ICMCTF 2023 Program Key

- **A** Coatings for Use at High Temperatures
- **B** Hard Coatings and Vapor Deposition Technologies
- **C** Functional Thin Films and Surfaces
- **D** Coatings for Biomedical and Healthcare Applications
- **E** Tribology and Mechanical Behavior of Coatings and Engineered Surfaces
- **EX** Exhibitors Keynote Lecture
- **F** New Horizons in Coatings and Thin Films
- **FTS** Focused Topic Session
- **G** Surface Engineering - Applied Research and Industrial Applications
- **H** Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes
- **HL** Awards Ceremony and Honorary Lecture
- **PL** Plenary Lecture
- **SIT** Special Interest Talks
- **TS** Topical Symposia
  - **TS1** Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications
  - **TS2** Sustainable Surface Solutions, Materials, Processes and Applications
  - **TS3** Processes of Materials for Printed and Flexible Film Technologies

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).

ICMCTF 2023 Program Overview

Room /Time	Golden State Ballroom	Pacific D	Pacific E	Pacific F-G	Town & Country A	Town & Country B	Town & Country C	Town & Country D
MoPL					PL-MoM: Plenary Lecture			
MoM		H1-1-MoM: Spatially-resolved and In-Situ Char of TF & Eng Surf I	A1-1-MoM: Coatings to Resist High-temp Oxid, Corr, & Fouling I	D1-1-MoM: Surf Coatings & Surface Mods in Bio Environ I	TS1-1-MoM: Coat for Ener Stor & Conv - Batt & Hydrog Apps I	F5-MoM: Machine Learning & Proc Mod for Coat Des & Production		B4-1-MoM: Props & Char of Hard Coatings and Surfaces I
MoSIT					SIT1-MoSIT: Special Interest Session I			
MoA		H1-2-MoA: Spatially-resolved and In-Situ Char of TF & Eng Surf II	A1-2-MoA: Coatings to Resist High-temp Oxid, Corr, & Fouling II	D1-2-MoA: Surf Coatings & Surf Mods in Biological Environments II	TS1-2-MoA: Coat for Ener Stor & Conv – Batt & Hyd Applications II	B6-MoA: Computationally-aided Materials Design	B2-MoA: CVD Coatings and Technologies	B4-2-MoA: Properties and Characterization of Hard Coatings
TuM		H2-1-TuM: Adv Mech Testing of Surf, TF, Coat & Small Volumes I	A1-3-TuM: Coat to Resist High-temp Oxid, Corr, and Fouling III	D2-TuM: Medical Devices: Bio-Tribo-Corrosion, Diag, 3D Printing	TS1-3-TuM: Coat for Ener Stor and Conv – Batt & Hyd Applications III	E3-1-TuM: Tribology of Coatings & Surf for Indust Apps I		B4-3-TuM: Prop & Char of Hard Coatings and Surfaces III
TuEx					EX-TuM: Exhibition Keynote Lecture			
TuA	**EXHIBITION**	D3-TuA: Bio: Coat to Prom Cell Adhes while Inhib Microbial Growth	A2-1-TuA: Thermal and Environmental Barrier Coatings I	TS2-TuA: Sustainable Surf Sol, Matls, Proc and Applications	H3-1-TuA: Char of Coatings & Small Vol in Ext and Cyclic Conditions I	E1-1-TuA: Friction, Wear, Lubrication Effects, and Modeling I	F3-TuA: 2D Matls: Synthesis, Characterization, and Applications	B4-4-TuA: Prop & Char of Hard Coatings and Surfaces IV
TuSIT					SIT2-TuSIT: Special Interest Session II			
WeM		H2-2-WeM: Adv Mech Testing of Surfaces, TF, Coatings and Small Volumes II	A2-2-WeM: Thermal and Environmental Barrier Coatings II	C1-1-WeM G2-1-WeM	H3-2-WeM B3-WeM	E1-2-WeM: Friction, Wear, Lubrication Effects, and Modeling II	G1-WeM G4-WeM	G3-WeM: Innov Surf Eng for Adv Cutting and Forming Tool Applications
WeSIT					SIT3-WeSIT: Special Interest Session III			
WeA		G2-2-WeA: Surf Mod of Comp in Auto, Aero & Mfg Applications II	F4-1-WeA: Boron-Containing Coatings I	C1-2-WeA E3-2-WeA		TS3-WeA: Proc of Materials for Printed and Flexible Film Technologies		B8-1-WeA: HiPIMS, Pulsed Plasmas and Energetic Deposition I
WeHL					HL-WeHL: Bunshah Award Honorary Lecture			
ThM		C3-1-ThM: Thin Films and Novel Surfaces for Energy I	F4-2-ThM: Boron-Containing Coatings II	B5-ThM: Hard and Multifunctional Nanostructured Coatings		E2-1-ThM: Mechanical Properties and Adhesion I	B1-1-ThM: PVD Coatings and Technologies I	B8-2-ThM: HiPIMS, Pulsed Plasmas & Ener Deposition II
ThL							FTS-ThL: Focused Topic Session	
ThA		B7-ThA: Plas Surf Interactions, Diags and Growth Processes	F2-ThA: High Entropy & Other Multi-princ-element Matls	C2-1-ThA: Thin Films for Electronic Devices I		E2-2-ThA: Mechanical Properties and Adhesion II	B1-2-ThA: PVD Coatings and Technologies II	
ThP	**POSTER SESSIONS**							
FrM			F1-FrM: Nanoterial-based Coatings and Structures	C2-2-FrM: Thin Films for Electronic Devices II		C3-2-FrM: Thin Films and Novel Surfaces for Energy II	B1-3-FrM: PVD Coatings and Technologies III	

Plenary Lecture
Room Town & Country A - Session PL-MoM
Plenary Lecture
Moderator:
Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

8:00am	**INVITED: PL-MoM-1** Plenary Lecture: Recent Trends in Artificial Photosynthesis: Atomistic/Surface Design and Probing of Nano-Photocatalysts, ***Li-Chyong Chen***, National Taiwan University, Taiwan	
8:20am		

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific D - Session H1-1-MoM** **Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces I** **Moderators:** **Damien Faurie**, Université Sorbonne Paris Nord, France, **Michael Tkadletz**, Montanuniversität Leoben, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Pacific F-G - Session D1-1-MoM** **Surface Coatings and Surface Modifications in Biological Environments I** **Moderators: Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, **Kerstin Thorwarth**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
10:00am	**INVITED: H1-1-MoM-1** In-situ Imaging of Au Bicrystals and Hydrogen Charged Iron, ***Wendy Gu,*** Stanford University, USA*; M. Kiani,* Cornell University, USA*; A. Lee, A. Parakh,* Stanford University, USA	**D1-1-MoM-1** Ion Release Study of Ag-Cu and Ag-Cu-Mg Coatings Deposited by Magnetron Sputtering, ***Serdar Sonay Ozbay,*** Deakin University, Coventry University, Australia*; G. Taghavi Pourian Azar,* Coventry University, UK*; J. Sharp, G. Rajmohan,* Deakin University, Australia*; A. Cobley,* Coventry University, UK
10:20am		**D1-1-MoM-2** Effect of Pulsed DC Mode on the Surface Properties of Pure Magnesium Substrates Treated with PEO, ***Cristian Esneider Peñuela Cruz,*** *E. Hernández Rodríguez,* Universidad de Guanajuato, Mexico*; A. Herrera,* Univiversidad de Guanajuato, Campus DICIVA, Mexico
10:40am	**H1-1-MoM-3** High-Throughput Surface Analysis for Accelerated Thin Film Materials Development, *S. Zhuk, A. Wieczorek, K. Thorwarth, J. Patidar,* ***Sebastian Siol,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**D1-1-MoM-3** Non-Stick Thin-Film Metallic Glasse (Tfmg) Coating for Reducing Trauma, ***Helmi Son Haji,*** *J. P. Chu,* National Taiwan University of Science and Technology, Taiwan*; P. Yiu,* Ming Chi University of Technology, Taiwan
11:00am	**H1-1-MoM-4** Advanced Experimental Techniques Quantifying Thin Film Delamination at the Nano-Scale, ***Alice Lassnig,*** *C. Gammer, S. Zak, M. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria	**D1-1-MoM-4** Synthesis of Antimicrobial Surfaces by Glancing Angle Deposition with Natural Seeds, ***Chuang Qu,*** *J. Rozsa, M. Running, S. McNamara, K. Walsh,* University of Louisville, USA
11:20am	**H1-1-MoM-5** New Generation In Situ Process Control of Chemical Composition of Compound Materials and Superalloys During PVD Process, ***George Atanasoff,*** AccuStrata, Inc., USA	**INVITED: D1-1-MoM-5** FDA Regulatory Considerations for Performance Evaluation of Coatings in Medical Devices, ***Nandini Duraiswamy,*** U.S. Food and Drug Administration , USA
11:40am	**H1-1-MoM-6** Influence of Al Incorporation and N Stoichiometry on the Thermal Stability of (Ti,V,Zr,Nb,Hf,Ta)N Thin Films, ***Deborah Neuß,*** *M. Hans, G. Fidanboy, H. Lasfargues, C. Azina, S. Mráz,* RWTH Aachen University, Germany*; S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany*; D. Primetzhofer,* Uppsala University, Angstrom Laboratory, Sweden*; J. Schneider,* RWTH Aachen University, Germany	
12:00pm		**D1-1-MoM-7** Post-Anodization and Additives Role Towards the Effective Control of Bio-Degradation of Mg Alloys, ***Z. Rehman,*** *B. Koo,* Changwon National University, Republic of Korea

Monday Morning, May 22, 2023

	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, **Gustavo García-Martín**, REP-Energy Solutions, Spain	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-1-MoM** **Properties and Characterization of Hard Coatings and Surfaces I** **Moderators: Naureen Ghafoor**, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Yi Ouyang**, National Tsing Hua University, Taiwan
10:00am	**INVITED: A1-1-MoM-1** Bill Sproul Award and Honorary ICMCTF Lecture: Strategies for the Development of Robust and Stable, but also Functional Ceramic Coatings, ***Paul Mayrhofer***[1], TU Wien, Institute of Materials Science and Technology, Austria	**B4-1-MoM-1** Effects of Al and Nd additions and Annealing on Microstructures and Mechanical Properties of CoCrNi Medium Entropy Alloy Films, ***YI-LING WU***, *C. Hsueh,* National Taiwan University, Taiwan
10:20am		**B4-1-MoM-2** Microstructures and Mechanical Properties of $(CoCrNi)_{100-x-y}Si_xNd_y$ Medium Entropy Alloy Films, ***Hui-Wen Peng***, *C. Hsueh,* National Taiwan University, Taiwan
10:40am	**A1-1-MoM-3** $Ti_5Si_3/TiAl_3$ Multilayer Coatings as Oxidation Protection for γ–TiAl, ***Peter-Philipp Bauer***, German Aerospace Center and Brandenburg University of Technology Cottbus, Germany; *R. Swadźba,* Łukasiewicz Research Network - Institute for Ferrous Metallurgy, Poland; *L. Klamann,* German Aerospace Center, Germany	**INVITED: B4-1-MoM-3** Recent Developments Towards Reliable X-Ray Photoelectron Spectroscopy Analyses of Thin Films, ***Grzegorz (Greg) Greczynski***, *L. Hultman,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
11:00am	**A1-1-MoM-4** Max-Phase Based PVD Coatings as Protection for Lightweight Materials in High Temperature Environments, ***Nadine Laska***, *R. Anton,* German Aerospace Center, Germany; *R. Swadzba,* Lukasiewicz Research Network - Institute for Ferrous Metalurgy, Poland; *P. Nellessen,* German Aerospace Center, Germany	
11:20am	**A1-1-MoM-5** Oxidation behaviors of (AlCrSiTi)N coatings on AISI 304 steel: A Combinatorial Study, ***Sheng-Yu Hsu***, *S. Chang, J. Duh,* National Tsing Hua University, Taiwan	**B4-1-MoM-5** Effect of Nitrogen Flow Rate on the Microstructure and Mechanical Properties of (V,Mo)N Thin Films, ***Yiqun Feng***, National Tsing Hua University, Taiwan; *T. Chung,* National Yang Ming Chiao Tung University, Taiwan; *J. Huang,* National Tsing Hua University, Taiwan
11:40am	**A1-1-MoM-6** Enhanced Pitting Resistance of Cathodic Arc Evaporated AlCrXN Coatings, *O. Hudak, F. Bohrn, P. Kutrowatz, T. Wojcik,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; *E. Ntemou,* Ion Physics Group, Department of Physics and Astronomy, Uppsala University, Sweden; *D. Primetzhofer,* Ion Physics Group, Department of Physics and Astronomy, Uppsala University, Austria; *L. Shang, O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *P. Polcik,* Plansee Composite Materials GmbH, Germany; ***Helmut Riedl***, Institute of Materials Science and Technology, TU Wien, Austria	**B4-1-MoM-6** *In Situ* Stress Evolution in Ti/Pt Multilayers During Magnetron Sputter Deposition, ***Naureen Ghafoor***, *M. Lorentzon, S. Bairagi, P. Sandstrom, J. Birch,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
12:00pm	**A1-1-MoM-7** Novel Approaches for the PVD Synthesis of Advanced Aluminide Thin Films: The Example of Ruthenium-Aluminide, ***Vincent Ott***, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; *T. Wojcik,* TU Wien, Austria; *S. Ulrich,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; *S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany; *P. Mayrhofer, H. Riedl,* TU Wien, Austria; *M. Stueber,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany	

