Program Key

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
TS1 Anti- and De-icing Surface Engineering
TS2 New Horizons in Boron-Containing Coatings: Modeling, Synthesis and Applications
TS3 In-Silicio Design of Novel Materials by Quantum Mechanics and Classical Methods
TS4 Photocatalytic and Superhydrophilic Surfaces
TS5 Thin Films on Polymer Substrates: Flexible Electronics and Beyond

PROGRAM NUMBERS: They are listed with the Symposium letter first, the session number second, the Day of the Week, Morning (M) or Afternoon (A) and the presentation slot (e.g., **B1-1-MoM6**).

HELPFUL HINTS:

- Verify all technical session start times (morning and afternoon).
- Please note that on Monday, the technical sessions begin at 10:00 am following the 8:00 am Plenary Session. Morning sessions begin at 8:00 am but on some days the starting times may vary. Afternoon sessions start times vary between 1:20 – 2:00 p.m.
- Break times have been inserted into Tuesday and Wednesday programming and you are encouraged to use your extended lunches and breaks to visit the Exhibit Hall.
- Invited speakers are allotted 40 minutes and contributed speakers are allotted 20 minutes. Please verify your presentation time, as printed in the program book.
- Oral Presenters: All technical session rooms are equipped with computers, LCD projectors, screens, laser pointers and microphones. Please test your presentation materials to be certain that they are compatible with the equipment being provided in the technical session rooms. There will be a Presenter Preview Room for you to test your presentation on the conference equipment the day prior to your presentation.
- Poster Presenters: Please post a small photo of the presenter on the poster sign affixed to your assigned board. Boards will be available for posting materials from 11:00 am until 4:00 pm on Thursday, May 23. Prior to hanging your poster, poster presenters must check in at the Registration desk to show photo identification, as well as your registration badge. These forms of identification must match the name of the poster presenter listed in the ICMCTF program. The sign listing the paper's number, title, and presenting author will aid each presenter in locating your board. The board space provided is approximately four feet by four feet and all posters MUST be posted by 4:00 pm. Any posters not displayed by 4:00 pm will be removed from the Program and be listed as a No Show. All presenters are required to be at their poster during the entire session (5:00 - 7:00 pm), in order to promote discussion and for the author to answer attendee questions. Be forewarned, all poster materials will be discarded if not removed from the boards by 9:00 pm Thursday evening.

Reminder: Please turn off CELL PHONES when you are attending the Technical Sessions

Program Overview

Room /Time	Golden State Hall & Foyer	Pacific C	Pacific D	Pacific E	Pacific H-I	Palm 1-3	Town & Country A	Town & Country B	Town & Country C	Town & Country D
MoPL							PL-MoPL: Plenary Lecture			
MoM		TS5-1-MoM: TF on Polymer Subs: Flexible Electronics and Beyond I	G4-MoM: Pre-/Post-Treatment and Duplex Technology	A1-1-MoM: Coatings to Resist Hi-temp Oxid, Corr, and Fouling I	H1-1-MoM: Spat-resolved & In-Situ Char of TF & Eng Surfaces I	D1-1-MoM: Surf Coating & Surf Mod in Biological Environments I			B2-1-MoM: CVD Coatings and Technologies I	B6-1-MoM: Interplay Bet Comp & Exper Design of Coat Processes I
MoSIT							SIT1-MoSIT: Special Interest Sess (ALL INVITED)			
MoA		TS5-2-MoA: TF on Polymer Subs: Flexible Electronics and Beyond II		A1-2-MoA: Coatings to Resist Hi-temp Oxid, Corr & Fouling II	H1-2-MoA: Spat-resolved & In-Situ Char of TF & Eng Surfaces II	D1-2-MoA: Surf Coating & Surface Mod in Biological Environments II			B2-2-MoA: CVD Coatings and Technologies II	B6-2-MoA: Interplay Bet Comp & Exper Design of Coat & Processes II
TuM		TS2-1-TuM: New Hor. in Boron-Cont Coat: Model, Synth & Apps I	G2-TuM: Surface Mod of Comp in Auto, Aerospace & Manuf Apps	TS4-TuM: Photocatalytic and Superhy-drophilic Surfaces	H2-1-TuM: Adv Mech Testing of Surfs, TF, Coat & Small Volumes I	D2-TuM: Bio-corr, Bio-trib & Bio-Trib-Additive Mfg Impact		E1-1-TuM: Friction, Wear, Lubrication Effects, and Modeling I	B5-1-TuM: Hard and Multifunctional Nanostructured Coatings I	B8-1-TuM: HiPIMS, Pulsed Plasmas & Energetic Deposition I
TuEx							EX-TuM: Exhibition Keynote Lecture			
TuA		TS2-2-TuA: New Hor. in Boron-Cont. Coat: Model, Synth & Apps II	G3-1-TuA: Innov Surf Eng for Adv Cutting & Forming Tool Applications	A2-1-TuA: Thermal and Environmental Barrier Coatings I	H3-TuA: Char of Coatings & Small Volumes in Harsh Environments	D3-TuA: Bioint: Improv the Cell Adh & Avoid Bac What Kinds of Coat/Surf Should be Used		E1-2-TuA: Friction, Wear, Lubrication Effects, and Modeling II	B5-2-TuA: Hard and Multifunctional Nanostructured Coatings II	B8-2-TuA: HiPIMS, Pulsed Plasmas & Energetic Deposition II
TuSIT							SIT2-TuSIT: Special Interest Sess (ALL INVITED)			
WeM		TS2-3-WeM: New Hor. in Boron-Cont Coat: Model, Syn & Apps III	G5-1-WeM: Hybrid Systems, Processes and Coatings	A2-2-WeM: Thermal and Environmental Barrier Coatings II	H2-2-WeM: Adv Mech Test of Surf, TF, Coati & Small Volumes II	C3-WeM: Thin Films for Energy Applications: Solar, Thermal,		E1-3-WeM: Friction, Wear, Lubrication Effects, and Modeling III	B3-WeM: Dep Tech & Applications for Diamond-like Coatings I	B7-WeM: Plasma Surface Interactions, Diagnostics & Growth
WeSIT							SIT3-WeSIT: Special Interest Sess (ALL INVITED)			
WeA		TS3-1-WeA: In-Sil Des of Novel Matls by Quant Mech & Class Methods	G6-WeA: App-Driven Coop between Industry & Res Institutions	A3-WeA: Matls & Coatings for Solar Power Concentration Plants	F1-WeA: Nano-materials and Nano-fabrication	C1-WeA: Optl Matls: Design, Synth, Char, and Applications		E1-4-WeA: Friction, Wear, Lubrication Effects, and Modeling IV		B4-1-WeA: Properties & Char of Hard Coatings & Surfaces I
WeHL							HL-WeHL: Bunshah Award Honorary			
ThM		TS3-2-ThM: In-Sil Des of Novel Matls by Quant Mech & Class Methods	G3-2+G5-2-ThM: Innov Surf Eng & Hybrid Processes		F2-1-ThM: High Entropy & Otr Multi-principal-element Materials I	C2-1-ThM: Funct Coatings and TF for Electronic Devices I		E2-1-ThM: Mechanical Properties and Adhesion I	B1-1-ThM: PVD Coatings and Technologies I	B4-2-ThM: Properties & Char of Hard Coatings & Surfaces II
ThA		TS1-ThA: Anti- and De-icing Surface Engineering	F3-ThA: 2D Mats: Synth, Char, & Applications		F2-2-ThA: High Entropy & Otr Multi-prinipal-element Materials II	C2-2-ThA: Funct Coatings & TF for Electronic Devices II		E2-2-ThA: Mechanical Properties and Adhesion II	B1-2-ThA: PVD Coatings and Technologies II	B4-3-ThA: Properties and Char of Hard Coatings & Surfaces III
ThP	Poster Sessions									
FrM			G1-FrM: Adv in Ind PVD, CVD & PCVD Proc and Equipment					E3-FrM: Trib of Coatings for Auto & Aero Applications	B1-3-FrM: PVD Coatings and Technologies III	B4-4-FrM: Prop and Char of Hard Coatings and Surfaces IV

Monday Morning, April 26, 2021

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

8:00am	**INVITED: PL-MoPL-1** Organic Bioelectronics – Nature Connected*,* ***M. Berggren****,* Linköping University, Norrköping, Sweden	
8:20am		
8:40am		
9:00am		
9:20am		
9:40am		

	Coatings for Use at High Temperatures **Room Pacific E - 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 Univ., UK	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - 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-MoM-1** Negative Thermal Expansion Al_2TiO_5 Coatings Made by CVD, ***S. Öhman,*** Uppsala University, Angstrom Laboratory, Sweden; *R. Qiu,* Chalmers University of Technology, Sweden; *T. Edvinsson, M. Boman,* Uppsala University, Angstrom Laboratory, Sweden	**INVITED: B2-1-MoM-1** 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-MoM-2** 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. Agüero,*** *M. Gutiérrez,* Instituto Nacional de Técnica Aeroespacial (INTA), Spain	
10:40am	**INVITED: A1-1-MoM-3** PGM based Diffusion Coatings for Ni-based Superalloys by a Paste Method, ***H. Murakami,*** *D. Tue, A. Ishira, L. Honglien,* National Institute for Materials Science (NIMS), Japan	**B2-1-MoM-3** Ald-Pvd Multilayers: Deposition, Thermal Stability And Mechanical Properties, ***T. 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		**B2-1-MoM-4** High Throughput Deposition of Hydrogenated Amorphous Carbon Films using High-Pressure Ar+CH_4 Plasmas, ***K. Koga,*** *S. Hwang, K. Kamataki, N. Itagaki, M. Shiratani,* Kyushu University, Japan
11:20am	**A1-1-MoM-5** 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. Olaya,* Universidad Nacional de Colombia, Colombia	**B2-1-MoM-5** CVD Alumina-based Nanocomposite Coatings, ***Z. Liu,*** Kennametal Inc., USA
11:40am	**A1-1-MoM-6** Ti_2AlC MAX Phase Coating Deposited by Kerosene-fuelled High Velocity Oxy-fuel (HVOF) Spray, ***J. Pan,*** *Z. Zhang, S. Lim, D. Lai,* Institute of Materials Research and Engineering, Agency for Science, Technology and Research (A*STAR), Singapore	**B2-1-MoM-6** The Challenge and Strategy of a-Si CVD Coating on Aluminum Alloys, ***M. Yuan,*** SilcoTek Corporation, USA

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country D - Session B6-1-MoM** **Interplay Between Computational and Experimental Design of Coatings and Processes I** **Moderator:** **Paul Heinz Mayrhofer**, Institute of Materials Science and Technology, TU Wien, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Palm 1-3 - Session D1-1-MoM** **Surface Coating and Surface Modification in Biological Environments I** **Moderators: Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA, **Phaedra Silva-Bermudez**, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico
10:00am	**B6-1-MoM-1** Superlattice Design for Superior Thin Films, ***N. Koutná***[1], *R. Hahn, J. Buchinger,* TU Wien, Institute of Materials Science and Technology, Austria*; D. Sangiovanni,* Linköping University, Sweden*; M. Bartosik,* TU Wien, Institute of Materials Science and Technology, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**INVITED: D1-1-MoM-1** Biomimetic Extracellular Matrix Coating for Titanium Implant Surfaces to Improve Osteointegration, ***S. Ravindran****, P. Gajendrareddy, J. Hassan, C. Huang,* University of Illinois at Chicago, USA
10:20am	**B6-1-MoM-2** 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. Zhang,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; P. Mayrhofer,* TU Wien, Austria*; D. Holec,* Montanuniversität Leoben, Austria*; M. Bartosik,* TU Wien, Austria	
10:40am	**INVITED: B6-1-MoM-3** 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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**D1-1-MoM-3** Physical Vapor Deposition for Growth of Large Area Molecular Sensor Arrays, *N. Glavin, D. Austin, D. Moore, M. Motala,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA*;* ***C. Muratore****,* University of Dayton, USA
11:00am		**D1-1-MoM-4** 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. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico*; J. Garcia-Lopez, R. Sanchez-Sanchez,* Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico
11:20am	**B6-1-MoM-5** Non-Linearity, Artificial Intelligence AI and the Coating 4.0, ***N. Schwarzer****,* SIO, Germany	
11:40am		

[1] **2020 Student Award Finalist**

	Surface Engineering - Applied Research and Industrial Applications **Room Pacific D - 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 H-I - 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, Switzerland
10:00am	**G4-MoM-1** Notable Difference between Rapid-Thermal and Microwave Annealing on Ge pMOSFETs, ***Y. Chien***, *K. Chang-Liao, D. Ruan, S. Yi, F. Chu,* National Tsing Hua University, Taiwan	**H1-1-MoM-1** 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. 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-MoM-2** Characterization of Tungsten-doped InZnO Thin Films with Plasma Treatment for Conductive-bridge RAM Applications, ***C. Hsu***, National Chiao Tung Universiy, Taiwan*; P. Liu, K. Gan, D. Ruan, Y. Chiu, S. Sze,* National Chiao Tung University, Taiwan	**H1-1-MoM-2** 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	**INVITED: G4-MoM-3** 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-MoM-3** Multimodal and *in situ* Electron Microscopy to Understand Local Deformation Mechanics, ***J. Kacher***, Georgia Institute of Technology, USA
11:00am		
11:20am		**H1-1-MoM-5** Elucidating the Microstructural Stability of Nanocrystalline Pt-Au Thin Films, ***K. Hattar***, *C. Barr,* Sandia National Laboratories, USA*; E. Hopkins,* John Hopkins University, USA*; N. Heckman, D. Adams,* Sandia National Laboratories, USA*; M. Taheri,* John Hopkins Univeristy, USA*; B. Boyve,* Sandia National Laboratories, USA
11:40am		**H1-1-MoM-6** Development of In-situ Liquid Cell Transmission Electron Microscopy for Quantifying Temperature-Dependent Thin Film and Nanostructure Processing, ***S. Lee***, Massachusetts Institute of Technology, USA*; N. Schneider,* Renata Global, USA*; J. Park,* Princeton University, USA*; S. Tan, F. Ross,* Massachusetts Institute of Technology, USA

Topical Symposia
Room Pacific C - 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, Switzerland

10:00am	**INVITED: TS5-1-MoM-1** Flexible Printed Sensors for Biomechanical Measurements, ***T. Ng***, University of California San Diego, USA	
10:20am		
10:40am	**TS5-1-MoM-3** 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. Niemelä, B. Putz,* Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M. Weber, A. Chaaya,* Institut Européen des Membranes, IEM, France*; 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-MoM-4** Low-temperature Plasma Enhanced Atomic Layer Deposition of ZnO and Al_2O_3 Thin Films for Applications in Flexible Electronic Devices, ***J. Castillo***, Universidad Autónoma de Baja California , Colombia*; N. Nedev,* Universidad Autónoma de Baja California , Bulgaria*; B. Valdez,* Universidad Autónoma de Baja California, Mexico*; N. Hernandez,* Instituto Politécnico Nacional (IPN), Mexico*; E. Martinez,* Centro de Investigación en Materiales Avanzados (CIMAV) , Mexico*; M. Curiel*, Universidad Autónoma de Baja California , Mexico*; M. Mendivil, M. Martinez,* Centro de Investigación en Materiales Avanzados (CIMAV), Mexico	
11:20am	**TS5-1-MoM-5** 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. Kelly**,* Manchester Metropolitan University, UK*; N. Copeland,* Bobst Manchester Ltd, UK	
11:40am	**TS5-1-MoM-6** Optically Transparent Bacterial Nanocellulose Composites and Fibroin Substrates for Flexible Organic Devices, ***M. Cremona***, Pontifícia Universidade Católica do Rio de Janeiro, Brazil*; H. Barud,* Universidade de Araraquara, Brazil*; R. Carvalho,* Pontifícia Universidade Católica do Rio de Janeiro, Brazil*; A. Cebrian,* UNESP, Brazil*; A. Barreto,* PUC-Rio, Brazil*; F. Maturi,* UNESP, Brazil*; R. Silva,* Chalmers University Technology, Sweden*; C. Legnani,* Universidade Federal de Juiz de Fora, Brazil*; S. Ribeiro,* UNESP, Brazil	

Monday Afternoon, April 26, 2021

Special Interest Talks
Room Town & Country A - Session SIT1-MoSIT
Special Interest Session (ALL INVITED TALKS)
Moderator:
Ivan Petrov, University of Illinois at Urbana-Champaign, USA

1:00pm	**INVITED: SIT1-MoSIT-1** Bill Sproul Award and Honorary ICMCTF Lecture: Transition Metal Nitride Layers: New Phases and New Properties, ***D. Gall***[1], Rensselaer Polytechnic Institute, USA	
1:20pm		
1:40pm		

