

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	Exhibition Keynote Lecture
F	New Horizons in Coatings and Thin Films
G	Surface Engineering - Applied Research and Industrial Applications
H	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes
HL	Awards Convocation and Honorary Lecture
PL	Plenary Lecture
SIT	Special Interest Talks
TS	Topical Symposia

Program Overview

Room /Time	California	Golden West	Grand Hall	Pacific Salon 1	Pacific Salon 2
MoPL					
MoM	B3-1-MoM: Deposition Technologies and Applications for Diamond-like Coatings I	B1-1-MoM: PVD Coatings and Technologies I		H2-1-MoM: Fatigue and Wear	D1-1-MoM: Surface Coating and Modification for Use in Biological Environments I
MoA	B3-2-MoA: Deposition Technologies and Applications for Diamond-like Coatings II	B1-2-MoA: PVD Coatings and Technologies II		H2-2-MoA: Nanoscale Plasticity	D1-2-MoA: Surface Coating and Modification for Use in Biological Environments II
TuM	B4-1-TuM: Properties and Characterization of Hard Coatings and Surfaces I	B1-3-TuM: PVD Coatings and Technologies III		H1-1-TuM: Spatially-resolved and In-Situ Characterization of Thin Films and Engineered	A1-1-TuM: Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling I
TuEx					
TuA	B4-2-TuA: Properties and Characterization of Hard Coatings and Surfaces II	B7-TuA: Plasma Diagnostics and Growth Processes		H1-2-TuA: Spatially-resolved and In-Situ Characterization of Thin Films and Engineered	A1-2-TuA: Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II
TuSIT					
WeM	B4-3-WeM: Properties and Characterization of Hard Coatings and Surfaces III	C3+C1-WeM: Thin Films for Energy-related Applications I/Optical Metrology in Design,		H3-1-WeM: Variable Temperature Nanomechanics	A1-3-WeM: Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling III
WeSIT					
WeA	B4-4-WeA: Properties and Characterization of Hard Coatings and Surfaces IV	C2-WeA: Novel Oxide Films for Active Devices		H3-2-WeA: Degradation under Extreme Conditions	A3-WeA: Materials and Coatings for Solar Power Concentration Plants
WeHL					
ThM	B6-ThM: Coating Design and Architectures	TS2-ThM: Icephobic Surface Engineering		G1+G3-ThM: Advances in Industrial PVD, CVD, and PECVD Processes and Equipment/Innovative	A2-1-ThM: Thermal and Environmental Barrier Coatings I
ThA	B5-1-ThA: Hard and Multifunctional Nanostructured Coatings I	B2-1-ThA: CVD Coatings and Technologies I		G4+G5+G6-ThA: Pre-/Post-Treatment and Duplex Technology/Hybrid	A2-2-ThA: Thermal and Environmental Barrier Coatings II
ThP			Poster Sessions		
FrM	B5-2-FrM: Hard and Multifunctional Nanostructured Coatings II	B2-2-FrM: CVD Coatings and Technologies II		G2-FrM: Component Coatings for Automotive, Aerospace, Medical, and Manufacturing	

Program Overview

Room /Time	Pacific Salon 3	Pacific Salon 6-7	San Diego	Town & Country
MoPL				PL-MoPL: Plenary Lecture
MoM	TS4-1-MoM: Thin Film Materials for Flexible Electronics			
MoA	TS3+4-2-MoA: Surface Engineering for Lightweight Materials & Thin Film Materials for Flexible Electronics			
TuM	D3-TuM: Surfaces and Coatings to Promote Tailored Biological Responses	F1-TuM: Nanomaterials and Nanofabrication	E2-1-TuM: Mechanical Properties and Adhesion I	
TuEx				EX-TuEx: Exhibition Keynote Lecture
TuA	D2-TuA: Bio-corrosion and Bio-tribology	F3-TuA: 2D Materials: Synthesis, Characterization, and Applications	E2-2-TuA: Mechanical Properties and Adhesion II	
TuSIT				SIT1-TuSIT: Special Interest Session I
WeM	TS1-1-WeM: High Entropy and Other Multi-principal-element Materials I	F4-1-WeM: Functional Oxide and Oxynitride Coatings I	E3-WeM: Tribology of Coatings for Automotive and Aerospace Applications	
WeSIT				SIT2-WeSIT: Special Interest Talk II
WeA	TS1-2-WeA: High Entropy and Other Multi-principal-element Materials II	F4-2-WeA: Functional Oxide and Oxynitride Coatings II	E1-4-WeA: Friction, Wear, Lubrication Effects, and Modeling I	
WeHL				HL-WeHL: Bunshah Award Honorary Lecture
ThM	C3+C2+C1-ThM: Thin Films for Energy-related Applications II/Novel Oxide Films for Active Devices/Optical Metrology in	F2-1-ThM: HiPIMS, Pulsed Plasmas and Energetic Deposition I	E1-1-ThM: Friction, Wear, Lubrication Effects, and Modeling II	
ThA	C4-ThA: Fundamentals of Metallurgy in Thin Films and Coatings	F2-2-ThA: HiPIMS, Pulsed Plasmas and Energetic Deposition II	E1-2-ThA: Friction, Wear, Lubrication Effects, and Modeling III	
ThP				
FrM			E1-3-FrM: Friction, Wear, Lubrication Effects, and Modeling IV	

Special Events Monday

Special Events Monday

- 7:00 AM Conference Registration/Atlas Foyer
- 7:30 AM Short Course: Practical Thin Film Characterization/Atlas Foyer
- 7:30 AM Short Course: Reactive Magnetron Sputter Deposition/Atlas Foyer
- 8:00 AM Plenary Lecture/Town & Country
- 10:00 AM Technical Sessions/See Program/Mobile App
- 12:20 PM Anton Paar Focused Topic Session: "Latest Developments in Advanced Mechanical Surface Characterization"/Town & Country
- 5:45 PM Welcome Mixer/Atlas Foyer

Monday Morning, May 20, 2019

Plenary Lecture
Room Town & Country - Session PL-MoPL
Plenary Lecture
Moderators: Christopher Muratore, University of Dayton,
Michael Stüber, Karlsruhe Institute of Technology, Germany

8:00am		
8:20am		
8:40am	INVITED: PL-MoPL-3 Soft Electronics for the Human Body, <i>John Rogers</i> , Northwestern University, USA	
9:00am	Invited talk continues.	

Monday Morning, May 20, 2019

Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B1-1-MoM PVD Coatings and Technologies I Moderators: Frank Kaulfuss, Fraunhofer Institute for Material and Beam Technology (IWS), Jyh-Ming Ting, National Cheng Kung University, Qi Yang, National Research Council of Canada		Hard Coatings and Vapor Deposition Technologies Room California - Session B3-1-MoM Deposition Technologies and Applications for Diamond-like Coatings I Moderator: Klaus Böbel, Bosch GmbH	
10:00am			
10:20am		B3-1-MoM-2 On the Deposition and Properties of Carbon-based Multilayer Systems Prepared by PLD, Steffen Weißmantel , University of Applied Sciences Mittweida, Germany; <i>M Hess</i> , Fritz Stepper GmbH & Co. KG, Deutschland, Germany; <i>R Bertram, D Haldan, T Warnk, J Maus, S Rupp</i> , University of Applied Sciences Mittweida, Germany	
10:40am	B1-1-MoM-3 Structural, Optical and Wettability Properties of Thermally Evaporated CaF ₂ , MgF ₂ and CaF ₂ /MgF ₂ Films, Ravish Kumar Jain, J Kaur, A Khanna , Guru Nanak Dev University Amritsar India, India	B3-1-MoM-3 Improved Adhesion of a-C and a-C:H Films with a CrC Interlayer on 16MnCr5 by HiPIMS-Pretreatment, <i>W Tillmann, Nelson Filipe Lopes Dias, D Stangier</i> , TU Dortmund University, Germany; <i>W Maus-Friedrichs, R Gustus</i> , Technical University Clausthal, Germany	
11:00am	B1-1-MoM-4 Metal / ScAlN / Interdigital Transducer (IDT)/ LiNbO ₃ Multilayer Structure for High K ² Surface Acoustic Wave Device, Yu Hsuan Huang , National Cheng Kung University, Taiwan; <i>S Wu</i> , Tung-Fang Design University, Taiwan; <i>J Huang</i> , National Cheng Kung University, Taiwan	B3-1-MoM-4 Properties Of Diamond-Like Carbon Films With Incorporated CVD-Diamond Nanoparticles, Rebeca Falcão , Institute of Science and Technology, Federal University of São Paulo (UNIFESP), Brasil; <i>C Wachesk</i> , Federal University of São Paulo, Brazil, Brasil; <i>T Taiaroli</i> , National Institute for Space Research, Brazil; <i>G Vasconcelos</i> , Instituto de Estudos Avançados, Brazil; <i>E Corat, V Trava-Airoldi</i> , National Institute for Space Research, Brazil	
11:20am	B1-1-MoM-5 Sputter Deposited W-HfO ₂ for Solar Absorbers, Lih-Yang Chiu, J Ting , National Cheng Kung University, Taiwan	B3-1-MoM-5 Influence of the Argon as an Ignitor and an Agent on DLC Properties Growth at Pressure as Low as 3 x 10 ⁻⁴ mbar by Modified Pulsed-DC PECVD Method, Vladimir Jesus Trava-Airoldi, K Nass, E Corat , National Institute for Space Research, Brazil; <i>N Fukumasu</i> , Sao Paulo University, Brazil; <i>M Ramirez</i> , University of Vale do Paraiba, Brazil; <i>G Capote</i> , National University of Bogota, Colombia	
11:40am	INVITED: B1-1-MoM-6 High Power Impulse Magnetron Sputtering using Deep Oscillatory Micro Pulses for Surface Engineering, Jianliang Lin , Southwest Research Institute, USA		
12:00pm	Invited talk continues.		

Monday Morning, May 20, 2019

Coatings for Biomedical and Healthcare Applications Room Pacific Salon 2 - Session D1-1-MoM Surface Coating and Modification for Use in Biological Environments I Moderator: Mathew T. Mathew , University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA		Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H2-1-MoM Fatigue and Wear Moderators: Olivier Pierron , Georgia Institute of Technology, USA, Timothy Rupert , University of California, Irvine, USA	
10:00am			INVITED: H2-1-MoM-1 Acoustic Emission Measurements to Quantifying Damage Accumulation and Crack Initiation in Nickel Single Crystals during High Frequency <i>In Situ</i> Cyclic Loading Experiments, <i>S Lavenstein, Jaafar El-Awady</i> , Johns Hopkins University, USA
10:20am	D1-1-MoM-2 Very Thin Gold Films Deposited on Collagen Fabric for Skin Cell Recover, <i>Sheng-Yang Huang</i> , Taichung Veterans General Hospital, Feng Chia University, Taiwan; <i>Y Chang</i> , Feng Chia University, Taiwan; <i>P Hsieh</i> , Institute of Plasma, Feng Chia University, Taiwan; <i>C Chou</i> , Taichung Veterans General Hospital, National Yang-Ming University, Taiwan; <i>C Chung</i> , Central Taiwan University of Science and Technology, Taiwan; <i>J He</i> , Feng Chia University, Taiwan		Invited talk continues.
10:40am	D1-1-MoM-3 Effect of Calf Serum on Tribological Behavior of DLC Coating in Ti-6Al-4V / Ti-6Al-4V Contact for Application to STEM / NECK Contact of Modular Hip Implant, <i>H Ding, Vincent Fridrici, G Bouvard</i> , Ecole Centrale de Lyon, LTDS - Université de Lyon, France; <i>J Géringier</i> , Ecole des Mines de St-Etienne - Université de Lyon, France; <i>P Kapsa</i> , Ecole Centrale de Lyon, LTDS - Université de Lyon, France		H2-1-MoM-3 A Data-driven Approach to Describe Fatigue Damage Evolution and Crack Initiation in a BCC Steel Microstructure, <i>A Durmaz, Thomas Straub, C Eberl</i> , Fraunhofer IWM, Germany
11:00am	INVITED: D1-1-MoM-4 Accelerated Tests for Lifetime Prediction of Interlayers and Interfaces of Coated Implants in Body Fluid, <i>Roland Hauert, E Ilic, A Pardo-Perez, K Thorwarth, P Schmutz</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>S Mischler</i> , Institut des Matériaux IMX, EPFL, Lausanne, Switzerland		H2-1-MoM-4 Low and High Cycle Fatigue Testing of Ni Microbeams, <i>Alejandro Barrios</i> , Georgia Institute of Technology, USA; <i>E Kakandar</i> , Cranfield University, UK; <i>X Maeder</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>G Castelluccio</i> , Cranfield University, UK; <i>O Pierron</i> , Georgia Institute of Technology, USA
11:20am	Invited talk continues.		H2-1-MoM-5 Nanocrystalline Alloys with Disordered Complexions Probed by In Situ Mechanical Testing, <i>Timothy Rupert, J Wardini, J Schuler</i> , University of California, Irvine, USA
11:40am	D1-1-MoM-6 Thin Film Metallic Glass Coating as an Effective Antiadhesion Coating for Platelet and Cancer Cells, <i>Jinn P. Chu</i> , National Taiwan University of Science and Technology (NTUST), Taiwan; <i>C Li, Y Chen, S Chyntara</i> , National Taiwan University of Science and Technology, Taiwan; <i>M Chen</i> , Mackay Medical College, Taiwan; <i>S Chang</i> , Mackay Memorial Hospital Tamsui Campus, Taiwan		H2-1-MoM-6 Structural Evolution and Wear-rate Transitions in Nanocrystalline Alloys, <i>Olivia Donaldson, J Panzarino, T Rupert</i> , University of California, Irvine, USA
12:00pm	D1-1-MoM-7 Improvement of Surface Properties of Nitinol Alloy through Deposition of Graphene by Electrophoretic Deposition Technique for Biomedical Applications, <i>Madhusmita Mallick, N Arunachalam</i> , Indian Institute of Technology Madras, India		H2-1-MoM-7 Effects of Thermal Cycling on Nano-mechanical Properties of Thermal Barrier Coatings, <i>Marco Sebastiani</i> , Roma TRE University, Italy

Monday Morning, May 20, 2019

<p>Topical Symposia Room Pacific Salon 3 - Session TS4-1-MoM Thin Film Materials for Flexible Electronics Moderators: Oleksandr Glushko, Erich Schmid Institute of Materials Science, Nicholas Glavin, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA</p>		
10:00am	<p>INVITED: TS4-1-MoM-1 2D Materials Based Epidermal and Implantable Conformable Bioelectronics, Nanshu Lu, University of Texas at Austin, USA</p>	
10:20am	<p>Invited talk continues.</p>	
10:40am	<p>TS4-1-MoM-3 Performance Deterioration Characteristics of Silver-Nanoparticle-Printed Flexible Electric Wirings under Severe Bending Deformation, Shoji Kamiya, <i>H Izumi</i>, Nagoya Institute of Technology, Japan; <i>T Sekine</i>, Yamagata University, Japan; <i>Y Haga</i>, <i>H Sugiyama</i>, Nagoya Institute of Technology, Japan; <i>N Shishido</i>, Green Electronics Research Institute, Kitakyushu, Japan; <i>M Koganemaru</i>, Kagoshima University, Japan</p>	
11:00am	<p>TS4-1-MoM-4 Characterizing the Mechanical Reliability of Flexible and Stretchable Conductive Inks on Polymeric Substrates, Gabriel Cahn, Georgia Institute of Technology, USA; <i>M Wolfe</i>, DuPont Photovoltaic and Advanced Materials, USA; <i>J Meth</i>, DuPont Electronics and Imaging, USA; <i>S Graham</i>, <i>O Pierron</i>, Georgia Institute of Technology, USA</p>	
11:20am	<p>INVITED: TS4-1-MoM-5 Printed Hybrid Materials for Flexible Electronic and Optoelectronic Devices, <i>E List-Kratochvil</i>, Felix Hermerschmidt, Humboldt-Universität zu Berlin, Germany</p>	
11:40am	<p>Invited talk continues.</p>	

Monday Afternoon, May 20, 2019

	Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B1-2-MoA PVD Coatings and Technologies II Moderators: Frank Kaulfuss, Fraunhofer Institute for Material and Beam Technology (IWS), Jyh-Ming Ting, National Cheng Kung University, Qi Yang, National Research Council of Canada	Hard Coatings and Vapor Deposition Technologies Room California - Session B3-2-MoA Deposition Technologies and Applications for Diamond-like Coatings II Moderator: Frank Papa, Gencoa
1:40pm	B1-2-MoA-1 Harlan™: High Rate-High Density Pulsed Magnetron Sputtering Source for Depositing Metal & Ceramic Coatings for Industrial Applications., <i>B Abraham, Roman Chistyakov</i> , Ionex Corp, USA	B3-2-MoA-1 Transfer of DLC Coating Processes between Different Coating Machines Assisted by Plasma Simulation, <i>Marcus Günther, O Schmidt, W Dobrygin, G Schütze</i> , Robert Bosch GmbH, Germany
2:00pm	B1-2-MoA-2 Arc Sources for Low Defect Coatings and High Target Utilization, <i>Victor Bellido-Gonzalez, D Monaghan, B Daniel, R Brown, J Price, A Azzopardi</i> , Gencoa Ltd, UK	B3-2-MoA-2 Stress-Free ta-C Industrially Deposited by PLD for High Performance Stamping Applications: Results and Challenges of 1st Production Year, <i>Martin Hess</i> , Fritz Stepper GmbH & Co. KG, Deutschland, Germany; <i>S Weißmantel, R Bertram</i> , Hochschule Mittweida University of Applied Sciences, Germany
2:20pm	B1-2-MoA-3 Cutting Tools in the Era of Industrial Internet of Things and Additive Manufacturing, <i>Aharon Inspektor, A Rollett, P Salvador</i> , Carnegie Mellon University, USA	INVITED: B3-2-MoA-3 Hollow Cathode Discharges for Rapid DLC, <i>Thomas Casserly, S Gennaro, F Papa, A Tudhope</i> , Duralar Technologies, USA
2:40pm	B1-2-MoA-4 Overstoichiometric Transition Metal Nitride Films, <i>Zuzana Čiperová, J Musil, Š Kos, M Jaroš</i> , European Centre of Excellence, University of West Bohemia, Czech Republic	Invited talk continues.
3:00pm	B1-2-MoA-5 Introducing of New Hybrid LACS® Technology (Lateral ARC and Central Sputtering by Rotating Cathodes), <i>Radek Zemlicka, M Jilek (Sr.), M Jilek (Jr.), A Lümekemann, T Cselle, D Bloesch, V Krsek</i> , Platit AG, Switzerland	B3-2-MoA-5 Hard Cr-doped DLC Coatings Deposited by Low-frequency HiPIMS with Enhanced Tribomechanical Behavior at High Temperature, <i>José Antonio Santiago Varela</i> , PVT Plasma und Vakuum Technik GmbH, Germany; <i>I Fernandez</i> , Nano4Energy SL, Spain; <i>A Wennberg</i> , Nano4Energy, Spain; <i>M Monclus, J Molina Aldareguia</i> , IMDEA Materials; <i>V Bellido-Gonzalez</i> , Gencoa Ltd, UK; <i>C Rojas, J Sanchez Lopez</i> , ICMSe CSIC, Spain; <i>R Gonzalez Arrabal</i> , Universidad Politécnica de Madrid, Spain; <i>N Dams, H Gabriel</i> , PVT Plasma und Vakuum Technik GmbH, Germany
3:20pm	B1-2-MoA-6 Edge-related Effects During Arc-PVD Deposition Processes, <i>Tim Krülle, F Kaulfuss, O Zimmer, A Leson, C Leyens</i> , Fraunhofer Institute for Material and Beam Technology (IWS), Germany	
3:40pm	B1-2-MoA-7 Reactive Sputtering for Highly Oriented HfN Film Growth on Si(100) Substrate, <i>Yu-Siang Fang, K Chiu, H Do, L Chang</i> , National Chiao Tung University, Taiwan	B3-2-MoA-7 Effect of Pulse Shape and Plasma Composition (Ar + Ne) on the Properties of Hard DLC Films Deposited by HiPIMS: Correlation with Substrate Ion Fluxes, <i>João Oliveira, F Ferreira, R Serra</i> , University of Coimbra, Portugal; <i>T Kubart</i> , Uppsala University, Angstrom Laboratory, Sweden; <i>C Vitelaru</i> , National Institute for Optoelectronics, Romania; <i>A Cavaleiro</i> , University of Coimbra, Portugal
4:00pm	INVITED: B1-2-MoA-8 Study of Orthorhombic ZnSnN ₂ Fabricated using Zn-Sn ₃ N ₄ Composition Spreads through Combinatorial Reactive Sputtering, <i>Kao-Shuo Chang</i> , National Cheng Kung University, Taiwan	B3-2-MoA-8 The Comparison of Deposition Processes, Composition and Properties of Hydrogenated W-C:H Coatings Prepared by Different Sputtering Techniques, <i>Frantisek Lofaj, M Kabatova, L Kvetkova</i> , Institute of Materials Research of SAS, Slovakia; <i>J Dobrovodsky</i> , ATRI, Slovakia
4:20pm	Invited talk continues.	B3-2-MoA-9 The Mechanism of Graphite Nucleation in Amorphous Carbon Films Deposited with the Condition of Energetic Bombardment and High Temperature, <i>Di Zhang, P Yi, L Peng, X Lai</i> , Shanghai Jiaotong University, China
4:40pm	B1-2-MoA-10 Angular Resolved Mass-energy Analyses of Species Emitted from a d.c. Magnetron Sputtered NiW-target, <i>Martin Rausch</i> , Montanuniversität Leoben, Austria; <i>S Mraz, J Schneider</i> , RWTH Aachen University, Germany; <i>J Winkler</i> , Plansee SE, Austria; <i>C Mitterer</i> , Montanuniversität Leoben, Austria	
5:00pm	B1-2-MoA-11 Effect Produced by Architecture of Nanolayer Composite Coatings Deposited with Filtered Cathodic Vacuum Arc Deposition (FCVAD) Technology on their Mechanical and Performance Properties, <i>Alexey Vereschaka, S Grigoriev, Mstu Stankin</i> , Russian Federation; <i>N Sitnikov</i> , National Research Nuclear University MEPhI, Russian Federation; <i>N Andreev</i> , National University of Science and Technology "MISIS", Russian Federation	
5:20pm	B1-2-MoA-12 Effects of Nitrogen Flow Rate and Substrate Bias on Structure and Properties of Molybdenum Nitride Thin Film, <i>Cho-Cheng Chou, J Huang</i> , National Tsing Hua University, Taiwan	

