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 & Foyer	Pacific Salon 1	Pacific Salon 2	Pacific Salon 3	Pacific Salon 6-7	Royal Palm 1-3	San Diego	Town & Country
MoPL										PL-MoPL: Plenary Lecture
MoM	B6-1-MoM: Interplay Between Computational and	B2-1-MoM: CVD Coatings and Technologies I		A1-1-MoM: Coatings to Resist High-temperature Oxidation,	G4-MoM: Pre-/Post-Treatment and Duplex Technology	TS5-1-MoM: Thin Films on Polymer Substrates: Flexible	H1-1-MoM: Spatially-resolved and In-Situ Characterizatio	D1-1-MoM: Surface Coating and Surface Modification in Biological		
MoSIT										SIT1-MoSIT: Special Interest Session
MoA	B6-2-MoA: Interplay Between Computational and	B2-2-MoA: CVD Coatings and Technologies II		A1-2-MoA: Coatings to Resist High-temperature Oxidation,		TS5-2-MoA: Thin Films on Polymer Substrates: Flexible	H1-2-MoA: Spatially-resolved and In-Situ Characterizatio	D1-2-MoA: Surface Coating and Surface Modification in Biological		
TuM	B8-1-TuM: HiPIMS, Pulsed Plas & Energ. Deposition I	B5-1-TuM: Hard & Multi Nanostruct Coatings I		TS4-TuM: Photocat & Superhydro Surfaces	G2-TuM: Surf Mod of Comp in Auto, Aero & Mfg Applications	TS2-1-TuM: New Hor in Boron-Cont Coatings: Modeling,	H2-1-TuM: Adv Mech Test of Surf, TF, Coatings and Small Volumes	D2-TuM: Bio-corr, Bio-trib & Bio-tribo-corr Additive Manufacturing	E1-1-TuM: Friction, Wear, Lubrication Effects, and Modeling I	
TuEx										EX-TuM: Exhibition Keynote Lecture
TuA	B8-2-TuA: HiPIMS, Pulsed Plasmas and Energetic Deposition II	B5-2-TuA: Hard & Multi Nano Coatings II		A2-1-TuA: Thermal and Environmental Barrier Coatings I	G3-TuA: Innovative Surface Engineering for Advanced	TS2-2-TuA: New Hor in Boron-Cont Coat: Modeling,	H3-TuA: Char of Coat & Small Vol in Harsh Env	D3-TuA: Bioint: Improving the Cell Adhesion and Avoiding Bacteria. What	E1-2-TuA: Friction, Wear, Lubrication Effects, and Modeling II	
TuSIT										SIT2-TuSIT: Special Interest Session
WeM	B7-WeM: Plasma Surface Interactions, Diagnostics and Growth	B3-WeM: Deposition Tech & Applications for Diamond-like		A2-2-WeM: Thermal and Environmental Barrier Coatings II	G5-WeM: Hybrid Systems, Processes and Coatings	TS2-3-WeM: New Horizons in Boron-Containing Coatings:	H2-2-WeM: Advanced Mechanical Testing of Surfaces, Thin	C3-WeM: TF for Energ Ap: Sol, Ther, & Photo	E1-3-WeM: Friction, Wear, Lubrication Effects, and Modeling III	
WeSIT										SIT3-WeSIT: Special Interest Session
WeA	B4-1-WeA: Prop & Char of Hard Coat & Surfaces I			A3-WeA: Materials and Coatings for Solar Power Concentration	G6-WeA: Application-Driven Cooperations between	TS3-1-WeA: In-Silicio Design of Novel Materials by Quantum Mechanics and	F1-WeA: Nanomaterials and Nano-fabrication	C2-1-WeA: Func Coatings & TF for Elect Devices I	E1-4-WeA: Friction, Wear, Lubrication Effects, and Modeling IV	
WeHL										HL-WeHL: Bunshah Award Honorary Lecture
ThM	B4-2-ThM: Prop & Char of Hard Coat & Surfaces II	B1-1-ThM: PVD Coatings and Technologies I				TS3-2-ThM: In-Silico Design of Novel Materials by Quantum Mechanics and Classical	F2-1-ThM: High Entropy and Other Multi-principal-element Materials I	C1-ThM: Opt Matls Design, Syn, Char, & Applications	E2-1-ThM: Mechanical Prop and Adhesion I	
ThA	B4-3-ThA: Prop & Char of Hard Coat & Surfaces III	B1-2-ThA: PVD Coatings and Technologies II			F3-ThA: 2D Matls: Synth, Characteriz, & Applications	TS1-ThA: Anti- and De-icing Surface Engineering I	F2-2-ThA: High Entropy & Other Multi-princ-element Materials II	C2-2-ThA: Functional Coatings and Thin Films for Electronic	E2-2-ThA: Mechanical Prop and Adhesion II	
ThP			Poster Sessions							
FrM	B4-4-FrM: Prop & Char of Hard Coat & Surfaces IV	B1-3-FrM: PVD Coatings and Technologies III			G1-FrM: Advances in Industrial PVD, CVD and PCVD Processes and				E3-FrM: Tribology of Coatings for Automotive and Aerospace	

Monday Morning, April 27, 2020

Plenary Lecture
Room Town & Country - Session PL-MoPL
Plenary Lecture
Moderator:
Grzegorz (Greg) Greczynski, Linköping University, Sweden

8:00am	**INVITED: PL-MoPL1** Organic Bioelectronics – Nature Connected, ***M. Berggren***, Linköping University, Norrköping, Sweden	
8:20am	Invited talk continues.	
8:40am		
9:00am		
9:20am		
9:40am		

	Coatings for Use at High Temperatures **Room Pacific Salon 1 - Session A1-1-MoM** **Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling I** **Moderators: Sebastien Dryepondt**, Oak Ridge National Laboratory, USA, **Shigenari Hayashi**, Hokkaido University, Japan, **Justyna Kulczyk-Malecka**, Manchester Metropolitan University, UK	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B2-1-MoM** **CVD Coatings and Technologies I** **Moderators:** **Raphaël Boichot**, Université Grenoble Alpes, CNRS, France, **Kazunori Koga**, Kyushu University, Japan
10:00am	**A1-1-MoM1** Oxidation Kinetics of γ-TiAl Based Coating Materials, ***S. Kagerer****, O. Hudak, H. Riedl, P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**INVITED: B2-1-MoM1** Atomic Layer Deposition for Complex-Shape and Temperature Sensitive Objects: Towards New Functions and Products, ***F. Mercier,*** Univ. Grenoble Alpes, CNRS, France
10:20am	**A1-1-MoM2** Effects of Temperature and the KCl + K_2SO_4 Load on the Behavior of Several Aluminide Coatings on Ferritic Steels Tested under a Biomass Combustion Atmosphere, ***A.A. Agüero****, M. Gutiérrez,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain	Invited talk continues.
10:40am	**INVITED: A1-1-MoM3** PGM based Diffusion Coatings for Ni-based Superalloys by a Paste Method, ***H. Murakami****, D.C. Tue, A. Ishira, L.C. Honglien,* National Institute for Materials Science (NIMS), Japan	**B2-1-MoM3** Ald-Pvd Multilayers: Deposition, Thermal Stability And Mechanical Properties, ***T.E.J. Edwards****, T. Xie, L. Petho, S. Büchel, X. Maeder, B. Putz, J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
11:00am	Invited talk continues.	**B2-1-MoM4** High Throughput Deposition of Hydrogenated Amorphous Carbon Films using High-Pressure Ar+CH_4 Plasmas, ***K. Koga****, S.H. Hwang, K. Kamataki, N. Itagaki, M. Shiratani,* Kyushu University, Japan
11:20am	**A1-1-MoM5** High-Temperature Corrosion Resistance of TiCrAlSiN Thin Deposited by Cosputtering, *G. Yomayuza,* Universidad Nacional de Colombia, Colombia; ***O. Piamba****,* Universidad Nacional e Colombia, Colombia; *J.J. Olaya,* Universidad Nacional de Colombia, Colombia	**B2-1-MoM5** CVD Alumina-based Nanocomposite Coatings, ***Z.Y. Liu****,* Kennametal Inc., USA
11:40am	**A1-1-MoM6** Ti_2AlC MAX Phase Coating Deposited by Kerosene-fuelled High Velocity Oxy-fuel (HVOF) Spray, ***J.S. Pan****, Z. Zhang, S.H. Lim, D.M.Y. Lai,* Institute of Materials Research and Engineering, Agency for Science, Technology and Research (A*STAR), Singapore	**B2-1-MoM6** The Challenge and Strategy of a-Si CVD Coating on Aluminum Alloys, ***M. Yuan****,* SilcoTek Corporation, USA

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B6-1-MoM** **Interplay Between Computational and Experimental Design of Coatings and Processes I** **Moderators: Yin-Yu Chang**, National Formosa University, Taiwan, **Paul Heinz Mayrhofer**, Institute of Materials Science and Technology, TU Wien, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Royal Palm 1-3 - Session D1-1-MoM** **Surface Coating and Surface Modification in Biological Environments I** **Moderators: Mathew T. Mathew**, University of Illinois at Chicago, Rockford, USA, **Phaedra Silva-Bermudez**, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico
10:00am	**B6-1-MoM1** Superlattice Design for Superior Thin Films, ***N. Koutná***[1], *R. Hahn, J. Buchinger,* TU Wien, Institute of Materials Science and Technology, Austria; *D.G. Sangiovanni,* Linköping University, Sweden; *M. Bartosik,* TU Wien, Institute of Materials Science and Technology, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**INVITED: D1-1-MoM1** Biomimetic Extracellular Matrix Coating for Titanium Implant Surfaces to Improve Osteointegration, ***S. Ravindran***, *P. Gajendrareddy, J. Hassan, C.-C. Huang,* University of Illinois at Chicago, USA
10:20am	**B6-1-MoM2** Fracture Toughness Trends in Modulus-matched TiN/(Cr,Al)N Thin Film Superlattices, ***J. Buchinger***, *A. Wagner,* TU Wien, Austria; *L. Löfler,* Montanuniversität Leoben, Austria; *Z.L. Zhang,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria; *P.H. Mayrhofer,* TU Wien, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *M. Bartosik,* TU Wien, Austria	Invited talk continues.
10:40am	**INVITED: B6-1-MoM3** Weakest Links in Superlattices: Insights from Ab Initio Modelling, ***D. Holec,*** Montanuniversität Leoben, Austria; *N. Koutná,* TU Wien, Austria; *L. Löfler, L. Hantzenbichler,* Montanuniversität Leoben, Austria; *P. Řehák,* Central European Institute of Technology (CEITEC), Brno University of Technology, Czech Republic; *M. Bartosik,* TU Wien, Austria; *M. Friák,* Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic; *M. Černý,* Central European Institute of Technology (CEITEC), Brno University of Technology, Czech Republic; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**D1-1-MoM3** Physical Vapor Deposition for Growth of Large Area Molecular Sensor Arrays, *N.R. Glavin, D.R. Austin, D.C. Moore, M.J. Motala,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; ***C. Muratore***, University of Dayton, USA
11:00am	Invited talk continues.	**D1-1-MoM4** Very Thin Gold Films Deposited on Collagen Fabric in Skin Cell Experiments, ***S.Y. Huang***, Feng Chia University, Taichung Veterans General Hospital, Taiwan; *P.-Y. Hsieh,* Institute of Plasma, Feng Chia University, Taiwan; *C.M. Chou,* Taichung Veterans General Hospital, National Yang-Ming University, Taiwan; *C.J. Chung,* Central Taiwan University of Science and Technology, Taiwan; *J.L. He,* Feng Chia University, Taiwan
11:20am	**B6-1-MoM5** Fracture Toughness of Superlattice Thin Films: A Multiscale Modeling Approach, ***A. Wagner***, TU Wien, Institute of Materials Science and Technology, Austria; *L. Löfler,* Montanuniversität Leoben, Austria; *M. Todt,* TU Wien, Institute of Lightweight Design and Structural Biomechanics, Austria; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *M. Bartosik,* TU Wien, Institute of Materials Science and Technology, Austria	**D1-1-MoM5** Biocompatible and Mechanical Properties of TiNbZr(N) Coatings Synthesized by Cathodic Arc Deposition, ***Y.J. Yang***, *Y.Y. Chang,* National Formosa University, Taiwan; *H.L. Huang,* China Medical University, Taiwan; *M.T. Tsai,* Hungkuang University, Taiwan
11:40am	**B6-1-MoM6** Tribological and Mechanical Properties of CrNbTiVZr(N) High Entropy Alloy Nitride Coatings, *Y.Y. Chang,* ***C.H. Chung***, National Formosa University, Taiwan	**D1-1-MoM6** Mesenchymal Stem Cells Response to Metal Oxide Thin Films, ***P. Silva-Bermudez***, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico; *M. Fernández-Lizárraga,* Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Mexico; *S.E. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico, México; *J. Garcia-Lopez, R. Sanchez-Sanchez,* Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico

[1] **Student Award Nominee**

	Surface Engineering - Applied Research and Industrial Applications **Room Pacific Salon 2 - Session G4-MoM** **Pre-/Post-Treatment and Duplex Technology** **Moderators: Heidrun Klostermann**, Fraunhofer FEP, Germany, **Hiroyuki Kousaka**, Gifu University, Japan	**Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes** **Room Pacific Salon 6-7 - Session H1-1-MoM** **Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces I** **Moderators: Grégory Abadias**, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France, **Xavier Maeder**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
10:00am	**G4-MoM1** Electrolytic Plasma Polishing as Post-Treatment for Additively Manufactured Stainless Steel, ***N. Laugel****, A. Matthews, A. Yerokhin,* The University of Manchester, UK	**H1-1-MoM1** Cross-sectional Nanodiffraction and TEM Reveal In-situ Indentation Response of AlN-CrN Superlattice Multilayer, ***J. Todt****,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria*; C. Krywka,* Helmholtz-Zentrum Geesthacht, Germany*; Z.L. Zhang,* Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria*; J. Keckes,* Montanuniversität Leoben, Austria*; M. Bartosik,* TU Wien, Institute of Materials Science and Technology, Austria
10:20am	**G4-MoM2** Notable Difference between Rapid-Thermal and Microwave Annealing on Ge pMOSFETs, ***Y. -H. Chien****, K.-S. Chang-Liao, D.-B. Ruan, S.-H. Yi, F.-Y. Chu,* National Tsing Hua University, Taiwan	**H1-1-MoM2** Nano-scale Residual Stress Profiling in Ultra-thin Si_3N_4/ZnO Multilayer Stacks using FIB-DIC Method, ***M. Sebastiani****,* Roma TRE University, Italy
10:40am	**G4-MoM3** Effect of Annealing Environment on Performance of InWZnO CBRAM, ***C.-C. Hsu****, P.-T. Liu, K.-J. Gan, D.-B. Ruan, Y.-C. Chiu, S.M. Sze,* National Chiao Tung University, Taiwan	**H1-1-MoM3** EBSD and TKD Techniques for Stress, Defect and Nano-structural Analyses of Thin Films and Coatings, ***X. Maeder****,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; A. Sharma,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
11:00am	**G4-MoM4** Plasma Pretreatment of Small Parts in Bulk Vacuum Coating, ***H. Klostermann****, B.G. Kraetzschmar, F. Fietzke,* Fraunhofer FEP, Germany	**H1-1-MoM4** Deformation Mechanisms in Nanocrystalline-Amorphous Cu/Ta Coatings, ***T.H. Huminiuc****,* University of Southampton, UK*; A. Bahrami,* Universidad Autónoma de Ciudad de México, Mexico, México*; S.E. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico, México*; T. Polcar,* University of Southampton, UK
11:20am	**INVITED: G4-MoM5** Comprehensive Characterization of Surface Modification Mechanisms in Boron Nitride Films Prepared by a Reactive Plasma-assisted Coating Technique, ***K. Eriguchi****,* Kyoto University, Japan*; M. Noma,* SHINKO SEIKI CO., LTD, Japan*; M. Yamashita,* Hyogo Prefectural Institute of Technology, Japan*; K. Urabe,* Kyoto University, Japan*; S. Hasegawa,* Osaka University, Japan	**INVITED: H1-1-MoM5** Multimodal and *in situ* Electron Microscopy to Understand Local Deformation Mechanics, ***J. Kacher****,* Georgia Institute of Technology, USA
11:40am	Invited talk continues.	Invited talk continues.

Topical Symposia
Room Pacific Salon 3 - Session TS5-1-MoM
Thin Films on Polymer Substrates: Flexible Electronics and Beyond I
Moderator: Barbara Putz, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

10:00am	**INVITED: TS5-1-MoM1** Flexible Printed Sensors for Biomechanical Measurements, ***T.N. Ng,*** University of California San Diego, USA	
10:20am	Invited talk continues.	
10:40am	**TS5-1-MoM3** Atomic Layer Deposited Al_2O_3/ZnO Nanolaminate Thin Films on PET Substrates: Fracture Mechanics and Oxygen Gas Permeation Properties, *V. Chawla, M. Ruoho, J.-P. Niemelä, B. Putz,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M. Weber, A.A. Chaaya,* Institut Européen des Membranes, IEM, France*; A.A. Taylor,* University of California Santa Barbara, USA*; C. Charmette,* Institut Européen des Membranes, IEM, France*; P. Miele,* Institut Européen des Membranes, IE, France*; M. Bechelany,* Institut Européen des Membranes, IEM, France*; J. Michler,* ***I. Utke,*** Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland	
11:00am	**TS5-1-MoM4** Low-temperature Plasma enhanced Atomic Layer Deposition of Al_2O_3 Thin Films for Applications in Flexible Electronic Devices, *J.R. Castillo,* ***D. Mateos,*** *B. Valdez, M. Curiel, O.M. Perez, N. Nedev,* Universidad Autónoma de Baja California, Mexico	
11:20am	**TS5-1-MoM5** Conversion of Aluminium Oxide Coated Films for Food Packaging Applications – From a Single Layer Material to the Finished Pouch, *C. Struller,* Bobst Manchester Ltd., UK*;* ***P.J. Kelly,*** Manchester Metropolitan University, UK*; N. Copeland,* Bobst Manchester Ltd, UK	
11:40am	**TS5-1-MoM6** Optically Transparent Bacterial Nanocellulose Composites and Fibroin Substrates for Flexible Organic Devices, ***M. Cremona,*** Pontifícia Universidade Católica do Rio de Janeiro, Brazil*; H.S. Barud,* Universidade de Araraquara, Brazil*; R. dos S. Carvalho,* Pontifícia Universidade Católica do Rio de Janeiro, Brazil*; A.V.S. Cebrian,* UNESP, Brazil*; A.R.J. Barreto,* PUC-Rio, Brazil*; F.E. Maturi,* UNESP, Brazil*; R.R. Silva,* Chalmers University Technology, Sweden*; C. Legnani,* Universidade Federal de Juiz de Fora, Brazil*; S.J.L. Ribeiro,* UNESP, Brazil	

Special Interest Talks
Room Town & Country - Session SIT1-MoSIT
Special Interest Session
Moderator: Grzegorz (Greg) Greczynski, Linköping University, Sweden

1:00pm	**INVITED: SIT1-MoSIT1** Plasma Aspects in the Deposition of Advanced Coatings, ***A. Anders***, Leibniz Institute of Surface Engineering (IOM), Germany	
1:20pm	Invited talk continues.	
1:40pm		

	Coatings for Use at High Temperatures **Room Pacific Salon 1 - Session A1-2-MoA** **Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II** **Moderators: Sebastien Dryepondt**, Oak Ridge National Laboratory, USA, **Shigenari Hayashi**, Hokkaido University, Japan, **Justyna Kulczyk-Malecka**, Manchester Metropolitan University, UK	**Hard Coatings and Vapor Deposition Technologies** **Room Golden West - Session B2-2-MoA** **CVD Coatings and Technologies II** **Moderators:** **Raphaël Boichot**, Université Grenoble Alpes, CNRS, France, **Kazunori Koga**, Kyushu University, Japan
2:00pm	**A1-2-MoA1** Advanced Coatings for Clearance Control in Turbine Components, ***Z. Tang***, *A. Athans, K. Garing, W. Jarosinski,* Praxair Surface Technologies Inc., USA	**B2-2-MoA1** Silicon Carbide Coatings for High Temperature Receiver of Concentrated Solar Power Plants, ***M. Pons***, *D. Chen,* University of Grenoble Alpes, France; *J. Colas,* PROMES-CNRS, France; *F. Mercier,* University Grenoble-Alpes, France; *L. Charpentier, M. Balat-Michelin,* PROMES-CNRS, France
2:20pm	**A1-2-MoA2** Intrinsic and Extrinsic Size Effects on the High Temperature Oxidation of APS and HVOF MCrAlY Coatings, ***D. Texier***, *M. Ecochard,* ICA, France; *T. Gheno,* ONERA, France; *M. Salem, P. Lours,* ICA, France	**B2-2-MoA2** *In-situ* Investigation of the Oxidation Behaviour of Chemical Vapour Deposited Zr(C,N) Hard Coatings Using Synchrotron X-ray Diffraction, ***F. Frank***, *M. Tkadletz, C. Saringer,* Montanuniversität Leoben, Austria; *A. Stark, N. Schell,* Helmholtz-Zentrum Geesthacht, Germany; *C. Czettl,* CERATIZIT Austria GmbH, Austria; *N. Schalk,* Montanuniversität Leoben, Austria
2:40pm	**A1-2-MoA3** Active Corrosion Protection of PEO Coatings on Magnesium Alloys, ***B. Mingo***, *Y. Guo, R. Garcia-Leiva, B. Connolly, A. Matthews, A. Yerokhin,* The University of Manchester, UK	**INVITED: B2-2-MoA3** Plasma-assisted Deposition using Microdroplets, ***T. Ito***, *K. Nitta, K. Terashima,* The University of Tokyo, Japan
3:00pm	**A1-2-MoA4** Early Detection and in-situ Monitoring of the Oxidation of an MCrAlY Coating by Thermoreflectometry, ***M. Ecochard***, *B. Javaudin, R. Gilblas, D. Texier, T. Sentenac,* ICA, France	Invited talk continues.
3:20pm	**A1-2-MoA5** High-Temperature Tribology and Oxidation Behavior of Laser-Deposited High-Entropy Alloy Claddings, ***P. Lordat***, *Q. Chao, J. Joseph, D. Fabijanic,* Deakin University, Australia	**B2-2-MoA5** Fundamental Study of (100) Oriented cubic AlTiN Coating with High Al content by Chemical Vapor Deposition, ***T. Ishigaki***, *K. Yanagisawa, H. Nakamura, H. Homma,* Mitsubishi Materials Corporation, Japan
3:40pm	**A1-2-MoA6** The Effect of Cr-addition on Hot Corrosion Resistance of Hot-dip Aluminized Low Carbon Steel under Static Load, ***H.C. Liang***, *C.-J. Wang,* National Taiwan University of Science and Technology, Taiwan	**B2-2-MoA6** Chemical Quantifications of LPCVD Nanolamellae $Ti_{1-x}Al_xN_{1-y}$Coatings by Analytical Electron Microscopy and Atom Probe Tomography, ***R. Qiu***, *O. Bäcke, H. Aboulfadl,* Chalmers Tekniska Högskola, Sweden; *T. Manns, J. Kümmel, W. Janssen, D. Stiens,* Walter AG, Germany; *M. Thuvander, H.-O. Andrén,* Chalmers Tekniska Högskola, Sweden; *M. Halvarsson,* Chalmers tekniska högskola, Sweden
4:00pm	**INVITED: A1-2-MoA7** Hot Corrosion in Aero Gas Turbine Engines: Current Understanding and Future Research Directions, *E. Zaleski,* ***M. Task***, Pratt & Whitney, USA	**B2-2-MoA7** Hot Filament CVD Diamond Coatings for Hard-to-machine Materials, ***M. Woda***, *W. Puetz, M. Frank, W. Koelker, C. Schiffers, O. Lemmer,* CemeCon AG, Germany
4:20pm	Invited talk continues.	**B2-2-MoA8** Protective Amorphous CrC_x Coatings Grown at Very Low Temperature by Direct Liquid Injection MOCVD, ***I. Iliescu***, *Y. Gazal,* CIRIMAT, CNRS - University of Toulouse, France; *A. Michau, F. Addou,* CEA Saclay, France; *T. Duguet,* CIRIMAT, CNRS - University of Toulouse, France; *E. Monsifrot,* DEPHIS, France; *F. Schuster,* CEA, Université Paris-Saclay, France; *F. Maury,* CIRIMAT, CNRS - University of Toulouse, France
4:40pm	**A1-2-MoA9** Effect of Nickel Percentage on the Morphology, Wear and Corrosion Resistance of Zn-Ni Alloy Coating, ***A. Farooq***, *S. Ahmad,* University of the Punjab, Pakistan; *K.M. Deen,* University of British Columbia, Canada	**B2-2-MoA9** High Rate SiO2 by Microwave Induced PECVD for Transparent Wear Resistant Coatings, ***T. Radny***, *K.-D. Nauenburg, R. Schäfer,* robeko GmbH & Co.KG, Germany
5:00pm	**A1-2-MoA10** Vacuum Annealing of ZrO_2-Coated Zircaloy-4 with ZrN Interlayer, ***I.-S. Ting***, National Tsing Hua University, Taiwan; *H.-M. Tung,* Institute of Nuclear Energy Research, Taiwan; *J.-H. Huang,* National Tsing Hua University, Taiwan	
5:20pm	**A1-2-MoA11** Corrosion Behavior and Durability of Microstructure of Stainless Steel Rebars in Simulated Concrete Pore Solution Containing Chloride with Different PH, ***D.B. Subedi***, Chinese Academy of Sciences, China	

Monday Afternoon, April 27, 2020

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B6-2-MoA** **Interplay Between Computational and Experimental Design of Coatings and Processes II** **Moderators: Yin-Yu Chang**, National Formosa University, Taiwan, **Paul Heinz Mayrhofer**, Institute of Materials Science and Technology, TU Wien, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Royal Palm 1-3 - Session D1-2-MoA** **Surface Coating and Surface Modification in Biological Environments II** **Moderators: Mathew T. Mathew**, University of Illinois at Chicago, Rockford, USA, **Phaedra Silva-Bermudez**, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico
2:00pm	**INVITED: B6-2-MoA1** Controlling Phase and Microstructure of Ti-Cr-Al-N System Deposited by Arc Ion Plating, ***K. Yamamoto,*** Kobe Steel Ltd., Japan	**D1-2-MoA1** Surface Coatings on Biodegradable Magnesium Alloys for Orthopaedic Applications, ***P. Makkar,*** *B.T. Lee,* Soonchunhyang University, South Korea
2:20pm	Invited talk continues.	**D1-2-MoA2** Analysis of a Drug Coated Polymer Stent with XPS and Argon Cluster Depth Profiling, ***D. Surman,*** Kratos Analytical Inc., USA*; J. Counsell,* Kratos Analytical Ltd., UK*; M. Alexander,* University of Nottingham, UK
2:40pm	**B6-2-MoA3** Maximum N Content in a-CN_x and other Amorphous Nitrides, ***J. Houska,*** University of West Bohemia, Czech Republic	**D1-2-MoA3** Biocompatibility Evaluation of TiZrNbTaFe High-entropy Alloy Thin Film Deposited by High Power Impulse Magnetron Sputtering, ***H.C. Chao****, Y.-C. Yang,* National Taipei University of Technology, Taiwan*; B.-S. Lou,* Chang Gung University & Memorial Hospital, Taiwan*; J.-W. Lee,* Ming Chi University of Technology, Chang Gung University & Memorial Hospital, Taiwan
3:00pm	**B6-2-MoA4** Transition Metal Carbonitride based Thin Films: A Critical Review on Thermal and Elastic Properties of Group IV to VI $TMC_{1-x}N_x$*, T. Glechner,* TU Wien, CDL-SEC, Austria*; P.H. Mayrhofer,* TU Wien, Austria*; S. Kodambaka,* University of California Los Angeles, USA*; R. Hahn,* TU Wien, CDL-SEC, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; T. Wojcik,* TU Wien, Institute of Materials Science and Technology, Austria*; M. Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S. Kolozsvári,* Plansee Composite Materials GmbH, Germany*;* ***H. Riedl,*** TU Wien, CDL-SEC, Austria	**D1-2-MoA4** Behavior of fs-laser Micro-Patterend HDLC in Hyaluronic Acid, ***A.S. Dorner-Reisel,*** Schmalkalden Universtity of Applied Sciences, Germany*; S. Svoboda,* Schmalkalden University of Applied Sciences, Germany*; A. Engel,* University of Applied Sciences Mittweida*; C. Schürer,* Consultant Chemnitz*; S. Weißmantel,* University of Applied Sciences Mittweida, Germany
3:20pm	**B6-2-MoA5** Kinetic Monte Carlo Simulations of Residual Stress Evolution, ***E. Chason,*** Brown University, USA*; A. Bower,* Brown University, USA, United States of America	**INVITED: D1-2-MoA5** Embroidery of Conductive E-Threads: Opportunities and Challenges in Healthcare*, Z. Dalisky, S. Alharbi, V. Mishra, A. Kiourti,* ***K Guido,*** The Ohio State University, USA
3:40pm	**B6-2-MoA6** Simulation for Compositional Variation in Reactive Magnetron Sputtered NiTi Films, ***I. Banerjee,*** Central University of Gujarat, India*; S.V. Haldar,* Harish-Chandra Research Institute, India*; S.K. Mahapatra,* Central University of Punjab, India	Invited talk continues.
4:00pm	**B6-2-MoA7** Electronic Structure based Design of Thin Film Metallic Glasses with Superior Fracture Toughness, ***S. Evertz***[1]*,* RWTH Aachen University, Germany*; I. Kirchlechner, R. Soler, C.K. Kirchlechner, P. Kontis,* Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany*; J. Bednarcik,* P. J. Safarik University, Kosice, Slovakia*; B. Gault, G. Dehm, D. Raabe,* Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany*; J.M. Schneider,* RWTH Aachen University, Germany	**D1-2-MoA7** Flexible Plasma Jet Source for Biomedical Applications, ***C. Corbella****, S. Portal, L. Lin, M. Keidar,* George Washington University, USA
4:20pm		
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5:20pm		