[1] **2021 Bill Sproul Awardee**

Monday Afternoon, April 26, 2021

	Coatings for Use at High Temperatures **Room Pacific E - 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 Univ., UK	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - 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-MoA-1** Advanced Coatings for Clearance Control in Turbine Components, ***Z. Tang,*** *A. Athans, K. Garing, W. Jarosinski,* Praxair Surface Technologies Inc., USA	**B2-2-MoA-1** 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-MoA-2** 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-MoA-2** *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-MoA-3** 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-MoA-3** Plasma-assisted Deposition using Microdroplets, ***T. Ito,*** *K. Nitta, K. Terashima,* The University of Tokyo, Japan
3:00pm	**A1-2-MoA-4** 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	
3:20pm	**A1-2-MoA-5** 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. Deen,* University of British Columbia, Canada	**B2-2-MoA-5** 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
3:40pm	**A1-2-MoA-6** Corrosion Behavior and Durability of Microstructure of Stainless Steel Rebars in Simulated Concrete Pore Solution Containing Chloride with Different PH, ***D. Subedi,*** Chinese Academy of Sciences, China	**B2-2-MoA-6** 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
4:00pm	**INVITED: A1-2-MoA-7** Hot Corrosion in Aero Gas Turbine Engines: Current Understanding and Future Research Directions, *E. Zaleski,* ***M. Task,*** Pratt & Whitney, USA	**B2-2-MoA-7** Compatibility of a CoCrFeNi Multi-principal Element Alloy Substrate with Halide-based Thermal CVD Processes for TiN Deposition, ***K. Böör,*** Uppsala University, Sweden*; R. Qiu,* Chalmers University of Technology, Sweden*; A. Forslund,* KTH Royal Institute of Technology, Sweden*; O. Bäcke,* Chalmers University of Technology, Sweden*; H. Larsson,* KTH Royal Institute of Technology, Sweden*; E. Lindahl,* Sandvik Coromant R&D, Sweden*; M. Halvarsson,* Chalmers University of Technology, Sweden*; M. Boman,* Uppsala University, Sweden*; L. von Fieandt,* Sandvik Coromant R&D, Sweden
4:20pm		**B2-2-MoA-8** Investigation of Diamond Coating Characteristics on Chrome-Plated AISI 4140 Steel by Hot-Filament Chemical Vapour Deposition Process, *R. Vignesh,* ***S. Boominatha sellarajan,*** *J. Rajaguru, N. Arunachalam , M. Ramachandra Rao,* Indian Institute of Technology Madras , India
4:40pm	**A1-2-MoA-9** Plasma Electrolytic Oxidation (Peo) for Production of High Performance Coatings on Ti-Al Intermetallic Compounds, ***K. Munassar,*** *B. Mingo,* University of Manchester , UK*; A. Yerokhin,* University of Manchester, UK	**B2-2-MoA-9** Microstructure Investigation of TiN/Ti(C,N)/Bonding Layer/Al_2O_3 Multilayer Coatings Deposited by Thermal CVD, ***M. Zhu,*** *S. Achache,* Université de Technologie de Troyes, France, France*; J. Pierson,* Université de Lorraine, France*; F. Sanchette,* Université de Technologie de Troyes, France , France
5:00pm	**A1-2-MoA-10** PVD Cr Coatings to Mitigate Corrosion of SiC-SiC_f Composite for LWR Applications, ***K. Quillin,*** *H. Yeom, T. Dabney, J. Lacy, T. Kim,* University of Wisconsin - Madison, USA*; S. Chemerisov,* Argonne National Laboratory, USA*; A. Couet, K. Sridharan,* University of Wisconsin - Madison, USA	**B2-2-MoA-10** TiO_2 Coated onto Vertically Aligned Carbon Nanotubes as Electrode Materials for High-performance of Electrochemical Double-layer Capacitors (EDLCs), ***H. Redda,*** Ruei-San Chen, Wei-Nien Su, Taiwan
5:20pm		

Monday Afternoon, April 26, 2021

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country D - 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 Palm 1-3 - Session D1-2-MoA** **Surface Coating and Surface Modification in Biological Environments II** **Moderators: Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA, **Phaedra Silva-Bermudez**, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico
2:00pm	**INVITED: B6-2-MoA-1** Controlling Phase and Microstructure of Ti-Cr-Al-N System Deposited by Arc Ion Plating, ***K. Yamamoto,*** Kobe Steel Ltd., Japan	**D1-2-MoA-1** 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
2:20pm		**D1-2-MoA-2** Behavior of fs-laser Micro-Patterend HDLC in Hyaluronic Acid, ***A. 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
2:40pm	**B6-2-MoA-3** Maximum N Content in a-CN_x and other Amorphous Nitrides, ***J. Houska,*** University of West Bohemia, Czech Republic	**INVITED: D1-2-MoA-3** 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
3:00pm	**B6-2-MoA-4** 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. 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	
3:20pm	**B6-2-MoA-5** Kinetic Monte Carlo Simulations of Residual Stress Evolution, ***E. Chason,*** *A. Bower,* Brown University, USA	**D1-2-MoA-5** Flexible Plasma Jet Source for Biomedical Applications, ***C. Corbella,*** *S. Portal, L. Lin, M. Keidar,* George Washington University, USA
3:40pm	**B6-2-MoA-6** 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. 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. Schneider,* RWTH Aachen University, Germany	
4:00pm		
4:20pm		
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5:00pm		
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[1] **2020 Student Award Finalist**

Monday Afternoon, April 26, 2021

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific H-I - 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, Switzerland	**Topical Symposia** **Room Pacific C - Session TS5-2-MoA** **Thin Films on Polymer Substrates: Flexible Electronics and Beyond II** **Moderators: Oleksandr Glushko**, Erich Schmid Institute of Materials Science, Austria, **Barbara Putz**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
2:00pm	**H1-2-MoA-1** Cold Sprayed Cr-coating on Optimized ZIRLO™ Claddings: An Atom Probe Tomography Study of the Cr/Zr Interface and its Microstructural and Chemical Evolution after Autoclave Corrosion Testing, ***A. Fazi***, *H. Aboulfadl, H. Andrén, M. Thuvander,* Chalmers University of Technology, Gothenburg, Sweden	**INVITED: TS5-2-MoA-1** 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-MoA-2** 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	
2:40pm	**INVITED: H1-2-MoA-3** 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-MoA-3** Roll-to-Roll Reactive Ion Etching of Nanoscale Features in Si for Next Generation Flexible Electronics, ***Z. Ghaznavi***, Emerson and Renwick Ltd., USA; *N. Butcher, J. Crowther,* Emerson and Renwick Ltd., UK
3:00pm		**TS5-2-MoA-4** Surface Functionalization of Plastic Substrates by Use of Gas Phase Hydrogen Peroxide, ***J. Spiegelman***, *D. Alvarez, C. Ramos,* RASIRC, USA
3:20pm		**TS5-2-MoA-5** Electromechanical Behavior of Evaporated and Printed Thin Films and Devices on Compliant Substrates, ***P. Gruber***, *N. Mishra, S. Yi, T. Haas, B. Kim,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM-WBM), Germany
3:40pm	**H1-2-MoA-6** Machine Learning for Prediction of ToF-SIMS Spectra of Peptides, ***S. Aoyagi***, Seikei University, Japan	**TS5-2-MoA-6** 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. 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. 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. Renault,* Université de Poitiers, France; *J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
4:00pm		**TS5-2-MoA-7** HiPIMS Metallization of Polymers: Titanium on PEEK, ***A. Chacko***, *K. Thorwarth, R. Crockett, U. Müller, H. Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
4:20pm		
4:40pm		
5:00pm		
5:20pm		

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country C - 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 Town & Country D - Session B8-1-TuM** **HiPIMS, Pulsed Plasmas and Energetic Deposition I** **Moderators: Jon Tomas Gudmundsson**, University of Iceland, Iceland, **Tiberiu Minea**, Université Paris-Saclay, France
8:00am	**B5-1-TuM-1** 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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	**B8-1-TuM-1** Fabrication of AlTiSiN Nanocomposite Coatings with High Hardness and Low Internal Stress, ***Z. Wu,*** *Q. Wang,* Guangdong University of Technology, China*; G. Greczynski,* Linköping University, Sweden
8:20am	**B5-1-TuM-2** Thermal Stability of Nanostructured TiAl(Si,B)N Coatings Deposited by HiPIMS with Positive Pulses, ***Á. Méndez Fernández,*** *J. Santiago, I. Fernández-Martínez, A. Wennberg,* Nano4Energy SL, Spain*; M. Panizo-Laiz,* Universidad Politecnica de Madrid, Spain*; M. Monclús, J. Molina-Aldareguia,* IMDEA Materials Institute, Spain	**B8-1-TuM-2** Measurements and Modeling of Residual Stress in Sputtered Nitride Films: Dependence on Growth Rate and Gas Pressure, ***Z. Rao,*** *E. Chason,* Brown University, USA
8:40am	**INVITED: B5-1-TuM-3** Impact of Nitrogen Deficiency on the Phase Transformation of (Ti,Al)N Thin Films at Elevated Temperatures, ***I. Schramm,*** Sandvik Coromant R&D, Sweden	**B8-1-TuM-3** Plasma Chemistry, Crystal Growth and Mechanical Properties of CrAlYN / CrN Nanoscale Multilayer Coatings Deposited by High Power Impulse Magnetron Sputtering, ***A. Ehiasarian,*** *A. Sugumaran, P. Hovsepian,* Sheffield Hallam University, UK
9:00am		**B8-1-TuM-4** The Effect of Metal Transition Dopents on Mechanical Properties TiBCN Based Coatings Deposited by CFUBMS-HiPIMS, ***I. Efeoglu,*** Ataturk University, Turkey*; N. Aksakalli,* Atatürk University, Turkey*; B. Gumus,* Aselsan Inc., Turkey
9:20am	**B5-1-TuM-5** Development and Evaluation of Ultra-thick CrAlAgN Coatings for High Temperature Wear Resistance, ***J. Lin,*** Southwest Research Institute, USA*; X. Zhang,* Southeast University, China*; R. Wei,* Southwest Research Institute, USA	**B8-1-TuM-5** Plasma Parameter Analysis of HiPIMS Discharge With Alloy Target for High Aspect-Ratio Deposition Using Langmuir Probe, ***A. Altama,*** *J. Chu,* National Taiwan University of Science and Technology, Taiwan*; A. Purniawan, S. Wicaksono,* Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia
9:40am	**B5-1-TuM-6** 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	**B8-1-TuM-6** Effect of Target Poisoning Ratios on the Fabrication of TiO_X Coatings Using Superimposed HiPIMS and MF System, ***W. Chen,*** Ming Chi University of Technology, Taiwan*; B. Lou,* Chang Gung University, Taiwan*; . Lee,* Ming Chi University of Technology, Taiwan
10:00am	**B5-1-TuM-7** Dislocation Confinement in Core-Shell Nanostructures: A Molecular Dynamics Study, ***D. Fleming,*** Arkansas State University, USA	
10:20am	**B5-1-TuM-8** A Microstructural and Corrosion Resistance Study of TiCrAlN-Ni Coatings Produced Through Co-sputtering, ***J. Olaya,*** *J. Alfonso,* Universidad Nacional de Colombia, Colombia*; L. Ramos,* Universidad Nacional de Colombia	
10:40am		

Tuesday Morning, April 27, 2021

	Coatings for Biomedical and Healthcare Applications **Room Palm 1-3 - Session D2-TuM** **Bio-corrosion, Bio-tribology and Bio-Tribocorrosion-Additive Manufacturing Impact** **Moderators: Steve Bull**, Newcastle University, UK, **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 Town & Country B - Session E1-1-TuM** **Friction, Wear, Lubrication Effects, and Modeling I** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria
8:00am	**D2-TuM-1** Sputtered Thin Film Systems As Anode Materials for Biodegradable Battery, ***W. Haider***, Central Michigan University, USA	**INVITED: E1-1-TuM-1** 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-TuM-2** Corrosion Resistance of Cerium Oxynitride Thin Films for Use in Implants and Prothesis, *G. Numpaque Rojas,* ***B. Mendez Bazurto***, *G. Cubillos Gonzalez,* Universidad Nacional de Colombia - Bogotá, Colombia	
8:40am	**INVITED: D2-TuM-3** Crevice Tribocorrosion of Additively Manufactured Stainless Steels in Ringers Solution, ***M. 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-TuM-3** 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. Figueroa***, UCS - Caxias do Sul University, Brazil
9:00am		**E1-1-TuM-4** Computer Simulations of FCC Alloys Subjected to Dry Sliding as Basis for a Near-Surface Deformation Mechanism Map, ***S. Eder***, *M. Rodríguez Ripoll, U. Cihak-Bayr,* AC2T Research GmbH, Austria; *D. Dini,* Imperial College London, UK; *C. Gachot,* TU Wien, Austria
9:20am	**D2-TuM-5** In Vitro Degradation of ZrO_2 Coated Magnesium Alloys, ***B. Millan***, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico; *O. Depablos-Rivera,* Universidad Nacional Autónoma de México, México, Mexico; *P. Silva-Bermudez,* Instituto Nacional de Rehabilitación Luis Guillermo Ibarra, Mexico; *S. Rodil,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico	**E1-1-TuM-5** Multi-sensing Nano-wear with Electrical Contact Resistance and Friction Measurement, ***B. Beake***, Micro Materials Ltd, UK; *T. Liskiewicz,* Manchester Metropolitan University, UK; *A. Harris,* Micro Materials Ltd.; *S. McMaster, A. Neville,* University of Leeds, UK
9:40am	**D2-TuM-6** 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; *K. 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. Mathew,* University of Illinois at Chicago, Rockford, USA	**E1-1-TuM-6** Analysis of Coating Layers and Defects Using Atomic Force Microscopy, ***S. Kaemmer***, *G. Mendoza,* Park Systems Corporation, USA
10:00am	**D2-TuM-7** A Bio-Tribocorrosion Appraisal of a Dual Layer PVD Coated CoCrMo Alloy Tribopair, *A. Mazzonello, R. Chetcuti,* University of Malta, Malta; *P. Dearnley,* Boride Services Ltd, UK; *J. Buhagiar,* ***B. Mallia***, University of Malta, Malta	**E1-1-TuM-7** 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. Huminiuc,* University of Southampton, UK; *M. Mikula,* Comenius University in Bratislava, Slovakia; *T. Polcar,* University of Southampton, UK
10:20am	**D2-TuM-8** 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. Olubambi,* University of Johannesburg, South Africa	
10:40am	**D2-TuM-9** Tribo-Electrochemical Characterization of Highly Porous Ti Against Ti Alloy Under Fretting Corrosion Conditions, ***A. Costa***, Universidade do Minho, Portugal; *F. Viana ,* University of Porto, Portugal; *F. Toptan,* University of Minho, Portugal; *J. Geringer,* Université de Lyon, France	

Tuesday Morning, April 27, 2021

	Surface Engineering - Applied Research and Industrial Applications **Room Pacific D - Session G2-TuM** **Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications** **Moderators: Etienne Bousser**, Ecole Polytechnique, 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 H-I - 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-TuM-1** 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	**H2-1-TuM-1** 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		**H2-1-TuM-2** Development and Application of a Multifunctional Nanoindenter: Coupling to Electrical Measurements and Integration in-situ in a Scanning Electron Microscope, ***F. Volpi,*** *S. Comby-Dassonneville, C. Boujrouf, M. Verdier,* SIMaP – Univ. Grenoble Alpes, CNRS, SIMaP, France*; D. Pellerin,* CSI/Scientec, France
8:40am	**G2-TuM-3** 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: H2-1-TuM-3** Characterization of Defects and their Dynamics using Transmission Scanning Electron Microscopy, ***D. Gianola,*** University of California Santa Barbara, USA
9:00am	**G2-TuM-4** 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. BEAUDONNET,* Saint-Gobain Research Provence, France	
9:20am	**INVITED: G2-TuM-5** Enhancing TiAl Oxidation Resistance at High Temperature: A Challenge for the Aerospace Industry, ***M. Cavarroc,*** Safran Tech, France	**H2-1-TuM-5** Measurement of Hardness and Elastic Modulus by Depth Sensing Indentation: Further Advances in Understanding and Refinements in Methodology, *S. Pardhasaradhi,* ARCI, India*;* ***W. Oliver,*** KLA Corporation, USA*; G. Pharr,* Texas A&M University, USA
9:40am		**INVITED: H2-1-TuM-6** Strength and Fracture Toughness at Elevated Temperature of Monolithic and Multilayered Hard Coatings, ***J. Molina-Aldareguia,*** IMDEA Materials Institute, Spain
10:00am	**G2-TuM-7** Electrolytic Plasma Polishing as Post-Treatment for Additively Manufactured Stainless Steel, ***N. Laugel,*** *A. Matthews, A. Yerokhin,* The University of Manchester, UK	
10:20am	**G2-TuM-8** PEO Coatings for Adhesive Bonded AA6060 Components, ***D. Shore,*** The University of Manchester, UK*; J. Avelar-Batista Wilson,* BCW Manufacturing Group Ltd, UK*; A. Matthews, A. Yerokhin,* The University of Manchester, UK	**H2-1-TuM-8** 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-TuM-9** Electrolytic Plasma Surface Treatment of Additive Manufactured and Cast Al-Si Alloys, *A. Rogov, A. Matthwes,* ***A. Yerokhin,*** University of Manchester, UK	**H2-1-TuM-9** New Models and Advancement in Measuring the Elastic Behaviour of Thin Films using Impulse Excitation Technique, ***A. Alhussein,*** University of Technology of Troyes (UTT), France*; E. Zgheib,* University of Technology of Troyes (UTT) and Lebanese University (UL), France*; M. Slim,* University of Technology of Troyes (UTT), France*; K. Khalil,* Lebanese University, Lebanon*; M. François,* University of Technology of Troyes (UTT), France

