga-Doped-ZnO-Based Buffer Layers by Atmospheric-Pressure Chemical Vapor Deposition using Zn and H_2O as Source Materials, ***Tomoaki Terasako,*** *Y Ochi,* Ehime University, Japan*; M Yagi,* National Institute of Technology, Kagawa College, Japan*; J Nomoto, T Yamamoto,* Kochi University of Technology, Japan

FP-5 Synthesis and Optical Characterization of Nickel Oxide Thin Film obtained by SOL-GEL Method using Nickel Acetate and Citric Acid as Precursors, ***Jhonathan Castillo,*** *D Mateos, B Valdez, N Nedev, M Curiel, N Rosas, O Pérez,* Universidad Autónoma de Baja California, Mexico

FP-8 Exploring the Visible Light Photocatalytic Activity of the ZnO - RGO Hybrid - Nanostructures by Sol-gel Process, ***Chih-Chiang Wang,*** National Chung Hsing University, Taiwan*; H Shih,* Chinese Culture University, Taiwan

FP-9 Suppression of Moisture-induced Electrical Instabilities in High-mobility ZnON TFTs Fabricated from HiPIMS-made ZnON Films, *K Thorwarth,* ***Rajesh Ganesan,*** EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Trant,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; H Hug,* EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Bilek, D McKenzie,* The University of Sydney, Australia

FP-12 Tribo-mecanical Characterization of Ti/TiN/AlN Thin Film Produced by HiPIMS, ***Joaquin Oseguera,*** *D Melo-Máximo,* ITESM-CEM, Mexico*; L Melo,* TRAMES S.A. de C.V., Mexico

FP-13 Synthesis and Characterization of Bismuth Cuprate Thin Films Produced by Co-Sputtering, *D Franco-Pelaez, O Depablos-Rivera,* ***Sandra Rodil,*** Universidad Nacional Autonoma de Mexico, Mexico

FP-14 Synthesis of Zn /ZnO Nanoparticles using Atmospheric Plasma Discharge in Solution to Mitigate the Stress Corrosion Cracking in the Simulated Primary Water Environment, ***Sang-Yul Lee,*** *S Kim, M Song,* Korea Aerospace University, Republic of Korea*; S Kim,* Korea Institute of Industrial technology, Republic of Korea*; J Kim,* University of Incheon, Republic of Korea

FP-15 Vanadium Nitride Thin Films Grown by High Power Impulse Magnetron Sputtering, *H Hajihoseini,* ***Jon Tomas Gudmundsson,*** University of Iceland, Iceland

Surface Engineering - Applied Research and Industrial Applications
Room Grand Hall - Session GP
Symposium G Poster Session
5:00pm

GP-2 Laser-clad Induced Reaction Synthesis of TiC/WC Reinforced Co-based Composite Coatings on Copper Alloy, ***Hua Yan***, *P Zhang, Z Yu,* Shanghai University of Engineering Science, China

GP-5 The Study of Mechanical Strength on the Injection Molding Parameters of PMMA/TG Composite Bipolar Plates, ***Ai-Huei Chiou***, National Formosa University, Taiwan

GP-6 Real-time Analysis of Neutral Species from Atmospheric Plasma, ***Peter Hatton***, *A Rees, C Greenwood, S Bort,* Hiden Analytical Ltd, UK

GP-8 Correlation of HPPMS Plasma and Coating Properties using Artificial Neural Networks, *K Bobzin, T Brögelmann, N Kruppe,* ***Martin Engels***, Surface Engineering Institute - RWTH Aachen University, Germany

GP-9 Linking Erosion and Sputter Performance of a Rotatable Target to Microstructure and Properties of Mo Thin Films, *A Hofer-Roblyek, K Pichler,* Montanuniversität Leoben, Austria; *C Linke,* Plansee SE, Austria; *R Franz,* Montanuniversität Leoben, Austria; *J Winkler,* Plansee SE, Austria; ***Christian Mitterer***, Montanuniversität Leoben, Austria