[1] **Bill Sproul Awardee**

	New Horizons in Coatings and Thin Films **Room Town & Country B - Session F5-MoM** **Machine Learning and Process Modeling for Coating Design and Production** **Moderators: Adam Obrusnik**, PlasmaSolve s.r.o., Czechia, **Ferenc Tasnadi**, Linköping University, Sweden, **Petr Zikán**, PlasmaSolve s.r.o., Czechia	**Topical Symposia** **Room Town & Country A - Session TS1-1-MoM** **Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications I** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Klaus Böbel**, Bosch Manufacturing Solutions, Germany
10:00am	**INVITED: F5-MoM-1** Thin Film Process Modeling at Different Scales - from Kinetic Simulation to Digital Twin, ***Andreas Pflug,*** Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany	**TS1-1-MoM-1** The Effect of Microstructure on the Hydrogen Storage Capacity of Ti_XZr_{1-X} Thin Films, ***Ido Zukerman,*** *M. Buzaglo,* Divison of Chemistry, NRCN, Israel*; S. Hayun,* Department of Materials Engineering, Ben Gurion University of the Negev, Israel
10:20am		**TS1-1-MoM-2** Transition Metal – Doped Ni/YSZ Anode Functional Layers for Solid Oxide Fuel Cells Produced via Magnetron Sputtering, *K. Steier,* Manchester Metropolitan University, UK*; I. Jang, A. Hankin,* Imperial College London, UK*; P. Kelly,* ***Justyna Kulczyk-Malecka,*** Manchester Metropolitan University, UK
10:40am	**F5-MoM-3** Coater-Scale Model of DC Magnetron Sputtering, ***Andrej Roštek,*** Masaryk University / PlasmaSolve s.r.o., Czechia*; P. Zikán,* PlasmaSolve s.r.o., Czechia*; J. Tungli,* Masaryk University, Czechia*; A. Obrusník,* PlasmaSolve s.r.o., Czechia	**TS1-1-MoM-3** Surface Modification of Graphite Felt Electrode for Vanadium Redox Flow Batteries by High Entropy Alloy Oxide Thin Films: Effect of Oxygen Gas Flow Ratios, ***Krishnakant Tiwari,*** *C. Wang,* National Taiwan University of Science and Technology, Taiwan*; B. Lou,* Chang Gung University of Technology, Taiwan*; J. Lee,* Ming Chi University of Technology, Taiwan
11:00am	**F5-MoM-4** High-Throughput Simulations to Predict History Dependence of Feedback Control During Reactive Magnetron Sputtering, ***Josja Van Bever,*** *K. Strijckmans, D. Depla,* Ghent University, Belgium	**TS1-1-MoM-4** Temperature Dependency of Specific Electrical Conductivity of DLC Coatings, *S. Danninger,* University of Applied Sciences Upper Austria*;* ***Francisco A. Delfin,*** University of Applied Sciences Upper Austria, Argentina*; C. Forsich, D. Heim, M. Schachinger,* University of Applied Sciences Upper Austria*; B. Rübig, C. Dipolt, T. Müller,* Rubig GmbH & Co KG, Austria
11:20am	**F5-MoM-5** Evatec Fabric – a Thin-Film Process and -Metrology Data Tracking System for Large-Scale, Automated Data Analysis in R&D Labs, ***Clemens Nyffeler,*** *O. Rattunde, D. Jaeger, H. Zangerle, R. Gmuender,* Evatec AG, Switzerland	**INVITED: TS1-1-MoM-5** High Efficiency of Metal Oxide Catalysts for Vanadium Redox Flow Battery, ***Chen-Hao Wang,*** National Taiwan University of Science and Technology, Taiwan
11:40am	**F5-MoM-6** Predicting Reactive PVD Processes Using Global Process Modeling – a Physics-Based Alternative to Machine Learning, ***Petr Zikán,*** *A. Obrusnik,* PlasmaSolve s.r.o., Czechia	
12:00pm	**F5-MoM-7** Structure and Crystallographic Properties of Multi-Material Coatings Deposited in a Combinatorial Sputter Plant Compared to Simulations from the Machine Level to Microstructure, ***David Böhm,*** TU Wien, Austria*; T. Schrefl,* Danube University Krems, Austria*; A. Eder,* MIBA High Tech Coatings GmbH, Austria*; C. Eisenmenger-Sittner,* TU Wien, Austria	**TS1-1-MoM-7** Effect of Mg Doping on Characterization and Cycling Performance of $LiCoO_2$ Thin Film Cathode for Lithium-Ion Batteries, ***Tai-Yan Liu,*** *J. Huang, C. Liu,* National Cheng Kung University (NCKU), Taiwan

Special Interest Talks
Room Town & Country A - Session SIT1-MoSIT
Special Interest Session I
Moderator:
Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

1:00pm	**INVITED: SIT1-MoSIT-1** Residual Stress Measurement on Hard Coatings and the Evaluation of Energy Relief Efficiency of Architectured Coatings, ***Jia-Hong Huang,*** National Tsing Hua University, Taiwan	
1:20pm		

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific D - Session H1-2-MoA** **Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces II** **Moderators:** **Damien Faurie**, Université Sorbonne Paris Nord, France, **Michael Tkadletz**, Montanuniversität Leoben, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Pacific F-G - Session D1-2-MoA** **Surface Coatings and Surface Modifications in Biological Environments II** **Moderators: Mathew T. Mathew**, University of Illinois College of Medicine at Rockford and Rush University Medical Center, **Kerstin Thorwarth**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
1:40pm	**INVITED: H1-2-MoA-1** Multimodal and *in Situ* Electron Microscopy to Understand Local Deformation Mechanics, ***Josh Kacher,*** Georgia Institute of Technology, USA	**D1-2-MoA-1** Antibacterial Performance of DLC and Ag-doped DLC coatings with a Long Term Perspective, ***Maneesha Rupakula,*** Platit AG, Switzerland; *K. Sharma,* EPFL, Switzerland; *H. Bolvardi, B. Paul, G. Wahli,* Platit AG, Switzerland
2:00pm		**D1-2-MoA-2** TiN/NbN Superlattice Coatings Deposited by High Power Impulse Magnetron Sputtering Potential Candidate to Protect Medical Grade CoCrMo Alloys, ***Papken Hovsepian,*** Sheffield Hallam University, UK; *A. Ehiasarian, A. Sugumaran,* Sheffield Hallam University, United Kingdom; *I. Khan,* Zimmer- Biomet UK
2:20pm	**H1-2-MoA-3** Nanomechanical Characterization and Residual Stress Analysis in Thin ALD Coatings on 3D Printed Nano-Ceramics, ***Marco Sebastiani,*** Università degli studi Roma Tre, Rome, Italy	**INVITED: D1-2-MoA-3** 3D Printed Ceramics Reinforced Ti6Al4V: Structural and Nano-Mechanical Characterization, ***Peter Apata Olubambi,*** *T. Tshephe,* University of Johannesburg, South Africa
2:40pm	**H1-2-MoA-4** *In-Situ* Monitoring of Stress Evolution in Hipims-Deposited Ti-Al-N Films: Effect of Substrate Bias and Temperature, ***Pedro Renato Tavares Avila,*** *O. Zabeida, L. Varela Jiménez, J. Klemberg-Sapieha, L. Martinu,* Polytechnique Montréal, Canada	
3:00pm	**H1-2-MoA-5** High Strength and Deformability in 3D Interface Cu/Nb Nanolaminates Under Multiple Loading Orientations, ***Justin Y. Cheng,*** University of Minnesota, USA; *S. Xu,* University of Oklahoma, USA; *J. Baldwin,* Los Alamos National Laboratory, USA; *M. De Leo,* University of Minnesota, USA; *I. Beyerlein,* University of California Santa Barbara, USA; *N. Mara,* University of Minnesota, USA	**D1-2-MoA-5** A Remote Atmospheric Pressure Plasma-Assisted Textile Functionalization Process on Polymeric Scaffolds for Bone Tissue Engineering, ***Wei-Yu Chen,*** *J. Lee, T. An,* Taiwan Textile Research Institute, Taiwan; *A. Matthews,* University of Manchester, UK
3:20pm	**H1-2-MoA-6** Multiaxial Stress-Strain Transfer Across Indenter-Sample Interface During *in Situ* Indentation of Nanocrystalline Thin Films, ***Michael Meindlhumer,*** *J. Todt,* Montanuniversität Leoben, Leoben, Austria; *A. Medjahed,* ESRF, The European Synchrotron, Grenoble, France; *M. Burghammer,* ESRF, The European Synchrotron, France; *M. Zitek, R. Daniel,* Montanuniversität Leoben, Leoben, Austria; *D. Steinmüller-Nethl,* CarbonCompetence GmbH, Wattens, Austria; *J. Keckes,* Montanuniversität Leoben, Leoben, Austria	**D1-2-MoA-6** Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, ***Jo-Han Yu,*** National Taipei University of Technology, Taipei Tech, Taiwan; *K. Feng,* Ming Chi University of Technology, Taiwan; *Y. Yang,* National Taipei University of Technology, Taipei Tech, Taiwan
3:40pm	**H1-2-MoA-7** Film Thickness Effect on Stress Sign Transition in ITO Thin Films, ***Jianhui Liang,*** *J. Zhang, K. Rubin, W. Johnson,* KLA Corporation, USA; *R. Schelwald,* KLA Corporation, Germany; *O. Amster,* KLA Corporation, USA; *B. Cuénod, R. Juttin,* EPFL, Switzerland	**D1-2-MoA-7** New Generation of Thin Films for Protection of Stainless Steel Against Corrosion and Bacterial Contamination, ***Akram ALHUSSEIN,*** *A. BELGROUNE, E. KAADY,* University of Technology of Troyes, France; *L. AISSANI,* University of Khenchela, Algeria; *R. HABCHI,* Lebanese University, Lebanon; *S. Rtimi,* Federal Polytechnic School of Lausanne, Switzerland
4:00pm	**H1-2-MoA-8** Reactions of Metal-Tmhd Compounds in the Gas-Phase: Insights from Microreactor Studies Using Synchrotron Radiation, ***Sebastian Grimm,*** Institute for Combustion and Gas Dynamics, University of Duisburg-Essen, Germany; *P. Hemberger,* Paul Scherrer Institute, Switzerland; *B. Atakan,* Institute for Combustion and Gas Dynamics and CENIDE, University of Duisburg-Essen, Germany	**D1-2-MoA-8** Effects of Silver Acetate Additives on Antimicrobial and Corrosion Behaviors of Plasma Electrolytic Oxidation Coatings on AZ31B Magnesium Alloy, ***Yu-Tse Sung,*** Department of Materials Engineering, Ming Chi University of Technology, Taiwan; *C. Tseng,* Department of Materials Engineering & Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan
4:20pm	**H1-2-MoA-9** How to Simultaneously Determine Absolute Thickness, Chemistry, and Other Properties of Crystalline Layers Using XRD, ***Thomas Degen,*** *M. Sadki, N. Norberg,* Malvern Panalytical, Netherlands; *N. Shin,* Deep Solution Inc., Korea (Democratic People's Republic of)	**D1-2-MoA-9** Tribocorrosion and Biological Analysis of Surface Coated by Polypyrrole Film and Zinc on Titanium Surfaces Treated by Plasma Electrolytic Oxidation, ***M. Borges,*** University of Campinas, Brazil, University of Illinois College of Medicine Rockford, USA; *H. Kanniyappan,* University of Illinois College of Medicine Rockford, USA; *V. Barão,* University of Campinas, Brazil; *M. Mathew,* University of Chicago College of Medicine Rockford, USA
4:40pm		

	Coatings for Use at High Temperatures **Room Pacific E - Session A1-2-MoA** **Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II** **Moderators:** **Gustavo García-Martín**, REP-Energy Solutions, Spain, **Justyna Kulczyk-Malecka**, Manchester Metropolitan Univ., UK	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - Session B2-MoA** **CVD Coatings and Technologies** **Moderators:** **Raphaël Boichot**, Grenoble-INP/CNRS, France, **Hiroki Kondo**, Nagoya University, Japan
1:40pm	**A1-2-MoA-1** Microstructural Changes of Yttria-Containing MMC-Coatings and Their Influence on Hot Corrosion, Wear and Mechanical Behavior, ***Christoph Grimme****, C. Oskay, M. Galetz,* DECHEMA-Forschungsinstitut, Germany	**INVITED: B2-MoA-1** Si and SiC-based CVD Coatings for High Temperature Structural Applications*, A. Le Doze, P. Drieux,* Laboratoire des Composites Thermostructuraux - CNRS, France*; S. Jacques,* Laboratoire de Composites Thermostructuraux - CNRS, France*; G. Couégnat,* ***Georges Chollon****,* Laboratoire des Composites Thermostructuraux - CNRS, France
2:00pm	**A1-2-MoA-2** Surface Refinement by Aluminide Diffusion Coatings and Its Effect on the Oxidation Behavior and Creep Strength of Additively Manufactured Fe- and Ni-Based Alloys*,* ***Ceyhun Oskay****, L. Mengis,* DECHEMA-Forschungsinstitut, Germany*; A. Kulig, H. Daoud,* Neue Materialien Bayreuth GmbH, Germany*; M. Galetz,* DECHEMA-Forschungsinstitut, Germany*; U. Glatzel,* University of Bayreuth, Germany and Neue Materialien Bayreuth GmbH, Germany	
2:20pm	**INVITED: A1-2-MoA-3** Influence of High Temperatures on the Friction and Wear of Highly Stressed Exhaust Systems*,* ***Martin Dienwiebel****,* Institute for Applied Materials IAM - Karlsruhe Institute of Technology, Germany*; T. König,* Fraunhofer Institute for Mechanics of Materials IWM, Germany*; T. Kimpel,* Institute for Applied Materials IAM, Karlsruhe Institute of Technology, Germany*; D. Kuerten, A. Kailer,* Fraunhofer Institute for Mechanics of Materials IWM, Germany	**B2-MoA-3** Influence of Bilayer Periodicity on Microstructure, Residual Stress and Mechanical Properties of CVD TiN/TiB_2 Multilayer Coatings*,* ***Michael Tkadletz****,* Montanuniversität Leoben, Austria*; A. Lechner, B. Sartory,* Materials Center Leoben Forschung GmbH, Austria*; C. Czettl,* CERATIZIT Austria GmbH, Austria*; N. Schalk,* Montanuniversität Leoben, Austria
2:40pm		**B2-MoA-4** Effect of the Substrate Treatment on the Microstructure of CVD Ti(C,N)/Al_2O_3 Hard Coatings*,* ***Christiane Wächtler****, C. Wüstefeld,* TU Bergakademie Freiberg, Germany*; M. Šíma, J. Pikner,* Dormer Pramet, Czechia*; D. Rafaja,* TU Bergakademie Freiberg, Germany
3:00pm	**A1-2-MoA-5** Surface Refinement of Additively Manufactured Components: Microstructure and Mechanical Properties*,* ***Agata Kulig****,* Neue Materialien Bayreuth GmbH, Germany*; C. Oskay, L. Mengis,* DECHEMA-Forschungsinstitut, Germany*; H. Daoud,* Neue Materialien Bayreuth GmbH, Germany*; M. Galetz,* DECHEMA-Forschungsinstitut, Germany*; U. Glatzel,* University of Bayreuth, Neue Materialien Bayreuth GmbH, Germany	**B2-MoA-5** Novel ZrB_2 and HfB_2 Metaldiboride Coatings by LPCVD*,* ***Mandy Höhn****, M. Krug, B. Matthey,* Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany
3:20pm	**A1-2-MoA-6** Oxidation Behavior of Novel Cr-Si Diffusion Coatings Applied by the Slurry Technique*,* ***Michael Kerbstadt****,* DECHEMA, Germany*; E. White,* DECHEMA, USA*; M. Galetz,* DECHEMA, Germany	**B2-MoA-6** Diamond Coatings on Cutting Tools Applied to Super-Hard Workpiece Materials*,* ***Michael Woda****,* CemeCon AG, Germany*; J. Fuentes,* Hufschmied Zerspanungssysteme GmbH, Germany*; W. Puetz, M. Wegh, C. Schiffers, S. Bolz, O. Lemmer,* CemeCon AG, Germany
3:40pm	**A1-2-MoA-7** Use of Machine Learning Algorithms to Optimize and Customize Aluminide Diffusion Coatings*,* ***Vladislav Kolarik****, M. Juez Lorenzo,* Fraunhofer Institute for Chemical Technology ICT, Germany*; P. Praks,* IT4Innovations National Computing Center, VSB - Technical University of Ostrava, Czechia	**INVITED: B2-MoA-7** Study on Small-Volume and Flow-Type Hard DLC Film Process Using Substrate-Surrounding Microwave Plasma*,* ***Hiroyuki Kousaka****,* Gifu University, Japan
4:00pm	**A1-2-MoA-8** Self-Healing Aluminide Coatings*,* ***Fernando Pedraza****, R. Troncy, L. Boccaccini, G. Bonnet,* La Rochelle University, France*; X. Montero,* MTU, Germany*; M. Galetz,* DECHEMA-Forschungsinstitut, Germany	
4:20pm	**A1-2-MoA-9** Continuous Al-supply to Cr_2AlC MAX Phase Coatings During Oxidation at High Temperature*,* ***Clio Azina****, M. Hans,* Materials Chemistry, RWTH Aachen University, Germany*; J. Gonzalez-Julian,* Chair of Ceramics, RWTH Aachen University, Germany*; P. Eklund,* Linköping University, IFM, Sweden*; J. Schneider,* Materials Chemistry, RWTH Aachen University, Germany	