	Topical Symposia **Room Pacific C - 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, Institute of Materials Science and Technology, Austria, **Johanna Rosén**, Linköping University, Sweden	**Topical Symposia** **Room Pacific E - 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-TuM-1** Enhanced High-temperature Oxidation Resistance of Hard TiB_2-rich $Ti_{1-x}Al_xB_y$ Thin Films, ***B. Bakhit***[1], Linköping University, Sweden; *I. Petrov, J. Greene,* University of Illinois, USA, Linköping University, Sweden, USA; *L. Hultman, J. Rosen, G. Greczynski,* Linköping University, Sweden	**TS4-TuM-1** Effect of Tungsten-Substitution on the Structure and Photocatalytic Properties of Anatase TiO_2 Thin Films Deposited on Polymer by PECVD, ***W. Ravisy***, Université de Nantes, France; *B. Dey, S. Bulou, P. Choquet,* Luxembourg Institute of Science and Technology, Luxembourg; *N. Gautier,* Université de Nantes, France , France; *A. Goullet,* Université de Nantes, CNRS, France; *M. Richard-Plouet, A. Granier,* Université de Nantes, France
8:20am	**TS2-1-TuM-2** 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. Grančič, P. Kúš, M. Mikula,* Comenius University in Bratislava, Slovakia	**TS4-TuM-2** Applications of Photocatalytic and Superhydrophilic Materials, ***S. Pillai***, Institute of Technology Sligo, Ireland
8:40am	**TS2-1-TuM-3** 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. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria; *H. Riedl,* TU Wien, CDL-SEC, Austria	**TS4-TuM-3** Photocatalytic Activity of a ZnO/Bi_2O_3 Thin Film Heterojunction, ***S. Rodil***, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico; *A. Hernandez-Gordillo, M. Bizarro,* Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; *J. Medina,* Instituto de Ciencias Aplicadas y Tecnologias, Universidad Nacional Autonoma de Mexico, Mexico
9:00am	**TS2-1-TuM-4** 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: TS4-TuM-4** Photocatalytic Bismuth Oxide Coatings and their Potential for Water Treatment Applications, ***M. Ratova***, *J. Redfern,* Manchester Metropolitan University, UK; *C. Amorim,* Universidade Federal de Minas Gerais, Brazil; *P. Kelly,* Manchester Metropolitan University, UK
9:20am	**TS2-1-TuM-5** 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; *M. Gregor,* Comenius University in Bratislava, Slovakia; *P. Svec Sr.,* Slovak Academy of Sciences, Slovakia; *M. Zahoran, P. Kus,* Comenius University in Bratislava, Slovakia	
9:40am	**TS2-1-TuM-6** 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. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria; *H. Riedl,* TU Wien, CDL-SEC, Austria	**INVITED: TS4-TuM-6** Hematite and Titania Thin Films: Energy and Environmental Applications, ***J. Krysa***, University of Chemistry and Technology, Prague, Czech Republic
10:00am	**TS2-1-TuM-7** 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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	
10:20am	**INVITED: TS2-1-TuM-8** A Progress Report on Bulk MAB Phases, ***M. Barsoum***, Drexel University, USA; *S. Kota,* Drexel University, USA	**TS4-TuM-8** 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
10:40am		**TS4-TuM-9** Double Perovskite $LaFe_{1-x}Ni_xO_3$ Coating Urchin-like Golden Nanoparticles to Enhance Water Splitting Reaction, ***H. Tsai***, *Y. Su,* National Cheng Kung University (NCKU), Taiwan

[1] **Student Award Nominee**

Exhibition Keynote Lecture
Room Town & Country A - Session EX-TuM
Exhibition Keynote Lecture
Moderator: Christopher Muratore, University of Dayton, USA

11:00am	**INVITED: EX-TuM-1** Carbon based Coatings in Industrial Scale for Sustainable Surface Solutions, ***J. Vetter,*** Oerlikon Balzers Coating Germany GmbH, Bergisch Gladbach, Germany	
11:20am		
11:40am		

Tuesday Afternoon, April 27, 2021

	Coatings for Use at High Temperatures **Room Pacific E - 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 Town & Country C - 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-TuA-1** 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-TuA-1** PVD of Hard Nanocomposite Coatings Using Multiphase SHS Cathodes - Evolution and New Horizons, ***P. Kiryukhantsev-Korneev***, *E. Levashov,* National University of Science and Technology "MISiS", Russian Federation
2:00pm		
2:20pm	**A2-1-TuA-3** Effect of Varying APS Flash Bond Coating Thickness on Furnace Cycle Lifetime, ***M. Lance***, *K. Kane, J. Haynes, B. Pint,* Oak Ridge National Laboratory, USA; *E. Gildersleeve, S. Sampath,* Stony Brook University, USA	**B5-2-TuA-3** 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
2:40pm	**A2-1-TuA-4** 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-TuA-4** Characteristics of Hf(*M*)SiBCN (*M* = Y, Ho, Ta, Mo) Coatings: Role of the *M* Choice, ***M. Matas***, *M. Prochazka, J. Vlcek, J. Houska,* University of West Bohemia, Czech Republic
3:00pm	**A2-1-TuA-5** 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. Young, D. Berman, N. Dahotre, S. Aouadi,* University of North Texas, USA	**B5-2-TuA-5** Tuning Fracture Characteristics of Superhard Tm Carbide Coatings by Nitrogen Alloying, ***T. Glechner***, *R. Hahn,* TU Wien, CDL-SEC, Austria; *D. Primetzhofer,* Uppsala University, Sweden; *H. Zaid, S. Kodambaka,* University of California Los Angeles, USA; *D. Holec,* Montanuniversität Leoben, Austria; *P. Mayrhofer,* TU Wien, Austria; *S. Kolozsvári,* Plansee Composite Materials GmbH, Germany; *J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *H. Riedl,* TU Wien, CDL-SEC, Austria
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
3:40pm		
4:00pm	**INVITED: A2-1-TuA-8** 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-TuA-8** Tribocorrosion Behaviors in Seawater of TiSiCN Coatings Deposited by High Power Impulse Magnetron Sputtering: In-situ Electrochemical Response, ***Y. Ou***, Beijing Radiation Center, China; *H. 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. Ouyang,* Northwest Nuclear Technology Institute
4:20pm		**B5-2-TuA-9** 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-TuA-10** High-Temperature Corrosion of Sintered $Er_2Si_2O_7$ With CMAS for Environmental Barrier Coatings, ***S. Kim***, Kyushu University, Japan; *N. Nagashima, Y. Matsushita,* National Institute for Materials Science, Japan; *B. Jang,* Kyushu University, Japan	**B5-2-TuA-10** Ammonium Thiosulfate Precursor for Coating Molybdenum Disulfide onto the Surface of Porous Metal for High Anti-Wearing Application in the Machinery Industry, ***L. Hu***, National Sun Yat-Sen University, Taiwan; *P. Chen,* Southern Taiwan University of Science and Technology, Taiwan
5:00pm	**A2-1-TuA-11** Elevated Temperature Erosion Response of Ceramic-Based Hybrid Composite Coatings, ***A. Gupta***, *D. Kumar,* Indian Institute of Technology Delhi, India	
5:20pm		

Tuesday Afternoon, April 27, 2021

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country D - Session B8-2-TuA** **HiPIMS, Pulsed Plasmas and Energetic Deposition II** **Moderators: Jon Tomas Gudmundsson**, University of Iceland, Iceland, **Tiberiu Minea**, Université Paris-Saclay, France	**Coatings for Biomedical and Healthcare Applications** **Room 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, France, **Sandra E. Rodil**, Universidad Nacional Autónoma de México, Mexico
1:40pm	**INVITED: B8-2-TuA-1** Optimizing Ionization and Deposition Rate in High Power Impulse Magnetron Sputtering, ***D. Lundin***, Linköping University, Sweden	
2:00pm		**D3-TuA-2** 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
2:20pm	**B8-2-TuA-3** 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-TuA-3** Advanced Materials for Implant Applications, ***L. Sajti***, *J. Horky, M. Krystian, B. Mingler, M. Bammer,* AIT Austrian Institute of Technology GmbH, Austria
2:40pm	**B8-2-TuA-4** Self-Organization of Plasma in RF and DC Magnetron Sputtering Discharges, ***M. Panjan***, Jozef Stefan Institute, Slovenia	
3:00pm	**B8-2-TuA-5** Understanding and Influencing the Energy Delivered to the Film in Bipolar HiPIMS, ***T. Kozak***, *A. 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-TuA-5** New Cytocompatible and Antibacterial Porous Ta_2O_5 Surface: Dental Implant Prototype, ***L. Fialho***, University of Minho, Portugal; *L. Grenho,* university of Porto, Portugal; *M. Fernandes,* University of Porto, Portugal; *L. Forte Martins,* Private dental practice - Dental Verde clinic, Portugal; *S. Carvalho,* University of Minho, Portugal
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
3:40pm		
4:00pm	**B8-2-TuA-8** The Use of HiPIMS with Positive Pulses to Tailor Film Ion Assistance and the Resulting Microstructural Properties, ***I. Fernandez***, *J. Santiago, A. Wennberg, A. Mendez,* Nano4Energy SL, Spain; *F. Papa,* GP Plasma, USA	**D3-TuA-8** Effect of Zr-based Thin Film Metallic Glass Coatings on the Properties of Biodegradable ZK60 Magnesium Alloy, ***Y. Su***, *Y. Yang,* National Taipei University of Technology, Taiwan; *B. Lou,* Chang Gung University, Taiwan; *J. Lee,* Ming Chi University of Technology, Taiwan
4:20pm	**B8-2-TuA-9** Reversed Voltage as Deposition Rate Buster, ***W. Gajewski***, *A. 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	**D3-TuA-9** Very Thin Gold Films Deposited Collagen to Improve Skin Wound Healing in Animal Study, ***S. Huang***, Feng Chia University, Taichung Veterans General Hospital, Taiwan; *P. Hsieh, R. Chang,* Feng Chia University, Taiwan; *C. Chou,* Taichung Veterans General Hospital, National Yang-Ming University, Taiwan; *C. Chung,* Central Taiwan University of Science and Technology, Taiwan; *J. He,* Feng Chia University, Taiwan
4:40pm	**INVITED: B8-2-TuA-10** 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		
5:20pm		

Tuesday Afternoon, April 27, 2021

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Town & Country B - Session E1-2-TuA** **Friction, Wear, Lubrication Effects, and Modeling II** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific D - Session G3-1-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-TuA-1** The Synergistic Effect of Surface Texturing with TMD Coatings for Improving Friction in Lubricated Contacts, *F. Rosa,* Instituto Pedro Nunes, Portugal; *V. Richhariya, F. Silva,* University of Minho, Portugal; *P. Amoroso, A. Ramalho,* University of Coimbra, Portugal; ***A. Cavaleiro,*** SEG-CEMMPRE - University of Coimbra, Portugal	**G3-1-TuA-1** Characterization of Different AlCrN PVD Coatings Deposited into H13 Steel for Lube-free Aluminum Die Casting Application, ***N. Delfino de Campos Neto****, A. Korenyi-Both, S. Midson, M. Kaufman,* Colorado School of Mines, USA
2:00pm	**E1-2-TuA-2** Tribological Properties of Vanadium-doped Coatings via Reactive Molecular Dynamic Simulations, ***I. Ponomarev****, T. Polcar, P. Nicolini,* Czech Technical University in Prague, Czech Republic	**G3-1-TuA-2** 12 µm in PVD with HiPIMS, ***C. Schiffers****, T. Leyendecker, W. Kölker,* CemeCon AG, Germany
2:20pm	**E1-2-TuA-3** 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	**G3-1-TuA-3** Development of Piezo and Thermo-Responsive Coatings for Smart Cutting Tool Applications, ***J. Endrino****, E. Fernandez, E. Niño,* BCMaterials, Spain; *A. Ferreira, F. Vaz,* University of Minho, Portugal; *S. Lanceros-Mendez,* BCMaterials, Spain; *M. Saez de Buruaga, I. Mirena,* Mondragon University; *D. Herrero,* Sidenor Investigacion y Desarrollo S.A; *P. Arrazola,* Mondragon University, Spain
2:40pm	**INVITED: E1-2-TuA-4** The Thinnest of The Thin: Friction and Adhesion Behavior of Graphene and other Two-Dimensional Materials, ***R. Carpick****,* University of Pennsylvania, USA	**INVITED: G3-1-TuA-4** Silicon in Cutting Tools, ***A. Layyous****,* Layyous Consulting, Israel; *L. Qiu,* Central South University, China
3:00pm		
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
3:40pm		
4:00pm		**INVITED: G3-1-TuA-8** Coating Design for Components for Extreme Applications, ***R. Alexandre****,* TeandM - Technology, Engineering and Materials, S.A., Portugal
4:20pm		
4:40pm		**G3-1-TuA-10** 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
5:00pm		
5:20pm		

Tuesday Afternoon, April 27, 2021

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific H-I - Session H3-TuA** **Characterization of Coatings and Small Volumes in Harsh Environments** **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 C - 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, Institute of Materials Science and Technology, Austria, **Johanna Rosén**, Linköping University, Sweden
1:40pm	**INVITED: H3-TuA-1** Investigating Plasticity Effects on Failure and Fracture at the Microscale, ***N. 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-TuA-1** 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. Meletis,* University of Texas at Arlington, USA*; J. Vlcek,* University of West Bohemia, Czech Republic
2:00pm		**TS2-2-TuA-2** Mechanical Property Evaluation of VNbMoTaWCrB Refractory High-entropy Alloy Thin Films by Micropillar Compression and Nanoindentation, ***Y. Chen****,* Chinese Culture University, Taiwan*; S. Chang,* National Tsing Hua University, Taiwan*; S. Hung, C. Wang,* National Taiwan University of Science and Technology, Taiwan*; J. Duh,* National Tsing Hua University, Taiwan*; J. Lee,* Ming Chi University of Technology, Taiwan
2:20pm	**H3-TuA-3** W-based Nanocrystalline Binary Alloys: Thermal Stability at High Temperatures, ***T. Polcar****, T. Huminiuc, A. Alasqalani,* University of Southampton, UK	**TS2-2-TuA-3** Thick Nitrogen-Doped Boron Carbide Coatings on Planar and Spherical Substrates by Magnetron Sputtering, ***P. Mirkarimi****, A. Engwall, L. Bayu Aji, J. Bae, S. Shin, M. Bagge-Hanson, C. Walters, A. Nikroo, S. Kucheyev,* Lawrence Livermore National Laboratory, USA
2:40pm	**INVITED: H3-TuA-4** Local Deformation Mechanisms under Ambient and Non-ambient Conditions Tested via Advanced Nanoindentation, ***V. Maier-Kiener****,* Montanuniversität Leoben, Austria	**INVITED: TS2-2-TuA-4** Boron-containing Metallic-glass Coating: Unique Properties and Various Applications, ***J. Chu****,* National Taiwan University of Science and Technology (NTUST), Taiwan
3:00pm		
3:20pm	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
3:40pm		
4:00pm	**H3-TuA-8** High Entropy Transition Metal Nitride Thin Films Alloyed With Al: Mechanical Properties at Elevated Temperatures, ***O. Pshyk****,* Adam Mickiewicz University, Poland*; B. Bakhit, . Greczynski, L. Hultman,* Linköping University, Sweden*; T. Edwards, M. Jain,* Empa — Swiss Federal Laboratories for Materials Testing and Research, Switzerland*; J. Michler,* Empa — Swiss Federal Laboratories for Materials Testing and Research, Switzerland, Switzerland	**INVITED: TS2-2-TuA-8** 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-TuA-9** Characterization of Selective Solar Absorbing Coatings Under Operating Conditions*, C. D'Alessandro,* ***A. Caldarelli****, D. De Maio, E. Gaudino,* UniNA and CNR - ISASI, Italy*; M. Musto,* UniNa - Univeristà degli Studi di Napoli "Federico II", Italy*; D. De Luca,* UniNA and CNR - ISASI, Italy*; E. Di Gennaro,* UniNa - Università degli Studi di Napoli "Federico II", Italy*; R. Russo,* CNR - ISASI, Italy	
4:40pm	**H3-TuA-10** High Temperature Erosion Performance Evaluation of Advanced Materials, ***D. Patro****, S. Josyula, H. Prasanna,* Ducom Instruments, India*; F. Alemano, D. Veeregowda,* Ducom Instruments, Europe	**TS2-2-TuA-10** Recent Process Development of Magnetron Sputtering Deposited Boron Carbide Thin Films for Neutron Detection at the European Spallation Source, ***C. Lai****, C. Höglund, P. 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
5:00pm		**TS2-2-TuA-11** 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. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan*; P. Yiu,* National Taiwan University of Science and Technology, Taiwan
5:20pm		

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

7:00pm	**INVITED: SIT2-TuSIT-1** Design, Metallurgy and Manufacturing Technologies of Targets for Hard Coating and Tribological Applications, ***P. Polcik***, Plansee Composite Materials GmbH, Germany	
7:20pm		
7:40pm		

	Coatings for Use at High Temperatures **Room Pacific E - Session A2-2-WeM** **Thermal and Environmental Barrier Coatings II** **Moderators: Sabine Faulhaber**, University of California, San Diego, USA, **Kang N. Lee**, NASA GIenn Research Center, USA, **Pantcho Stoyanov**, Pratt & Whitney, USA	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - 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, Republic of China, Taiwan
8:00am		
8:20am		**B3-WeM-2** DLC Coatings Deposited by Novel Doping Strategies with HiPIMS, ***J. Santiago Varela***, *I. Fernández-Martínez, A. Wennberg,* Nano4Energy SL, Spain*; M. Monclús, J. Molina-Aldareguia,* IMDEA Materials Institute, Spain*; V. Bellido-Gonzalez,* Gencoa Ltd, UK*; M. Panizo-Laiz,* Universidad Politecnica de Madrid, Spain*; J. Sánchez-Lopez, T. Rojas,* CSIC, Spain*; S. Goel,* Cranfield University, UK*; J. Endrino,* IKERBASQUE, Spain
8:40am		**B3-WeM-3** Effects of Target Poisoning Ratios on the Microstructure, Mechanical Properties and Corrosion Resistance of WC_x Coatings Fabricated by Superimposed HiPIMS and MF System, ***I. Moirangthem***, Ming Chi University of Technology, Taiwan*; S. Chen,* National Taiwan University, Taiwan*; J. Lee,* Ming Chi University of Technology, Taiwan
9:00am		**B3-WeM-4** 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
9:20am	**A2-2-WeM-5** Thermal-Corrosive Properties of Y_2SiO_5 Environmental Barrier Coatings under Isothermal Heat Treatment, ***B. Jang***, Kyushu University, Japan*; S. Kim, Y. Oh, S. Lee, H. Kim,* Korea Institute of Ceramic Engineering and Technology, Republic of Korea	**B3-WeM-5** Effect of Mechanical and Thermochemical Steel Substrate Pre-treatment on DLC Coating Durability, *D. Tobola,* Institute of Advanced Manufacturing Technology*; **T. Liskiewicz**,* Manchester Metropolitan University, UK*; L. Yang,* Leeds University, UK
9:40am	**A2-2-WeM-6** Studies on Microstructure and Properties of Thick Mo Coatings obtained via Molten Salt Electrolysis, ***S. Ghosh***, *J. Varshney, C. Srivastava, V. Kain,* Bhabha Atomic Research Centre, India	**B3-WeM-6** 'Hydrogenated Amorphous Carbon from Magnetized Hollow Cathode Discharges, ***J. Miller***, *A. Ceballos-Sanchexz, S. Elhadj, S. Kucheyev, B. Bayu Aji, S. Falabella,* Lawrence Livermore National Laboratory, USA
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:20am		
10:40am		
11:00am	**A2-2-WeM-10** Corrosion Resistance and Fatigue Behavior of Bare and Coated Ni-based Superalloys, ***S. Dryepondt***, *R. Pillai, J. Kurley,* Oak Ridge National Laboratory, USA	**B3-WeM-10** Stress Free ta-C Coatings by means of Up-Scaled Pulsed Laser Deposition for Industrial Applications, ***H. Gruettner***, *D. Haldan, J. Maus,* Hochschule Mittweida - University of Applied Sciences, Germany*; M. Nieher,* Hochschule Mittweida - University of Applied Sciences , Germany*; S. Weissmantel,* Hochschule Mittweida - University of Applied Sciences, Germany
11:20am	**A2-2-WeM-11** Effects of Mo Interlayer on the Oxidation Behaviour and Degradation Mechanism of Amorphous SiAlN Coating at 1000 °C in Steam Environment, ***Z. Gao***, The University of Manchester, UK*; J. Malecka, P. Kelly,* Manchester Metropolitan University, UK*; P. Xiao,* The University of Manchester, UK	**B3-WeM-11** The Influence of Different Power Supply Systems on the Microstructure, Mechanical and Corrosion Properties of Titanium Carbide Coatings, ***H. Yu -Tung***, Ming Chi University of Technology, Taiwan, Republic of China, Taiwan*; C. Li-Chun,* Ming Chi University of Technology, Taiwan*; L. Bih-Show,* Chang Gung University, Taiwan*; L. Jyh-Wei,* Ming Chi University of Technology, Taiwan
11:40am		**B3-WeM-12** Structural, Mechanical, and Tribological Analysis of DLC Coatings Deposited on BSS99G steel by Magnetron Sputtering, ***M. Dwivedi***, Indian Institute of Technology Madras, India*; S. Boominatha sellarajan , N. Arunachalam , M. Ramachandra Rao,* Indian Institute of Technology Madras , India
12:00pm		