GP-10 Surface Profile Analysis as an Investigative Tool for Electrolytic Plasma Polishing, ***Nicolas Laugel***, *A Matthews, A Yerokhin,* University of Manchester, UK

GP-11 Evaluation of the Oxidation of Cr-W-N Coating on Ferritic Steel as Bipolar Plates for Solid Oxide Fuel Cell, *S Yang,* ***Chi-Ju Tsan***, National University of Kaohsiung, Taiwan; *Y Chang,* National Formosa University, Taiwan; *Y Pan,* China Steel Corporation, Taiwan; *D Lin,* National University of Kaohsiung, Taiwan

Advanced Characterization Techniques for Coatings and Thin Films
Room Grand Hall - Session HP
Symposium H Poster Session
5:00pm

HP-1 Temperature Dependence of Nanocrystalline Aluminum Thin Film Elastic Constants by In-situ Brillouin Light Scattering and Picosecond Ultrasonics: Comparison to Molecular Dynamics, ***Philippe Djemia***, LSPM-CNRS, France; *L Belliard,* INSP-UPMC, France; *H Zhang, Q Hu,* IMR-CAS, China; *F Challali, N Girodon-Boulandet, D Faurie,* LSPM-CNRS, France

HP-2 High Resolution Full-field Curvature Measurement, *S Grachev,* ***Quentin Herault***, *J Wang, I Gozhyk,* Saint-Gobain Recherche, France; *R Lazzari,* INSP-UPMC, France

HP-4 In-situ High Temperature Characterization of DLC Films Using an Integrated Synchronized System, *M Rouhani,* National Chung Cheng University, Taiwan; *F Hong,* National Cheng Kung University, Taiwan; ***Yeau-Ren Jeng***, National Chung Cheng University, Taiwan

HP-6 Novel Methodology for the Evaluation of Mechanical Properties of Specific Crystalline Phases Present in Alumina Layers Formed by Plasma Electrolytic Oxidation (PEO) of Aluminium Alloys, ***Etienne Bousser***, *A Yerokhin, A Gholinia, P Withers, A Matthews,* University of Manchester, UK

HP-7 In situ High Temperature Fracture Toughness Evaluation of Hard Thin Ceramic Coatings by Means of a Micro-pillar Splitting Technique, ***Juri Wehrs***, Platit AG, Switzerland; *J Best,* University of New South Wales, Australia; *M Polyakov, X Maeder,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; *J Wheeler,* ETH Zürich, Switzerland; *M Morstein, B Torp,* Platit AG, Switzerland; *J Michler,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland

Topical Symposia
Room Grand Hall - Session TSP
Symposium TS Poster Session
5:00pm

TSP-1 Enhanced Hardening and Damage-tolerance Nanotwinned Medium Entropy Alloy CoCrNi Coatings Deposited by Magnetron Sputtering, ***Fuyang Cao***, *P Munroe,* University of New South Wales, Australia; *Z Zhou,* City University of Hong Kong, China, Hong Kong; *Z Xie,* University of Adelaide, Australia

TSP-4 Hvof Coatings Modified With Polymers To Reduce Ice Accretion For Use In Aerostructures Components, ***Raúl Muelas Gamo***, *A Agüero Bruna, J Mora Nogues, P García Gallego,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain

TSP-5 The Electro-Mechanical Properties of Cathodic Arc Deposited High Entropy Alloy Thin Films on Polymer Substrates, *A Xia,* Montanuniversität Leoben, Austria; *O Glushko, M Cordill,* Erich Schmid Institute of Materials Science, Austria; ***Robert Franz***, Montanuniversität Leoben, Austria

TSP-6 Synthesis and Characterization of Multicomponent Nitrides in the Al-Cr-Nb-Y-Zr System, ***Kristina Johansson***, Uppsala University, Sweden; *P Soucek,* Masaryk University, Czech Republic; *A Srinath, D Rehnlund, E Lewin,* Uppsala University, Sweden

Special Events Friday

Special Events Friday

7:30 AM	Conference Registration/Atlas Foyer
8:00 AM	Technical Sessions/See Room Matrix
12:00 PM	Thank You, See You in 2017 Party/Trellis Courtyard, near Pool