Monday Afternoon, May 20, 2019

Coatings for Biomedical and Healthcare Applications Room Pacific Salon 2 - Session D1-2-MoA Surface Coating and Modification for Use in Biological Environments II Moderator: Mathew T. Mathew , University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA		Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H2-2-MoA Nanoscale Plasticity Moderators: Timothy Rupert , University of California, Irvine, USA, Olivier Pierron , Georgia Institute of Technology, USA	
1:40pm	INVITED: D1-2-MoA-1 Recent Development of Biocompatible Thin Film Metallic Glass Materials, <i>Jyh-Wei Lee</i> , Ming Chi University of Technology, Taiwan; <i>B Lou</i> , Chang Gung University, Taiwan; <i>Y Yang</i> , National Taipei University of Technology, Taiwan; <i>C Lin</i> , National Taiwan University, Taiwan		H2-2-MoA-1 Assessing the Mechanical Properties of Thin Organic Semiconductor Coatings, <i>Steve Bull</i> , Newcastle University, UK
2:00pm	Invited talk continues.		H2-2-MoA-2 In Situ TEM Activation Volume Measurements, <i>S Gupta</i> , <i>S Stangebye</i> , <i>J Kacher</i> , Olivier Pierron , Georgia Institute of Technology, USA
2:20pm			H2-2-MoA-3 In-situ Microscale Mechanical Testing of Metal/Ceramic Interfacial Regions, <i>X Zhang</i> , <i>Y Mu</i> , <i>S Shao</i> , Wen Jin Meng , Louisiana State University, USA
2:40pm	D1-2-MoA-4 Antibacterial and Biocompatible Properties of Ga-doped TaON Thin Films, <i>Jang-Hsing Hsieh</i> , <i>Q Liu</i> , Ming Chi University of Technology, Taiwan; <i>C Li</i> , National Yang Ming University, Taiwan		H2-2-MoA-4 Nano-wedging: A Novel Test Method to Combine Nanoscale Strain Mapping with Multiaxial Stress States, Thomas Edwards , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>F Di Gioacchino</i> , <i>J Pürstl</i> , University of Cambridge, UK; <i>X Maeder</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>W Clegg</i> , University of Cambridge, UK; <i>J Michler</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland
3:00pm	D1-2-MoA-5 TiO ₂ Nanotubes Produced in Aqueous Electrolytes with CMC for Biomaterials Application, Robinson Aguirre Ocampo , <i>M Echeverry-Rendón</i> , <i>S Robledo</i> , <i>F Echeverría</i> , Universidad de Antioquia, Colombia		H2-2-MoA-5 Micromechanical Characterisation of Ag/Au Multilayers by Means of Bulge and Nanoindentation Testing, Sebastian Krauß , <i>M Göken</i> , <i>B Merle</i> , Friedrich Alexander-University Erlangen-Nürnberg (FAU), Germany
3:20pm	D1-2-MoA-6 Electrochemical Evaluation of Titanium Oxide Coatings Deposited on Magnesium Alloys, <i>B Millan-Ramos</i> , Universidad Nacional Autonoma de Mexico, México; <i>J Victoria-Hernandez</i> , <i>S Yi</i> , Magnesium Innovation Centre, Helmholtz-Zentrum, Germany; <i>D Letzig</i> , Magnesium Innovation Centre, Helmholtz-Zentrum, Germany, Germany; Phaedra Silva-Bermudez , Instituto Nacional de Rehabilitación, Mexico; <i>S Rodil</i> , Universidad Nacional Autonoma de Mexico, México		H2-2-MoA-6 Size Effect on Superplastic Flow – In situ Micromechanical Characterization of Superplastic Zn-22% Al, Patrick Feldner , <i>M Göken</i> , University Erlangen-Nürnberg, Germany; <i>B Merle</i> , Friedrich Alexander-University Erlangen-Nürnberg (FAU), Germany
3:40pm			INVITED: H2-2-MoA-7 Studies on the Mechanisms in Hexagonal Close Packed Metal Nanolaminates, Irene Beyerlein , University of California, Santa Barbara, USA
4:00pm	D1-2-MoA-8 Metallization of Polymers for Medical Applications, Aarati Chacko , <i>H Hug</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>S Gauter</i> , Christian-Albrechts-University Kiel, Germany; <i>K Thorwarth</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland		Invited talk continues.
4:20pm	D1-2-MoA-9 Characteristics of a Composite Ceramic Coating Fabricated on Mg-1.2Zn-0.5Ca-0.5Mn Alloy Towards Biodegradable Bone Implants, Hamdy Ibrahim , University of Tennessee at Chattanooga, USA; <i>D Dean</i> , Ohio State University, USA; <i>M Elahinia</i> , University of Toledo, USA		H2-2-MoA-9 Critical Assessment of the Criteria for Minimum Indentation Spacing, <i>S Pardhasaradhi</i> , ARCI, India; Warren Oliver , KLA-Tencor, USA
4:40pm			H2-2-MoA-10 Surface Laboratory Assistant – The New Combination of Measurement Device and Analysis Software, Nick Bierwisch , <i>N Schwarzer</i> , SIO, Germany

Monday Afternoon, May 20, 2019

<p>Topical Symposia Room Pacific Salon 3 - Session TS3+4-2-MoA Surface Engineering for Lightweight Materials & Thin Film Materials for Flexible Electronics Moderators: Klaus Böbel, Bosch GmbH, Oleksandr Glushko, Erich Schmid Institute of Materials Science, Nicholas Glavin, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA</p>		
1:40pm		
2:00pm		
2:20pm	<p>TS3+4-2-MoA-3 Electro-mechanical Reliability of Flexible Electronics: An Overview of Testing and Characterization Techniques, Oleksandr Glushko, <i>M Cordill</i>, Erich Schmid Institute of Materials Science, Austria</p>	
2:40pm	<p>TS3+4-2-MoA-4 Bending Fatigue of Al/Mo Bilayers on Polymer Substrates with Varied Al Layer Thickness, Patrice Kreiml, <i>M Rausch, V Terziyska</i>, Montanuniversität Leoben, Austria; <i>J Winkler</i>, Plansee SE, Austria; <i>C Mitterer</i>, Montanuniversität Leoben, Austria; <i>M Cordill</i>, Austrian Academy of Sciences, Austria</p>	
3:00pm	<p>TS3+4-2-MoA-5 Enabling High-Power Flexible Devices through Tailored Nanocomposite Interface Materials, Katherine Burzynski, University of Dayton, USA; <i>N Glavin</i>, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; <i>E Heller, M Snure, E Heckman</i>, Air Force Research Laboratory, Sensors Directorate, USA; <i>C Muratore</i>, University of Dayton, USA</p>	
3:20pm	<p>INVITED: TS3+4-2-MoA-6 Plasma Polymers...A Family of Materials that is Full of Surprises, Rony Snyders, University of Mons, Belgium</p>	
3:40pm	Invited talk continues.	
4:00pm	<p>TS3+4-2-MoA-8 Environmental Challenges of Thin Film Systems on Polymer Substrates for Space Applications, Barbara Putz, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; <i>G Milassin, C Semprimoschnig</i>, European Space Research and Technology Centre; <i>M Cordill</i>, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria</p>	
4:20pm	<p>TS3+4-2-MoA-9 Sputtered Thin Film Sensors for Self-sensing Composite Materials, Florian Cougnon, <i>A Lamberti, W Van Paepegem, D Depla</i>, Ghent University, Belgium</p>	
4:40pm	<p>TS3+4-2-MoA-10 A New Method for Influencing Coating Properties on Polymer Substrates at Low Temperature: High Power Impulse Magnetron Sputtering (HIPIMS) with Positive Voltage Reversal, Ambiörn Wennberg, Nano4Energy SL, Spain; <i>M Simmons</i>, Intellivation, USA; <i>F Papa</i>, GP Plasma, Spain; <i>I Fernandez</i>, Nano4Energy SL, Spain</p>	
5:00pm	<p>INVITED: TS3+4-2-MoA-11 Tribological Challenges and Surface Engineering Solutions for Extreme Environments and Lightweight Materials, Andras Korenyi-Both, Tribologix, Inc., USA</p>	
5:20pm	Invited talk continues.	

Special Events Tuesday

Special Events Tuesday

- 7:00 AM Bruker Focused Topic Session: "Advanced Technologies for the In-Depth Characterization of Surfaces"/Town & Country
- 7:30 AM Conference Registration/Atlas Foyer
- 7:30 AM Short Course: Industrial Surface Engineering: Fundamentals, Practice and Applications/Atlas Foyer
- 7:30 AM Short Course: Thin Film Nucleation, Growth, and Microstructure Evolution/Atlas Foyer
- 8:00 AM Technical Sessions/See Program/Mobile App
- 11:00 AM Exhibition Keynote Lecture/Town & Country
- 12:00 PM Exhibit Hall - Light Lunch (While Supplies Last)/Grand Hall
- 12:00 PM Exhibition/Grand Hall
- 3:20 PM Session Break - Complimentary Refreshments in Exhibit Hall/Grand Hall
- 5:30 PM Exhibition Reception/Grand Hall
- 7:00 PM Special Interest Talk: Gregory Abadias/Town & Country

Tuesday Morning, May 21, 2019

	<p>Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A1-1-TuM Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling I Moderators: Justyna Kulczyk-Malecka, Manchester Metropolitan University, Lars-Gunnar Johansson, Chalmers University of Technology, Sweden, Shigenari Hayashi, Hokkaido University</p>	<p>Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B1-3-TuM PVD Coatings and Technologies III Moderators: Frank Kaulfuss, Fraunhofer Institute for Material and Beam Technology (IWS), Jyh-Ming Ting, National Cheng Kung University, Qi Yang, National Research Council of Canada</p>
8:00am	<p>A1-1-TuM-1 Modeling the Influence of Heat Treatment and Base Alloy Composition on the Performance of Aluminide Coatings for High Performance Engine Valve Alloys, <i>Rishi Pillai, S Dryepondt, B Armstrong, Q Guo, K Unocic, G Muralidharan</i>, Oak Ridge National Laboratory, USA</p>	<p>B1-3-TuM-1 PVD-AlTiN with High Al Content – How to Overcome the “Magic” 67%-Limit, <i>Fred Fietzke, T Modes, O Zywitzki</i>, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Germany</p>
8:20am	<p>A1-1-TuM-2 Fabrication, Characterisation and Testing of Cr Coated Zr Alloy Nuclear Fuel Cladding for Enhanced Accident Tolerance, <i>A Evans</i>, Manchester Metropolitan University, UK; <i>D Goddard</i>, National Nuclear Laboratory, UK; <i>A Cole-Baker</i>, Wood plc, UK; <i>G Obasi, M Preuss</i>, Manchester University, UK; <i>E Vernon</i>, National Nuclear Laboratory, UK; <i>Peter Kelly</i>, Manchester Metropolitan University, UK</p>	<p>INVITED: B1-3-TuM-2 PVD Methods and Coatings for Protection of Aero Engine Components, <i>Uwe Schulz, R Naraparaju, R Braun, N Laska</i>, German Aerospace Center (DLR), Germany</p>
8:40am	<p>A1-1-TuM-3 High-temperature Oxidation Resistance and Self-healing Capability of HiPIMS Cr-Al-C Coating on Zr-based Alloy, <i>Michaël Ougier, A Michau, F Lomello</i>, CEA, Université Paris-Saclay, France; <i>F Schuster</i>, CEA Cross-Cutting Program on Materials and Processes Skills, France; <i>H Maskrot, M Schlegel</i>, CEA, Université Paris-Saclay, France</p>	<p>Invited talk continues.</p>
9:00am	<p>INVITED: A1-1-TuM-4 Ceramic Coatings for Protection of Ti and Zr Alloys at High Temperature, <i>Ping Xiao, Z Gao, X Zhang, H Liu</i>, University of Manchester, UK; <i>J Kulczyk-Malecka, P Kelly</i>, Manchester Metropolitan University, UK; <i>Z Zhang</i>, University of Manchester, UK</p>	<p>B1-3-TuM-4 High-temperature Nanoindentation and Microcantilever Deflection Tests of CrAlN and CrAlSiN Hard Coatings, <i>Aljaž Drnovšek</i>, Montanuniversität Leoben, Austria; <i>H Vo</i>, University of California Berkeley, USA; <i>A Xia, M Rebelo de Figueiredo</i>, Montanuniversität Leoben, Austria; <i>S Kolosvári</i>, Plansee Composite Materials GmbH, Germany; <i>S Vachhani</i>, Bruker Nano Surfaces, Germany; <i>P Hosemann</i>, University of California at Berkeley, USA; <i>R Franz</i>, Montanuniversität Leoben, Austria</p>
9:20am	<p>Invited talk continues.</p>	<p>B1-3-TuM-5 On Crystallization and Oxidation Behavior of Zr₅₄Cu₄₆ and Zr₂₇Hf₂₇Cu₄₆ Thin-film Metallic Glasses Compared to a Crystalline Zr₅₄Cu₄₆ Thin-film Alloy, <i>Michaela Kotrlová, M Žitek, P Zeman</i>, University of West Bohemia, Czech Republic</p>
9:40am	<p>A1-1-TuM-6 Multi-functional AlZr-TiO₂ Bilayer Coatings Combining Anticorrosion and Antifouling Properties, <i>Caroline Villardi de Oliveira</i>, ICD-LASMIS, Université de Technologie de Troyes, France, France; <i>A Alhussein</i>, University of Technology of Troyes (UTT), France; <i>C Jiménez</i>, Univ. Grenoble Alpes, CNRS, France; <i>Z Dong</i>, School of Materials Science and Engineering, Nanyang Technological University, Singapore; <i>F Schuster</i>, CEA, PTCMP, France; <i>S Narasimalu</i>, School of Materials Science and Engineering, Nanyang Technological University, Singapore; <i>M Schlegel</i>, CEA, Université Paris-Saclay, France; <i>F Sanchette</i>, Nogent International Center for CVD Innovation, LRC CEA-ICD LASMIS UMR6281, UTT, Antenne de Nogent, France</p>	<p>B1-3-TuM-6 On the Origin of Multilayered Structure of W-B-C Coating Prepared by Non-Reactive Magnetron Sputtering from a Single Segmented Target, <i>Michael Kroker, P Soucek, M Fekete, L Zabransky, V Bursikova</i>, Masaryk University, Brno, Czech Republic; <i>P Zikan, A Obrušnik</i>, Plasma Solve, Brno, Czech Republic; <i>Z Czigany, K Balazsi</i>, Hungarian Academy of Sciences, Hungary; <i>P Vasina</i>, Masaryk University, Brno, Czech Republic</p>
10:00am	<p>A1-1-TuM-7 The Oxidation Behavior of ZrO₂-Coated Zircaloy-4 with ZrN Interlayer, <i>I-Sheng Ting, J Huang</i>, National Tsing Hua University, Taiwan</p>	
10:20am	<p>A1-1-TuM-8 Novel HIPIMS Deposited Nanostructured CrN/NbN Coatings for Environmental Protection of Steam Turbine Components., <i>Papken Hovsepian, A Ehiasarian, Y Purandare</i>, Sheffield Hallam University, UK; <i>P Mayr, K Abstoss</i>, Technische Universität Chemnitz, Germany; <i>M Mosquera, W Schulz, A Kranzmann</i>, Federal Institute for Materials Research and Testing, Germany; <i>M Lasanta Carrasco, J Trujillo</i>, Universidad Complutense de Madrid, Spain</p>	
10:40am	<p>A1-1-TuM-9 NiAl Coatings Deposited on Inconel 600 by Using an Arc Ion Plating Process, <i>Yinan Li</i>, University of Manchester, UK; <i>Y Hung</i>, Feng Chia University, Taiwan; <i>M Lin, A Matthews</i>, University of Manchester, UK; <i>J He</i>, Feng Chia University, Taiwan</p>	

Tuesday Morning, May 21, 2019

Hard Coatings and Vapor Deposition Technologies Room California - Session B4-1-TuM Properties and Characterization of Hard Coatings and Surfaces I Moderators: Naureen Ghafoor , Linköping Univ., IFM, Thin Film Physics Div., Ulrich May , Robert Bosch GmbH, Diesel Systems, Fan-Bean Wu , National United University, Taiwan		Coatings for Biomedical and Healthcare Applications Room Pacific Salon 3 - Session D3-TuM Surfaces and Coatings to Promote Tailored Biological Responses Moderators: Sandra Rodil , Universidad Nacional Autónoma de México - Instituto de Investigaciones en Materiales, Vincent Fridrici , Ecole Centrale de Lyon - LTDS	
8:00am			
8:20am	INVITED: B4-1-TuM-2 Preparation and Characterization of Hard and Tough Coatings of Ion-assisted Co-sputtered Transition Metal Borides, Ming-Show Wong , National Dong Hwa University, Taiwan		
8:40am	Invited talk continues.	D3-TuM-3 <i>In Vitro</i> Evaluation of Macrophage Response to Ionic Liquid-Coated Titanium; Sutton Wheelis , L Guida , D C. Rodrigues , University of Texas at Dallas, USA	
9:00am	B4-1-TuM-4 Strategy for Increasing Both Hardness and Toughness in Transition-metal Diboride Thin Films, B Bakht , Linköping Univ., IFM, Thin Film Physics Div., Sweden; I Petrov , University of Illinois, USA, Linköping University, Sweden, USA; J Greene , University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan; L Hultman , J Lu , J Rosén , G Greczynski , Naureen Ghafoor , Linköping Univ., IFM, Thin Film Physics Div., Sweden	INVITED: D3-TuM-4 Materials To Control Biological Function, Karine Anselme , CNRS, France	
9:20am	B4-1-TuM-5 Tribocorrosion Resistance of Borided ASTM F1537 Alloy, I Campos-Silva , Angel Manuel Delgado-Brito , Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; J Oseguera-Peña , Tecnológico de Monterrey-CEM, México; J Martinez-Trinidad , Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, México; R Perez Pasten-Borja , Instituto Politecnico Nacional, SEPI ENCB, Mexico; D Lopez-Suero , Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, México; A Mojica-Villegas , Instituto Politecnico Nacional, ENCB, México	Invited talk continues.	
9:40am	B4-1-TuM-6 Corrosion Behavior of TiAlSiN Doped with Ag Coating Deposited by Co-sputtering in Physiological Fluids, Alvaro Danilo Caiza Tapia , S Rodriguez Arevalo , E Borja Goyeneche , J Olaya Florez , B Gamboa Mendoza , Universidad Nacional de Colombia, Colombia	D3-TuM-6 Comparison of Elution of Antibiotic and Biofilm Inhibitor from Manually Applied and Spray Deposited Phosphatidylcholine Coatings, Zoe Harrison , R Awais , R Gopalakrishnan , J Jennings , University of Memphis, USA	
10:00am	B4-1-TuM-7 Adhesion Strength of Titanium Carbide Thin Film Coatings on Surface Microstructure Controlled WC-Co, Takeyasu Saito , C Tanaka , N Okamoto , Osaka Prefecture University, Japan; A Kitajima , K Higuchi , Osaka University, Japan	D3-TuM-7 <i>In vitro</i> Osseointegration Analysis of Bio-functionalized Titanium Samples in a Protein-rich Medium, S Rao , S Hashemiastaneh , J Villanueva , University of Illinois at Chicago, USA; F Silva , University of Minho, Portugal; C Takoudis , University of Illinois at Chicago, USA; D Bijukumar , University of Illinois College of Medicine, USA; J Souza , University of Illinois at Chicago, USA; Mathew T. Mathew , University of Illinois College of Medicine, USA	
10:20am		D3-TuM-8 Microstructural and Electrochemical Properties of TiAlN-(Ag,Cu) Nanocomposite Coatings Deposited by DC Magnetron Sputtering for Medical Applications, H Mejía , Aida Echavarría , G Bejarano , Universidad de Antioquia, Colombia	

Tuesday Morning, May 21, 2019

<p>Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E2-1-TuM Mechanical Properties and Adhesion I Moderators: Megan J. Cordill, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Ming-Tzer Lin, National Chung Hsing University & Chaoyang University of Technology</p>		<p>New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F1-TuM Nanomaterials and Nanofabrication Moderators: Ulf Helmersson, Linköping University, Vitezslav Stranak, University of South Bohemia</p>	
8:00am	<p>INVITED: E2-1-TuM-1 Indentation Behavior of Metal-Ceramic Multilayer Coatings: Modeling vs. Experiment, Yu-Lin Shen, University of New Mexico, USA</p>	<p>INVITED: F1-TuM-1 Single and Multi-component Nanomaterials Prepared by Means of Cluster Beam Deposition, Ondrej Kylian, Charles University, Czech Republic; A Shelemin, D Nikitin, Charles University, Czech Republic, Czechia; P Pleskunov, J Hanus, P Solar, A Choukourov, A Kuzminova, M Cieslar, H Biederman, Charles University, Czech Republic</p>	
8:20am	Invited talk continues.	Invited talk continues.	
8:40am	<p>E2-1-TuM-3 Indentation Induced Delamination for Adhesion Measurements, Megan J. Cordill, A Kleinbichler, Erich Schmid Institute of Materials Science, Austria</p>	<p>F1-TuM-3 Preparation of High Activity and Stability of Cobalt Carbide Nanoparticles for Hydrogen Evolution Reaction, Yi-Heng Lin, National Cheng Kung University, Taiwan; S Wang, Southern Taiwan University of Science and Technology, Taiwan; J Huang, National Cheng Kung University, Taiwan</p>	
9:00am	<p>E2-1-TuM-4 Intrinsic Stress in Polycrystalline Film: An Atomistic View, Enrique Vasco, Instituto de Ciencia de Materiales de Madrid, Spanish National Research Council (CSIC), Spain; D Franco, Departamento de Física de la Materia Condensada, Universidad Autónoma de Madrid, Spain; E Michel, C Polop, Departamento de Física de la Materia Condensada and Condensed Matter Physics Center (IFIMAC), Universidad Autónoma de Madrid, Spain</p>	<p>F1-TuM-4 Nanocluster-Based Metal Oxide Films for Hydrogen Gas Sensing, Stanislav Haviar, J Čapek, Š Batková, N Kumar, University of West Bohemia, Czech Republic</p>	
9:20am	<p>E2-1-TuM-5 Development of a Methodology for Measuring the Elastic Constants of Anisotropic Coatings Using Impulse Excitation Technique, Elia Zgheib, University of Technology of Troyes (UTT) and Lebanese University (UL), France; M Slim, A Alhussein, University of Technology of Troyes (UTT), France; K Khalil, Lebanese University (UL), Lebanon; M Francois, University of Technology of Troyes (UTT), France</p>	<p>F1-TuM-5 Deposition of Magnetic Thin Films by High Power Impulse Magnetron Sputtering, Jon Tomas Gudmundsson, H Hajihoseini, M Kateb, S Ingvarsson, University of Iceland, Iceland</p>	
9:40am		<p>F1-TuM-6 Fluorination of the Magnesium Particle Surface: Enhancing the Reactivity of Magnesium, M Pantoya, Shancita Islam, Texas Tech University, USA</p>	

Tuesday Morning, May 21, 2019

<p>Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H1-1-TuM Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces I Moderators: Grégory Abadias, Institut Pprime - CNRS - ENSMA - Université de Poitiers, Xavier Maeder, Empa, Swiss Federal Laboratories for Materials Science and Technology, Michael Tkadletz, Montanuniversität Leoben</p>		
8:00am		
8:20am	<p>H1-1-TuM-2 Evolution of the Nanoporous Structure of Sintered Ag Joints at High Temperature using In-Situ X-ray Nanotomography, Xavier Milhet, <i>A Nait-Ali, D Tandiang, L Signor</i>, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>M Legros</i>, Cemes - Cnrs, France; <i>Y Liu, D Van Campen</i>, Stanford Synchrotron Radiation Lightsource - SLAC National Accelerator Laboratory, USA</p>	
8:40am	<p>INVITED: H1-1-TuM-3 Atom Probe Tomography to Help Understand Deformation Mechanisms in Metallic Alloys, Baptiste Gault, Max-Planck Institute for Iron Research, Düsseldorf, Germany; <i>P Kontis, S Makineni, J He, Z Peng</i>, Max-Planck Institut für Eisenforschung, Germany; <i>S Neumeier</i>, Friedrich Alexander-University Erlangen-Nürnberg (FAU), Germany; <i>J Cormier</i>, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>D Raabe</i>, Max-Planck Institut für Eisenforschung, Germany</p>	
9:00am	Invited talk continues.	
9:20am	<p>H1-1-TuM-5 On the Chemical Composition of TiAlN Thin Films - Comparison of Ion Beam Analysis and Laser-assisted Atom Probe Tomography with Varying Laser Pulse Energy, Marcus Hans, <i>J Schneider</i>, RWTH Aachen University, Germany</p>	
9:40am	<p>H1-1-TuM-6 Microstructure and Oxidation States of Ni in Sub-Nanometric Layer Depending on its Seed-Layer (Zinc Oxide, Silver Layers): A Multi-Techniques Approach to Trespass Limits of Resolution, Justine Voronkoff, <i>H Montigaud</i>, Saint-Gobain Recherche/CNRS, France; <i>L Largeau</i>, CNRS/C2N, France; <i>S Grachev</i>, Saint-Gobain Recherche/CNRS, France</p>	
10:00am	<p>H1-1-TuM-7 Nanomechanical Investigation on Lateral fcc-w Phase Fields of a Partially Decomposed and Transformed Nano-lamellar CVD fcc-Ti_{0.2}Al_{0.8}N Coating, Michael Tkadletz, <i>A Lechner, N Schalk</i>, Montanuniversität Leoben, Austria; <i>B Sartory</i>, Materials Center Leoben Forschung GmbH (MCL), Austria; <i>C Mitterer</i>, Montanuniversität Leoben, Austria; <i>C Czetti</i>, CERATIZIT Austria GmbH, Austria</p>	

Tuesday Morning, May 21, 2019

Exhibition Keynote Lecture

Room Town & Country - Session EX-TuEx

Exhibition Keynote Lecture

Moderators: Christopher Muratore, University of Dayton,
Michael Stüber, Karlsruhe Institute of Technology, Germany

11:00am **INVITED: EX-TuEx-1** Advanced Performance of Tools in Sheet-metal Forming - The Synergy of Surface Technology and Tooling Material Selection, **Farwah Nahif**, voestalpine eifeler Vacotec GmbH, Germany

11:20am Invited talk continues.