Wednesday Morning, April 28, 2021

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country D - 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 Palm 1-3 - Session C3-WeM** **Thin Films for Energy Applications: Solar, Thermal, and Photochemical** **Moderators: Tushar Shimpi**, Colorado State University, USA, **Clio Azina**, RWTH Aachen, Germany
8:00am	**INVITED: B7-WeM-1** Energy and Momentum Fluxes at Plasma Processing of Materials, ***H. Kersten****, T. Trottenberg, M. Klette, L. Hansen, A. Spethmann, F. Schlichting,* IEAP, U Kiel, Germany	**C3-WeM-1** Au and Ag Nanoparticle Effects on the Electrical Properties of Pulsed Laser Deposited Cdte/Cds Photovoltaic Thin Films, ***M. Sahiner****, J. Emerson, F. Akinlade, M. Herington, V. Castillon,* Seton Hall University, USA
8:20am		**C3-WeM-2** Transparent Thermoelectric TiO_2:Nb Thin Films, *J. Ribeiro, F. Correia,* ***C. Tavares****,* University of Minho, Portugal
8:40am	**B7-WeM-3** Utilizing Visible Spectroscopy to Determine Ionization Behavior of Tungsten Atoms Sputtered by Argon Ions, ***A. Neff****,* Oak Ridge Instituite for Science and Education, USA*; E. Unterberg, M. Zach,* Oak Ridge National Laboratory, USA	**C3-WeM-3** Hydrothermal Fabrication, Characterization and Piezoelectrically Enhanced Photocatalysis of BiFeO3 Thin Films on FTO Substrate, ***N. Nguyen Thi****,* National Cheng Kung University, Taiwan
9:00am	**B7-WeM-4** 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	**INVITED: C3-WeM-4** 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
9:20am	**B7-WeM-5** 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	
9:40am	**B7-WeM-6** The Plasma Effect on Electrical Performance of Stannic Oxide P-Type Thin Film Transistors, ***Y. Chiu****, P. Liu, D. Ruan, K. Gan, C. Hsu, S. M. Sze,* National Chiao Tung University, Taiwan	**C3-WeM-6** Multilayers for Efficient Thermal Energy Conversion in High Vacuum Flat Solar Thermal Panels, *D. De Maio,* Unina and CNR-ISASI, Italy*; C. D'Alessandro, A. Caldarelli, E. Gaudino,* UniNa and CNR-ISASI, Italy*; M. Musto,* UniNa - Università degli studi di Napoli "Federico II", Italy*; D. De Luca,* UniNa and CNR-ISASI, Italy*; E. Di Gennaro,* UniNa - Università degli studi di Napoli "Federico II", Italy*;* ***R. Russo****,* CNR - ISASI, Italy
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:20am		
10:40am		
11:00am	**B7-WeM-10** Improved Electrical Characteristics of Ge nMOSFET with Post Interfacial Layer Plasma Treatment, ***F. Chu****, K. Chang-Liao, D. Ruan, H. Yeh, S. Yi, Y. Chien,* National Tsing Hua University, Taiwan	
11:20am		
11:40am		
12:00pm		

Wednesday Morning, April 28, 2021

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Town & Country B - Session E1-3-WeM** **Friction, Wear, Lubrication Effects, and Modeling III** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific D - Session G5-1-WeM** **Hybrid Systems, Processes and Coatings** **Moderators: Hana Barankova**, Uppsala University, Sweden, **SangYul Lee**, Korea Aerospace University, Republic of Korea
8:00am	**INVITED: E1-3-WeM-1** PVD Coatings Interaction with the Environment and Influence of Substrate on Coating Performance, ***B. Podgornik,*** Institute of Metals and Technologies, Slovenia	**G5-1-WeM-1** Characterization of the Combination of Microwave and Laser Ablation Plasmas, ***E. Camps,*** *E. Campos-Gonzalez,* Instituto Nacional de Investigaciones Nucleares, Mexico
8:20am		**G5-1-WeM-2** 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-WeM-3** Tribologically Enhanced Self-healing of Niobium Oxide Surfaces, ***S. Aouadi,*** *A. Shirani, J. Gu, B. Wei, D. Berman,* University of North Texas, USA	**INVITED: G5-1-WeM-3** Frontiers of Surface Engineering for Ultra-low Friction and Wear, ***A. Erdemir,*** Texas A&M University, USA
9:00am	**E1-3-WeM-4** 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	
9:20am	**E1-3-WeM-5** Silver as the Component of Tribological Nanocomposite Coatings: Benefits, Drawbacks, and Principles, ***A. Bondarev,*** Czech Technical University in Prague, Czech Republic; *D. Shtansky,* National University of Science and Technology "MISiS", Russia, Russian Federation; *T. Polcar,* Czech Technical University in Prague, Czech Republic	**G5-1-WeM-5** Hybrid Technologies for Multifunctional Coatings Properties, ***D. Collignon,*** PD2i SAS, Germany
9:40am	**E1-3-WeM-6** Tribological Properties of Duplex PEO/Chameleon Coating on Aluminum Alloys, ***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. Mogonye,* Army Research Laboratories, USA; *D. Berman, S. Aouadi,* University of North Texas, USA	**G5-1-WeM-6** 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		
10:40am		
11:00am	**E1-3-WeM-10** 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	**INVITED: G5-1-WeM-10** Stabilization of FCVAS Based Hybrid System for Deposition of Thick Tetrahedral Amorphous Carbon Films and its Applications, ***J. Kim,*** *Y. Jang,* Korea Institute of Materials Science (KIMS), Korea, Republic of Korea; *D. 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-WeM-11** Lubrication and Phase Evolution of WS_2/BN/Sb_2O_3 Chameleon Coatings at Elevated Temperatures, ***E. Cairns,*** University of North Texas, USA; *J. Mogonye,* U.S. CCDC Army Research Laboratory, USA; *A. Voevodin, S. Aouadi,* University of North Texas, USA	
11:40am	**E1-3-WeM-12** Understanding Ultra-Low Coefficient of Friction of a-C Coated Surfaces Under High Contact Pressure, ***N. Fukumasu,*** *A. Tschiptschin, I. Machado, R. Souza,* University of São Paulo, Brazil	**G5-1-WeM-12** 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		

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific H-I - 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 C - 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, Institute of Materials Science and Technology, Austria, **Johanna Rosén**, Linköping University, Sweden
8:00am		**TS2-3-WeM-1** 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,* Institute of Materials Research, Helmholtz-Zentrum Geesthacht, Germany*; J. Julin,* Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Germany*; C. Czettl,* Ceratizit Austria GmbH, Austria
8:20am	**H2-2-WeM-2** 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	**TS2-3-WeM-2** 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, Sweden*; F. Klimashin,* Linköping University, Sweden*; G. Greczynski,* Linköping University, Sweden*; P. Polcik, S. Kolozsvári,* Plansee Composite Materials GmbH, Germany*; J. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan*; I. Petrov,* University of Illinois, USA, Linköping University, Sweden*; J. Rosen,* Linköping University, Sweden
8:40am	**H2-2-WeM-3** 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	**TS2-3-WeM-3** Influence of Sputtering-Parameters on Stoichiometry and Mechanical Properties of Selected Binary and Ternary Transition Metal Diborides, ***V. Moraes****, H. Riedl, P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria
9:00am	**H2-2-WeM-4** 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. Raskin,* Université Catholique de Louvain, Belgium*; J. Park,* Yonsei University, Republic of Korea*; A. Li Bassi,* Politecnico di Milano, Italy*; T. Pardoen,* Université Catholique de Louvain, Belgium	**TS2-3-WeM-4** XPS Analysis of TiB_x Thin Films, ***N. Hellgren****,* Messiah University, USA*; G. Greczynski,* Linköping University, Sweden*; M. Sortica,* Uppsala University, Sweden*; I. Petrov,* University of Illinois at Urbana Champaign, USA*; L. Hultman,* Linköping University, Sweden*; J. Rosen,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
9:20am	**H2-2-WeM-5** X-Ray Photoelectron Spectroscopy Analysis of Electronic Band Structure for MIM Capacitor Interfaces, ***S. Hoang****, T. Ngo, E. Januar, M. McBriarty, A. Lee, C. Clavero,* Intermolecular Inc., a subsidiary of Merck KGaA, Germany	**INVITED: TS2-3-WeM-5** Metal Diborides Everywhere: Conformal Coating, Infilling, and Alloying by Low Temperature CVD, ***J. Abelson****,* University of Illinois at Urbana-Champaign, USA
9:40am	**H2-2-WeM-6** Intrinsic Mechanical Properties of Moderate Temperature Processed Cvd Amorphous Silicon Oxide (Sio_2) and Oxynitride (Sio_xN_y) Thin Films, ***M. Puyo****, C. Lebesgue, K. Topka,* Université de Toulouse, France*; B. Diallo,* Univ. Orléans, France*; R. Laloo, V. Turq, H. Vergnes, D. Samelor, F. Senocq, B. Caussat,* Université de Toulouse, France*; N. Pellerin, C. Genevois,* Univ. Orléans, France*; C. Vahlas,* Université de Toulouse, France	
10:00am	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL	COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL
10:20am		
10:40am		
11:00am	**H2-2-WeM-10** Calo Indent Module - New Method to Evaluate Stress Profiles, ***N. Bierwisch****, N. Schwarzer,* SIO, Germany	**INVITED: TS2-3-WeM-10** 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. Achenbach, J. Schneider,* RWTH Aachen University, Germany*; G. Scheu,* ***C. Scheu****,* Max-Planck-Institut für Eisenforschung GmbH, Germany
11:20am	**H2-2-WeM-11** Improving the High Temperature Hardness of Nanocrystalline Copper through Tungsten Nanoparticles*, N. Rohbeck, T. Edwards, E. Huszár, L. Pethö,* ***X. Maeder****, J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	
11:40am		**TS2-3-WeM-12** Microstructure and Materials Properties of Understoichiometric TiB_x Thin Films Grown by HiPIMS, ***J. Thörnberg****,* Linköping University, Sweden*; N. Hellgren,* Messiah College, USA*; N. Ghafoor, J. Palisaitis, I. Zhirkov, C. Azina, P. Persson,* Linköping University, Sweden*; I. Petrov,* University of Illinois, USA, Linköping University, Sweden*; J. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan*; J. Rosen,* Linköping University, Sweden

12:00pm		**TS2-3-WeM-13** On Hardening Mechanisms in Quasi-Binary Diboride Thin Films, ***F. Klimashin,*** Linköping University, Sweden*; P. Polcik, S. Kolozsvári,* Plansee Composite Materials GmbH, Germany*; J. Greene, I. Petrov,* University of Illinois, USA, Linköping University, Sweden*; J. Rosén,* Linköping University, Sweden

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

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

1:20pm

1:40pm

Wednesday Afternoon, April 28, 2021

	Coatings for Use at High Temperatures **Room Pacific E - 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 Town & Country D - Session B4-1-WeA** **Properties and Characterization of Hard Coatings and Surfaces I** **Moderators: Naureen Ghafoor**, Linköping Univ., IFM, Thin Film Physics Div., Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
2:00pm	**A3-WeA-1** High-Temperature Protective Coatings against Molten Nitrate Salts for CSP Technology, ***G. García Martín,*** REP-Energy Solutions, Spain*; V. Encinas Sánchez, M. Lasanta Carrasco, T. De Miguel Gamo, F. Pérez Trujillo,* Universidad Complutense de Madrid, Spain	**B4-1-WeA-1** In-plane Texturing of Silver Thin Films*, **F. Corbella,*** Saint-Gobain Recherche/CNRS, France
2:20pm	**A3-WeA-2** 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-WeA-2** Effect of Functionally Graded Layers on Tribological Behavior of TiZrN Coatings on AISI D2 Steel*, **J. Huang**, B. Tsai,* National Tsing Hua University, Taiwan
2:40pm	**A3-WeA-3** Biodegradable Polyurethane Antifouling Coating, ***M. Rahman,*** King Fahd University of Petroleum and Minerals, Saudi Arabia	**B4-1-WeA-3** Comparative Study of Adhesion Strength of TiC Films Deposited by Sputtering, RF or DC Plasma CVD on Chemically Treated WC-Co Substrate*, **K. Fuji**, H. Matsushima, D. Kiyokawa, C. Tanaka, N. Okamoto, T. Saito,* Osaka Prefecture University, Japan*; A. Kitajima,* Osaka University, Japan
3:00pm	**A3-WeA-4** 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-WeA-4** Properties of Thin Film Metallic Glass Produced by High Power Impulse Magnetron Sputtering, ***N. Boenninghoff,*** National Taiwan University of Science and Technology, Taiwan, Germany*; J. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan*; W. Diyatmika,* National Taiwan University of Science and Technology (NTUST), Taiwan, Indonesia*; G. Greczynski,* Linköping University, Sweden
3:20pm	**A3-WeA-5** Al-TiC Cermet Structures for High Temperature Solar Selective Coatings, ***Z. Huang**, J. Ting,* National Cheng Kung University (NCKU), Taiwan	**B4-1-WeA-5** High Temperature Tribology of Hf Doped c-$Al_{0.67}Ti_{0.33}N$ Cathodic Arc PVD Coatings Deposited on M2 Tool Steel*, G. Mondragón Rodríguez, **A. Gómez Ovalle**, J. Alvarado Orozco, J. González Carmona, C. Ortega Portilla, J. Hernández Mendoza,* CIDESI, Mexico
3:40pm		**B4-1-WeA-6** Mechanical and Tribological Properties of AlCrN Coating Deposited in a Plasma Nitrided Substrate*, **O. Ramírez-Reyna**,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México, Mexico*; G. Rodríguez-Castro,* Instituto Politécnico Nacional Grupo Ingeniería de Superficies, México, Mexico*; U. Figueroa-López,* Tecnologico de Monterrey, Campus Estado de México, Mexico*; R. Vega-Morón, A. Meneses-Amador,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México, Mexico*; I. Arzate-Vázquez,* Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México, Mexico
4:00pm		**B4-1-WeA-7** 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
4:20pm		**INVITED: B4-1-WeA-8** Modern Analytical Methods for Characterizing the Tribological Material Properties of Coatings, ***D. Schorr,*** Cooperate State University in Karlsruhe, Germany
4:40pm		
5:00pm		
5:20pm		