Monday Afternoon, May 22, 2023

	Hard Coatings and Vapor Deposition Technologies **Room Town & Country D - Session B4-2-MoA** **Properties and Characterization of Hard Coatings and Surfaces II** **Moderators: Naureen Ghafoor**, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Yi Ouyang**, National Tsing Hua University, Taiwan	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country B - Session B6-MoA** **Computationally-aided Materials Design** **Moderators:** **Davide G. Sangiovanni**, Linköping University, Sweden, **Wan-Yu Wu**, National United University, Taiwan
1:40pm	**INVITED: B4-2-MoA-1** Amorphous Carbon Coatings for Tribological Applications in Hydrogen and Natural Gas Environments, ***Thomas Gradt***, Bundesanstalt für Materialforschung und -pruefung (BAM), Germany	**INVITED: B6-MoA-1** Selection of Photosensitive Materials on Metal Oxide Surface by Using Machine Learning, ***Yen-Hsun Su***, National Cheng Kung University, Taiwan
2:00pm		
2:20pm	**B4-2-MoA-3** Effect of Bio-Lubricants on Wear and Friction of Borided Ti_6Al_4V Alloy, *A. Nieto-Sosa, G. Rodríguez-Castro, J. Escobar-Hernández, A. Meneses-Amador,* ***José Arciniega-Martínez****, H. Martínez-Gutierrez,* National Polytechnic Institute, Mexico	**B6-MoA-3** On the Modeling of Particle Growth in Film Deposition, ***Rahul Basu***, JNTU, India
2:40pm	**B4-2-MoA-4** Experimental and Numerical Evaluation of Multi-Pass Scratch on Borided Armco Iron, ***Jesús Vidal-Torres***, SEPI ESIME Instituto Politécnico Nacional, Mexico; *A. Ocampo-Ramírez,* Universidad Veracruzana, Mexico; *G. Rodríguez-Castro, I. Campos-Silva, A. Meneses-Amador,* SEPI ESIME Instituto Politécnico Nacional, Mexico	**B6-MoA-4** First-Principles Investigations of the Physical Properties of Experimentally Feasible Novel Aluminum Nitride Polytypes, ***Mowafaq Mohammad Al-Sardia***, Jejun University, Republic of Korea
3:00pm	**B4-2-MoA-5** Microstructure and Tribological Characteristics of Binary Refractory Metal Nitride Coatings, ***Yu-Hsien Liao***, *S. Hsu, F. Wu,* Dept. of Materials Science and Engineering, National United University, Taiwan	**INVITED: B6-MoA-5** Computational Supports to Identify Structural and Elastic Relationship of Metastable Crystalline And Amorphous Thin Films Alloys: $Mo_{1-x}Ni_x$ and $Mo_{1-x}Si_x$ Case Studies, *C. Li,* 1State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, China; *G. Abadias,* Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; ***Philippe Djemia***, LSPM UPR 3407, France
3:20pm	**B4-2-MoA-6** Hyper-Doping of Boron Carbide Ablators for Laser Fusion, ***Gregory Taylor***, Lawrence Livermore National Lab, USA	
3:40pm	**B4-2-MoA-7** Influence of Si Content on the Mechanical Properties, Microstructure and Tribological Behaviors of (AlCrNbSiTi)N Coatings, ***Yun-Chen Chan***, *S. Hsu, P. Chen, J. Duh,* National Tsing Hua University, Taiwan	**B6-MoA-7** On the Quantification of Lattice Distortions and Their Correlation with Kinetics in High Entropy Sublattice Nitrides, ***Ganesh Kumar Nayak***, Montanuniversität Leoben, Austria; *A. Kretschmer,* TU Wien, Austria; *J. Sälker,* RWTH Aachen University, Germany; *P. Mayrhofer,* TU Wien, Austria; *M. Hans, J. Schneider,* RWTH Aachen University, Germany; *D. Holec,* Montanuniversität Leoben, Austria
4:00pm	**B4-2-MoA-8** Effect of CrMoN Addition on the Thermal Stability and Tribological Property of TiVN Coatings, *Y. Chang,* ***He-Qian Feng***, National Formosa University, Taiwan	**B6-MoA-8** Machine-Learning Guided Ab-Initio Exploration of Thermal/Mechanical Properties in Transition Metal Nitrides, ***Andreas Kretschmer***, TU Wien, Institute of Materials Science and Technology, Austria; *M. Fedrigo,* Oerlikon Digital Hub, Germany; *L. Lezuo,* 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
4:20pm		**B6-MoA-9** Descriptors Development for Stability Prediction of N-Doped High Entropy Alloy Coatings: A DFT Study, ***Chih-Heng Lee***, National Tsing Hua University, Taiwan; *J. Lee,* Ming Chi University of Technology, Taiwan; *H. Chen,* National Tsing Hua University, Taiwan
4:40pm		**B6-MoA-10** Structural Configuration of Simple Functional Groups on (100) Si Surfaces, ***Benjamin Whitfield***, *R. Fleming,* Arkansas State University, USA
5:00pm		**B6-MoA-11** Bayesian Optimization-Assisted Sputter Deposition of Molybdenum Thin Films with Desired Stress and Resistivity, ***Ankit Shrivastava***, *M. Kalaswad, D. Adams, H. Najm,* Sandia National Laboratories, USA

	Topical Symposia **Room Town & Country A - Session TS1-2-MoA** **Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications II** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Klaus Böbel**, Bosch Manufacturing Solutions, Germany	
1:40pm		
2:00pm		
2:20pm	**TS1-2-MoA-3** Influence of Oxygen Content During the Deposition of Scandium Stabilized Zirconia Thin Films by Reactive High Power Impulse Magnetron Sputtering (R-HiPIMS), ***Isabel Fernandez Romero,*** Corporate Sector Research and Advance Engineering- Robert Bosch, Germany; *S. Klein, C. Engel,* Corporate Sector Research and Advance Engineering - Robert Bosch, Germany; *J. Fleig,* Technical University of Vienna, Austria	
2:40pm	**TS1-2-MoA-4** Comparison of the Impacts of High Entropy Oxide/Alloy Coatings for Lithium-Sulfur Battery Separators, ***Ming-Roe Wann,*** *Y. Lin, S. Chung, J. Ting,* National Cheng Kung University (NCKU), Taiwan	
3:00pm	**TS1-2-MoA-5** $BaCeZrYO_{3-\delta}$ Coatings Deposited by Solution Precursor Plasma Spray (SPPS) for Sustainable Energy Application, ***Yen-Yu Chen,*** *W. Zeng, C. Liu, G. Yao,* Chinese Culture University, Taiwan	
3:20pm	**TS1-2-MoA-6** Aluminum-Doped Non-Stoichiometric Titanium Oxide (Al-TiO_X) for Anode in Lithium-Ion Batteries, ***Guan-Bo Liao,*** National Cheng Kung University (NCKU), Taiwan; *Y. Shen,* Hierarchical Green-Energy Materials (Hi-GEM) Research Center, Taiwan; *J. Huang,* National Cheng Kung University (NCKU), Taiwan	
3:40pm	**TS1-2-MoA-7** Unveiling Capacitive and Diffusion-Limited Li-Ion Storage in Semiconducting 2d-Mos_2 Composited with Aluminium Nitride Nanoflowers for Flexible Electrodes of Supercapacitors, *D. Kaur,* ***Gagan Kumar Sharma,*** Indian Institute of Technology Roorkee, India	
4:00pm	**TS1-2-MoA-8** Lithium Passive Diffusion and Surface Oxidation on Battery Materials at Room Temperature, ***Jozef Ociepa,*** OCI Vacuum Microengineering Inc., Canada	
4:20pm	**TS1-2-MoA-9** Development of Carbon-based PVD Coatings for Stainless Steel PEMFC's Bipolar Plates, ***Michaël Ougier,*** *M. Leroy,* IREIS/HEF group, France; *A. Chavanne,* HEF group, France; *H. Christophe,* IREIS/HEF Group, France	

Tuesday Morning, May 23, 2023

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific D - Session H2-1-TuM** **Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes I** **Moderator:** **Olivier Pierron**, Georgia Institute of Technology, USA	**Coatings for Biomedical and Healthcare Applications** **Room Pacific F-G - Session D2-TuM** **Medical Devices: Bio-Tribo-Corrosion, Diagnostics, 3D Printing** **Moderators: Hamdy Ibrahim**, University of Tennessee at Chattanooga, USA, **Margaret Stack**, University of Strathclyde, UK
8:00am		**INVITED: D2-TuM-1** Empowering PVD-Coatings to Control the Time Dependent Chemical and Microstructural Coating Properties in Aqueous Electrolytes, ***Holger Hoche,*** Center for Structural Materials, TU-Darmstadt, Germany*; T. Ulrich,* Center for Structural Materials, TU Darmstadt, Germany*; P. Polcik,* Plansee Composite Materials, Germany*; M. Oechsner,* Center for Structural Materials, TU-Darmstadt, Germany
8:20am		
8:40am	**INVITED: H2-1-TuM-3** Multifunctional Characterization of Nanomultilayers, ***Andrea Maria Hodge,*** University of Southern California, USA	**D2-TuM-3** Early Detection of Fretting-Corrosion at the Hip Modular Junction Interface by Acoustic Emission Non-Invasive Technique, ***Bill Keaty,*** *Y. Sun,* University of Illinois at Chicago, USA*; M. Mathew,* University of Illinois - Chicago, USA*; D. Ozevin, J. Eapen, T. Zhang,* University of Illinois at Chicago, USA
9:00am		**D2-TuM-4** Corrosion Evaluation of Plasma Electrolytic Oxidation Coatings on Titanium Alloys For Biomedical Implant Application, *E. Sondgeroth, K. Cheng, Y. Sun,* UIC School of Medicine at Rockford, USA*; C. Takoudies,* UIC School of Medicine, USA*; E. Vries,* Faculty of Engineering Technology , University of Twente, The Netherlands, USA*; D. Matthews, N. Bolink,* Faculty of Engineering Technology , University of Twente, The Netherlands*; A. Yerokhin,* Department of Materials, University of Manchester, United Kingdom*;* ***Mathew Mathew,*** UIC school of medicine at Rockford, USA
9:20am	**H2-1-TuM-5** Effects of Radiation Damage on the Critical Resolved Shear Stresses in Zirconium Alloys for Nuclear Applications, ***James Gibson,*** *C. Grovenor, A. Wilkinson,* Oxford University, UK	**D2-TuM-5** Large-Scale Metallic Nanotubes Array (MeNTA) with Plasmonic Nanoparticles for SERS Application, ***Alfreda Krisna Altama,*** *J. Chu,* National Taiwan University of Science and Technology, Taiwan*; P. Yiu,* Ming Chi University of Technology, Taiwan*; W. Chiang,* National Taiwan University of Science and Technology, Taiwan
9:40am	**H2-1-TuM-6** Link between Cracking Mechanisms of Trilayer Films on Flexible Substrates and Electro-Mechanical Reliability Under Biaxial Loading, ***Shuhel Altaf Husain,*** Institut Pprime - CNRS - ENSMA - Université de Poitiers, France*; P. Kreiml,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria*; P. Renault,* Institut Pprime - CNRS - ENSMA - Université de Poitiers, France*; C. Mitterer,* Montanuniversität Leoben, Leoben, Austria*; M. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria*; D. Faurie,* CNRS, France	**D2-TuM-6** Carbide-derived Carbon (CDC) for Implant Application: Tribocorrosion Kinetics and Mechanisms, ***Kyle Kinnerk,*** Department of Biomedical Engineering, University of Illinois at Chicago, USA*; Y. Sun, M. Daly,* Department of Civil, materials, and Environmental Engineering, University of Illinois at Chicago, USA*; M. Wimmer,* Department of Orthopedic Surgery, Rush University Medical Center, USA*; M. McNallan,* Department of Civil, materials, and Environmental Engineering, University of Illinois at Chicago, USA*; M. Mathew,* Department of Biomedical Sciences, UIC College of Medicine at Rockford, USA
10:00am	**H2-1-TuM-7** Effect of Nanometric Stacking on the Magneto-Mechanical Properties of Thin Films on Flexible Substrate, *H. Ben Mahmoud,* ***Damien Faurie,*** CNRS-LSPM, France*; P. Renault,* CNRS-Pprime, France*; F. Zighem,* CNRS-LSPM, France	**D2-TuM-7** PEKK as Biomaterials Under Fretting Corrosion Solicitations: May This Biopolymer Be Considered as New Hip Implant Component?, ***Jean Geringer,*** *J. Monnatte,* Mines Saint-Etienne, France*; G. Planche,* EPIC sarl, France*; J. Porteus,* Oxford Polymers, USA
10:20am	**H2-1-TuM-8** Influence of the Aspect Ratio of the Micro-Cantilever on the Determined Young's Modulus Using the Euler-Bernoulli Equation, *F. Konstantiniuk,* Montanuniversität Leoben, Austria*; M. Krobath, W. Ecker,* Materials Center Leoben Forschungs GmbH, Austria*; C. Czettl,* CERATIZIT Austria GmbH, Austria*;* ***Nina Schalk,*** Montanuniversität Leoben, Austria*; M. Tkadletz,* Montanuniversitat Leoben, Austria	**D2-TuM-8** Fretting-corrosion (<5µm) Performance of Carbide-derived Carbon (CDC) Surface Modification for Hip Implants, ***Yani Sun,*** *M. Daly, M. McNallan,* Department of Civil, Materials and Environmental Engineering, University of Illinois at Chicago, USA*; M. Mathew,* Department of Biomedical Sciences, UIC College of Medicine at Rockford, USA
10:40am	**H2-1-TuM-9** Engineering Metal-MAX Phase Multilayered Nanolaminates for Tunable Strength and Toughness, ***Skye Supakul,*** *S. Pathak,* Iowa State University, USA*; K. Yaddanapudi,* University of California at Davis, USA	