Tuesday Afternoon, May 21, 2019

Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A1-2-TuA Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II Moderators: Lars-Gunnar Johansson , Chalmers University of Technology, Sweden, Shigenari Hayashi , Hokkaido University, Justyna Kulczyk-Malecka , Manchester Metropolitan University		Hard Coatings and Vapor Deposition Technologies Room California - Session B4-2-TuA Properties and Characterization of Hard Coatings and Surfaces II Moderators: Naureen Ghafoor , Linköping Univ., IFM, Thin Film Physics Div., Ulrich May , Robert Bosch GmbH, Diesel Systems, Fan-Bean Wu , National United University, Taiwan	
1:40pm	INVITED: A1-2-TuA-1 Nano Coatings To Achieve Cost Effective And Long Lifetime SOFC Interconnects, Jan-Erik Svensson , Chalmers University of Technology, Sweden	B4-2-TuA-1 Fracture Toughness Enhancement in Superlattice Hard Coatings, Rainer Hahn ¹ , M Bartosik , H Riedl , TU Wien, Institute of Materials Science, Austria; H Bolvardi , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; S Kolosvári , Plansee Composite Materials GmbH, Germany; P Mayrhofer , TU Wien, Institute of Materials Science, Austria	
2:00pm	Invited talk continues.	B4-2-TuA-2 Simultaneous Topographical and Electrochemical Mapping using Scanning Ion Conductance Microscopy - Scanning Electrochemical Microscopy (SICM-SECM), W Shi , G Mendoza , Byong Kim , K Lee , Park Systems Corporation, USA	
2:20pm	A1-2-TuA-3 Influence of Ta Content on Properties of TiAlTaN Films, Hongfei Shang , T Shao , State Key Laboratory of Tribology, Tsinghua University, China		
2:40pm	A1-2-TuA-4 Cr-Al-Si-N Quaternary Coating Applied on Zirconium Alloy: Combining Superior Resistance of High-temperature Steam Oxidation and Improved Mechanical Properties, Fangfang Ge , H Zhu , F Huang , Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, China		
3:00pm			
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
3:40pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
4:00pm	A1-2-TuA-8 Polyurethane Protective Coating with Self Polishing Property, Mohammad Mizanur Rahman , King Fahd University of Petroleum and Minerals, Saudi Arabia	B4-2-TuA-8 Performance Comparison of Two Diffusion Models for Describing the Growth Kinetics of Iron Boride Layers, M Ortiz-Domínguez , Universidad Autónoma del Estado de Hidalgo, México; O Gómez-Vargas , José Salis-Romero , Instituto Tecnológico de Tlalnepantla, México; G Ares de Parga , Instituto Politécnico Nacional, México; J Oseguera-Peña , Tecnológico de Monterrey, México	
4:20pm	A1-2-TuA-9 Production of a Zinc Impregnated Stainless Steel Surface Utilizing Cathodic Plasma Electrolytic Deposition (CPED) for Retardation of Cobalt Ion Deposition in High Temperature Aqueous Conditions, Clara Fox , F Scenini , A Yerokhin , N Laugel , University of Manchester, UK; R Wain , Rolls-Royce, UK	B4-2-TuA-9 Microstructure and Surface Strength of Chemically Modified WC-Co for Adhesive Strength Improvement, Daichi Kiyokawa , C Tanaka , T Saito , N Okamoto , Osaka Prefecture University, Japan; A Kitajima , K Higuchi , Osaka University, Japan	

Tuesday Afternoon, May 21, 2019

Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B7-TuA Plasma Diagnostics and Growth Processes Moderators: Arutiun P. Ehasarian, Sheffield Hallam University, Yolanda Aranda Gonzalvo, Consultant, USA		Coatings for Biomedical and Healthcare Applications Room Pacific Salon 3 - Session D2-TuA Bio-corrosion and Bio-tribology Moderators: Jessica Jennings, University of Memphis, USA, Steve Bull, Newcastle University	
1:40pm	B7-TuA-1 On the Growth of TiO _x Coatings by Reactive Magnetron Sputtering from Metallic and Ceramic (TiO _{1.8}) Targets: A Joint Modelling and Experimental Story, Romain Tonneau , P Moskovkin, University of Namur, Belgium; W De Bosscher , Soleras Advanced Energy, Belgium; A Pflug , Fraunhofer Institute for Surface Engineering and Thin Films, Germany; S Lucas , University of Namur, Belgium	1:40pm	D2-TuA-1 Bio-Tribocorrosive Behavior of the Contact M30NW Stainless Steel against HDPE Reinforced with MoS ₂ Particles. New Polymer Implant: Promising Material?, A Salem , M Guezmil , W Bensalah , S Mezlini , Université de Monastir, Tunisia; Jean Géringier , Mines Saint-Etienne, France
2:00pm	B7-TuA-2 Titanium Atom and Ion Number Density Evolution in Reactive HiPIMS with Oxygen, Nitrogen and Acetylene Gas, M Fekete , Masaryk University, Brno, Czech Republic; D Lundin , Université Paris-Sud/CNRS, France; K Bernatova , P Klein , J Hnilica , Petr Vasina , Masaryk University, Brno, Czech Republic	2:00pm	INVITED: D2-TuA-2 Evaluation of the Adhesion of Electrospayed and Solution-Cast Chitosan Coatings on Titanium Surfaces, V Suresh , E Chng , J Bumgardner , Ranganathan Gopalakrishnan , University of Memphis, USA
2:20pm	B7-TuA-3 Phase Formation during Sputtering of Copper in Argon/Oxygen Mixtures, D Altangerel , Diederik Depla , Ghent University, Belgium	2:20pm	Invited talk continues.
2:40pm	INVITED: B7-TuA-4 Plasma Diagnostics During Growth of Transparent Conductive Oxide Thin Films by Magnetron Sputtering, Eugen Stamate , Technical University of Denmark, Denmark	2:40pm	D2-TuA-4 Study of the Mechanical and Tribological Properties of the TaN with Ti Inclusion Multilayer Films on Si Substrate, Ernesto Garcia , Cátedras-CONACyT, Universidad de Guadalajara, México; J Berumen , ITESO, Universidad Jesuita de Guadalajara, Tlaquepaque, Jalisco, México; M Flores-Martinez , Universidad de Guadalajara, México; E Camps , Instituto Nacional de Investigaciones Nucleares, México; S Muhl , Instituto de Investigaciones en Materiales-UNAM, México
3:00pm	Invited talk continues.	3:00pm	D2-TuA-5 Enhancement of Tribocorrosion Properties of Ti6Al4V by Formation of a Carbide-Derived Carbon (CDC) Surface Layer, Kai-yuan Cheng , University of Illinois at Chicago, USA; R Nagaraj , D Bijukumar , M Mathew , University of Illinois College of Medicine, USA; M McNallan , University of Illinois at Chicago, USA
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
3:40pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	3:40pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
4:00pm		4:00pm	INVITED: D2-TuA-8 Considerations when using Additive Manufacturing to make Medical Devices, Alejandro Espinoza Orías , Rush University Medical Center, USA
4:20pm	B7-TuA-9 On Three Different Ways to Quantify the Degree of Ionization in Sputtering Magnetrons, A Butler , Université Paris-Sud, Université Paris-Saclay, France; N Brenning , Université Paris-Sud, Université Paris-Saclay, Sweden; M Raadu , KTH Royal Institute of Technology, Sweden; J Gudmundsson , University of Iceland, Iceland; Tiberiu Minea , D Lundin , Université Paris-Sud, Université Paris-Saclay, France	4:20pm	Invited talk continues.
4:40pm		4:40pm	D2-TuA-10 Nanostructured Surfaces for (Bio)sensors, Vitezslav Stranak , University of South Bohemia, Czech Republic; R Bogdanowicz , Gdansk University of Technology, Poland; P Sezemsky , V Prysiazny , J Kratochvil , University of South Bohemia, Czech Republic; M Smietana , Warsaw University of Technology, Poland; O Kylian , Charles University, Czech Republic; Z Hubicka , M Cada , Institute of Physics CAS, v. v. i., Czech Republic
5:00pm	B7-TuA-11 Characterization of Microwave Surfatron Plasma-enhanced-ALD System for Low-temperature Deposition of Thin Oxide Films, Martin Cada , D Tvarog , Institute of Physics CAS, v. v. i., Czech Republic; J Kim , ISAC Research Inc., Republic of Korea; A Poruba , SVCS Process Innovation s.r.o., Czech Republic; Z Hubicka , Institute of Physics CAS, v. v. i., Czech Republic	5:00pm	

Tuesday Afternoon, May 21, 2019

<p>Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E2-2-TuA Mechanical Properties and Adhesion II Moderators: Megan J. Cordill, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Ming-Tzer Lin, National Chung Hsing University & Chaoyang University of Technology</p>		<p>New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F3-TuA 2D Materials: Synthesis, Characterization, and Applications Moderator: Eli Sutter, University of Nebraska-Lincoln, USA</p>	
1:40pm		<p>INVITED: F3-TuA-1 Roll-to-roll Plasma Chemical Vapor Deposition for Scalable Graphene Production, Timothy Fisher, UCLA, USA; M Alrefae, Purdue University, USA</p>	
2:00pm	<p>E2-2-TuA-2 Mechanical Behavior Study of 50 nm-thick Thin Film of Gold Single Crystal with In situ X-ray Pole Figures Measurements, Pierre-Olivier Renault, Université de Poitiers, France; J Drieu La Rochelle, P Godard, M Drouet, J Nicolai, M Beaufort, University of Poitiers, France; D Thiaudière, C Mocuta, SOLEIL Synchrotron, France</p>	<p>Invited talk continues.</p>	
2:20pm	<p>E2-2-TuA-3 Evaluation of the Mechanical Properties in Antibacterial Multi-layer HA-Ag Coatings Deposited by RF Magnetron Sputtering, Julian Lenis, M Gómez, F Bolívar, University of Antioquia, Colombia</p>	<p>F3-TuA-3 Magnetron Sputtered MoS₂/C Nanocomposites as Highly Efficient Electrocatalyst in Hydrogen Evolution Reaction, S Rowley-Neale, M Ratova, Manchester Metropolitan University, UK; L Fugita, University of Sao Paulo, Brazil; G Smith, University of Chester, UK; A Gaffar, Justyna Kulczyk-Malecka, P Kelly, C Banks, Manchester Metropolitan University, UK</p>	
2:40pm	<p>INVITED: E2-2-TuA-4 Mechanical Deformation in Metal and Ceramic Nano Multilayers, Andrea Hodge, University of Southern California, USA</p>	<p>F3-TuA-4 HIPIMS Graphene on Copper for Heat Spreading, C Chen, E Liao, Ping-Yen Hsieh, Y Chen, J He, Feng Chia University, Taiwan</p>	
3:00pm	<p>Invited talk continues.</p>	<p>F3-TuA-5 Tailoring Optical Properties of Two-Dimensional Transition Metal Dichalcogenides Via Photonic Annealing, Rachel Rai, K Gleibe, University of Dayton, Air Force Research Laboratory, USA; N Glavin, Air Force Research Laboratory, Wright-Patterson AFB, USA; R Wheeler, UES, Inc., Air Force Research Laboratory, USA; R Kim, Air Force Research Laboratory, Wright-Patterson AFB, USA; A Jawaid, UES, Inc., Air Force Research Laboratory, USA; L Bissell, Air Force Research Laboratory, Wright-Patterson AFB, USA; C Muratore, University of Dayton, USA</p>	
3:20pm	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	
3:40pm	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	
4:00pm	<p>E2-2-TuA-8 Deposition of Highly Adhesive Ta Based Thin Films on a Biomedical Grade CoCrMo Alloy, Jesus Corona-Gomez, Q Yang, Y Li, University of Saskatchewan, Canada</p>	<p>F3-TuA-8 Mechanism of Formation of Nitrogenated Doped Graphene Films, Investigated by In situ XPS During Thermal Annealing in Vacuum, Yannick Bleu, Univ. Lyon, Université Jean Monnet, France; V Barnier, F Christien, Laboratoire Georges Friedel, Ecole Nationale Supérieure des Mines, France; F Bourquard, Univ. Lyon, Laboratoire Hubert Curien, Université Jean Monnet, France; J Avila, Synchrotron SOLEIL & Université Paris-Saclay, France; F Garrelie, Univ. Lyon, Université Jean Monnet, France; M Asensio, Synchrotron SOLEIL & Université Paris-Saclay, France; C Donnet, Université de Lyon, Université Jean Monnet, France</p>	
4:20pm	<p>E2-2-TuA-9 DIC on FIB Ring-Core of Thin Films for Depth Sensing Residual Stress Measurement, Ming-Tzer Lin, W Pan, National Chung Hsing University, Taiwan; T Chen, F Cheng, National Cheng Kung University, Taiwan; J Huang, National Tsing Hua University, Taiwan</p>	<p>INVITED: F3-TuA-9 Engineering Point and Extended Defects in Transition Metal Dichalcogenides, Hannu-Pekka Komsa, Aalto University, Finland</p>	
4:40pm	<p>E2-2-TuA-10 Metallic Glass/Crystalline Nanolayered Coatings with High Nanoscratch Resistance and Damage Tolerance, M Abboud, Middle East Technical University, Turkey; A Motallebzadeh, Koç University, Turkey; Sezer Özerinç, Middle East Technical University, Turkey</p>	<p>Invited talk continues.</p>	
5:00pm	<p>E2-2-TuA-11 Coatings Effect On Crack Initiation Behavior Of Ti Alloys, Xiaolu Pang, University of Science and Technology Beijing, China</p>	<p>F3-TuA-11 Physicochemical and Mechanical Performance of Nylon 6.6 Coated Thin Free-standing Boron-doped Diamond Nanosheets, Robert Bogdanowicz, M Ficek, Gdansk University of Technology, Poland; V Stranak, J Kratochvíl, University of South Bohemia, Czech Republic; M Szkodo, J Ryl, M Sobaszek, Gdansk University of Technology, Poland</p>	

Tuesday Afternoon, May 21, 2019

<p>Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H1-2-TuA Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces II Moderators: Grégory Abadías, Institut Pprime - CNRS - ENSMA - Université de Poitiers, Xavier Maeder, Empa, Swiss Federal Laboratories for Materials Science and Technology, Michael Tkadletz, Montanuniversität Leoben</p>		
1:40pm	H1-2-TuA-1 Complex Study of Thermally Induced Order Reactions in Cu-Au Thin Films, Alla Sologubenko , <i>M Volpi</i> , <i>P Okle</i> , <i>R Spolenak</i> , ETH Zürich, Switzerland	
2:00pm	H1-2-TuA-2 Kinetics Dependence of Microstructure and Stress Evolutions in Polycrystalline Cu Films: Real-time Diagnostics and Atomistic Modelling. Clarisse Furgeaud ¹ , <i>C Mastail</i> , <i>A Michel</i> , <i>L Simonot</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>E Chason</i> , Brown University, USA; <i>G Abadías</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France	
2:20pm	H1-2-TuA-3 Understanding the Crystallization of Amorphous Films with Embedded Seed Crystals using High-resolution STEM Composition and Structural Mapping. Paul Rasmussen , <i>J Rajagopalan</i> , <i>R Berlia</i> , Arizona State University, USA	
2:40pm	H1-2-TuA-4 In-situ Investigation of the Oxidation Behavior of Metastable CVD Ti _{1-x} Al _x N Using Combined Synchrotron XRD and DSC, Christian Saringer , <i>M Tkadletz</i> , Montanuniversität Leoben, Austria; <i>A Stark</i> , Helmholtz Zentrum Geesthacht, Germany; <i>C Czetti</i> , Ceratizit Austria GmbH, Austria; <i>N Schalk</i> , Montanuniversität Leoben, Austria	
3:00pm	H1-2-TuA-5 In-situ X-ray Characterization of Liquid-solid Transition Phase in Small Volume, Mohamed Kbibou , <i>L Barrallier</i> , Mechanics, Surfaces and Materials Processing Laboratory, France; <i>M El Mansori</i> , Arts et Métiers ParisTech d'Aix en Provence, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France; <i>L Heraud</i> , Mechanics, Surfaces and Materials Processing Laboratory, France	
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
3:40pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
4:00pm	H1-2-TuA-8 Novel Quantitative Thin Film Thickness and Chemical State Analysis X-ray Techniques, Wenbing Yun , <i>B Stripe</i> , <i>S Shesadri</i> , <i>S Lewis</i> , <i>X Yang</i> , <i>R Qiao</i> , <i>S Lau</i> , Sigray, Inc., USA	
4:20pm	H1-2-TuA-9 Effect of Heat Treatment on Microstructure of Erbium Film on Steel Substrate with Yttria Buffer Layer Fabricated by MOCVD, Kenji Matsuda , <i>M Tanaka</i> , <i>S Lee</i> , University of Toyama, Japan; <i>Y Hishinuma</i> , NIFS, Japan; <i>K Nishimura</i> , <i>T Tsuchiya</i> , University of Toyama, Japan	
4:40pm		
5:00pm	H1-2-TuA-11 Study of Volmer-Weber Thin Film Growth Mechanisms by Coupling <i>in situ</i> Resistivity, Optical and Mechanical Measurements, Quentin Herauld , <i>S Grachev</i> , <i>I Gozhyk</i> , <i>H Montigaud</i> , Saint-Gobain Recherche/CNRS, France; <i>R Lazzari</i> , Institut des Nano Sciences de Paris - Sorbonne Université, France	

Tuesday Evening, May 21, 2019

Special Interest Talks

Room Town & Country - Session SIT1-TuSIT

Special Interest Session I

Moderators: **Christopher Muratore**, University of Dayton,

Michael Stüber, Karlsruhe Institute of Technology, Germany

7:00pm **INVITED: SIT1-TuSIT-1** Advanced Monitoring of Thin Film Growth from Real-time Diagnostics, **Grégory Abadias**, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France

7:20pm Invited talk continues.

Special Events Wednesday

Special Events Wednesday

- 7:30 AM Conference Registration/Atlas Foyer
- 7:30 AM Short Course: Fundamentals of HiPIMS Plasmas for Thin Film Deposition/Atlas Foyer
- 7:30 AM Short Course: In-Situ and Ex-Situ Ellipsometry Characterizations for Thin Film Deposition/Atlas Foyer
- 8:00 AM Technical Sessions/See Program/Mobile App
- 10:00 AM Exhibition/Grand Hall
- 10:00 AM Session Break - Complimentary Coffee in Exhibit Hall/Grand Hall
- 12:20 PM Exhibit Hall - Light Lunch (While Supplies Last)/Grand Hall
- 1:00 PM Special Interest Talk: Ivan Petrov/Town & Country
- 5:45 PM Awards Convocation/Town & Country
- 7:30 PM Awards Buffet Reception/Golden Ballroom

Wednesday Morning, May 22, 2019

	<p>Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A1-3-WeM Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling III Moderators: Justyna Kulczyk-Malecka, Manchester Metropolitan University, Lars-Gunnar Johansson, Chalmers University of Technology, Sweden, Shigenari Hayashi, Hokkaido University</p>	<p>Hard Coatings and Vapor Deposition Technologies Room California - Session B4-3-WeM Properties and Characterization of Hard Coatings and Surfaces III Moderators: Naureen Ghafoor, Linköping Univ., IFM, Thin Film Physics Div., Ulrich May, Robert Bosch GmbH, Diesel Systems, Fan-Bean Wu, National United University, Taiwan</p>
8:00am		
8:20am	<p>A1-3-WeM-2 Corrosion Monitoring Of High-Temperature Protective Coatings Under Molten Salts Environments For CSP Applications, Francisco Javier Pérez Trujillo, V Encinas Sánchez, T de Miguel Gamo, Universidad Complutense de Madrid, Spain; M Lasanta Carrasco, Universidad Complutense de Madrid, Spain; G García-Martín, Universidad Complutense de Madrid, Spain</p>	<p>B4-3-WeM-2 Physical Properties of Nano-structured Chromium Nitride Hard Coatings obtained by RF Physical Vapor Dynamic Glancing Angle Deposition, M Jimenez, V Antunes, S Cucatti, A Riul, L Zaganel, UNICAMP, Brazil; C Figueroa, Universidade de Caxias do Sul, Brazil; D Wisnivesky, UNICAMP, Brazil; Fernando Alvarez, Instituto de Física, UNICAMP, Brazil</p>
8:40am	<p>A1-3-WeM-3 Development of a Ti₂Si₃ Protective Layer on TiAl48-2Cr-2Nb for Increased Oxidation Resistance, Josefina Crespo Villegas, S Loquai, É Bousser, École Polytechnique de Montréal, Canada; M Cavarroc, SAFRAN Tech, France; S Knittel, SAFRAN Aircraft Engines, France; L Martinu, J Klemberg-Sapieha, École Polytechnique de Montréal, Canada</p>	<p>B4-3-WeM-3 Synthesis and Characterization of Sputter Deposited Hard Coatings within the Quasibinary System TiB₂-VB₂, Christian Mitterer, V Terziyska, M Tkadletz, L Hatzenbichler, D Holec, Montanuniversität Leoben, Austria; V Moraes, Institute of Materials Science and Technology, TU Wien, Austria; A Lümkmann, PLATIT AG Advanced Coating Systems, Switzerland; M Morstein, Hightech Zentrum Aargau AG, Switzerland; P Polcik, Plansee Composite Materials GmbH, Germany</p>
9:00am	<p>A1-3-WeM-4 The Impact of Aluminide and MCrAlY Coatings on the Fatigue Properties of Ni-based Valve Alloys, Sebastien Dryepondt, B Armstrong, G Muralidharan, Oak Ridge National Laboratory, USA</p>	<p>B4-3-WeM-4 Deposition-controlled Stabilization of Metastable fcc-(Al,Ti)N in CVD and PVD Coatings, Ulrike Ratayski, Technische Universität Bergakademie Freiberg, Germany; M Höhn, Fraunhofer IKTS, Germany; B Scheffel, Fraunhofer FEP, Germany; F Fietzke, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Germany; M Motylenko, D Rafaja, Technische Universität Bergakademie Freiberg, Germany</p>
9:20am	<p>A1-3-WeM-5 High Temperature Oxidation of γ-TiAl Produced by Additive Manufacturing, Radoslaw Swadzba, Institute for Ferrous Metallurgy, Poland; B Mendala, L Swadzba, B Witala, J Tracz, Silesian University of Technology, Poland; L Pyclik, K Marugi, S Sabbadini, Avio Aero A GE Aviation Business, Poland</p>	<p>B4-3-WeM-5 Oxidation Resistance of AIP Deposited AlCrN and AlTiN Coatings with High Al Compositions, Kenji Yamamoto, H Nii, Kobe Steel, Ltd., Japan</p>
9:40am		<p>B4-3-WeM-6 Standing Contact Fatigue Behavior of Nitrided AISI 316L Steels, Daybelis Fernández-Valdés, A Meneses-Amador, G Rodríguez-Castro, I Campos-Silva, Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; A Mouftiez, ICAM Lille, Matériaux, France; J Nava-Sánchez, Tecnológico de Estudios Superiores de Chalco, México</p>
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:20am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:40am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
11:00am	<p>A1-3-WeM-10 High Temperature Oxidation Protection of Gamma-based TiAl by Sputtered Al-O-F Films, Florence Bergeron, S Loquai, É Bousser, École Polytechnique de Montréal, Canada; M Cavarroc, SAFRAN Tech, France; S Knittel, SAFRAN Aircraft Engines, France; L Martinu, J Klemberg-Sapieha, École Polytechnique de Montréal, Canada</p>	<p>B4-3-WeM-10 Effect of Composition on Toughening Mechanism of V_{1-x}Mo_xN Nanocrystalline Thin Film, Yi-Qun Feng, J Huang, National Tsing Hua University, Taiwan</p>
11:20am	<p>A1-3-WeM-11 Corrosion Behavior and Durability of Microstructure of Stainless Steel Rebars in Simulated Concrete Pore Solution Containing Chloride with Different Ph, Dhruba Babu Subedi, Chinese Academy of Sciences, China</p>	<p>B4-3-WeM-11 Influence of Mo Contents on Elevated Temperature Tribological Characteristics of CrAlMoSiN Nanocomposite Coating, Yu-Chia Lin, H Tao, J Duh, National Tsing Hua University, Taiwan; J Lee, Ming Chi University of Technology, Taiwan</p>
11:40am	<p>A1-3-WeM-12 High-temperature Sulfidation of Hot-dip Aluminized 9Cr-1Mo Steel, Muhammad Ali Abro, Mehran University of Engineering and Technology, Pakistan; D Lee, Sungkyunkwan University, Republic of Korea</p>	<p>B4-3-WeM-12 Characterization of Cosputtered W-Si-N Coatings, Yu-Heng Liu, National Taiwan Ocean University, Taiwan; L Chang, Ming Chi University of Technology, Taiwan; B Liu, Y Chen, National Taiwan Ocean University, Taiwan</p>
12:00pm		<p>B4-3-WeM-13 RF Input Power Effect on Microstructure and Mechanical Properties of TaSiN Coatings, Zheng-Xin Lin, Y Liu, S Wang, National United University, Taiwan; M Guillon, Polytech Lyon, France; F Wu, National United University, Taiwan</p>