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Palm 1-3 - Session C1-WeA** **Optical Materials: Design, Synthesis, Characterization, and Applications** **Moderators: Nikolas Podraza**, University of Toledo, USA, **Juan Antonio Zapien**, City University of Hong Kong, Hong Kong Special Administrative Region of China	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room Town & Country B - Session E1-4-WeA** **Friction, Wear, Lubrication Effects, and Modeling IV** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Tomáš Polcar**, University of Southampton, UK, **Manel Rodriguez Ripoll**, AC2T Research GmbH, Austria
2:00pm	**INVITED: C1-WeA-1** Metrology for Emerging Semiconductor Devices and Processes, ***N. Orji,*** National Institute of Standards and Technology (NIST), USA	**E1-4-WeA-1** 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		**E1-4-WeA-2** Evaluation of the Wear Resistance of Borided AISI 1018 Steel Exposed to the Diffusion Annealing Process, ***E. Hernández-Ramírez****, I. Campos-Silva, A. Ruiz-Rios, A. Delgado-Brito, A. Contla-Pacheco,* Instituto Politecnico Nacional Grupo Ingeniería de Superficies, México, Mexico*; J. Oseguera-Peña,* Tecnologico de Monterrey, Campus Estado de México, Mexico
2:40pm	**C1-WeA-3** Enhancing Plasmonic Sensing with Nanostructured Thin Films Containing Au Nanoparticles, ***M. Rodrigues****, J. Borges, F. Vaz,* University of Minho, Portugal	**E1-4-WeA-3** Effect of Electrostatic Solid Lubrication on Tribological Behavior of Ti-6Al-4V Alloy, *R. Gunda,* BITS Pilani Hyderabad Campus, India*;* ***U. Paturi****,* CVR College of Engineering, Hyderabad, India*; S. Narala,* BITS Pilani Hyderabad Campus, India
3:00pm	**C1-WeA-4** 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	**E1-4-WeA-4** Assessment and Enhancement of Tribocorrosion Behaviour of Aluminum-Titanium Diboride (Al-TiB_2) Metal Matrix Composite, ***A. Sheelwant****,* BITS-Pilani, Hyderabad Campus, India*; S. Narala,* BITS-Pilani Hyderabad Campus, India*; P. Shailesh,* Methodist College of Engineering and Technology, India
3:20pm	**C1-WeA-5** Optical Probing of Vanadium Oxide Thin Film Composition and Phase, *M. Junda,* ***N. Podraza****,* University of Toledo, USA	**E1-4-WeA-5** Finite Element Modeling of Ball-on-Flat (BoF) Wear Process for Thin Film TiC Coated on Brass Substrate, ***M. Ogunlana****,* University of Johannesburg, South Africa
3:40pm	**INVITED: C1-WeA-6** Measurement of Feature Dimension and Shape for Nanowire Test Structures Using Mueller Matrix Spectroscopic Ellipsometry based Scatterometry and Small Angle X-Ray Scattering, ***A. Diebold****,* SUNY Polytechnic Institute Albany, USA	**E1-4-WeA-6** Interlayer Design to Increase Adhesion of a-C Coatings onto C17200 Copper-Beryllium Alloy Surface, ***M. dos Santos****, N. Fukumasu,* Polytechnic School of the University of Sao Paulo, Brazil*; A. Tschiptschin,* Metallurgical and Materials Engineering Department, University of Sao Paulo, Sao Paulo, Brazil*; R. de Souza, I. Machado,* Polytechnic School of the University of Sao Paulo, Brazil
4:00pm		
4:20pm	**C1-WeA-8** IR Mirror Coating for Evacuated Thermal Collectors: Design and Optical Characterization, ***D. De Luca****,* UniNa and CNR-ISASI, Italy*; E. Di Gennaro,* UniNa Università degli studi di Napoli "Federico II", Italy*; C. D'Alessandro, A. Caldarelli, D. De Maio, E. Gaudino,* UniNa and CNR-ISASI, Italy*; M. Musto,* UniNa Università degli studi di Napoli "Federico II", Italy*; R. Russo,* CNR-ISASI, Italy	
4:40pm		
5:00pm		
5:20pm		

	New Horizons in Coatings and Thin Films **Room Pacific H-I - Session F1-WeA** **Nanomaterials and Nanofabrication** **Moderator:** **Vitezslav Stranak**, University of South Bohemia, Czech Republic	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific D - Session G6-WeA** **Application-Driven Cooperations between Industry and Research Institutions** **Moderators: Tobias Brögelmann**, Surface Engineering Institute - RWTH Aachen University, Germany, **Kumar Yalamanchili**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein
2:00pm	**F1-WeA-1** Deposition of Cu and Pt Metallic Clusters onto Titanium Dioxide Nanoparticles by DC Magnetron Sputtering for Hydrogen Production, ***G. West***, Manchester Metropolitan University, UK; *M. Bernareggi, G. Chiarello, E. Selli,* University of Milan, Italy; *A. Ferretti,* ISTM-CNR Lab Nanotechnology, Italy; *M. Ratova, P. Kelly,* Manchester Metropolitan University, UK	**INVITED: G6-WeA-1** Success Factors for Collaborative Industrial Coating Development, ***M. Morstein,*** Hightech Zentrum Aargau AG, Switzerland
2:20pm	**F1-WeA-2** Effect of Cu Irradiated Zr/Nb Nanometric Multilayers, ***N. Daghbouj,*** Czech Technical University in Prague, Czech Republic	
2:40pm	**F1-WeA-3** 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. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA; ***K. Sarakinos,*** Linköping University, Sweden	**G6-WeA-3** Performance and Characterization of PVD Coatings with Different Al/Ti Ratio During High Speed Turning of Stainless Steel 304, ***Q. He,*** *J. Paiva,* McMaster University, Canada; *J. Kohlscheen,* Kennametal GmbH, Germany; *G. Fox-Rabinovich, S. Veldhuis,* McMaster University, Canada
3:00pm	**F1-WeA-4** Novel Type of Bent-Lattice Nanostructure in Crystallizing Amorphous Films Revealed by TEM: From Transrotational Microcrystals to Strain Nanoengineering and Novel Amorphous Models, ***V. Kolosov,*** Ural Federal University, Russian Federation	**G6-WeA-4** Hard Protective Coatings Inside Narrow Tubes and Cavities in Aircraft Engine Components, *A. Kilicaslan, O. Zabeida, E. Bousser,* Polytechnique Montreal, Canada; ***J. Klemberg-Sapieha,*** Polytechnique Montrtreal, Canada; *L. Martinu,* Polytechnique Montreal, Canada
3:20pm	**F1-WeA-5** Fabrication and Characterization of Thin-film Metallic Glass/polyacrylonitrile Composite Membrane for Nitrogen Separation, ***E. Gizaw,*** National Taiwan University of Science and Technology, Taiwan; *H. Yeh,* Chung Yuan Christian University, Taiwan; *J. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan; *C. Hu,* Chung Yuan Christian University, National Taiwan University of Science and Technology (NTUST), Taiwan	**INVITED: G6-WeA-5** 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-WeA-6** Assembly of 3.5 v High Performances Supercapacitors Based on Petroleum-Derived Carbon Electrode and Advanced Ionic Liquid Electrolyte, ***Y. Lai,*** *J. Ting,* National Cheng Kung University (NCKU), Taiwan	
4:00pm	**F1-WeA-7** Improvement of Adhesion between NiTi Alloy and Diamond-like Carbon Filmby Bayesian Optimization, ***M. Toyonaga,*** Keio University, Japan; *T. Hasebe,* Keio University, Tokai University Hachioji Hospital, Japan; *S. Maegawa,* Tokai University Hachioji Hospital, Japan; *T. Matsumoto,* Keio University, Tokai University Hachioji Hospital, Japan; *A. Hotta, T. Suzuki,* Keio University, Japan	**G6-WeA-7** PALMS - Plasma Additive Layer Manufacture Smoothing, ***T. Brzezinka,*** *J. Housden, A. Fox,* Wallwork Cambridge Ltd, UK; *N. Laugel, A. Matthews, A. Yerokhin,* The University of Manchester, UK
4:20pm		**G6-WeA-8** Prediction of Loss of Barrier Properties in Cracked Thin Coatings on Polymer Substrates Subjected to Tensile Strain, ***M. Tavares da Costa,*** *E. Gamstedt,* Uppsala University, Angstrom Laboratory, Sweden
4:40pm		
5:00pm		
5:20pm		

Topical Symposia
Room Pacific C - 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 G. Sangiovanni**, Linköping University, Sweden

2:00pm	**TS3-1-WeA-1** First-Principles Study of Metal/Ceramic Interfaces, ***X. Pang,*** University of Science and Technology Beijing, China	
2:20pm	**TS3-1-WeA-2** 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-WeA-3** Are Protective Coatings Predictable?, ***J. Schneider***[1], RWTH Aachen University, Germany	
3:00pm		
3:20pm	**TS3-1-WeA-5** Strength, Transformation Toughening and Fracture Dynamics of Rocksalt-structure $Ti_{1-x}Al_xN$ ($0 \le x \le 0.75$) Alloys, ***D. Sangiovanni,*** *F. Tasnadi, M. Oden, I. Abrikosov,* Linköping University, Sweden	
3:40pm	**TS3-1-WeA-6** Multiscale Modelling of Thin Metal Film Growth on Weakly-interacting Substrates, ***V. Gervilla,*** *M. Zarshenas, B. Lü, G. Almyras,* Linköping University, Sweden*; J. Greene,* University of Illinois, USA, Linköping University, Sweden, National Taiwan Univ. Science & Technology, Taiwan, USA*; D. Sangiovanni, K. Sarakinos,* Linköping University, Sweden	
4:00pm	**INVITED: TS3-1-WeA-7** 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	
4:20pm		
4:40pm	**TS3-1-WeA-9** Atomistic Modelling of Diffusion in Quasi-amorphous Nanocomposite Coatings, ***G. Nayak,*** *D. Holec,* Montanuniversität Leoben, Austria	
5:00pm	**TS3-1-WeA-10** Prediction of Composition, Crystalline Structure and Microstructure of Sputtered Multi-Component Coatings by a Virtual Machine, ***D. Böhm,*** Vienna University of Technology, Austria*; T. Schrefl,* Danube University Krems, Austria*; A. Eder,* MIBA High Tech Coatings GmbH, Austria*; C. Eisenmenger-Sittner,* Vienna University of Technology, Austria	
5:20pm	**TS3-1-WeA-11** Predictive Simulation of AlTiN Process Including Layer Growth, ***P. Zikán,*** PlasmaSolve s.r.o., Czech Republic*; P. Moskovkin,* University of Namur, LARN-NISM, Belgium*; M. Kubečka,* PlasmaSolve s.r.o., Czech Republic*; E. Haye,* University of Namur, LARN-NISM, Belgium*; S. Lucas,* Innovative Coating Solutions (ICS), University of Namur (LARN-NISM), Belgium*; A. Obrusník,* PlasmaSolve s.r.o., Czech Republic	

[1] **2020 Bill Sproul Awardee**

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

5:45pm		
6:05pm	**INVITED: HL-WeHL-2** R.F. Bunshah Award and ICMCTF Lecture Invited Talk: From a Sparkling Brass Chain and Twitching Frog Legs: The Astonishing Path to Plasma-Based Advanced Coatings, ***A. Anders,*** Leibniz Institute of Surface Engineering (IOM), Felix Bloch Institute, Leipzig University, Germany	
6:25pm		
6:45pm		

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country C - Session B1-1-ThM** **PVD Coatings and Technologies I** **Moderator:** **Qi Yang**, National Research Council of Canada, Canada	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-2-ThM** **Properties and Characterization of Hard Coatings and Surfaces II** **Moderators: Naureen Ghafoor**, Linköping Univ., IFM, Thin Film Physics Div., Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
8:00am	**B1-1-ThM-1** 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. Mejía Vásquez***, *G. Bejarano Gaitan,* University of Antioquia, Medellín, Colombia*; M. Arroyave Franco,* University EAFIT, Colombia	**B4-2-ThM-1** Thin Film Characterization by Picosecond Ultrasonics on High Curvature Surfaces, ***F. Faese***, *J. Michelon, X. Tridon,* Neta, France
8:20am	**B1-1-ThM-2** 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. Bublikov,* Ikti Ran, Russian Federation	**B4-2-ThM-2** 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. Holzapfel,* RWTH Aachen University, Germany*; D. Primetzhofer,* Uppsala University, Sweden*; J. Schneider,* RWTH Aachen University, Germany
8:40am	**INVITED: B1-1-ThM-3** Coating Design and Mechanical Properties of Multicomponrnt AlTi(X)N Hard Coatings, ***Y. Chang***, National Formosa University, Taiwan	**B4-2-ThM-3** Residual Stress Measurement on Coatings by 2D-XRD with Single Sample Tilt, ***B. He***, Bruker AXS, Inc., USA
9:00am		**B4-2-ThM-4** 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***[1], Montanuniversität Leoben, Austria*; J. Todt, J. Zalesak,* Austrian Academy of Sciences, Austria*; M. Rosenthal,* ESRF, Grenoble, France*; H. Hruby,* eifeler-Vacotec GmbH, Germany*; C. Mitterer, R. Daniel, J. Keckes,* Montanuniversität Leoben, Austria
9:20am	**B1-1-ThM-5** 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	
9:40am	**B1-1-ThM-6** On the Synthesis and Characterization of (Ti,Zr)n+1AlCn MAX Phase Coatings using Elemental and Compound Targets, ***C. Azina***, Linköping Univ., IFM, Thin Film Physics Div., Sweden*; B. Tunca,* KU Leuven, Belgium*; B. Xin, M. Yildizhan, P. Persson, J. Rosen, P. Eklund,* Linköping Univ., IFM, Thin Film Physics Div., Sweden	**B4-2-ThM-6** Combinatorial Approach for the Synthesis of Thermally Stable High Si-containing Nanocomposite AlCrSiN Coatings, ***M. Zítek***, *N. Jäger, M. Meindlhumer,* Montanuniversität Leoben, Austria*; F. Nahif,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany*; C. Mitterer, R. Daniel,* Montanuniversität Leoben, Austria
10:00am	**B1-1-ThM-7** Microstructural and Biological Behavior of TiAlVN(Ag) Nanocomposite Coatings, ***F. Giraldo***, *G. Bejarano,* Universidad de Antioquia, Colombia	**B4-2-ThM-7** Influence of the Period of the Substrate Oscillation on Thin CrN Films Obtained by RF Physical Vapor Dynamic Glancing Angle Deposition Technique, *M. Jimenez, F. Cemin, A. Riul, L. Zagonel,* UNICAMP, Brazil*; C. Figueroa,* Universidade de Caxias do Sul, Brazil*; D. Wisnivesky,* UNICAMP, Brazil*;* ***F. Alvarez***, Instituo de Física-UNICAMP, Brazil
10:20am	**B1-1-ThM-8** Influence of High-Impulse Current on Structure Formation of Single Re-B-Ti Cathode, Utilized for Films Deposition in Magnetron Sputtering Technique, ***B. Wicher***, *R. Chodun,* Warsaw University of Technology, Poland*; M. Trzciński,* UTP University of Science and Technology, Poland*; A. Lachowski,* Polish Academy of Sciences, Poland*; K. Zdunek,* Warsaw University of Technology, Poland	**B4-2-ThM-8** 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. Sobczak,* AGH University of Science and Technology Krakow, Poland*; N. Sobczak,* Polish Academy of Sciences, Poland*; G. Bruzda,* Łukasiewicz Research Network, Poland*; A. Wójcik,* Polish Academy of Sciences, Poland*; P. Kurtyka,* Pedagogical University of Krakow, Poland*; H. Krawiec,* AGH University of Science and Technology Krakow, Poland
10:40am	**B1-1-ThM-9** Sub-critical Hotspots to Quench Rapid Reactions in Sputter Deposited Nanoscale Ni-Al Multilayer Foils*, I. Gunduz,* Naval Postgraduate School, USA*;* ***C. Rebholz***, University of Cyprus, Cyprus	**B4-2-ThM-9** Scratch Test in Boride Layers: The Influence of Indenter Tip Radius on Failure Mechanisms, ***O. Reyes-Carcaño***, *J. Martínez-Trinidad, A. Meneses-Amador, A. Ballesteros-Arguello, D. Fernández-Valdés, I. Campos-Silva,* National Polytechnic Institute, Mexico
11:00am	**B1-1-ThM-10** Evaluation of TiN-Based Erosion/Corrosion Resistant Coatings Deposited by Cathodic Arc Evaporation for Marine Application*, D. Wang,* SurfTech Corp., Taiwan*;* ***L. Hsu****, J. Hung,* Aurora Scientific Corp., Canada*; W. Chen,* MingDao University, Taiwan	
11:20am	**B1-1-ThM-11** Towards Knowledge-based Design of Multi-element Target Materials, ***M. Golizadeh***, Montanuniversität Leoben, Austria*; A. Anders,* Leibniz Institute of Surface Engineering (IOM), and Felix Bloch Institute, Leipzig University, Germany*; C. Mitterer, R. Franz,* Montanuniversität Leoben, Austria	
11:40am		

[1] **Student Award Nominee**

	Fundamentals and Technology of Multifunctional Materials and Devices **Room Palm 1-3 - Session C2-1-ThM** **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 Town & Country B - Session E2-1-ThM** **Mechanical Properties and Adhesion I** **Moderators:** **Megan J. Cordill**, Austrian Academy of Sciences, Austria, **Jazmin Duarte**, MPI für Eisenforschung GMBH, Germany, **Ming-Tzer Lin**, National Chung Hsing University & Chaoyang University of Technology, Taiwan
8:00am	**INVITED: C2-1-ThM-1** Thermal and Plasma-Enhanced Atomic Layer Deposition for Nanoscale Coatings, ***W. Kessels,*** Eindhoven University of Technology, The Netherlands, Netherlands	**E2-1-ThM-1** 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. Klemberg-Sapieha,* Polytechnique Montreal, Canada
8:20am		**E2-1-ThM-2** 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	**C2-1-ThM-3** 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	**INVITED: E2-1-ThM-3** Controlled Spalling of Microscale, Single-Crystal Films of High-Quality, High-Value Semiconductors, ***C. Packard,*** Colorado School of Mines, USA
9:00am	**C2-1-ThM-4** Printed Polymer Heat Sinks for High-Power, Flexible Electronics, ***K. Burzynski***[1], University of Dayton and Air Force Research Laboratory, USA*; N. Glavin,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA*; E. Heckman,* Air Force Research Laboratory, Sensors Directorate, USA*; C. Muratore,* University of Dayton, USA	
9:20am	**C2-1-ThM-5** 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	**E2-1-ThM-5** Thin-film Adhesion: A Comparative Study Between Colored Picosecond Acoustics and the Stressed Overlayer technique, ***A. Devos,*** Iemn, Umr Cnrs, France*; M. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria
9:40am	**INVITED: C2-1-ThM-6** 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	**E2-1-ThM-6** Hyperelasticity and Viscoelasticity in Thin Organic Semiconductor Coatings, ***S. Bull,*** Newcastle University, UK*; A. Yadav, H. Gonabadi,* Newcastle University
10:00am		**E2-1-ThM-7** Comparing the Residual Stress Gradient Measurement of ZrN using FIB-DIC and Xray Diffraction*, W. Lin, Y. Chou,* National Chung Hsing University, Taiwan*; J. Huang,* National Tsing Hua University, Taiwan*;* ***M. Lin,*** National Chung Hsing University, Taiwan
10:20am	**C2-1-ThM-8** Self-strengthening of Cu Film via a Self-forming Sc-rich Barrier for Cu Interconnects, ***J. Fang****, Y. Lin,* National Formosa University, Taiwan*; Y. Cheng,* National Chi-Nan University, Taiwan*; G. Chen,* Feng Chia University, Taiwan	**E2-1-ThM-8** 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
10:40am		**E2-1-ThM-9** 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
11:00am	**C2-1-ThM-10** Interference Signal Induced by Ultra-Thin Amorphous Carbon Films Over Flexible Copper Foils Demonstrated by Electromagnetic Boundaries Calculations, ***Â. Crespi****, C. Ballage, M. Hugon, J. Robert,* Université Paris Saclay, France*; D. Lundin,* Linköping University, Sweden*; T. Minea,* Université Paris Saclay, France	**E2-1-ThM-10** Industrial Applied Measurement Method of Localized Coating Property and Stress Profiles Within a Calotte Wear Crater via Nano-Indentation, ***T. vom Braucke****,* GP Plasma, Canada*; F. Papa,* GP Plasma, USA*; A. Harris, B. Beake,* Micro Materials Ltd, UK*; J. Gutiérrez, I. Martinez, A. Wennberg,* Nano4Energy, Spain*; C. Shin, J. Yun,* DONGWOO HST CO., Democratic People's Republic of Korea*; N. Bierwisch, N. Schwarzer,* Saxonian Institute of Surface Mechanics SIO, Germany
11:20am		
11:40am		