[1] **Student Award Nominee**

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific Salon 6-7 - Session H1-2-MoA** **Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces II** **Moderators: Grégory Abadias**, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France, **Xavier Maeder**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland	**Topical Symposia** **Room Pacific Salon 3 - Session TS5-2-MoA** **Thin Films on Polymer Substrates: Flexible Electronics and Beyond II** **Moderators:** **Oleksandr Glushko**, Montanuniversität Leoben, Leoben, Austria, **Barbara Putz**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
2:00pm	**H1-2-MoA1** The Spinodal Decomposition of Nanolamellar CVD $Ti_{1-x}Al_xN$ recorded by *in-situ* Scanning Transmission Electron Microscopy, ***C. Saringer**, M. Tkadletz,* Montanuniversität Leoben, Austria*; I. Letofsky-Papst,* Institute of Electron Microscopy and Nanoanalysis, NAWI Graz, Graz University of Technology and Graz Centre for Electron Microscopy, Austria*; C. Czettl,* CERATIZIT Austria GmbH, Austria*; N. Schalk,* Montanuniversität Leoben, Austria	**INVITED: TS5-2-MoA1** Flexible Electronics: From Interactive Smart Skins to In vivo Applications*,* ***D. Makarov**,* Helmholtz-Zentrum Dresden-Rossendorf e. V. (HZDR), Institute of Ion Beam Physics and Materials Research, Germany
2:20pm	**H1-2-MoA2** UHV Specimen Transfer Systems for Analysis of Reactive Materials with Atom Probe Tomography*,* ***R. Ulfig**, K. Rice, T. Prosa, D. Reinhard, J. Shepard,* CAMECA Instruments Inc., USA*; U. Maier,* Ferrovac GmbH, Switzerland	Invited talk continues.
2:40pm	**INVITED: H1-2-MoA3** Multicracking of Thin Films and Nanostructures on Stretchable Substrates; Impact on Magnetic Properties*,* ***D. Faurie**, F. Zighem, S. Merabtine,* LSPM-CNRS, Université Paris13, France*; P. Lupo, A. Adeyeye,* National University of Singapore, Singapore	**TS5-2-MoA3** Electromechanical Behavior of Evaporated and Printed Thin Films and Devices on Compliant Substrates*,* ***P.A. Gruber**, N. Mishra, S.-M. Yi, T. Haas, B.-Y. Kim,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM-WBM), Germany
3:00pm	Invited talk continues.	**TS5-2-MoA4** Fragmentation of ALD-PVD Multilayers on Flexible Substrates in Uniaxial and Biaxial Tension: Insights from in situ SEM and Synchrotron Diffraction Experiments*,* ***B. Putz**, T.E.J. Edwards, T. Xie, E. Huszar, L. Pethö,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; P. Kreiml,* Montanuniversität Leoben, Department of Material Physics, Austria*; M.J. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria*; D. Thiaudiere,* Synchrotron SOLEIL, France*; D. Faurie,* LSPM-CNRS, Université Paris13, France*; P.O. Renault,* Université de Poitiers, France*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
3:20pm	**H1-2-MoA5** Tailoring Stress Evolution During Silver Thin Film Growth on Weakly-interacting Substrates by Addition of Nitrogen*,* ***A. Jamnig**,* Linköping University, IFM, Nanoscale Engineering Division, Sweden*; K. Sarakinos,* Linköping University, Sweden*; G. Abadias,* Institut P', Université de Poitiers, France	**TS5-2-MoA5** HiPIMS Metallization of Polymers: Titanium on PEEK*,* ***A.R. Chacko**, K. Thorwarth, R. Crockett, U. Müller, H.J. Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
3:40pm	**H1-2-MoA6** The Nucleation, Bonding, and Radial Growth of Thin Film Coatings on Inert Surfaces*,* ***C. Guerra**,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M. Li,* ETH Zürich, Switzerland*; R. Savu,* UNICAMP, Brazil*; Y. Zhang, R. Erni,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; S. Moshkalev,* UNICAMP, Brazil*; J. Michler, I. Utke,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**TS5-2-MoA6** Carbon Containing Multicomponent Alloys with High Hardness, Ductility and Corrosion Resistance*,* ***L. Zendejas Medina**,* Uppsala University, Sverige*; G. Lindwall,* KTH - Royal Institute of Technology, Sweden*; E.M. Pascalidou,* Uppsala University, Sweden*; L. Riekehr,* Uppsala University, Angstrom Laboratory, Sweden*; M. Tavares da Costa,* Uppsala University, Sweden*; S. Fritze,* Uppsala University, Angstrom Laboratory, Sweden*; K. Gamstedt,* Uppsala University, Sweden*; L. Nyholm, U. Jansson,* Uppsala University, Angstrom Laboratory, Sweden
4:00pm		
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	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B5-1-TuM** **Hard and Multifunctional Nanostructured Coatings I** **Moderators: Tomas Kozak**, University of West Bohemia, Czech Republic, **Vincent Moraes**, Institute of Materials Science and Technology, TU Wien, Austria	**Hard Coatings and Vapor Deposition Technologies** **Room California - Session B8-1-TuM** **HiPIMS, Pulsed Plasmas and Energetic Deposition I** **Moderators: Jon Tomas Gudmundsson**, University of Iceland, Iceland, **Tiberiu M. Minea**, LPGP, Universite Paris-Sud, France
8:00am	**B5-1-TuM1** HPPMS (Ti,Al,Cr,Si)N - Influence of Substrate Bias and Pulse Frequency on Cutting Performance, *K. Bobzin, T. Brögelmann, N.C. Kruppe,* ***M. Carlet,*** Surface Engineering Institute - RWTH Aachen University, Germany	**B8-1-TuM1** Fabrication of AlTiSiN Nanocomposite Coatings with High Hardness and Low Internal Stress, ***Z.T. Wu,*** *Q.M. Wang,* Guangdong University of Technology, China*; G. Greczynski,* Linköping University, Sweden
8:20am	**B5-1-TuM2** Improved Ti–Al–Ta–N Coatings by Doping with LaB_6 and $CeSi_2$, ***A. Kirnbauer,*** *S. Kagerer,* TU Wien, Institute of Materials Science and Technology, Austria*; P. Polcik,* Plansee Composite Materials GmbH, Germany*; P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**B8-1-TuM2** Measurements and Modeling of Residual Stress in Sputtered Nitride Films: Dependence on Growth Rate and Gas Pressure, ***Z. Rao,*** Brown University, USA, United States of America*; E. Chason,* Brown University, USA
8:40am	**INVITED: B5-1-TuM3** Impact of Nitrogen Deficiency on the Phase Transformation of (Ti,Al)N Thin Films at Elevated Temperatures, ***I.C. Schramm,*** Sandvik Coromant R&D, Sweden	**B8-1-TuM3** Plasma Chemistry, Crystal Growth and Mechanical Properties of CrAlYN / CrN Nanoscale Multilayer Coatings Deposited by High Power Impulse Magnetron Sputtering, ***A.P. Ehiasarian,*** *A.A. Sugumaran, P.Eh. Hovsepian,* Sheffield Hallam University, UK
9:00am	Invited talk continues.	**B8-1-TuM4** Fabrication of TiN Coatings using Superimposed HiPIMS and MF: Effect of MF Power and Synchronized Substrate Bias, ***W.S. Yang,*** *J.-W. Lee,* Ming Chi University of Technology, Taiwan
9:20am	**B5-1-TuM5** Thermal Stability of Nanostructured TiAl(Si,B)N Coatings Deposited by HiPIMS with Positive Pulses, ***Á. Méndez Fernández,*** *J.A. Santiago, I. Fernández-Martínez, A. Wennberg,* Nano4Energy SL, Spain*; M. Panizo-Laiz,* Universidad Politecnica de Madrid, Spain*; M.A. Monclús, J.M. Molina-Aldareguia,* IMDEA Materials Institute, Spain	**B8-1-TuM5** Advantages of HIPIMS and Positive Kick Pulse, ***J. Hrebik,*** Kurt J. Lesker Company, USA, United States of America
9:40am	**B5-1-TuM6** Development and Evaluation of Ultra-thick CrAlAgN Coatings for High Temperature Wear Resistance, ***J. Lin,*** Southwest Research Institute, USA*; X.H. Zhang,* Southeast University, China*; R. Wei,* Southwest Research Institute, USA	**B8-1-TuM6** The Effect of Metal Transition Dopents on Mechanical Properties TiBCN Based Coatings Deposited by CFUBMS-HiPIMS, ***I. Efeoglu,*** Ataturk University, Turkey*; N.A. Aksakalli,* Atatürk University, Turkey*; B.G. Gumus,* Aselsan Inc., Turkey
10:00am	**B5-1-TuM7** On the Structure and Mechanical Properties of X_2BC Coatings Prepared by High Power Impulse Magnetron Sputtering at Different Temperatures, ***P. Soucek,*** *M. Polacek, L. Zabransky, M. Stupavska, P. Vasina,* Masaryk University, Brno, Czech Republic	
10:20am	**B5-1-TuM8** Molecular Dynamics Simulations of Dislocation Confinement Effects in Core-Shell Nanostructures, ***D.R.A. Fleming,*** Arkansas State University, USA	
10:40am		

	Coatings for Biomedical and Healthcare Applications **Room Royal Palm 1-3 - Session D2-TuM** **Bio-corrosion, Bio-tribology and Bio-Tribocorrosion-Additive Manufacturing Impact** **Moderators: Steve Bull**, Newcastle University, UK, United Kingdom of Great Britain and Northern Ireland, **Hamdy Ibrahim**, University of Tennessee at Chattanooga, USA, **Jessica Amber Jennings**, University of Memphis, USA	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room San Diego - Session E1-1-TuM** **Friction, Wear, Lubrication Effects, and Modeling I** **Moderators: Nazlim Bagcivan**, Schaeffler AG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria
8:00am	**D2-TuM1** Sputtered Thin Film Systems As Anode Materials for Biodegradable Battery, ***W. Haider,*** Central Michigan University, USA	**INVITED: E1-1-TuM1** Efficiency Improvement Along the Stribeck Curve through Pvd Coatings - From Minimum Quantity Lubrication to Full Fluid Lubrication, ***T. Brögelmann****, K. Bobzin, C. Kalscheuer, M. Welters, M. Thiex,* Surface Engineering Institute - RWTH Aachen University, Germany
8:20am	**D2-TuM2** Corrosion Resistance of Cerium Oxynitride Thin Films for Use in Implants and Prothesis*, G.C. Numpaque Rojas,* ***B.F. Mendez Bazurto****, G.I. Cubillos Gonzalez,* Universidad Nacional de Colombia - Bogotá, Colombia	Invited talk continues.
8:40am	**INVITED: D2-TuM3** Crevice Tribocorrosion of Additively Manufactured Stainless Steels in Ringers Solution, ***Mobin Salasi****, E Hornus,* Curtin University, Western Australia, Australia*; C Schulz,* University of South Australia*; M Salem,* Ecole de Mines Albi, France*; Z Quadir, W Rickard,* Curtin University, Western Australia*; P Lours,* Ecole de Mines Albi, France*; M Iannuzzi,* Curtin University, Western Australia	**E1-1-TuM3** From Surface to Sub-surface Contributions to Friction at the Nanoscale, *C Menezes,* UFSC, Brazil*; V Pavinato, L Leidens,* UCS - Caxias do Sul University, Brazil*; F Echeverrigaray, F Alvarez,* UNICAMP, Brazil*; A Michels,* ***C.A. Figueroa****,* UCS - Caxias do Sul University, Brazil
9:00am	Invited talk continues.	**E1-1-TuM4** Computer Simulations of FCC Alloys Subjected to Dry Sliding as Basis for a Near-Surface Deformation Mechanism Map, ***S.J. Eder****, M. Rodríguez Ripoll, U. Cihak-Bayr,* AC2T Research GmbH, Austria*; D. Dini,* Imperial College London, United Kingdom of Great Britain and Northern Ireland*; C. Gachot,* TU Wien, Austria
9:20am	**D2-TuM5** In Vitro Degradation of ZrO_2 Coated Magnesium Alloys, ***B. Millan****,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México*; O. Depablos-Rivera,* Universidad Nacional Autónoma de México, México*; P. Silva-Bermudez,* Instituto Nacional de Rehabilitación Luis Guillermo Ibarra, Mexico*; S.E. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico, México	**E1-1-TuM5** Multi-sensing Nano-wear with Electrical Contact Resistance and Friction Measurement, ***B.D. Beake****,* Micro Materials Ltd, UK*; T.W. Liskiewicz,* Manchester Metropolitan University, UK*; A.J. Harris,* Micro Materials Ltd.*; S.J. McMaster, A. Neville,* University of Leeds, UK
9:40am	**D2-TuM6** Prognosis of Hip Implant Tribocorrosion Processes: Acoustic Emission Technique, ***C. Lee****, L. Zhang,* University of Illinois at Chicago, USA*; D. Morris,* University of Illinois at Chicago, Rockford, USA*; KY. Cheng,* University of Illinois at Chicago, USA*; M. Barba,* Orthoillinois, Rockford, USA*; D. Bijukumar,* University of Illinois at Chicago, Rockford, USA*; D. Ozevin,* University of Illinois at Chicago, USA*; M.T. Mathew,* University of Illinois at Chicago, Rockford, USA	**E1-1-TuM6** PTFE Coating on Nanoscale Polymer Structures: Role in Tribological Characteristics, *P. Pendyala,* Hanyang University, Republic of Korea*; H.N. Kim,* ***E.S. Yoon****,* Korea Institute of Science and Technology, Republic of Korea
10:00am	**D2-TuM7** A Bio-Tribocorrosion Appraisal of a Dual Layer PVD Coated CoCrMo Alloy Tribopair*, A. Mazzonello, R. Chetcuti,* University of Malta, Malta*; P.A. Dearnley,* Boride Services Ltd, UK*; J. Buhagiar,* ***B.M. Mallia****,* University of Malta, Malta	**E1-1-TuM7** Analysis of Coating Layers and Defects Using Atomic Force Microscopy, ***S. Kaemmer****, G.M. Mendoza,* Park Systems Corporation, USA
10:20am	**D2-TuM8** In Solution, A New Representation to Link the Corrosion Degradation Consistent with Wear: Smooth and Hard Coatings are Well Discriminated.*,* ***J. Geringer****, A. Boyer,* Mines Saint-Etienne, France*; H. Ding, V. Fridrici, P. Kapsa,* Ecole Centrale de Lyon, Ecully, France*; T. Tayler, L. Semetse, P.A. Olubambi,* University of Johannesburg, South Africa	**E1-1-TuM8** Mo-Se-N Low-Friction Coatings Prepared by High Target Utilisation Sputtering (HiTUS) Technology, ***T. Hudec****,* University of Southampton, UK*; V. Izaii, L. Satrapinskyy, T. Roch,* Comenius University in Bratislava, Slovakia*; T.H. Huminiuc,* University of Southampton, UK*; M. Mikula,* Comenius University in Bratislava, Slovakia*; T. Polcar,* University of Southampton, UK
10:40am	**D2-TuM9** Anodizing on 3D Printed Mesh Structure for Bone Reconstruction, ***Y.H. Jeong****, T.G. Jung, J.W. Yang, K.M. Park,* Osong Medical Innovation Foundation, Republic of Korea*; S.H. Woo, T.H. Park,* Medyssey Co. Ltd.	

	Surface Engineering - Applied Research and Industrial Applications **Room Pacific Salon 2 - Session G2-TuM** **Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications** **Moderators: Etienne Bousser**, Polytechnique Montreal, Canada, **Satish Dixit**, Plasma Technology Inc., USA, **Tetsuya Takahashi**, Kobe Steel, Ltd., Japan	**Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes** **Room Pacific Salon 6-7 - Session H2-1-TuM** **Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes I** **Moderators: Olivier Pierron**, Georgia Institute of Technology, USA, **Timothy Rupert**, University of California, Irvine, USA
8:00am	**INVITED: G2-TuM1** Enhancing TiAl Oxidation Resistance at High Temperature: A Challenge for the Aerospace Industry, ***M. Cavarroc,*** Safran Tech, France	**H2-1-TuM1** Characterization of the Onset of Delamination in Thin Films Coatings using Advanced Nanoindentation Techniques, ***M. Moradi,*** *B. Faulkner, K. Johanns,* KLA-Tencor, USA
8:20am	Invited talk continues.	**H2-1-TuM2** Development and Application of a Multifunctional Nanoindenter: Coupling to Electrical Measurements and Integration in-situ in a Scanning Electron Microscope, ***F.E. Volpi,*** *S. Comby-Dassonneville, C. Boujrouf, M. Verdier,* SIMaP – Univ. Grenoble Alpes, CNRS, SIMaP, France*; D. Pellerin,* CSI/Scientec, France
8:40am	**G2-TuM3** Mechanical and Optical Properties of Si doped ta-C Anti-reflective Coatings for Satellite Solar Cell Applications, ***H.K. Kim,*** *S.Y. Lee,* Korea Aerospace University, Republic of Korea	**INVITED: H2-1-TuM3** Characterization of Defects and their Dynamics using Transmission Scanning Electron Microscopy, ***D.S. Gianola,*** University of California Santa Barbara, USA
9:00am	**G2-TuM4** Cobalt-based Thin Films as Electrocatalysts for Water Recombination Applications, ***C. Linder,*** Linköping University, IFM, Nanostructured Materials, Sweden*; S. Gangaprasad Rao, A. Le Febvrier,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; S. Munktell,* Swerim AB, Sweden*; P. Eklund,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; E. Björk,* Linköping University, IFM, Nanostructured Materials, Sweden	Invited talk continues.
9:20am	**G2-TuM5** Data-driven Colliding Surface Enhancement using Coated Ceramic in Shot Peening, ***B. Levy,*** Arts et Métiers ParisTech d'Aix-en-Provence, Laboratory of Mechanics, Surface and Materials Processing (MSMP-EA7350), France*; M. El Mansori,* Arts et Métiers ParisTech d'Aix-en-Provence, France, Texas A&M University, USA, France*; S. Mezghani, M. EL HADROUZ,* Arts et Métiers ParisTech de Châlons-en-Champagne, France*; A.-L. BEAUDONNET,* Saint-Gobain Research Provence, France	**H2-1-TuM5** Measurement of hardness and elastic modulus by depth sensing indentation: Further advances in understanding and refinements in methodology, *Phani Pardhasaradhi,* ARCI, India*;* ***W.C. Oliver,*** KLA Corporation, USA*; G.M. Pharr,* Texas A&M University, USA, United States of America
9:40am	**INVITED: G2-TuM6** The Benefits of Using Functional Coatings to Improve Performance of Components in Conventional Mobility and E-Mobility, ***M. Amiriyan,*** *R. Farahati,* Surface Technology, Schaeffler Group USA, Inc., USA	**INVITED: H2-1-TuM6** Strength and Fracture Toughness at Elevated Temperature of Monolithic and Multilayered Hard Coatings, ***J. Molina-Aldareguia,*** IMDEA Materials Institute, Spain
10:00am	Invited talk continues.	Invited talk continues.
10:20am	**G2-TuM8** Laser Cladding NiTi on the Magnesium Alloy Substrate with the Intermediated Aluminum Layer, ***C. Zhang,*** *Y. Yang, X. Cui, G. Jin, W. Zheng,* Institute of Surface/Interface Science And Technology, China	**H2-1-TuM8** Influence of the Bonding Nature on the Fatigue Resistance of Cr-based Thin Films, ***L. Zauner,*** *R. Hahn,* TU Wien, CDL-SEC, Austria*; M. Alfreider,* Montanuniversität Leoben, Department of Materials Science, Austria*; O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P. Polcik,* Plansee Composite Materials GmbH, Germany*; D. Kiener,* Montanuniversität Leoben, Department of Materials Science, Austria*; H. Riedl,* TU Wien, CDL-SEC, Austria
10:40am	**G2-TuM9** Laser-clad Induced Reaction Synthesis of TiC/WC Reinforced Co-based Composite Coatings on Copper Alloy, ***H. Yan,*** Shanghai University of Engineering Science, China	**H2-1-TuM9** New Models and Advancement in Measuring the Elastic Behaviour of Thin Films using Impulse Excitation Technique, ***A.A. Alhussein,*** University of Technology of Troyes (UTT), France*; E. Zgheib,* University of Technology of Troyes (UTT) and Lebanese University (UL), France*; M.F. Slim, M. François,* University of Technology of Troyes (UTT), France

	Topical Symposia **Room Pacific Salon 3 - Session TS2-1-TuM** **New Horizons in Boron-Containing Coatings: Modeling, Synthesis and Applications I** **Moderators: Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, CDL-SEC, Austria, **Johanna Rosen**, Linköping University, Sweden	**Topical Symposia** **Room Pacific Salon 1 - Session TS4-TuM** **Photocatalytic and Superhydrophilic Surfaces** **Moderators: Peter Kelly**, Manchester Metropolitan University, UK, **Carlos Jose Tavares**, University of Minho, Portugal, **Glen West**, Manchester Metropolitan University, UK
8:00am	**TS2-1-TuM1** Enhanced High-temperature Oxidation Resistance of Hard TiB_2-rich $Ti_{1-x}Al_xB_y$ Thin Films, *B. Bakhit,* Linköping University, Sweden*;* ***I. Petrov****,* *J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, USA*; L. Hultman, J. Rosen, G. Greczynski,* Linköping University, Sweden	**TS4-TuM1** Photocatalytic Activity of a ZnO/Bi_2O_3 Thin Film Heterojunction, ***S.E. Rodil,*** Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico, México*; A. Hernandez-Gordillo, M. Bizarro,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México*; J.C. Medina,* Instituto de Ciencias Aplicadas y Tecnologias, Universidad Nacional Autonoma de Mexico, Mexico
8:20am	**TS2-1-TuM2** Design of Under/Overstoichiometric Superhard $TaB_{2\pm x}$ Films, ***V. Šroba****, T. Fiantok, M. Truchlý,* Comenius University in Bratislava, Slovakia*; P. Švec, Jr.,* Slovak Academy of Sciences, Slovakia*; T. Roch, L. Satrapinskyy, M. Zahoran, B. Gračič, P. Kúš, M. Mikula,* Comenius University in Bratislava, Slovakia	
8:40am	**TS2-1-TuM3** Thermomechanical Properties and Oxidation Resistance of Ternary $W_{1-x}Ta_xB_{2-z}$ Coatings, ***C. Fuger****,* TU Wien, CDL-SEC, Austria*; V. Moraes,* Institute of Materials Science and Technology, TU Wien, Austria*; R. Hahn,* TU Wien, CDL-SEC, Austria*; H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P. Polcik,* Plansee Composite Materials GmbH, Germany*; P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria*; H. Riedl,* TU Wien, CDL-SEC, Austria	**INVITED: TS4-TuM3** Photocatalytic Bismuth Oxide Coatings and their Potential for Water Treatment Applications, ***M. Ratova****, J. Redfern,* Manchester Metropolitan University, UK*; C.C. Amorim,* Universidade Federal de Minas Gerais, Brazil*; P.J. Kelly,* Manchester Metropolitan University, UK
9:00am	**TS2-1-TuM4** Configurational and Vibrational Thermodynamics of Metastable Ternary $Ti_{1-x}Al_xB_2$ Alloys with Age-Hardening Potential, and their Constituent Binaries, ***E. Johansson****,* Linköping Univ., IFM, Theoretical Physics Div., Sweden*; N. Nedfors,* Linköping University, IFM, Thin Film Physics Division, Sweden*; F. Eriksson,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; A. Ektarawong,* Linköping Univ., IFM, Theoretical Physics Div., Sweden*; J. Rosen,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; B. Alling,* Linköping Univ., IFM, Theoretical Physics Div., Sweden	Invited talk continues.
9:20am	**TS2-1-TuM5** Stoichiometry, Structure and Mechanical Properties of Co-Sputtered $Ti_{1-x}Ta_xB_{2\pm\Delta}$ Coatings, ***B. Grancic****, K. Viskupova, M. Mikula,* Comenius University in Bratislava, Slovakia*; M. Caplovicova,* Slovak University of Technology in Bratislava, Slovakia*; L. Satrapinskyy, T. Roch, M. Truchly,* Comenius University in Bratislava, Slovakia*; M. Sahul,* Slovak University of Technology in Bratislava, Slovakia, Slovak Republic*; M. Gregor,* Comenius University in Bratislava, Slovakia*; P. Svec Sr.,* Slovak Academy of Sciences, Slovakia*; M. Zahoran, P. Kus,* Comenius University in Bratislava, Slovakia	**TS4-TuM5** Preparation of Bismuth Titanate Thin Films by Co-sputtering for Photocatalytic Water Treatment Application, ***M. Grao****, M. Ratova, P.J. Kelly,* Manchester Metropolitan University, UK
9:40am	**TS2-1-TuM6** Fracture–Microstructure Relations of W-diboride Thin Films, ***R. Hahn****, C. Fuger,* TU Wien, CDL-SEC, Austria*; G. Habler,* University of Vienna, Austria*; H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P. Polcik,* Plansee Composite Materials GmbH, Germany*; P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria*; H. Riedl,* TU Wien, CDL-SEC, Austria	**INVITED: TS4-TuM6** Hematite and Titania Thin Films: Energy and Environmental Applications, ***J. Krysa****,* University of Chemistry and Technology, Prague, Czech Republic
10:00am	**TS2-1-TuM7** Design of Novel Boride-based Hard and Tough Coatings for Engineering Applications, ***M. Stueber****,* Karlsruhe Institute of Technology (KIT), Inst. for Applied Mat. (IAM-AWP), Germany*; H. Riedl,* TU Wien, Institute of Materials Science and Technology, Austria*; S. Özbilen,* Gazi University, Ankara, Turkey*; S. Ulrich,* Karlsruhe Institute of Technology (KIT), Inst. for Applied Mat. (IAM-AWP), Germany*; P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	Invited talk continues.
10:20am	**INVITED: TS2-1-TuM8** A Progress Report on Bulk MAB Phases, ***M.W. Barsoum****,* Drexel University, USA, United States of America*; J. Kota,* Drexel University, USA	**TS4-TuM8** Ultrasonic-assisted Supercritical Fluid Exfoliated and Modified by Chlorine Intercalation Synthesis of P3HT/ g-C_3N_4 Composite for Photocatalyst, ***H.S. Chen****, J.-M. Ting,* National Cheng Kung University, Taiwan
10:40am	Invited talk continues.	**TS4-TuM9** Bixbyite-based Ta-N-O film: A Promising Candidate for Water Splitting?, ***J. Capek****, S. Batkova, S. Haviar, M. Matas, J. Houska,* University of West Bohemia, Czech Republic*; F. Dvorak,* University of Pardubice, Czech Republic