Wednesday Morning, May 22, 2019

	<p>Fundamentals and Technology of Multifunctional Materials and Devices Room Golden West - Session C3+C1-WeM Thin Films for Energy-related Applications I/Optical Metrology in Design, Optimization, and Production of Multifunctional Materials Moderators: Per Eklund, Linköpings Universitet, Tushar Shimpi, Colorado State University, USA</p>	<p>Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E3-WeM Tribology of Coatings for Automotive and Aerospace Applications Moderators: John Curry, Sandia National Laboratories, USA, Christian Greiner, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Oliver Hunold, Oerlikon Balzers, Oerlikon Surface Solutions AG</p>
8:00am		<p>INVITED: E3-WeM-1 Self-assembly of Ultra-high Strength Nanoporous Metals for Multifunctional Coatings and Free-standing Films, James Pikul, University of Pennsylvania, USA; N Argibay, J Curry, Sandia National Laboratories, USA; Z Hsain, University of Pennsylvania, USA</p>
8:20am	<p>C3+C1-WeM-2 Avoiding Blistering of Magnetron Sputtered Thin Film CdTe Photovoltaic Devices, J Walls, F Bittau, R Greenhalgh, A Abbas, Peter Hatton, R Smith, Loughborough University, UK</p>	<p>Invited talk continues.</p>
8:40am	<p>C3+C1-WeM-3 Electrochromic Device Based on WO₃/NiO Complementary Electrodes Prepared by Using Vacuum Cathodic Arc Plasma, Po-Wen Chen, Institute of Nuclear Energy Research, Taiwan</p>	<p>E3-WeM-3 Elevated Temperature Sliding Wear of PEO-Chameleon Duplex Coating, Andrey A. Voevodin, A Shirani, University of North Texas, USA; A Yerokhin, The University of Manchester, UK; A Korenyi-Both, Tribologix Inc., USA; D Berman, University of North Texas, USA; J Zabinski, Army Research Laboratory, USA</p>
9:00am	<p>C3+C1-WeM-4 Influence of Film Thickness on Growth, Structure and Properties of Magnetron Sputtered ITO Films, Andrius Subacius, Manchester University, UK; É Bousser, École Polytechnique de Montréal, Canada; B Baloukas, Polytechnique Montreal, Canada; S Hinder, M Baker, Surrey University, UK; D Ngo, Manchester University, UK; C Rebolz, Cyprus University, Cyprus; A Matthews, Manchester University, UK</p>	<p>E3-WeM-4 Formation Mechanisms of Zn, Mo, S and P Containing Reaction Layers on a DLC Coating, K Bobzin, T Brögelmann, C Kalscheuer, Matthias Thiex, Surface Engineering Institute - RWTH Aachen University, Germany</p>
9:20am	<p>INVITED: C3+C1-WeM-5 Metal/Semiconductor Superlattice Metamaterials: A New Paradigm in Solid-State Energy Conversion, Bivas Saha, Jawaharlal Nehru Centre for Advanced Scientific Research, India</p>	<p>E3-WeM-5 ta-C Coatings for Tribological Applications, J Becker, Oerlikon Balzers Coating Germany GmbH, Germany; N Beganovic, Astrid Gies, J Karner, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; J Vetter, Oerlikon Balzers Coating Germany GmbH, Germany</p>
9:40am	<p>Invited talk continues.</p>	
10:00am	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>
10:20am	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>
10:40am	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>	<p>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</p>
11:00am		<p>E3-WeM-10 Titanium Nitrides Coatings for Hard Chromium Replacement, Marjorie Cavarroc, Safran Tech, France; B Giroire, L Teulé-Gay, D Michau, A Poulon-Quintin, ICMCB, France</p>
11:20am		<p>E3-WeM-11 Tribological Coating Solutions and Lubrication Strategies for Gas Turbine Engines, Pantcho Stoyanov, Pratt & Whitney, USA</p>

Wednesday Morning, May 22, 2019

	New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F4-1-WeM Functional Oxide and Oxynitride Coatings I Moderators: Anders Eriksson, Oerlikon Balzers, Oerlikon Surface Solutions AG, Marcus Hans, RWTH Aachen University, Jörg Patscheider, Evatec AG	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H3-1-WeM Variable Temperature Nanomechanics Moderators: Jeffrey M. Wheeler, ETH Zürich, James Gibson, RWTH Aachen University
8:00am	F4-1-WeM-1 Microstructure and Piezoelectric Properties of Hexagonal Mg _x Zn _{1-x} O and Mg _x Zn _{1-x} O/ZnO Films at Lower Mg Compositions, Hsin Hung Chen, C Liu, J Huang , National Cheng Kung University, Taiwan	H3-1-WeM-1 On the Activation of Slip in the Mg-Al-Ca Laves Systems: A Combined Study Using High Temperature Indentation, Micropillar Compression and TEM, James Gibson, C Zehnder, S Sandlöbes, S Korte-Kerzel , RWTH Aachen University, Germany
8:20am	F4-1-WeM-2 Structure Optimization of Ta-O-N Films Prepared by Reactive HiPIMS for More Effective Water Splitting, Šárka Batková , Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Czech Republic; J Čapek, S Haviar, J Houška, R Čerstvý , University of West Bohemia, Czech Republic; M Krbal , University of Pardubice, Czech Republic; T Duchoň , Charles University, Czech Republic	H3-1-WeM-2 Recent Evolution of Instrumentation for Nanoindentation Measurements at Elevated Temperatures, Philippe Kempe, V Haibliková , Anton Paar, Switzerland
8:40am	INVITED: F4-1-WeM-3 A Sustainable and Viable Alternative to Low Cost Electronics based on Metal Oxides, Elvira Fortunato, R Martins , New University of Lisbon, Portugal	H3-1-WeM-3 High Temperature Mechanical Characterization of Binary Cu-X Alloys Produced by Combinatorial Synthesis, Viswanadh Gowtham Arigela , Max-Planck Institut für Eisenforschung, Germany; T Oellers, A Ludwig , Ruhr Universität Bochum, Germany; C Kirchlechner, G Dehm , Max-Planck Institut für Eisenforschung, Germany
9:00am	Invited talk continues.	H3-1-WeM-4 Temperature and Strain-rate Dependence of the Mechanical Behavior of Freestanding Gold Thin Films, Benoit Merle , Friedrich Alexander-University Erlangen-Nürnberg (FAU), Germany
9:20am	F4-1-WeM-5 Photocatalytic Study for Indium Tantalum Oxide Thin Film in Visible Light, Chuan Li , National Yang Ming University, Taiwan; J Hsieh , Ming Chi University of Technology, Taiwan; P Hsueh , National Central University, Taiwan	INVITED: H3-1-WeM-5 In-situ Investigation on Mechanical Properties at the Micrometer Scale in Cryogenic Environment, Seok-Woo Lee , University of Connecticut, USA
9:40am	F4-1-WeM-6 Tailoring the Microstructure of ZnO Thin Films for Antimicrobial Applications, P Pereira-Silva, J Borges, A Costa-Barbosa, D Costa, M Rodrigues, Filipe Vaz, P Sampaio , University of Minho, Portugal	Invited talk continues.
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:20am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:40am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
11:00am	F4-1-WeM-10 Exploring Thin Film Zn-Sn-O (ZTO) Composition Spreads Using Combinatorial Sputtering, Siang-Yun Li, Y Shen, K Chang, J Ting , National Cheng Kung University, Taiwan	
11:20am	F4-1-WeM-11 Can Thin-Film Technology Help to Realize The Einstein Gravity Quantum Computer?, Norbert Schwarzer , SIO, Germany	

Wednesday Morning, May 22, 2019

<p>Topical Symposia Room Pacific Salon 3 - Session TS1-1-WeM High Entropy and Other Multi-principal-element Materials I Moderators: Diederik Depla, Ghent University, Ulf Jansson, Uppsala University, Angstrom Laboratory</p>		
8:00am	<p>TS1-1-WeM-1 Effect of Nitrogen Content on the Microstructure and Mechanical and Tribological Properties of Magnetron Sputtered FeMnNiCoCr Nitride Coatings, <i>Chuhan Sha, P Munroe</i>, University of New South Wales, Australia; <i>Z Zhou</i>, City University of Hong Kong, Hong Kong; <i>Z Xie</i>, University of Adelaide, Australia</p>	
8:20am	<p>TS1-1-WeM-2 Reactive Sputtering of High Entropy Alloys with Nitrogen – The Effect of Enthalpy and Entropy, <i>Robin Dedoncker, D Depla</i>, Ghent University, Belgium</p>	
8:40am	<p>TS1-1-WeM-3 Compositional Variations and Resulting Structure-property Correlations in Multicomponent Al-Cr-Nb-Y-Zr-N Thin Films, <i>K Johansson, A Srinath</i>, Uppsala University, Sweden; <i>L Nyholm</i>, Uppsala University, Angstrom Laboratory, Sweden; <i>Erik Lewin</i>, Uppsala University, Sweden</p>	
9:00am	<p>TS1-1-WeM-4 Exploring High Entropy Alloy Core Effects in Multi-principal Transition Metal-Al-Si-N, and Multi-principal Boride PVD Thin Films, <i>Kumar Yalamanchili, F Doris, M Arndt</i>, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <i>H Rudigier</i>, Oerlikon Balzers, Oerlikon Surface Solutions AG, Switzerland</p>	
9:20am	<p>TS1-1-WeM-5 Mechanical Properties and Corrosion Resistance of Magnetron Sputtered Co-Cr-Fe-Mn-Ni-C Thin Films, <i>León Zendejas Medina, P Berastegui</i>, Uppsala University, Sweden; <i>L Nyholm, U Jansson</i>, Uppsala University, Angstrom Laboratory, Sweden</p>	
9:40am	<p>TS1-1-WeM-6 Thermal Property Evaluation of V-Nb-Mo-Ta-W and V-Nb-Mo-Ta-W-Cr-B High-entropy Alloy Thin Films, <i>Sheng-Bo Hung, C Wang</i>, National Taiwan University of Science and Technology, Taiwan; <i>J Lee</i>, Ming Chi University of Technology, Taiwan</p>	
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
10:20am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
10:40am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	
11:00am	<p>TS1-1-WeM-10 Structure, Mechanical Properties and Thermal Stability of Magnetron Sputtered HfTaVWZr High-entropy Boride Coatings, <i>Alexander Kirnbauer, C Koller</i>, TU Wien, Institute of Materials Science and Technology, Austria; <i>P Polcik</i>, Plansee Composite Materials GmbH, Germany; <i>P Mayrhofer</i>, TU Wien, Institute of Materials Science and Technology, Austria</p>	

Wednesday Afternoon, May 22, 2019

Special Interest Talks

Room Town & Country - Session SIT2-WeSIT

Special Interest Talk II

Moderators: Christopher Muratore, University of Dayton,
Michael Stüber, Karlsruhe Institute of Technology, Germany

1:00pm **INVITED: SIT2-WeSIT-1** Linking Intrinsic Plasma Characteristics to the Microstructure and Properties of Thin Films, *Ivan Petrov*, University of Illinois, USA, Linköping University, Sweden, USA; *G Greczynski, L Hultman*, Linköping Univ., IFM, Thin Film Physics Div., Sweden; *J Greene*, University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan

1:20pm Invited talk continues.

Wednesday Afternoon, May 22, 2019

<p>Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A3-WeA Materials and Coatings for Solar Power Concentration Plants Moderators: Vladislav Kolarik, Fraunhofer Institute for Chemical Technology ICT, Gustavo García-Martín, Universidad Complutense de Madrid</p>		<p>Hard Coatings and Vapor Deposition Technologies Room California - Session B4-4-WeA Properties and Characterization of Hard Coatings and Surfaces IV Moderators: Naureen Ghafoor, Linköping Univ., IFM, Thin Film Physics Div., Ulrich May, Robert Bosch GmbH, Diesel Systems, Fan-Bean Wu, National United University, Taiwan</p>	
2:00pm		<p>B4-4-WeA-1 Effect of Ti Interlayer on Stress Relief of ZrN/Ti Bilayer Thin Films on Si Substrate, Jia-Hong Huang, T Zheng, National Tsing Hua University, Taiwan</p>	
2:20pm		<p>B4-4-WeA-2 In-situ Observation of Stress Fields during Crack Tip Shielding in Loaded Soft-hard Micro-Cantilevers using Cross-sectional X-ray Nanodiffraction, Michael Meindlhuber, Montanuniversität Leoben, Department of Physical Metallurgy and Materials Testing, Austria; J Todt, J Zálešák, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; S Klima, N Jäger, Montanuniversität Leoben, Department of Physical Metallurgy and Materials Testing, Austria; M Rosenthal, M Burghammer, ESRF Grenoble, France; H Hruby, voestalpine eifeler Vacotec GmbH, Germany; C Mitterer, R Daniel, Montanuniversität Leoben, Department of Physical Metallurgy and Materials Testing, Austria; J Keckes, Montanuniversität Leoben, Austria</p>	
2:40pm	<p>A3-WeA-3 Ductility and Creep Rupture Behavior of Diffusion Coatings Deposited on Grade 91 Steel for Concentrated Solar Power Applications, Ceyhan Oskay, T Meissner, C Dobler, M Galetz, DECHEMA-Forschungsinstitut, Germany</p>	<p>B4-4-WeA-3 Experimentally Parameterized Simulation of an Instrumented Dry Milling Arrangement – Parameter Study Identifying Damage-relevant Coating Properties for End Mills, Andreas W. Nemetz, W Daves, T Klünsner, W Ecker, Materials Center Leoben Forschung GmbH, Austria; C Praetzas, Institute of Production Management, Technology and Machine Tools (PTW), Germany; C Czetti, J Schäfer, CERATIZIT Austria GmbH, Austria</p>	
3:00pm	<p>A3-WeA-4 Long-term Molten Salt Corrosion of Aluminide Coatings for Heat Storage in Concentrated Solar Power Plants, P Audigié, S Rodríguez, Alina Agüero, Instituto Nacional de Técnica Aeroespacial (INTA), Spain</p>	<p>B4-4-WeA-4 Mechanical Properties and Cutting Performance of AlCrSiN and AlTiCrSiN Hard Coatings, Liang-Chan Chao, Y Chang, National Formosa University, Taiwan</p>	
3:20pm	<p>A3-WeA-5 Burn-in Heat Treatment to Form Aluminide Diffusion Coatings for Industrial Large Scale Application, Vladislav Kolarik, M Juez Lorenzo, J Bermejo Sanz, S Weick, Fraunhofer Institute for Chemical Technology ICT, Germany</p>	<p>B4-4-WeA-5 Erosion, Corrosion Resistance and Hydrophobicity of Nano-layered and Multi-layered Nitride Coatings, Qi Yang, L Zhao, P Patnaik, National Research Council of Canada, Canada</p>	
3:40pm	<p>A3-WeA-6 High-Temperature Coatings For Protection of Steels in Contact with Molten Salt for CSP Technology, Gustavo García-Martín, REP-Energy Solutions, Spain; V Encinas Sánchez, Universidad Complutense de Madrid, Spain; M Lasanta Carrasco, Universidad Complutense de Madrid, Spain; T de Miguel Gamo, F Pérez Trujillo, Universidad Complutense de Madrid, Spain</p>	<p>B4-4-WeA-6 Microstructure and Thermal Stability of Al-rich Ti-Al-Mo-N Protective Coatings, Christina Wüstefeld, Institute of Materials Science, TU Bergakademie Freiberg, Germany; M Motylenko, Technische Universität Bergakademie Freiberg, Germany; S Berndorf, Institute of Materials Science, TU Bergakademie Freiberg, Germany; M Pohler, C Czetti, CERATIZIT Austria GmbH, Austria; D Rafaja, Technische Universität Bergakademie Freiberg, Germany</p>	

Wednesday Afternoon, May 22, 2019

Fundamentals and Technology of Multifunctional Materials and Devices Room Golden West - Session C2-WeA Novel Oxide Films for Active Devices Moderators: Vanya Darakchieva, Linköping University, Sweden, Alyssa Mock, Naval Research Laboratory		Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E1-4-WeA Friction, Wear, Lubrication Effects, and Modeling I Moderators: Nazlim Bagcivan, Schaeffler Technologies GmbH & Co. KG, Germany, Carsten Gachot, Vienna University of Technology	
2:00pm	INVITED: C2-WeA-1 The Physics of Low Symmetry Metal Oxides with Special Attention to Phonons, Plasmons and Excitons, Alyssa Mock , Linköping University, Sweden		
2:20pm	Invited talk continues.	E1-4-WeA-2 Surface Characteristics of the Chameleon/PEO Coating after Fretting Wear Tests, Mengyu Lin , A Nemcova, University of Manchester, UK; A Voevodin, University of North Texas, USA; T Liskiewicz, University of Leeds, UK; A Matthews, A Yerokhin, University of Manchester, UK	
2:40pm	INVITED: C2-WeA-3 Materials Interfaces for β -Ga ₂ O ₃ Power Devices, Rebecca L. Peterson , University of Michigan, USA	E1-4-WeA-3 Characterization of W Alloyed DLC Coatings Deposited by a Hybrid DC / HIPIMS Magnetron Sputtering Process, Manuel Evaristo , A Cavaleiro, SEG-CEMMPRE - University of Coimbra, Portugal	
3:00pm	Invited talk continues.		
3:20pm	INVITED: C2-WeA-5 Phase Selectivity in Heteroepitaxial Ga ₂ O ₃ Thin Films, Virginia Wheeler , N Nepal, U.S. Naval Research Laboratory, USA; L Nyakiti, Texas A&M University at Galveston, USA; D Boris, S Walton, D Meyer, B Downey, C Eddy Jr., U.S. Naval Research Laboratory, USA		
3:40pm	Invited talk continues.	E1-4-WeA-6 Analysis of Tribomechanical Behavior of Low-Temperature Plasma Blued Tool Steels, Fernando Santiago , ITESM Estado de México, Mexico; R Meza, Termoinnova, S.A. de C.V., Mexico; J Oseguera-Peña, Tecnológico de Monterrey, México	
4:00pm	INVITED: C2-WeA-7 Exfoliated β -Ga ₂ O ₃ Nano-layer based (Opto)electronic Devices, J Kim, Sooyeoun Oh , Korea University, Republic of Korea		
4:20pm	Invited talk continues.		
4:40pm	C2-WeA-9 Towards Controlled Exfoliation of β -Ga ₂ O ₃ through Ion Implantation, Michael E. Liao , T Bai, Y Wang, M Goorsky, UCLA, USA		
5:00pm			
5:20pm	C2-WeA-11 Investigation on Microstructure and Piezoelectric Property of High Orientation Y-doped ZnO Thin Films via RF Magnetron Sputtering, Li-Cheng Cheng , C Liu, J Huang, National Cheng Kung University, Taiwan		

Wednesday Afternoon, May 22, 2019

New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F4-2-WeA Functional Oxide and Oxynitride Coatings II Moderators: Anders Eriksson, Oerlikon Balzers, Oerlikon Surface Solutions AG, Marcus Hans, RWTH Aachen University, Jörg Patscheider, Evatec AG		Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes Room Pacific Salon 1 - Session H3-2-WeA Degradation under Extreme Conditions Moderators: James Gibson, RWTH Aachen University, Jeffrey M. Wheeler, ETH Zürich	
2:00pm			H3-2-WeA-1 Application of Micro-cantilever Bending to Probe the Fracture Behavior of Thin Film Interfaces, <i>J Kabel, Peter Hosemann</i> , University of California at Berkeley, USA; <i>T Koyanagi, Y Katoh</i> , Oak Ridge National Laboratory, USA
2:20pm			H3-2-WeA-2 Probing Fatigue Resistance in Multilayer DLC Coatings by Micro-impact: Correlation to Erosion Tests, <i>Ben Beake</i> , Micro Materials Ltd, UK; <i>T Liskiewicz, S McMaster, A Neville</i> , University of Leeds, UK
2:40pm			H3-2-WeA-3 Development of an In-Situ Ion Irradiation and Nanomechanics Scanning Electron Microscope, <i>Khalid Hattar, N Heckman, S Briggs, C Barr, A Monterrosa, C Chisholm, L Treadwell, B Boyce</i> , Sandia National Laboratories, USA
3:00pm	F4-2-WeA-4 Structural, Optical and Electrochromic Properties of Nanocrystalline WO ₃ Thin Films, <i>Madhuri Venkat Kalapala</i> , VFSTR University, India		H3-2-WeA-4 Proton Radiation and He Implantation Effect on Radiation-resistant Zr/Nb Sputtered Multilayer Coatings, <i>Tomas Polcar</i> , Czech Technical University in Prague, Czech Republic; <i>M Callisti</i> , University of Cambridge, UK; <i>S Sen, H Yavas</i> , Czech Technical University in Prague, Czech Republic; <i>A Lider</i> , Tomsk State University, Czech Republic
3:20pm	F4-2-WeA-5 Structure, Mechanical Characteristics and Thermal Stability of HS-PVD (Al,Cr) ₂ O ₃ Coatings, <i>K Bobzin, T Brögelmann, C Kalscheuer, Martin Welters</i> , Surface Engineering Institute - RWTH Aachen University, Germany		H3-2-WeA-5 Tracking the Temporal Oxidation Behavior in TiN Thin Films by In-situ Resistivity Measurements, <i>Bastian Stelzer, X Chen, J Sälker, J Schneider</i> , RWTH Aachen University, Germany
3:40pm	F4-2-WeA-6 Reactive HIPIMS Deposition of γ -Al ₂ O ₃ Thin Films using Transition Metal Doped Al Targets, <i>Stefan Kagerer, L Zauner</i> , TU Wien, Institute of Materials Science, Austria; <i>S Kolosvári</i> , Plansee Composite Materials GmbH, Germany; <i>J Čapek, T Kozák, P Zeman</i> , University of West Bohemia, Czech Republic; <i>H Riedl</i> , TU Wien, Institute of Materials Science, Austria; <i>P Mayrhofer</i> , Institute of Materials Science and Technology, TU Wien, Austria		H3-2-WeA-6 Industrial XRF Coating Thickness Analyzer for Real Time Measurement of Aluminum Deposited on Rolled Steel, <i>Jelena Hasikova, A Sokolov, A Pecerskis, A Pone, V Gostilo</i> , Baltic Scientific Instruments, Latvia
4:00pm	F4-2-WeA-7 Influence of V Content on Phase Evolution and Thermal Stability of Reactive Pulsed DC Magnetron Sputtered (Al,V) ₂ O ₃ , <i>Ludvig Landälv</i> , Linköping Univ., IFM, Thin Film Physics Div. and Sandvik Coromant R&D, Sweden; <i>C Carlström</i> , Sandvik Coromant R&D, Sweden; <i>J Lu</i> , Linköping Univ., IFM, Thin Film Physics Div., Sweden; <i>M Johansson-Jöesaar</i> , SECO tools AB, Sweden; <i>M Ahlgren, E Göthelid</i> , Sandvik Coromant R&D, Sweden; <i>B Alling, L Hultman, P Eklund</i> , Linköping Univ., IFM, Thin Film Physics Div., Sweden		H3-2-WeA-7 <i>In situ</i> Characterization of Dual Phase Diamond-like Carbon (DLC) at Elevated Temperatures, <i>Ming Chen</i> , ETH Zürich, Switzerland; <i>C Liu, K Li</i> , City University of Hong Kong, China; <i>R Spolenak, J Wheeler</i> , ETH Zürich, Switzerland
4:20pm	F4-2-WeA-8 Al Vacancies in Wurtzite Al-(Si)-(O)-N: Theory and Experimental Assessment, <i>Maria Fischer, M Trant, K Thorwarth, D Scopece, C Pignedoli, D Passerone, H Hug</i> , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland		H3-2-WeA-8 <i>In situ</i> micro-Tensile Testing of TiN Coating: Deformation and Fracture in Relation to Residual Stress, <i>Erika Judith Herrera Jimenez</i> , École Polytechnique de Montréal, Canada; <i>N Vanderesse</i> , École de Technologie Supérieure, Canada; <i>T Schmitt, É Bousser</i> , École Polytechnique de Montréal, Canada; <i>P Bocher</i> , École de Technologie Supérieure, Canada; <i>L Martinu, J Klemberg-Sapieha</i> , École Polytechnique de Montréal, Canada
4:40pm	INVITED: F4-2-WeA-9 Thermal Atomic Layer Etching of Oxide and Nitride Thin Films, <i>Steven M. George</i> , University of Colorado at Boulder, USA		H3-2-WeA-9 Small Scale Fracture of Mo ₂ BC Coatings, <i>Hariprasad Gopalan, R Soler, S Gleich, C Kirchlechner, C Scheu</i> , Max-Planck Institut für Eisenforschung, Germany; <i>J Schneider</i> , RWTH Aachen University, Germany; <i>G Dehm, V Arigela</i> , Max-Planck Institut für Eisenforschung, Germany
5:00pm	Invited talk continues.		H3-2-WeA-10 The Effect of Selected Laser Beam Micromilling Parameters on the Surface Layer Structure of HVOF Sprayed WC-CoCr Coating, <i>Aleksander Iwaniak</i> , Silesian University of Technology, Poland; <i>L Norymberczyk</i> , ANGA Uszczelnienia Mechaniczne Sp. z o.o., Poland
5:20pm	F4-2-WeA-11 Growth and Characterization ALD Films with a new Continuous Flow Process, <i>Biral Kuyel, A Alphonse, K Hong</i> , Nano-Master, Inc., USA		