Friday Morning, April 27, 2018

	Coatings for Use at High Temperatures **Room California - Session A1-3** **Coatings to Resist High Temperature Oxidation, Corrosion, and Fouling** **Moderators: Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, **Shigenari Hayashi**, Hokkaido University, **Sebastien Dryepondt**, Oak Ridge National Laboratory, USA	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B4-3** **Properties and Characterization of Hard Coatings and Surfaces** **Moderators: Ulrich May**, Robert Bosch GmbH, Diesel Systems, **Fan-Bean Wu**, National United University, Taiwan, **Farwah Nahif**, eifeler-Vacotec GmbH
8:00am	**A1-3-1** A Framework for Modelling the Nanomechanical and Nanotribological Properties of High Temperature HfB_xC_y Coatings, ***Mohammad Humood***, *T Ozkan,* Texas A&M University, USA; *E Mohimi, J Abelson,* University of Illinois at Urbana-Champaign, USA; *A Polycarpou,* Texas A&M University, USA	**B4-3-1** Nano-Structural Ni Matrix Films Synthesized byElectrochemical/Chemical Composite Depositions, ***Zhixiang Zeng***, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China
8:20am	**A1-3-2** Characterization of Thermal Properties of Different Pyrochlore Ceramic Materials Dedicated for Application as an Insulation Layers in Thermal Barrier Systems, *M Mikuskiewicz,* ***Damian Migas***, *G Moskal,* Silesian University of Technology, Poland	**B4-3-2** NbC-Ni Coatings Deposited by DC Magnetron Sputtering: Effect of Ni Content on Mechanical Properties, Thermal Stability and Oxidation Resistance, ***Luis Varela***, University of São Paulo, Brazil; *F Fernandes, A Cavaleiro,* University of Coimbra, Portugal; *A Tschiptschin,* University of São Paulo, Brazil
8:40am	**A1-3-3** Development of High Performance Corrosion Resistant Coatings using Graphene, ***Anand Khanna***, *K Aneja,* IIT Bombay, India	**B4-3-3** Stress-Dependent Elasticity of TiAlN Coatings, ***Marcus Hans***, RWTH Aachen University, Germany; *U Hangen,* Bruker Nano GmbH, Germany; *L Patterer, D Holzapfel, D Music, S Evertz,* RWTH Aachen University, Germany; *V Schnabel,* Laboratory for Nanometallurgy, ETH Zurich, Switzerland; *A Eriksson, J Ramm, M Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *H Rudigier,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Switzerland; *J Schneider,* RWTH Aachen University, Germany
9:00am	**A1-3-4** Wide-range and Enhanced Filtration of Polyacrylonitrile Membrane for Water Purification by Coating with Thin Film Metallic Glass, ***Shewaye Kassa***, *Y Liao, J Chu, J Chen,* National Taiwan University of Science and Technology (NTUST), Taiwan	**B4-3-4** Evaluation of the Open Porosity of PVD-Coatings through Electrochemical Iron Detection, ***Juan Vega***, *H Scheerer, G Andersohn, M Oechsner,* Technische Universität Darmstadt, Germany
9:20am	**A1-3-5** The Effect of Surface Aluminizing to Enhance High-temperature Air-oxidation Resistance of Equimolar FeCoNi and FeCoNiCr Alloy, ***Wu Kai***, *F Cheng, F Chien, R Huang,* National Taiwan Ocean University, Taiwan; *J Kai,* National Tsing Hua University, Taiwan	**B4-3-5** Structural and Optical Properties of Si-Nb-N Composite Thin Films, ***Cristian Orozco***, University of Texas at El Paso, USA; *N Murphy, L Sun,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; *R Chintalapalle,* University of Texas at El Paso, USA
9:40am	**A1-3-6** TEM Study of Hf-B-Si-C-N Coatings Microstructure at High Temperatures, ***Yi Shen***, *M Zhang, J Jiang,* University of Texas at Arlington, USA; *J Vlček,* University of West Bohemia, Czech Republic; *E Meletis,* University of Texas at Arlington, USA	**B4-3-6** HIPIMS Cr/CrN Multilayer Structure for Corrosion Resistant Decorative Coating, ***Yen-Chun Liu***, *S Hsiao, W Lo, Y Chen, J He,* Feng Chia University, Taiwan
10:00am		**B4-3-7** Hardness-independent Extraordinary Wear Resistance in Magnetron Sputtered Cr-Si-N Coatings: The Importance of Fracture Toughness, ***Feng Huang***, *F Ge, C Jia,* Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China