[1] **2020 Student Award Finalist**

Thursday Morning, April 29, 2021

	New Horizons in Coatings and Thin Films **Room Pacific H-I - Session F2-1-ThM** **High Entropy and Other Multi-principal-element Materials I** **Moderators: Diederik Depla**, Ghent University, Belgium, **Ulf Jansson**, Uppsala University, Angstrom Laboratory, Sweden, **Erik Lewin**, Uppsala University, Sweden	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific D - Session G3-2+G5-2-ThM** **Innovative Surface Engineering and Hybrid Processes** **Moderators: Hana Barankova**, Uppsala University, Sweden, **Stepan Kyrsta**, Oerlikon Balzers Coating, Luxembourg, **Christoph Schiffers**, CemeCon AG, Germany
8:00am	**INVITED: F2-1-ThM-1** High-Entropy Ceramic Thin Films; A Case Study of Nitrides, Oxides and Diborides, ***P. Mayrhofer,*** *A. Kirnbauer, R. Hahn,* TU Wien, Institute of Materials Science and Technology, Austria*; P. Polcik,* Plansee Composite Materials GmbH, Germany	**G3-2+G5-2-ThM-1** Influence of the Substrate Bias on the Milling Performance of HPPMS TiAlCrSiN coatings, *K. Bobzin, T. Brögelmann, N. Kruppe,* ***M. Carlet,*** Surface Engineering Institute - RWTH Aachen University, Germany
8:20am		**G3-2+G5-2-ThM-2** Tribological and Machining Performance of Tisin(Ag) Coatings Deposited by Hipims, ***D. Cavaleiro,*** *S. Carvalho,* University of Minho, Portugal*; F. Fernandes,* University of Coimbra, Portugal
8:40am	**F2-1-ThM-3** 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. Zhou,* City University of Hong Kong, Hong Kong Special Administrative Region of China*; Z. Xie,* University of Adelaide, Australia*; P. Munroe,* University of New South Wales, Australia	**G3-2+G5-2-ThM-3** Influence of Processing Parameters on Electrochemical Response of Stainless Steel in a Zinc Containing Electrolyte System During Contact Glow Discharge Electrolysis, ***C. Fox,*** *A. Yerokhin, F. Scenini, N. Laugel,* University of Manchester, UK
9:00am	**F2-1-ThM-4** Phase Formation and Structural Properties of AlSiTaTiZr Multicomponent Thin Film Alloys, ***F. Cemin,*** *M. Jimenez,* UNICAMP, Brazil*; L. Leidens,* Universidade de Caxias do Sul, Brazil*; R. Merlo,* UNICAMP, Brazil*; C. Figueroa,* Universidade de Caxias do Sul, Brazil*; F. Alvarez,* UNICAMP, Brazil	**G3-2+G5-2-ThM-4** Mechanical and Tribological Behaviors of Tin(Al,Mo) Coatings Elaborated by Magnetron Sputtering on 316l Stainless Steels, ***A. Belgroune,*** University of Technology of Troyes, France*; A. Alhussein,* University of Technology of Troyes, France*; L. Aissani,* University of Abbes Laghrour, Khenchela, Algeria*; M. Zaabat,* University of Larbi Ben Mhidi, Oum El Bouaghi, Algeria*; C. Verdy,* University of Technology of Belfort-Montbéliard, France*; C. Langlade,* University of Belfort-Montbéliard, France
9:20am	**F2-1-ThM-5** Carbon Supersaturated Refractory Multicomponent Nanostructured Coatings, ***S. Fritze,*** *B. Osinger, P. Malinovskis, L. Riekehr, L. von Fieandt, E. Lewin, U. Jansson,* Uppsala University, Sweden	**G3-2+G5-2-ThM-5** Synthesis of TiAlSiCrNbN High Entropy Alloy Nitride Coating by Cathodic Arc Evaporation for Cutting Application, ***D. Wang,*** SurfTech Corp., Taiwan*; C. Chen,* SurfTech Corp, Taiwan*; W. Chen,* MingDao University, Taiwan*; J. Hung,* Aurora Scientific Corp., Canada
9:40am	**INVITED: F2-1-ThM-6** Single-phased High Entropy Oxides for Energy Applications, ***J. Ting,*** National Cheng Kung University, Taiwan	
10:00am		
10:20am	**F2-1-ThM-8** 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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	
10:40am	**F2-1-ThM-9** Structural and Mechanical Properties of AlTiTaZr(-N) Medium Entropy Films (MEF) Obtained by DC Magnetron Sputtering in Dynamic Mode, ***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	
11:00am	**F2-1-ThM-10** Carbon Containing Multicomponent Alloys with High Hardness, Ductility and Corrosion Resistance, ***L. Zendejas Medina,*** Uppsala University, Sverige, Sweden*; G. Lindwall,* KTH - Royal Institute of Technology, Sweden*; E. 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	
11:20am		
11:40am		

Topical Symposia
Room Pacific C - Session TS3-2-ThM
In-Silicio 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 at Urbana-Champaign, USA, **Davide G. Sangiovanni**, Linköping University, Sweden

8:00am		
8:20am	**TS3-2-ThM-2** 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	**INVITED: TS3-2-ThM-3** Method Development to Enable In-Silico Design of Materials*,* ***S. Sinnott****,* The Pennsylvania State University, USA	
9:00am		
9:20am	**TS3-2-ThM-5** From Dry Sliding to Full Coverage: The Role of Water in Molybdenum Disulfide Lubrication Studied in Silico*,* ***V. Claerbout****,* Czech Technical University in Prague, Czech Republic*; T. Polcar,* University of Southampton, UK*; P. Nicolini,* Czech Technical University in Prague, Czech Republic	
9:40am	**TS3-2-ThM-6** 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. Schneider,* RWTH Aachen University, Germany	
10:00am	**TS3-2-ThM-7** 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. Schneider,* RWTH Aachen University, Germany	
10:20am	**INVITED: TS3-2-ThM-8** Theoretical Insights into Transition Metal Nitrides for Thermoelectric and Piezoelectric Applications*,* ***B. Alling****,* Linköping Univ., IFM, Theoretical Physics Div., Sweden	
10:40am		
11:00am	**INVITED: TS3-2-ThM-10** 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	
11:20am		
11:40am		

Thursday Afternoon, April 29, 2021

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country C - Session B1-2-ThA** **PVD Coatings and Technologies II** **Moderators:** **Frank Kaulfuss**, Fraunhofer Institute for Material and Beam Technology (IWS), Germany, **Yen-Hsun Su**, National Cheng Kung University (NCKU), Taiwan	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-3-ThA** **Properties and Characterization of Hard Coatings and Surfaces III** **Moderators: Naureen Ghafoor**, Linköping Univ., IFM, Thin Film Physics Div., Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
1:20pm	**B1-2-ThA-1** Biased Target Sputter Deposition System using Novel Ion Source and Motion Control, ***J. VanGemert***, *R. Ham, S. Thompson, J. Williams,* Colorado State University, USA	**B4-3-ThA-1** Low Temperature Deposition of TiB-based Hard Coating Films by Pulsed DC Plasma CVD, ***T. Saito***, *H. Matsushima, K. Fuji, D. Kiyokawa, N. Okamoto,* Osaka Prefecture University, Japan
1:40pm	**B1-2-ThA-2** 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	**INVITED: B4-3-ThA-2** Air-based Sputtering Deposition of Gradient Oxynitride Coatings, ***F. Lu***, National Chung Hsing University, Taiwan*; Y. Liou, Y. Lee, M. Chan,* National Chung-Hsing University, Taiwan
2:00pm	**B1-2-ThA-3** On Electron Heating and Ion Recycling in the High Power Impulse Magnetron Sputtering Discharge, ***J. Gudmundsson***, University of Iceland, Iceland*; D. Lundin,* Linköping University, Sweden*; M. Raadu,* KTH Royal Institute of Technology, Sweden*; T. Petty, T. Minea,* LPGP, Universite Paris-Sud, France*; N. Brenning,* KTH Royal Institute of Technology, Sweden	
2:20pm	**B1-2-ThA-4** How to Deposit a Porous Thin Film by Magnetron Sputtering ?, ***D. Depla***, *R. De Doncker,* Ghent University, Belgium	**B4-3-ThA-4** Investigating the Influence of Nanocomposite Structure on the Thermal Stability of Ag in VSiCN-Ag Coatings, ***F. Thompson***, South Dakota School of Mines and Technology, USA*; F. Kustas,* NanoCoatings, Inc., USA*; G. Crawford,* South Dakota School of Mines and Technology, USA
2:40pm	**B1-2-ThA-5** Tribocorrosion Behaviours of VNbMoTaWCr High Entropy Alloy Coatings, ***I. Rahmadtulloh***, Ming Chi University of Technology, Taiwan*; W. Wang,* National Taiwan University of Science and Technology (NTUST), Taiwan, 台灣*; C. Wang,* National Taiwan University of Science and Technology (NTUST), Taiwan*; B. Lou,* Chang Gung University, Taiwan*; J. Lee,* Ming Chi University of Technology, Taiwan	**B4-3-ThA-5** Effect of the Projection Parameters on the Morphology and the Abrasive Wear Resistance to the Nickel-Based Coatings Produced with Thermal Spraying Flame Technique, ***H. Rojas***, *S. Orjuela B, N. Gómez,* Universidad Libre, Colombia*; F. Cueca,* Sena - Cme, Colombia
3:00pm	**B1-2-ThA-6** Multifunctional Coatings with Antifouling Properties, ***J. Castro***, *I. Carvalho, M. Henriques, S. Carvalho,* University of Minho, Portugal	**B4-3-ThA-6** Fabrication and Microstructure Evolution of Sputtering Single Element Transition Metal Nitride Multilayers, *K. Liu, Y. Yang, J. Xiang, Z. Lin,* ***F. Wu***, National United University, Taiwan
3:20pm	**INVITED: B1-2-ThA-7** 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	**B4-3-ThA-7** Industrial Perspective on Characterization of PVD Hard Coatings for Die and Mold Applications, ***Y. Tanaka***, *S. Sato, Y. Yano, T. Amano,* SEAVAC, Inc., Japan
3:40pm		**B4-3-ThA-8** Numerical Evaluation of the Contact Fatigue Resistance of AlCrN, N and AlCrN/N Coatings on AISI 4140 Steel, ***A. Ballesteros-Arguello***, *F. Ramírez-Reyna, A. Meneses-Amador, G. Rodríguez-Castro, D. Fernández-Valdés, O. Reyes-Carcaño,* National Polytechnic Institute, Mexico
4:00pm		
4:20pm		
4:40pm		

Thursday Afternoon, April 29, 2021

	Fundamentals and Technology of Multifunctional Materials and Devices **Room 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, USA, **Jörg Patscheider**, Evatec AG, Switzerland	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room Town & Country B - Session E2-2-ThA** **Mechanical Properties and Adhesion II** **Moderators:** **Megan J. Cordill**, Austrian Academy of Sciences, Austria, **Jazmin Duarte**, MPI für Eisenforschung GMBH, Germany, **Ming-Tzer Lin**, National Chung Hsing University, Taiwan
1:20pm	**C2-2-ThA-1** Sputtered Gold-tantalum Oxide Films with High Electrical Resistivity, ***A. Engwall***, *L. Bayu Aji,* Lawrence Livermore National Laboratory, USA; *J. Bae,* General Atomics, USA; *A. Baker, X. Lepró, S. Shin, S. McCall, S. Kucheyev,* Lawrence Livermore National Laboratory, USA	**E2-2-ThA-1** Toughening Magnetron Sputtered S-phase Stainless Steel Coatings by Cycling the N_2 Gas Flow Rate, ***C. Garzon,*** Universidad Nacional de Colombia - Bogotá, Colombia; *A. Recco,* Universidade do Estado de Santa Catarina, Brazil
1:40pm	**C2-2-ThA-2** 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-ThA-2** Nb-containing Diamond-like Carbon Films Fabricated by Radio Frequency (rf) Magnetron Sputtering Technique, ***A. Adeniyi,*** *J. Corona, J. Patel, Q. Yang,* University of Saskatchewan, Canada
2:00pm	**INVITED: C2-2-ThA-3** Materials and Processes for Integration of IC Chips through Advanced Packaging, ***M. Wall,*** Intel, USA	**INVITED: E2-2-ThA-3** Insights into Indentation-Induced Cracking via 3D-FIB Tomography and HR-EBSD, ***B. Li,*** University of Oxford, UK
2:20pm		
2:40pm	**C2-2-ThA-5** Study of the Synthesis, Structural and Chemical Composition of Polycrystalline $BiMnO_3$ Thin Films Grown by Radio-Frequency Magnetron Sputtering, ***G. Umoh,*** *J. Holguín-Momaca , R. Talamantes,* Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), Mexico; *G. Herrera-Pérez,* Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), USA; *S. Olive-Méndez, A. Hurtado-Macias,* Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), Mexico	**E2-2-ThA-5** Influence of Twin Wire Arc Spraying Process Parameters on Microstructure and Hardness of Steel Coatings, ***N. Wagner,*** Cal Poly Pomona, USA
3:00pm	**C2-2-ThA-6** Study of Thermal Stability of Highly (111)-Oriented Nanotwinned Ag Films by Using Unbalanced Magnetron Sputtering, ***P. Wu,*** *Y. Hao, L. Chang, F. Ouyang,* National Tsing Hua University, Taiwan	**E2-2-ThA-6** Abrasion Wear Resistance of Low Temperature Plasma Nitrided Inconel 625 Superalloy, *L. Varela, M. Ordoñez,* University of São Paulo, Brazil; *C. Pinedo,* Heat Tech & University of Mogi das Cruzes, Brazil; ***A. Tschiptschin,*** University of São Paulo, Brazil
3:20pm	**C2-2-ThA-7** Effect of Substrate Bias on Properties and Microstructure of Nanotwinned Copper Thin Films Deposited by Magnetron Sputtering System, ***T. Lin,*** NTHU, Taiwan; *S. Chang,* +886-3-5715131 ext 34321, Taiwan; *F. Ouyang,* NTHU, Taiwan	**E2-2-ThA-7** Effects of Processing Parameters of Plasma Electrolytic Oxidation on the Microstructure, Adhesion Strength and Corrosion Resistance of Oxide Layers on ZK60 Magnesium Alloys, ***M. Asrat,*** National Taiwan University of Science and Technology, Taiwan, Ming Chi University of Technology, Taiwan; *J. Chu,* National Taiwan University of Science and Technology (NTUST), Taiwan; *J. Lee,* Ming Chi University of Technology, Taiwan; *B. Lou,* Chang Gung University, Taiwan
3:40pm		**E2-2-ThA-8** Progressive Metallic Coatings for Enhancing Corrosive Properties of Magnesium Alloys, ***S. Dutta,*** *S. Narala,* BITS Pilani Hyderabad Campus, India
4:00pm		**E2-2-ThA-9** Nanostructured CVD W/WC Coating with Enhanced Resistance to Water Droplet Erosion and Cavitation, ***Y. Zhuk,*** Hardide Plc, UK
4:20pm		
4:40pm		

	New Horizons in Coatings and Thin Films **Room Pacific H-I - Session F2-2-ThA** **High Entropy and Other Multi-principal-element Materials II** **Moderators: Diederik Depla**, Ghent University, Belgium, **Ulf Jansson**, Uppsala University, Angstrom Laboratory, Sweden, **Erik Lewin**, Uppsala University, Sweden	**New Horizons in Coatings and Thin Films** **Room Pacific D - Session F3-ThA** **2D Materials: Synthesis, Characterization, and Applications** **Moderators:** **Deep Jariwala**, University of Pennsylvania, USA, **Suneel Kodambaka**, University of California Los Angeles, USA
1:20pm	**F2-2-ThA-1** 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-ThA-1** Pulsed Laser Deposition and Conversion of Atomically-Thin 2D Materials Controlled by *in situ* Diagnostics, ***D. Geohegan,*** Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, USA*; Y. Lin, Y. Yu,* Oak Ridge National Laboratory, USA*; C. Liu, G. Duscher,* University of Tennessee at Knoxville, USA*; A. Puretzky, M. Yoon, C. Rouleau,* Oak Ridge National Laboratory, USA*; P. Rack,* University of Tennessee and Oak Ridge National Laboratory, USA*; G. Eres, K. Xiao,* Oak Ridge National Laboratory, USA
1:40pm	**F2-2-ThA-2** High Entropy Alloy Displays Unique Strengthening and Deformation Pathways, ***S. Tsianikas,*** The University of Adelaide, Australia*; Y. Chen,* Southwest University, China*; Z. Xie,* The University of Adelaide, Australia	
2:00pm	**F2-2-ThA-3** Mechanical Properties of Multilayered NbMoTaW Alloy Films with Cyclic Gradient Concentration*, Y. Chen,* ***C. Chen,*** National Taiwan Ocean University, Taiwan	**F3-ThA-3** Low-Temperature Synthesis of Vertically Standing Graphene by Microwave-Chemical Vapour Deposition*, I. Vasconcelos Joviano dos Santos,* ***J. Kulczyk-Malecka****, S. Rowley-Neale, C. Banks, P. Kelly,* Manchester Metropolitan University, UK
2:20pm	**F2-2-ThA-4** Systematic Investigation of the Impact of Pure Metal Addition on AlCuMgZn Multi Principal Element Alloys, ***J. Kirschner****, R. Gaschl,* Vienna University of Technology, Austria*; J. Bernardi,* USTEM, Vienna Technical University, Austria*; C. Eisenmenger-Sittner,* Vienna University of Technology, Austria*; C. Simson,* LKR Leichtmetallkompetenzzentrum Ranshofen, Austria	**F3-ThA-4** 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
2:40pm	**F2-2-ThA-5** Combinatorial Design of High Entropy Alloys: A Rational Approach in Thin Film*,* ***E. Garel****, H. Van Landeghem, R. Boichot,* SIMAP, Grenoble-INP, CNRS, France	**F3-ThA-5** 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. Liao, Y. Wang, H. Zaid, A. Aleman, M. Goorsky, S. Kodambaka,* University of California Los Angeles, USA
3:00pm	**F2-2-ThA-6** Grain Growth Evolution of High Entropy Oxide $(Ce_{0.2}La_{0.2}Pr_{0.2}Sm_{0.2}Y_{0.2})O_{2-\delta}$ Synthesized by Pulse Laser Deposition*,* ***L. Velasco Estrada,*** KIT, Germany , Germany	**F3-ThA-6** Aqueous Phase Exfoliation and Functionalization of $2DWS_2$ for Enhanced Membrane Permselectivity*,* ***D. Keshebo****, . Chien-Chieh, . Juin Yih,* National Taiwan University of Science and Technology, Taiwan
3:20pm		
3:40pm		
4:00pm		
4:20pm		
4:40pm		