Wednesday Afternoon, May 22, 2019

<p>Topical Symposia Room Pacific Salon 3 - Session TS1-2-WeA High Entropy and Other Multi-principal-element Materials II Moderators: Diederik Depla, Ghent University, Ulf Jansson, Uppsala University, Angstrom Laboratory</p>		
2:00pm	<p>TS1-2-WeA-1 Structure and Mechanical Properties of Refractory Type High-entropy Alloy Thin Films Deposited by Vacuum-arc, Martin Kuczyk, U Nimsch, O Zimmer, J Kaspar, F Kaulfuss, A Leson, M Zimmermann, C Leyens, Fraunhofer Institute for Material and Beam Technology (IWS), Germany</p>	
2:20pm	<p>TS1-2-WeA-2 Templated Stacking of Organic/Inorganic Semiconductors Crystals Upon Coalescence, Assembly and Split Behaviors of High-entropy Ferroelectric Lamellar Crystals, Jr-Jeng Ruan, C Pan, J Ting, K Chang, Y Su, National Cheng Kung University, Taiwan</p>	
2:40pm	<p>TS1-2-WeA-3 Angular-dependent Deposition of High Entropy Alloy Thin Films by DCMS, HIPIMS and Cathodic Arc, Ao Xia, Montanuniversität Leoben, Austria; A Togni, University of Modena and Reggio Emilia, Italy; S Hirn, Montanuniversität Leoben, Austria; L Lusvarghib, University of Modena and Reggio Emilia, Italy; R Franz, Montanuniversität Leoben, Austria</p>	
3:00pm	<p>TS1-2-WeA-4 Combustion Synthesis of High Entropy Alloys Thin Films: AlCrFeNi, AlCrCuFeNi, and AlCoCrFeNi, Anni Wang, M Hopfeld, T Kups, D Flock, H Romanus, L Kellmann, H Rupapara, P Schaaf, Technische Universität Ilmenau, Germany</p>	
3:20pm	<p>TS1-2-WeA-5 Nanostructured Highly Concentrated Solid Solution Alloy Coatings on a Zirconium Based Alloy, M Tunes, S Donnelly, Institute for Materials Science, University of Huddersfield, UK; P Edmondson, Oak Ridge National Laboratory, USA; Vladimir Vishnyakov, University of Huddersfield, UK</p>	
3:40pm	<p>TS1-2-WeA-6 High Temperature Electrical Conductivity and Oxidation Resistance of V-Nb-Mo-Ta-W High Entropy Alloy Thin Films, Yen-Yu Chen, Ming Chi University of Technology, Taiwan; S Hung, C Wang, W Wei, National Taiwan University of Science and Technology, Taiwan; J Lee, Ming Chi University of Technology, Taiwan</p>	
4:00pm	<p>INVITED: TS1-2-WeA-7 Micro-mechanics of High Entropy Alloys: Size Effects and Rate Sensitivity, Y Xiao, R Spolenak, Jeffrey M. Wheeler, ETH Zürich, Switzerland</p>	
4:20pm	<p>Invited talk continues.</p>	
4:40pm	<p>TS1-2-WeA-9 Is the Entropy of High Entropy Ceramics High?, Jochen Michael Schneider, S Evertz, D Neuß, M Steinhoff, D Holzapfel, RWTH Aachen University, Germany; S Kolosvári, Plansee Composite Materials GmbH, Germany; P Polcik, PLANSEE Composite Materials GmbH, Germany; H Rueß, RWTH Aachen University, Germany</p>	
5:00pm	<p>TS1-2-WeA-10 Next Generation Entropy Stabilized Material, Jyh-Ming Ting, J Ting, K Chang, Y Su, National Cheng Kung University, Taiwan</p>	

Wednesday Afternoon, May 22, 2019

**Awards Convocation and Honorary Lecture
Room Town & Country - Session HL-WeHL
Bunshah Award Honorary Lecture**

5:45pm		
6:05pm		
6:25pm	<p>INVITED: HL-WeHL-3 R.F. Bunshah Award and ICMCTF Lecture: Some Highlights from over Four Decades of Thin-film Science, <i>Joe Greene</i>¹, University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan</p>	
6:45pm	Invited talk continues.	

¹ R.F. Bunshah Awardee

Special Events Thursday

Special Events Thursday

- 7:30 AM Conference Registration/Atlas Foyer
- 7:30 AM Short Course: Plasmas in Physical Vapor Deposition, Including Arcs and HiPIMS/Atlas Foyer
- 7:30 AM Short Course: Understanding and Control of Stresses in PVD Thin Films/Atlas Foyer
- 8:00 AM Technical Sessions/See Program/Mobile App
- 12:20 PM Elsevier Focused Topic Session: "The Art of Publishing"/Golden West
- 12:20 PM ICMCTF 2020 Informational Meeting/California
- 5:00 PM Poster Session/Grand Hall
- 6:00 PM Poster Reception/Grand Hall

Thursday Morning, May 23, 2019

	Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A2-1-ThM Thermal and Environmental Barrier Coatings I Moderators: Sabine Faulhaber, University of California, San Diego, USA, Kang N. Lee, NASA Glenn Research Center, USA, Pantcho Stoyanov, Pratt & Whitney, USA	Hard Coatings and Vapor Deposition Technologies Room California - Session B6-ThM Coating Design and Architectures Moderators: Shou-Yi Chang, National Tsing Hua University, Paul Heinz Mayrhofer, Institute of Materials Science and Technology, TU Wien, Austria
8:00am	INVITED: A2-1-ThM-1 Mechanical Characterization and Modelling Issues for Thermal Barrier Coating Lifetime Assessment, <i>Vincent Maurel, V Guipont, Mines-ParisTech, France</i>	B6-ThM-1 The Mechanical and Tribological Properties of Boron Based Films Grown by HIPIMS Under Different N ₂ Contents, <i>A Keles, Ihsan Efeoglu, Y Totik, Ataturk University, Turkey</i>
8:20am	Invited talk continues.	B6-ThM-2 Peculiar Oscillations in Nano-scale AlN/TiN and Other Nitride-based Superlattices, <i>Nikola Koutna, Institute of Materials Science and Technology, TU Wien, Austria; P Řehák, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Czech Republic; Z Zhang, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; M Černý, Central European Institute of Technology, CEITEC VUT, Brno University of Technology, Czech Republic; M Bartosik, Institute of Materials Science and Technology, TU Wien, Austria; M Friák, M Šob, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Czech Republic; P Mayrhofer, Institute of Materials Science and Technology, TU Wien, Austria; D Holec, Department of Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Austria</i>
8:40am	A2-1-ThM-3 The Effect of Bond Coat Asperity Removal on the Lifetime of Atmospheric Plasma Sprayed Thermal Barrier Coatings, <i>Kenneth Kane, Oak Ridge National Laboratory, USA; M Sweet, Praxair, USA; M Lance, B Pint, Oak Ridge National Laboratory, USA</i>	B6-ThM-3 Impact Fatigue and Mechanical Properties of AlTiCrN and AlTiCrSiN Hard Coatings with Optimal Design of Interlayers, <i>Yu-Ju Yang, Y Chang, S Weng, National Formosa University, Taiwan</i>
9:00am	A2-1-ThM-4 Effect of Superalloy Substrate on the Lifetime of Electron Beam Physical Vapour Deposited Thermal Barrier Coatings, <i>Chen Liu, Y Chen, P Xiao, University of Manchester, UK</i>	B6-ThM-4 Improvement of CrMoN/ SiN _x Multilayered Coatings on Mechanical and High Temperature Tribological Properties, <i>Wei-Li Lo, L Yeh-Liu, J Lee, J Duh, National Tsing Hua University, Taiwan</i>
9:20am	A2-1-ThM-5 Self-Healing Thermal Barrier Coatings Produced by Laser Processing, <i>Bowen Wei, J Gu, S Joshi, T Huang, N Dahotre, S Aouadi, University of North Texas, USA</i>	B6-ThM-5 Tuning the Hardness–toughness Relationship by Combining MoN with TaN, <i>F Klimashin, N Koutna, L Lobmaier, TU Wien, Institute of Materials Science and Technology, Austria; D Holec, Montanuniversität Leoben, Austria; Paul Heinz Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria</i>
9:40am	A2-1-ThM-6 Influence of Heat Treatment on Thermal Cyclic Fatigue Lifetime of TBC System, <i>Jianhong He, T Sharobem, Oerlikon Metco, USA</i>	B6-ThM-6 Microstructure, Mechanical and Tribological Performance of Complex TiAlTaN-[TiAlN/TaN _x] Coatings: Understanding the Effect of Volume Fraction, <i>Elbert Contreras, J Cortinez, Universidad de Antioquia, Colombia; A Hurtado, Centro de Investigación en Materiales Avanzados CIMAV, Mexico; M Gómez, Universidad de Antioquia, Colombia</i>
10:00am		INVITED: B6-ThM-7 Plastic Deformation in Transition-Metal Nitrides and Carbides via Density-Functional Molecular Dynamics, <i>Davide Sangiovanni, Linköping University, Sweden, Ruhr-Universität Bochum, Germany</i>
10:20am	A2-1-ThM-8 Effects of Chemical Modification on Bond Coat Oxidation and Internal Stresses in Yb ₂ Si ₂ O ₇ Environmental Barrier Coatings, <i>Benjamin Herren, California Institute of Technology, USA; J Almer, Argonne National Laboratory, USA; K Lee, NASA Glenn Research Center, USA; K Faber, California Institute of Technology, USA</i>	Invited talk continues.
10:40am	A2-1-ThM-9 Thermal Shock and CMAS Resistant Tunable Self-Healing Thermal Barrier Coatings, <i>Jingjing Gu, B Wei, T Huang, S Bakkar, D Berman, R Reidy, S Aouadi, University of North Texas, USA</i>	B6-ThM-9 Phase Evolution and Mechanical Properties of Isostructural Decomposing W _{1-x} M _x B ₂ Thin Films, <i>Vincent Moraes, L Zauner, TU Wien, Institute of Materials Science, Austria; H Bolvardi, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; P Polcik, Plansee Composite Materials GmbH, Germany; H Riedl, P Mayrhofer, TU Wien, Institute of Materials Science, Austria</i>
11:00am	A2-1-ThM-10 Variables Affecting Steam Oxidation Kinetics of Environmental Barrier Coatings, <i>Kang N. Lee, NASA Glenn Research Center, USA</i>	B6-ThM-10 Van der Waals Layer Promoted Heteroepitaxy in Sputter-deposited Thin Films, <i>Koichi Tanaka, P Arias, M Liao, Y Wang, H Zaid, A Aleman, M Goorsky, S Kodambaka, University of California, Los Angeles, USA</i>
11:20am	A2-1-ThM-11 High Temperature Investigations of Thermochemistry and Phase Stability in the ZrO ₂ -Y ₂ O ₃ -Ta ₂ O ₅ System, <i>Maren Lepple, DEHEMA Forschungsinstitut, Technische Universität Darmstadt, Germany; S Ushakov, K Lilova, University of California, Davis, USA; C Maccauley, C Levi, University of California, Santa Barbara, USA; A Navrotsky, University of California, Davis, USA</i>	B6-ThM-11 Improvement of Tribological Properties for Hard Coatings by Stress Control, <i>Tianmin Shao, State Key Laboratory of Tribology, Tsinghua University, China</i>
11:40am		B6-ThM-12 Is WB _{2-z} a Proper Base System for Designing Ternary Diboride based Thin Films?, <i>Helmut Riedl, V Moraes, C Fuger, H Euchner, R Hahn, T Wojcik, TU Wien, CDL AOS at the Institute of Materials Science, Austria; M Arndt, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; P Polcik, Plansee Composite Materials GmbH, Germany; P Mayrhofer, TU Wien, Institute of Materials Science, Austria</i>

Thursday Morning, May 23, 2019

	Fundamentals and Technology of Multifunctional Materials and Devices Room Pacific Salon 3 - Session C3+C2+C1-ThM Thin Films for Energy-related Applications II/Novel Oxide Films for Active Devices/Optical Metrology in Design, Optimization, and Production of Multifunctional Materials Moderators: Per Eklund, Linköpings Universitet, Tushar Shimpi, Colorado State University, USA	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E1-1-ThM Friction, Wear, Lubrication Effects, and Modeling II Moderators: Nazlim Bagcivan, Schaeffler Technologies GmbH & Co. KG, Germany, Carsten Gachot, Vienna University of Technology, Tomas Polcar, Czech Technical University in Prague, Czech Republic
8:00am		
8:20am		
8:40am	C3+C2+C1-ThM-3 Nanoflaky Titanium Dioxide Grown on Titanium Foil for Capacitive Deionization Purpose, <i>Jung-Ta Huang, P Hsieh, J He, Feng Chia University, Taiwan</i>	E1-1-ThM-3 Sliding Wear Resistance of Nickel Boride Layers on Inconel 718 Superalloy, <i>I Campos-Silva, Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; Alan Daniel Contla-Pacheco, Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, México; U Figueroa-Lopez, Tecnológico de Monterrey-CEM, Mexico; J Martinez-Trinidad, A Ruiz-Rios, M Ortega-Aviles, Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México</i>
9:00am	C3+C2+C1-ThM-4 Mixed-oxide Coated Ni Foam for High Performance Supercapacitor, <i>Kuang-Cheng Lin, National Cheng Kung University, Taiwan</i>	E1-1-ThM-4 A Study of the Wear Mechanism of PTFE: The Effects of Temperature and Environment on its Mechanical and Tribological Properties, <i>Vilayvone Saisnith, V Fridrici, Ecole Centrale de Lyon, LTDS - Université de Lyon, France</i>
9:20am	INVITED: C3+C2+C1-ThM-5 Wavefront Shaping: A New Tool in Optics, <i>Moussa N'Gom, University of Michigan, USA</i>	E1-1-ThM-5 Harness Intrinsic Friction in Transition Metal Dichalcogenides, <i>Antonio Cammarata, Czech Technical University in Prague, Czech Republic; T Polcar, University of Southampton, UK</i>
9:40am	Invited talk continues.	E1-1-ThM-6 Static Friction at High Temperature: from Methodology to Severe-Service Valve Application, <i>Thomas Schmitt, J Schmitt, Polytechnique Montréal, Canada; É Bousser, École Polytechnique de Montréal, Canada; M Azzi, Tricomat, Canada; F Khelfaoui, V Najarian, L Vernhes, Velan; J Klemberg-Sapieha, Polytechnique Montréal, Canada</i>
10:00am	C3+C2+C1-ThM-7 Optical Optimisation of Semi-transparent a-Si:H Solar Cells for Photobioreactor Application, <i>Agathe Brodu, C Ducros, Univ. Grenoble Alpes, CEA, France; C Dublanche-Tixier, Univ. Limoges, France; C Seydoux, G Finazzi, Univ. Grenoble Alpes, CNRS, CEA, France</i>	INVITED: E1-1-ThM-7 Coating Development, Characterization and Application-oriented Tests, <i>Lars Pleth Nielsen, K Almqvist, B Christensen, S Louring, Danish Technological Institute, Denmark; H Ronkainen, T Hakala, VTT Technical Research Centre of Finland, Finland; D Drees, FALEX Tribology, Belgium</i>
10:20am	C3+C2+C1-ThM-8 Properties of Highly Transparent AlN/SiO _x Multilayer Systems, <i>Chelsea Appleget, A Sáenz-Trevizo, A Hodge, University of Southern California, USA</i>	Invited talk continues.
10:40am	C3+C2+C1-ThM-9 Tailoring the Optical Properties of Highly Porous Superlattice-type Si-Au Slanted Columnar Heterostructure Thin Films, <i>U Kilic, University of Nebraska-Lincoln, USA; A Mock, Linköping University, Sweden; R Feder, The Fraunhofer Institute for Microstructure of Materials and Systems (IMWS), Germany; D Sekora, M Hilfiker, R Korlacki, Eva Schubert, C Argyropoulos, M Schubert, University of Nebraska Lincoln, USA</i>	
11:00am	C3+C2+C1-ThM-10 Microstructures and Optoelectronic Properties of Cu ₃ N Thin Films and its Diode Rectification Characteristics, <i>Yin-Hung Chen, S Chen, S Sakalley, S Huang, A Paliwal, Ming Chi University of Technology, Taiwan; M Liao, National Taiwan University, Taiwan; H Sun, Shandong University at Weihai, China; S Biring, Ming Chi University of Technology, Taiwan</i>	
11:20am	C3+C2+C1-ThM-11 Effects of the Frequency of Pulsed DC Sputtering Power on Amorphous Carbon Film used for Metallic Bipolar Plates in Proton Exchange Membrane Fuel Cells, <i>Xiaobo Li, P Yi, L Peng, X Lai, Shanghai Jiaotong University, China</i>	
11:40am	C3+C2+C1-ThM-12 On the Mechanisms of Halloysite Nanotubes Incorporation in the Surface Layer of Forsterite Grown by Plasma Electrolytic Oxidation, <i>B Mingo, Y Guo, A Némcova, A Gholinia, A Matthews, Aleksey Yerokhin, The University of Manchester, UK</i>	
12:00pm	C3+C2+C1-ThM-13 Inorganic-Organic Perovskites: Handle with Care, Properties May Depend on It, <i>Nikolas Podraza, B Subedi, M Junda, K Ghimire, University of Toledo, USA</i>	

Thursday Morning, May 23, 2019

	<p>New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F2-1-ThM HiPIMS, Pulsed Plasmas and Energetic Deposition I Moderators: Jon Tomas Gudmundsson, University of Iceland, Tiberiu Minea, Université Paris-Sud</p>	<p>Surface Engineering - Applied Research and Industrial Applications Room Pacific Salon 1 - Session G1+G3-ThM Advances in Industrial PVD, CVD, and PECVD Processes and Equipment/Innovative Surface Engineering for Advanced Cutting and Forming Tool Applications Moderators: Ladislav Bardos, Uppsala University, Sweden, Emmanuelle Göthelid, Sandvik Machining Solutions, Ali Khatibi, Oerlikon Balzers, Oerlikon Surface Solutions AG, Christoph Schiffers, CemeCon AG, Germany</p>
8:00am		<p>G1+G3-ThM-1 Predicting Coating Uniformity and Cathode Utilization in Magnetron Sputtering Applications using Numerical Simulation, Adam Obrusnik, P Zikan, Plasma Solve, Brno, Czech Republic</p>
8:20am		<p>G1+G3-ThM-2 Multinary HiPIMS, T Leyendecker, W Koelker, S Bolz, Christoph Schiffers, CemeCon AG, Germany</p>
8:40am	<p>INVITED: F2-1-ThM-3 Recent Insights into HiPIMS Physics via Coherent and Incoherent Thomson Scattering, Sedina Tsikata, CNRS, ICARE, France; T Minea, Université Paris-Sud/CNRS, France; B Vincent, CNRS, France; A Revel, Université Paris-Sud/CNRS, France</p>	<p>G1+G3-ThM-3 From Small Parts to Particles – Experiences in Bulk Coating, Heidrun Klostermann, F Fietzke, B Kraetzschmar, Fraunhofer FEP, Germany</p>
9:00am	Invited talk continues.	<p>G1+G3-ThM-4 A Novel Industrial Coating System for the Deposition of Smooth Hard Coatings Combining HiPIMS V+ and Rotatable Magnetrons, Herbert Gabriel, J Santiago Varela, PVT Plasma und Vakuum Technik GmbH, Germany; I Fernandez, N4E Nano4Energy S.L.N.E, Spain; N Dams, PVT Plasma und Vakuum Technik GmbH, Germany; A Wennberg, N4E Nano4Energy S.L.N.E, Spain; J Lu, PVT Harbin Coating Ltd, China</p>
9:20am	<p>F2-1-ThM-5 Process Gas Rarefaction and Other Transport Phenomena in High Power Impulse Magnetron Sputtering Discharges Studied by Particle Simulations, Tomas Kozák, University of West Bohemia, Czech Republic</p>	<p>INVITED: G1+G3-ThM-5 From DCMS to HiPIMS: A Giant Leap for Cutting Tools?, Bastian Gaedike, Hartmetall-Werkzeugfabrik Paul Horn GmbH, Germany</p>
9:40am	<p>F2-1-ThM-6 Insight on the Sputtered Material in HiPIMS by 2D PIC-MCC Modeling, Adrien Revel, Université Paris-Sud/CNRS, France; T Minea, Université Paris-Sud, Université Paris-Saclay, France</p>	Invited talk continues.
10:00am	<p>F2-1-ThM-7 Spoke Formation in Large Scale Rectangular Magnetrons, Arutiun P. Ehiasarian, Sheffield Hallam University, UK</p>	<p>G1+G3-ThM-7 Application of Twin-Roll PECVD for Surface Functionalization on Flexible Substrate, Y Isomura, Y Ikari, Tadao Okimoto, Kobe Steel, Ltd., Japan</p>
10:20am	<p>F2-1-ThM-8 The Use of Bipolar-HiPIMS for the Design of Ion Energies in Thin Film Growth, Ulf Helmersson, J Keraudy, R Viloan, Linköping University, Sweden; N Brenning, M Raadu, KTH Royal Institute of Technology, Sweden; D Lundin, Université Paris-Sud, Université Paris-Saclay, France; I Petrov, University of Illinois, USA, Linköping University, Sweden, USA; J Greene, University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan; J Gudmundsson, University of Iceland, Iceland</p>	<p>G1+G3-ThM-8 A New System Platform for Ultrafast Nitriding and Diamond Like Carbon (DLC) Deposition Based on a Hollow Cathode Discharge, Frank Papa, T Casserly, A Tudhope, S Gennaro, Duralar Technologies, USA</p>
10:40am	<p>F2-1-ThM-9 Latest Developments in HiPIMS with Positive Pulsing, Ivan Fernandez, Nano4Energy, Spain; A Wennberg, Nano4Energy SL, Spain; F Papa, GP Plasma, Spain</p>	<p>INVITED: G1+G3-ThM-9 Combinatorial Development of Nitride and Oxide Thin Films on an Industrial Scale, Rainer Cremer, KCS Europe GmbH, Germany</p>
11:00am	<p>F2-1-ThM-10 HiPIMS- Advantages of a Positive Kick Pulse, Jason Hrebik, Kurt J. Lesker Company, USA</p>	Invited talk continues.
11:20am	<p>F2-1-ThM-11 Plasma Parameter Determination in a HiPIMS Discharge Using Laser Thomson Scattering, P Ryan, James Bradley, M Bowden, University of Liverpool, UK</p>	<p>G1+G3-ThM-11 Protective, Tribological and Decorative PECVD Coatings Deposited with a New Microwave Source: Plasma and Layer Characterization for Appropriate Applications, Rolf Schäfer, T Radny, K Nauenburg, robeko GmbH & Co.KG, Germany; S Ulrich, Karlsruhe Institute of Technology (KIT), IAM, Germany</p>
11:40am		<p>G1+G3-ThM-12 Complex Coating Technique for Smallest Part of Advanced Powertrain Fuel System, Sung Chul Cha, H Park, J Lee, Hyundai Motor Group-Hyundai Kefico, Republic of Korea; K Ko, C Shin, Dongwoo HST Co. Ltd., Republic of Korea</p>