	Coatings for Use at High Temperatures **Room Pacific E - Session A1-3-TuM** **Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling III** **Moderators:** **Gustavo García-Martín**, REP-Energy Solutions, Spain, **Justyna Kulczyk-Malecka**, Manchester Metropolitan University,	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-3-TuM** **Properties and Characterization of Hard Coatings and Surfaces III** **Moderators: Naureen Ghafoor**, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Yi Ouyang**, National Tsing Hua University, Taiwan
8:00am	**A1-3-TuM-1** Excellent Tribological, Mechanical, and Anti-Corrosion Performance of Agro-Waste as Corrosion Inhibitor for Carbon Steelin an Acidic Environment, ***Omotayo Sanni***, *J. Ren, T. Jen,* Department of Mechanical Engineering Science, University of Johannesburg, South Africa	
8:20am	**A1-3-TuM-2** Study of Materials and Coatings for Use in High Temperature CO_2 Environments, ***Jianliang Lin***, Southwest Research Institute, USA	**B4-3-TuM-2** Is It Meaningful to Quantify Vacancy Concentrations of (Ti,Al)N Thin Films Based on Laser-Assisted Atom Probe Tomography Data?, ***Marcus Hans***, Materials Chemistry, RWTH Aachen University, Germany; *M. Tkadletz,* Department of Materials Science, Montanuniversität Leoben, Austria; *D. Primetzhofer,* Department of Physics and Astronomy, Uppsala University, Sweden; *H. Waldl,* Christian Doppler Laboratory for Advanced Coated Cutting Tools, Montanuniversität Leoben, Austria; *M. Schiester,* Materials Center Leoben Forschung GmbH, Austria; *M. Bartosik,* Department of Materials Science, Montanuniversität Leoben, Austria; *C. Czettl,* CERATIZIT Austria GmbH, Austria; *N. Schalk,* Christian Doppler Laboratory for Advanced Coated Cutting Tools, Montanuniversität Leoben, Austria; *C. Mitterer,* Department of Materials Science, Montanuniversität Leoben, Austria; *J. Schneider,* Materials Chemistry, RWTH Aachen University, Germany
8:40am	**A1-3-TuM-3** Liquid Aluminum-Induced Wear of Ni-Based Superalloy at Elevated Temperatures, ***Hongfei Liu***, Institute of Materials Research and Engineering (IMRE), A*STAR (Agency for Science, Technology and Research), Singapore; *N. Gong,* Institute of Materials Research and Engineering (IMRE), Singapore; *R. Karyappa, T. Meng,* Institute of Materials Science and Engineering (IMRE), Singapore	**B4-3-TuM-3** The Oxidation Behavior of VMoN Thin Films Deposited by High Power Pulsed Magnetron Sputtering, ***Nan-Cheng Lai***, *J. Huang,* National Tsing Hua University, Taiwan
9:00am	**A1-3-TuM-4** Characteristics and Resistance of CVD Hafnium Carbide Coating in Extreme Environments, ***Hyeon-Geun Lee***, *J. Lee, D. Kim, B. Jun, W. Kim, J. Park,* Korea Atomic Energy Research Institute, Republic of Korea	**B4-3-TuM-4** Correlation Between Microstructure and Mechanical Properties of B_4C Thin Films Deposited by Pulsed Laser Deposition, ***Falko Jahn***, *S. Weißmantel,* Laserinstitut Hochschule Mittweida, Germany
9:20am	**A1-3-TuM-5** High Temperature Corrosion Protection of Zirconium Fuel Rods in Nuclear Reactors by Nanocrystalline Diamond (Ncd) Layers, ***Frantisek Fendrych***, Institute of Physics Academy of Sciences of the Czech Republic	**B4-3-TuM-5** Evaluation of Fracture Toughness of Borided Materials by Cross-Sectional Scratch Testing, *F. Alfonso-Reyes,* ***André Ballesteros-Arguello***, *J. Martínez-Trinidad,* SEPI ESIME Instituto Politécnico Nacional, Mexico; *A. Ocampo-Ramírez,* Universidad Veracruzana, Mexico; *G. Rodríguez-Castro,* SEPI ESIME Zacatenco, Mexico; *A. Meneses-Amador,* SEPI ESIME Instituto Politécnico Nacional, Mexico
9:40am	**A1-3-TuM-6** Effect of Vacuum Annealing on the Residual Stress of ZrN Thin Film deposited on Ni-based Superalloy Haynes 282, ***Kuan-Che Lan***, *C. Li,* National Tsing Hua University, Taiwan; *H. Tung,* Institute of Nuclear Energy Research, Taiwan	**B4-3-TuM-6** Stress Evolution in Binary Metal Alloy Systems, ***Tong Su***, Brown University, USA; *J. Robinson, G. Thompson,* The University of Alabama, USA; *E. Chason,* Brown University, USA
10:00am	**A1-3-TuM-7** Study at Pilot Plant Scale on Biomass Corrosion Resistance of FeCr and CoCrMo Coatings Applied by HVOF, *M. de Miguel Gamo, G. García Martín, M. Lasanta Carrasco, M. Lambrecht,* Universidad Complutense de Madrid, Spain; *F. Gonçalves,* Teandm - tecnologia engenharia e materiais s.a, Portugal; *M. Sousa,* teandm - tecnologia engenharia e materiais s.a, Portugal; *A. Bahillo, M. Benito,* Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Spain; ***Francisco Javier Pérez Trujillo***, Universidad Complutense de Madrid, Spain	**INVITED: B4-3-TuM-7** Molecular Engineering of Inorganic Thin Film Interfaces for Accessing Multiple Novel Properties for Diverse Applications, ***Ganpati Ramanath***, Rensselaer Polytechnic Institute, USA
10:20am	**A1-3-TuM-8** Sol-Gel Coating to Protect Materials Exposed Under Carbonates Used as a Thermal Energy Storage System in Central Tower Power Plants, ***Gustavo García Martín***, *M. de Miguel Gamo, M. Lasanta Carrasco, M. Lambrecht, F. Pérez Trujillo,* Universidad Complutense de Madrid, Spain	
10:40am		

Tuesday Morning, May 23, 2023

	Topical Symposia **Room Town & Country A - Session TS1-3-TuM** **Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications III** **Moderators:** **Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Klaus Böbel**, Bosch Manufacturing Solutions, Germany	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room Town & Country B - Session E3-1-TuM** **Tribology of Coatings and Surfaces for Industrial Applications I** **Moderators: Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Rainer Cremer**, KCS Europe GmbH, Germany, **Philipp Grützmacher**, Institute of Engineering Design and Product Development, Austria
8:00am		**INVITED: E3-1-TuM-1** Carbon Based Coatings Deposited Over Aisi 4140 to Improve Wear Resistance in Machine Components*, F. Delfin,* UTN, Argentina*; D. Heim,* Upper University of Applied Sciences, Wels Campus, Austria*;* ***Sonia Brühl****,* UTN, Argentina
8:20am	**TS1-3-TuM-2** High-Performance Rechargeable Zinc Ion Batteries: From Surface Modification of Zn Anode and Structural Engineered Cathode to Deep Eutectic Solvent (DES)-Based Electrolytes*,* ***Yu-Lun Chueh****,* National Tsing Hua University, Taiwan	
8:40am	**TS1-3-TuM-3** Electrochemical Performances of LiNi0.8Co0.1Mn0.1O2 Synthesized by Hydroxide Coprecipitation Method*,* ***Chia-Hsin Lo****, J. Huang,* National Cheng Kung University (NCKU), Taiwan*; C. Chang,* National University of Tainan, Taiwan	**E3-1-TuM-3** Tribological Behaviour of Diamond Coated Reaction-Bonded Silicon Carbide Under Dry and Seawater Environment*, R. Kannan, N. C,* Indian Institute of Technology Madras, India*; R. Ganguly, S. Mandal, S. Rao,* Carborundum Universal Limited, Industrial Ceramic Division, India*;* ***M.S Ramachandra Rao****,* Indian Institute of Technology Madras, India
9:00am	**TS1-3-TuM-4** Pb-Free Halide Perovskite/TiO_2 Heterostructure for Enhanced Solar-Driven PFC*,* ***Yong Yu****, J. Ting,* National Cheng Kung University (NCKU), Taiwan	**E3-1-TuM-4** Friend or Foe? The Role of Oxygen in the Tribological Performance of Solid Lubricant MoS_2*,* ***Andrey Bondarev****,* Czech Technical University in Prague, School of Engineering, Bernal Institute, University of Limerick; *I. Ponomarev, T. Polcar,* Czech Technical University in Prague, Czechia
9:20am	**TS1-3-TuM-5** Inline PVD Coating of Bipolar Plates for Electrochemical Energy Converters*, K. Böbel, M. Mueller,* Bosch Manufacturing Solutions, Germany*; D. Beisenherz, S. Huebner,* Singulus Technologies AG, Germany*; J. Jiao, S. Wetzel,* ***Rafael Gryga,*** Bosch Automotive Products (Suzhou) Co., Ltd., Germany	**E3-1-TuM-5** Tribological Properties MoS_2-WC Duplex Coatings in Low Viscosity Hydrocarbons*,* ***Euan Cairns****,* University of North Texas, USA*; S. Dixit,* Plasma Technology Inc., USA*; D. Berman, S. Aouadi, A. Voevodin,* University of North Texas, USA
9:40am	**TS1-3-TuM-6** Studies on the TiO_2 Thin Film on the Silicon Nanowire Arrays using Taguchi - Grey Method for Heterojunction Solar Cell*, A. Chiou, H. Liao,* ***Jun-Luo Wei****,* National Formosa University, Taiwan	**INVITED: E3-1-TuM-6** Modification of Diamond Like Carbon (DLC) to Improve Specific Tribological Characteristics for Automotive Applications*,* ***Denis Romagnoli****, F. Lavalle,* STS srl, Italy
10:00am	**TS1-3-TuM-7** Impacts of Mutual Phase Interactions on Crystal Polarity and Photocatalytic Hydrogen Evolution Reactions*,* ***Jrjeng Ruan****,* National Cheng Kung University (NCKU), Taiwan	
10:20am	**TS1-3-TuM-8** Systematic Investigation of the Piezocatalysis–Adsorption Duality of Polymorphic Mos_2 Nanoflowers*,* ***Hsun Yen Lin****,* National Tsing Hua University, Taiwan	**E3-1-TuM-8** Fabrication and Tribological Behaviors of DLC Coatings Embedded with Graphene Nanoplatelets*,* ***Guizhi Wu****, R. Brittain, A. Morina,* University of Leeds, UK*; E. Broitman,* SKF Research & Technology Development Center, Netherlands*; L. Yang,* University of Leeds, UK
10:40am	**TS1-3-TuM-9** Improving Urea Oxidation Reaction Performance by Enhancing Gas Releasing*,* ***Ming Feng Tsai****, J. Ting,* National Cheng Kung University (NCKU), Taiwan	

Exhibitors Keynote Lecture
Room Town & Country A - Session EX-TuM
Exhibition Keynote Lecture
Moderator: Samir Aouadi, University of North Texas, USA

11:00am	**INVITED: EX-TuM-1** Future Requirements for Advanced Surface Modification and Coatings Technologies for Turbine Engine Applications, ***David Furrer,*** Pratt and Whitney, USA	
12:00pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL (While Supplies Last)**	

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Town & Country A - Session H3-1-TuA** **Characterization of Coatings and Small Volumes in Extreme and Cyclic Conditions I** **Moderators:** **Peter Hosemann**, Univ. of California, Berkeley, USA, **Barbara Putz**, Montanuniversität Leoben, Austria	**Coatings for Biomedical and Healthcare Applications** **Room Pacific D - Session D3-TuA** **Biointerfaces: Coatings to Promote Cell Adhesion while Inhibiting Microbial Growth** **Moderators:** **Valentim A.R. Barão**, University of Campinas (UNICAMP), Brazil, **Sandra E. Rodil**, Universidad Nacional Autónoma de México
1:40pm	**INVITED: H3-1-TuA-1** Local Deformation Mechanisms under Ambient and Non-Ambient Conditions Tested via Advanced Nanoindentation, ***Verena Maier-Kiener,*** Montanuniversität Leoben, Leoben, Austria	**INVITED: D3-TuA-1** Chemical Vapor Deposition of Tantalum for Enhanced Cell Adhesion, ***Jessica DeBerardinis,*** Ultramet, USA
2:00pm		
2:20pm	**H3-1-TuA-3** Extracting High-Temperature Stress-Strain Curves and Assessing Transformation Pressures: The Spherical Indentation of Silicon, ***Gerald Schaffar,*** Montanuniversität Leoben, Austria; *D. Tscharnuter,* KAI Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Austria; *V. Maier-Kiener,* Montanuniversität Leoben, Austria	**D3-TuA-3** The Functionalization of N95 Masks Using Atomic Layer Deposited Silver Nano-Islands to Induce Antimicrobial Activity, ***Harshdeep Bhatia,*** *C. Takoudis,* University of Illinois, Chicago, USA
2:40pm	**H3-1-TuA-4** Micro-Impact Tests of Novel Thermal Barrier Coating Systems and >1000C Nanoindentation on Ni-Base Superalloy, ***Ben Beake,*** Micro Materials Ltd, UK; *C. Chalk,* Cranfield University, UK; *S. Goodes, A. Harris,* Micro Materials Ltd, UK; *L. Isern, J. Nicholls,* Cranfield University, UK	**INVITED: D3-TuA-4** Cold Atmospheric Plasma Jets Generated from Flexible Sources, *C. Corbella,* ***Sabine Portal,*** *H. Solomon, M. McCraw, M. Keidar, S. Solares,* George Washington University, USA
3:00pm	**H3-1-TuA-5** Influence of Si on the Mechanical Properties and High-temperature Fracture Toughness of Cr-Si-$B_{2±z}$ Coatings, *L. Zauner,* ***Rainer Hahn,*** CDL-SEC at TU Wien, Austria; *O. Hunold, J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvari, P. Polcik,* Plansee Composite Materials GmbH, Germany; *H. Riedl,* CDL-SEC at TU Wien, Austria	
3:20pm	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**
3:40pm		
4:00pm	**INVITED: H3-1-TuA-8** Nanoindentation Measurements at Combined High Sustained Strain Rates and Elevated Temperatures, ***Benoit Merle,*** University of Kassel, Germany	**D3-TuA-8** Multifunctional Coating Approach Integrating Visible-Light Driven Photodynamic Therapy and Photocatalytic Activity for Controlling Biofilm Accumulation and Reinforcing Wear Protection, ***Bruna Nagay***[1], *C. Dini, R. Costa, A. Santos,* University of Campinas (UNICAMP), Brazil; *J. Cordeiro,* Centro Universitário das Faculdades Associadas de Ensino, Brazil; *B. Gomes,* University of Campinas (UNICAMP), Brazil; *E. Rangel, N. Cruz,* Sao Paulo State University, Brazil; *J. van den Beucken,* Radboud University Medical Center, Netherlands; *V. Barão,* University of Campinas (UNICAMP), Brazil
4:20pm		**D3-TuA-9** ZnO_x Nanolayers as Antimicrobial Surfaces, *L. Reyes-Carmona,* Universidad Nacional Autónoma de México; *O. Sepulveda-Robles,* Instituto Mexicano del Seguro Social, Mexico; *A. Almaguer-Flores, C. Ramos-Vilchis,* ***Sandra E. Rodil,*** Universidad Nacional Autonoma de Mexico
4:40pm		**D3-TuA-10** Cytocompatibility of Chitosan-Silver Coated Titanium Coupons, *E. Coleman Montgomery,* ***J. Amber Jennings,*** *M. Atwill, J. Bumgardner,* University of Memphis, USA
5:00pm		**D3-TuA-11** Nonsurgical Decontamination Protocols for 3D-Printed Implant Surfaces, ***Valentim Barão,*** *R. Costa, T. Takeda, C. Dini,* University of Campinas (UNICAMP), Brazil; *M. Bertolini,* University of Pittsburgh, USA; *M. Feres, J. Shibli, J. Souza,* Guarulhos University, Brazil