Exhibition Keynote Lecture
Room Town & Country - Session EX-TuM
Exhibition Keynote Lecture
Moderator: Christopher Muratore, University of Dayton and Air Force Research Laboratory, USA

11:00am	**INVITED: EX-TuM1** Carbon based Coatings in Industrial Scale for Sustainable Surface Solutions, ***J. Vetter,*** Oerlikon Balzers Coating Germany GmbH, Bergisch Gladbach, Germany	
11:20am	Invited talk continues.	
11:40am		

Tuesday Afternoon, April 28, 2020

	Coatings for Use at High Temperatures **Room Pacific Salon 1 - Session A2-1-TuA** **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 Golden West - Session B5-2-TuA** **Hard and Multifunctional Nanostructured Coatings II** **Moderator: Vincent Moraes**, Institute of Materials Science and Technology, TU Wien, Austria
1:40pm	**INVITED: A2-1-TuA1** Influence of the Microstructural Evolution of YSZ TBCs on their Thermal Insulation Potential, ***G. Boissonnet***, *G. Bonnet, F. Pedraza,* Université de La Rochelle, France	**INVITED: B5-2-TuA1** PVD of Hard Nanocomposite Coatings Using Multiphase SHS Cathodes - Evolution and New Horizons, ***P.V. Kiryukhantsev-Korneev***, *E. Levashov,* National University of Science and Technology "MISiS", Russian Federation, Russia
2:00pm	Invited talk continues.	Invited talk continues.
2:20pm	**A2-1-TuA3** Effect of Varying APS Flash Bond Coating Thickness on Furnace Cycle Lifetime, ***Michael Lance***, *K Kane, A Haynes, B Pint,* Oak Ridge National Laboratory, USA, United States of America; *E Gildersleeve, E Sampath,* Stony Brook University, USA, United States of America	**B5-2-TuA3** Ti-Si-B-C-N PECVD Nanocomposite Coatings for Tribological Applications at Elevated Temperatures, ***A. Nienhaus***, Technical University of Braunschweig, Germany; *H. Paschke,* Fraunhofer Institute for Surface Engineering and Thin Films, Germany
2:40pm	**A2-1-TuA4** Volcanic Ash Infiltration of Plasma Sprayed Lanthanum Zirconate based Thermal Barrier Coatings at 1250 °C, ***P. Kandasamy***, *S. Govindarajan,* International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI); *S. Gurusamy,* Bharathiar University	**B5-2-TuA4** Erosion Properties of TiAlVSiCN Coatings Prepared by Plasma Enhanced Magnetron Sputtering, *X. Huang,* Beijing Sanju Enviro. Protect. & New Matls., China; ***R. Wei***, *J. Lin,* Southwest Research Institute, USA
3:00pm	**A2-1-TuA5** Electrodeposited Thin La_2O_3 Based Chromium Barrier Coating for Interconnectors in Solid Oxide Electrolysis, ***V. Kolarik***, *M. Juez Lorenzo, E. Walschburger,* Fraunhofer Institute for Chemical Technology ICT, Germany	**B5-2-TuA5** Tribocorrosion Behaviors in Seawater of TiSiCN Coatings Deposited by High Power Impulse Magnetron Sputtering: In-situ Electrochemical Response, ***Y.X. Ou***, Beijing Radiation Center, China; *H.Q. Wang,* Beijing Normal University, China; *J. Luo,* Beijing Radiation Center, China; *B. Liao, X. Zhang,* Beijing Normal University, China; *W. Wang,* Beijing Radiation Center, China; *X.P. Ouyang,* Northwest Nuclear Technology Institute
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	**INVITED: A2-1-TuA8** Avoiding Amorphous Phases with Solution Precursor Plasma Spray in YAG TBC s and Yb Silicate EBCs, ***E. Jordan***, *C. Jiang, R. Kumar, M. Gell,* University of Connecticut, USA	**B5-2-TuA8** Synthesis and Thermomechanical Properties of Hf-C-N Coatings, ***T. Glechner***, *S. Lang,* TU Wien, CDL-SEC, Austria; *V. Moraes,* TU Wien, Institute of Materials Science and Technology, Austria; *D. Primetzhofer,* Uppsala University, Sweden; *J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvári,* Plansee Composite Materials GmbH, Germany; *H. Riedl,* TU Wien, CDL-SEC, Austria
4:20pm	Invited talk continues.	**B5-2-TuA9** Optimization of TiSiCN Coating Properties Obtained by RF Magnetron Sputtering and High Power Impulse Magnetron Sputtering, ***J. Matthey***, Haute Ecole Arc Ingenierie HES-SO, Switzerland Ecole Arc Ingenierie, Switzerland; *O. Banakh, R. Constantin, F. Bisoffi, M. Erard,* Haute Ecole Arc Ingenierie HES-SO, Switzerland
4:40pm	**A2-1-TuA10** Laser Processing of Freeze Casted Yttria Stabilized Zirconia / Gadolinia Thermal Barrier Coatings to Mitigate CMAS Attack, ***S. Bakkar***, *M. Pantawane,* University of North Texas, USA; *A. Ghoshal, M. Walock, M. Murugan,* Civ Usarmy Rdecom Arl, USA; *M.L. Young, D. Berman, N.B. Dahotre, S.M. Aouadi,* University of North Texas, USA	**B5-2-TuA10** Ammonium Thiosulfate Precursor for Coating Molybdenum Disulfide onto the Surface of Porous Metal for High Anti-Wearing Application in the Machinery Industry, ***LH. Hu***, National Sun Yat-Sen University, Taiwan; *PC. Chen,* Southern Taiwan University of Science and Technology, Taiwan
5:00pm	**A2-1-TuA11** A Parametric Study on Optimal Design of Double-ceramic Thermal Barrier Coating, ***J.G. Lim***, *M.K. Kim,* Sungkyunkwan University, Republic of Korea	
5:20pm		

Tuesday Afternoon, April 28, 2020

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B8-2-TuA** **HiPIMS, Pulsed Plasmas and Energetic Deposition II** **Moderators: Jon Tomas Gudmundsson**, University of Iceland, Iceland, **Tiberiu M. Minea**, LPGP, Universite Paris-Sud, France	**Coatings for Biomedical and Healthcare Applications** **Room Royal Palm 1-3 - Session D3-TuA** **Biointerfaces: Improving the Cell Adhesion and Avoiding Bacteria. What Kinds of Coatings/Surfaces Should be Used?** **Moderators: Vincent Fridrici**, Ecole Centrale de Lyon, LTDS - Université de Lyon, France, **Sandra E. Rodil**, Universidad Nacional Autónoma de México, México, **Danieli B.C. Rodrigues**, University of Texas at Dallas, USA
1:40pm	**INVITED: B8-2-TuA1** Optimizing Ionization and Deposition Rate in High Power Impulse Magnetron Sputtering, ***D. Lundin,*** Linköping University, Sweden	**D3-TuA1** Transferred Plasma Induced and Generated Inside a Tube by a Flexible Atmospheric Plasma Jet and its Application in Tube Inner Wall Activation, *J.H. Hsieh,* ***Y.J. Wei,*** Ming Chi University of Technology, Taiwan*; C. Li,* National Yang Ming University, Taiwan
2:00pm	Invited talk continues.	**D3-TuA2** Onion Extract-Mediated Silver Synthesized Coatings on Aluminum with Excellent Antibacterial and Self-Disinfecting Properties, ***H. Agbe****, D. Sarkar, X. Chen,* University of Quebec at Chicoutimi, Canada*; J. Jann, N. Faucheux, G. Soucy,* University of Sherbrooke, Canada*; J. Luc Bernier,* A3 Surfaces, Canada
2:20pm	**B8-2-TuA3** Dynamics of the Titanium Ground State Atoms and Ions in HiPIMS Discharge, ***J. Hnilica****, P. Klein, P. Vasina,* Masaryk University, Brno, Czech Republic*; R. Snyders, N. Britun,* University of Mons, Belgium	**INVITED: D3-TuA3** Advanced Materials for Implant Applications, ***C.L. Sajti,*** *J. Horky, M. Krystian, B. Mingler, M. Bammer,* AIT Austrian Institute of Technology GmbH, Austria
2:40pm	**B8-2-TuA4** Self-Organization of Plasma in RF and DC Magnetron Sputtering Discharges, ***M. Panjan,*** Jozef Stefan Institute, Slovenia	Invited talk continues.
3:00pm	**B8-2-TuA5** Understanding and Influencing the Energy Delivered to the Film in Bipolar HiPIMS, ***T. Kozak****, A.D. Pajdarova, J. Capek,* University of West Bohemia, Czech Republic*; M. Cada, Z. Hubicka,* Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic*; P. Mares,* HVM Plasma, s.r.o., Czech Republic	**D3-TuA5** Antimicrobial Properties of Ag/Cu Doped Amorphous Carbon Coatings for Application in Aerospace*, S. Field, G. Sanzone, P. Navabpour,* ***J. Yin****, H. Sun,* Teer Coatings Ltd, UK*; D. Lee,* Birmingham City University, UK*; J. Liu, P. Ju,* Shanghai Aerospace Equipments Manufacturer, China
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	**B8-2-TuA8** The Use of HiPIMS with Positive Pulses to Tailor Film Ion Assistance and the Resulting Microstructural Properties, ***I. Fernandez****, J.A. Santiago, A. Wennberg, A. Mendez,* Nano4Energy SL, Spain*; F. Papa,* GP Plasma, USA	**D3-TuA8** Targeting Biofilm Superhydrophobic Coating to Reduce Microbial Accumulation on Titanium Surface, ***B. Nagay****, J.G. Souza, R. Costa, J. Cordeiro,* University of Campinas (UNICAMP), Piracicaba Dental School, Brazil*; M. Bertolini,* University of Connecticut, USA, Brazil*; A. Almeida,* University of Campinas (UNICAMP), Piracicaba Dental School, Brazil*; B. Retamal-Valdes,* University of Guarulhos, Brazil*; F. Nociti-Junior,* University of Campinas (UNICAMP), Piracicaba Dental School, Brazil*; M. Feres,* University of Guarulhos, Brazil*; E. Rangel,* São Paulo State University, Brazil*; V. Barão,* University of Campinas (UNICAMP), Piracicaba Dental School, Brazil
4:20pm	**B8-2-TuA9** Reversed Voltage as Deposition Rate Buster, ***W. Gajewski****, A.W. Oniszczuk, P. Różański,* TRUMPF Huettinger sp. z o.o., Poland*; R. Mroczyński,* Warsaw University of Technology, Poland*; M. Puźniak, M. Żelechowski,* TRUMPF Huettinger sp. z o.o., Poland	
4:40pm	**INVITED: B8-2-TuA10** Evolution of Ionization Fraction of Sputtered Species in Standard, Multi-pulse and Reactive HiPIMS*, M. Fekete, K. Bernatova, P. Klein, J. Hnilica,* ***P. Vasina,*** Masaryk University, Brno, Czech Republic	
5:00pm	Invited talk continues.	
5:20pm		

Tuesday Afternoon, April 28, 2020

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room San Diego - Session E1-2-TuA** **Friction, Wear, Lubrication Effects, and Modeling II** **Moderators: Nazlim Bagcivan**, Schaeffler AG, Germany, **Manel Rodríguez Ripoll**, AC2T Research GmbH, Austria	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific Salon 2 - Session G3-TuA** **Innovative Surface Engineering for Advanced Cutting and Forming Tool Applications** **Moderators: Stepan Kyrsta**, Oerlikon Balzers Coating, Luxembourg, **Christoph Schiffers**, CemeCon AG, Germany
1:40pm	**E1-2-TuA1** The Synergistic Effect of Surface Texturing with TMD Coatings for Improving Friction in Lubricated Contacts, *F. Rosa,* Instituto Pedro Nunes, Portugal; *V. Richhariya, F.S. Silva,* University of Minho, Portugal; *P. Amoroso, A. Ramalho,* University of Coimbra, Portugal; ***A. Cavaleiro,*** SEG-CEMMPRE - University of Coimbra, Portugal	**G3-TuA1** Characterization of Different AlCrN PVD Coatings Deposited into H13 Steel for Lube-free Aluminum Die Casting Application, ***N. Delfino de Campos Neto,*** *A.L. Korenyi-Both, S.P. Midson, M.J. Kaufman,* Colorado School of Mines, USA
2:00pm	**E1-2-TuA2** Tribological Properties of Vanadium-doped Coatings via Reactive Molecular Dynamic Simulations, ***I. Ponomarev,*** *T. Polcar, P. Nicolini,* Czech Technical University in Prague, Czech Republic	**G3-TuA2** 12 µm in PVD with HiPIMS, ***C. Schiffers,*** *T. Leyendecker, W. Kölker,* CemeCon AG, Germany
2:20pm	**E1-2-TuA3** Influence of Laser Texturing Treatments on the Tribological Performance Of Tmd-C Coatings, ***A. Manaia,*** *T. Vuchkov,* Instituto Pedro Nunes, Portugal; *M. Shamshiri,* University of Coimbra, Portugal; *A. Cavaleiro,* SEG-CEMMPRE - University of Coimbra, Portugal	**G3-TuA3** Smart PVD Hard Coatings with Temperature Sensor Function, *K. Bobzin, T. Brögelmann,* ***N.C. Kruppe,*** *J. Janowitz,* Surface Engineering Institute - RWTH Aachen University, Germany
2:40pm	**INVITED: E1-2-TuA4** The Thinnest of The Thin: Friction and Adhesion Behavior of Graphene and other Two-Dimensional Materials, ***R.W. Carpick,*** University of Pennsylvania, USA	**INVITED: G3-TuA4** Silicon in Cutting Tools, ***A. Layyous,*** Layyous Consulting, Israel; *L. Qiu,* Central South University, China
3:00pm	Invited talk continues.	Invited talk continues.
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	**E1-2-TuA8** Electrical Tuning of Vibrational Modes in Transition Metal Dichalcogenides, ***F. Belviso,*** *A. Cammarata,* Czech Technical University in Prague, Czech Republic	**G3-TuA8** Cross-sectional Characterization of Microstructural, Phase and Elemental Changes during High-Temperature Oxidation of AlCrSiN Coatings, ***N. Jäger,*** Christian Doppler Laboratory for Advanced Synthesis of Novel Multifunctional Coatings at the Department of Materials Science, Montanuniversität Leoben, Leoben, Austria; *S. Spor,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany; *M. Meindlhumer,* Christian Doppler Laboratory for Advanced Synthesis of Novel Multifunctional Coatings at the Department of Materials Science, Montanuniversität Leoben, Austria; *H. Hruby, F. Nahif,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany; *C. Mitterer,* Montanuniversität Leoben, Austria; *J. Keckes,* Erich Schmid Institute for Materials Science, Austrian Academy of Sciences, Leoben, Austria; *R. Daniel,* Christian Doppler Laboratory for Advanced Synthesis of Novel Multifunctional Coatings at the Department of Materials Science, Montanuniversität Leoben, Austria
4:20pm	**E1-2-TuA9** Improvement of Adhesion of Sputtered Mo-S-N Coatings using a DC Magnetron Sputtering for Low Friction Applications, ***K. Hebbar Kannur,*** IREIS/HEF Group & University of Coimbra, France; *C. Pupier, C. Heau,* IREIS/HEF Group, France; *A. Cavaleiro,* SEG-CEMMPRE, University of Coimbra, Portugal	**G3-TuA9** PVD Coated Tools and Surface-structured Workpieces in Dry Cold Forming of Steel, *K. Bobzin, T. Brögelmann, N.C. Kruppe,* Surface Engineering Institute - RWTH Aachen University, Germany; *T. Bergs, P. Mattfeld, D. Trauth, R. Hild,* Laboratory for Machine Tools and Production Engineering - RWTH Aachen University, Germany; ***D.C. Hoffmann,*** Surface Engineering Institute - RWTH Aachen University, Germany
4:40pm	**E1-2-TuA10** Use of Digital Tribology to Evaluate the Combined Effect of Surface Texture and DLC Coatings during Ball-on-disk Reciprocating Tests, ***V. Seriacopi,*** University of São Paulo, Brazil; *E.F. Prados, L.F.G. Ambrosi,* Federal University of ABC, Brazil; *I.F. Machado, R.M. Souza, N.K. Fukumasu,* University of São Paulo, Brazil	**INVITED: G3-TuA10** Coating Design for Components for Extreme Applications, ***R.J.D. Alexandre,*** TeandM - Technology, Engineering and Materials, S.A., Portugal
5:00pm	**E1-2-TuA11** Up-scale of the Deposition Process for Self-Lubricating Mo-Se-C Coatings Deposited by Magnetron Sputtering, ***T. Vuchkov,*** Instituto Pedro Nunes, Portugal; *M. Evaristo,* SEG-CEMMPRE - University of Coimbra, Portugal; *T. Bin Yaqub,* Instituto Pedro Nunes, Portugal; *A. Cavaleiro,* SEG-CEMMPRE - University of Coimbra, Portugal	Invited talk continues.
5:20pm		

Tuesday Afternoon, April 28, 2020

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific Salon 6-7 - Session H3-TuA** **Characterization of Coatings and Small Volumes in Harsh Environments I** **Moderators: Thomas Edwards**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland, **James Gibson**, RWTH Aachen University, Germany, **Peter Hosemann**, University of Californa at Berkeley, USA	**Topical Symposia** **Room Pacific Salon 3 - Session TS2-2-TuA** **New Horizons in Boron-Containing Coatings: Modeling, Synthesis and Applications II** **Moderators: Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, CDL-SEC, Austria, **Johanna Rosen**, Linköping University, Sweden
1:40pm	**INVITED: H3-TuA1** Investigating Plasticity Effects on Failure and Fracture at the Microscale, ***N.A. Mara***, *K. Schmalbach,* University of Minnesota, USA*; R. Ramachandramoorthy, J. Michler,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; W. Gerberich,* University of Minnesota, USA	**TS2-2-TuA1** Superior High-temperature Behavior of Amorphous Coatings from Quinary Hf-B-Si-C-N System, ***P. Zeman***, *S. Zuzjakova, R. Cerstvy,* University of West Bohemia, Czech Republic*; E.I. Meletis,* University of Texas at Arlington, USA*; J. Vlcek,* University of West Bohemia, Czech Republic
2:00pm	Invited talk continues.	**TS2-2-TuA2** Mechanical Property Evaluation of VNbMoTaWCrB Refractory High-entropy Alloy Thin Films by Micropillar Compression and Nanoindentation, ***Y.-Y. Chen Chen***, Chinese Culture University, Taiwan*; S.-Y. Chang Chang,* National Tsing Hua University, Taiwan*; S.-B Hung Hung, C.-J. Wang Wang,* National Taiwan University of Science and Technology, Taiwan*; J.-G Duh Duh,* National Tsing Hua University, Taiwan*; J.-W. Lee Lee,* Ming Chi University of Technology, Taiwan
2:20pm	**H3-TuA3** High Strain-Rate Mechanical Characterization of Small Volumes and Coatings by Nanoindentation, ***B. Merle***, Materials Science & Engineering 1, Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany	**TS2-2-TuA3** Thick Nitrogen-Doped Boron Carbide Coatings on Planar and Spherical Substrates by Magnetron Sputtering, ***P.B. Mirkarimi***, *A. Engwall, L. Bayu Aji, J. Bae, S. Shin, M Bagge-Hanson, C Walters, A Nikroo, S. Kucheyev,* Lawrence Livermore National Laboratory, USA, United States of America
2:40pm	**INVITED: H3-TuA4** Local Deformation Mechanisms under Ambient and Non-ambient Conditions Tested via Advanced Nanoindentation, ***V. Maier-Kiener***, Montanuniversität Leoben, Austria	**INVITED: TS2-2-TuA4** Boron-containing Metallic-glass Coating: Unique Properties and Various Applications, ***J.P. Chu***, National Taiwan University of Science and Technology (NTUST), Taiwan
3:00pm	Invited talk continues.	Invited talk continues.
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	**H3-TuA8** W-based Nanocrystalline Binary Alloys: Thermal Stability at High Temperatures, ***T. Polcar***, *T.H. Huminiuc, A. Alasqalani,* University of Southampton, UK	**INVITED: TS2-2-TuA8** Boron Carbide Thin Films for State-of-the-Art Neutron Detectors at the ESS, ***J. Birch***, Linköping University, IFM, Thin Film Physics Division, Sweden
4:20pm	**H3-TuA9** High Temperature Erosion Performance Evaluation of Advanced Materials, ***D. Patro***, *S. Josyula, H. Prasanna,* Ducom Instruments, India*; F. Alemano, D. Veeregowda,* Ducom Instruments, Europe	Invited talk continues.
4:40pm		**TS2-2-TuA10** Effects of Thermal Annealing on Structure and Mechanical Properties of $MgAlB_{14}$ Thin Films Deposited by DC Magnetron Sputtering, ***S.K. Shanmugham***, Linköping University, IFM, Thin Film Physics Division, Sweden*; A. Petruhins, J. Rosen, P. Eklund,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
5:00pm		**TS2-2-TuA11** Recent Process Development of Magnetron Sputtering Deposited Boron Carbide Thin Films for Neutron Detection at the European Spallation Source, ***C.-C. Lai***, *C. Höglund, P.-O. Svensson,* Detector Group, European Spallation Source ERIC, Sweden*; L. Robinson,* Detector Group, European Spallation Source ERIC,Sweden, Sweden*; J. Birch, L. Hultman,* Thin Film Physics Division, IFM, Linköping University, Sweden*; R. Hall-Wilton,* Detector Group, European Spallation Source ERIC, Sweden
5:20pm		**TS2-2-TuA12** Fe-based Thin Film Metallic Glass Coated on Porous Substrates as an Alternative Photocatalysts for Decolorization of Dye in Industrial Wastewater, ***B. Hubert***, National Taiwan University of Science and Technology,Taiwan, Taiwan*; J.P. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan*; P.M. Yiu,* National Taiwan University of Science and Technology, Taiwan

Tuesday Evening, April 28, 2020

Special Interest Talks
Room Town & Country - Session SIT2-TuSIT
Special Interest Session
Moderator: Grzegorz (Greg) Greczynski, Linköping University, Sweden

7:00pm	**INVITED: SIT2-TuSIT1** Design, Metallurgy and Manufacturing Technologies of Targets for Hard Coating and Tribological Applications, ***P. Polcik***, Plansee Composite Materials GmbH, Germany	
7:20pm	Invited talk continues.	
7:40pm		

Wednesday Morning, April 29, 2020

	Coatings for Use at High Temperatures **Room Pacific Salon 1 - Session A2-2-WeM** **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 B3-WeM** **Deposition Technologies and Applications for Diamond-like Coatings I** **Moderators: Chris Engdahl**, Crystallume, USA, **Jyh-Wei Lee**, Ming Chi University of Technology, Taiwan
8:00am	**INVITED: A2-2-WeM1** Advances in the Development of Highly Crystalline EBCs by Advanced Plasma Spray Processes, ***M.M. Gentleman O'Connor***, Praxair Surface Technologies Inc., USA; *M. Sweet,* Praxair Surface Technologies, Inc., USA	**B3-WeM1** Tribological Characterizations of Si-doped Diamond-like carbon (DLC) Deposited by FCVA with TMS Gas Against to AISI 52100 Ball, ***J. Kim***, *J. Kim, Y.-J. Jang, Y.-J. Kang, J. Kim,* Korea Institute of Materials Science (KIMS), Korea, Republic of Korea
8:20am	Invited talk continues.	**B3-WeM2** DLC Coatings Deposited by Novel Doping Strategies with HiPIMS, ***J.A. Santiago Varela***, Nano4Energy SL, España; *I. Fernández-Martínez, A. Wennberg,* Nano4Energy SL, Spain; *M.A. Monclús, J.M. Molina-Aldareguia,* IMDEA Materials Institute, Spain; *V. Bellido-Gonzalez,* Gencoa Ltd, UK; *M. Panizo-Laiz,* Universidad Politecnica de Madrid, Spain; *J.C. Sánchez-Lopez, T.C. Rojas,* CSIC, Spain; *S. Goel,* Cranfield University, UK; *J.L. Endrino,* IKERBASQUE, Spain
8:40am	**A2-2-WeM3** Characterization and Performance Testing of Highly Crystalline as-sprayed EBCs, ***K.A. Kane***, Oak Ridge National Laboratory, USA; *M.L. Sweet,* Praxair Surface Technologies Inc., USA; *M. O'Connor,* Praxair Surface Technologies, Inc., USA; *B.A. Pint,* Oak Ridge National Laboratory, USA	**INVITED: B3-WeM3** Lab Grown Diamond and Its Applications, ***B.R. Huang***, National Taiwan University of Science and Technology, Taiwan
9:00am	**A2-2-WeM4** Thermal-Corrosive Properties of Y_2SiO_5 Environmental Barrier Coatings under Isothermal Heat Treatment, ***B.K. Jang***, Kyushu University, Japan; *S.W. Kim, Y.S. Oh, S.M. Lee, H.T. Kim,* Korea Institute of Ceramic Engineering and Technology, Republic of Korea	Invited talk continues.
9:20am	**A2-2-WeM5** Studies on Microstructure and Properties of Thick Mo Coatings obtained via Molten Salt Electrolysis, ***S.K. Ghosh***, *J. Varshney, C. Srivastava, V. Kain,* Bhabha Atomic Research Centre, India	**B3-WeM5** Effects of Target Poisoning on the Microstructure and Mechanical Properties of WC_x Coatings Fabricated by Superimposed HiPIMS and MF System, ***I. Moirangthem***, *J.-W. Lee,* Ming Chi University of Technology, Taiwan
9:40am	**A2-2-WeM6** Development of Hydrogen Barrier Coatings based on Tungsten Alloys, ***I. Lakdhar***, *A.A. Alhussein,* Université de Technologie de Troyes (UTT), France; *J. Creus,* LASIE, CNRS-Université de La Rochelle, France	**B3-WeM6** Preparation of Hybrid ta-C/MoS_2-Films by using Laser Arc Technology, ***F. Kaulfuss***, *F. Hofmann, Y. Han, F. Schaller,* Fraunhofer IWS, Germany; *T. Kruelle,* Fraunhofer IWS,Germany, Germany; *S. Makowski, V. Weihnacht, A. Leson, L. Lorenz, M. Zawischa,* Fraunhofer IWS, Germany
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	**A2-2-WeM10** Different Additions of Fluoride to the Image of the Wear Behavior of the tc_4 Alloy as a Hard and Lubricated Phase at High Temperatures, ***Z. Xie***, *X.F. Cui, G. Jin, E. Liu, W. Su,* Harbin Engineering University, China	**B3-WeM10** Effect of Mechanical and Thermochemical Steel Substrate Pre-treatment on DLC Coating Durability, *D. Tobola,* Institute of Advanced Manufacturing Technology; ***T.W. Liskiewicz***, Manchester Metropolitan University, UK; *L. Yang,* Leeds University, UK
11:20am	**A2-2-WeM11** Corrosion Resistance and Fatigue Behavior of Bare and Coated Ni-based Superalloys, ***S.N. Dryepondt***, *R.P. Pillai,* Oak Ridge National Laboratory, USA; *J.M. Kurley,* Oak Ridge National Laboratory, USA, United States of America	**B3-WeM11** Effect of Long Carbon Bombardment Step on the Adhesion of Thick H-free DLC Coating Deposited by Cathodic Arc Evaporation, ***F.S. Mazuco***, University of Sao Paulo, Brazil; *J.A. Araujo,* MAHLE Metal Leve - Tech Center, Brazil; *R.M. de Souza,* University of Sao Paulo, Brazil
11:40am	**A2-2-WeM12** Effects of Mo Interlayer on the Oxidation Behaviour and Degradation Mechanism of Amorphous SiAlN Coating at 1000 °C in Steam Environment, ***Z.H. Gao***, The University of Manchester, UK; *J.K. Malecka, P.J. Kelly,* Manchester Metropolitan University, UK; *P. Xiao,* The University of Manchester, UK	
12:00pm		