Thursday Morning, May 23, 2019

<p>Topical Symposia Room Golden West - Session TS2-ThM Icephobic Surface Engineering Moderators: Alina Agüero Bruna, Instituto Nacional de Técnica Aeroespacial (INTA), Jolanta-Ewa Klemberg-Sapieha, École Polytechnique de Montréal, Canada</p>		
8:00am		
8:20am	<p>TS2-ThM-2 Synthesis And Characterization Of Amphiphobic Hybrid Coatings For Industrial Applications, Giulio Boveri, <i>M Raimondo, F Veronesi</i>, Institute of Science and Technology for Ceramics, Italy</p>	
8:40am	<p>TS2-ThM-3 <i>In situ</i> Ice Growth Kinetics on Water-repellent Coatings in Atmospheric Icing Conditions, Jacques Lengaigne, <i>P Xing, É Bousser</i>, École Polytechnique de Montréal, Canada; <i>A Dolatabadi</i>, Concordia University, Canada; <i>L Martinu, J Klemberg-Sapieha</i>, École Polytechnique de Montréal, Canada</p>	
9:00am	<p>TS2-ThM-4 Icephobic Elastomeric Surfaces?, Pablo Francisco Ibáñez, <i>F Montes Ruiz-Cabello, M Rodríguez Valverde, M Cabrerizo Vílchez</i>, Universidad de Granada, Spain</p>	
9:20am	<p>INVITED: TS2-ThM-5 Design and Fabrication of Superhydrophobic, Icephobic Coatings for High Voltage (HV) Power Lines Application, Mariarosa Raimondo, <i>G Boveri, F Veronesi</i>, ISTECCNR - Institute of Science and Technology for Ceramics, Italy</p>	
9:40am	Invited talk continues.	
10:00am	<p>TS2-ThM-7 Energy Saving Strategy for the Development of Icephobic Coating and Surface, <i>Y Zheng, J Wang, J Liu, K Choi, Xianghui Hou</i>, The University of Nottingham, UK</p>	
10:20am	<p>TS2-ThM-8 Anti-Icing Hard Steel Coating Modified With Polymer Particles, <i>P García, Julio Mora, A Agüero</i>, Instituto Nacional de Técnica Aeroespacial (INTA), Spain</p>	
10:40am	<p>INVITED: TS2-ThM-9 Development of Superhydrophobic and Icephobic Coatings by Suspension Plasma Spraying, Ali Dolatabadi, <i>N Sharifi, R Attarzadeh, C Moreau, M Pugh</i>, Concordia University, Canada</p>	
11:00am	Invited talk continues.	
11:20am	<p>TS2-ThM-11 Minimum Required Thickness of a Hydrophobic Topcoat to withstand Cycling in an Icing Wind Tunnel, Stephen Brown, École Polytechnique de Montreal, Canada; <i>J Lengaigne</i>, Polytechnique Montréal, Canada; <i>N Sharifi</i>, Concordia University, Canada; <i>L Martinu, J Klemberg-Sapieha</i>, École Polytechnique de Montreal, Canada</p>	

Thursday Afternoon, May 23, 2019

	Coatings for Use at High Temperatures Room Pacific Salon 2 - Session A2-2-ThA Thermal and Environmental Barrier Coatings II Moderators: Sabine Faulhaber, University of California, San Diego, USA, Kang N. Lee, NASA Glenn Research Center, USA, Pantcho Stoyanov, Pratt & Whitney, USA	Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B2-1-ThA CVD Coatings and Technologies I Moderators: Kazunori Koga, Kyushu University, Japan, Francis Maury, CNRS-CIRIMAT
1:20pm	INVITED: A2-2-ThA-1 Design of Multiphase Environmental Barrier Coatings: Toward Multifunctional Molten Deposit Resistance, David Poerschke , University of Minnesota, USA	B2-1-ThA-1 Impact of HfO ₂ as a Buffer Layer on the Electrical and Ferroelectric Memory Characteristics of Metal/Ferroelectric/High-K/Semiconductor Gate Stack for Nonvolatile Memory Applications, R Jha, P Singh, Manish Goswami , Indian Institute of Information Technology Allahabad, India; B Singh , Park Systems, India
1:40pm	Invited talk continues.	B2-1-ThA-2 Studies on Properties and Cutting Performance of Al-rich AlTiN Coating with Controlled Orientation via LP-CVD, Yasuki Kido, A Paseuth, S Okuno, S Imamura , Sumitomo Electric Hardmetal Corp., Japan
2:00pm	A2-2-ThA-3 Comparison of Oxidation Procedures of MCrAlY Coatings Deposited by PVD Cathodic Arc Evaporation, X Maeder, J Ast , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; M Polyakov , EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; M Döbeli , ETH Zürich, Switzerland; A Neels, A Dommann , Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; B Widrig, Oliver Hunold, J Ramm , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	B2-1-ThA-3 Effects of Al Content and Growth Orientation on Mechanical Properties of AlTiN Coatings Prepared by CVD Method, Kosuke Yanagisawa, T Ishigaki, H Nakamura, H Homma , Mitsubishi Materials Corporation, Japan
2:20pm	A2-2-ThA-4 Effect of APS Flash Bond Coatings and Curvature on Furnace Cycle Lifetime of Rods, Michael Lance, J Haynes, B Pint , Oak Ridge National Laboratory, USA; E Gildersleeve, S Sampath , Stony Brook University, USA	B2-1-ThA-4 Thermal Crack Network Formation in CVD TiCN/ α -Al ₂ O ₃ Coatings, Nina Schalk, R Stylianou, M Gassner , Montanuniversität Leoben, Austria; D Velic, W Daves, W Ecker , Materials Center Leoben Forschung GmbH, Austria; M Tkadletz , Montanuniversität Leoben, Austria; C Czetti , CERATIZIT Austria GmbH, Austria; C Mitterer , Montanuniversität Leoben, Austria
2:40pm	A2-2-ThA-5 Investigation of Thermally Grown Oxide Stress in Plasma-spray Physical Vapor Deposition and Electron-beam Physical Vapor Deposition Thermal Barrier Coatings via Photoluminescence Spectroscopy, Linda Rossmann, M Northam , University of Central Florida, USA; V Viswanathan , Praxair Surface Technologies, USA; B Harder , NASA Glenn Research Center, USA; S Raghavan , University of Central Florida, USA	
3:00pm	A2-2-ThA-6 Thermally Conductive and Electrically Insulating Epoxy Nanocomposites with Intercalation of Aluminum Nitride Nanoparticles into Exfoliated Graphite, Che Juei Wu , National Cheng Kung University, Taiwan	B2-1-ThA-6 Structural and Piezoelectric Properties of Chemical Vapor Deposited AlN Films on Metallic Substrates, Juan Su, M Pons, F Mercier, D Chen, R Boichot , Université Grenoble Alpes, CNRS, France
3:20pm	A2-2-ThA-7 Effect of Feedstock Species on Thermal Durability of Thermal Barrier Coatings, Sangwon Myoung, B Yang, I Kim , Doosan Heavy Industries and Construction, Republic of Korea; Y Jung , Changwon National University, Republic of Korea	B2-1-ThA-7 Aluminum Nitride Based Coatings for High Temperature Solar Receiver Systems, DanYing Chen , Université Grenoble Alpes, CNRS, France; J Colas , PROMES-CNRS, France; J Su , Université Grenoble Alpes, CNRS, France; L Charpentier, M Balat-Pichelin , PROMES-CNRS, France; F Mercier, M Pons , Université Grenoble Alpes, CNRS, France
3:40pm	A2-2-ThA-8 Development of Environmental Barrier Coatings for SiC/SiC Ceramic Matrix Composites via CVD, Till König, M Galetz , DEHEMA-Forschungsinstitut, Germany	B2-1-ThA-8 Residual Stress and Quantitative Texture of CVD Al ₂ O ₃ Coatings, Zhenyu Liu , Kennametal Inc., USA; S Tan , University of Pittsburgh, USA; D Banerjee , Kennametal Inc., USA
4:00pm		INVITED: B2-1-ThA-9 Gas Source Chemical Vapor Deposition of Wafer-scale Mono- and few-layer MX ₂ (M=W or Mo and X=S or Se) and Their Alloys, Mikhail Chubarov, T Choudhury, D Reifsnnyder Hickey, S Bachu, N Alem, J Redwing , The Pennsylvania State University, USA
4:20pm		Invited talk continues.
4:40pm		B2-1-ThA-11 The Effect of Dopants and Bilayer Period on Microstructure and Mechanical Properties of CVD Ti(B,C)N Hard Coatings, Christina Kainz, N Schalk, M Tkadletz, C Mitterer , Montanuniversität Leoben, Austria; C Czetti , CERATIZIT Austria GmbH, Austria

Thursday Afternoon, May 23, 2019

Hard Coatings and Vapor Deposition Technologies Room California - Session B5-1-ThA Hard and Multifunctional Nanostructured Coatings I Moderators: Tomas Kozak, University of West Bohemia, Helmut Riedl, TU Wien, Institute of Materials Science and Technology		Fundamentals and Technology of Multifunctional Materials and Devices Room Pacific Salon 3 - Session C4-ThA Fundamentals of Metallurgy in Thin Films and Coatings Moderators: Karsten Woll, Karlsruhe Institute of Technology (KIT), Ibrahim Gunduz, Purdue University, USA	
1:20pm			
1:40pm		C4-ThA-2 Analytical Modelling of Propagation Velocity in Electron Transparent Nanolaminates, Michael Abere , Sandia National Laboratories, USA; G Egan , Lawrence Livermore National Laboratory, USA; D Adams , Sandia National Laboratories, USA	
2:00pm	B5-1-ThA-3 Interfaces and Mechanisms: A Molecular Dynamics Approach to Fine Tuning Manipulation of Mechanical Properties, Alberto Fraile , H Yavas , E Frutos , Department of Control Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic; T Huminiuc , Engineering Science, Faculty of Engineering and the Environment, University of Southampton, Southampton, UK; T Polcar , Czech Technical University in Prague, Czech Republic		
2:20pm	B5-1-ThA-4 Preparation of Hard Yet Fracture Resistant W-B-C Coatings Using High Power Impulse Magnetron Sputtering, Pavel Soucek , M Polacek , P Klein , L Zabransky , V Bursikova , M Stupavska , Masaryk University, Brno, Czech Republic; Z Czigany , K Balazi , Hungarian Academy of Sciences, Hungary; P Vasina , Masaryk University, Brno, Czech Republic		
2:40pm	B5-1-ThA-5 Analytical Modelling of Misfit Dislocation Formation in Superlattice Coatings and its Effect on the Fracture Toughness, Antonia Wagner , TU Wien, Institute of Materials Science and Technology, Austria; D Holec , Montanuniversität Leoben, Austria; M Tadt , TU Wien, Institute of Lightweight Design and Structural Biomechanics, Austria; P Mayrhofer , M Bartosik , TU Wien, Institute of Materials Science and Technology, Austria		C4-ThA-5 Twin-Wire Arc Coatings for Repair of Structural Components, C Jasien , Nicole Wagner , Cal Poly Pomona, USA
3:00pm	B5-1-ThA-6 The Electrical Response of PVD Deposited Nanocrystallized Carbon Film in Magnetic Field, Chao Wang , J Guo , X Dai , Institute of Nanosurface Science and Engineering, College of Mechatronics and Control Engineering, Shenzhen University, China		C4-ThA-6 Unstable Propagating Reactions in Sputter-Deposited Nanolaminates, David Adams , M Abere , Sandia National Laboratories, USA
3:20pm	INVITED: B5-1-ThA-7 Aluminium Nitride Based Piezoelectric MEMS: From Material Aspects to Low Power Devices, Ulrich Schmid , M Schneider , TU Wien - Institute of Sensor and Actuator Systems, Austria		C4-ThA-7 Synthesis of Reactive Ni-Al Composites Using High Pressure Torsion, O Renk , Austrian Academy of Sciences, Austria; M Tkadletz , N Kostoglou , Montanuniversität Leoben, Austria; I Gunduz , Naval Postgraduate School, USA; C Doumanidis , Nazarbayev University, Astana, Kazakhstan; R Pippan , Austrian Academy of Sciences, Austria; C Mitterer , Montanuniversität Leoben, Austria; Claus Rebolz , University of Cyprus, Cyprus
3:40pm	Invited talk continues.		
4:00pm	B5-1-ThA-9 Superamphiphobic Surface Produced by Femtosecond Laser Patterning and Pulsed Plasma Polymerization, Cheng-Wei Lin , Feng Chia University; Central Taiwan University of Science and Technology, Taiwan; G Lu , X Chang , P Hsieh , Feng Chia University, Taiwan; C Chau , Department of Surgery, 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		

Thursday Afternoon, May 23, 2019

	<p>Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E1-2-ThA Friction, Wear, Lubrication Effects, and Modeling III Moderators: Nazlim Bagcivan, Schaeffler Technologies GmbH & Co. KG, Germany, Carsten Gachot, Vienna University of Technology, Tomas Polcar, Czech Technical University in Prague, Czech Republic</p>	<p>New Horizons in Coatings and Thin Films Room Pacific Salon 6-7 - Session F2-2-ThA HiPIMS, Pulsed Plasmas and Energetic Deposition II Moderators: Jon Tomas Gudmundsson, University of Iceland, Tiberiu Minea, Université Paris-Sud</p>
1:20pm		
1:40pm	<p>E1-2-ThA-2 Exploring the Nanomechanical Properties of Transition Metal Dichalcogenides using Density Functional Theory, Benjamin Irving, <i>P Nicolini</i>, Czech Technical University in Prague, Czech Republic; <i>T Polcar</i>, University of Southampton, UK</p>	
2:00pm	<p>INVITED: E1-2-ThA-3 Mechanics, Materials, and Design Problems in Medical Device Technology and Information Storage, Frank E. Talke, University of California, San Diego, USA</p>	<p>F2-2-ThA-3 HiPIMS Deposition of W Thin Films, Alison Engwall, <i>S Shin</i>, <i>Y Wang</i>, Lawrence Livermore National Laboratory, USA</p>
2:20pm	Invited talk continues.	<p>F2-2-ThA-4 Study and Development of Thermochromic VO₂ Thin Films Deposited by HiPIMS, Jean-Louis Victor, <i>C Marcel</i>, CEA Le Ripault, France; <i>A Rougier</i>, CNRS, France; <i>L Sauques</i>, DGA, France</p>
2:40pm	<p>E1-2-ThA-5 Frictional Anisotropy of MoS₂ During Sliding: A Molecular Dynamics Study on the Atomistic Understanding of Frictional Mechanisms, Victor Claerbout, <i>P Nicolini</i>, Czech Technical University in Prague, Czech Republic</p>	<p>INVITED: F2-2-ThA-5 A Paradigm Shift in Thin Film Growth by Magnetron Sputtering: from Gas-ion to Metal-ion-controlled Irradiation, Grzegorz Greczynski, Department of Physics, Linköping Univ., Sweden; <i>I Petrov</i>, University of Illinois, USA, Linköping University, Sweden, USA; <i>J Greene</i>, University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan; <i>L Hultman</i>, Department of Physics, Linköping Univ., Sweden</p>
3:00pm	<p>E1-2-ThA-6 Effect of the Presence of Small Molecules on the Entangled Electronic and Dynamic Features in Layered MX₂ Transition Metal Dichalcogenides: Systematic Quantum Mechanic Ab Initio Simulations, Jamil Missaoui, <i>A Cammarata</i>, Czech Technical University in Prague, Czech Republic</p>	Invited talk continues.
3:20pm	<p>E1-2-ThA-7 Nanoscale Frictional Properties of Ordered and Disordered MoS₂, <i>E Serpini</i>, <i>A Rota</i>, Università di Modena e Reggio Emilia, Italy; <i>S Valeri</i>, Istituto CNR-NANO S3, Italy; <i>E Ukrainsev</i>, Academy of Science of the Czech Republic, Czech Republic; <i>B Rezek</i>, Czech Technical University in Prague, Czech Republic; <i>T Polcar</i>, University of Southampton, UK; <i>Paolo Nicolini</i>, Czech Technical University in Prague, Czech Republic</p>	<p>F2-2-ThA-7 In Vitro and In Vivo Biocompatibility Evaluation of Zr-Ti-Si and Fe-Zr-Nb Thin Film Metallic Glasses, Ai Ju Chen, <i>J Wang</i>, <i>Y Yang</i>, National Taipei University of Technology, Taiwan; <i>B Lou</i>, Chang Gung University, Taiwan; <i>J Lee</i>, Ming Chi University of Technology, Taiwan</p>
3:40pm	<p>E1-2-ThA-8 Electrical Tuning of Vibrational Modes in Transition Metal Dichalcogenides, Florian Belviso, Advanced Material Group, Czech Technical University in Prague, Czech Republic</p>	<p>F2-2-ThA-8 Microstructural and Tribological Properties of Sputtered AlCrSiWN Films Deposited with Segmented Powder Metallurgic Target Materials, <i>W Tillmann</i>, Alexander Fehr, <i>D Stangier</i>, TU Dortmund University, Germany</p>
4:00pm	<p>E1-2-ThA-9 On the In-situ Formation of Transition Metal Disulphides in Lubricated WN or WC Coating Contacts, Bernhard Kohlhauser, TU Wien, Institute of Materials Science and Technology, Austria; <i>M Rodríguez Ripoll</i>, AC2T research GmbH, Austria; <i>H Riedl</i>, <i>C Koller</i>, <i>N Koutna</i>, TU Wien, Institute of Materials Science and Technology, Austria; <i>G Ramirez</i>, <i>A Erdemir</i>, Argonne National Laboratory, USA; <i>C Gachot</i>, TU Wien, Institute for Engineering Design and Logistics Engineering, Austria; <i>P Mayrhofer</i>, TU Wien, Institute of Materials Science and Technology, Austria</p>	<p>F2-2-ThA-9 Linking an Atmospheric-pressured Arc Reactor to a Magnetron Sputter Device to Synthesize Novel Nanostructured Thin Films, <i>W Tillmann</i>, David Kokalj, <i>D Stangier</i>, TU Dortmund University, Germany; <i>Q Fu</i>, <i>E Kruijs</i>, University of Duisburg-Essen, Germany</p>
4:20pm	<p>E1-2-ThA-10 Tribological Investigations of Coated Roller Finger Followers using Application Oriented Valve Train Test, Ricardo H. Brugnara, <i>E Schulz</i>, <i>L Dobrenizki</i>, <i>N Bagcivan</i>, <i>C Geers</i>, Schaeffler AG, Germany</p>	
4:40pm	<p>E1-2-ThA-11 Physical Understanding to Nano-friction of C:H/D Thin Films: Coupling Mechanism by Atomic-scale Vibration Damping, <i>F Echeverrigaray</i>, <i>S de Mello</i>, Universidade de Caxias do Sul, Brazil; <i>F Alvarez</i>, Universidade Estadual de Campinas, Brazil; <i>A Michels</i>, Carlos Figueroa, Universidade de Caxias do Sul, Brazil</p>	

Thursday Afternoon, May 23, 2019

<p>Surface Engineering - Applied Research and Industrial Applications Room Pacific Salon 1 - Session G4+G5+G6-ThA Pre-/Post-Treatment and Duplex Technology/Hybrid Systems, Processes and Coatings/Application-Driven Collaborations between Industry and Research Institutions Moderators: Heidrun Klostermann, Fraunhofer FEP, Kumar Yalamanchili, Oerlikon Balzers, Oerlikon Surface Solutions AG, Tobias Brögelmann, Surface Engineering Institute - RWTH Aachen University, Hana Barankova, Uppsala University, Sweden</p>		
1:20pm	<p>INVITED: G4+G5+G6-ThA-1 From Detailed Understanding to In Operando Studies of Coated Cutting Tools: A Successful and Long Term Collaboration between Industry and Universities, <i>Jon Anderson</i>, Seco Tools AB, Sweden</p>	
1:40pm	<p>Invited talk continues.</p>	
2:00pm	<p>G4+G5+G6-ThA-3 Electrolytic Plasma Polishing of Titanium Alloys, <i>Nicolas Laugel, A Yerokhin, A Matthews</i>, University of Manchester, UK</p>	
2:20pm	<p>G4+G5+G6-ThA-4 Characterization of Surface Modification Mechanisms for Boron Nitride Films under Plasma Exposure, <i>T Higuchi</i>, Kyoto University, Japan; <i>M Noma</i>, Shinko Seiki Co., Ltd, Japan; <i>M Yamashita</i>, Hyogo Prefectural Institute of Technology, Japan; <i>K Urabe</i>, Kyoto University, Japan; <i>S Hasegawa</i>, Osaka University, Japan; <i>Koji Eriguchi</i>, Kyoto University, Japan</p>	
2:40pm	<p>G4+G5+G6-ThA-5 Ultra-fast Decoating Method for PVD Coatings, <i>B Wittel, C Buechel, T Cselle</i>, Platit AG, Switzerland; <i>Bo Torp</i>, Platit Scandinavia, Denmark; <i>A Lümekemann, D Bloesch</i>, Platit AG, Switzerland</p>	
3:00pm	<p>G4+G5+G6-ThA-6 Development of an Omni-phobic Spray Coating for the Oil and Gas Industry, <i>Carol Ellis-Terrell, R Wei, R McKnight</i>, Southwest Research Institute, USA; <i>X Huang, K Lin</i>, Beijing Sanju Environmental Protection & New Materials Co., Ltd., China</p>	
3:20pm	<p>INVITED: G4+G5+G6-ThA-7 Hybrid Reactive High Power Impulse Magnetron Sputtering System Combined with Electron Cyclotron Wave Resonance ECWR Plasma used for the Deposition of Semiconducting Thin Films., <i>Zdenek Hubicka, M Cada</i>, Institute of Physics CAS, v. v. i., Czech Republic; <i>S Kment</i>, Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic; <i>V Stranak, R Hippler</i>, Institute of Physics, Academy of Sciences of the Czech Republic; <i>J Olejnicek</i>, Institute of Physics CAS, v. v. i., Czech Republic</p>	
3:40pm	<p>Invited talk continues.</p>	
4:00pm	<p>INVITED: G4+G5+G6-ThA-9 Pre- and Post-Surface Treatments using Electron Beam Technology for Load-Related Application of Thermochemical and PVD Hard Coatings on Soft Substrate Materials, <i>Anja Buchwalder, R Zenker</i>, TU Bergakademie Freiberg, Germany</p>	
4:20pm	<p>Invited talk continues.</p>	
4:40pm	<p>G4+G5+G6-ThA-11 Black Oxide and Carbon-Based Coatings for Roller Bearing Applications, <i>Esteban Broitman, X Zhou</i>, SKF Research & Technology Development Center, Netherlands</p>	

Coatings for Use at High Temperatures

Room Grand Hall - Session AP-Thp

Coatings for Use at High Temperatures (Symposium A)

Poster Session

5:00pm

AP-Thp-2 High Temperature Performance of CrAlN Coating on Stainless Steel Substrates in Simulated Diesel Exhaust Environment, *S Yang*, Miba Coating Group, Teer Coatings Ltd., UK; *V Vishnyakov*, Institute for Materials Science, University of Huddersfield, UK; *P Navabpour*, Miba Coating Group, Teer Coatings Ltd., UK; *J Allport*, Institute for Materials Science, University of Huddersfield, UK; *Hai Lin Sun*, Miba Coating Group, Teer Coatings Ltd., UK

AP-Thp-3 e-Poster Presentation: Improvement of the Robustness of Time to Failure Assessment in Tbc System, *M Theveneau*, *B Marchand*, *V Guipont*, Mines ParisTech, PSL Research University, MAT - Centre des Matériaux, France; *F Coudon*, SAFRAN Tech, France; *Vincent Maurel*, Mines ParisTech, PSL Research University, MAT - Centre des Matériaux, France

AP-Thp-5 Wear Resistance Performance of AlCrN and TiAlN Coated H13 Tools during Friction Stir Welding of A2124/SiC Composite, *Akeem Adesina*, *F Al-Badour*, *Z Gasem*, King Fahd University of Petroleum and Minerals, Saudi Arabia

AP-Thp-6 Diffusion Model for Estimating the Iron Boride Layer Thicknesses, *Oscar Armando Gómez-Vargas*, Instituto Tecnológico de Tlalnepantla, México; *M Ortiz-Domínguez*, Universidad Autónoma del Estado de Hidalgo, México; *J Solís-Romero*, Instituto Tecnológico de Tlalnepantla, México; *M Flores-Rentería*, *I Morgado-Gonzalez*, *E Cardoso-Legorreta*, Universidad Autónoma del Estado de Hidalgo, México; *M Elias-Espinosa*, Tecnológico de Monterrey, México; *A Cruz Avilés*, Universidad Autónoma del Estado de Hidalgo, México

AP-Thp-7 STEM Investigations of Oxide Scales formed during Pre-oxidation of γ -TiAl, *Radoslaw Swadzba*, Institute for Ferrous Metallurgy, Poland