[1] **Graduate Student Award Finalist**

	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	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B4-4-TuA** **Properties and Characterization of Hard Coatings and Surfaces IV** **Moderators: Naureen Ghafoor**, Linköping University, Sweden, **Marcus Günther**, Robert Bosch GmbH, Germany, **Fan-Yi Ouyang**, National Tsing Hua University, Taiwan
1:40pm	**A2-1-TuA-1** Influence of Microstructure on Phase Transformation of Plasma Sprayed YSZ Coatings Under Thermal Gradient Cycling Conditions, ***Simon Schöler,*** *D. Mack, Y. Sohn,* Forschungszentrum Juelich GmbH, Germany*; M. Rudolphi,* DECHEMA, Germany*; M. Adam,* TU Darmstadt, Germany*; R. Vassen, O. Guillon,* Forschungszentrum Juelich GmbH, Germany	**B4-4-TuA-1** Magnetron Sputter Deposition of Ultrathick Boron Carbide Coatings on Spherical Substrates for Inertial Confinement Fusion, ***J. B. Merlo,*** *G. Taylor, S. Shin, L. Bayu Aji, J. Bae, L. Sohngen, S. Kucheyev,* Lawrence Livermore National Laboratory, USA
2:00pm	**A2-1-TuA-2** A New Method to Diagnose Early Stages of CMAS Infiltration in Thermal Barrier Coatings, ***Vladimir Pankov,*** *K. Chen, P. Patnaik,* National Research Council of Canada	**B4-4-TuA-2** Corrosion and Electrical Insulation Properties of SiO_X Thin Films Deposited by Microwave PECVD, ***Atreya Danturthi,*** *R. Drummond Brydson,* University of Leeds, UK*; I. Kolev,* Hauzer, Netherlands*; L. Yang, A. Bell, G. Wu,* University of Leeds, UK
2:20pm	**A2-1-TuA-3** Mechanical Behavior of a Nial Coating: Effect of Thermal Aging on the Brittle-to-Ductile Transition Temperature, ***Capucine Billard,*** *V. Maurel,* Mines ParisTech, PSL Research University, France*; D. Texier,* Institut Clement Ader (ICA), France*; D. Marquie,* Safran Aircraft Engines, France*; N. Bourhila,* Safran aircraft engines, France*; L. Marcin,* Safran aicraft engines, France	**INVITED: B4-4-TuA-3** High-Throughput Methodology for The Realization of High-Entropy High-Dielectric-Constant Ba(Ti,Zr,Ta,Hf,Mo)O_3 Film-Based Metal-Oxide-Semiconductor-Related Devices, ***Kao-Shuo Chang,*** National Cheng Kung University (NCKU), Taiwan*; V. Nguyen,* No.1, University Road, Taiwan*; T. NAGATA,* National Institute for Materials Science, Japan
2:40pm	**INVITED: A2-1-TuA-4** Failure Mechanisms of Conventional Thermal Barrier Coatings and Development of Alternate Coating Systems for IGT Applications, ***Prabhakar Mohan,*** *B. Cottom,* Solar Turbines Inc., USA	
3:00pm		**B4-4-TuA-5** Effects of Nitrogen Flow Ratio on the Mechanical and Anticorrosive Properties of Co-sputtered (TiZrHfTa)N_x Films, ***Tzu-Yu Ou,*** National Taiwan Ocean University, Taiwan*; L. Chang,* Ming Chi University of Technology, Taiwan*; Y. Chen,* National Taiwan Ocean University, Taiwan
3:20pm	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**
3:40pm		
4:00pm	**A2-1-TuA-8** Manufacturing and Performance of a Three-Layer Environmental Barrier Coating System for SiC/SiC CMCs by Magnetron Sputtering, ***Ronja Anton,*** *V. Leisner, U. Schulz,* German Aerospace Center (DLR), Germany	**B4-4-TuA-8** Magnetron Sputter Deposition of Boron Carbide in Ne and Ar Plasmas, ***Liam Sohngen,*** *S. Shin, L. Bayu Aji, G. Taylor, J. Bae, A. Engwall, J. Hammons, S. Kucheyev,* Lawrence Livermore National Laboratory, USA
4:20pm	**A2-1-TuA-9** EBC Multi-Layer Coatings on SiC-CMC Substrates Synthesized in a Continuous Vacuum Deposition Process, ***Xavier Maeder,*** *D. Casari,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; D. Chen,* Oerlikon Metco (US) Inc., USA*; K. Glaentz,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; H. Schoech, B. Widrig, J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein	
4:40pm	**A2-1-TuA-10** Developments of the Slag-Based Geopolymer Coatings by the Flame Spray, ***Wan-Ting Huang,*** *I. Huang, W. Lee, Y. Yang,* Department of Material and Mineral Resources Engineering, National Taipei University of Technology, Taipei, TAIWAN	
5:00pm	**A2-1-TuA-11** Thermal Spray Coating with Ceramic Microspheres for Acoustic Absorption Applications, ***Ting-Ya Chuang,*** *W. Lee, Y. Yang,* National Taipei University of Technology, Taiwan	

	New Horizons in Coatings and Thin Films **Room Town & Country C - Session F3-TuA** **2D Materials: Synthesis, Characterization, and Applications** **Moderators: Ying-Hao Chu**, National Tsing Hua University, Taiwan , **Chih-Yen Chen**, National Sun Yat-sen University, Taiwan , **Yi-Cheng Chen**, National Tsing Hua University, Taiwan	**Topical Symposia** **Room Pacific F-G - Session TS2-TuA** **Sustainable Surface Solutions, Materials, Processes and Applications** **Moderators: Justin Cheney**, Oerlikon Balzers Coating Germany GmbH, Germany, **Fan-Bean Wu**, National United University, Taiwan
1:40pm	**INVITED: F3-TuA-1** Tellurene Electronics and Sensors, ***Wenzhuo Wu,*** Purdue University, USA	**TS2-TuA-1** Application of High Entropy Spinel Oxides on Photodetector, ***Jyun-Yi Li,*** *K. Kuo,* National Cheng Kung University (NCKU), Taiwan*; T. Nguyen,* National Cheng Kung University (NCKU), Taiwan, Viet Nam*; P. Hsiao, C. Chen, J. Ting,* National Cheng Kung University (NCKU), Taiwan
2:00pm		**TS2-TuA-2** Euro 7/VII – Challenges for Surface Solutions in ICEVs and EVs, *J. Vetter,* Oerlikon Balzers Coating Germany GmbH, Germany*;* ***Justin Cheney,*** Oerlikon Balzers Coating*; J. Becker,* JB, Germany*; M. Esselbach,* Oerlikon Surface Solutions AG, Liechtenstein
2:20pm	**INVITED: F3-TuA-3** Phase/Structure-Engineered Two-Dimensional Layered Materials for Innovative Nanoelectronics, ***Yu-Lun Chueh,*** National Tsing Hua University, Taiwan	**INVITED: TS2-TuA-3** Surface Technology as a Key Technology for New Energy Systems, ***Yashar Musayev****, L. Dobrenizki,* Siemens Energy Global GmbH & Co. KG, Germany
2:40pm		
3:00pm	**F3-TuA-5** Tellurene-Based Wearable Biosensor for Real-Time Longitudinal Monitoring of Neurotransmitters in Human Sweat, ***Ruifang Zhang****, W. Wu,* Purdue University, USA	
3:20pm	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**
3:40pm		
4:00pm	**F3-TuA-8** A Two-Dimensional $Ti_3C_2T_x$ MXene/Mesochannel Ionic Diode Membrane for High-Performance Osmotic Energy Harvesting, ***Wen-Hsin Hung,*** National Taiwan University of Science and Technology, Taiwan*; C. Chu,* Feng Chia University, Taiwan*; L. Yeh,* National Taiwan University of Science and Technology, Taiwan	**INVITED: TS2-TuA-8** Progress on Piezoelectrocatalysis for Hydrogen Production and Environmental Science, ***Jyh-Ming Wu,*** National Tsing Hua University, Taiwan
4:20pm	**F3-TuA-9** Discussion on the Growth Parameters and Oxygen Evolution Reaction Performance of Copper Sulfide, ***Li-Wen Lin****, C. Chen,* Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan	
4:40pm	**F3-TuA-10** Cation and Anion Co-Doped Iron Oxide Toward Efficient Hydrogen Peroxide Formation and Electro-Fenton Degradation of Organic Pollutant, ***Yemima Purba****, J. Ting,* National Cheng Kung University (NCKU) Tainan, Taiwan	**TS2-TuA-10** Visible Light Activated Photocatalytic Coatings by Reactive Magnetron Sputtering for Environmental Applications, ***Peter Kelly,*** John Dalton Building, Chester Street, UK*; M. Ratova, J. Redfern,* Manchester Metropolitan University, U.K.
5:00pm	**F3-TuA-11** Molten Salt Synthesis of Highly Dispersible Hexagonal Boron Nitride Nanosheets for Ultrafiltration, ***Neon Vicente III Rosell,*** National Cheng Kung University (NCKU), Taiwan, Philippines*; K. Chang,* National Cheng Kung University (NCKU), Taiwan	**TS2-TuA-11** A Covalent Organic Framework-Based Ionic Diode Membrane for Ultrahigh Blue Energy Generation, ***Yu-Chun Su****, L. Yeh,* National Taiwan University of Science and Technology, Taiwan

Tribology and Mechanical Behavior of Coatings and Engineered Surfaces
Room Town & Country B - Session E1-1-TuA
Friction, Wear, Lubrication Effects, and Modeling I
Moderators: Noora Manninen, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, **Andreas Rosenkranz**, Universidad de Chile,
Manel Rodriguez Ripoll, AC2T Research GmbH, Austria

1:40pm	**INVITED: E1-1-TuA-1** Chemistry and Mechanical Properties of 2D Transition Metal Carbides and Carbonitrides (MXenes), ***Vadym Mochalin,*** University of Missouri S&T, USA	
2:00pm		
2:20pm	**E1-1-TuA-3** Tribocorrosion Behaviours of VNbMoTaWCr High Entropy Alloy Coatings, ***Ismail Rahmadtulloh,*** *C. Wang, W. Wang,* National Taiwan University of Science and Technology, Taiwan*; B. Lou,* Chang Gung University, Taiwan*; J. Lee,* Ming Chi University of Technology, Taiwan	
2:40pm	**E1-1-TuA-4** Fundamentals of Phototribology, *B. Perotti,* UCS, Brazil*; A. Cammarata,* Czech Technical University in Prague, Czech Republic*; F. Cemin,* Nantes Université, France*; S. Sales de Mello,* Université Grenoble Alpes, CNRS, France*; L. Leidens,* UCS, Brazil*; F. Echeverrigaray,* UNICAMP, Brazil*; T. Minea,* Université Paris-Saclay, France*; F. Alvarez,* UNICAMP, Brazil*; A. Michels,* UCS, Brazil*; T. Polcar,* University of Southampton, UK*;* ***Carlos Figueroa,*** UCS, Brazil	
3:00pm	**E1-1-TuA-5** Ultra-thin nanotwinned $(CoCrNi)_{100-x}$ W_x Medium Entropy Alloy Film: Role of Nanotwin in Mechanical and Tribology Behaviors, ***Jhen-De You,*** National Taiwan University, Taiwan*; P. Yiu,* Ming Chi University of Technology, Taiwan*; C. Hsueh,* National Taiwan University, Taiwan	
3:20pm	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	
3:40pm		
4:00pm	**E1-1-TuA-8** Understanding the Tribology Behavior of Carbon Thin Films Deposited by the HiPIMS Technique in Ar+Ne Atmospheres, ***Cesar D. Rivera Tello,*** Universidad de Guadalajara CUCEI, Departamento de Ingeniería mecánica eléctrica, Mexico*; L. Flores Cova, A. Guerrero de León, J. Pérez Alvarez, M. Flores Martínez,* Universidad de Guadalajara CUCEI, Mexico	
4:20pm	**E1-1-TuA-9** Effect of Sizing on the Adhesion Properties of Reclaimed Fiberglass Composites, ***Nour Halawani,*** Composite Recycling and LPAC - EPFL, Switzerland*; M. Anderson, P. Gallo, G. Perben,* Composite Recycling, Switzerland*; V. Michaud,* LPAC - EPFL, Switzerland	
4:40pm	**E1-1-TuA-10** The Effect of Core Crystallographic Orientation on the Dislocation Dynamics of Core-Shell Nanostructures: A Molecular Dynamics Study, ***Robert Fleming,*** Arkansas State University, USA	
5:00pm		

Tuesday Evening, May 23, 2023

Special Interest Talks
Room Town & Country A - Session SIT2-TuSIT
Special Interest Session II
Moderator:
Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

7:00pm	**INVITED: SIT2-TuSIT-1** Functional Nitride and Oxide Thin Films – the Key to Our Digital World, ***Joerg Patscheider,*** Evatec AG, Switzerland	
7:20pm		

Wednesday Morning, May 24, 2023

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Pacific D - Session H2-2-WeM** **Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes II** **Moderator: James Gibson**, University of Oxford, UK	**Coatings for Use at High Temperatures** **Room Pacific E - Session A2-2-WeM** **Thermal and Environmental Barrier Coatings II** **Moderators: Vladislav Kolarik**, Fraunhofer Institute for Chemical Technology ICT, Germany, **Pantcho Stoyanov**, Concordia University, Canada
8:00am		**A2-2-WeM-1** On the Suitability of MoNbTaW Based Thin Films to Act as Diffusion Barriers, ***Georg C. Gruber***[1], Montanuniversität Leoben, Austria; *A. Lassnig, S. Zak,* Austrian Academy of Sciences, Austria; *M. Kirchmair,* Montanuniversität Leoben, Austria; *S. Wurster, C. Gammer, M. Cordill,* Austrian Academy of Sciences, Austria; *R. Franz,* Montanuniversität Leoben, Austria
8:20am		**INVITED: A2-2-WeM-2** Improvement of EBC Performance by Controlling Driving Forces for Mass Transfers in Oxides, ***Satoshi Kitaoka***, JFCC, Japan; *T. Matsudaira, T. Ogawa, M. Wada,* Japan Fine Ceramics Center, Japan
8:40am	**INVITED: H2-2-WeM-3** The Nature of Defects and their Dynamics Characterized using Scanning Electron Microscopy Approaches, ***Dan S. Gianola***, University of California Santa Barbara, USA	
9:00am		**A2-2-WeM-4** Steam Oxidation Kinetics of Si / Modified $Yb_2Si_2O_7$ Environmental Barrier Coatings on SiC/SiC Ceramic Matrix Composites at 1250 °C – 1350 °C, ***Kang Lee***, *J. Stuckner, M. Presby, B. Pulio,* NASA Glenn Research Center, USA; *W. Jennings,* HX5, USA
9:20am	**H2-2-WeM-5** Measurement of Hardness and Elastic Modulus by Depth Sensing Indentation: Improvements to the Technique Based on Continuous Stiffness Measurement, ***Warren Oliver***, KLA-Tencor, USA; *P. Sudharshan,* ARCI, India; *G. Pharr,* Texas A&M University, USA	**A2-2-WeM-5** Oxygen Permeability, Failure Analysis and Life Prediction of Environmental Barrier Coatings Under Adverse Environments, ***Prakash Patnaik***, Aerospace Research Centre, National Research Council Canada; *A. Kumar,* TECSIS Corporation, Canada; *K. Chen,* Aerospace Research Centre, National Research Council Canada
9:40am	**H2-2-WeM-6** Ultrasonically Induced Nanofatigue During Nanoindentation, ***Antanas Daugela***, Nanometronix LLC, USA; *J. Daugela,* Johns Hopkins University, USA	**A2-2-WeM-6** Raman Spectroscopic Investigation of SiO_2 TGO Phase Transformation and Si and SiC Substrate Stress, ***Michael J. Lance***, Oak Ridge Natinal Laboratory, USA; *M. Ridley, T. Aguirre, B. Pint,* Oak Ridge National Laboratory, USA
10:00am	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**
10:20am		
10:40am		
11:00am	**H2-2-WeM-10** Comparison of Electrical and Image-Based Sensing for Quantitative in Situ TEM Nanomechanical Testing, *S. Stangebye, L. Daza, X. Liu, J. Kacher,* ***Olivier Pierron***, Georgia Tech, USA	**INVITED: A2-2-WeM-10** Hot Section Coating Technology as an Enabler for Sustainable Propulsion, ***Eli Ross***, Pratt & Whitney, USA
11:20am	**H2-2-WeM-11** Understanding the Interface Strain Induced hcp-to-bcc Phase Transformation in Nanolaminate Mg, *K. Jacob,* Iowa State University, USA; *K. Yaddanapudi,* University of California, Davis, USA; *M. Jain,* University of Nevada, Sandia National Laboratory, USA; *J. Michler,* EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland; ***S. Pathak***, Iowa State University, USA	
11:40am		**A2-2-WeM-12** Development of Tantalum Coating by the Cold Spray, ***Sheng-Wei Zeng***, Department of Material and Mineral Resources Engineering, National Taipei University of Technology, Taipei, Taiwan; *Y. Chung, W. Li,* National Chung Shan Institute of Science and Technology, Materials and Electro-Optics Research Division, Long-tan, Taiwan; *Y. Yang,* Department of Material and Mineral Resources Engineering, National Taipei University of Technology, Taipei, Taiwan
12:00pm		
12:20pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL (While Supplies Last)**	**COMPLIMENTARY LUNCH IN EXHIBIT HALL (While Supplies Last)**