Wednesday Morning, April 29, 2020

	Hard Coatings and Vapor Deposition Technologies **Room California - Session B7-WeM** **Plasma Surface Interactions, Diagnostics and Growth Processes** **Moderator: Yolanda Aranda Gonzalvo**, University of Minnesota, USA	**Fundamentals and Technology of Multifunctional Materials and Devices** **Room Royal Palm 1-3 - Session C3-WeM** **Thin Films for Energy Applications: Solar, Thermal, and Photochemical** **Moderators: Tushar Shimpi**, Colorado State University, USA, **Clio Azina**, Linköping Univ., IFM, Thin Film Physics Div., Sweden
8:00am	**INVITED: B7-WeM1** Energy and Momentum Fluxes at Plasma Processing of Materials, ***H. Kersten****, T. Trottenberg, M. Klette, LH. Hansen, A. Spethmann, F. Schlichting,* IEAP, U Kiel, Germany	
8:20am	Invited talk continues.	**C3-WeM2** Transparent Thermoelectric TiO_2:Nb Thin Films, *J.M. Ribeiro, F.C. Correia,* ***C.J. Tavares****,* University of Minho, Portugal
8:40am	**B7-WeM3** Utilizing Visible Spectroscopy to Determine Ionization Behavior of Tungsten Atoms Sputtered by Argon Ions, ***A.L. Neff****,* Oak Ridge Instituite for Science and Education, USA*; E.A. Unterberg, M. Zach,* Oak Ridge National Laboratory, USA	**C3-WeM3** Thermoelectric Study of ZnO-based Thin Films: The Effect of Bi Dopant Content, ***F.C. Correia****, J.M. Ribeiro,* University of Minho, Portugal*; A.M.M. Mendes,* LEPABE, University of Porto, Portugal*; J.S. Reparaz, L.A. Pérez, A.R. Goñi,* Instituto de Ciencia de Materiales de Barcelona,Consejo Superior de Investigaciones, Spain*; C.J. Tavares,* University of Minho, Portugal
9:00am	**B7-WeM4** Erosion and Cathodic Arc Plasma of Nb–Al Cathodes: Composite vs. Intermetallic, *S. Zöhrer, M. Golizadeh,* Montanuniversität Leoben, Austria*; N. Koutná,* TU Wien, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; A. Anders,* Leibniz Institute of Surface Engineering (IOM), Germany*;* ***R. Franz****,* Montanuniversität Leoben, Austria	**C3-WeM4** Hydrothermal Fabrication, Characterization and Piezoelectrically Enhanced Photocatalysis of BiFeO3 Thin Films on FTO Substrate, ***Nghi Nhan Nguyen Thi****,* National Cheng Kung University, Taiwan
9:20am	**B7-WeM5** A Force Probe as a Tool to obtain Directionally Resolved Momentum Characteristics during Sputter Processes, ***M. Klette****, T. Trottenberg, M. Maas, H. Kersten,* Kiel University, Kiel, Germany	**C3-WeM5** Mo-SnO_2 /rGO Composite by Chemical Reduction as Anode Material for Lithium Ion Batteries, ***Y.C. Huang****, S.B. Brahma,* National Cheng Kung University (NCKU), Taiwan*; C.C. Chang,* National University of Tainan, Taiwan*; J.L. Huang,* National Cheng Kung University (NCKU), Taiwan
9:40am	**B7-WeM6** The Plasma Effect on Electrical Performance of Stannic Oxide P-type Thin Film Transistors, ***Y.-C. Chiu****, P.-T. Liu, D.-B. Ruan, K.-J. Gan, C.-C. Hsu, S.M. Sze,* National Chiao Tung University, Taiwan	**C3-WeM6** Rh-Mo_2C-RGO and Mo_2C-RGO as an Electrocatalyst by Wet Chemical Method for Hydrogen Evolution Reaction, ***Y.H. Lee****, P.C. Huang, S.B. Brahma,* National Cheng Kung University (NCKU), Taiwan*; S.C. Wang,* Southern Taiwan University of Science and Technology, Taiwan*; J.L. Huang,* National Cheng Kung University (NCKU), Taiwan
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	**B7-WeM10** Improved Electrical Characteristics of Ge nMOSFET with Post Interfacial Layer Plasma Treatment, ***F.-Y. Chu****, K.- S. Chang-Liao, D.-B. Ruan, H.-I. Yeh, S.-H. Yi, Y. -H. Chien,* National Tsing Hua University, Taiwan	**C3-WeM10** Synthesis of Si/rGO Composite as Anode Material by Chemical Method, ***H.Y. Chang****,* National Cheng Kung University, Taiwan*; S.B. Brahma,* National Cheng Kung University (NCKU), Taiwan*; C.C. Chang,* National University of Tainan, Taiwan*; J.L. Huang,* National Cheng Kung University (NCKU), Taiwan
11:20am	**B7-WeM11** Optical Emission Spectroscopy of Glow Discharged Plasma Pulsed Nitriding of Pure Iron, *F. Santiago,* ***J. Oseguera****,* ITESM Estado de México, Mexico	**C3-WeM11** $LiPO_2F_2$ as an Additive to Improve SEI Performance of Graphite Electrodes in Lithium Ion Batteries, ***Y.J. Liao****, S.B. Brahma,* National Cheng Kung University (NCKU), Taiwan*; C.C. Chang,* National University of Tainan, Taiwan*; J.L. Huang,* National Cheng Kung University (NCKU), Taiwan
11:40am	**B7-WeM12** Variation of Deposition Rate and Plasma Parameters vs Positions in DC Magnetron Sputtering System, *G. Sabavath,* CMR Engineering College, India*; A.B. Panda,* C.V. Raman College of Engineering, India*; I. Banerjee,* Central University of Gujarat, India*; J. Singh,* Akal University, India*; K.V. Reddy,* CMR Engineering College, India*;* ***S.K. Mahapatra****,* Central University of Punjab, India	**INVITED: C3-WeM12** Advanced Nanomaterials for Energy-Related Applications, ***E. Schubert****, C. Briley, U. Kilic, M. Hilfiker,* University of Nebraska-Lincoln, USA*; D. Sekora,* Honeywell Inc.*; M. Schubert,* University of Nebraska-Lincoln, USA
12:00pm		Invited talk continues.

Wednesday Morning, April 29, 2020

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room San Diego - Session E1-3-WeM** **Friction, Wear, Lubrication Effects, and Modeling III** **Moderators: Nazlim Bagcivan**, Schaeffler AG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific Salon 2 - Session G5-WeM** **Hybrid Systems, Processes and Coatings** **Moderators: Hana Barankova**, Uppsala University, Angstrom Laboratory, Sweden, **SangYul Lee**, Korea Aerospace University, Republic of Korea
8:00am	**INVITED: E1-3-WeM1** PVD Coatings Interaction with the Environment and Influence of Substrate on Coating Performance, ***B. Podgornik***, Institute of Metals and Technologies, Slovenia	**G5-WeM1** Characterization of the Combination of Microwave and Laser Ablation Plasmas, ***E. Camps***, *E. Campos-Gonzalez,* Instituto Nacional de Investigaciones Nucleares, Mexico
8:20am	Invited talk continues.	**G5-WeM2** Low Temperature Deposition of SiO_2 and Si_3N_4 using PEALD, ***B. Kuyel***, *A. Alphonse, J. Marshall, K. Hong,* Nano-Master, Inc., USA
8:40am	**E1-3-WeM3** Tribologically Enhanced Self-healing of Niobium Oxide Surfaces, ***S.M. Aouadi***, *A. Shirani, J.J. Gu, B. Wei, D. Berman,* University of North Texas, USA	**INVITED: G5-WeM3** Frontiers of Surface Engineering for Ultra-low Friction and Wear, ***A. Erdemir***, Argonne National Laboratory, USA
9:00am	**E1-3-WeM4** Ni-based Self-Lubricating Laser Claddings for Hot Forming and High Temperature Vacuum Applications, *H. Torres,* AC2T Research GmbH, Austria; *B. Prakash,* Lulea University of Technology, Sweden; ***M. Rodriguez Ripoll***, AC2T Research GmbH, Austria	Invited talk continues.
9:20am	**E1-3-WeM5** Silver as the Component of Tribological Nanocomposite Coatings: Benefits, Drawbacks, and Principles, ***A. Bondarev***, Czech Technical University in Prague, Czech Republic; *D.V. Shtansky,* National University of Science and Technology "MISiS", Russia; *T. Polcar,* Czech Technical University in Prague, Czech Republic	**G5-WeM5** Hybrid Technologies for Multifunctional Coatings Properties, ***C Collignon***, PD2i SAS
9:40am	**E1-3-WeM6** Tribological Properties of Duplex PEO/Chameleon Coating on Aluminum Alloys, ***A.A. Voevodin***, *J. Shittu, A. Shirani,* University of North Texas, USA; *A. Yerokhin,* University of Manchester; *A. Korenyi-Both,* Colorado School of Mines, USA; *J.-E. Mogonye,* Army Research Laboratories, USA; *D. Berman, S.M. Aouadi,* University of North Texas, USA	**G5-WeM6** From *On-line* Sensor Validation to *in-situ* Monitoring of Layer Growth: Coatings around Fiber-Bragg-Gratings, ***U. Beck***, *A. Mitzkus, M. Sahre, T. Lange, M. Weise, M. Bartholmai, V. Schukar, F. Basedau, D. Hofmann, E. Köppe,* BAM Berlin, Germany
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	**E1-3-WeM10** Development of Wear Maps on Borided AISI 316L Stainless Steel Under Ball-On-Flat Dry Sliding Conditions, ***R.A. García-León***, *J. Martinez-Trinidad, I.E. Campos-Silva,* Instituto Politécnico Nacional, Grupo Ingeniería de Superficies, Mexico; *U. Figueroa-López,* Tecnologico de Monterrey, Campus Estado de México, Mexico, México; *H. Martínez-Gutiérrez,* Instituto Politécnico Nacional, Mexico	**INVITED: G5-WeM10** Stabilization of FCVAS Based Hybrid System for Deposition of Thick Tetrahedral Amorphous Carbon Films and its Applications, ***J. Kim***, *Y.-J. Jang,* Korea Institute of Materials Science (KIMS), Korea, Republic of Korea; *D.H. Kim, Y. Kang,* Korea Institute of Materials Science (KIMS), Korea; *J. Kim,* Korea Institute of Materials Science (KIMS), Korea, Republic of Korea
11:20am	**E1-3-WeM11** DC vs RF Sputtered C based $MoSe_2$ Lubricant Coatings - Routes for Optimization of Stoichiometry, Microstructure and Hardness, ***T.B. Yaqub***, *T. Vuchkov, P. Sanguino,* University of Coimbra, Portugal; *T. Polcar,* Czech Technical University in Prague, Czech Republic; *A. Cavaleiro,* SEG-CEMMPRE - University of Coimbra, Portugal	Invited talk continues.
11:40am	**E1-3-WeM12** Doping Effect on the Running-in Behaviour of the DLC Coatings, ***K. Simonovic***, *T. Vitu,* Czech Technical University in Prague, Czech Republic; *M. Danek,* Advamat Ltd., Czech Republic; *J. Jankovec, T. Polcar,* Czech Technical University in Prague, Czech Republic	**G5-WeM12** Fabrication of Hf0.5 Zr0.5O2 Ferroelectric Tunnel Junctions by Hybrid Pulsed Laser and RF Magnetron Sputtering Technique, ***R. Katoch***, *Y. Gonzalez, A. Ruediger,* Institut National De La Recherche Scientifique, Canada; *S. Asadollahi, M. Patterson, A. Sarkissian,* PLASMIONIQUE Inc, Canada
12:00pm		

Wednesday Morning, April 29, 2020

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific Salon 6-7 - Session H2-2-WeM** **Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes II** **Moderators: Olivier Pierron**, Georgia Institute of Technology, USA, **Timothy Rupert**, University of California, Irvine, USA	**Topical Symposia** **Room Pacific Salon 3 - Session TS2-3-WeM** **New Horizons in Boron-Containing Coatings: Modeling, Synthesis and Applications III** **Moderators: Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, CDL-SEC, Austria, **Johanna Rosen**, Linköping University, Sweden
8:00am	**H2-2-WeM1** Micromechanical Behavior of (C, N, O)-enriched Body-centered Cubic VNbTaMoW Alloy*, H. Zaid, J.W. Stermfel, A. Aleman, K. Tanaka, M.E. Liao, M.S. Goorsky, J.-M. Yang,* ***S. Kodambaka****,* University of California Los Angeles, USA	**TS2-3-WeM1** Thermo-physical Properties of CVD Ti(B,N) Coatings*,* ***C. Kainz****, N. Schalk, M. Tkadletz, C. Saringer,* Montanuniversität Leoben, Austria*; M. Winkler,* Fraunhofer Institute for Physical Measurement Techniques IPM, Germany*; A. Stark, N. Schell,* Helmholtz-Zentrum Geesthacht, Germany*; J. Julin,* Helmholtz-Zentrum Dresden-Rossendorf, Germany*; C. Czettl,* CERATIZIT Austria GmbH, Austria
8:20am	**H2-2-WeM2** Improving the High Temperature Hardness of Nanocrystalline Copper through Tungsten Nanoparticles*,* ***N. Rohbeck****, T.E.J. Edwards, E. Huszár, L. Pethö, X. Maeder, J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland	**TS2-3-WeM2** Effect of MB_2 (M = Zr, Ta, Nb, Hf, Ti, V, Cr) and W_2B_5 Target Composition on Plasma Properties and Thin-Film Stoichiometry During Magnetron Sputtering*,* ***I. Zhirkov****,* Linköping University, IFM, Thin Film Physics Division, Sweden*; F.F. Klimashin,* Linköping University, Sweden, Austria, Sweden*; G. Greczynski,* Linköping University, Sweden*; P. Polcik, S. Kolozsvári,* Plansee Composite Materials GmbH, Germany*; J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA*; I. Petrov,* University of Illinois, USA, Linköping University, Sweden, USA*; J. Rosen,* Linköping University, Sweden
8:40am	**H2-2-WeM3** Toward Novel Stretchable Electronics with Nanostructured Metallic Glass Films*,* ***M. Ghidelli****,* Max-Planck-Institut für Eisenforschung GmbH, Germany*; H. Idrissi,* Université Catholique de Louvain, Belgium*; A. Orekhov,* University of Antwerp, Belgium*; J.P. Raskin,* Université catholique de Louvain, Belgium*; J.U. Park,* Yonsei University, Republic of Korea*; A. Li Bassi,* Politecnico di Milano, Italy*; T. Pardoen,* Université catholique de Louvain, Belgium	**TS2-3-WeM3** Influence of Sputtering-Parameters on Stoichiometry and Mechanical Properties of Selected Binary and Ternary Transition Metal Diborides*,* ***V. Moraes****, H. Riedl, P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria
9:00am	**H2-2-WeM4** An Innovative Metal/Insulator/Metal Structure for Application of Damping Oscillator within One-Selector-One-Resistance*,* ***C.Y. Lin****, T.C. Chang,* National Sun Yat-Sen University, Taiwan*; P.H. Chen,* Chinese Naval Academy, Taiwan	**TS2-3-WeM4** Challenges in Determining the Composition of TiB_x Thin Films*,* ***N. Hellgren****,* Messiah College, USA*; M.A. Sortica,* Linköping University, Sweden*; J. Rosen,* Linköping Univ., IFM, Thin Film Physics Div., Sweden*; V. Vishnyakov,* Institute for Materials Research, University of Huddersfield, UK
9:20am	**H2-2-WeM5** X-Ray Photoelectron Spectroscopy Analysis of Electronic Band Structure for MIM Capacitor Interfaces*,* ***S. Hoang****,* Intermolecular Inc., a subsidiary of Merck KGaA, Darmstadt, Germany, USA*; T. Ngo, E. Januar, M.E. McBriarty, A. Lee, C. Clavero,* Intermolecular Inc., a subsidiary of Merck KGaA, Darmstadt, Germany	**INVITED: TS2-3-WeM5** Metal Diborides Everywhere: Conformal Coating, Infilling, and Alloying by Low Temperature CVD*,* ***J.R. Abelson****,* University of Illinois at Urbana-Champaign, USA
9:40am		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		**INVITED: TS2-3-WeM10** Insights in the Structure, Defects and Stability of Mo_2BC Thin Films by Advanced Characterization Methods*, S. Gleich, R. Soler, B. Breitbach,* Max-Planck-Institut für Eisenforschung GmbH, Germany*; H. Bolvardi, J.O. Achenbach, J.M. Schneider,* RWTH Aachen University, Germany*; G. Scheu,* ***C.S. Scheu****,* Max-Planck-Institut für Eisenforschung GmbH, Germany
11:20am		Invited talk continues.
11:40am		**TS2-3-WeM12** Microstructure and Materials Properties of Understoichiometric TiB_x Thin Films Grown by HiPIMS*,* ***J. Thörnberg****,* Thin Film Physics Division, IFM, Linköping University, Sweden*; N. Hellgren,* Messiah College, USA*; N. Ghafoor, J. Palisaitis, I. Zhirkov, C. Azina, P.O.Å. Persson,* Thin Film Physics Division, IFM, Linköping University, Sweden*; I. Petrov,* University of Illinois, USA, Linköping University, Sweden, USA*; J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA*; J. Rosen,* Thin Film Physics Division, IFM, Linköping University, Sweden
12:00pm		**TS2-3-WeM13** On Hardening Mechanisms in Quasi-Binary Diboride Thin Films*,* ***F.F. Klimashin****,* Linköping University, Sweden*; P. Polcik, S. Kolozsvári,* Plansee Composite Materials GmbH, Germany*; J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA*; I. Petrov,* University of Illinois, USA, Linköping University, Sweden, USA*; J. Rosén,* Linköping University, Sweden

Special Interest Talks
Room Town & Country - Session SIT3-WeSIT
Special Interest Session
Moderator: Grzegorz (Greg) Greczynski, Linköping University, Sweden

1:00pm **INVITED: SIT3-WeSIT1**
Materials Discoveries at Extreme Conditions: A Path Towards New Advanced Materials, ***I.A. Abrikosov,*** Linköping Univ., IFM, Theoretical Physics Div., Sweden

1:20pm Invited talk continues.

1:40pm

Wednesday Afternoon, April 29, 2020

	Coatings for Use at High Temperatures Room Pacific Salon 1 - Session A3-WeA Materials and Coatings for Solar Power Concentration Plants **Moderators: Gustavo García Martín**, REP-Energy Solutions, Spain, **Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, Germany	Hard Coatings and Vapor Deposition Technologies Room California - Session B4-1-WeA Properties and Characterization of Hard Coatings and Surfaces I **Moderators: Naureen Ghafoor**, Thin Film Physics Division, IFM, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
2:00pm	**INVITED: A3-WeA1** The Essential Role of STE/CSP Plants in the Energy Transition. Challenges on Materials to Enhance Competitiveness, ***L. Crespo***, Protermosolar, Spain	**B4-1-WeA1** Properties of Thin Film Metallic Glass Produced by High Power Impulse Magnetron Sputtering, ***N. Boenninghoff***, National Taiwan University of Science and Technology, Taiwan; *J.P Chu, W. Diyatmika,* National Taiwan University of Science and Technology (NTUST), Taiwan; *G. Greczynski,* Linköping University, Sweden
2:20pm	Invited talk continues.	**B4-1-WeA2** Effect of Functionally Graded Layers on Tribological Behavior of TiZrN Coatings on AISI D2 Steel, ***J.-H. Huang***, *B.-S. Tsai,* National Tsing Hua University, Taiwan
2:40pm	**A3-WeA3** High-Temperature Protective Coatings against Molten Nitrate Salts for CSP Technology, ***G García Martín***, REP-Energy Solutions, Spain; *V Encinas Sánchez, I Lasanta Carrasco, T De Miguel Gamo, F Pérez Trujillo*, Universidad Complutense de Madrid, Spain	**B4-1-WeA3** Comparative Study of Adhesion Strength of TiC Films Deposited by Sputtering, RF or DC Plasma CVD on Chemically Treated WC-Co Substrate, ***K.F. Fuji***, *H.M. Matsushima, D.K. Kiyokawa, C.T. Tanaka, N.O. Okamoto, T.S. Saito,* Osaka Prefecture University, Japan; *A.K. Kitajima,* Osaka University, Japan
3:00pm	**A3-WeA4** Corrosion Monitoring of Protective Sol-Gel Coatings in Contact with Molten Carbonates for the Next Generation of Concentrated Solar Power Plants, ***F Pérez Trujillo***, *G García Martín, V Encinas Sánchez, I Lasanta Carrasco, T De Miguel Gamo,* Universidad Complutense de Madrid, Spain	**B4-1-WeA4** Thin Film Characterization by Picosecond Ultrasonics on High Curvature Surfaces, ***F. Faese***, *J. Michelon, X. Tridon,* Neta, France
3:20pm	**A3-WeA5** Magnetron Sputter-deposited TiC-W Multilayered Solar Selective Coatings, ***Y.H. Zhuo***, National Cheng Kung University, Taiwan	**B4-1-WeA5** High Temperature Tribology of Hf Doped c-$Al_{0.67}Ti_{0.33}N$ Cathodic Arc PVD Coatings Deposited on M2 Tool Steel, *G.C. Mondragón Rodríguez,* ***A.E. Gómez Ovalle***, *J.M. Alvarado Orozco, J.M. González Carmona, C. Ortega Portilla, J.L. Hernández Mendoza,* CIDESI, Mexico
3:40pm	**A3-WeA6** Biodegradable Polyurethane Antifouling Coating, ***M.M. Rahman***, King Fahd University of Petroleum and Minerals, Saudi Arabia	**B4-1-WeA6** Mechanical and Tribological Properties of AlCrN Coating Deposited in a Plasma Nitrided Substrate, ***O. Ramírez-Reyna***, Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; *G.A. Rodríguez-Castro,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México; *U. Figueroa-López,* Tecnologico de Monterrey, Campus Estado de México, México; *R.C. Vega-Morón, A. Meneses-Amador,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; *I. Arzate-Vázquez,* Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México
4:00pm	**A3-WeA7** Aluminide Coating for Inconel 625 Prepared by Additive Manufacturing: Investigation of the Surface Reactivity of the Substrate, *N. Ramenatte, L. Portebois, S. Mathieu, L. Aranda,* ***M. Vilasi***, University of Lorraine, France	**B4-1-WeA7** Numerical Evaluation of the Contact Fatigue Resistance of AlCrN, N and AlCrN/N Coatings on AISI 4140 Steel, ***A. Ballesteros-Arguello***, Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *A. Meneses-Amador, G.A. Rodríguez-Castro,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico, México; *D. Fernández-Valdés,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *A. López-Liévano,* Grupo SSC Unidad de Simulacion e Ingeniería Mecánica, Mexico; *A. Ocampo-Ramírez,* Grupo SSC Unidad de Simulación e Ingeniería Mecánica, Mexico
4:20pm		**B4-1-WeA8** The Effect of Heat Treatment on Microstructure and Mechanical properties of Sputtering MoSiN Coatings, ***Y.C. Liu***, *F.B. Wu,* National United University, Taiwan
4:40pm		**B4-1-WeA9** Cross-sectional X-ray Nanodiffraction Characterization of Radiation Damage, Stresses, and Microstructure in Tungsten Coatings, ***K. Hlushko***, Montanuniversität Leoben, Austria; *A. Mackova,* Nuclear Physics Institute of the Czech Academy of Sciences; *J. Todt,* Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria; *R. Daniel,* Christian Doppler Laboratory for Advanced Synthesis of Novel Multifunctional Coatings at the Department of Materials Science, Montanuniversität Leoben, Leoben, Austria; *J. Keckes,* Montanuniversität Leoben, Austria
5:00pm		**INVITED: B4-1-WeA10** Modern Analytical Methods for Characterizing the Tribological Material Properties of Coatings, ***D. Schorr***, Cooperate State University in Karlsruhe, Germany
5:20pm		Invited talk continues.