AP-Thp-9 Microstructure of MCrAlY Coatings Deposited Using HVOF after Heat Treatment and Aluminizing, *L Swadzba*, *Aleksander Iwaniak*, *R Swadzba*, *B Witala*, *B Mendala*, Silesian University of Technology, Poland; *G Wieclaw*, *P Lubaszka*, Certech Sp. z o.o., Poland

AP-Thp-10 Effect of Vanadium Content on the High-temperature Tribomechanical Properties of Cr-Al-V-N Coatings Deposited by DC UBMS, *H Kim*, *In-Wook Park*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

AP-Thp-11 Tensile Behavior of Air Plasma Spray MCrAlY Coatings: Role of High Temperature Aging and Process Defects, *C Cadet*, Mines ParisTech, PSL Research University, France; *Thomas Straub*, Fraunhofer Institute for Mechanics of Materials IWM, Germany; *D Texier*, Mines Albi, ISAE-SUPAERO, France; *C Eberl*, Fraunhofer Institute for Mechanics of Materials IWM, Germany; *V Maurel*, Mines ParisTech, PSL Research University, France

AP-Thp-13 Influence of Si-Al Coating on Mechanical Properties of EBMed TiAl Alloy, *Lukasz Pyclik*, Avio Aero A GE Aviation Business, Poland; *L Swadzba*, *B Mendala*, *B Witala*, *J Tracz*, *R Swadzba*, Silesian University of Technology, Poland; *K Marugi*, Avio Aero A GE Aviation Business, Poland

Hard Coatings and Vapor Deposition Technologies

Room Grand Hall - Session BP-Thp

Hard Coatings and Vapor Deposition Technologies

(Symposium B) Poster Session

5:00pm

BP-Thp-1 Low Stress AlTiN-Based Coating Systems, *C Charlton*, Kennametal Inc., USA; *Joern Kohlscheen*, Kennametal GmbH, Germany; *D Banerjee*, Kennametal Inc., USA

BP-Thp-2 Multi-Target Co-Sputtering Deposition and Mechanical Properties of Ti-Zr-Based High-Entropy Alloy and Nitride Coatings, *Shou-Yi Chang*, *Y Hsiao*, National Tsing Hua University, Taiwan; *S Lin*, National Formosa University, Taiwan

BP-Thp-3 $(Ti_{1-x}Y_x)B_{2+\delta}$ Thin Films - Structural Evolution and Mechanical Properties, *Martin Truchlý*, *B Grancic*, Comenius University in Bratislava, Slovakia; *P Švec Jr.*, Slovak Academy of Sciences, Bratislava, Slovakia; *T Roch*, *L Satrapinskyy*, *V Izaii*, Comenius University in Bratislava, Slovakia; *M Harsani*, Staton s.r.o., Slovakia; *O Kohulak*, *P Kus*, *M Mikula*, Comenius University in Bratislava, Slovakia

BP-Thp-4 Post-annealing of (Ti,Al,Si)N Coatings deposited by High-Speed Physical Vapor Deposition (HS-PVD), *K Bobzin*, *T Brögelmann*, *C Kalscheuer*, *T Liang*, *Martin Welters*, Surface Engineering Institute - RWTH Aachen University, Germany

BP-Thp-6 Discrete Thin-film Multilayer Structures of TiB₂ and ZrB₂ Ceramics for Super-hard and Tough Coating, *A Ghimire*, National Tsing Hua University, National Dong Hwa University, Taiwan; *Ming-Show Wong*, National Dong Hwa University, Taiwan; *S Chang*, National Tsing Hua University, Taiwan

BP-Thp-7 Effect of Bias Voltage on Mechanical Properties of Zr-Si-N Films Fabricated through HiPIMS/RFMS Cosputtering, *Yung-I Chen*, *Y Zheng*, National Taiwan Ocean University, Taiwan; *L Chang*, Ming Chi University of Technology, Taiwan

BP-Thp-11 The Effects of Pulse Frequency on the Growth of Diamond Using Pulse Microwave Plasma CVD, *Yi Zeng*, *Y Sakamoto*, *T Maruko*, Chiba Institute of Technology, Japan

BP-Thp-12 Analysis of Reaction Gas States on Synthesis of Boron Doped Diamond by HF-CVD, *Takuya Maruko*, *Y Sakamoto*, Chiba Institute of Technology, Japan

BP-Thp-13 Effects of Boronizing Pretreatment on the Adhesion of B-doped Diamond on Ti Substrates, *Yuuta Izu*, Chiba Institute of Technology, Japan; *T Sakuma*, Ogura Jewel Industry, Japan; *A Suzuki*, *T Maruko*, Chiba Institute of Technology Graduate School, Japan; *M Imamiya*, *Y Sakamoto*, Chiba Institute of Technology, Japan

BP-Thp-14 High Entropy Nitride Thin Film $(Cr_{0.35}Al_{0.25}Nb_{0.12}Si_{0.08}V_{0.20})N_x$ for Tribological Characteristics at High Temperature, *Yu-Chia Lin*, *J Duh*, National Tsing Hua University, Taiwan

BP-Thp-15 Search of New $(Al_{0.25}Cr_{0.3}Nb_{0.1}Si_{0.08}Ti_{0.1}Mo_{0.17})N_x$ Coatings for Feasible Application at High Temperature, *Wei-Li Lo*, *J Duh*, National Tsing Hua University, Taiwan

BP-Thp-18 e-Poster Presentation: The Role of Vacancies in the W-N System, *F Klimashin*, *Paul Heinz Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

BP-Thp-19 Probing Defected Layers of MoN/TaN and TiN/WN Superlattices, *Nikola Koutna*, *J Buchinger*, *R Hahn*, Institute of Materials Science and Technology, TU Wien, Austria; *J Zálešák*, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; *M Bartosik*, Institute of Materials Science and Technology, TU Wien, Austria; *M Friák*, *M Šob*, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Czech Republic; *D Holec*, Montanuniversität Leoben, Austria; *P Mayrhofer*, Institute of Materials Science and Technology, TU Wien, Austria

BP-Thp-20 Investigation of CVD Stability Windows for Tungsten Carbide Phases, *Katalin Bőör*, *J Gerdin*, Uppsala University, Sweden; *R Qiu*, Chalmers University of Technology, Sweden; *M Boman*, Uppsala University, Sweden; *E Lindahl*, Sandvik Coromant R&D, Sweden

BP-Thp-22 Photocatalytic Activity of Metal Oxide Thin Films Deposited by MS-PVD and Layer-by-Layer for Hydrogen Production by Water Splitting, *P Rivero*, Public University of Navarra, Spain; *Jose Antonio Garcia*, Universidad Publica de Navarra, Spain; *R Rodriguez*, Public University of Navarra, Spain; *J Esparza*, AIN, Ingeniería Avanzada de Superficies, Spain; *G Garcia Fuentes*, Public University of Navarra, Spain

BP-Thp-23 Nanocomposite (Ti,Al,Cr,Si)N HPPMS Coatings for High Performance Cutting Tools, *K Bobzin*, *T Brögelmann*, *N Kruppe*, *M Carlet*, *Matthias Thiex*, RWTH Aachen University, Germany

BP-Thp-26 Low Temperature Titanium Boron-Carbide Based Thin Film Coatings by Plasma Enhanced Chemical Vapor Deposition on Surface Microstructure Controlled WC-Co, *Takeyasu Saito*, *D Kiyokawa*, *K Fuji*, *N Okamoto*, Osaka Prefecture University, Japan; *A Kitajima*, *K Higuchi*, Osaka University, Japan

BP-Thp-27 Performance of the CrAlSiN and Hydrogen free DLC Combined Hard Coatings Deposited on Micro Tools Cutting Printed Circuit Board, *D Wang*, MingDao University, Taiwan; *Li-Chi Hsu*, *J Hung*, Aurora Scientific Corp., Canada; *W Chen*, *W Ho*, MingDao University, Taiwan

BP-Thp-28 Study and Characterization of the Vanadium Carbide Interlayer Deposited by Laser Cladding over Carbon Steel for CVD Diamond Growth, *D Damm*, *R Pinheiro*, *J Gomez*, National Institute for Space Research (INPE), Brazil; *A Contin*, Federal University of Goiás (UFG), Brazil; *R Correia*, Federal University of São Paulo (UNIFESP), Brazil; *R Volu*, Institute for Advanced Studies (IEAV), Brazil; *Vladimir Jesus Trava-Airoldi*, National Institute for Space Research (INPE), Brazil; *G de Vasconcelos*, Institute for Advanced Studies (IEAV), Brazil; *D Barquete*, Santa Cruz State University (UESC), Brazil; *E Corat*, National Institute for Space Research (INPE), Brazil

BP-Thp-30 Optimization for Adhesion Properties of c-BN Films Coated with HiPIMS, *Ihsan Efeoğlu*, *Y Totik*, *A Keleş*, Ataturk University, Turkey

BP-Thp-31 Si-DLC Films Prepared by Magnetron Sputtering under Different Working Pressure, *Chaoqian Guo*, *S Lin*, *Q Shi*, *C Wei*, *H Li*, *W Wang*, *M Dai*, Guangdong Institute of New Materials, China

Thursday Afternoon Poster Sessions, May 23, 2019

BP-ThP-32 Multielement Rutile-structured AlCrNbTaTi-oxide Coatings Synthesised by Reactive Magnetron Sputtering, *Alexander Kirnbauer, C Koller, TU Wien, Institute of Materials Science and Technology, Austria; S Koloszvári, Plansee Composite Materials GmbH, Germany; P Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria*

BP-ThP-33 Magnetron Sputtering of Tungsten-containing /TiN_xO_y Multilayered Solar Selective Coatings, *Siang-Yun Li, Y Shen, K Chang, J Ting, National Cheng Kung University, Taiwan*

BP-ThP-34 Electron-configuration Stabilized (W,Al)B₂ Solid Solutions, *R Hahn, Vincent Moraes, P Mayrhofer, Institute of Materials Science and Technology, TU Wien, Austria; A Limbeck, Institute of Chemical Technologies and Analytics, TU Wien, Austria; P Polcik, Plansee Composite Materials GmbH, Germany; H Euchner, Helmholtz Institute for Electrochemical Energy Storage, Germany*

BP-ThP-35 Apparent Fracture Toughness of TiN Coatings with Alternating Stress Fields, *Antonia Wagner, J Buchinger, TU Wien, Institute of Materials Science and Technology, Austria; M Todt, TU Wien, Institute of Lightweight Design and Structural Biomechanics, Austria; D Holec, Montanuniversität Leoben, Austria; P Mayrhofer, M Bartosik, TU Wien, Institute of Materials Science and Technology, Austria*

BP-ThP-36 Synthesis and Structural Characterization of Nanostructured CN_{0.1} Films Deposited by RF Magnetron Sputtering at Different Bias Voltages, *Arturo Lousa, D Cano, C Villabos, J Esteve, University of Barcelona, Spain*

BP-ThP-37 An X-ray Diffraction Study on CrAlN and CrAlSiN PVD Coatings, *Jan Latarius, D Stangier, C Albers, K Berger, M Elbers, A Sparenberg, G Surmeier, M Paulus, C Sternemann, W Tillmann, M Tolan, TU Dortmund University, Germany*

BP-ThP-41 Influence of Oxygen Addition on Microstructure and Properties of TiAlN, *Damian Mauritiu Holzapfel, M Hans, RWTH Aachen University, Germany; A Eriksson, M Arndt, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; D Primetzhofer, Uppsala University, Sweden; J Schneider, RWTH Aachen University, Germany*

BP-ThP-42 An Investigation on Synthesis of Novel Oxide-Based Superhard Cr-Zr-O Coatings, *M Mohammadtaheri, Q Yang, Y Li, Jesus Corona-Gomez, University of Saskatchewan, Canada*

BP-ThP-43 Study of Erosion on Metals and Ceramic Coated Metals Using Magnetron Sputtering Process, *S Hill, D Mihut, A Afshar, Z Grantham, S Sanchez-Lara, Christopher D. Raffield, N Cordista, S Sanchez Lara, Mercer University, USA*

Fundamentals and Technology of Multifunctional Materials and Devices

Room Grand Hall - Session CP-ThP

Fundamentals and Technology of Multifunctional Materials and Devices (Symposium C) Poster Session

5:00pm

CP-ThP-1 Comparison of Si₃N₄ Barriers using Different Precursors Deposited on Porous Low-Dielectric-constant SiCOH Dielectric Films, *Y Cheng, Y Lin, Chih-Yen Lee, National Chi-Nan University, Taiwan*

CP-ThP-2 Stretchable Ultrasonic Transducer Arrays for Three-Dimensional Imaging on Complex Surfaces, *Hongjie Hu, X Zhu, C Wang, L Zhang, S Xu, University of California, San Diego, USA*

CP-ThP-6 Fabrication and Characterization of Ni-coated Ag Nanowire Electrodes with Bubble-like Random Meshes, *Jong-Seol Park, R Yoo, T Park, J Park, Hanyang University, Republic of Korea*

CP-ThP-13 Study of Stress-electrical Properties of ITO Film Deposited on Stretchable Substrate, *Pierre-Olivier Renault, Université de Poitiers, France; C Grossias, P Goudeau, P Godard, F Paumier, S Hurand, University of Poitiers, France; D Thiaudière, SOLEIL Synchrotron, France; P Guerin, University of Poitiers, France*

CP-ThP-18 Dual Box Model based *In situ* Ellipsometry Growth Characterization: Oxygen Plasma Enhanced Atomic Layer Deposition of Metal Oxide Ultra-thin Films, *U Kilic, University of Nebraska-Lincoln, USA; A Mock, Linköping University, Sweden; D Sekora, N Ianno, Eva Schubert, M Schubert, University of Nebraska Lincoln, USA*

CP-ThP-19 Controlled Release of Encapsulated Agents Deposited on Plasma Electrolytic Oxidation (PEO) Coatings for Corrosion Resistance and Biomedical Applications, *Y Guo, B Mingo, A Matthews, Aleksey Yerokhin, The University of Manchester, UK*

CP-ThP-21 Influence of Substrate Temperature on the Growth of Molybdenum Trioxide Thin Films, *Madhuri Venkat Kalapala, VFSTR University, India*

CP-ThP-22 Evaluation of the Influence of Pre-carburisation on the In-situ Performance of Chromized 304 Stainless Steel Bipolar Plate, *Atinuke Oladaye, University of Lagos, Nigeria; J Carton, J Stokes, Dublin City University, Ireland; A Olabi, University of the West of Scotland, UK*

CP-ThP-23 Piezo- and Thermo-resistive Thin Films Integrated into a Polymer Injection Mold to Control Dynamically the Pressure and Temperature of the Injection Process, *Filipe Vaz, A Ferreira, M Barbosa, University of Minho, Portugal; J Larangeira, Moldit, Portugal*

CP-ThP-25 Investigation of Sb₂Se₃ Ultra-thin Hole-transporting Material for Perovskite/ Sb₂Se₃ Heterojunction Solar Cells, *Gwomei Wu, Chang Gung University, Chang Gung Memorial Hospital, Taiwan*

CP-ThP-27 Fabrication of a Thermoelectric Generator Device by Suspension Plasma Spray Technique, *Fabian Ambriz-Vargas, C Moreau, Concordia University, Canada*

CP-ThP-31 Morphology Controlled of Silver/Silver Oxide Nanoparticles-MnO₂ Nanocomposites for Supercapacitor Application, *F Sari, Kuang-Cheng Lin, J Ruan, J Huang, J Ting, National Cheng Kung University, Taiwan*

Coatings for Biomedical and Healthcare Applications

Room Grand Hall - Session DP-ThP

Coatings for Biomedical and Healthcare Applications

(Symposium D) Poster Session

5:00pm

DP-ThP-4 Development of Multilayer HA-Ag and TiN-HA-Ag Coatings Deposited by RF Magnetron Sputtering with Potential Application in the Biomedical Field, *Julian Lenis, G Gaitán, University of Antioquia, Medellín, Colombia; P Rico, J Ribelles, Universitat Politècnica de València, Spain; F Bolívar, University of Antioquia, Medellín, Colombia*

DP-ThP-5 Electrochemical Activated Iridium Oxide Film as a Bio-interface Electrode for Neurostimulation Applications, *Y Chiu, P Chen, National Taipei University of Technology, Taiwan; Chien-Ming Lei, Chinese Culture University, Taiwan; P Wu, National Chiao Tung University, Taiwan*

DP-ThP-6 HIPIMS Titanium Dioxide on Laser Roughened PEEK Surface for Biomedical Application, *P Hsieh, Institute of Plasma, Department of Materials Science and Engineering, Feng Chia University, Taiwan; Chi-Jen Chung, Central Taiwan University of Science and Technology, Taiwan; H Tsou, Taichung Veterans General Hospital, Taiwan; H Chen, China Medical University Hospital, Taiwan; J He, Institute of Plasma, Department of Materials Science and Engineering, Feng Chia University, Taiwan*

DP-ThP-7 Corrosion Property and Biocompatibility Evaluation of Fe-Zr-Nb Thin Film Metallic Glasses, *B Lou, Chang Gung University, Taiwan; T Lin, Jyh-Wei Lee, Ming Chi University of Technology, Taiwan; J Wang, Y Yang, National Taipei University of Technology, Taiwan*

DP-ThP-9 Bone-like Nano-hydroxyapatite Coating on Low-modulus Ti-5Nb-5Mo Alloy Using Hydrothermal and Post-heat Treatments, *H Hsu, S Wu, S Hsu, Central Taiwan University of Science and Technology, Taiwan; Wen-Fu Ho, National University of Kaohsiung, Taiwan*

DP-ThP-10 Surface Characteristics and Structure of Porous TNM Alloy for Biomedical Applications, *W Ho, National University of Kaohsiung, Taiwan; S Wu, S Hsu, W Hsiao, Hsueh-Chuan Hsu, Central Taiwan University of Science and Technology, Taiwan*

DP-ThP-11 In vitro Wear Tests of the Dual-layer Grid Blasting-plasma Polymerized Superhydrophobic Coatings on Substrates Made into Dental Stainless Archwires, *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*

DP-ThP-19 Obtaining of CVD Nanodiamonds and Evaluation of the Cytotoxicity in B16f10 Cells for Treatment of Melanoma, *C Wachesk, Federal University of São Paulo (UNIFESP), Brazil; C Hurtado, Institute of Science and Technology, Federal University of São Paulo (UNIFESP), Brazil; Rebeca Falcão, Institute of Science and Technology, Federal University of São Paulo (UNIFESP), Brazil; D Arruda, University of Mogi das Cruzes, Brazil; D Tada, Institute of Science and Technology, Federal University of São Paulo (UNIFESP), Brazil; V Airolidi, National Institute for Space Research (INPE), Brazil*

DP-ThP-22 Tantalum Oxynitride PVD Coatings a Potential Candidate for Dental Implants Application, *O Banakh, University of Applied Sciences (HES-SO), Switzerland; Pierre-Albert Steinmann, Positive Coating SA, Switzerland*

Thursday Afternoon Poster Sessions, May 23, 2019

DP-ThP-25 Influence of Ag-Cu Nanoparticles on the Microstructural and Bactericidal Properties of TiAlN- (Ag,Cu) Coatings Deposited by DC Magnetron Sputtering for Medical Applications, *H Mejía, G Bejarano, Aida Echavarría*, Universidad de Antioquia, Colombia

DP-ThP-26 Antibacterial Activity of Conductive Thin Films Deposited on Water Filter Paper, *D Mihut, A Afshar, S Hill, L Khang, Nicholas Cordista*, Mercer University, USA

Tribology and Mechanical Behavior of Coatings and Engineered Surfaces

Room Grand Hall - Session EP-ThP

Tribology and Mechanical Behavior of Coatings and Engineered Surfaces (Symposium E) Poster Session 5:00pm

EP-ThP-2 Deposition of DLC/Si-N Composite Films Synthesized by Sputtering-PBII Hybrid System and Their Thermal Stability, *Anas Melih, K Yamada, S Watanabe*, Nippon Institute of Technology, Japan

EP-ThP-3 Mechanical and Tribological Performance of TiAlN, TaN and Nanolayered TiAlN/TaN Coatings Deposited by DC Magnetron Sputtering, *Elbert Contreras, J Cortínez, M Gómez*, Universidad de Antioquia, Colombia; *A Hurtado*, Centro de Investigación en Materiales Avanzados CIMAV, Mexico

EP-ThP-4 Development of Catalytically Active Nano-Composite Coating for Severe Boundary Lubricated Conditions of Hydraulic Fluids, *V DaSilva, Osman Levent Eryilmaz, A Erdemir*, Argonne National Laboratory, USA

EP-ThP-5 Size-Independent High Strength of CuTi/Ti Metallic Glass/Crystalline Nanolayers, *M Abboud*, Middle East Technical University, Turkey; *A Motallebzadeh*, Koç University, Turkey; *Sezer Özerinç*, Middle East Technical University, Turkey

EP-ThP-6 Extended Crack-free Tensile Deformation of Ultrathin Metallic Glass Films Due to an Intrinsic Size Effect, *Oleksandr Glushko*, Erich Schmid Institute of Materials Science, Austria; *M Mühlbacher*, Montanuniversität Leoben, Austria; *C Gammer, M Cordill*, Erich Schmid Institute of Materials Science, Austria; *C Mitterer*, Montanuniversität Leoben, Austria; *J Eckert*, Erich Schmid Institute of Materials Science, Austria

EP-ThP-11 Effect of Surface Treatments on AISI H13 Steels, *Marco Antonio Doñu Ruiz*, Universidad Politécnica del Valle de México, Mexico, México; *M Buenrostro Arvizu*, Universidad Autónoma Metropolitana Azcapotzalco, Mexico; *N Lopez Perrusquia*, Universidad Politécnica del Valle de México, Mexico, México; *V Cortés Suárez*, Universidad Autónoma Metropolitana Azcapotzalco, Mexico; *C Torres San Miguel*, Instituto Politécnico Nacional, Mexico; *G Pérez Mendoza*, Universidad Politécnica del Valle de México

EP-ThP-12 Mechanical Properties and Fretting Corrosion of Zr/ZrN/CNx Hierarchical Multilayers Deposited by HIPIMS on Ti Biomedical Alloy, *Martin Flores, J Perez, O Jiménez, L Flores*, Universidad de Guadalajara, Mexico

EP-ThP-13 Quantum Tools for Life-Time Prediction of Coatings and Thin Films, *Norbert Schwarzer*, SIO, Germany

EP-ThP-16 Structure and Fretting Wear Behavior of CuNiIn/MoS₂-Ti Multilayers Fabricated by Magnetron Sputtering Method, *Chunbei Wei, Q Li, S Lin, H Hou, M Dai*, Guangdong Institute of New Materials, China

EP-ThP-17 Contact-focusing Electron Flow (CFEF) Induced Near-zero Running-in for Low Friction of Carbon-steel contact Interface, *Dongfeng Diao*, Institute of Nanosurface Science and Engineering, Shenzhen University, China

EP-ThP-18 Misinterpreting Size-effects during Coating Nanoindentation, *Esteban Broitman*, SKF Research & Technology Development Center, Netherlands

EP-ThP-19 e-Poster Presentation: Think You Have Produced DLC? Think Again!, *Arman Mohammad Khan, H Wu, Y Chung, Q Wang*, Northwestern University, USA

EP-ThP-20 Mechanical and Tribological Properties of Cr-Al-Si-N-O Coatings Prepared by Arc Ion Plating for Cutting Tools, *Jun-Ho Kim, W Kim*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

EP-ThP-22 Friction Property of Si-DLC with Scratch Damage Before and After Local Repairing Deposition to the Scratch Scar, *H Takamatsu, K Tanaka, Akihiko Ito, H Kousaka, T Furuki*, Gifu University, Japan

EP-ThP-23 Raman Scattering Characterizes Thermally Annealed HiPIMS Sputtered MoS₂ Coatings, *Henning Moldenhauer, W Tillmann, A Wittig, D Kocali, D Stangier, A Brümmer, J Debus*, TU Dortmund University, Germany

EP-ThP-24 Friction Reduction in Sliding Between Si-DLC vs. Steel Ball by Ar Plasma Irradiation Using Microwave-excited Atmospheric Pressure Plasma Jet, *T Hibino, Hiroyuki Kousaka, T Furuki*, Gifu University, Japan; *J Kim, H Sakakita*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

EP-ThP-27 Taguchi Method to Study Effects of Plasma Surface Texturing on Friction Reduction of Cast Iron at High Speed Sliding Lubricated Conditions, *W Zha, C Zhao, R Cai, Xueyuan Nie*, University of Windsor, Canada