Friday Morning, April 27, 2018

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Sunrise - Session C2-3** **Novel Oxide Films for Active Devices** **Moderators: Marko Tadjer**, Naval Research Laboratory, USA, **Vanya Darakchieva**, Linkoping University, Sweden	**Advanced Characterization Techniques for Coatings and Thin Films** **Room Royal Palm 1-3 - Session H3** **Characterization of Coatings in Harsh Environments** **Moderators: JeffreyM. Wheeler**, ETH Zürich, **James Gibson**, RWTH Aachen University
8:00am	**C2-3-1** Improved the PI Transmittance and ITO Conductivity by Supercritical CO_2 Fluid Treatment, *G Chen,* ***ChienYu Lin****, T Chang,* National Sun Yat-Sen University, Taiwan*; S Lin, M Yu, Y Chuang,* HannStar Display Corp, Taiwan	**H3-1** Zr/Nb Nano-multilayers – Structural and Mechanical Response to Radiation Damage, *M Callisti,* University of Cambridge, UK*;* ***Tomas Polcar****,* University of Southampton, UK
8:20am	**C2-3-2** Improving Performance by Inserting an In_2O_3 Layer into HfO_2-Based Resistive Random Access Memory, ***Cheng-Hsien Wu****,* National Sun Yat-Sen University, Taiwan*; S Lin,* National Tsing Hua University, Taiwan*; T Chang, T Tsai, Y Lin, Y Tseng,* National Sun Yat-Sen University, Taiwan	**H3-2** Nanoindentation of Commercial PVD Hard Coatings at Elevated Temperatures, *W Oliver,* Nanomechanics, Inc., USA*; M Romach,* Advanced Coating Service (ACS), USA*; R Anthony,* ***Kurt Johanns****,* Nanomechanics, Inc., USA
8:40am	**INVITED: C2-3-3** Halide Vapor Phase Epitaxy of Ga_2O_3, ***Ken Goto****, Q Thieu, D Wakimoto, K Sasaki,* Novel Crystal Technology, Inc., Japan*; K Konishi, H Murakami, Y Kumagai,* Tokyo University of Agriculture and Technology, Japan*; A Kuramata,* Novel Crystal Technology, Inc., Japan*; S Yamakoshi,* Tamura Corporation, Inc., Japan	**H3-3** Elevated Temperature Micro-impact Testing of TiAlSiN Coatings, ***Ben Beake****, A Bird,* Micro Materials Ltd, UK*; L Arrom,* Cranfield University, UK*; F Jiang,* Huaqiao University, China
9:00am	Invited talk continues.	**H3-4** Fracture Testing of Transition Metal (Oxy)Nitride Coatings, ***James Gibson****, S Rezaei, H Rueß, M Hans, D Music, O Hunold, S Wulfinghoff, J Schneider, S Reese, S Korte-Kerzel,* RWTH Aachen University, Germany
9:20am	**C2-3-5** Severe Positive Bias Temperature Instability in N-type MOS Device with Dipole Doped HfO_2 Dielectric Layer, ***FuYuan Jin****, T Chang, H Liu, C Lin,* National Sun Yat-Sen University, Taiwan*; J Liao,* National Tsing Hua University, Taiwan*; F Ciou, W Hung,* National Sun Yat-Sen University, Taiwan	**INVITED: H3-5** In-situ Study of Deformation and Fracture Processes in Nanostructured Metals at Elevated Temperatures, ***Daniel Kiener****,* Montanuniversität Leoben, Austria
9:40am	**C2-3-6** Physical Mechanisms of Negative Bias Illumination Stress in InGaZnO Thin Film Transistors with Different Metal Gate Structure, ***Chung-I Yang****,* National Chiao Tung University, Taiwan*; T Chang,* National Sun Yat-Sen University, Taiwan*; W Chou,* National Chiao Tung University, Taiwan	Invited talk continues.
10:00am	**C2-3-7** Fabrication of MSM UV Photodetector Based on ZnO/TFMG/UNCD Nanostructures, ***Markos M. Yenesew****, B Huang,* National Taiwan University of Science and Technology, Taiwan*; J Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan	**H3-7** Cryogenic Micropillar Compression Transient Tests at the Lower Limit of Crystallinity Case Study: Nanocrystalline Palladium-Gold, ***Juri Wehrs****,* Platit AG, Switzerland*; J Schwiedrzik,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M Deckarm,* Universität des Saarlandes, Germany*; J Wheeler,* ETH Zürich, Switzerland*; X Maeder,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; R Birringer,* Universität des Saarlandes, Germany*; J Michler,* EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland
10:20am	**C2-3-8** Effect of Cadmium Chloride Treatment on Poly-crystalline Thin Films of CdTe/Cd-Zn-Te/CdTe Structures, ***Tushar Shimpi****, C Reich, K Barth, W Sampath,* Colorado State University, USA	**H3-8** Surface Roughness Effects of Hard Coatings under Three-body Abrasive Sliding Conditions, ***Reza Gheisari****, A Polycarpou,* Texas A&M University, USA