[1] **Graduate Student Award Finalist**

Wednesday Morning, May 24, 2023

	Room Pacific F-G	
8:00am		**Functional Thin Films and Surfaces** **Session C1-1-WeM** **Optical Materials and Thin Films I** **Moderators:** **Silvia Schwyn-Theony**, Evatec AG, Switzerland, **Juan Antonio Zapien**, City University of Hong Kong
8:20am		
8:40am	**C1-1-WeM-3** High-Rate Deposition of Calcium Fluoride Coatings Using Radio-Frequency Magnetron Sputtering, ***Sharon Waichman***, *I. Zukerman, M. Buzaglo, S. Barzilai,* NRCN, Israel	
9:00am	**C1-1-WeM-4** Reactive Sputter Deposition of Nanoporous Black Zinc and White Zinc Oxide Coatings, ***Jakub Zawadzki,*** Łukasiewicz Research Network - Institute of Microelectronics and Photonics, Faculty of Materials Science and Engineering - Warsaw University of Technology, Poland; *M. Borysiewicz,* Łukasiewicz Research Network - Institute of Microelectronics and Photonics, Poland	
9:20am	**C1-1-WeM-5** High Hall Mobility W-Doped In_2O_3 Conductive Films with Thicknesses of Less Than 10 Nm Deposited on Glass Substrates, ***Tetsuya Yamamoto***, *R. Palani, H. Makino,* Kochi University of Technology, Japan	
9:40am	**C1-1-WeM-6** The Effects of Growth and Post-Annealing Temperatures on MoS_2 Thin Films Deposited by Magnetron Sputtering, *C. Chao,* National Dong Hwa University, Taiwan; *P. Tsai,* National Chung-Shan Institute of Science & Technology, Taiwan; *P. Wu,* Stone & Resource Industry R&D Center, Taiwan; ***Ing-Song Yu,*** National Dong Hwa University, Taiwan	
10:00am	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	
10:20am		
10:40am		
11:00am	**G2-1-WeM-10** Enhanced Tool Surface Properties Against Adhesion in Aluminum Forging, ***Hanno Paschke***, *T. Brueckner,* Fraunhofer IST am DOC, Germany; *A. Thewes,* Institute for Surface Technology, TU Braunschweig, Germany; *J. Peddinghaus,* Institute of Forming Technology and Machines, Leibniz University Hanover, Germany	**Surface Engineering - Applied Research and Industrial Applications** **Session G2-1-WeM** **Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications I** **Moderator:** **Jan-Ole Achenbach**, KCS Europe GmbH, Germany
11:20am	**G2-1-WeM-11** Evaluation of Permanent Thin-Film Coatings Applied to Die Surfaces to Reduce Lubricant Use during Aluminum Forging Operations, *J. Vazquez Gonzalez,* ***Stephen Midson***, *A. Korenyi-Both, K. Clarke,* Colorado School of Mines, USA	
11:40am		
12:00pm		
12:20pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL** **(While Supplies Last)**	

Wednesday Morning, May 24, 2023

	Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes **Room Town & Country A - Session H3-2-WeM** **Characterization of Coatings and Small Volumes in Extreme and Cyclic Conditions II** **Moderators:** **Peter Hosemann**, Univ. of California, Berkeley, USA, **Barbara Putz**, Montanuniversität Leoben, Austria	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room Town & Country B - Session E1-2-WeM** **Friction, Wear, Lubrication Effects, and Modeling II** **Moderators: Noora Manninen**, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein, **Michael Chandross**, Sandia National Laboratories, USA, **Andreas Rosenkranz**, Universidad de Chile
8:00am	**INVITED: H3-2-WeM-1** Characterizing Interfacial Straining Mechanisms Using High Temperature *in situ* Tem, ***Shen Dillon,*** University of California Irvine, USA	
8:20am		**E1-2-WeM-2** Coatings and Composites for Extreme Environments Lab (CE)2, ***Achyuth Kulkarni,*** *T. Ansell,* Naval Postgraduate School, USA
8:40am	**H3-2-WeM-3** Quantitative in Situ TEM Observations of a Grain-Boundary-Migration-Assisted, Radiation-Damage Healing Mechanism in Ultrafine Grained Au Thin Films, ***Lina Daza,*** *S. Stangebye, K. Ding, X. Liu, T. Zhu, J. Kacher, O. Pierron,* Georgia Tech, USA	**E1-2-WeM-3** Tribological Behavior of MoS_2 Based Coatings Under Different Sliding to Rolling Lubricated Contact Conditions, ***Newton Fukumasu,*** *I. Machado,* University of São Paulo, Brazil; *R. Rego,* Aeronautics Institute of Technology, Brazil; *A. Tschiptschin, R. Souza,* University of São Paulo, Brazil
9:00am		**E1-2-WeM-4** Catalytic Transformation of Lubricants to Wear-Protective Tribofilms on Selected Steel Surfaces During Sliding, ***Yip-Wah Chung,*** *A. Khan, J. Ahmed, T. Martin, S. Liu,* Northwestern University, USA; *S. Berkebile,* Army Research Laboratory, USA; *Q. Wang,* Northwestern University, USA
9:20am		**INVITED: E1-2-WeM-5** Aromatic Compounds as Sustainable Lubricants for Iron, ***Sophie Loehlé,*** TotalEnergies, France
9:40am		
10:00am	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**
10:20am		
10:40am		
	Hard Coatings and Vapor Deposition Technologies **Room Town & Country A - Session B3-WeM** **Deposition Technologies and Applications for Carbon-Based Coatings** **Moderators:** **Konrad Fadenberger**, Robert Bosch GmbH, Germany, **Ivan Kolev**, IHI Hauzer Techno Coating B.V., Netherlands	
11:00am	**B3-WeM-10** ta-C by Magnetron Sputtering Using a Newly Designed Cylindrical Rotating Cathode with Significantly Enhanced Sputter Power Density, ***Andreas Lümkemann,*** Platit AG, Switzerland; *J. Kluson, M. Ucik,* Platit a.s., Czechia; *H. Bolvardi,* Platit AG, Switzerland	**INVITED: E1-2-WeM-10** How Efficient Is the Self Adaption Concept for Low Friction with TMD-Based Sputtered Coatings, ***Albano Cavaleiro,*** University of Coimbra, Portugal
11:20am	**B3-WeM-11** High Performance ta-C Coatings with Enhanced Temperature Stability for Industrial Applications, ***Klaus Böbel,*** Bosch Manufacturing Solutions, Germany; *S. Wetzel, J. Jiao,* Bosch Automotive Products, China	
11:40am	**B3-WeM-12** DLC Coatings for Mechanical Seals Applications, *S. Tervakangas,* Oerlikon Balzers Coating Finland Oy, Finland; *N. Manninen,* ***Julien Keraudy,*** Oerlikon Surface Solutions AG, Liechtenstein; *O. Jarry,* Oerlikon Balzers Coating Germany GmbH, Germany	**E1-2-WeM-12** Self-Lubricating Titanium Alloys: Design and High Temperature Tribological Performance Up to 800 °C, *H. Torres, K. Pichelbauer, S. Budnyk,* AC2T Research GmbH, Austria; *T. Schachinger, C. Gachot,* TU Wien, Austria; ***Manel Rodriguez Ripoll,*** AC2T Research GmbH, Austria
12:00pm		**E1-2-WeM-13** Electrodeposited of Silver Nano-Particules Plant Based to Improve Lubrication of Composite Films, ***Pierre-Antoine Gay,*** Haute Ecole Arc Ingénierie, Switzerland; *I. Markovic Milosevic,* HEPIA Institut inSTI, Switzerland; *T. Journot,* HE ARC Ingénierie, Switzerland; *J. Maurer,* Faculty of Biology and Medicine. Clinical pharmacology, Switzerland
12:20pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL** **(While Supplies Last)**	**COMPLIMENTARY LUNCH IN EXHIBIT HALL** **(While Supplies Last)**

Wednesday Morning, May 24, 2023

	Room Town & Country C	
8:00am	**G1-WeM-1** Improve Cutting Performance of Carbide Cutting Tools with Multilayer TiAlxN-Based Arc-Cathodic PVD Coating for Industrial Applications, ***Fernando Santiago,*** SADOSA, Mexico*; D. Melo,* ITESM, Mexico	**Surface Engineering - Applied Research and Industrial Applications** **Session G1-WeM** **Advances in Application Driven Research: New Methods, Materials, and Equipment for PVD, CVD, and PECVD Processes** **Moderators:** **Ladislav Bardos**, Uppsala University, Sweden, **Vikram Bedekar**, The Timken Company, USA
8:20am	**G1-WeM-2** Correlation between Deposition Conditions, Properties and Cutting Performance of Al-Rich AlCrN Wear Protective Coatings Produced by Reactive Arc Evaporation, ***Alexandre Michau****, D. Kurapov, I. Iovkov, S. Fabbro,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; L. Zauner, H. Riedl,* CDL-SEC at TU Wien, Austria*; D. Cahill,* University of Illinois at Urbana-Champaign, USA	
8:40am	**G1-WeM-3** Designed for Impact: Successful Forming of 3rd Generation Advanced High Strength Steels in Electric Vehicles' Body-in-White, ***Tobias Brögelmann****, T. Hurkmans,* IHI Ionbond Netherlands B.V., Netherlands*; J. Owens-Mawson, G. Savva,* IHI Ionbond LLC, USA	
9:00am	**G1-WeM-4** In-Situ Incorporation of Nanocontainers During Plasma Electrolytic Oxidation, *S. Al Abri****, A. Rogov, A. Matthews, B. Mingo, Aleksey Yerokhin,*** The University of Manchester, UK	
9:20am	**G1-WeM-5** High-Resolution Investigation of the Microstructural Features and Crystal Forms of Industrial Ti(C,N) CVD Thin Hard Coating, ***Idriss El Azhari,*** Saarland University, Germany*; J. García,* Sandvik Coromant R&D Materials and Processes, Sweden*; C. Pauly, J. Barrirero, M. Engstler, F. Soldera,* Saarland University, Germany*; L. Llanes,* Universitat Politècnica de Catalunya, Spain*; F. Mücklich,* Saarland University, Germany	
9:40am		
10:00am	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	
10:20am		
10:40am		
11:00am	**G4-WeM-10** Water-Repellent and Low Emissivity Coatings on Fabric Prepared by Roll-to-Roll Hollow Cathode PECVD and Magnetron Sputtering, *J. Jolibois****,*** AGC Interpane Demonstration Center, Germany*; G. Arnoult,* AGC Plasma Technology Solutions, Belgium*; N. Koyra,* AGC Interpane Demonstration Center, Germany*; John Chambers,* AGC Plasma Technology Solutions, USA*; H. Weis,* AGC Interpane Demonstration Center, Germany*; H. Wiame,* AGC Plasma Technology Solutions, Belgium	**Surface Engineering - Applied Research and Industrial Applications** **Session G4-WeM** **Hybrid Systems, Processes and Coatings** **Moderators:** **Hana Barankova**, Uppsala University, Sweden, **Sang-Yul Lee**, Korea Aerospace University, Republic of Korea
11:20am	**G4-WeM-11** Amorphous Carbon Coatings on Glass for High Voltage Protection, ***Hana Barankova****, L. Bardos,* Uppsala University, Sweden	
11:40am	**G4-WeM-12** Plasma Pretreatment of Small Parts and Granular Materials in Bulk Vacuum Coating, ***Heidrun Klostermann****, B. Krätzschmar, F. Fietzke,* Fraunhofer FEP, Germany	
12:00pm		
12:20pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL** **(While Supplies Last)**	

Wednesday Morning, May 24, 2023

	Room Town & Country D	
8:00am	**G3-WeM-1** A Novel AlCr-Based PVD Coating Design for Threading Operation of Super Duplex Stainless Steel, ***Qianxi He***, *J. M. DePaiva, T. K. Filho,* McMaster University, Canada*; F. L. Amorim, R. D.Torres,* Pontificia Universidade Católica do Paraná, Brazil*; G. Fox-Rabinovich, S. C. Veldhuis,* McMaster University, Canada	**Surface Engineering - Applied Research and Industrial Applications** **Session G3-WeM** **Innovative Surface Engineering for Advanced Cutting and Forming Tool Applications** **Moderators:** **Christoph Schiffers**, CemeCon AG, Germany
8:20am	**G3-WeM-2** Property and Deposition Technology for Highly Al-Containing AlCrN Coatings by Arc Ion Plating, ***Ryosuke Takei***, *T. Takahashi, S. Kujime,* Kobe Steel Ltd., Japan	
8:40am	**INVITED: G3-WeM-3** Challenges and Target-Oriented Paths to Maintenance-Free High-Performance Progressive Dies Using HiPIMS-Coatings, ***Martin Hess,*** Robert-Bosch-Str., 5, Germany	
9:00am		
9:20am	**G3-WeM-5** Oxidation and Wear Behavior of CrAlMoN with Varied Mo-content for Cutting $TiAl_6V_4$, *K. Bobzin, C. Kalscheuer,* ***Nina Stachowski,*** Surface Engineering Institute - RWTH Aachen University, Germany*; W. Hintze, J. Dege, C. Möller, P. Ploog,* Institute of Production Management and Technology - Hamburg University of Technology, Germany	
9:40am		
10:00am	**COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL**	
10:20am		
10:40am		
11:00am	**INVITED: G3-WeM-10** The Significance and Application Area of CVD TiCN/Al_2O_3 based Coatings for Today's Cutting Tools, ***Christoph Czettl,*** CERATIZIT Austria Gesellschaft m.b.H., Austria*; M. Pohler,* CERATIZIT Austria GmbH, Austria*; N. Schalk, M. Tkadletz,* Montanuniversität Leoben, Austria*; F. Konstantiniuk,* Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leobon, Austria	
11:20am		
11:40am	**G3-WeM-12** Indentation and Sliding Contact Testing of Three Laser-textured and PVD-coated Cemented Carbide Tools, ***Shiqi Fang,*** Saarland University, Germany*; C. Colominas,* Flubetech, S.L., Spain*; C. Pauly,* Saarland University, Germany*; N. Salán, L. Llanes,* Universitat Politècnica de Catalunya, Spain	
12:00pm		
12:20pm	**COMPLIMENTARY LUNCH IN EXHIBIT HALL** **(While Supplies Last)**	