EP-ThP-30 Test Rig Development For Static Friction Assessment At High Temperature, *M Azzi*, Lebanese University (UL), Lebanon; *E Bitar-Nehme*, Tricomat, Canada; *J Schmitt, T Schmitt, L Martinu, Jolanta-Ewa Klemberg-Sapieha*, École Polytechnique de Montréal, Canada

New Horizons in Coatings and Thin Films

Room Grand Hall - Session FP-ThP

New Horizons in Coatings and Thin Films (Symposium F)

Poster Session

5:00pm

FP-ThP-3 Influencing the Cubic to Wurtzite Phase Transition in Ti-Al-N by Reactive HiPIMS Deposition, *L Zauner*, TU Wien, CDL AOS at the Institute of Materials Science, Austria; *Helmut Riedl*, TU Wien, Institute of Materials Science, Austria; *T Kozák, J Čapek*, University of West Bohemia, Czech Republic; *T Wojcik*, TU Wien, Institute of Materials Science, Austria; *H Bolvardi*, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S Koloszvári*, Plansee Composite Materials GmbH, Germany; *P Mayrhofer*, TU Wien, Institute of Materials Science, Austria

FP-ThP-5 e-Poster Presentation: Vacancies to Compensate for Electronic Imbalances in Crystals, *Maria Fischer, D Scopece, M Trant, C Pignedoli, K Thorwarth, D Passerone, H Hug*, Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland

FP-ThP-6 Role of the Thermalized Ions in the Reduction of the Atomic Shadowing Effect in HiPIMS, *João Oliveira, F Ferreira*, University of Coimbra, Portugal; *A Anders*, Leibniz Institute of Surface Engineering, Germany; *A Cavaleiro*, University of Coimbra, Portugal

FP-ThP-7 Study of the Self-organizing Structures in Magnetron Plasma by a Pseudo 3D Model, *Adrien Revel*, Université Paris-Sud/CNRS, France; *T Minea*, Université Paris-Sud, Université Paris-Saclay, France; *M George, B Vincent*, CNRS, France; *S Tsikata*, CNRS, ICARE, France

FP-ThP-9 Point Ion Beam Sputtering for Novel Applications, *Victor Bellido-Gonzalez, D Monaghan, R Brown*, Genco Ltd, UK; *D Perry*, Quorum Technologies, UK; *J Brindley, A Azzopardi*, Genco Ltd, UK

FP-ThP-10 Reducing the Intrinsic Stress of TiN Films in HiPIMS, *F Cemin*, LPGP, Université Paris-Sud, Orsay, France; *Grégory Abadías*, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; *T Minea, D Lundin*, LPGP, Université Paris-Sud, Orsay, France

FP-ThP-11 Study on Tribological Behavior of ZrB₂-Zr Coatings Deposited on Ti6Al4V and CoCrMo Alloys by HiPIMS, *Luis Flores-Cova, O Jiménez, M Flores, J Pérez-Alvarez*, Universidad de Guadalajara, Mexico

FP-ThP-16 Detecting the Direction of a Magnetic Field with a Nanocrystallized Carbon Film by Using its Anisotropic Magnetoresistance and Hall Effect, *Chao Wang, T Huang, W Zhang, J Guo, X Dai*, Institute of Nanosurface Science and Engineering, College of Mechatronics and Control Engineering, Shenzhen University, China

FP-ThP-17 Effect of Synchronized Bias on the Oxygen Content in r-HiPIMS Deposited γ -Al₂O₃ Thin Films, *Stefan Kagerer*, TU Wien, Institute of Materials Science, Austria; *S Koloszvári*, Plansee Composite Materials GmbH, Germany; *T Kozák, J Čapek, P Zeman*, University of West Bohemia, Czech Republic; *H Riedl*, TU Wien, Institute of Materials Science and Technology, Austria; *P Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Österreich, Austria

Surface Engineering - Applied Research and Industrial Applications

Room Grand Hall - Session GP-ThP

Surface Engineering - Applied Research and Industrial Applications (Symposium G) Poster Session

5:00pm

GP-ThP-1 Effect of Plasma Nitriding and Modulation Structure on the Adhesion and Corrosion Resistance of CrN/Cr₂O₃ Coating, *C Huang, F Yang, Y Tsai, Chi-Lung Chang*, Ming Chi University of Technology, Taiwan

Thursday Afternoon Poster Sessions, May 23, 2019

GP-ThP-2 Study on SiN and SiCN Film Production using PE-ALD Process with High-density Multi-ICP Source at Low Temperature, *Hohyun Song, H Chang*, Korea Advanced Institute of Science and Technology, Republic of Korea

GP-ThP-3 PEO Coatings for Adhesive Bonded Aluminium Structures, *Dominic Shore, A Rogov, A Matthews, A Yerokhin*, The University of Manchester, UK

GP-ThP-5 Hydrogen Barrier Coatings Deposited by Magnetron Sputtering: A Study of Different Oxide Materials and Their Microstructure on the Hydrogen Permeability Properties, *Sofia Gimeno*, Fersa Bearings, Spain; *J Garcia*, Universidad Publica de Navarra, Spain; *I Quintana, L Mendizabal, C Zubizarreta*, Physic of Surfaces and Materials Unit, IK4 – TEKNIKER, Spain

GP-ThP-6 Process for Obtaining TiO₂/SiO₂ Systems using Magnetron Sputtering RF from Ceramic Targets: Studies on their Anti-Reflective Response, *Dario Zambrano, R Villarrol, R Espinoza*, Universidad de Chile, Chile

GP-ThP-7 Microstructure Evolution of Overlay Welded Duplex Stainless Steel Joints, *Paola Andressa Luchtenberg, R Torres, P Soares, P Campos*, Pontificia Universidade Católica do Paraná, Brazil

GP-ThP-11 Ion Beam Assisted Deposition of DLC for Sheet Metal Forming Tools, *Lars Pleth Nielsen, K Almtoft, C Jeppesen, C Mathiasen, P Pedersen*, Danish Technological Institute, Denmark

GP-ThP-13 Effect of Interaction between Microbial Fluid and Electrode on Performance, *Yu-Chen Liu, Y Yang*, National Taipei University of Technology, Taiwan

GP-ThP-15 Design of Low-Pressure Chemical Vapor Deposition Reactors Using Vertical Cavity Surface Emitting Lasers, *Seungho Park, Y Noh, Y Kim*, Hongik University, Seoul, Republic of Korea; *B Kim, H Kim*, Viatron Technologies, Republic of Korea

GP-ThP-16 Optical, Mechanical and Anti-corrosive Property Investigation of Tantalum Oxynitride Thin Films for Hard Coating Applications, *Jignesh Hirpara, R Chandra*, Indian Institute of Technology Roorkee, India

GP-ThP-17 Synthesis and Properties of Two-dimensional Zirconium Phosphate/Polyimide Nanocomposites as Anticorrosion Coatings, *G Lai*, National Chin-Yi University of Technology, Taiwan; *I Tseng*, Feng Chia University, Taiwan; *T Huang, P Tsai, Mei-Hui Tsai*, National Chin-Yi University of Technology, Taiwan

GP-ThP-18 Improvement of the Corrosion Resistance in the ASTM F75 Alloy by Ball Burnishing, *Eric Noe Hernandez-Rodriguez, D Silvia Alvarez, A Marquez Herrera, A Saldana Rovles, J Moreno Palmerin*, University of Guanajuato, Mexico

GP-ThP-19 Surface Modification of Sputter Deposited γ -WO₃ Thin Film for Scaled Electrochromic Behaviour, *R Chandra, Gaurav Malik, S Mourya, J Jaiswal, IIC, IIT Roorkee, India; J Hirpara*, Indian Institute of Technology Roorkee, India

GP-ThP-21 Nanotexturization and Passivation of Single Crystalline Silicon Surface for Passivated Emitter and Rear Contact Solar Cells, *C Hsu*, Xiamen University of Technology, China; *S Liu*, Da-Yeh University, Taiwan, Taiwan; *Wan-Yu Wu*, Da-Yeh University, Taiwan; *S Lien*, Xiamen University of Technology, China

GP-ThP-24 Optical Performances of Antireflective Moth-Eye Structures under Thermal and Humid Stress – Application to Outdoor Lighting LEDs., *C Ducros, Agathe Brodu, G Lorin, F Emieux, A Pereira*, Univ. Grenoble Alpes, CEA, France

Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes

Room Grand Hall - Session HP-ThP

Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes (Symposium H) Poster Session 5:00pm

HP-ThP-1 Cyclic Tensile Deformation of Freestanding, Nanocrystalline NiTi Films using MEMS Stages, *Paul Rasmussen, R Sarkar, J Rajagopalan*, Arizona State University, USA

HP-ThP-3 Ion Irradiation Behavior of a Nanocrystalline BCC High-Entropy Alloy, *Y Xiao, H Ma, A Sologubenko, R Spolenak, Jeffrey M. Wheeler*, ETH Zürich, Switzerland

HP-ThP-4 Evaluation of Properties in Steel with Hard Coating under Hydrogen, *Noe Lopez Perrusquia*, Universidad Politecnica Del Valle De México, México; *M Doñu Ruiz*, Universidad Politecnica del Valle de México, México; *C Torres San Miguel*, Sección de Estudios de Posgrado e Investigación de la Escuela Superior de Ingeniería Mecánica y Eléctrica Unidad Zacatenco, Mexico; *V Cortés Suárez, J Garcia Sanchez*, Universidad Autonoma Metropolitana Azcapotzalco, Mexico; *L Sánchez Fuentes*, Universidad Politecnica del Valle de México, Mexico

HP-ThP-6 Coatings and Interfaces Characterization: Depth Profiling from the First Nanometer down to the Substrate using RF GD-OES, *Philippe Hunault*, HORIBA Instruments, USA; *M Chausseau, K Savadkouei*, HORIBA Scientific, USA; *P Chapon, S Gaiaschi*, HORIBA Scientific, France

HP-ThP-7 In situ Measurement Setup for DC Magnetron Sputtering Thin Film Deposition, *Quentin Herault, S Grachev, I Gozhyk, H Montigaud*, Saint-Gobain Recherche/CNRS, France; *R Lazzari*, Institut des Nano Sciences de Paris - Sorbonne Université, France

HP-ThP-8 Preparation and Physical Properties of Multiferroic CaMn₇O₁₂ Thin Films, *Yu-Chin Tseng*, National Chiao Tung University, Taiwan; *S Jian*, I-Shou University, Taiwan; *C Lin*, National Tsing Hua University, Taiwan; *J Juang*, National Chiao Tung University, Taiwan

HP-ThP-9 SIO X-Ray: View Inside your Material with Contact Experiments, *Nick Bierwisch, N Schwarzer*, SIO, Germany

HP-ThP-11 Glow Discharge Optical Emission Spectroscopy: Advances toward Quantitative Coating Compositional Depth Profiling, *Amir Tavakoli, F Li*, Air Liquide - Balazs NanoAnalysis Laboratory, USA

Topical Symposia

Room Grand Hall - Session TSP-ThP

Topical Symposia (TS) Poster Session

5:00pm

TSP-ThP-1 Surface Modification of Multiwalled Carbon Nanotubes for Electro-Thermal Heating in Ice Protection, *Francesco Zangrossi, F Xu, N Warrior, X Hou*, University of Nottingham, UK

TSP-ThP-2 Nanostructured a-C:H:SiO_x Coatings with Superhydrophobic Properties, *Damian Batory*, Lodz University of Technology, Poland; *J Lengaigne*, Ecole Polytechnique de Montreal, Canada; *A Jedrzejczak*, Lodz University of Technology, Poland; *S Brown, J Klemberg-Sapieha*, Ecole Polytechnique de Montreal, Canada

TSP-ThP-4 Structural Investigation of the Stability in Temperature of Some High Entropy Alloys, *Monique Calvo-Dahlborg*, University of Rouen Normandie-CNRS, France, Swansea University, UK; *U Dahlborg, J Cornide*, University of Rouen Normandie-CNRS, France; *S Mehraban*, College of Engineering, Swansea University, UK; *R Wunderlich*, University of Ulm, Germany; *N Lavery*, College of Engineering, Swansea University, UK; *S Brown*, Swansea University, UK

TSP-ThP-6 Cu-nanoparticles /Polyfluoroacrylate Emulsion Nanocomposite Coating for Icephobic Applications, *T Barman, H Chen, J Liu, Xianghui Hou*, The University of Nottingham, UK

TSP-ThP-7 Surface Characteristics and Diffusion Phenomenon of Ni₂FeCoCrAl_x Alloys Treated by Atmospheric Pressure Plasma, *Chi-Ruei Huang*, National United University, Taiwan; *J Duh*, National Tsing Hua University, Taiwan; *F Wu*, National United University, Taiwan

TSP-ThP-8 Development of Microwave Remote Plasma Source for New Surface Functionalization, *Y Isomura, Y Ikari, Tadao Okimoto, Y Tauchi, K Nishiyama*, Kobe Steel, Ltd., Japan; *H Toyoda, H Suzuki*, Nagoya University, Japan

Special Events Friday

Special Events Friday

7:30 AM Conference Registration/Atlas Foyer
8:00 AM Technical Sessions/See Program/Mobile App
12:00 PM Thank You, See You Next Year Party!/Lion Fountain Courtyard

Friday Morning, May 24, 2019

Hard Coatings and Vapor Deposition Technologies Room Golden West - Session B2-2-FrM CVD Coatings and Technologies II Moderators: Kazunori Koga, Kyushu University, Japan, Francis Maury, CNRS-CIRIMAT		Hard Coatings and Vapor Deposition Technologies Room California - Session B5-2-FrM Hard and Multifunctional Nanostructured Coatings II Moderators: Tomas Kozak, University of West Bohemia, Helmut Riedl, TU Wien, Institute of Materials Science and Technology	
8:00am			
8:20am			
8:40am			
9:00am		B5-2-FrM-4 Microstructural and Mechanical Stability of TaCu Composite Coatings, <i>A Bahrami, C Onofre, A Delgado</i> , Universidad Nacional Autonoma de México, México; <i>T Huminiuc, T Polcar</i> , University of Southampton, UK; Sandra Rodil , Universidad Nacional Autonoma de México, México	
9:20am	B2-2-FrM-5 Scale up of the DLI-MOCVD Process to Treat 16 Nuclear Fuel Cladding Segments in Parallel with a Protective Cr _x Coating, <i>A Michau, F Addou</i> , CEA, Université Paris-Saclay, France; <i>Y Gazal, F Maury, Thomas Duguet</i> , CIRIMAT, France; <i>R Boichot, M Pons</i> , Université Grenoble Alpes, CNRS, France; <i>E Monsifrot, Dephis, France; F Schuster</i> , CEA, PTCMP, France		
9:40am	B2-2-FrM-6 Assessment of Low Temperature CVD Routes to MAX Phases in the Cr-Si-C System, <i>A Michau</i> , CEA, Université Paris-Saclay, France; Francis Maury , CIRIMAT, France; <i>F Schuster</i> , CEA Cross-Cutting Program on Materials and Processes Skills, France; <i>T Duguet</i> , CIRIMAT, France; <i>E Monsifrot</i> , Dephis, France		INVITED: B5-2-FrM-6 Tantalum Alloying - Improvement of Thermal Stability and Mechanical Properties of Ternary and Quaternary Transition Metal Nitrides, Branislav Grancic , Comenius University in Bratislava, Slovakia; <i>D Sangiovanni</i> , Linköping University, Sweden, Ruhr-Universität Bochum, Germany; <i>T Roch, M Truchlý, M Mikula</i> , Comenius University in Bratislava, Slovakia
10:00am	B2-2-FrM-7 Towards CVD of Hard Coatings Using Hetero-Metallic Precursors, Sebastian Öhman , <i>M Ek</i> , Uppsala University, Angstrom Laboratory, Sweden; <i>R Brenning</i> , Sandvik Coromant R&D, Sweden; <i>M Boman</i> , Uppsala University, Angstrom Laboratory, Sweden		Invited talk continues.
10:20am	B2-2-FrM-8 CVD of Tungsten, Tungsten Nitride and Tungsten Carbide Multilayers, <i>J Hulkko, K Bööf</i> , Uppsala University, Angstrom Laboratory, Sweden; <i>R Qiu</i> , Chalmers University of Technology, Sweden; <i>E Lindahl</i> , Sandvik Coromant R&D, Sweden; Mats Boman , Uppsala University, Angstrom Laboratory, Sweden		B5-2-FrM-8 Interface Characteristics Between PVD- AlTiN and Electroplated Hard Chrome by Duplex Process, <i>D Wang</i> , MingDao University, Taiwan; Li-Chi Hsu , <i>J Hung</i> , Aurora Scientific Corp., Canada; <i>C Chen, H Liu</i> , Surftech Corp., Taiwan; <i>W Ho</i> , MingDao University, Taiwan
10:40am	B2-2-FrM-9 Deposition of Carbon Nanoparticles Using Multi-Hollow Discharge Plasma CVD for Synthesis of Carbon Nanoparticle Composite Films, Kazunori Koga , <i>S Hwang</i> , Kyushu University, Japan; <i>T Nakatani</i> , Okayama University of Science, Japan; <i>J Oh</i> , Osaka City University, Japan; <i>K Kamataki, N Itagaki, M Shiratani</i> , Kyushu University, Japan		B5-2-FrM-9 Manipulation of Bimodal Matrix in Plasma Sprayed Nanostructured YSZ Coating and Its Effect on the Microstructure, Pavan Bijalwan , Tata Steel Limited, India; <i>A Islam, K Pandey</i> , Indian Institute of Technology, India; <i>A Pathak, M Dutta</i> , Tata Steel Limited, India; <i>A Keshri</i> , Indian Institute of Technology, India
11:00am	B2-2-FrM-10 Hot Filament CVD Diamond Coating Technology for Cutting Tool Applications, Michael Woda , <i>W Puetz, M Frank, C Schiffers, W Koelker, O Lemmer, T Leyendecker</i> , CemeCon AG, Germany		

Friday Morning, May 24, 2019

	<p>Tribology and Mechanical Behavior of Coatings and Engineered Surfaces Room San Diego - Session E1-3-FrM Friction, Wear, Lubrication Effects, and Modeling IV Moderators: Nazlim Bagcivan, Schaeffler Technologies GmbH & Co. KG, Germany, Carsten Gachot, Vienna University of Technology, Tomas Polcar, Czech Technical University in Prague, Czech Republic</p>	<p>Surface Engineering - Applied Research and Industrial Applications Room Pacific Salon 1 - Session G2-FrM Component Coatings for Automotive, Aerospace, Medical, and Manufacturing Applications Moderators: Tetsuya Takahashi, Kobe Steel, Ltd., Etienne Bousser, Ecole Polytechnique, Canada, Satish Dixit, Plasma Technology Inc., USA</p>
8:00am	E1-3-FrM-1 Numerical and Experimental Analyses on the Influence of Irregular Columnar Boundaries on Mechanical and Tribological Behavior of a WC/C Coating, Cassiano Bernardes , <i>N Fukumasu, R Souza, I Machado</i> , University of São Paulo, Brazil	
8:20am	E1-3-FrM-2 Structure, Mechanical and Tribological Properties of Mo-S-N Solid Lubricant Coatings, Tomáš Hudec , University of Southampton, UK; <i>M Mikula, L Satrapinskyy, T Roch, M Truchlý</i> , Comenius University in Bratislava, Slovakia; <i>P Švec Jr.</i> , Slovak Academy of Sciences, Bratislava, Slovakia; <i>T Huminiuc, T Polcar</i> , University of Southampton, UK	
8:40am	INVITED: E1-3-FrM-3 Superlubricity with Carbon Coatings Lubricated by Organic Friction Modifiers, Michael Moseler , Fraunhofer IWM, Germany	INVITED: G2-FrM-3 YKK's Sustainable Development: Reduction of Mold Cleaning Load by Diecast Mold Coating and Release Agent, Mai Mizubayashi , <i>T Sakuragi, N Watanabe, M Ishida</i> , YKK Corporation, Japan; <i>K Matsuda</i> , University of Toyama, Japan; <i>M Nose</i> , Hokuriku Polytechnic College, Japan
9:00am	Invited talk continues.	Invited talk continues.
9:20am	E1-3-FrM-5 Multipass and Reciprocating Microwear Study of TiN Based Films, Roberto Carlos Vega-Morón , Instituto Politecnico Nacional Grupo Ingeniería de Superficies, Mexico, México; <i>D Melo-Máximo</i> , Tecnológico de Monterrey-CEM, México; <i>G Rodríguez-Castro</i> , Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, Mexico, México; <i>J Oseguera-Peña</i> , Tecnológico de Monterrey-CEM, Mexico, México; <i>A Bahrami</i> , Institute for Metallic Materials, Leibniz-Institute for Solid State and Materials Research Dresden, Germany; <i>S Muhl</i> , Instituto de Investigaciones en Materiales-UNAM, México	G2-FrM-5 Effect of Plasma Electrolytic Oxidation Process on Surface Characteristics and Tribological Behavior, Ran Cai , <i>C Zhao, X Nie</i> , University of Windsor, Canada
9:40am	E1-3-FrM-6 Correlation Between Wear Resistance of Ti/TiN Based Films and Deposition Temperature, Fernanda Toledo-Romo , <i>R Vega-Morón</i> , Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, México; <i>G Rodríguez-Castro</i> , Instituto Politecnico Nacional, Grupo Ingeniería de Superficies, Mexico, México; <i>D Melo-Máximo</i> , <i>J Oseguera-Peña</i> , <i>L Melo-Máximo</i> , Tecnológico de Monterrey-CEM, México; <i>V Araujo-Monsalvo</i> , Laboratorio de Biomecánica, Instituto Nacional de Rehabilitación "Luis Guillermo Ibarra Ibarra", México	G2-FrM-6 Effectiveness of Electromagnetic Interference Shielding of Sputtered Nitrogen-Doped Carbon Thin Films, Dian-Hao Liu , <i>Y Lai</i> , National United University Miaoli, Taiwan
10:00am	E1-3-FrM-7 Microstructure Evolution and Deposition Parameter Control on Sputtering MoSiN Coating, Yu-Cheng Liu , <i>Z Lin, S Wang, F Wu</i> , National United University, Taiwan	G2-FrM-7 Challenges for Surface Solutions for Automotive Applications, Jörg Vetter , <i>J Becker</i> , Oerlikon Balzers Coating Germany GmbH, Germany; <i>P Ernst</i> , Oerlikon Metco AG, Switzerland; <i>J Crummenauer</i> , Oerlikon Balzers Coating Germany GmbH, Germany; <i>A Müller</i> , Oerlikon Surface Solutions AG, BTS, Balzers, Liechtenstein
10:20am	E1-3-FrM-8 Influence of Ag Content on the Tribological and Oxidation Behaviour of TISIN(AG) Thin Films Deposited by HIPIMS, Diogo Cavaleiro , <i>F Fernandes, S Carvalho</i> , University of Minho, Portugal; <i>A Cavaleiro</i> , University of Coimbra, Portugal	G2-FrM-8 Hard Turning with PVD Coated p-cBN, <i>C Charlton</i> , Kennametal Inc., USA; Joern Kohlscheen , Kennametal GmbH, Germany; <i>D Banerjee</i> , Kennametal Inc., USA; <i>C Bareiss</i> , Kennametal GmbH, Germany
10:40am	E1-3-FrM-9 Wear Resistance of Titanium Oxynitride Coatings as a Function of the Relative Humidity, <i>C Rojo-Blanco</i> , IIM-UNAM, Mexico; Stephen Muhl , Instituto de Investigaciones en Materiales-UNAM, México	G2-FrM-9 Arc PVD (Cr,Al,Mo)N and (Cr,Al,Cu)N Coatings for Mobility Applications, <i>K Bobzin, T Brögelmann</i> , Christian Kalscheuer , RWTH Aachen University, Germany
11:00am	E1-3-FrM-10 Thermo-mechanical/chemical Contact Behavior of DLC Film under Molecularly Thin Lubricants, Shahriar Mufid Rahman , Texas Tech University, USA; <i>J Song</i> , Molex. USA, USA; <i>C Yeo</i> , Texas Tech University, USA	
11:20am	E1-3-FrM-11 Investigation of the Wear Resistance of TiN/TiAlN, CrN/TiAlN and CrAlN/TiAlN Double Layer Coated Stainless Steel at Elevated Temperatures, Akeem Adesina , <i>A Sorour</i> , King Fahd University of Petroleum and Minerals, Saudi Arabia	G2-FrM-11 Ion Beam Stripping Process for Cutting Tools Reconditioning, Alexey Remnev , ITAC Ltd., Group of ShinMaywa Industries, Japan

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