Topical Symposia
Room Pacific C - Session TS1-ThA
Anti- and De-icing Surface Engineering
Moderators: Alina Agüero Bruna, Instituto Nacional de Técnica Aeroespacial (INTA), Spain, **Jolanta-Ewa Sapieha**, École Polytechnique de Montréal, Canada

1:20pm	**INVITED: TS1-ThA-1** Ice Adhesion Mechanics and Durable Icephobic Surfaces, ***J. He,*** Norwegian University of Science and Technology (NTNU), Norway	
1:40pm		
2:00pm	**TS1-ThA-3** Low Ice Adhesion Enhanced Electrothermal Ice Protection, ***J. Hu,*** Collins Aerospace, USA; *C. Slane,* Collins Aeospace, USA; *G. Botura,* Collins Aerospace, USA	
2:20pm	**TS1-ThA-4** 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. Klemberg-Sapieha,* Polytechnique Montreal, Canada	
2:40pm	**INVITED: TS1-ThA-5** Low Interfacial Toughness Materials for Effective Large-scale Deicing, ***K. Golovin,*** University of Britsh Columbia, Canada	
3:00pm		
3:20pm	**TS1-ThA-7** Collins Aerospace - Low Icing Adhesion Testing Methodology for Aerospace Application, ***G. Botura,*** *J. Hu, N. Ching,* Collins Aerospace, USA	
3:40pm	**TS1-ThA-8** Limitations of Anti-icing Materials for Aeronautic Applications, ***P. Garcia,*** National Institute of Aerospace Technology, Spain; *J. Mora,* Isdefe, Spain; *A. Agüero,* National Institute of Aerospace Technology, Spain	
4:00pm	**TS1-ThA-9** 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. Coulter,* Southwest Research Institute, USA	
4:20pm	**TS1-ThA-10** Improving the Efficiency of Electro-Thermal De-Icing Systems With Icephobic Coatings, ***J. Brierley,*** *X. Hou, B. Turnbull, W. Sun,* University of Nottingham, UK	
4:40pm		

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

AP-ThP-1
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. Hong,* Changwon National University, Republic of Korea*; P. Lours,* ICA, France

AP-ThP-2
Aging Behavior of Ag-Pt Alloy Thick Film on AlN at High Temperature by Joule Heating, ***J. Jeong,*** *Y. An,* Korea Electronics Technology Institute (KETI), Republic of Korea*; Y. Sa,* SEMES CO., LTD, Republic of Korea

AP-ThP-3
Lowering Costs by Improving Efficiencies in Biomass Fueled Boilers: New Materials and Coatings to Reduce Corrosion (BELENUS), *A. Illana, V. Encinas-Sánchez, M. de Miguel, M. Lasanta, G. García-Martín,* ***F. Pérez Trujillo,*** Universidad Complutense de Madrid, Spain

AP-ThP-4
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. Klemberg-Sapieha,*** Polytechnique Montreal, Canada

AP-ThP-5
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

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

BP-ThP-1
Behavior of Partially Oxidized Metal Targets, ***J. Houska,*** *T. Kozak,* University of West Bohemia, Czech Republic

BP-ThP-2
Mechanical and Tribological Performance of V-C-N Coatings Deposited by RF Magnetron Sputtering, ***A. Alhussein,*** Universite de Technologie de Troyes (UTT), France*; L. Aissani,* Khenchela University, Larbi Ben M'Hidi University, Algeria*; C. Nouveau,* CER Arts et Metiers Paris Tech, France

BP-ThP-3
Incorporation Of Metallic Nanoparticles On Diamond-Like Carbon Films For Combustion Engine Components Using Dc Pulsed Pe-Cvd With Additional Cathode., ***M. Ramos,*** Universidade do Vale do Paraiba - UNIVAP- Brazil, Brasil, Brazil*; F. Kolawole, L. Varela,* University of São Paulo, Brazil*; V. Trava-Airoldi,* National Institute for Space Research - INPE, Brazil*; A. Tschiptchin,* University of São Paulo, Brazil

BP-ThP-4
e-Poster Presentation: Bipolar HiPIMS for Tailoring Ion Energies in Thin Film Deposition, ***D. Lundin,*** *R. 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-ThP-5
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, ***H. Rojas,*** Universidad Libre, Colombia

BP-ThP-6
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-ThP-7
Development of a Multilayer Ti/TiN/TiAlN/ReN Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, ***H. Mejía Vásquez,*** *G. Bejarano Gaitan,* University of Antioquia, Medellín, Colombia*; M. Arroyave Franco,* University EAFIT, Colombia

BP-ThP-8
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-ThP-9
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,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany , Germany*; F. Nahif,* voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany*; C. Mitterer, R. Daniel,* Montanuniversität Leoben, Austria

BP-ThP-10
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. Sangiovanni,* Linköping University, Sweden*; P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

BP-ThP-11
A Contribution of Neon Gas Oscillations on the Optical Properties of Multilayer DLC:TiO_2 Films Deposited by Gas Injection Magnetron Sputtering Technique, ***B. Wicher,*** *R. Chodun,* Warsaw University of Technology, Poland*; M. Trzciński, L. Skowroński,* UTP University of Science and Technology, Poland*; K. Zdunek,* Warsaw University of Technology, Poland

BP-ThP-12
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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria*; H. Riedl,* TU Wien, CDL-SEC, Austria

BP-ThP-13
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. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

BP-ThP-14
Phase Stability and Mechanical Properties of $(Re,Ti)B_2$ Thin Films, ***V. Moraes,*** *S. Maric, P. Mayrhofer,* Institute of Materials Science and Technology, TU Wien, Austria

BP-ThP-15
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. Saladukhin,* Belarusian State University, Belarus

BP-ThP-16
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-ThP-17
Study of the Plasma used to Deposit Ti and TiN Films by HIPIMS Technique, ***J. Berumen,*** Universidad de Guadalajara, México, Mexico*; E. García, J. Pérez,* Universidad de Guadalajara, Mexico, México, Mexico*; M. Flores,* Universidad de Guadalajara, México, Mexico

BP-ThP-18
Properties of Boron Carbide Thin Films Deposited by Pulsed Laser Deposition, ***F. Jahn,*** *S. Weissmantel,* Laserinstitut Hochschule Mittweida, Germany

BP-ThP-19
Microstructure Investigation of TiN/Ti(C,N)/Bonding Layer/Al_2O_3 Multilayer Coatings Deposited by Thermal CVD, ***M. ZHU,*** Université de Technologie de Troyes, France , France*; S. Achache,* Université de Technologie de Troyes, France*; J. PIERSON,* Université de Lorraine, France*; F. SANCHETTE,* Université de Technologie de Troyes, France

BP-ThP-20
Oxidation Stability and Reaction Layer Formation of HPPMS TiAlON Nanolayer Coatings, *T. Brögelmann, K. Bobzin,* RWTH Aachen University, Germany*; G. Grundmeier,* University of Paderborn, Germany*; T. de los Arcos,* Technical and Macromolecular Chemistry - University of Paderborn, Germany*; N. Kruppe,* RWTH Aachen University, Germany*; S. Schwiderek,* University of Paderborn, Germany*;* ***M. Carlet****,* RWTH Aachen University, Germany

BP-ThP-21
Impact of Stacking Sequence with InWZnOx/InWZnOy Bilayer Conductive Bridge Random Access Memory, ***C. Hsu****, P. Liu, K. Gan, D. Ruan, Y. Chiu,* National Chiao Tung University, Taiwan*; S. Sze,* Naitonal Chiao Tung University, Taiwan

BP-ThP-22
Physical and Mechanical Properties of Cr-Al-N and Cr-v-N Ternary Systems, ***A. Belgroune****,* University of Technology of Troyes, France*; L. Aissani,* University of Abbes Laghrour, Algeria*; A. Alhussein,* University of Technology of Troyes, France

BP-ThP-23
Understanding Residual Stress in Thin Films: Analyzing the Stress Evolution Using a Kinetic Model for Ag, Cu, Ni, Fe, Ti, and Cr, ***Z. Rao****, S. Berman,* Brown University, USA*; D. Depla ,* Ghent University, Belgium*; E. Chason ,* Brown University, USA

BP-ThP-24
High Photoresponsivity Sensor with Stannic Oxide Thin Film Transistor based Architecture, ***Y. Chiu****, P. Liu, D. Ruan, K. Gan, C. Hsu, S. M. Sze,* National Chiao Tung University, Taiwan

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

CP-ThP-1
Investigation of Nanostructured Thin Films based on Water Soluble Precursors for Perovskite Solar Cells, ***G. Wu****,* Chang Gung University, Taiwan

CP-ThP-2
Synthesis of Copper-doped CdS/COF Composite Photocatalysts for Efficient Visible Light Photocatalytic Production of Solar Fuels, *G. Lee, H. Yang,* ***J. Wu****,* Feng Chia University, Taiwan

CP-ThP-3
Characterization of Phosphor Layer for Perovskite Solar Cell with Enhanced Stability, *S. Shin, C. Bark,* ***H. Choi****,* Gachon University, Republic of Korea

CP-ThP-4
An Algorithm for Fast Diagnostics of the Sensitivity of Localized Surface Plasmon Resonance Sensors Based on Thin Films, ***M. Rodrigues****, R. Pereira, M. Vasilevskiy, J. Borges, F. Vaz,* University of Minho, Portugal

CP-ThP-5
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. Arif, S. Veldhuis,* McMaster University, Canada

CP-ThP-6
Role of Rare Earth Metal Ions Substitution on Structural, Electrical, Magnetic and Dielectric Behavior of Magnetic Nanomaterials, ***S. Ikram****,* GC University Faisalabad, Pakistan

CP-ThP-7
Freestanding ZnO Nanowire For Multifunctional Application in RRAM Memory and Gas Sensing, ***P. Singh****,* National Taiwan University of Science and Technology, Taiwan*; T. Tseng ,* National Chiao Tung university , Taiwan*; J. Chu,* National Taiwan University of Science and Technology, Taiwan

CP-ThP-8
Fabrication of Multi-Layered High-Temperature NiTiZrCu Shape Memory Alloys for Mems Applications, ***T. Adhikary****,* IIT Kharagpur, India

CP-ThP-9
Tunneling Diode Comprised of Crystalline Semiconductor Materials Formed by Nanomembrane Transfer-Printing Technique, ***K. Kim****,* Hongik University, Republic of Korea

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

DP-ThP-1
Light-activated High Efficiency Antimicrobial and Antiviral Coatings, ***V. Bellido-Gonzalez****, P. Killen, T. Sgrilli, D. Monaghan,* Gencoa Ltd, UK*; O. Hernandez-Rodriguez,* IK4-TEKNIKER, Spain

DP-ThP-2
e-Poster Presentation: Metallization of Polymers for Medical Applications using HiPIMS, ***A. Chacko****, K. Thorwarth, R. Crockett, U. Müller, H. Hug,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

DP-ThP-3
Preparation and Properties of Ag Doped DLC Coating for Total Hip Joint Replacement, ***J. Patel****,* University of Saskatchewan, Canada

DP-ThP-4
Improved Biocompatibility of Materials for Medical Applications via Coating Revealed by Studies of Nanoparticle-Cell Interactions, ***N. Abrikossova****, G. Pozina,* Linköping University, IFM, Thin Film Physics Division, Sweden

DP-ThP-5
A Novel Synthesis Method of Carbide Derived Carbon (CDC) Surface Modification for Hip Implants, ***Y. Sun****,* University of Illinois at Chicago, USA*; K. Cheng, M. Mathew,* UIC College of Medicine at Rockford, USA*; M. McNallan,* University of Illinois at Chicago, USA

DP-ThP-6
TiZrSiN Coatings, Structural Characterization, and Corrosion Resistance in Ringer's Lactate, ***C. Mejía Villagrán****,* Universidad Nacional de Colombia, Colombia*; M. Chellali,* Karlsruhe Institute of Technology (KIT), Libyan Arab Jamahiriya*; C. Garzón Ospina,* Universidad Nacional de Colombia, Colombia*; H. Hahn,* Karlsruhe Institute of Technology (KIT), Germany*; J. Olaya Flórez,* Universidad Nacional de Colombia, Colombia*; L. Velasco Estrada,* Karlsruhe Institute of Technology (KIT), Germany

DP-ThP-7
Superamphiphobic Stainless Steel Surface Prepared by Femtosecond Laser Patterning and Pulsed Plasma-Polymerization, *C. Lin,* Central Taiwan University of Science and Technology, Taiwan*; C. Chou,* Taichung Veterans General Hospital; National Yang-Ming University, Taiwan*;* ***C. Chung****,* Central Taiwan University of Science and Technology, Taiwan*; J. He,* Feng Chia University, Taiwan

DP-ThP-8
In Vitro Study of Very Thin Gold Film Deposited Collagen Fabric, ***S. Huang****, . Hsieh,* Feng Chia University, Taichung Veterans General Hospital, Taiwan*; R. Chang,* Feng Chia University, Taiwan*; C. Chou,* Taichung Veterans General Hospital, National Yang-Ming University, Taiwan*; C. Chung,* Central Taiwan University of Science and Technology, Taiwan*; J. He,* Feng Chia University, Taiwan

DP-ThP-9
Optimisation of Electrolytic Plasma Oxidation (PEO) Coatings Formed on Magnesium for Biological Applications, ***Y. Guo****, A. Rogov, B. Mingo, A. Matthews, A. Yerokhin,* The University of Manchester, UK

DP-ThP-10
The Property of Adhesion and Biocompatibility of Silicon and Fluorine Doped Amorphous Carbon Films, ***M. Toyonaga****,* Keio University, Japan*; T. Hasebe,* Keio University, Tokai University Hachioji Hospital, Japan*; S. Maegawa,* Tokai University Hachioji Hospital, Japan*; T. Matsumoto,* Keio University, Tokai University Hachioji Hospital, Japan*; A. Hotta, T. Suzuki,* Keio University, Japan

DP-ThP-11
Towards Implants for Life Time, ***J. Schwarzer****,* SIO, Germany*; T. vom Braucke,* GP Plasma, Canada*; F. Papa,* GP Plasma, USA

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

EP-ThP-1
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. Li,* ***M. Zhang****, S. Wen, X. Mao,* Liaoning Normal University, China*; Y. Guo,* Liaoning University of Science & Technology, China

EP-ThP-2
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-ThP-3
Tribological Behavior of DLC Films with Niobium Nanolayers of Several Thicknesses, ***A. Adeniyi****, J. Corona, J. Patel, Q. Yang,* University of Saskatchewan, Canada

EP-ThP-4
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-ThP-5
Novel Spatially Coordinated In-situ Raman and Nanoscale Wear Analysis of DLC Film, *M. Rouhani,* ***Y. Jeng****,* National Chung Cheng University, Taiwan

EP-ThP-6
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-ThP-7
Mechanical Behavior of Boriding Microalloyed Steels Immersed in Diesel, ***N. Lopez Perrrusquia****,* Universidad Politécnica del Valle de México, Mexico*; M. Donu-Ruiz,* Universidad Politécnica del Valle de Mexico, Mexico*; E. García,* Universidad de Guadalajara, Mexico*; C. Torres San Miguel,* Instituto Politécnico Nacional - ESIME, Mexico*; G. Perez Mendoza,* Universidad Politecnica del Valle de Mexico, Mexico*; J. Cortes Suarez,* Universidad Autonoma Metropolitana Azcapotzalco, Mexico

EP-ThP-8
Substrate Influence on the Adhesion of Metallic Films, ***M. 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-ThP-9
Tribocorrosion Behavior of Boride Coating on Cocrmo Alloy Produced by Thermochemical Process in 0.35% NaCl Solution, *A. Rentería,* Universidad de Guadalajara, México, Mexico*; M. Doñu-Ruiz,* Universidad Politecnica del Valle de Mexico, México, Mexico*; M. Flores-Martinez,* Universidad de Guadalajara, México, Mexico*; S. Muhl,* Universidad Nacional Autónoma de México, México, Mexico*; N. Lopez-Perrusquia,* Universidad Politecnica del Valle de México, México, Mexico*; E. García,* CONACYT - Universidad de Guadalajara, México, Mexico

EP-ThP-10
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-ThP-11
Novel Micromechanical Approaches to Understand the Influence of Hydrogen on Materials Behavior, ***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-ThP-12
Tribological Properties of Sputter-deposited Mo Films on Polyimide, *E. Kobierska, S. Hirn,* Montanuniversität Leoben, Austria*; M. Cordill,* Erich Schmid Institute for Material Science, Austrian Academy of Sciences, Austria*;* ***R. Franz****, M. Rebelo de Figueiredo,* Montanuniversität Leoben, Austria