Wednesday Afternoon, April 29, 2020

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Royal Palm 1-3 - Session C2-1-WeA** **Functional Coatings and Thin Films for Electronic Devices I** **Moderators: Julien Keraudy**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, **Jörg Patscheider**, Evatec AG, Switzerland	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room San Diego - Session E1-4-WeA** **Friction, Wear, Lubrication Effects, and Modeling IV** **Moderators: Nazlim Bagcivan**, Schaeffler AG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria
2:00pm	**C2-1-WeA1** Printed Polymer Heat Sinks for High-Power, Flexible Electronics, ***K.M. Burzynski***[1], University of Dayton and Air Force Research Laboratory, USA; *N.R. Glavin,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; *E.M. Heckman,* Air Force Research Laboratory, Sensors Directorate, USA; *C. Muratore,* University of Dayton, USA	**E1-4-WeA1** A low-speed Controlled Cycling Impact Test Method for Characterization of Failure Behavior of Films and Coatings, ***Z. Cai,*** Southwest Jiaotong University, China
2:20pm	**C2-1-WeA2** Ionic Conductivity and Thermal Stability of Nb-Stabilized Fluorite-structure Bi_2O_3 Films, ***O. Depablos-Rivera,*** Universidad Nacional Autónoma de México, México; *S.E. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico, México	**E1-4-WeA2** Micro-scratch Test of Plasma Nitrided Hadfield Austenitic Manganese Steel, ***L. B. Varela,*** University of São Paulo, Brazil, Brasil; *G. Tressia,* University of São Paulo, Brazil; *E.M. Bortoleto,* Vale Institute of Technology; *C.E. Pinedo,* Heat Tech Technology for Heat Treatment and Surface Engineering Ltd,; *A. Sinatora,* Vale Institute of Technology; *A.P. Tschiptschin,* University of São Paulo, Brazil
2:40pm	**C2-1-WeA3** Nanostructured CuO/WO_3 Thin Films for Hydrogen Gas Sensing Prepared by Advanced Magnetron Sputtering Techniques, ***N. Kumar,*** *S. Haviar, J. Čapek, Š. Batková, P. Zeman, P. Baroch,* University of West Bohemia, Czech Republic	**E1-4-WeA3** Use of Digital Tribology to Design a-C Coated Systems to Achieve Ultra-low Coefficient of Friction under High Contact pressure, ***N.K. Fukumasu,*** *A.P. Tschiptschin, R.M. Souza, I.F. Machado,* University of São Paulo, Brazil
3:00pm	**C2-1-WeA4** High-performance Thermochromic VO_2-based Coatings Prepared on Glass by a Low-temperature Scalable Deposition, ***T. Bárta,*** *J. Vlček, D. Kolenatý, J. Rezek, J. Houška, S. Haviar,* University of West Bohemia, Czech Republic	**E1-4-WeA4** Evaluation of the Wear Resistance of Borided AISI 1018 Steel Exposed to the Diffusion Annealing Process, ***E.J. Hernández-Ramírez,*** Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; *I.E. Campos-Silva,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México, Mexico; *A. Ruiz-Rios, A.M. Delgado-Brito, A.D. Contla-Pacheco,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; *J. Oseguera-Peña,* Tecnologico de Monterrey, Campus Estado de México, México
3:20pm	**INVITED: C2-1-WeA5** Thermal and Plasma-Enhanced Atomic Layer Deposition for Nanoscale Coatings, ***W.M.M. Kessels,*** Eindhoven University of Technology, The Netherlands	**E1-4-WeA5** Numerical-Experimental Analysis of the Tribological Behavior of Borided AISI 316L Steel, ***D. Fernández-Valdés,*** Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *A. Meneses-Amador,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico, México; *A. Ocampo-Ramírez,* Grupo SSC Unidad de Simulación e Ingeniería Mecánica, Mexico; *A. López-Liévano,* Grupo SSC Unidad de Simulacion e Ingeniería Mecánica, Mexico; *U. Figueroa-López,* Tecnologico de Monterrey, Campus Estado de México, Mexico, México; *I.E. Campos-Silva,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *G.A. Rodríguez-Castro,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico, México
3:40pm	Invited talk continues.	**E1-4-WeA6** Use of Digital Tribology to Design Cu-Ti-Si Interlayers to Increase Adhesion of a:C Coatings on C17200 Copper-Beryllium Alloy, ***M.D. Santos,*** *N.K. Fukumasu, V. Seriacopi, I.F. Machado,* University of São Paulo, Brazil
4:00pm	**C2-1-WeA7** Achieving High Dopant Activation in Doped Semi-conductive Oxide Films by Tuning Compositional and Topological Metastability, ***Y. Chen,*** Chinese Academy of Sciences, China	**E1-4-WeA7** Effect of Electrostatic Solid Lubrication on Tribological Behavior of Ti-6Al-4V Alloy, *R.K. Gunda,* BITS Pilani Hyderabad Campus, India; ***U.M.R. Paturi,*** CVR College of Engineering, Hyderabad, India; *S.K.R. Narala,* BITS Pilani Hyderabad Campus, India
4:20pm	**C2-1-WeA8** Structural and Optical Properties of Pulsed-Laser Deposited β-Ga_2O_3 Thin Films, ***M. Bandi,*** Center for Advanced Materials Research (CMR), University of Texas at El Paso, USA, United States of America	**E1-4-WeA8** Assessment and Enhancement of Tribocorrosion Behaviour of Aluminum-Titanium Diboride (Al-TiB_2) Metal Matrix Composite, *A. Sheelwant,* BITS-Pilani, Hyderabad Campus, India; ***S.K.R. Narala,*** BITS-Pilani Hyderabad Campus, India; *P. Shailesh,* Methodist College of Engineering and Technology, India
4:40pm	**INVITED: C2-1-WeA9** High k Dielectrics for MIM Architecture: From Capacitors to Non-volatile Memories Applications, ***C. Vallee,*** UGA - LTM, France, France; *P. Gonon, M. Bonvalot, A. Bsiesy,* UGA-LTM, France	
5:00pm	Invited talk continues.	
5:20pm	**C2-1-WeA11** Synthesis and Characterization of Cellulose Acetate Titanium (IV) Tungstomolybdate Nanocomposite Cation Exchanger for the Removal of Selected Heavy Metals from Aqueous Solution, ***B.M. Minase Woldegebriel,*** National Taiwan University of Science and Technology (NTUST), Taiwan	

[1] **Student Award Nominee**

Wednesday Afternoon, April 29, 2020

	New Horizons in Coatings and Thin Films **Room Pacific Salon 6-7 - Session F1-WeA** **Nanomaterials and Nanofabrication** **Moderator: Vitezslav Stranak**, University of South Bohemia, Czech Republic	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific Salon 2 - Session G6-WeA** **Application-Driven Cooperations between Industry and Research Institutions** **Moderators: Tobias Brögelmann**, Surface Engineering Institute - RWTH Aachen University, Germany, **Joern Kohlscheen**, Kennametal GmbH, Germany, **Kumar Yalamanchili**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein
2:00pm	**INVITED: F1-WeA1** Plasma Based Deposition of Nanostructures and Nanoparticles: From Preparation to Function, ***O. Polonskyi,*** University of California Santa Barbara, USA	**INVITED: G6-WeA1** Success Factors for Collaborative Industrial Coating Development, ***M. Morstein,*** Hightech Zentrum Aargau AG, Switzerland
2:20pm	Invited talk continues.	Invited talk continues.
2:40pm	**F1-WeA3** Deposition of Cu and Pt Metallic Clusters onto Titanium Dioxide Nanoparticles by DC Magnetron Sputtering for Hydrogen Production, ***G.T. West,*** Manchester Metropolitan University, UK; *M. Bernareggi, G.L. Chiarello, E. Selli,* University of Milan, Italy; *A.M. Ferretti,* ISTM-CNR Lab Nanotechnology, Italy; *M. Ratova, P.J. Kelly,* Manchester Metropolitan University, UK	**G6-WeA3** (Cr,Al,Mo)N Coatings for Higher System Stability under Minimum Quantity Lubrication, *K. Bobzin, T. Brögelmann,* ***C. Kalscheuer,*** Surface Engineering Institute - RWTH Aachen University, Germany; *K. Stahl, T. Lohner, M. Yilmaz,* Gear Research Centre – Technical University of Munich, Germany
3:00pm	**F1-WeA4** High Performances Supercapacitor having N, S-doped Soft Carbon Electrodes and Water-in-Salt Electrolyte, ***Y.U. Fan,*** National Cheng Kung University, Taiwan	**G6-WeA4** Performance and Characterization of PVD Coatings with Different Al/Ti Ratio During High Speed Turning of Stainless Steel 304, ***Q. He,*** *J.M. Paiva,* McMaster University, Canada; *J. Kohlscheen,* Kennametal GmbH, Germany; *G. Fox-Rabinovich, S.C. Veldhuis,* McMaster University, Canada
3:20pm	**F1-WeA5** Effect of Cu Irradiated Zr/Nb Nanometric Multilayers, ***N.I. Daghbouj,*** Czech Technical University in Prague, Czech Republic	**INVITED: G6-WeA5** Mechanical and Tribological Properties of CVD α-Al_2O_3 Coatings at Ambient and Elevated Temperatures, ***R. M'Saoubi,*** Seco Tools AB, Sweden
3:40pm	**F1-WeA6** Manipulation of Thin Films and Nanostructures on Weakly-interacting Substrates by Selective Surfactant Deployment, *A. Jamnig,* Linköping University, IFM, Nanoscale Engineering Division, Sweden; *N. Pliatsikas, M. Konpan,* Linköping University, IFM, Nanoscale Engineering Division; *J. Lu,* Linköping University, IFM, Thin Film Physics Division, Sweden; *J. Kovac,* Josef Stefan Institute; *G. Abadias,* University of Poitiers, PPRIME Institute, CNRS, France; *I. Petrov,* University of Illinois, USA, Linköping University, Sweden, USA; *J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA; ***K. Sarakinos,*** Linköping University, Sweden	Invited talk continues.
4:00pm	**F1-WeA7** Novel Type of Bent-Lattice Nanostructure in Crystallizing Amorphous Films Revealed by TEM: From Transrotational Microcrystals to Strain Nanoengineering and Novel Amorphous Models, ***V.Y. Kolosov,*** Ural Federal University, Russian Federation	**G6-WeA7** Mo-Si–B Based Coatings: Alloying Concepts and Architectural Designs, ***E. Aschauer,*** TU Wien, CDL-SEC, Austria; *V. Dalbauer, P. Felfer,* FAU Erlangen, Germany; *V. Moraes,* TU Wien, Institute of Materials Science and Technology, Austria; *D. Primetzhofer,* Uppsala University, Sweden; *C. Fuger,* TU Wien, CDL-SEC, Austria; *H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P. Polcik,* Plansee Composite Materials GmbH, Germany; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria; *H. Riedl,* TU Wien, CDL-SEC, Austria
4:20pm	**F1-WeA8** Ultrasensitivity of Self-powered Wireless Triboelectric Vibration Sensor for Operating in Underwater Environment Based on Surface Functionalization of Rice Husks, ***S.-N. Lai,*** *C.-K. Chang, C.-S. Yang,* National Tsing Hua University, Taiwan; *C.-W. Su, C.-M. Leu,* Industrial Technology Research Institute, Taiwan; *Y.-H. Chu, P.-W. Sha,* National Chiao Tung University, Taiwan; *J.M. Wu,* National Tsing Hua University, Taiwan	**G6-WeA8** Hard Protective Coatings Inside Narrow Tubes and Cavities in Aircraft Engine Components, *A. Kilicaslan, O. Zabeida, E. Bousser,* Polytechnique Montreal, Canada; ***J.E. Klemberg-Sapieha,*** Polytechnique Montrtreal, Canada; *L. Martinu,* Polytechnique Montreal, Canada
4:40pm	**F1-WeA9** Fabrication and Characterization of Thin-film Metallic Glass/polyacrylonitrile Composite Membrane for Nitrogen Separation, ***E.T. Gizaw,*** National Taiwan University of Science and Technology, Taiwan; *H.-H. Yeh,* Chung Yuan Christian University, Taiwan; *J.P Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan; *C.-C. Hu,* Chung Yuan Christian University, National Taiwan University of Science and Technology (NTUST), Taiwan	
5:00pm	**F1-WeA10** Multi-element Hydroxides Grown on Ni-Foam As Binder-Free Electrodes for Supercapacitor, ***Y.-X. Lin,*** National Cheng Kung University, Taiwan	
5:20pm		

Topical Symposia
Room Pacific Salon 3 - Session TS3-1-WeA
In-Silicio Design of Novel Materials by Quantum Mechanics and Classical Methods (jointly sponsored by ICMCTF and AQS) I
Moderators: David Holec, Montanuniversität Leoben, Austria, **Davide Sangiovanni**, Linköping University, Sweden

2:00pm	**TS3-1-WeA1** Evolutionary Structure Prediction of Transition Metal Borides, ***D.V. Rybkovskiy***, *A.G. Kvashnin, Y.A. Kvashnina,* Skolkovo Institute of Science and Technology, Russian Federation*; H.A. Zakaryan,* Yerevan State University, Armenia*; A.R. Oganov,* Skolkovo Institute of Science and Technology, Russian Federation	
2:20pm	**TS3-1-WeA2** Design of Ultrastrong 5d Transition Metal Diborides, ***D. Legut***, VSB - Technical University of Ostrava, Czech Republic*; N. Wang, Z. Fu, B. Wei,* Beihang University, China*; T. Germann,* Los Alamos National Laboratory, USA*; R. Zhang,* Beihang University, China	
2:40pm	**INVITED: TS3-1-WeA3** Bill Sproul Award and Honorary ICMCTF Lecture: Are Protective Coatings Predictable? A Mid-Career Assessment, ***J.M. Schneider***[1], RWTH Aachen University, Germany	
3:00pm	Invited talk continues.	
3:20pm	**TS3-1-WeA5** Influence of Impurities on Mechanical Properties of Nitride Multilayer Coatings, ***L. Löfler***, Montanuniversität Leoben, Austria*; J. Buchinger, P.H. Mayrhofer, M. Bartosik,* TU Wien, Austria*; D. Holec,* Montanuniversität Leoben, Austria	
3:40pm	**TS3-1-WeA6** Strength, Transformation Toughening and Fracture Dynamics of Rocksalt-structure $Ti_{1-x}Al_xN$ ($0 \le x \le 0.75$) Alloys, ***D.G. Sangiovanni***, *F. Tasnadi, M. Oden, I.A. Abrikosov,* Linköping University, Sweden	
4:00pm	**TS3-1-WeA7** Multiscale Modelling of Thin Metal Film Growth on Weakly-interacting Substrates, ***V. Gervilla***, *M. Zarshenas, B. Lü, G. Almyras,* Linköping University, Sweden*; J.E. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA*; D.G. Sangiovanni, K. Sarakinos,* Linköping University, Sweden	
4:20pm	**INVITED: TS3-1-WeA8** Computational Modeling of 3D Thin Film Growth Morphology: Influence of Angular and Energy Distribution of Particle Flux, ***G. Abadias***, *C. Mastail, C. Furgeaud, F. Nita, R. Mareus, A. Michel,* Institut Pprime - CNRS - ENSMA - Université de Poitiers, France	
4:40pm	Invited talk continues.	
5:00pm	**TS3-1-WeA10** Benchmarking Simulational Approaches to Predict High-Temperature Elastic Constants of Ti(0.5)Al(0.5)N Alloy, ***J. Tidholm***, *F. Tasnádi, I.A. Abrikosov,* Linköping Univ., IFM, Theoretical Physics Div., Sweden	
5:20pm		

[1] **Bill Sproul Awardee**

Wednesday Afternoon, April 29, 2020

Awards Convocation and Honorary Lecture
Room Town & Country - Session HL-WeHL
Bunshah Award Honorary Lecture
Moderator: Ivan Petrov, University of Illinois, USA, Linköping University, Sweden, USA

5:45pm		
6:05pm	**INVITED: HL-WeHL2** R.F. Bunshah Award and ICMCTF Lecture Invited Talk: A Journey from Trial & Error to the Knowledge-based Design of Coatings and Thin Films, ***C. Mitterer***[1], Montanuniversität Leoben, Austria	
6:25pm	Invited talk continues.	
6:45pm		

[1] **R.F. Bunshah Awardee**

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B1-1-ThM** **PVD Coatings and Technologies I** **Moderators: Frank Kaulfuss**, Fraunhofer IWS, Germany, **Qi Yang**, National Research Council of Canada, Canada	**Hard Coatings and Vapor Deposition Technologies** **Room California - Session B4-2-ThM** **Properties & Charact. of Hard Coatings and Surfaces II** **Moderators: Naureen Ghafoor**, Thin Film Physics Division, IFM, Linköping Univ., Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
8:00am	**B1-1-ThM1** Influence of the Period of a Multilayer TiN / TiAlN Coating System on its Microstructure and Electrochemical Behavior for Potential Applications in Hot Work Steel, ***H.D. Mejía Vásquez***, *G. Bejarano Gaitan,* University of Antioquia, Medellín, Colombia; *M. Arroyave Franco,* University EAFIT, Colombia	**B4-2-ThM1** Structure and Properties of VSiCN Coatings Deposited by Plasma Enhanced Magnetron Sputtering, ***F.C. Thompson***, South Dakota School of Mines & Tech, USA; *F.M. Kustas,* NanoCoatings, Inc., USA; *K.E. Coulter,* Southwest Res Insti, USA; *G.A. Crawford,* South Dakota School of Mines & Tech, USA
8:20am	**B1-1-ThM2** ScAlN-Based Multilayer Structure for High K^2 SAW Devices, ***P.H. Lee***, *Y.H. Huang,* National Cheng Kung University (NCKU), Taiwan; *S. Wu,* Tung-Fang Design University, Taiwan; *J.L. Huang,* National Cheng Kung University (NCKU), Taiwan	**B4-2-ThM2** Spinodal Decomposition of Reactively Sputtered VAlN Thin Films, ***M. Hans***, *H. Rueß,* RWTH Aachen University, Germany; *Z. Czigány,* Centre for Energy Research, Hungary; *J. Krause, P. Ondračka, D. Music, S. Evertz, D.M. Holzapfel,* RWTH Aachen University, Germany; *D. Primetzhofer,* Uppsala University, Sweden; *J.M. Schneider,* RWTH Aachen University, Germany
8:40am	**INVITED: B1-1-ThM3** Coating Design and Mechanical Properties of Multicomponrnt AlTi(X)N Hard Coatings, ***Y.Y. Chang***, National Formosa University, Taiwan	**B4-2-ThM3** Residual Stress Measurement on Coatings by 2D-XRD with Single Sample Tilt, ***B. He***, Bruker AXS, Inc., USA, United States of America
9:00am	Invited talk continues.	**B4-2-ThM4** Nanoscale Stress and Microstructure Distributions across Scratch Track Cross-Sections in a Brittle-Ductile CrN-Cr Bilayer Film on Steel Revealed by X-ray Nanodiffraction, ***M. Meindlhumer***, Montanuniversität Leoben, Austria; *J. Todt, Z. Zalesak,* Austrian Academy of Sciences, Leoben, Austria; *M. Rosenthal,* ESRF, Grenoble, France; *H. Hruby,* eifeler-Vacotec GmbH, Düsseldorf, Germany; *C. Mitterer,* Montanuniversität Leoben, Austria; *R. Daniel,* Montanuniversität Leoben, Austria; *J. Keckes,* Montanuniversität Leoben, Austria
9:20am	**B1-1-ThM5** Investigation of the Influence of the Thickness of Nanolayers in Wear-resistant Layers of Ti-TiN-(Ti,Cr,Al)N Coating on Destruction in the Cutting and Wear of Carbide Cutting Tools, ***A. Vereschaka***, *S. Grigoriev,* MSTU Stankin, Russian Federation; *N. Sitnikov,* National Research Nuclear University MEPhI, Russian Federation; *J.I. Bublikov,* Ikti Ran, Russian Federation	**B4-2-ThM5** Microstructure and Mechanical Investigation of Textured CVD Alumina Coatings, *S. Shoja,* ***O. Bäcke***, Chalmers University of Technology, Sweden; *O. Alm,* Seco Tools AB, Sweden; *L. von Fieandt, S. Norgren,* Sandvik Coromant R&D, Sweden; *M. Halvarsson,* Chalmers University of Technology, Sweden
9:40am	**B1-1-ThM6** Key Importance of the Controlled Reactive HiPIMS for Low-temperature Preparation of Tunable Oxynitrides and Thermochromic Oxides, ***J. Vlček***, *J. Houška,* University of West Bohemia, Czech Republic	**B4-2-ThM6** Effect of Boriding Medium Composition on Microstructure and Mechanical Properties of Borided AISI 4140 Steel, ***L. Silveira***, Pontifícia Universidade Católica do Paraná, Brazil; *A.G.M. Pukasiewicz,* Universidade Tecnológica Federal do Paraná, Brazil; *P. Brum,* Fiven GmbH, Brazil; *R.D. Torres,* Pontificia Universidade Católica do Paraná, Brazil
10:00am	**B1-1-ThM7** Dynamic Feedback Control for *In Situ* Process Monitoring and System Optimization in Complex Thin Coatings Manufacturing, ***C. Metting***, AccuStrata, Inc., USA	**B4-2-ThM7** The Erosion Resistance of Boride Layers on X12CrNiMoV12-3 Stainless Steel, ***A. Ruíz-Ríos***, Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México; *I.E. Campos-Silva,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *A.M. Delgado-Brito, E.J. Hernández-Ramírez, A.D. Contla-Pacheco,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México
10:20am	**B1-1-ThM8** On the Synthesis and Characterization of (Ti,Zr)n+1AlCn MAX Phase Coatings using Elemental and Compound Targets, ***C. Azina***, *A. Petruhins, M. Yildizhan, B. Xin, P.O.Å. Persson, J. Rosen, P. Eklund,* Linköping Univ., IFM, Thin Film Physics Div., Sweden	**B4-2-ThM8** Combinatorial Approach for the Synthesis of Thermally Stable High Si-containing Nanocomposite AlCrSiN Coatings, ***M. Zítek***, *N. Jäger, M. Meindlhumer,* Montanunivers Leoben, Austria; *F. Nahif,* voestalpine eifeler-Vacotec GmbH, Germany; *C. Mitterer, R. Daniel,* Montanunivers Leoben, Austria
10:40am	**B1-1-ThM9** Deposition of Crystalline Alumina Thin Films without Substrate Heating by Reactive Magnetron Sputtering, ***F.Y. Gao***, University of Windsor, Canada; *G. Li,* Chinese Academy of Sciences, China; *X.Y. Nie,* University of Windsor, Canada; *Y. Xia,* Chinese Academy of Sciences, China	**B4-2-ThM9** Influence of the Period of the Substrate Oscillation on Thin CrN Films Obtained by RF Physical Vapor Dynamic Glancing Angle Deposition technique, *M.J.M. Jimenez,* UNICAMP, Brazil, Brasil; *F. Cemin, A. Riul, L.F. Zagonel,* UNICAMP, Brazil; *C.A. Figueroa,* Universidade de Caxias do Sul, Brazil; *D. Wisnivesky,* UNICAMP, Brazil; ***F. Alvarez***, Instituo de Física-UNICAMP, Brazil
11:00am	**B1-1-ThM10** Microstructural and Biological Behavior of TiAlVN(Ag) Nanocomposite Coatings, ***F. Giraldo***, *G. Bejarano,* Universidad de Antioquia, Colombia	**B4-2-ThM10** Composite Iron Matrix Layers Reinforced with TiC Particles Obtained *In situ* by Reactive Coatings, ***Ł. Szymański***, Innerco sp. z .o.o., Poland; *E. Olejnik,* Innerco sp. z .o.o, Poland; *J.J. Sobczak,* AGH Univ. of Sci. and Tech/ Krakow, Poland; *N. Sobczak,* Polish Acad of Sciences, Poland; *G. Bruzda,* Łukasiewicz Res Network, Poland; *A. Wójcik,* Polish Acad of Sciences, Poland; *P. Kurtyka,* Pedagogical Univ of Krakow, Poland; *H. Krawiec,* AGH Univ of Science and Tec Krakow, Poland
11:20am	**B1-1-ThM11** Injection of Pulse Pressure Dependence on Surface Sintering Process – the Origin of W-B-C Films Synthesis in Magnetron Sputtering from a Single Powder Target, ***B. Wicher***, *R. Chodun,* Warsaw Univ. of Tech., Poland; *M. Trzciński,* UTP University of Science and Technology, Poland; *A. Lachowski,* Polish Academy of Sciences, Poland; *K. Nowakowska-Langier,* National Centre for Nuclear Research, Poland; *K. Zdunek,* Warsaw University of Technology, Poland	
11:40am	**B1-1-ThM12** Sub-critical Hotspots to Quench Rapid Reactions in Sputter Deposited Nanoscale Ni-Al Multilayer Foils, *I.E. Gunduz,* Naval Postgraduate School, USA; ***C.G. Rebholz***, University of Cyprus, Cyprus	

Thursday Morning, April 30, 2020

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Royal Palm 1-3 - Session C1-ThM** **Optical Materials: Design, Synthesis, Characterization, and Applications** **Moderators: Nikolas Podraza**, University of Toledo, USA, **Juan Antonio Zapien**, City University of Hong Kong, Hong Kong	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room San Diego - Session E2-1-ThM** **Mechanical Properties and Adhesion I** **Moderators: Megan J. Cordill**, Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria, **Jazmin Duarte**, MPI für Eisenforschung GMBH, Germany, **Ming-Tzer Lin**, National Chung Hsing University, Taiwan
8:00am	**INVITED: C1-ThM1** Metrology for Emerging Semiconductor Devices and Processes, ***N.G. Orji***, National Institute of Standards and Technology (NIST), USA	**E2-1-ThM1** Effect of Residual Stress on the Mechanical Properties of Nitride-Based Protective Coatings Deposited by Pulsed-Plasma Sputtering Techniques, ***E. Bousser***, *E. Herrera-Jimenez, L. Martinu, J.E. Klemberg-Sapieha,* Polytechnique Montreal, Canada
8:20am	Invited talk continues.	**E2-1-ThM2** Influence of polyamide type film former and alkoxysilane association on the surface and adhesion properties of PA 6-6/Glass, ***N. Halawani***, Solvay R&I Lyon, France; *O. Gain, Y. Gabet, S. Al Akhrass,* Université de Lyon, France; *L. Trouillet-Fonti,* Solvay R&I Lyon, France; *E. Espuche,* Université de Lyon, France
8:40am	**C1-ThM3** Enhancing Plasmonic Sensing with Nanostructured Thin Films Containing Au Nanoparticles, ***M.S. Rodrigues***, *J. Borges, F. Vaz,* University of Minho, Portugal	**E2-1-ThM3** Molecular Dynamics Investigation of Adhesion Between MoS2 coated AFM tips, ***J.D. Schall***, *S.R. Toom,* North Carolina Agricultural and Technical State University, USA; *T. Sato, R.W. Carpick,* University of Pennsylvania, USA; *Y.R. Jeng,* Changcung University of Science and Technology, Taiwan; *N.R. Glavin,* Air Force Research Laboratory, USA; *C. Muratore,* University of Dayton and Air Force Research Laboratory, USA
9:00am	**C1-ThM4** Chemical Bath Deposition of ZnO Nanorods on Ion-plated ZnO:Ga Seed Layers and Their Structural, Photoluminescence and UV Light Detecting Properties, ***T. Terasako***, *S. Obara, N. Hashikuni, S. Namba,* Ehime University, Japan; *M. Yagi,* National Institute of Technology (KOSEN), Kagawa College, Japan; *Y. Furubayashi, T. Yamamoto,* Research Institute, Kochi University of Technology, Japan	**INVITED: E2-1-ThM4** Controlled Spalling of Microscale, Single-Crystal Films of High-Quality, High-Value Semiconductors, ***C.E. Packard***, Colorado School of Mines, USA
9:20am	**C1-ThM5** Optical Probing of Vanadium Oxide Thin Film Composition and Phase, *M. M. Junda,* ***N. J. Podraza***, University of Toledo, USA	Invited talk continues.
9:40am	**C1-ThM6** ZnO/SnS_2 Composites for Tunable UV and Blue Light Shielding Properties, ***S.M. Tseng***, *S.B. Brahma,* National Cheng Kung University (NCKU), Taiwan; *H.H. Lu,* National Chin-Yi University of Technology, Taiwan; *J.L. Huang,* National Cheng Kung University (NCKU), Taiwan	**E2-1-ThM6** Thin-film Adhesion: A Comparative Study Between Colored Picosecond Acoustics and the Stressed Overlayer technique, ***A. Devos***, Iemn, Umr Cnrs, France; *M.J. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria
10:00am	**C1-ThM7** Upconversion of Core–shell-nanoparticles on Diatom as Micro-Optical Trapping Device, ***Y.H. Su***, *Ting Wei Shen, K.B Lin,* National Cheng Kung University (NCKU), Taiwan	**E2-1-ThM7** Hyperelasticity and Viscoelasticity in Thin Organic Semiconductor Coatings, ***J Bull***, Newcastle University, United Kingdom of Great Britain and Northern Ireland; *A. Yadav, H. Gonabadi,* Newcastle University
10:20am	**INVITED: C1-ThM8** Measurement of Feature Dimension and Shape for Nanowire Test Structures Using Mueller Matrix Spectroscopic Ellipsometry based Scatterometry and Small Angle X-Ray Scattering, ***A.C. Diebold***, SUNY Polytechnic Institute Albany, USA	**E2-1-ThM8** Effect of Functionally Graded Layers on the Stress Relief of TiZrN Coating on Silicon Substrate, ***M.W.-J. Liu***, *J.-H. Huang,* National Tsing Hua University, Taiwan
10:40am	Invited talk continues.	**E2-1-ThM9** Comparing the Residual Stress Gradient Measurement of ZrN using FIB-DIC and Xray Diffraction, *W-Y. Lin, Y.-C. Chou,* National Chung Hsing University, Taiwan; *J.-H. Huang,* National Tsing Hua University, Taiwan; ***M.T. Lin***, National Chung Hsing University, Taiwan
11:00am		**E2-1-ThM10** Effect of Si Addition to DLC on the Sliding Interface Structure between the DLC-Coated Disk and Bearing Steel Ball Slid under Dry Condition in Ambient Air, *T. Ikeda,* ***H. Kousaka***, *T. Nakano,* Gifu University, Japan; *I. Tanaka,* University of Hyogo, Japan
11:20am		**E2-1-ThM11** Structural, Nanomechanical and Tribological Properties of Manganese Phosphate Coatings, ***E. Broitman***, *I. Nedelcu,* SKF Research & Technology Development Center, Netherlands; *T. von Schleinitz,* SKF Research & Technology Development Center, Germany
11:40am		**E2-1-ThM12** Effect of Substrate on the Evolving Mechanical and Tribological Behavior of a Superhydrophobic Silane Thin Film, ***D. Baruwa***, *E.T. Akinlabi,* University of Johannesburg, South Africa; *P. Oladijo,* Botswana International University of Science and Technology, Botswana; *J. Dutta-Majumdar,* Indian Institute of Technology Kharagpur, India