Special Interest Talks
Room Town & Country A - Session SIT3-WeSIT
Special Interest Session III
Moderator:
Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

1:00pm	**INVITED: SIT3-WeSIT-1** Thin Film Sputtering Technologies Enabling Manufacturing of Functional Devices for Smart Society, ***Koukou Suu***, ULVAC, Inc., USA	
1:20pm		

Wednesday Afternoon, May 24, 2023

	Surface Engineering - Applied Research and Industrial Applications **Room Pacific D - Session G2-2-WeA** **Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications II** **Moderator: Jan-Ole Achenbach**, KCS Europe GmbH, Germany	**New Horizons in Coatings and Thin Films** **Room Pacific E - Session F4-1-WeA** **Boron-Containing Coatings I** **Moderators: Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, Institute of Materials Science and Technology, Austria, **Johanna Rosén**, Linköping University, Sweden
2:00pm		**F4-1-WeA-1** Improving the Oxidation Resistance of TiB_2 Coatings by TM-silicide Alloying (TM = Ti, Ta, Mo), ***Ahmed Bahr***[1], *O. Beck, T. Glechner, A. Grimmer, T. Wojcik, P. Kutrowatz,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; *J. Ramm, O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany; *E. Ntemou, D. Primetzhofer,* Department of Physics and Astronomy, Uppsala University, Sweden; *H. Riedl,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria
2:20pm	**G2-2-WeA-2** Effect of Different Diffusion Treatments on the Surface Properties of Austenitic Stainless Steels, ***Phillip Marvin Reinders***, *P. Kaestner, G. Bräuer,* Technische Universität Braunschweig, Germany	**INVITED: F4-1-WeA-2** Quaternary CrTaBN: Experimental and Theoretical Insights Into a Novel Coating Material with Promising Mechanical Properties and Exceptional Thermal Stability, ***Christina Kainz***, Christian Doppler Lab, Montanuniversität Leoben, Austria; *M. Tkadletz,* Montanuniversität Leoben, Austria; *L. Patterer, D. Bogdanovski,* RWTH Aachen University, Germany; *H. Krüger,* Institute of Mineralogy and Petrography, University of Innsbruck, Austria; *A. Stark, N. Schell,* Institute of Materials Physics, Helmholtz-Zentrum Hereon, Germany; *I. Letofsky-Papst,* Institute for Electron Microscopy and Nanoanalysis and Center for Electron Microscopy, Austria; *M. Pohler, C. Czettl,* Ceratizit Austria GmbH, Austria; *J. Schneider,* Materials Chemistry, RWTH Aachen University, Germany; *C. Mitterer,* , Montanuniversität Leoben, Austria; *N. Schalk,* Christian Doppler Lab for Advanced Coated Cutting Tools at the Department of Materials Science, Austria
2:40pm	**INVITED: G2-2-WeA-3** Fine-Tuning of PVD Conditions for Tools Used in Automotive and Manufacturing Applications, ***Miha Cekada***, *A. Drnovsek, M. Drobnic, M. Panjan, P. Panjan,* Jozef Stefan Institute, Slovenia	
3:00pm		**F4-1-WeA-4** Transition Metal Diboride Superlattices: Combination of *Ab Initio* and Experimental Approach for Investigation of Ceramic Thin Films with Improved Ductility and Fracture Toughness, ***Tomáš Fiantok***, Comenius University, Slovakia; *N. Koutná,* Linköping University, IFM, Sweden; *V. Šroba,* Comenius University, Slovakia; *M. Meindlhumer,* Austrian Academy of Sciences, Austria; *T. Roch, M. Truchlý, M. Vidiš, L. Satrapinskyy, M. Gocník,* Comenius University, Slovakia; *D. G. Sangiovanni,* Linköping University, IFM, Sweden; *M. Mikula,* Comenius University, Slovakia
3:20pm	**G2-2-WeA-5** Development of Al_2O_3-B_2O_3-SiO_2 Glass for Space Shuttle Coating, ***Jun-Yan Qiu***, *Y. Lee, C. You, G. Hung,* Ming Chi University of Technology, Taiwan; *R. Montecillo,* Ming Chi University of Technology, Taiwan, Philippines; *P. Chen, C. Tu, K. Feng,* Ming Chi University of Technology, Taiwan	**F4-1-WeA-5** Tissue Phase Affected Fracture Toughness of Nano-Columnar TiB_{2+z} Thin Films, ***Anna Hirle***, *C. Fuger, R. Hahn, T. Wojcik, P. Kutrowatz,* Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; *M. Weiss,* Institute of Chemical Technologies and Analytics, TU Wien, A-1060 Vienna, Austria; *O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG,, Liechtenstein; *P. Polcik,* Plansee Composite Materials GmbH, D-86983 Lechbruck am See, Germany; *H. Riedl,* Christian Doppler Lab for Surface Engineering of High-performance Components, TU Wien, Austria
3:40pm	**G2-2-WeA-6** Analysis of the Temperature Variation of Bizarre Thermal Barrier Coatings and Their Impacts on Engine, ***Thirunavukkarasu Raja***, P.S.V College of Engineering and Technology, India; *P. Sivanandi,* Government College of Technology, Coimbatore, India; *S. Dhandabani, V. Murugan,* Sri Ramakrishna Institute of Technology, India	**INVITED: F4-1-WeA-6** Characterization of Ti-Al-La-B-N Hard Coating and Cutting Tool Application, ***Shin Takayama***, *T. Ishigaki, M. Takahashi,* Mitsubishi Materials Corporation, Japan
4:00pm	**G2-2-WeA-7** Novel High-Entropy Alloy Powders and Their Thermal-Sprayed Coatings for High-Temperature Applications, ***Shih-Hsun Chen***, NTUST, Taiwan	
4:20pm	**G2-2-WeA-8** A Facile Fluoride Sealing Treatment to Improve Corrosion Resistance of Magnetism Alloy (AZ31B) Micro-arc Oxidation Layer, *C. Lee,* National Defense University, Republic of China; *J. Lee,* Lung Hwa University of Science and Technology, Taiwan; *S. Jian,* Ming Chi University of Technology, Taiwan; ***Ming-Der Ger***, National Defense University, Republic of China	**F4-1-WeA-8** Mechanical Properties and Thermal Stability of ZrBSiTaN Films, ***Kuo-Hong Yeh***, National Taiwan Ocean University, Taiwan; *L. Chang,* Ming Chi University of Technology, Taiwan; *Y. Chen,* National Taiwan Ocean University, Taiwan
4:40pm	**G2-2-WeA-9** Chemical Vapor Infiltration Technology for Coatings of Fibers and 3D Porous Bodies, ***Dennis Zywitzki***, *H. Strakov,* IHI Bernex AG, Switzerland	**F4-1-WeA-9** Formation of Orthorhombic MAB Phase $Mo_{1-x}Cr_xAlB$ Solid Solution Thin Films, ***Peter J. Poellmann***, *D. Bogdanovski, S. Lellig, M. Hans,* RWTH Aachen University, Germany; *P. Schweizer,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *D. Holzapfel, P. Zoell, S. Karimi Aghda,* Materials Chemistry, RWTH Aachen University, Germany; *D. Primetzhofer,* Uppsala University, Angstrom Laboratory, Sweden; *S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany; *J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *J. Schneider,* Materials Chemistry, RWTH Aachen University, Germany
5:00pm		**F4-1-WeA-10** Application of AlTiBN Coating for Cutting Tools for Exotic Materials Machining, ***Yuta Suzuki***, *H. Kanaoka,* Sumitomo Electric Hardmetal Corporation, Japan
5:20pm		

[1] **Graduate Student Award Finalist**

Wednesday Afternoon, May 24, 2023

	Room Pacific F-G	
2:00pm	**C1-2-WeA-1** Perovskite Stannate $BaSnO_3$ Films for Near- and Mid-Infrared Plasmonic Applications, ***Heungsoo Kim***, *A. Piqué,* Naval Research Laboratory, USA	**Functional Thin Films and Surfaces** **Session C1-2-WeA** **Optical Materials and Thin Films II** **Moderators:** **Silvia Schwyn-Theony**, Evatec AG, Switzerland, **Juan Antonio Zapien**, City University of Hong Kong
2:20pm	**C1-2-WeA-2** 2-Dimensional Growth of GaS_x Crystal by Low-Pressure Vapor Phase Deposition, ***Yijia Chen***, National DOng Hwa University, Taiwan; *C. Huang,* National Dong Hwa University, Taiwan	
2:40pm	**C1-2-WeA-3** Hysteresises on Voltage-Current Characteristics and Optical Responses of PEDOT:PSS/ZnO Nanorods/ZnO:Ga Heterojunctions, ***Tomoaki Terasako***, Graduate School of Science and Engineering, Ehime University, Japan; *M. Yagi*, National Institute of Technology, Kagawa College, Japan; *T. Yamaoto,* Materials Design Center, Research Institute, Kochi University of Technology, Japan	
3:00pm	**C1-2-WeA-4** Effective Ways to Enhance the Performance of n-MoS_2/p-CuO Heterojunction Based Self-Powered Photodetectors, ***KRISHAN KUMAR***, *D. Kaur,* Indian Institute of Technology Roorkee, India	
3:20pm	**C1-2-WeA-5** Femtosecond Laser Ablation (FESLA) XPS – A Novel XPS Depth Profiling Technique for Optical/Electrical Thin Films and Multi-Layered Structures, ***Mark Baker***, *S. Bacon, S. Sweeney,* University of Surrey, UK; *A. Bushell, T. Nunney, R. White,* Thermo Fisher Scientific, UK	
3:40pm		
4:00pm		
4:20pm	**E3-2-WeA-8** Hard MoSC Solid Lubricant Coating, ***Tomas Polcar***, *I. Ponomarev, T. Vitu,* Czech Technical University in Prague, Czech Republic	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Session E3-2-WeA** **Tribology of Coatings and Surfaces for Industrial Applications II** **Moderators:** **Nazlim Bagcivan**, Schaeffler Technologies GmbH & Co. KG, Germany, **Rainer Cremer**, KCS Europe GmbH, Germany, **Philipp Grützmacher**, Institute of Engineering Design and Product Development, Austria
4:40pm	**E3-2-WeA-9** Coating Solutions for Wind Turbine Bearings, ***Esteban Broitman***, SKF - Research and Technology Development, Netherlands; *T. von Schleinitz,* SKF GmbH, Germany	
5:00pm	**E3-2-WeA-10** Scratch Testing and Tribology Combined with Integrated 3D-Profilometry for in-Depth Characterization of Damage Modes in PVD Coatings, ***Philippe Kempe***, Rtec-Instruments SA, Switzerland	
5:20pm	**E3-2-WeA-11** Structural, Electrochemical, and Tribological Evaluation of Silver - Hydroxyapatite Multilayer Coatings Obtained by Magnetron Sputtering with Potential Application in Implants, ***Julián Andrés Lenis Rodas***, University of Antioquia, Politécnico Colombiano Jaime Isaza Cadavid and Servicio Nacional de Aprendizaje - SENA, Colombia	