EP-ThP-13
Thermal Stability of Hydrogenated Diamond-Like Carbon (DLC-H) Coatings Using Pulsed-DC PECVD on Tappet Valve Substrate, ***F. Kolawole****, L. Varela,* University of São Paulo, Brazil*; S. Kolawole,* National Agency for Science and Engineering Infrastructure, Abuja, Nigeria*; N. Fukumasu,* University of São Paulo, Brazil*; M. Ramirez,* Universidade do Vale do Paraiba, Brazil*; A. Tschiptschin,* University of São Paulo, Brazil

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

FP-ThP-1
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-ThP-2
The Electrospun 2D Nanomaterials And Their Application Possibilities, ***W. Matysiak****,* Silesian University of Technology, Poland, Polska

FP-ThP-3
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-ThP-4
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-ThP-5
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-ThP-6
Characterization and Photoluminescence of Al- and Ga-doped V_2O_5 Nanostructures Synthesized by Thermally Activated Process, ***C. Wang****,* National Chung Hsing University, Taiwan*; C. Lu,* Chinese Culture University, Taiwan*; F. Shieu,* National Chung Hsing University, Taiwan*; H. Shih,* Chinese Culture University, Taiwan

FP-ThP-7
Effect of Process Pressure on Structure and Mechanical Properties of Amorphous (AlCoCrNi)N High Entropy Nitride Thin Films, ***K. Kim****, Y. Kim,* Sejong University, Republic of Korea*; Y. Park,* YG-1 Co. Ltd., Republic of Korea*; K. Kim,* YG-1 Co. Ltd, Republic of Korea

FP-ThP-8
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-ThP-9
Combinatorial Sputtering Exploration of Zn-Sn-O (ZTO) Composition Spreads, ***S. Li****, Y. Shen,* National Cheng Kung University, Taiwan*; K. Chang, J. Ting,* National Cheng Kung University (NCKU), Taiwan

FP-ThP-10
Electrical and Mechanical Properties of NbMoTaW(Re) High Entropy Alloy Thin Films, ***C. Shih****, C. Yeh, W. Hsu,* National Cheng Kung University, Taiwan*; C. Hsu,* National United University, Taiwan*; B. Liu, S. Lin, Y. Hsiao,* National Cheng Kung University, Taiwan

FP-ThP-11
Fabrication of Nanocomposite Thin Films of Metallic Nano Particles in Amorphous Carbon, ***S. Muhl****, F. Maya,* Universidad Nacional Autónoma de México, México, Mexico*; S. Rodil,* Universidad Nacional Autónoma de México, México, Mexico*; R. Calderon,* Universidad Nacional Autónoma de México, México, Mexico*; A. Perez,* Unidad de Investigación y Desarrollo Tecnológico (UIDT-CCADET), Hospital General de México, México, Mexico

FP-ThP-12
Development of Hydrogen Barrier Coatings based on Tungsten-doped Alloys, ***I. Lakdhar,*** *A. Alhussein,* Université de Technologie de Troyes (UTT), France*; J. Creus,* LASIE, CNRS-Université de La Rochelle, France

FP-ThP-13
Molecular Layer Deposition of Metal-Organic Framework Thin Films Enabling MOF-on-MOF Vapor-Phase Heteroepitaxy, ***A. Cruz,*** KU Leuven, Vrije Universiteit Brussel, Belgium*; J. Smets,* KU Leuven, Belgium*; T. Hauffman,* Vrije Universiteit Brussel, Belgium*; R. Ameloot,* KU Leuven, Belgium

FP-ThP-14
Separation of Stable Emulsions by Surface-Modified Magnetic Nanocomposites, ***U. Zulfiqar,*** *A. Thomas,* University of Manchester, UK*; K. Yearsley,* BP International Ltd,, Saltend Lane, Hull HU12 8DS, UK*; L. Bolton,* BP International Ltd, Chertsey Road, Sunbury-upon-Thames TW16 7LN, UK*; A. Matthews, D. Lewis,* University of Manchester, UK

FP-ThP-15
Fabrication and Surface Characterization of Nano/Micro Structured Free Standing Metallic Glass Nanotube Arrays, ***G. Shifera,*** *. P., C. Kun , K. Wei ,* National Taiwan University of Science and Technology, Taiwan

FP-ThP-16
On the Grain Size Dependence on Film Thickness, ***D. Altangerel,*** *R. Dedoncker, F. Cougnon, D. Depla,* Ghent University, Belgium

FP-ThP-17
Synthesis of Nanoscale Tungsten Carbide from Hydrothermal and Wet Chemistry Method as an Electrocatalyst for Hydrogen Evolution Reaction, ***L. Fang,*** *J. Huang,* National Cheng Kung University (NCKU), Taiwan*; S. Wang,* Southern Taiwan University of Science and Technology, Taiwan*; Y. Shen,* Hierarchical Green-Energy Materials (Hi-GEM) Research Center, Taiwan

FP-ThP-18
Layered Cathode Material $LiNiCoAlO_2$ (NCA) with Additive Enhanced Cycling Performance, ***B. CHEN,*** *J. Huang,* National Cheng Kung University (NCKU), Taiwan*; C. Chang,* National University of Tainan, Taiwan

FP-ThP-19
The Magneto-Plasmonic Properties of Ag-Co Composite Nanostructures, ***H. Luong***[1], *T. Nguyen, Y. Zhao,* University of Georgia, USA

FP-ThP-20
Superior Hydrophilicity in a Magnetron Sputtered Fe-Cr-Ni Thin Film With Nano-Pyramid Surface Structure, ***P. Yiu,*** *J. You, S. Wang, J. Chu,* National Taiwan University of Science and Technology, Taiwan

FP-ThP-21
Novel Transition Metal-Based Multi-Element Electrocatalysts for Water Splitting, ***C. Tsai,*** *J. Ting,* National Cheng Kung University (NCKU), Taiwan

FP-ThP-22
High-Entropy Glycerates Grown on Nickel Foam as Electrocatalyst for Oxygen Evolution Reaction, ***N. Ting,*** *J. Ting,* National Cheng Kung University (NCKU), Taiwan

FP-ThP-23
Thin Film Metallic Glass/Boron Nitride Nano Sheet/Nylon Multilayer Membrane for Carbon Dioxide Capture and Storage, ***E. Gizaw,*** National Taiwan University of Science and Technology, Taiwan

FP-ThP-24
Optical, Structural and Morphological Properties of NiO_X Thin Films Obtained by E-Beam, ***J. Castillo,*** Universidad Autónoma de Baja California, Colombia*; N. Nedev,* Universidad Autónoma de Baja California, Bulgaria*; B. Valdez,* Universidad Autónoma de Baja California, Mexico*; M. Bernechea,* University of Zaragoza, Spain*; M. Mendivil,* Centro de Investigación en Materiales Avanzados (CIMAV, Mexico*; M. Curiel,* Universidad Autónoma de Baja California, Mexico

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

GP-ThP-1
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-ThP-2
Thin Films for Protection of Integrated Sensor Systems on Tribological Loaded Surfaces, ***A. Dorner-Reisel,*** Schmalkalden University of Applied Sciences, Germany*; W. Ahmad Akhtar, J. Seeger, G. Reisel,* Oerlikon Metco WOKA GmbH Barchfeld, Germany

GP-ThP-3
Microstructure and Mechanical Properties of M4/D2 Hard-Faced-Surface by Direct Energy Deposition, ***J. Jeon,*** *G. Park, S. Shin, W. Lee,* Korea Institute of Industrial Technology (KITECH),Republic of Korea, Republic of Korea

GP-ThP-4
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-ThP-5
Performance Enhancement of pGe MOS device with Pre- and Post-Deposition Microwave Annealing Treatment, ***Y. Chien,*** *K. Chang-Liao, D. Ruan, S. Yi, F. Chu,* National Tsing Hua University, Taiwan

GP-ThP-6
The Radiation Effect on FinFET Device with Double Pattern Lithography Process, ***F. Chu,*** *K. Chang-Liao, D. Ruan, Z. Hong, S. Hsu, Y. Chien,* National Tsing Hua University, Taiwan

GP-ThP-7
TiO_2–Silicon Nanowire Arrays for Inorganic Solar Cell Applications, ***A. Chiou,*** National Formosa University, Taiwan

GP-ThP-8
Design of Surface Layers with Phase Change with Novel Properties, ***R. Basu,*** VTU Kundana, Bangalore, India

GP-ThP-9
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-ThP-10
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-ThP-11
Plasma Additive Layer Manufacture Smoothing Palms for Surface Finishing of CoCr Dental and Medical Devices, and Pre-Coating White Layer Removal, ***T. Brzezinka,*** *J. Housden, A. Fox,* Wallwork Cambridge Ltd, UK*; N. Laugel, A. Matthews, A. Yerokhin,* The University of Manchester, UK

[1] **Student Award Nominee**

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

HP-ThP-1
ZnO Thin Films Growth at Low Temperature by PE-ALD using O_2 and H_2O Plasma, *J. 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-ThP-2
e-Poster Presentation: Nanoindentation Analysis as a Two-Dimensional Tool for Mapping the Mechanical Properties of Complex Microstructures, ***N. Randall****, J. Breguet,* Alemnis, Switzerland

HP-ThP-3
Electric Field Strength-Dependent Accuracy of TiAlN Thin Film Composition Measurements by Laser-Assisted Atom Probe Tomography, ***M. Hans****, J. Schneider,* RWTH Aachen University, Germany

HP-ThP-4
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-ThP-5
Capacitance Transient Analysis of Oxide Semiconductor Films, ***P. Choi****,* Sungkyunkwan University, Republic of Korea

HP-ThP-6
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-ThP-7
Nanomechanical Characterization of Thin-Layered Battery Materials, ***J. Lee****, D. Stauffer,* Bruker Nano Surfaces, USA

HP-ThP-8
Nanoscale Analysis of Changes in Grain Structure of Titanium Subjected to Failure, ***O. Nafday****, G. Paroline,* Anton Paar, USA

HP-ThP-9
Sub-50 nm X-ray Diffraction Reveals Nanoscale Residual Stress and Microstructure Distributions across the Cutting Edge Area of a TiN Coating on WC-Co, ***M. Meindlhumer****, N. Jäger, S. Spor,* Montanuniversität Leoben, Austria*; M. Rosenthal,* ESRF Grenoble, France*; H. Hruby,* eifeler-Vacotec GmbH, Düsseldorf, Germany*; J. Keckes, C. Mitterer,* Montanuniversität Leoben, Leoben, Austria*; R. Daniel, J. Keckes, J. Todt,* Montanuniversität Leoben, Austria

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

TSP-ThP-1
Fragmentation of Atomic Layer Deposited Oxide Thin Films and Nanolaminates under Uniaxial Tension, *M. Ruoho, J. Niemelä,* ***B. Putz****, N. Tarasiuk, G. Robertson,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; 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-ThP-2
Stability of Mechanical Properties of Molecular Layer-deposited Alucone, *M. Ruoho, N. Tarasiuk, N. Rohbeck, J. 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-ThP-3
Mechanical Properties of High Entropy Alloys (HEA) Thin Films on Flexible Substrate: Study of CoCrCuFeNi System, *C. Li, F. Sedghgooya,* LSPM-CNRS, Université Paris13, France*; R. Dedoncker,* Ghent University, Belgium*; F. Zighem,* LSPM-CNRS, Université Paris13, France*; D. Depla,* Ghent University, Belgium*; P. Djemia,* ***D. Faurie****,* LSPM-CNRS, Université Paris13, France

TSP-ThP-4
Transparent nc-ZrB_2/a-BN Films for Protection of Optical Devices, ***P. Kiryukhantsev-Korneev****, A. Kozlova, K. Kozlova, E. Levashov,* National University of Science and Technology "MISiS", Russia, Russian Federation

Friday Morning, April 30, 2021

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country C - Session B1-3-FrM** **PVD Coatings and Technologies III** **Moderators:** **Frank Kaulfuss**, Fraunhofer Institute for Material and Beam Technology (IWS), Germany, **Qi Yang**, National Research Council of Canada, Canada	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-4-FrM** **Properties and Characterization of Hard Coatings and Surfaces IV** **Moderators: Naureen Ghafoor**, Linköping Univ., IFM, Thin Film Physics Div., Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
8:00am	**B1-3-FrM-1** New Approaches for AlCrN-Based Coatings for High Speed Applications, ***M. Schenkel,*** voestalpine Eifeler Vacotec GmbH, Düsseldorf, Germany*; S. Spor,* voestalpine Eifeler Vacotec GmbH, Düsseldorf, Germany, Austria*; N. Gerhards, U. Zimmermann, F. Nahif,* voestalpine Eifeler Vacotec GmbH, Düsseldorf, Germany	**B4-4-FrM-1** 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. Liskiewicz,* Manchester Metropolitan University, UK*; B. Beake,* Micro Materials Ltd, UK
8:20am	**B1-3-FrM-2** 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-FrM-2** Nanocrystalline Diamond Coated Reaction Bonded SiC for Mechanical Seal Applications*, K. Ramasubramanian,* ***M. Ramachandra Rao****, N. Arunachalam* , Indian Institute of Technology Madras , India*; S. Mandal, S. Rao,* Carborundum Universal Limited, India
8:40am	**INVITED: B1-3-FrM-3** 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	**INVITED: B4-4-FrM-3** Metal Oxynitride Thin Films: A Review on Synthesis Developments, Performance, and Applications*,* ***S. Ali****,* Linnaeus University, Sweden
9:00am		
9:20am	**B1-3-FrM-5** 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	
9:40am	**B1-3-FrM-6** Designing A Versatile Vacuum System For Thin Film Research And Development*,* ***A. Guastavino****,* AGS Plasma Systems, USA	
10:00am	**B1-3-FrM-7** ScAlN/ZnO Multilayer Structure for High K^2 SAW Devices*,* ***Y. Wang****, J. Huang, X. Qi,* National Cheng Kung University (NCKU), Taiwan	
10:20am		
10:40am		
11:00am		
11:20am		
11:40am		

	Tribology and Mechanical Behavior of Coatings and Engineered Surfaces **Room Town & Country B - Session E3-FrM** **Tribology of Coatings for Automotive and Aerospace Applications** **Moderators: Carsten Gachot**, Vienna University of Technology, Austria, **Oliver Hunold**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	**Surface Engineering - Applied Research and Industrial Applications** **Room Pacific D - 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	**INVITED: E3-FrM-1** Photon Beam and Plasma Cloud – Programmable Surfaces, ***A. Buling***, *J. Zerrer,* ELB Eloxalwerk Ludwigsburg GmbH, Germany	**INVITED: G1-FrM-1** New Developments in Magnetron Sputtering Devices, *D. Monaghan,* ***V. Bellido-Gonzalez***, *T. Sgrilli, R. Brown, J. Brindley, B. Daniel,* Gencoa Ltd, UK
8:20am		
8:40am	**E3-FrM-3** Determination of Method for Tribological Experiment on Ultra-Hard Coatings in Low-Viscosity Fuels, ***K. Jacques***, University of North Texas, USA; *S. Berkebile, N. Murthy, J. Mogonye,* Army Research Laboratories, USA; *S. Dixit,* Plasma Technology Inc., USA; *D. Berman, T. Scharf,* University of North Texas, USA	**G1-FrM-3** 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-FrM-4** Insights into Interfacial Phenomena of Nickel- and Cobalt- Based Systems in Extreme Conditions, ***P. Stoyanov***, Concordia University, USA; *K. Harrington, E. Miller, A. Ignatov,* Pratt & Whitney, USA	**G1-FrM-4** Hysteresis Effect in the Magnetron with Magnetized Hollow Cathode Enhanced Target, ***H. Barankova***, *L. Bardos,* Uppsala University, Angstrom Laboratory, Sweden
9:20am	**E3-FrM-5** Abrasion Protection by Magnetron Sputtered Coatings of Epoxy Based Composites Exposed to Harsh Environmental Conditions, ***D. Mihut***, *A. Afshar, S. Hill, N. Cordista, G. Baker,* Mercer University, USA	**INVITED: G1-FrM-5** DLC Coatings for the Automotive Industry, ***R. Ahuja***, HEF US, USA
9:40am	**E3-FrM-6** 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	
10:00am	**E3-FrM-7** 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	**INVITED: G1-FrM-7** Deposition of Functional Nano-Coatings Using Atmospheric Pressure Plasmas, ***D. Pappas***, Plasmatreat USA, USA; *N. Eternal, R. Gonzalesz,* Plasmatreat USA
10:20am	**E3-FrM-8** Thermal Stability of Tungsten Oxide (WO_3) Nanoparticles Incorporated Diamond-like Carbon Coatings using Pulsed-DC PECVD on Tappet Valve Substrate, ***F. Kolawole***, *L. Varela,* University of São Paulo, Brazil; *S. Kolawole,* National Agency for Science and Engineering Infrastructure, Abuja, Nigeria; *N. Fukumasu,* University of São Paulo, Brazil; *M. Ramirez,* Universidade do Vale do Paraiba, Brazil; *A. Tschiptschin,* University of São Paulo, Brazil	
10:40am	**E3-FrM-9** Friability Test Performance of Electroless Ni-P Coated on Alumina Abrasive Particles, *S. Boominatha sellarajan* , ***N. Arunachalam***, Indian Institute of Technology Madras, India; *C. Gupta* , Indian Institute of Technology Madras , India	**G1-FrM-9** Digital Twin PVD Coater Matsight - State-of-the-Art and Future Outlook, ***A. Obrusnik***, *P. Zikan, M. Kubecka,* PlasmaSolve s.r.o., Czech Republic
11:00am		**G1-FrM-10** Industrial Antibacterial Decorative Coatings, ***I. Kolev***, *P. Immich, A. Fuchs, H. Vercoulen, D. Doerwald,* IHI Hauzer Techno Coating B.V., Netherlands
11:20am		
11:40am		

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