Topical Symposia
Room Royal Palm 4-6 - Session TS2
High Entropy and Other Multi-principal-element Materials
Moderators: Ulf Jansson, Uppsala University, Angstrom Laboratory, **Diederik Depla**, Ghent University

8:00am		
8:20am		
8:40am		
9:00am	**TS2-4** Novel Properties and Nitriding Behavior of CoCrMnFeNi High-Entropy Alloy Prepared via Mechanical Alloying and Spark Plasma Sintering, ***Akio Nishimoto***, *T Karimoto, C Nishi,* Kansai University, Japan	
9:20am	**TS2-5** Structural, Phase Stability, Thermodynamic and Elastic Properties of CoCrCuFeNi-(Nb_x, Al_x) High-entropy and Other Thin Films: Experimental and Ab Initio Investigations, *C Li,* LSPM-CNRS, France; *B Braeckman, R Dedoncker,* Ghent University, Belgium; *Q Hu,* IMR-CAS, China; *L Belliard,* INSP-UPMC, France; *L Vitos,* KTH - Royal Institute of Technology, Sweden; *D Depla,* Ghent University, Belgium; ***Philippe Djemia***, LSPM-CNRS, France	
9:40am	**TS2-6** Carbon-containing High Entropy Alloys - A New Pathway to High-performance Materials?, ***Stefan Fritze***, *P Malinovskis, L Riekehr, D Rehnlund, L Nyholm, E Lewin, U Jansson,* Uppsala University, Angstrom Laboratory, Sweden	
10:00am	**TS2-7** Radiation Hardness Of FeCrMnNi High-Entropy Thin Films, ***Vladimir Vishnyakov***, *M Tunes, G Greaves, S Donnelly,* University of Huddersfield, UK	
10:20am	**TS2-8** Reactive Sputtering of High Entropy Alloys with Nitrogen – Tuning the Unit Cell, ***Robin Dedoncker***, *D Depla,* Ghent University, Belgium; *G Radnóczi,* Centre for Energy Research, Hungarian Academy of Sciences, Hungary	
10:40am	**TS2-9** Improved Resistance of Senary AlCrTaTiZrRu Under Bump Metallization to Interdiffusion and Reaction at Solder Joints, ***Wen-Yu Chen***, National Tsing Hua University, Taiwan; *K Cheng,* National Chung Hsing University, Taiwan; *S Chang,* National Tsing Hua University, Taiwan	

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