	New Horizons in Coatings and Thin Films **Room Pacific Salon 6-7 - Session F2-1-ThM** **High Entropy and Other Multi-principal-element Materials I** **Moderators: Diederik Depla**, Ghent University, Belgium, **Ulf Jansson**, Uppsala University, Sweden, **Erik Lewin**, Uppsala University, Sweden	**Topical Symposia** **Room Pacific Salon 3 - Session TS3-2-ThM** **In-Silico Design of Novel Materials by Quantum Mechanics and Classical Methods jointly sponsored by ICMCTF and AQS II** **Moderators: David Holec**, Montanuniversität Leoben, Austria, **Ivan Petrov**, University of Illinois, USA, Linköping University, Sweden, USA, **Davide Sangiovanni**, Linköping University, Sweden
8:00am	**INVITED: F2-1-ThM1** High-Entropy Ceramic Thin Films; A Case Study of Nitrides, Oxides and Diborides, ***P.H. Mayrhofer,*** *A. Kirnbauer, R. Hahn,* TU Wien, Institute of Materials Science and Technology, Austria*; P. Polcik,* Plansee Composite Materials GmbH, Germany	**TS3-2-ThM1** From Dry Sliding to Full Coverage: The Role of Water in Molybdenum Disulfide Lubrication Studied in Silico, ***V.E.P. Claerbout,*** Czech Technical University in Prague, Czech Republic*; T. Polcar,* University of Southampton, UK*; P. Nicolini,* Czech Technical University in Prague, Czech Republic
8:20am	Invited talk continues.	**TS3-2-ThM2** Structural Ordering of Molybdenum Disulfide studied via Reactive Molecular Dynamics Simulations, ***P. Nicolini,*** Czech Technical University in Prague, Czech Republic*; R. Capozza,* Italian Institute of Technology, UK*; T. Polcar,* Czech Technical University in Prague, Czech Republic
8:40am	**F2-1-ThM3** High Entropy alloy TiZrHfMoW Coatings: Effect of Ti Content on its Microstructure and Mechanical and Tribological Behaviour, ***R. Akhter,*** University of New South Wales, Australia*; Z.F. Zhou,* City University of Hong Kong, Hong Kong*; Z.H. Xie,* University of Adelaide, Australia*; P. Munroe,* University of New South Wales, Australia	**INVITED: TS3-2-ThM3** Method Development to Enable In-Silico Design of Materials, ***S.B. Sinnott,*** The Pennsylvania State University, USA
9:00am	**F2-1-ThM4** Surface Characteristics of $Ni_2FeCoCrAl_x$ High Entropy Alloys under Atmospheric Pressure Plasma Treatment, ***C.R. Huang,*** *F.B. Wu,* National United University, Taiwan	Invited talk continues.
9:20am	**F2-1-ThM5** Structural Properties of AlSiTaTiZr Multicomponent Metallic and Nitride Thin Film Alloys, ***F. Cemin,*** UNICAMP, Brazil*; M.J.M. Jimenez,* UNICAMP, Brazil, Brasil*; L.M. Leidens,* Universidade de Caxias do Sul, Brazil*; R.B. Merlo,* UNICAMP, Brazil*; C.A. Figueroa,* Universidade de Caxias do Sul, Brazil*; F. Alvarez,* UNICAMP, Brazil	**INVITED: TS3-2-ThM5** Plasticity and Fracture in Transition Metal Carbides, ***G. Po,*** University of Miami, USA*; M. Chen, J. Wheeler,* ETH Zürich, Switzerland*; D. Sangiovanni,* Linköping University, Sweden*; S. Kodambaka,* University of California Los Angeles, USA
9:40am	**F2-1-ThM6** Carbon Supersaturated Refractory Multicomponent Nanostructured Coatings, ***S. Fritze,*** *P. Malinovskis, L. Riekehr, L. von Fieandt, E. Lewin, U. Jansson,* Uppsala University, Sweden	Invited talk continues.
10:00am	**INVITED: F2-1-ThM7** Single-phased High Entropy Oxides for Energy Applications, ***J.-M. Ting,*** National Cheng Kung University, Taiwan	**TS3-2-ThM7** Quantitative Description and Electronic Structure Tuning of the Anomalous Thermoelastic Behavior of Elemental V, Nb, Ta, Pd, and Pt as well as Nb-X (X=Zr, V, Mo) Solid Solutions, ***P. Keuter,*** *D. Music, V. Schnabel,* RWTH Aachen University, Germany*; M. Stuer,* Manufactures Cartier Horlogerie, Switzerland*; J.M. Schneider,* RWTH Aachen University, Germany
10:20am	Invited talk continues.	**TS3-2-ThM8** Identifying Fingerprints of Point Defects in X-ray Photoelectron Spectroscopy Measurements of TiN and TiON with *ab initio* Calculations, ***P. Ondračka,*** RWTH Aachen University, Germany*; D. Holec,* Montanuniversität Leoben, Austria*; M. Hans, J.M. Schneider,* RWTH Aachen University, Germany
10:40am	**F2-1-ThM9** Improving Phase Stability, Hardness and Oxidation Resistance of Reactive Magnetron Sputtered $(Al_vCr_wNb_xTa_yTi_z)N$ Thin Films by Si-alloying, ***A. Kretschmer,*** Institute of Materials Science and Technology, TU Wien, Austria*; K. Yalamanchili,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; H. Rudigier,* OC Oerlikon Management AG, Switzerland, Liechtenstein*; P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**INVITED: TS3-2-ThM9** Theoretical Insights into Transition Metal Nitrides for Thermoelectric and Piezoelectric Applications, ***B. Alling,*** Linköping Univ., IFM, Theoretical Physics Div., Sweden
11:00am	**F2-1-ThM10** Electrochemical and Mechanical Properties of Multi-Component Al-Cr-Nb-Y-Zr Nitride Thin Films, ***K. von Fieandt,*** Uppsala University, Angstrom Laboratory, Sweden, Sverige*; A. Srinath, R. Lindblad, B. Osinger, S. Fritze, L. Riekehr, L. Nyholm, E. Lewin,* Uppsala University, Angstrom Laboratory, Sweden	Invited talk continues.
11:20am	**F2-1-ThM11** Structural and Mechanical Properties of AlTiTaZr-N Medium Entropy Alloy Films Obtained by DC Magnetron Sputtering via a Combinatorial Approach, ***M. EL GARAH,*** *S. Achache,* LASMIS, CNRS- Université Technologique de Troyes, France*; A. Michau, F. Schuster,* CEA, Université Paris-Saclay, France*; F. Sanchette,* LASMIS, CNRS- Université Technologique de Troyes, France	
11:40am	**F2-1-ThM12** Sputter Deposition of High Entropy Alloy Oxynitrides, ***R. Dedoncker,*** Ghent University, Belgium*; G. Radnóczi,* Hungarian Academy of Sciences, Hungary*; D. Depla,* Ghent University, Belgium	

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B1-2-ThA** **PVD Coatings and Technologies II** **Moderators: Frank Kaulfuss**, Fraunhofer IWS, Germany, **Yen-Hsun Su**, National Cheng Kung University (NCKU), Taiwan, **Qi Yang**, National Research Council of Canada, Canada	**Hard Coatings and Vapor Deposition Technologies** **Room California - Session B4-3-ThA** **Properties and Characterization of Hard Coatings and Surfaces III** **Moderators: Naureen Ghafoor**, Thin Film Physics Division, IFM, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
1:20pm	**B1-2-ThA1** Biased Target Sputter Deposition System using Novel Ion Source and Motion Control, ***J. VanGemert***, *R. Ham, S. Thompson, J. Williams,* Colorado State University, USA, United States of America	**B4-3-ThA1** Low Temperature Deposition of TiB-based Hard Coating Films by Pulsed DC Plasma CVD, ***T.K. Saito***, *H.M. Matsushima, K.F. Fuji, D.K. Kiyokawa, N.O. Okamoto,* Osaka Prefecture University, Japan
1:40pm	**B1-2-ThA2** Monitoring Tantalum Nitride Thin Films Structure by Reactive HiPIMS Magnetron Sputtering: From Microstructure to Properties, ***A. Poulon-Quintin***, *B. Giroire, L. Teule-Gay,* ICMCB-CNRS, France*; M. Cavarroc,* Safran Tech, France*; A. Achille,* ICMCB-CNRS, France	**B4-3-ThA2** TiAlN/TiMoN Multi-Layered-Coatings as Hydrogen Barriers, ***M. Tamura***, University of Electro-Communications, Japan
2:00pm	**B1-2-ThA3** On Electron Heating and Ion Recycling in the High Power Impulse Magnetron Sputtering Discharge, ***J.T. Gudmundsson***, University of Iceland, Iceland*; D. Lundin,* LPGP, Universite Paris-Sud, France*; M.A. Raadu,* KTH Royal Institute of Technology, Sweden*; T.J. Petty, T.M. Minea,* LPGP, Universite Paris-Sud, France*; N. Brenning,* KTH Royal Institute of Technology, Sweden	**INVITED: B4-3-ThA3** Air-based Sputtering Deposition of Gradient Oxynitride Coatings, ***F.-H. Lu***, National Chung Hsing University, Taiwan*; Y.-C. Liou, Y.-L. Lee, M.-H. Chan,* National Chung-Hsing University, Taiwan
2:20pm	**B1-2-ThA4** How to Deposit a Porous Thin Film by Magnetron Sputtering ?, ***D. Depla***, *R. De Doncker,* Ghent University, Belgium	Invited talk continues.
2:40pm	**B1-2-ThA5** Effects of Nitrogen Concentration on the Microstructure and Mechanical Properties of VNbMoTaWNx High-Entropy Alloy Coatings, ***W.-H. Wang***, National Taiwan University of Science and Technology (NTUST), Taiwan, 台灣*; C.-J. Wang,* National Taiwan University of Science and Technology (NTUST), Taiwan*; B.-S. Lou,* Chang Gung University, Taiwan*; J.-W. Lee,* Ming Chi University of Technology, Taiwan	**B4-3-ThA5** Fabrication and Microstructure Evolution of Sputtering Single Element Transition Metal Nitride Multilayers, *K.Y. Liu, Y.H. Yang, J.Y. Xiang, Z.X. Lin,* ***F.B. Wu***, National United University, Taiwan
3:00pm	**B1-2-ThA6** Tribocorrosion Behaviours of VNbMoTaWCr High Entropy Alloy Coatings, ***I. Rahmadtulloh***, Ming Chi University of Technology, Taiwan*; W.-H. Wang,* National Taiwan University of Science and Technology (NTUST), Taiwan, 台灣*; C.-J. Wang,* National Taiwan University of Science and Technology (NTUST), Taiwan*; B.-S. Lou,* Chang Gung University, Taiwan*; J.-W. Lee,* Ming Chi University of Technology, Taiwan	**B4-3-ThA6** Iron Aluminides Layers Prepared by Ionized Jet Deposition, ***J. Čech***, *P. Haušild, J. Skočdopole, J. Čapek,* Czech Technical University in Prague, Czech Republic*; K. Nová, P. Novák,* University of Chemistry and Technology, Czech Republic
3:20pm	**B1-2-ThA7** Surface Morphologies and Mechanical Properties of Multicomponent TiNbCrMoZr Thin Films after Laser Texture Oxidation Treatment, *Y.Y. Chang,* ***C.S. Chen***, National Formosa University, Taiwan	**B4-3-ThA7** Effect of the Projection Parameters on the Morphology and the Abrasive Wear Resistance to the Nickel-Based Coatings Produced with Thermal Spraying Flame Technique, ***F. Rojas***, *F. Orjuela B, E. Gómez,* Universidad Libre, Colombia*; A. Cueca,* Sena - Cme, Colombia
3:40pm	**B1-2-ThA8** Multifunctional Coatings with Antifouling Properties, ***J. Castro***, *I. Carvalho, M. Henriques, S. Carvalho,* University of Minho, Portugal	**B4-3-ThA8** Evaluation of the Mechanical Properties of Single Fe2B Phase Formed on 316L Steel by Interrupted Boriding, *G. A. Rodríguez-Castro,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México*; O. Vázquez-de la Rosa, A. Meneses-Amador,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México*;* ***J. L. Arciniega-Martínez***, Instituto Politecnico Nacional ESIME, México*; I. E. Campos-Silva,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México*; O. A. Morales-Contreras,* Universidad Autónoma de Baja California, México, Mexico
4:00pm	**INVITED: B1-2-ThA9** Multilayer nano-composite Oxidation-resistant Coatings for Accident-tolerant Nuclear Fuel Cladding using Reactive HiPIMS with Positive Kick and Precision Ion Energy Control, ***B. Jurczyk***, *R. Stubbers, I. Shchelkanov, T. Houlahan,* Starfire Industries LLC, USA	
4:20pm	Invited talk continues.	
4:40pm		

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Royal Palm 1-3 - Session C2-2-ThA** **Functional Coatings and Thin Films for Electronic Devices II** **Moderators: Julien Keraudy**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, **Jörg Patscheider**, Evatec AG, Switzerland	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room San Diego - Session E2-2-ThA** **Mechanical Properties and Adhesion II** **Moderators: Megan J. Cordill**, Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria, **Jazmin Duarte**, MPI für Eisenforschung GMBH, Germany, **Ming-Tzer Lin**, National Chung Hsing University, Taiwan
1:20pm	**C2-2-ThA1** Effect of Substrate Bias on the Properties and Microstructure of Nanotwinned Cu Thin Films, ***S.Y. Chang***, *F.-Y. Ouyang,* Tsinghua University, Taiwan	**E2-2-ThA1** Toughening Magnetron Sputtered S-phase Stainless Steel Coatings by Cycling the N_2 Gas Flow Rate, ***C.M. Garzon***, Universidad Nacional de Colombia - Bogotá, Colombia; *A.A. Recco,* Universidade do Estado de Santa Catarina, Brazil
1:40pm	**C2-2-ThA2** Study of Thermal Stability of Highly (111)-oriented Nanotwinned Ag Films by using Unbalanced Magnetron Sputtering, ***Y.C. Hao***, National Tsing Hua University, Taiwan, Republic of China, Taiwan; *L.-P. Chang, F.-Y. Ouyang,* National Tsing Hua University, Taiwan, Republic of China	**E2-2-ThA2** Nb-containing Diamond-like Carbon Films Fabricated by Radio Frequency (rf) Magnetron Sputtering Technique, ***A.S. Adeniyi***, *J. Corona, J. Patel, Q. Yang,* University of Saskatchewan, Canada
2:00pm	**C2-2-ThA3** Fabrication and Surface/Interface Characterization of Mo-Ga Thin Films, *NLR Lalitha Raveendran,* University of Texas at El Paso, USA, United States of America; *LP M. Porter,* Carnegie Mellon University, USA, United States of America; ***CVR Chintalapalle***, University of Texas at El Paso, USA	**INVITED: E2-2-ThA3** Insights into Indentation-Induced Cracking via 3D-FIB Tomography and HR-EBSD, ***B.-S. Li***, University of Oxford, UK
2:20pm	**C2-2-ThA4** Stress Relaxation in the Si-SiO2 System and its Influence on the Interface Properties, ***D. Kropman***, University of Tartu; *V. Seeman,* University of Tartu, Estonia; *A. Medvids,* Riga Technical University, Latvia	Invited talk continues.
2:40pm	**INVITED: C2-2-ThA5** Materials and Processes for Integration of IC Chips through Advanced Packaging, ***M. Wall***, Intel, USA	**E2-2-ThA5** Influence of Twin Wire Arc Spraying Process Parameters on Microstructure and Hardness of Steel Coatings, ***N.J. Wagner***, Cal Poly Pomona, USA
3:00pm	Invited talk continues.	**E2-2-ThA6** Effect of Transitional Layers on Wear Behavior of $Ti_{0.15}Zr_{0.85}N$ Coatings on AISI D2 Steel, ***H.-H. Liu***, Hsing Hua University, Taiwan; *J.-H. Huang,* National Tsing Hua University, Taiwan
3:20pm	**C2-2-ThA7** P-type Nitrogen Substituted Zinc Oxide Transparent Semiconductor Thin Films Grown on Glass Substrates by Sol-gel Method, ***C.-Y. Tsay***, *W.Y. Chiu,* Feng Chia University, Taiwan	**E2-2-ThA7** Effect of the Incorporation of Ag Layers in the Structure of an Hydroxyapatite Coating Deposited by Magnetron Sputtering, ***J.A. Lenis***, *F.J. Bolívar,* University of Antioquia, Medellín, Colombia
3:40pm	**C2-2-ThA8** Atmospheric-Pressure Synthesis of Atomically Smooth, Conformal, and Ultrathin Low-k Polymer Insulating Layers by Plasma-Initiated CVD, ***D. Abessolo Ondo***, *F. Loyer, R. Leturcq, N.D. Boscher,* Luxembourg Institute of Science and Technology, Luxembourg	**E2-2-ThA8** Abrasion Wear Resistance of Low Temperature Plasma Nitrided Inconel 625 Superalloy, *L.B. Varela, M.F.C. Ordoñez,* University of São Paulo, Brazil; *C.E. Pinedo,* Heat Tech & University of Mogi das Cruzes, Brazil; ***A.P. Tschiptschin***, University of São Paulo, Brazil
4:00pm	**C2-2-ThA9** Sputtered Gold-tantalum Oxide Films with High Electrical Resistivity, ***A. Engwall***, *L. Bayu Aji,* Lawrence Livermore National Laboratory, USA, United States of America; *J. Bae,* General Atomics, USA, United States of America; *A. Baker, X. Lepró,* Lawrence Livermore National Laboratory, USA; *S. Shin,* Lawrence Livermore National Laboratory, USA, United States of America; *S. McCall,* Lawrence Livermore National Laboratory, USA; *S. Kucheyev,* Lawrence Livermore National Laboratory, USA, United States of America	**E2-2-ThA9** Effects of Processing Parameters of Plasma Electrolytic Oxidation on the Microstructure, Adhesion Strength and Corrosion Resistance of Oxide Layers on ZK60 Magnesium Alloys, ***M.G. Asrat***, National Taiwan University of Science and Technology, Taiwan, Ming Chi University of Technology, Taiwan; *J.P. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan; *J.W. Lee,* Ming Chi University of Technology, Taiwan; *B.-S. Lou,* Chang Gung University, Taiwan
4:20pm	**C2-2-ThA10** Synthesis and Characterization of Bi4Ti3O12 Films using Hydrothermal Method: A Study on the Piezo-Related and Photoelectrochemical Properties, ***J. de Guzman***, *K.-S. Chang,* National Cheng Kung University (NCKU), Taiwan	**E2-2-ThA10** Progressive Metallic Coatings for Enhancing Corrosive Properties of Magnesium Alloys, ***S. Dutta***, *S.K.R. Narala,* BITS Pilani Hyderabad Campus, India
4:40pm	**C2-2-ThA11** Nanostructured Multifunctional Architectural Glass Glazing for Future Green Cities, *S. Woodward-Gagne, R. Beaini, B. Baloukas, O. Zabeida,* ***L. Martinu***, Polytechnique Montreal, Canada	**E2-2-ThA11** Nanostructured CVD W/WC Coating with Enhanced Resistance to Water Droplet Erosion and Cavitation, ***Y. Zhuk***, Hardide Plc, UK

Thursday Afternoon, April 30, 2020

	New Horizons in Coatings and Thin Films **Room Pacific Salon 6-7 - Session F2-2-ThA** **High Entropy and Other Multi-principal-element Materials II** **Moderators: Diederik DeplaUlf Jansson**, Uppsala University, Sweden, **Erik Lewin**, Uppsala University, Sweden,	**New Horizons in Coatings and Thin Films** **Room Pacific Salon 2 - Session F3-ThA** **2D Materials: Synthesis, Characterization, and Applications** **Moderators: Suneel Kodambaka**, University of California Los Angeles, USA, **Eli Sutter**, University of Nebraska-Lincoln, USA
1:20pm	**F2-2-ThA1** Unveiling Microplasticity Mechanisms in Metallic Glasses with the Help of Polymer-supported Thin Films, ***O. Glushko,*** Montanuniversität Leoben, Leoben, Austria*; C. Mitterer, J. Eckert,* Montanuniversität Leoben, Austria	**INVITED: F3-ThA1** Pulsed Laser Deposition and Conversion of Atomically-Thin 2D Materials Controlled by *in situ* Diagnostics, ***D.B. Geohegan,*** Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, USA*; Y.-C. Lin, Y. Yu,* Oak Ridge National Laboratory, USA*; C. Liu, G. Duscher,* University of Tennessee at Knoxville, USA*; A.A. Puretzky, M. Yoon, C.M. Rouleau,* Oak Ridge National Laboratory, USA*; P.D. Rack,* University of Tennessee and Oak Ridge National Laboratory, USA*; G. Eres, K. Xiao,* Oak Ridge National Laboratory, USA
1:40pm	**F2-2-ThA2** Ultra-high Vacuum dc Magnetron Sputter-deposition and Microstructural Characterization of High Entropy Alloys Nitride Thin Films, ***H. Zaid****, K. Tanaka, J.-M. Yang, S. Kodambaka, H. Kindlund,* University of California Los Angeles, USA	Invited talk continues.
2:00pm	**F2-2-ThA3** Kinetically Limited Phase Formation of Pt-Ir based Compositionally Complex Thin Films, ***A. Saksena****, D. Bogdanovski,* RWTH Aachen University, Germany*; H. Sahasrabuddhe,* IIT Bombay, India*; X. Chen, D. Music, J.M. Schneider,* RWTH Aachen University, Germany	**F3-ThA3** Transformation from Amorphous Carbon to Graphene via Nickel Catalyst, ***H.C. Li****, X.W. Li, P.G. Guo, A.Y. Wang,* Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, China
2:20pm	**F2-2-ThA4** High Entropy Oxide for High-Temperature Solar Selective Absorber, ***Y.C. Lin****, J.-M. Ting, Y.H. Su,* National Cheng Kung University (NCKU), Taiwan	**F3-ThA4** Low-Temperature Synthesis of Vertically Standing Graphene by Microwave-Chemical Vapour Deposition*, I. Vasconcelos Joviano dos Santos,* ***J. Kulczyk-Malecka****, S.J. Rowley-Neale, C.E. Banks, P.J. Kelly,* Manchester Metropolitan University, UK
2:40pm	**F2-2-ThA5** High Entropy Alloy Displays Unique Strengthening and Deformation Pathways, ***S. Tsianikas****,* The University of Adelaide, Australia*; Y. Chen,* Southwest University, China*; Z.H. Xie,* The University of Adelaide, Australia	**F3-ThA5** Wettability, Structural and Optical Examination of Sputtered Zirconium Oxide Thin Films, ***U. Patel,*** McMaster University, Canada*; P. Dave,* Gujarat Forensic Science University, India*; K. Chauhan,* Charotar University of Science and Technology (CHARUSAT), India*; S. Rawal,* McMaster University, Canada
3:00pm		**F3-ThA6** Better than Homoepitaxy? van der Waals Layer Assisted Growth of Thin Films, ***K. Tanaka,*** University of California Los Angeles, USA*; K. Hojo,* Nagoya University, Japan*; A. Deshpande, P. Arias, M.E. Liao, Y. Wang, H. Zaid, A. Aleman, M.S. Goorsky, S. Kodambaka,* University of California Los Angeles, USA
3:20pm		**INVITED: F3-ThA7** Large Piezoelectric Response of van der Waals Layered Solids, ***C. Ciobanu****, S. Manna, P. Gorain, G.L. Brennecka, V. Stevanovic,* Colorado School of Mines, USA
3:40pm		Invited talk continues.
4:00pm		
4:20pm		
4:40pm		

Topical Symposia
Room Pacific Salon 3 - Session TS1-ThA
Anti- and De-icing Surface Engineering I
Moderators: Alina Agüero, National Institute of Aerospace Technology, Spain, **Jolanta-Ewa Sapieha**, Polytechnique Montreal, Canada

1:20pm	**INVITED: TS1-ThA1** Ice Adhesion Mechanics and Durable Icephobic Surfaces, ***J.Y. He,*** Norwegian University of Science and Technology (NTNU), Norway	
1:40pm	Invited talk continues.	
2:00pm	**TS1-ThA3** Low Ice Adhesion Enhanced Electrothermal Ice Protection, ***J. Hu,*** Collins Aerospace, USA, United States of America; *C. Slane,* Collins Aeospace, USA; *C. Botura,* Collins Aerospace, USA	
2:20pm	**TS1-ThA4** Role of the Thin Coating in the Durability of Icephobic Thin-on-Thick Coating Systems, ***S. Brown,*** *J. Lengaigne,* Polytechnique Montreal, Canada; *N. Sharifi, A. Dolatabadi,* Concordia University, Canada; *L. Martinu, J.E. Klemberg-Sapieha,* Polytechnique Montreal, Canada	
2:40pm	**INVITED: TS1-ThA5** Low Interfacial Toughness Materials for Effective Large-scale Deicing, ***K. Golovin,*** University of Britsh Columbia, Canada	
3:00pm	Invited talk continues.	
3:20pm	**TS1-ThA7** Collins Aerospace - Low Icing Adhesion Testing Methodology for Aerospace Application, ***C. Botura,*** Collins Aerospace, USA; *J. Hu,* Collins Aerospace, USA, United States of America; *N. Ching,* Collins Aerospace, USA	
3:40pm	**TS1-ThA8** Limitations of Anti-icing Materials for Aeronautic Applications, ***P. Garcia,*** National Institute of Aerospace Technology, Spain; *J. Mora,* Isdefe, Spain; *A.A. Agüero,* National Institute of Aerospace Technology, Spain	
4:00pm	**TS1-ThA9** Anti-Icing Properties of Silicon and Fluorine-doped Hydrocarbons and their Ice Adhesion Strength, ***C. Ellis-Terrell,*** *R. Wei, M. Miller,* Southwest Research Institute, USA; *M. Zou,* University of Arkansas, USA; *S. Beckford,* Surftec, USA; *K.E. Coulter,* Southwest Research Institute, USA	
4:20pm	**TS1-ThA10** Improving the Efficiency of Electro-thermal De-icing Systems with Icephobic Coatings, ***J. Brierley,*** *X.H. Hou, B. Turnbull, W. Sun,* University of Nottingham, UK	
4:40pm		

Coatings for Use at High Temperatures
Room Grand Hall & Foyer - Session AP-ThP
Coatings for Use at High Temperatures (Symposium A) Poster Session
5:00pm

AP-ThP1
Effect of Different Addition of Fluoride on Wear Behavior of TC_4 Alloys at Elevated Temperature as Hard Phase and Lubricating Phase, ***Z. Xie***, *X.F. Cui, G. Jin, E. Liu, W. Su,* Harbin Engineering University, China

AP-ThP2
Anodic Plasma Electrolytic Deposition of Composite Coating on Ferrous Alloys with Low Thermal Conductivity and Excellent Thermal Stability, ***C. Zhao***, *J. Sun, X.Y. Nie,* University of Windsor, Canada

AP-ThP3
Oxidation of NiCrAlY Coating Deposited by Selective Laser Melting for Thermal Barrier Coating Application, *E. Copin,* ***D. Texier,*** *A. Flores, J. Lee,* ICA, France*; M. Terner, H.-U. Hong,* Changwon National University, Republic of Korea*; P. Lours,* ICA, France

AP-ThP4
Development of Aerospace Turbine Blade Thermal Barrier Coating, ***Y.-M. Liu,*** National Taipei University of Technology, Taiwan

AP-ThP5
Preparation of Solid Oxide Fuel Cell Electrolyte by Thermal Spraying, ***Y.C. Lai,*** National Taipei University of Technology, Taiwan

AP-ThP6
Aging Behavior of Ag-Pt Alloy Thick Film on AlN at High Temperature by Joule Heating, ***Joeng Jeong***, *An An,* Korea Electronics Technology Institute (KETI), Republic of Korea*; Sa Sa,* SEMES CO., LTD, Republic of Korea

AP-ThP8
Corrosion Behavior of Volcanic Ash on Sintered Gd_2SiO_5 for Environmental Barrier Coatings, ***K. Seung-Hyeon,*** Kyushu University, Japan*; K. Byung-Nam,* National Institute for Materials Science (NIMS), Japan*; J. Byung-Koog,* Kyushu University, Japan

AP-ThP9
Lowering Costs by Improving Efficiencies in Biomass Fueled Boilers: New Materials and Coatings to Reduce Corrosion (BELENUS), *A. Illana, V. Encinas-Sánchez, M.T. de Miguel, M.I. Lasanta, G. García-Martín,* ***F.J. Pérez,*** Universidad Complutense de Madrid, Spain

AP-ThP10
Microstructural Growth and Oxidation Performance of Ti_xSi_y on ɣ -TiAl, *J. Crespo Villegas, S. Brown, E. Bousser,* Polytechnique Montreal, Canada*; M. Cavarroc,* Safran Tech, France*; S. Knittel,* Safran Aircraft Engines, France*; L. Martinu,* ***J.E. Klemberg-Sapieha,*** Polytechnique Montreal, Canada

AP-ThP11
An Ab Initio Guided Approach for Enhancing the Oxidation Resistance of Period Vi Carbides and Borides, ***T. Glechner,*** *E. Aschauer, R. Hahn,* TU Wien, CDL-SEC, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; J. Ramm, H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S. Kolozsvari,* Plansee Composite Materials GmbH, Germany*; H. Riedl,* TU Wien, CDL-SEC, Austria

AP-ThP12
High-temperature Oxidation and Tribological Properties of Al–Cr–Si–N Nanocomposite Coatings Deposited by Filtered Arc Ion Plating Process, ***I.-W. Park,*** *S. Heo, J.-H. Kim, W.R. Kim,* Korea Institute of Industrial Technology (KITECH), Republic of Korea

AP-ThP13
Modeling of Coating Thickness in Electrostatic Spray Deposition using Response Surface Methodology and Artificial Neural Network, ***U.M.R. Paturi,*** CVR College of Engineering, Hyderabad, India*; N.S. Reddy,* Gyeongsang National University, South Korea*; R.K. Gunda, S.K.R. Narala,* BITS Pilani Hyderabad Campus, India

Hard Coatings and Vapor Deposition Technologies
Room Grand Hall & Foyer - Session BP-ThP
Hard Coatings and Vapor Deposition Technologies (Symposium B) Poster Session
5:00pm

BP-ThP1
Behavior of Partially Oxidized Metal Targets, ***J. Houska,*** *T. Kozak,* University of West Bohemia, Czech Republic

BP-ThP2
Effects of Cu Metal Barrier on Electrical Stability and Reliability of Porous Low-dielectric-constant Materials, ***C.Y. Lee,*** *Y.L. Cheng,* National Chi-Nan University, Taiwan

BP-ThP3
Nanolayer Ti-Al-O-N Hard Coatings for Corrosion Protection in Electrolytes Simulating Polycarbonate Melt Processing Conditions, *T. Brögelmann, K. Bobzin,* Surface Engineering Institute - RWTH Aachen University, Germany*; G. Grundmeier, T. de los Arcos,* Technical and Macromolecular Chemistry - University of Paderborn, Germany*; N.C. Kruppe,* Surface Engineering Institute - RWTH Aachen University, Germany*; S. Schwiderek,* Technical and Macromolecular Chemistry - University of Paderborn*;* ***M. Carlet,*** Surface Engineering Institute - RWTH Aachen University, Germany

BP-ThP4
Mechanical and Tribological Performance of V-C-N Coatings Deposited by RF Magnetron Sputtering, *L. Aissani,* Larbi Ben M'Hidi University, Algeria*;* ***A.A. Alhussein,*** University of Technology of Troyes (UTT), France*; C. Nouveau,* ENSAM Cluny, France

BP-ThP5
Correlation Between the Plasma Analysis and Properties of the Films of ZnO-Au Deposited by the Hybrid Technique Combining Pulsed Laser Ablation and Magnetron Sputtering, ***O. Depablos-Rivera,*** *R. Álvarez-Mendoza, M. Martínez-Fuentes, C. Sánchez-Aké,* Universidad Nacional Autónoma de México, México*; T. García-Fernández,* Universidad Autónoma de Ciudad de México, México, Mexico*; S. Muhl, M. Villagrán-Muniz,* Universidad Nacional Autónoma de México, México

BP-ThP6
Pulse Synchronized Substrate Bias for the HPPMS Deposition of (Cr,Al)N, *K. Bobzin, T. Brögelmann, N.C. Kruppe, M. Engels,* ***D.C. Hoffmann,*** *C. Schulze,* Surface Engineering Institute - RWTH Aachen University, Germany

BP-ThP7
Fracture-related Characteristics of TiN Films at Elevated Temperatures, ***J. Buchinger,*** TU Wien, Austria*; L. Löfler,* Montanuniversität Leoben, Austria*; J. Ast, J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; P.H. Mayrhofer,* TU Wien, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; M. Bartosik,* TU Wien, Austria

BP-ThP8
High Photoresponsivity Sensor with Stannic Oxide Thin Film Transistor based Architecture, ***Y.-C. Chiu,*** *P.-T. Liu, D.-B. Ruan, K.-J. Gan, C.-C. Hsu, S.M. Sze,* National Chiao Tung University, Taiwan

BP-ThP9
Incorporation Of Metallic Nanoparticles On Diamond-Like Carbon Films For Combustion Engine Components Using Dc Pulsed Pe-Cvd With Additional Cathode., ***M.A.R. Ramos,*** Universidade do Vale do Paraiba - UNIVAP- Brazil, Brasil*; F.O. Kolawole, L.B. Varela,* University of São Paulo, Brazil*; V.J. Trava-Airoldi,* National Institute for Space Research - INPE, Brazil*; A. Tschiptchin,* University of São Paulo, Brazil

BP-ThP10
e-Poster Presentation: Bipolar HiPIMS for Tailoring Ion Energies in Thin Film Deposition, ***D. Lundin,*** *R.P.B. Viloan,* Linköping University, Sweden*; M. Zanáška,* Linköping University*; H. Du,* Guizhou University, China*; R. Boyd,* Linköping University, Sweden*; T. Shimizu,* Tokyo Metropolitan University, Japan*; U. Helmersson,* Linköping University, Sweden

BP-ThP11
Influence of Deposition Parameters on the Corrosion Resistance and Wear Resistance of Iron-Based Coatings Produced with Electric Wire Arc Spraying Technique for Application in Shipbuilding Industry, ***F. Rojas,*** Universidad Libre, Colombia

BP-ThP12
In-situ Analysis of B-doped Diamond Synthesis using Hot Filament CVD, ***R. Tanaka,*** *M. Takuya,* Chiba Institute of Technology Graduate School, Japan*; Y. Sakamoto,* Chiba Institute of Technology, Japan

BP-ThP13
Relationship between Electrical Resistivity and Emission Species in Plasma during Boron Doped Diamond Synthesis, ***J. Adegawa,*** Chiba Institute of Technology, Japan*; A. Suzuki,* Chiba Institute of Technologyl, Japan*; Y. Sakamoto,* Chiba Institute of Technology, Japan

BP-ThP14
Development of a Multilayer Ti/TiN/TiAlN/ReN Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, ***H.D. Mejía Vásquez,*** *G. Bejarano Gaitan,* University of Antioquia, Medellín, Colombia*; M. Arroyave Franco,* University EAFIT, Colombia

BP-ThP15
Pulsed Laser Deposition of Nitride and Carbide Single- and Multi-Layered Coatings, ***J. Falko,*** *S. Weißmantel,* University of Applied Sciences Mittweida, Germany

BP-ThP16
Hybrid LACS Coatings: Industrial Use, ***M. Jilek,*** PLATIT a.s., Czech Republic; *A. Luemkemann,* PLATIT AG, Switzerland; *B. Torp,* PLATIT Inc., USA; *D. Bloesch,* PLATIT AG, Switzerland

BP-ThP17
Plasma Analyses and Microstructure Characterization of Multicomponent AlTi(X)N Series Coatings Synthesized by Cathodic Arc Evaporation, *Y.Y. Chang,* ***Y.C. Chao,*** National Formosa University, Taiwan

BP-ThP18
Carbon PVD Deposition with Doped Targets, ***C.. Kirchner,*** *M. Thomalla,* Vitesco Technologies, Germany; *P. Polcik,* Plansee Composite Materials GmbH, Germany

BP-ThP19
High-power Cathodic Arc Evaporation for High-rate Deposition of Hard Stress-free TiN Coatings, ***M. Zítek,*** *N. Jäger, M. Meindlhumer,* Montanuniversität Leoben, Austria; *H. Hrubý, F. Nahif,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany; *C. Mitterer, R. Daniel,* Montanuniversität Leoben, Austria

BP-ThP20
Fracture Mechanisms in Superlattices: A Case Study of TiN/TaN, ***N. Koutná,*** *J. Buchinger, H. Hazeu, M. Bartosik,* TU Wien, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *D.G. Sangiovanni,* Linköping University, Sweden; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

BP-ThP21
The State of Coating – Substrate Interfacial Region formed during the Coating Deposition by Gas Injection Magnetron Sputtering Technique, *R. Chodun,* Warsaw University of Technology, Poland; *K. Nowakowska-Langier,* National Centre for Nuclear Research, Poland; ***B. Wicher,*** Warsaw University of Technology, Poland; *S. Okrasa,* National Centre for Nuclear Research, Poland; *R. Minikayev,* Institute of Physics, Polish Academy of Sciences, Poland; *M. Dypa, K. Zdunek,* Warsaw University of Technology, Poland

BP-ThP22
Integral and Time-Resolved Ion Distribution Functions in a Reactive Ti-Al HiPIMS Discharge, ***L. Zauner,*** TU Wien, CDL-SEC, Austria; *T. Wojcik,* TU Wien, Institute of Materials Science and Technology, Austria; *T. Kozák, J. Čapek,* University of West Bohemia, Czech Republic; *H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvári,* Plansee Composite Materials GmbH, Germany; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria; *H. Riedl,* TU Wien, CDL-SEC, Austria

BP-ThP23
Increasing Oxidation Resistance of Reactive Magnetron Sputtered $(Al_vCr_wNb_xTa_yTi_z)N$ Thin Films by Si-alloying, ***A. Kretschmer,*** TU Wien, Institute of Materials Science and Technology, Austria; *K. Yalamanchili, H. Rudigier,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P.H. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

BP-ThP24
Phase Stability and Mechanical Properties of $(Re,Ti)B_2$ Thin Films, ***V. Moraes,*** *S. Maric, P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria

BP-ThP25
In Silico Nanoindentation of TiN/AlN Superlattices: A Molecular Dynamics Study, ***L. Löfler,*** Montanuniversität Leoben, Austria; *P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria; *M. Bartosik,* TU Wien, Austria; *D. Holec,* Montanuniversität Leoben, Austria

BP-ThP26
Influence of Intermetallic TiAlNbMoY Target Material on the Thermomechanical Properties and Oxidation Resistance of Ti-Al-N Films, ***S. Kagerer,*** TU Wien, Institute of Materials Science and Technology, Austria; *P. Polcik,* Plansee Composite Materials GmbH, Germany; *P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria

BP-ThP27
Radiation Stability of nc- ZrN/a-ZrCu Multilayered Films after He Implantation, ***G. Abadias,*** Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; *V. Uglov, S. Zlotski, I.A. Saladukhin,* Belarusian State University, Belarus

BP-ThP28
BCl_3 Gas Boriding and Simultaneous Precipitation Hardening of Nickel-Based Superalloy 718, ***A. Nienhaus,*** *P. Kaestner, J. Vogtmann,* IOT TU Braunschweig, Germany; *H. Paschke,* Fraunhofer Institute for Surface Engineering and Thin Films, Germany; *G. Braeuer,* IOT TU Braunschweig, Germany; *A. Hunger,* BorTec GmbH & Co. KG, Germany; *R. Berger,* BorTec GmbH & Co. KG; *M. Paulus, C. Sternemann,* Technical University Dortmund, Germany

BP-ThP29
A Continuum Mechanical Study Towards Understanding Fracture Resistance of Superlattice Thin Films, ***A. Wagner,*** TU Wien, Institute of Materials Science and Technology, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *P.H. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria; *M. Bartosik,* TU Wien, Austria

BP-ThP30
Mechanical Properties of Reactively Magnetron Sputtered Cr-rich Cr-Zr-O Thin Films, ***S. Spitz,*** *T. Haas,* Helmut Fischer GmbH, Institut für Elektronik und Messtechnik, Germany; *M. Stüber, S. Ulrich,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM-AWP), Germany

BP-ThP31
Study of the Plasma used to Deposit Ti and TiN Films by HIPIMS Technique, ***J.O. Berumen,*** Universidad de Guadalajara, México; *E.D. García,* Universidad de Guadalajara, Mexico, México, Mexico; *J. Pérez,* Universidad de Guadalajara, Mexico, México; *M. Flores,* Universidad de Guadalajara, México, Mexico

BP-ThP32
HIPIMS Plasma Diagnostic for TiAlN Films Growth: Ion Energy Distribution, Mass Spectrometry, and Optical Emission Spectroscopy, ***S. Gascón,*** *E.D. García, M.F. Flores, J. Perez, M. Flores,* Universidad de Guadalajara, Mexico

BP-ThP33
Properties of Hafnium Nitride Coatings Deposited by Direct Current, Mid-Frequency, and Inductively Coupled Plasma Assisted Magnetron Sputtering, ***S.-Y. Chun,*** Mokpo National University, South Korea

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

CP-ThP1
Preparation and Photocatalytic Properties of Heterostructured Ceria/Polyaniline Core-Shell Nanoparticles, ***C.-Y. Chen,*** *Y.-S. Li, G.-J. Lee, J.-J. Wu, Y.-C. Chang, C.-Y. Tsay, J.-H. Chen, T.-L. Horng,* Feng Chia University, Taiwan; *A. Fang,* Texas A&M University, USA

CP-ThP2
Investigation of Nanostructured Thin Films based on Water Soluble Precursors for Perovskite Solar Cells, ***G.M. Wu,*** Chang Gung University, Taiwan

CP-ThP4
Sonochemical Synthesis of $BiVO_4$ composite photocatalysts for Photocatalytic Degradation of Bisphenol A under Simulated Sunlight Irradiation, ***J.-H. Chen,*** *G.-J. Lee, H.-Y. Lee, J.-J. Wu,* Feng Chia University, Taiwan

CP-ThP6
Synthesis of Copper-doped CdS/COF Composite Photocatalysts for Efficient Visible Light Photocatalytic Production of Solar Fuels, *G.-J. Lee, H.-J. Yang,* ***J.-J. Wu,*** Feng Chia University, Taiwan

CP-ThP7
Characterization of Phosphor Layer for Perovskite Solar Cell with Enhanced Stability, *S.G. Shin, C.W. Bark,* ***H.W. Choi,*** Gachon University, Republic of Korea

CP-ThP8
An Algorithm for Fast Diagnostics of the Sensitivity of Localized Surface Plasmon Resonance Sensors Based on Thin Films, ***M.S. Rodrigues,*** *R.M.S. Pereira, M.I. Vasilevskiy, J. Borges, F. Vaz,* University of Minho, Portugal

CP-ThP9
Electron Fluence Dependency on Synthesis of Ru-rGO and its Specific Capacitance, *M. Iqbal,* Central University of Punjab, India; *A. Ambadas,* University of Pune, India; *N. Saykar,* Central University of Punjab, India; *I. Banerjee,* Central University of Gujarat, India; *V.N. Bhoraskar,* University of Pune, India; ***S.K. Mahapatra,*** Central University of Punjab, India

CP-ThP10
Atmospheric Plasma Oxidative Polymerization of Ethylene Dioxythiophene (EDOT) for the Large-Scale Preparation of Highly Transparent Conducting Thin Films, ***D. Abessolo Ondo,*** Luxembourg Institute of science and Technology, Luxembourg; *F. Loyer,* Luxembourg Institute of Science and Technology, Luxembourg; *J.B. CHEMIN, S. Bulou, P. Choquet,* Luxembourg Institute of science and Technology, Luxembourg; *N.D. Boscher,* Luxembourg Institute of Science and Technology, Luxembourg

CP-ThP11
A Comparative Microstructure and Wear Morphology Study of Various Uncoated Cermet Tools for the High-Speed Dry Turning of AISI 304, ***U. Patel***, *S. Rawal, A.F. Arif, S.C. Veldhuis,* McMaster University, Canada

CP-ThP12
Characterization of Flexible Transparent Electrodes Fabricated by Etching-Free Patterning of Silver Nanowire-Conductive Polymer Composites, ***T.G. Park***, *J.S. Park, J.S. Park,* Hanyang University, Republic of Korea

CP-ThP13
Mesh-like Patterning of Silver Nanowires through Selective Heat Treatment for Application to Flexible Transparent Electrodes, ***J.S. Park***, *T.G. Park, J.S. Park,* Hanyang University, Republic of Korea

CP-ThP14
Optical and Electrical Properties of ZnO/Ag/ZnO and AZO/Ag/AZO Multilayers Deposited on Flexible Substrate Using High Power Impulse Magnetron Sputtering, ***Y.H. Hsu***, *H.-W. Liu*, National Chung Hsing University, Taiwan; *W.-Y. Wu*, Da-Yeh University, Taiwan

CP-ThP15
In-situ Observation of Low Temperature Crystallization Process of Germanium Thin Film by Gold Induced Layer Exchange, ***N. Sunthornpan***, *K. Tauchi, N. Tezuka, K. Kyuno,* Shibaura Institute of Technology, Japan

CP-ThP16
Role of Rare Earth Metal Ions Substitution on Structural, Electrical, Magnetic and Dielectric Behavior of Magnetic Nanomaterials, ***S. Ikram***, GC University Faisalabad, Pakistan

Coatings for Biomedical and Healthcare Applications
Room Grand Hall & Foyer - Session DP-ThP
Coatings for Biomedical and Healthcare Applications (Symposium D) Poster Session
5:00pm

DP-ThP1
Analysis of NO Radicals Generation by Extended Atmospheric Pressure Plasma Jet through Machine Learning and its use in Bactericide, *J.H. Hsieh,* ***C.Y. Lee***, Ming Chi University of Technology, Taiwan

DP-ThP2
Characterization of Hierarchical TiO_2 Nanowires-Calcium Phosphate Composite for Biomedical Application, ***K.H. Park***, *H.J. Song, Y.J. Park,* Chonnam National University, Republic of Korea

DP-ThP3
Light-activated High Efficiency Antimicrobial Coatings, ***V. Bellido-Gonzalez***, *P. Killen, T. Sgrilli, D. Monaghan,* Gencoa Ltd, UK; *O. Hernandez-Rodriguez,* IK4-TEKNIKER, Spain

DP-ThP4
e-Poster Presentation: Metallization of Polymers for Medical Applications using HiPIMS, ***A.R. Chacko***, *K. Thorwarth, R. Crockett, U. Müller, H.J. Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

DP-ThP5
Preparation and Properties of Ag Doped DLC Coating for Total Hip Joint Replacement, ***J. Patel***, University of Saskatchewan, Canada

DP-ThP6
Superamphiphobic Stainless Steel Surface Prepared by Femtosecond Laser Patterning and Pulsed Plasma-Polymerization, *C.W. Lin,* Central Taiwan University of Science and Technology; Feng Chia University, Taiwan; *C.M. Chou,* Taichung Veterans General Hospital; National Yang-Ming Universit, Taiwan; ***C.J. Chung***, Central Taiwan University of Science and Technology, Taiwan; *J.L. He,* Feng Chia University, Taiwan

DP-ThP7
Low Temperature Plasma Oxidation Capability and Bactericidal Effectiveness of the Transparent Diffusive Coplanar Surface Barrier Discharge, ***S.W. Huang***, Ming Chi University of Technology, Taiwan; *C. Li,* National Yang Ming University, Taiwan; *J.H. Hsieh,* Ming Chi University of Technology, Taiwan

DP-ThP8
Improved Biocompatibility of Materials for Medical Applications via Coating Revealed by Studies of Nanoparticle-Cell Interactions, ***N.A. Abrikossova***, *G. Pozina,* Linköping University, IFM, Thin Film Physics Division, Sweden

DP-ThP9
Parameter Analysis of Flame Spraying Biomedical Ceramic Coatings, ***P.J. Lai***, National Taipei University of Technology, Taiwan

DP-ThP10
Multi-functional Ta-Ga-O Thin Films Prepared by Codeposition of Gallium Oxide and Tantalum, *J.H. Hsieh,* ***Y.H. Hsiao***, Ming Chi University of Technology, Taiwan

DP-ThP11
The Correlation and Machine Learning of O and OH Radical Generation with Process Parameters in an Atmospheric Pressure Plasma Jet and its Use in the Enhancement of Biocompatibility, *J.H. Hsieh,* ***Y.W. Liu***, Ming Chi University of Technology, Taiwan; *C. Li,* National Yang Ming University, Taiwan

DP-ThP12
Surface Modification of 3D Printed Polycaprolactone (PCL) Scaffold with Polydopamine Coating to Improve Bone Regeneration, ***P. Jisun***, *J. Taegon, J. Yonghoon,* Osong Medical Innovation Foundation, Republic of Korea

DP-ThP13
Micro- and Nanoscale Antibacterial Sacrificial Anode Structures, ***N. Ziegler***, Ruhr University Bochum, Germany; *A. Abuayyash, C. Sengstock, M. Köller,* Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil, Germany; *A. Ludwig,* Ruhr University Bochum, Germany

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

EP-ThP1
Effect of Molybdenum Disulfide nanoparticles addition on the Structure and Wear Resistance of Micro-arc Oxidation Self-lubricant Ceramic Layer on the 2A50 Aluminum Alloy, *X.-J. Li,* ***M. Zhang***, *S. Wen, X. Mao,* Liaoning Normal University, China; *Y. Guo,* Liaoning University of Science & Technology, China

EP-ThP2
e-Poster Presentation: Triboactive and Tribocatalytic Effects of Mo, W and Cu in (Cr,Al)N based PVD Coatings, *K. Bobzin, T. Brögelmann,* ***C. Kalscheuer***, *M. Welters,* Surface Engineering Institute - RWTH Aachen University, Germany

EP-ThP3
Influence of Gaseous Environment on the Tribological Behavior of TMD-based MS Coatings, ***A. Bondarev***, *T. Polcar,* Czech Technical University in Prague, Czech Republic

EP-ThP4
Tribological Behavior of DLC Films with Niobium Nanolayers of Several Thicknesses, ***A.S. Adeniyi***, *J. Corona, J. Patel, Q. Yang,* University of Saskatchewan, Canada

EP-ThP5
Preparation and Tribological Research of the Electrodeposited Ni–W Coatings for Piston Ring Application, ***P.C. Huang***, *C.C. Chou,* National Defense University, Taoyuan, Taiwan; *H.C. Wang,* National Chung-Shan Institute of Science & Technology, Taoyuan, Taiwan

EP-ThP6
Research on Thermal Lying Cu-Ni-Ti Three-element Alloy Coating, ***P.-C. Jhan***, National Taipei University of Technology, Taipei Tech, Taiwan

EP-ThP7
Crack Behaviors and Optimization of Residual Stresses in L aser Cladding Based on HVOF Sprayed WC-Co C lad s, *M.D. Jean,* ***C.W. Liu***, Fujian University of Technology, China

EP-ThP8
The Effect of Interlayer on the Mechanical and Tribological Properties of TiSiN/CrAlN Multilayered Coatings Deposited by Cathodic Arc Deposition, ***W.Y. Ho***, MingDao University, Taiwan; *J. Hung, L.C. Hsu,* Aurora Scientific Corp., Canada; *D.Y. Wang,* MingDao University, Taiwan

EP-ThP9
Fabrication and Characteristics of La-doped CoCrFeMnNi High-Entropy Alloy Films, ***C.L. Li***, National Taiwan University of Science and Technology, Taiwan

EP-ThP10
Influence of Nitrogen Flow Variation on The Structural, Mechanical and Tribological Properties of TiAlVN Coatings Deposited By DC Magnetron Sputtering, ***F. Giraldo***, *G. Bejarano,* Universidad de Antioquia, Colombia

EP-ThP11
Novel Spatially Coordinated In-situ Raman and Nanoscale Wear Analysis of DLC Film, *M. Rouhani,* ***Y.R. Jeng,*** National Chung Cheng University, Taiwan

EP-ThP12
Solid Lubricant Coatings Based on WS_2 Inorganic Fullerene, ***S. Barseghyan,*** Genio Inc., USA; *G. Diloyan,* NIS Inc., USA

EP-ThP13
Effects of Sputtering Gas Systems on the Preparation of a-BN Films using RF Sputtering, ***Y. Yamada,*** *T. Markuko,* Chiba Institute of Technology Graduate School, Japan; *M. Imamiya,* Hana Saidan, Japan; *Y. Sakamoto,* Chiba Institute of Technology, Japan

EP-ThP15
Development of Hydroxyapatite (HA) - Si Multi-layer Coatings Deposited on Ti-6Al-4V by Magnetron Sputtering, ***J.A. Lenis,*** *K. Pérez, F.J. Bolívar,* University of Antioquia, Medellín, Colombia

EP-ThP16
Corrosion Resistance of Plasma Nitrided 410S Ferritic-Martensitic Stainless Steels, ***L. B. Varela,*** University of São Paulo, Brasil; *M.T. Umemura, J.C. Calderón-Hernández,* University of São Paulo; *C.E. Pinedo,* Heat Tech Technology for Heat Treatment and Surface Engineering Ltd,; *A.P. Tschiptschin,* University of São Paulo

EP-ThP17
Mechanical Behavior of Boriding Microalloyed Steels Immersed in Diesel, ***N. Lopez Perrrusquia,*** Universidad Politécnica del Valle de México, México; *M.A. Donu-Ruiz,* Universidad Politécnica del Valle de Mexico, México; *E.D. Garcia Bustos,* Universidad de Guadalajara, Mexico; *C.R. Torres San Miguel,* Instituto Politécnico Nacional - ESIME, Mexico; *G.J. Perez Mendoza,* Universidad Politecnica del Valle de Mexico, México; *J.V. Cortes Suarez,* Universidad Autonoma Metropolitana Azcapotzalco, Mexico, México

EP-ThP18
Substrate Influence on the Adhesion of Metallic Films, ***M.J. Cordill,*** Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria; *P. Kreiml,* Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria

EP-ThP19
Tribocorrosion Behavior of Boride Coating on Cocrmo Alloy Produced by Thermochemical Process in 0.35% NaCl Solution, *A. Rentería,* Universidad de Guadalajara, México; ***M.A. Doñu-Ruiz,*** Universidad Politecnica del Valle de Mexico, México; *M. Flores-Martinez,* Universidad de Guadalajara, México; *S. Muhl,* Universidad Nacional Autónoma de México, México; *N. Lopez-Perrusquia,* Universidad Politecnica del Valle de México, México; *E.D. García,* CONACYT - Universidad de Guadalajara, México, Mexico

EP-ThP20
Microstructure and Tribology Behaviors of Composite Coatings on TC4 Titanium Alloy by Laser Cladded Combined with Plasma Cladding Technology, ***W. Su,*** *X.F. Cui, Y. Guan, Y. Zhao, G. Jin,* Harbin Engineering University, China

EP-ThP22
About the Impossibility of a Mathematical Relationship between Hardness Values Measured by Vickers and Instrumented Nanoindentation Techniques, ***E. Broitman,*** SKF Research & Technology Development Center, Netherlands

EP-ThP23
Novel Micromechanical Approaches to Understand the Influence of Hydrogen on Materials Behavior, ***M.J. Duarte Correa,*** *J. Rao,* Max-Planck-Institut für Eisenforschung GmbH, Germany; *X. Fang,* Technische Universität Darmstadt, Germany; *G. Dehm,* Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany

EP-ThP24
Tribological Properties of Sputter-deposited Mo Films on Polyimide, *E. Kobierska, S. Hirn,* Montanuniversität Leoben, Austria; *M.J. Cordill,* Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria; ***R. Franz,*** *M. Rebelo de Figueiredo,* Montanuniversität Leoben, Austria

EP-ThP25
Simulation of Adhesion between MoS_2 coated Si Scanning Probes, ***S.R. Toom,*** North Carolina Agricultural and Technical State University, USA

EP-ThP26
High-temperature Tribological Characteristics of Self-lubricated Solid Lubricants, *R.K. Gunda,* Mahatma Gandhi Institute of Technology, India; ***S.K.R. Narala,*** BITS Pilani Hyderabad Campus, India

EP-ThP27
Tribological Behavior of ZrC-Zr Coatings Deposited on Ti6Al4V and CoCrMo Alloys by HiPIMS, ***L. Flores-Cova,*** *O. Jiménez, M. Flores, M. Flores-Jiménez,* Universidad de Guadalajara, Mexico

EP-ThP28
High Temperature Tribological Properties of WC-Co-(Cr_3C<>SUB>2-NiCr) HVOF Coatings, ***N. Settar,*** *N. Bacha,* Saad Dahleb University, Blida, Algeria

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

FP-ThP1
High Efficient Water Splitting Cell having High-entropy Oxide Catalysts, ***Z.T. Huang,*** *J.-M. Ting,* National Cheng Kung University, Taiwan

FP-ThP2
Characterization of Fe-Cr-Ni Alloy Thin Film Sputter Deposited from SUS316 Target, ***P.M. Yiu,*** *S.T. Wang, J.D. You, J.P. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan

FP-ThP3
High-Entropy Perovskite Oxides as Advanced Catalysis, ***Y.-C. Liao,*** *J.-M. Ting,* National Cheng Kung University, Taiwan

FP-ThP5
Hybrid Structures of p-n junction for Improving Efficiency of Photovoltaic Devices, ***P. Jarka,*** Silesian University of Technology, Poland; *T. Tański, W. Matysiak,* Silesian University of Technology, Poland, Polska; *B. Hajduk,* Polish Academy of Sciences, Poland

FP-ThP6
The Electrospun 2D Nanomaterials And Their Application Possibilities, ***W. Matysiak,*** Silesian University of Technology, Poland, Polska

FP-ThP7
Comparison of Optical Properties of Bi_2O_3 Solid Layer and Thin Fibrous Mats Obtained via Spin-Coating and Electrospinning Techniques, *W. Matysiak,* ***T. Tański,*** Silesian University of Technology, Polska

FP-ThP8
Structure and Mechanical Properties of ZrB_{2+x} and $ZrAlB_{2+x}$ Hard Coatings, ***T. Fiantok,*** *T. Roch, M. Truchlý,* Comenius University in Bratislava, Slovakia; *P. Švec,* Slovak Academy of Sciences, Slovakia; *M. Zahoran, M. Mikula,* Comenius University in Bratislava, Slovakia

FP-ThP9
Structural and Photoluminescence Properties of ZnO Nanorods Grown on Various TCO Seed Layers by Chemical Bath Deposition, ***T. Terasako,*** *K. Hamamoto,* Ehime University, Japan; *M. Yagi,* National Institute of Technology (KOSEN), Kagawa College, Japan; *Y. Furubayashi, T. Yamamoto,* Research Institute, Kochi University of Technology, Japan

FP-ThP10
Characterization and Photoluminescence of Al- and Ga-doped V_2O_5 Nanostructures Synthesized by Thermally Activated Process, ***C.C. Wang,*** National Chung Hsing University, Taiwan; *C.L. Lu,* Chinese Culture University, Taiwan; *F.S. Shieu,* National Chung Hsing University, Taiwan; *H.C. Shih,* Chinese Culture University, Taiwan

FP-ThP11
Microstructure and Physical Properties of $AlCoCrCu_{0.5}FeNi$ High Entropy Alloy Nitride Thin Films Grown by Reactive Magnetron Sputtering, ***N. Aziz Khan,*** *B. Akhavan, M.M. Bilek, Z. Liu,* The University of Sydney, Australia

FP-ThP12
Effect of Process Pressure on Structure and Mechanical Properties of Amorphous (AlCoCrNi)N High Entropy Nitride Thin Films, ***K.B. Kim,*** *Y.S. Kim,* Sejong University, Republic of Korea; *Y.K. Park,* YG-1 Co. Ltd., Republic of Korea; *K.S. Kim,* YG-1 Co. Ltd, Republic of Korea

FP-ThP13
Fracture Resistance Characterized by Bonding Nature Via Ab Initio Calculations, ***C. Fuger,*** TU Wien, CDL-SEC, Austria; *D. Holec,* Montanuniversität Leoben, Austria; *H. Bolvardi,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P. Polcik,* Plansee Composite Materials GmbH, Germany; *H. Riedl,* TU Wien, CDL-SEC, Austria

FP-ThP14
Combinatorial Sputtering Exploration of Zn-Sn-O (ZTO) Composition Spreads, ***S.Y. Li,*** *Y.H. Shen,* National Cheng Kung University, Taiwan; *K.-S. Chang, J.-M. Ting,* National Cheng Kung University (NCKU), Taiwan

FP-ThP15
Electrical and Mechanical Properties of NbMoTaW(Re) High Entropy Alloy Thin Films, ***C.F. Shih***, *C.H. Yeh, W.D. Hsu,* National Cheng Kung University, Taiwan*; C.H. Hsu,* National United University, Taiwan*; B.H. Liu, S.K. Lin, Y.W. Hsiao,* National Cheng Kung University, Taiwan

FP-ThP16
Fabrication of Nanocomposite Thin Films of Metallic Nano Particles in Amorphous Carbon, ***S. Muhl***, *F. Maya,* Universidad Nacional Autónoma de México, México*; S.E. Rodil,* Universidad Nacional Autónoma de México, México, México*; R.M. Calderon,* Universidad Nacional Autónoma de México, México*; A. Perez,* Unidad de Investigación y Desarrollo Tecnológico (UIDT-CCADET), Hospital General de México, México

FP-ThP17
Thermal Conductance at Nanoscale Amorphous Boron Nitride/Metal Interfaces, *N.R. Glavin, A. Waite,* Air Force Research Laboratory, USA*;* ***C. Muratore****,* University of Dayton and Air Force Research Laboratory, USA*; J.E. Bultman, J. Hu,* University of Dayton Research Laboratory, USA*; A.A. Voevodin,* University of North Texas, USA*; T.S. Fisher,* UCLA, USA

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

GP-ThP1
Ultra-Low Temperature CVD Tungsten Carbide Coating to Replace Hard Chrome Plating on Aerospace Components made of Temperature-sensitive Grades of Steel, ***Y. Zhuk***, Hardide Plc, UK

GP-ThP2
On the Oxygen Radical Production in a Remote Inductively Coupled Plasma Source, ***Y. Seol***, *H.Y. Chang,* Korea Advanced Institute of Science and Technology, Republic of Korea

GP-ThP3
Synthesis of Large Area ta-C Coating by Single-bend FCVA Source using in-line PVD System, ***H.K. Kim***, *K.T. Lee,* Korea Aerospace University, Republic of Korea*; J.W. Kim,* Incheon National University, Republic of Korea*; S.M. Kim,* Hyundai Steel, Republic of Korea*; S.Y. Lee,* Korea Aerospace University, Republic of Korea

GP-ThP4
Development, Testing and Production of Coatings on Bipolar Plates in Polymer Electrolyte Fuel Cells, ***P. Jaschinski***, KCS Europe GmbH, Germany*; V. Lukassek, J. Wartmann, A. Heinzel,* ZBT Gmbh The Hydrogen and Fuel Cell Center, Germany*; R. Cremer,* KCS Europe GmbH, Germany

GP-ThP5
Enhanced Plasma Nitriding by Elastic Shot Blasting Pretreatment, ***Y. Handa***, *P. Abraha,* Meijo University, Japan

GP-ThP6
Characterization of Tungsten-doped InZnO Thin Films with Plasma Treatment for Conductive-bridge RAM Applications, ***C.-C. Hsu***, *P.-T. Liu, K.-J. Gan, Y.-C. Chiu, D.-B. Ruan, S.M. Sze,* National Chiao Tung University, Taiwan

GP-ThP7
Anodic Vacuum Arc Deposited Nanostructured NiTi Coating for Hydrogen Storage, ***I. Banerjee***, Central University of Gujarat, India*; A. Pathak,* Birtla Institute of Technology, India*; S. Rai,* Birla Institute of Technology, India*; S.K. Mahapatra,* Central University of Punjab, India

GP-ThP9
Thin Films for Protection of Integrated Sensor Systems on Tribological Loaded Surfaces, ***A.S. Dorner-Reisel***, Schmalkalden University of Applied Sciences, Germany*; W.A. Ahmad Akhtar, J. Seeger, G. Reisel,* Oerlikon Metco WOKA GmbH Barchfeld, Germany

GP-ThP10
Influence of Synchronized Pulsed Substrate Bias on the Deposition of Ti and TiN Films Using High Power Impulse Magnetron Sputtering Technique, ***Y.X. Lin***, *P.Y. Liu, W.Y. Wu,* Da-Yeh University, Taiwan

GP-ThP11
Microstructure and Mechanical Properties of M4/D2 Hard-Faced-Surface by Direct Energy Deposition, ***JB Jeon***, *GW Park, SM Shin, WJ Lee,* Korea Institute of Industrial Technology (KITECH),Republic of Korea

GP-ThP12
Effect of Cu Content and Melting Temperature on the Oxide Film Formation and the Quality of Molten 6000-Series Aluminum Alloys, *H. Jang, P. Youn, H. Kang, G. Lee, J. Park, E. Kim, J. Jeon,* ***S. Shin***, Korea Institute of Industrial Technology (KITECH), Republic of Korea

GP-ThP13
Performance Enhancement of pGe MOS device with Pre- and Post-Deposition Microwave Annealing Treatment, ***Y. -H. Chien***, National Tsing Hua University, Taiwan*; K.-S. Chang-Liao, D.-B. Ruan, S.-H. Yi,* National Tsing Hua University*; F.-Y. Chu,* National Tsing Hua University, Taiwan

GP-ThP14
The Radiation Effect on FinFET Device with Double Pattern Lithography Process, ***F.-Y. Chu***, *K.- S. Chang-Liao, D.-B. Ruan, Z.- Q. Hong, S.- H. Hsu, Y. -H. Chien,* National Tsing Hua University, Taiwan

GP-ThP15
TiO_2–Silicon Nanowire Arrays for Inorganic Solar Cell Applications, ***A.H. Chiou***, National Formosa University, Taiwan

GP-ThP16
Design of Surface Layers with Phase Change with Novel Properties, ***R Basu***, VTU Kundana, Bangalore, India

GP-ThP17
Ni-Al_2O_3 Composite Coating for Reduction of Wear and Particle Emission of a Brake System, ***R. Cai***, *C. Zhao, J. Sun, X.Y. Nie,* University of Windsor, Canada*; J. Tjong,* Ford Motor of Canada, Canada*; J. Zhang,* University of Windsor, Canada

GP-ThP18
Fabrication of Infrared Cut Off Filter with Wire Grid Polarizers, ***W. Kim***, *J. Kim, M. Kim, H. Lee,* Optrontec, Republic of Korea*; SJ. Lee,* Pavonine Korea, INC., Republic of Korea*; J. Kim,* Optrontec, Republic of Korea

GP-ThP19
Corrosion Induced Diffusion Pathways in Thin Film Materials Investigated by Atom Probe Tomography, *O. Hudak,* CDL-SEC, TU Wien, Austria*; E. Aschauer,* TU Wien, CDL-SEC, Austria*; V. Dalbauer,* FAU Erlangen, Germany*; H. Bolvardi, M. Arndt,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; P. Polcik,* Plansee Composite Materials GmbH, Germany*; P. Felfer,* FAU Erlangen, Germany*;* ***H. Riedl***, TU Wien, CDL-SEC, Austria

GP-ThP20
Flexible Hard TiAlN Thin Films on Si (100) Substrate Deposited by Deep Oscillation Magnetron Sputtering, *Z.T. Jiang, Y.G. Li, H. Chen,* ***M.K. Lei***, Dalian University of Technology, China

GP-ThP21
Investigating the Water Oxidation Tendency on Metallic Oxide Doped Anodized Film Produced on SLM Ti6Al4V, ***H.M. Hamza***, Central Michigan University, USA*; K. Mairaj Deen,* University of British Columbia, Canada*; W. Haider,* Central Michigan University, USA

GP-ThP22
Improving AlTiN Coatings by Multi-layering with ZrN/ZrON, *J. Kohlscheen,* Kennametal GmbH, Germany*; B. Macshane, D. Banerjee,* ***Z.Y. Liu***, Kennametal Inc., USA

GP-ThP23
PALMS - Plasma Additive Layer Manufacture Smoothing, ***T. Brzezinka***, Wallwork Cambridge Limited, UK*; A. Fox,* Wallwork Cambridge Ltd., UK*; J. Housden,* Wallwork Cambridge Ltd, UK*; N. Laugel, A. Yerokhin, A. Matthews,* The University of Manchester, UK

Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes
Room Grand Hall & Foyer - Session HP-ThP
Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes (Symposium H) Poster Session
5:00pm

HP-ThP1
ZnO Thin Films Growth at Low Temperature by PE-ALD using O_2 and H_2O Plasma, *J.R. Castillo, B. Valdez,* Universidad Autónoma de Baja California, Mexico*; E. Martinez,* CIMAV Centro de Materiales Avanzados Unidad Monterrey, Mexico*;* ***D. Mateos***, *M. Curiel,* Universidad Autónoma de Baja California, Mexico*; M. Martinez, I. Mendivil,* CIMAV Centro de Materiales Avanzados Unidad Monterrey, Mexico*; N. Nedev,* Universidad Autónoma de Baja California, Mexico

HP-ThP2
Optimization of Grain Growth for High performance Planar p-i-n Perovskite Solar Cell, ***W.C. Lee***, *B. Hong,* Sungkyunkwan University, Republic of Korea

HP-ThP3
e-Poster Presentation: Nanoindentation Analysis as a Two-Dimensional Tool for Mapping the Mechanical Properties of Complex Microstructures, ***N Randall,*** *JM Breguet,* Alemnis, Switzerland

HP-ThP4
Characterization of Flexible Transparent Electrodes Fabricated via Etching-free Patterning of Silver Nanowire-conductive Polymer Composites, ***T.G Park,*** Hanyang University, Republic of Korea

HP-ThP5
Electric Field Strength-Dependent Accuracy of TiAlN Thin Film Composition Measurements by Laser-Assisted Atom Probe Tomography, ***M. Hans,*** *J.M. Schneider,* RWTH Aachen University, Germany

HP-ThP6
Integrated Atom Probe/tEBSD for Grain and Phase Boundary Analysis of Coatings and Thin Films, ***R. Ulfig,*** *Y. Chen, K. Rice, T. Prosa,* CAMECA Instruments Inc., USA

HP-ThP7
Capacitance Transient Analysis of Oxide Semiconductor Films, ***P.H. Choi,*** Sungkyunkwan University, Republic of Korea

HP-ThP8
Microstructural Influences on the Fracture Properties of CrN Coatings, ***R. Hahn,*** *S. Rosenecker,* CDL-SEC, TU Wien, Austria; *T. Wojcik,* TU Wien, Institute of Materials Science and Technology, Austria; *O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvári,* Plansee Composite Materials GmbH, Germany; *H. Riedl,* TU Wien, CDL-SEC, Austria

HP-ThP9
Nanomechanical Characterization of Thin-Layered Battery Materials, ***J. Lee,*** *D. Stauffer,* Bruker Nano Surfaces, USA

HP-ThP10
Nanoscale Analysis of Changes in Grain Structure of Titanium Subjected to Failure, ***O. Nafday,*** Anton Paar, USA, United States of America; *G. Paroline,* Anton Paar, USA

Topical Symposia
Room Grand Hall & Foyer - Session TSP-ThP
Topical Symposia (TS) Poster Session
5:00pm

TSP-ThP1
Fragmentation of Atomic Layer Deposited Oxide Thin Films and Nanolaminates under Uniaxial Tension, *M. Ruoho, J.-P. Niemelä,* ***B. Putz,*** *N. Tarasiuk, G. Robertson,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *A.A. Taylor,* University of California Santa Barbara, USA; *X. Maeder,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *C. Kapusta,* AGH University of Science and Technology Krakow, Poland; *J. Michler, I. Utke,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

TSP-ThP2
Highly Efficient Hydrogen Evolution of Copper-Doped MoS_2/MOF Composite Photocatalysts via Fabricating the 2D Periodic Structure, ***T.-L. Horng,*** *G.-J. Lee, H.-T. Huang, J.-J. Wu,* Feng Chia University, Taiwan

TSP-ThP3
Stability of Mechanical Properties of Molecular Layer-deposited Alucone, *M. Ruoho, N. Tarasiuk, N. Rohbeck, J.-P. Niemelä,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *C. Kapusta,* AGH University of Science and Technology Krakow, Poland; *J. Michler,* ***I. Utke,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

TSP-ThP4
Mechanical Properties of High Entropy Alloys (HEA) Thin Films on Flexible Substrate: Study of CoCrCuFeNi System, *C-H Li, F Sedghgooya,* LSPM-CNRS, Université Paris13, France; *R Dedoncker,* Ghent University, Belgium; *F Zighem,* LSPM-CNRS, Université Paris13; *D Depla,* Ghent University, Belgium; *P Djemia,* ***D Faurie,*** LSPM-CNRS, Université Paris13, France

TSP-ThP5
Transparent nc-ZrB_2/a-BN Films for Protection of Optical Devices, ***P.V. Kiryukhantsev-Korneev,*** *A.P. Kozlova, K.S. Kozlova, E. Levashov,* National University of Science and Technology "MISiS", Russia

Friday Morning, May 1, 2020

	Hard Coatings and Vapor Deposition Technologies **Room Golden West - Session B1-3-FrM** **PVD Coatings and Technologies III** **Moderators: Frank Kaulfuss**, Fraunhofer IWS, Germany, **Qi Yang**, National Research Council of Canada, Canada	**Hard Coatings and Vapor Deposition Technologies** **Room California - Session B4-4-FrM** **Properties and Characterization of Hard Coatings and Surfaces IV** **Moderators: Naureen Ghafoor**, Thin Film Physics Division, IFM, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
8:00am	**B1-3-FrM1** Plasma-assisted Deposition of TCO Fhin Films by Sublimation in an Anodic Vacuum Arc Discharge, ***B. Scheffel,*** *O. Zywitzki, T. Preußner, T. Modes,* Fraunhofer FEP, Germany	**B4-4-FrM1** The Structure and Properties of $V_{1-x}Mo_xN$ Thin Films Deposited by HiPIMS, ***Y.Q. Feng,*** *J.-H. Huang,* National Tsing Hua University, Taiwan
8:20am	**B1-3-FrM2** Effect of Spatial Distribution of Chemical Species on Nitride Hard Coating Structure in Cathodic Arc PVD Method, ***S. Sato,*** *K. Yamaguchi, M. Takahashi,* Mitsubishi Materials Corporation, Japan	**B4-4-FrM2** Study of Synergic Effects of Laser Ablation and Coating on Cemented Carbides: Surface and Mechanical Integrity Assessment, ***S. Fang,*** *D. Bähre,* Saarland University, Germany; *N. Salan, L. Llanes,* Universitat Politècnica de Catalunya, Spain
8:40am	**INVITED: B1-3-FrM3** Industrial Scale ta-C Coating Using Laser Arc Technology, ***W. Fukarek,*** *B. Gebhardt,* VTD Vakuumtechnik Dresden GmbH, Germany; *V. Weihnacht, F. Kaulfuss,* Fraunhofer IWS, Germany	**B4-4-FrM3** Fatigue Behaviour of Thin Coating and the Influences of Plastic Deformation of Harden-case using Irreversible Cohesive Zone Model, ***J. Feng,*** Manchester Metropolitan University, UK; *Y. Qin,* University of Strathclyde, UK; *T.W. Liskiewicz,* Manchester Metropolitan University, UK; *B.D. Beake,* Micro Materials Ltd, UK
9:00am	Invited talk continues.	**B4-4-FrM4** Behavior of Helium and Hydrogen on the Microstructure Evolution of He/H irradiated 6H-SiC: A Aomparison, ***B. Li,*** State Key Laboratory for Environment-friendly Energy Materials, Southwest University of Science and Technology, Mianyang, Sichuan 621010, China; *N.I. Daghbouj,* Czech Technical University in Prague, Czech Republic; *M. Callisti,* University of Cambridge, UK
9:20am	**B1-3-FrM5** New Details about Surface Modification on Multi-element Arc Cathodes Revealed by Dedicated Cathode Design, ***M. Golizadeh Najafabadi,*** *F. Mendez Martin,* Montanuniversität Leoben, Austria; *S. Kolozsvári,* Plansee Composite Materials GmbH, Germany; *R. Franz,* Montanuniversität Leoben, Austria	**B4-4-FrM5** Microstructure and Oxidation Behaviour of Arc Evaporated TiSiN Coatings Investigated by *in-situ* Synchrotron X-ray Diffraction, ***Y. Moritz,*** *C. Saringer, M. Tkadletz,* Montanuniversität Leoben, Austria; *A. Stark, N. Schell,* Helmholtz-Zentrum Geesthacht, Germany; *M. Pohler,* CERATIZIT Austria GmbH, Austria; *N. Schalk,* Montanuniversität Leoben, Austria
9:40am	**B1-3-FrM6** Utilization of Hybrid LACS® Technology (Lateral ARC and Central Sputtering) for the Enhancing of the DC Magnetron Sputtering Deposition, ***A. Lümkemann,*** *R. Zemlicka,* PLATIT AG, Switzerland; *M. Jilek, J. Kluson,* PLATIT a.s., Czech Republic; *B. Torp,* PLATIT Inc., USA, Denmark; *D. Blösch,* PLATIT AG, Switzerland	**B4-4-FrM6** Surface Properties of Titanium Alloy Treated with Gas Blow IH Nitriding and its Effects on Fatigue Strength, ***S. Huang,*** *M. Hayama,* Keio University, Japan; *S. Takesue,* Kyoto Institute of Technology, Japan; *J. Komotori,* Keio University, Japan
10:00am	**B1-3-FrM7** Designing A Versatile Vacuum System For Thin Film Research And Development, ***A. Guastavino,*** AGS Plasma Systems, USA	**B4-4-FrM7** Corrosion Resistance of Cobalt Boride Layer Exposed to a Diffusion Annealing Process, ***A.M. Delgado-Brito,*** Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México; *I. Mejía-Caballero,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *G.A. Rodríguez-Flores,* Universidad Autónoma Metropolitana- Azcapotzalco, México; *A. Ruíz-Ríos, E.J. Hernández-Ramírez, A.D. Contla-Pacheco,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México; *I.E. Campos-Silva,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México, Mexico
10:20am	**B1-3-FrM8** Zn Interlayer Design to Improve the Adhesion Strength of PVD Zn-Mg/Zn Coating on High-strength Steel, ***S.H. Lee,*** *S.Y. Lee, H.K. Kim,* Korea Aerospace University, Republic of Korea; *J.W. Kim,* Incheon National University, Republic of Korea	**B4-4-FrM8** Finite Element Modeling of Powder-Pack Boriding Thermochemical Treatment, ***O. Reyes-Carcaño,*** Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *A. Meneses-Amador,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico, México; *I.E. Campos-Silva,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico; *G.A. Rodríguez-Castro, R.C. Vega-Morón,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico, México; *D. Fernández-Valdés,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, Mexico
10:40am	**B1-3-FrM9** Characterization and Erosion Resistance Evaluation of TiAlN Thick Film by Cathodic Arc Deposition, *D.Y. Wang,* MingDao University, Taiwan; ***L.C. Hsu,*** *J. Hung,* Aurora Scientific Corp., Canada	**INVITED: B4-4-FrM9** Metal Oxynitride Thin Films: A Review on Synthesis Developments, Performance, and Applications, ***S. Ali,*** Linnaeus University, Sweden
11:00am		Invited talk continues.
11:20am		
11:40am		

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room San Diego - Session E3-FrM** **Tribology of Coatings for Automotive and Aerospace Applications** **Moderators: Carsten Gachot**, TU Wien, Institute for Engineering Design and Logistics Engineering, Austria, **Christian Greiner**, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany, **Oliver Hunold**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific Salon 2 - Session G1-FrM** **Advances in Industrial PVD, CVD and PCVD Processes and Equipment** **Moderators: Ladislav Bárdos**, Uppsala University, Sweden, **Vikram Bedekar**, The Timken Company, USA
8:00am	**E3-FrM1** Determination of Method for Tribological Experiment on Ultra-Hard Coatings in Low-Viscosity Fuels, ***K. Jacques,*** University of North Texas, USA, United States of America*; S. Berkebile, N. Murthy, J.E. Mogonye,* Army Research Laboratories, USA*; S. Dixit,* Plasma Technology Inc., USA*; D. Berman, T. Scharf,* University of North Texas, USA	**INVITED: G1-FrM1** New Developments in Magnetron Sputtering Devices*, D. Monaghan,* ***V. Bellido-Gonzalez,*** *T. Sgrilli, R. Brown, J. Brindley, B. Daniel,* Gencoa Ltd, UK
8:20am	**E3-FrM2** Tribology and Corrosion Behavior of Ni-Al_2O_3 Composite Coating on Cast Iron, ***J. Sun,*** *C. Zhao, R. Cai, X.Y. Nie,* University of Windsor, Canada	Invited talk continues.
8:40am	**E3-FrM3** Abrasion Protection by Magnetron Sputtered Coatings of Epoxy Based Composites Exposed to Harsh Environmental Conditions, ***D.M. Mihut****, A. Afshar, S. Hill, N. Cordista, G. Baker,* Mercer University, USA	**G1-FrM3** HIPIMS –Ready on Industrial Scale for Modern Production, ***P. Immich****, G. Negrea, D. Doerwald, R. Jacobs, M. Eerden, R. Ganesan, L. Tegelaers,* IHI Hauzer Techno Coating B.V., Netherlands
9:00am	**E3-FrM4** Effect of HiPIMS Deposition on the High Temperature Tribomechanical Properties of Silicon Containing Diamond-like Carbon Films, ***B.J. Rodriguez,*** University of Warwick, UK*; J.A. Santiago, I. Fernández-Martínez,* Nano4Energy SL, Spain*; P. Navabpour, H. Sun,* Teer Coatings Ltd, UK*; T. Schiller,* University of Warwick, UK	
9:20am	**E3-FrM5** Self-lubricating Triboactive (Cr,Al)N+Mo:S Coatings for Fluid-free Applications, ***M. Thiex****, K. Bobzin, T. Brögelmann, C. Karlscheuer,* Surface Engineering Institute - RWTH Aachen University, Germany	**INVITED: G1-FrM5** DLC Coatings for the Automotive Industry, ***R. Ahuja,*** HEF US, USA
9:40am	**E3-FrM6** Coating Properties and Wear Resistance of ta-C Deposited by Arc Ion Plating (AIP) Technique, ***Y. Isomura****, T. Takahashi, J. Fujita,* Kobe Steel, Ltd., Japan*; S. Kujime,* Kobe Steel Ltd., Japan	Invited talk continues.
10:00am	**INVITED: E3-FrM7** Tribological Mechanisms Leading to Moving Cracks and to Co-emission from Hip Implants, ***M. Herbig,*** Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany	**INVITED: G1-FrM7** Deposition of Functional Nano-Coatings Using Atmospheric Pressure Plasmas, ***D. Pappas,*** Plasmatreat USA, USA*; N. Eternal, R. Gonzalesz,* Plasmatreat USA
10:20am	Invited talk continues.	Invited talk continues.
10:40am	**E3-FrM9** Thermal Stability of Hydrogenated DLC Coatings on Tappet Valve Substrate, ***F.O. Kolawole,*** University of Sao Paulo, Brazil*; L.B. Varela,* University of São Paulo, Brazil*; S. Kolawole,* National Agency for Science and Engineering Infrastructure, Abuja, Nigeria*; M. Ramirez,* University of Vale do Paraiba, Brazil*; A.P. Tschiptschin,* University of São Paulo, Brazil	**G1-FrM9** Hysteresis Effect in the Magnetron with Magnetized Hollow Cathode Enhanced Target, ***H. Barankova****, L. Bardos,* Uppsala University, Angstrom Laboratory, Sweden
11:00am	**E3-FrM10** Duplex TiN and TiAlN Coatings on Ti-6Al-4V Alloy Formed by a Combination of Plasma Nitriding and Cathodic Arc Evaporation, *V Pankov,* ***Q. Yang,*** National Research Council of Canada, Canada	
11:20am	**E3-FrM11** Effect of Ceramic Hollow Spheres on Corrosion and Tribological Properties of Magnesium Syntactic Foams, *S.S. Kartheek, S.K.R. Narala,* BITS Pilani Hyderabad Campus, India*;* ***S. Kumar,*** BITS Pilani Dubai Campus, United Arab Emirates	
11:40am	**E3-FrM12** Insights into Interfacial Phenomena of Nickel- and Cobalt- Based Systems in Extreme Conditions, ***P. Stoyanov****, K. Harrington, E.C. Miller, A. Ignatov,* Pratt & Whitney, USA	

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