Wednesday Afternoon, May 24, 2023

	Topical Symposia **Room Town & Country B - Session TS3-WeA** **Processes of Materials for Printed and Flexible Film Technologies** **Moderators: Panos Patsalas**, Aristotle University of Thessaloniki, Greece, **Demosthenes Koutsogeorgis**, Nottingham Trent University, UK	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B8-1-WeA** **HiPIMS, Pulsed Plasmas and Energetic Deposition I** **Moderators:** **Tiberiu Minea**, Université Paris-Saclay, France, **Jon Tomas Gudmundsson**, University of Iceland
2:00pm	**INVITED: TS3-WeA-1** Upscalable Nanomanufacturing of Thin-Film Electronics, ***Thomas Anthopoulos,*** King Abdullah University of Science and Technology (KAUST), Division of Physical Sciences and Engineering, Saudi Arabia	**INVITED: B8-1-WeA-1** Impact of Selective Acceleration of High-mass Ions - Low Temperature Growth of Stress-free Single Phase α-W Films, ***Tetsuhide Shimizu,*** Tokyo Metropolitan University, Japan*; H. Du,* Guizhou University, China*; R. Boyd, R. Viloan, D. Lundin,* Linköping University, IFM, Sweden*; M. Yang,* Tokyo Metropolitan University, Japan*; U. Helmersson,* Linköping University, IFM, Sweden
2:20pm		
2:40pm	**TS3-WeA-3** Plasma Technologies for Sustainable Packaging Materials, ***Glen West,*** Manchester Metropolitan University, U.K.*; T. Cosnahan, C. Struller, N. Copeland,* Bobst Manchester Ltd., UK*; P. Kelly,* Manchester Metropolitan University, U.K.	**B8-1-WeA-3** Modeling of High Power Impulse Magnetron Sputtering Discharges with Tungsten Target, ***Swetha Suresh Babu,*** University of Iceland*; M. Rudolph,* Leibniz Institute of Surface Engineering (IOM), Germany*; D. Lundin,* Linköping University, Sweden*; T. Shimizu,* Tokyo Metropolitan University, Japan*; J. Fischer,* Linköping University, Sweden*; J. Bradley,* University of Liverpool, UK*; J. Gudmundsson,* University of Iceland
3:00pm	**TS3-WeA-4** Transition Metal Nitride Colloids: From PVD Targets to Laser-Ablated Nanoparticles*, N. Pliatsikas, S. Panos, I. Fekas, S. Kassavetis,* ***Panos Patsalas,*** Aristotle University of Thessaloniki, Greece	**B8-1-WeA-4** Combinatorial Deposition of Highly Oriented AlScN Films Using Synchronized-HiPIMS for Piezoelectric Applications, ***Jyotish Patidar****, S. Zhuk,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; A. Sharma,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; M. Ghosh, A. Wieczorek, K. Thorwarth, S. Siol,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
3:20pm	**TS3-WeA-5** Fully Inkjet-Printed Gas Sensing Antenna Based on Carbon Nanotubes for Wireless Communication Applications, ***Hsuan-Ling Kao,*** Chang Gung University, Taiwan*; L. Chang,* Ming Chi University of Technology, Taiwan*; Y. Tsai,* Chang Gung University, Taiwan	**B8-1-WeA-5** Fabrication of TiZrNbTaFeBN Coatings Using Superimposed HiPIMS-MF Systems: Mechanical and Chemical Properties Evaluation, ***I. Moirangthem,*** *S. Chen, C. Wang,* National Taiwan University of Science and Technology, Taiwan*; B. Lou,* Chang Gung University, Taiwan*;* ***Jyh-Wei Lee,*** Ming Chi University of Technology, Taiwan
3:40pm	**TS3-WeA-6** Characterization and Evaluation of PVD-Coatings on Bipolar Plates for PEMFC, ***Julian Kapp,*** *V. Lukassek, V. Mackert, J. Wartmann, H. Hoster,* ZBT Zentrum für BrennstoffzellenTechnik GmbH, Germany*; R. Cremer, P. Jaschinski,* KCS Europe GmbH, Germany	**B8-1-WeA-6** Effect of Synchronous Bias Mode with Different Duty Cycles on Microstructure and Mechanical Properties of AlTiN Coatings Deposited by HiPIMS Process*, J. Tang,* Department of Electronic Engineering, Lunghwa University of Science and Technology, Germany*; S. Huang,* ***I-Hong Chen****, G. Shen, F.-C. Yang,* Department of Materials Engineering, Ming Chi University of Technology, Germany*; C. Chang,* Department of Materials Engineering,Center for Plasma and Thin Film Technologies, Ming Chi University, Taiwan
4:00pm	**INVITED: TS3-WeA-7** Towards Large Area Scalable Organic Solar Cells using Solution Processing, ***S. Ravi P. Silva,*** Advanced Technology Institute, University of Surrey, UK	**B8-1-WeA-7** Bipolar HiPIMS: A New Route to Deposit Advanced Coatings on 3D Complex Geometries, *I. Fernandez, J. Santiago-Varela, P. Diaz-Rodriguez,* NANO4ENERGY SLNE, Spain*; L. Mendizabal, C. Zubizarreta,* IK4 TEKNIKER, Spain, **Ambiörn Wennberg**, NANO4ENERGY, Spain
4:20pm		**B8-1-WeA-8** On the Control of the Composition of NbC Films Deposited by HiPIMS from a Compound Target: Plasma Diagnostics, ***Tomáš Kozák,*** *M. Farahani, A. Pajdarová,* University of West Bohemia, Czechia*; A. Bahr, R. Hahn, H. Riedl,* TU Wien, Austria*; P. Zeman,* University of West Bohemia, Czechia
4:40pm	**TS3-WeA-9** Rational Design of Perfluorocarbon-Free Oleophobic Textiles, ***Sadaf Shabanian,*** University of British Columbia, Canada*; K. Golovin,* University of Toronto, Canada	**B8-1-WeA-9** Comparative Study of DC and HIPIMS Discharge Characteristics of Cylindrical Magnetron in Open and Confined Space, ***Wojciech Trzewiczyński,*** *A. Oniszczuk, W. Gajewski,* Trumpf Huettinger Sp. z o.o., Poland*; M. Betiuk, A. Mirońska,* Łukasiewicz Research Network – The Institute of Precision Mechanics, Poland
5:00pm		**B8-1-WeA-10** A Hybrid Plasma Model for Cr Thin Films Deposition by Deep Oscillation Magnetron Sputtering, *J. Gao,* Dalian University of Technology, China*; F. Ferreira,* University of Coimbra, Portugal*;* ***M.K. Lei,*** Dalian University of Technology, China
5:20pm		**B8-1-WeA-11** Optimization of Si Addition on AlTiN and AltiCrN Coatings Synthesized by Hipims for the Stability of the Mechanical and Thermal Properties and Development of a Multilayer Architecture Coating, ***Patrick Choquet,*** Luxembourg Institute of Science and Technology (LIST), Luxembourg

Wednesday Afternoon, May 24, 2023

Awards Ceremony and Honorary Lecture
Room Town & Country A - Session HL-WeHL
Bunshah Award Honorary Lecture
Moderator:
Ivan G. 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: What TEM, XRD, STM, AFM, HIM, LEED, 3DATP, DSC, Nanoindentation, DFT, and MD Tell You About Functional Nanostructured Ceramics, ***Lars Hultman***[1], Linköping University, Sweden	
6:25pm		

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

Thursday Morning, May 25, 2023

	Functional Thin Films and Surfaces **Room Pacific D - Session C3-1-ThM** **Thin Films and Novel Surfaces for Energy I** **Moderators:** **Clio Azina**, RWTH Aachen University, Germany, **Carlos Tavares**, University of Minho, Portugal	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - Session B1-1-ThM** **PVD Coatings and Technologies I** **Moderators:** **Christian Kalscheuer**, RWTH Aachen University, Germany, **Vladimir Pankov**, National Research Council of Canada
8:00am		**INVITED: B1-1-ThM-1** New Challenges and Opportunities for PVD Coatings in Metal Cutting Applications, ***Aharon Inspektor,*** Carnegie Mellon University, USA
8:20am		
8:40am	**INVITED: C3-1-ThM-3** Tailoring Surface Reactivity of Perovskite Oxides for Water Oxidation, ***Kelsey Stoerzinger,*** Oregon State University, USA	**B1-1-ThM-3** Custom-Fit Hipims Coatings for Cutting Tools Used in a Wide Variety of Machining Applications, ***Stephan Bolz,*** *B. Mesic, O. Lemmer, W. Kölker, C. Schiffers,* CemeCon AG, Germany
9:00am		**B1-1-ThM-4** Film Growth Control at Cutting Edges to Overcome Edge Rounding, ***Otmar Zimmer,*** *T. Litterst,* Fraunhofer Institute for Material and Beam Technology (IWS), Germany; *T. Kruelle,* Technical University Dresden, Germany
9:20am	**C3-1-ThM-5** The Influence of Sb Doping on the Local Structure and Disorder in Thermoelectric ZnO:Sb Thin Films, *J. Ribeiro, F. Rodrigues, F. Correia,* University of Minho, Portugal; *A. Kuzmin,* University of Latvia; *E. Alves, N. Barradas,* University of Lisbon, Portugal; *O. Bondarchuk,* International Iberian Nanotechnology Laboratory, Portugal; *A. Welle,* Karlsruhe Institute of Technology (KIT), Portugal; ***Carlos Jose Tavares,*** University of Minho, Portugal	**B1-1-ThM-5** Computational Tool for Analyzing Stress in Thin Films, ***Eric Chason,*** *T. Su, Z. Rao,* Brown University, USA
9:40am	**C3-1-ThM-6** An Economic Experimental Approach to Optimize the Microstructure and Thermoelectric Performance of ZnSe Thin Films, ***Khalid Mahmood,*** Department Of Physics, Government College University Faisalabad, Pakistan	**B1-1-ThM-6** Effect of CrAlN Coating Properties on Impact Fatigue of Tool Steel, *K. Bobzin, C. Kalscheuer, M. Carlet,* ***Muhammad Tayyab,*** Surface Engineering Institute - RWTH Aachen University, Germany
10:00am	**C3-1-ThM-7** The Influences of Plasmonic Resonance and Coupling Effect on Photocatalysis of MoS_2/Gold Hybrid Nanoparticles for Hydrogen Production, ***Yi-Hsueh CHEN,*** *J. Ruan,* National Cheng Kung University (NCKU), Taiwan	**B1-1-ThM-7** Toward Energy-efficient Physical Vapor Deposition: Routes Fordensification of $(Ti_{1-y}Al_y)_{1-x}W_xN$ Thin Films Grown with no External Heating, ***Xiao Li,*** *A. Pshyk, B. Bakhit,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *M. Johansson Jõesaar, J. Andersson,* SECO Tools AB, Sweden; *I. Petrov,* University of Illinois at Urbana, USA; *L. Hultman, G. Greczynski ,* Linköping Univ., IFM, Thin Film Physics Div., Sweden
10:20am	**C3-1-ThM-8** Self-Reconstruction of Sulfate-Containing High Entropy Sulfide for Exceptionally High-Performance Oxygen Evolution Reaction Electrocatalyst, ***Thi Xuyen Nguyen,*** *Y. Su, C. Lin, J. Ting,* National Cheng Kung University (NCKU), Taiwan	**B1-1-ThM-8** Effects of Nitrogen Contents on the Microstructure and Corrosion Resistant Evaluation of ZrTiNbSiFeNx High Entropy Alloy Coatings, ***Chen Wei-Yang,*** *K. Yu-Lin,* National Taiwan University of Science and Technology, Taiwan; *L. Bih-Show,* Chang Gung University, Taiwan; *L. Jyh-Wei,* Ming Chi University of Technology, Taiwan
10:40am	**C3-1-ThM-9** Hydrothermal-Based Synthesis of Piezo-Composite Thin Films and Their Applications, ***Thi Nghi Nhan Nguyen,*** *K. Chang,* National Cheng Kung University, Taiwan	**B1-1-ThM-9** Development of a Multilayer Ti/TiN/TiAlN/ReN Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, ***Hernán Darío Mejía Vásquez,*** *G. Bejarano Gaitán,* University of Antioquia, Colombia
11:00am	**C3-1-ThM-10** A Comparative Study of the Thermochromic Performances of VO_2 Films Obtained by Air Oxidation of V and VN Precursors, *D. Pilloud, A. Garcia-Wong, F. Capon,* ***Jean-François Pierson,*** Institut Jean Lamour - Université de Lorraine, France	**B1-1-ThM-10** High-Power-Density Sputtering of Industrial-Scale Targets: Micromechanical Case Study of Al-Cr-N, ***Fedor F. Klimashin,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; *A. Lümkemann,* PLATIT AG, Switzerland; *J. Kluson, M. Ucik, M. Jilek,* PLATIT a.s., Czechia; *J. Michler, T. Edwards,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
11:20am	**C3-1-ThM-11** Revolutionizing Concentrated Solar Thermal Power Technology: Developing Self-Cleaning Mirrors with TiO_2 Films, ***Nafsika Mouti,*** *V. Terziyska, N. Kostoglou,* Montanuniversität Leoben, Austria; *A. Kaidatzis, M. Arfanis,* National Centre of Scientific Research "Demokritos", Greece; *A. Eliades, K. Milidonis,* The Cyprus Institute, Cyprus; *K. Giannakopoulos,* National Centre of Scientific Research "Demokritos", Greece; *C. Mitterer,* Montanuniversität Leoben, Austria	**B1-1-ThM-11** Triboactive CrAlN+XS Coatings Deposited by Pulsed Arc PVD, *K. Bobzin, C. Kalscheuer,* ***Max Philip Möbius,*** Surface Engineering Institute - RWTH Aachen University, Germany
11:40am		**B1-1-ThM-12** Mechanical and Electrochemical Properties of AlCrN/FexN Coating Deposited onto AISI 4140 Steel, ***Omar Ramirez-Reyna,*** National Polytechnic Institute, Mexico; *J. Pérez-Álvarez,* University of Guadalajara, Mexico; *G. Rodríguez-Castro,* National Polytechnic Insitute, Mexico; *C. Rivera-Tello,* University of Guadalajara, Mexico; *A. Meneses-Amador,* National Polytechnic Institute, Mexico
12:00pm		**B1-1-ThM-13** Mechanical and Electrochemical Properties for SiC_XN_Y Coating as a Function of Nitrogen Content, *L. Chang,* ***Pin-Feng Huang,*** *B. Chen, S. Tsai,* Ming Chi University of Technology, Taiwan

	Hard Coatings and Vapor Deposition Technologies **Room Pacific F-G - Session B5-ThM** **Hard and Multifunctional Nanostructured Coatings** **Moderators: Rainer Hahn**, TU Wien, Institute of Materials Science and Technology, Austria, **Tomas Kozak**, University of West Bohemia, Czechia	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country D - Session B8-2-ThM** **HiPIMS, Pulsed Plasmas and Energetic Deposition II** **Moderators:** **Tiberiu Minea**, Université Paris-Saclay, France, **Jon Tomas Gudmundsson**, University of Iceland
8:00am		
8:20am		
8:40am		
9:00am	**INVITED: B5-ThM-4** High-Temperature Properties of Multicomponent Nitride Coatings Deposited by PVD, ***Yuxiang Xu,*** Guangdong University of Technology, China	**B8-2-ThM-4** Hipims Deposition of Ultrathick Au-Ta Coatings: Effects of Deposition Rate and Substrate Tilt, ***Leonardus Bimo Bayu Aji,*** *E. Kim, J. Merlo, S. Shin, G. Taylor, L. Sohngen, A. Engwall, A. Baker, D. Strozzi, B. Bocklund, E. Moore, A. Perron, S. Kucheyev,* Lawrence Livermore National Laboratory, USA
9:20am		**B8-2-ThM-5** Self-Sputtering Identification in Helium HiPIMS Discharge with Molybdenum Target, ***Abderzak el-Farsy,*** *E. Mmorel,* Laboratoire de Physique des Gaz et des Plasmas, France*; Y. Yoann Rozier,* SuperGrid Institute, Villeurbanne, France*; T. Minea,* Laboratoire de Physique des Gaz et des Plasmas, France
9:40am	**B5-ThM-6** Effect of Ion Density Flux Ratio on Properties of Protective Hard (Ti,V)B_2 Coatings Sputtered by Cylindrical Magnetron, ***Daniel Karpinski,*** *P. Karvankova, C. Krieg,* Platit AG, Switzerland*; J. Kluson,* Platit a.s., Czechia*; B. Torp,* Platit Inc., USA*; A. Lümkemann,* Platit AG, Switzerland	**B8-2-ThM-6** On Working Gas Rarefaction in High Power Impulse Magnetron Sputtering, ***Kateryna Barynova,*** *S. Suresh Babu,* University of Iceland*; M. Rudolph,* Leibniz Institute of Surface Engineering (IOM), Germany*; J. Gudmundsson,* University of Iceland
10:00am	**B5-ThM-7** Development of TiB2 Coatings in a New Generation Industrial Reactor Based on Hybrid DC-Pulsed and HIPIMS Magnetron Sputtering on HSS Steels – A Tribological Study, ***Gonzalo Garcia Fuentes,*** *J. Fernández, J. Fernández-Palacio,* AIN, Spain*; H. Gabriel,* PVT Vakuum Technik, Germany	**INVITED: B8-2-ThM-7** Spokes in HiPIMS: Help or Hindrance?, ***Julian Held,*** University of Minnesota, USA*; P. Maaß, M. George, W. Breilmann, S. Thiemann-Monjé, V. Schulz-von der Gathen, A. von Keudell,* Ruhr University Bochum, Germany
10:20am	**INVITED: B5-ThM-8** Nanoporous/Nanocomposite Thin Films by Magnetron Sputtering Deposition in Helium and Other Light Gases: New Materials and Applications, ***Asunción Fernández,*** Instituto de Ciencia de Materiales de Sevilla (CSIC-US), Spain	
10:40am		**B8-2-ThM-9** Effect of Plasma Nitriding Pretreatment on the Mechanical and Wear Properties of Tungsten Carbide Substrate, and AlCrN Coating Deposited by High-Power Impulse Magnetron Sputtering, *F. Yang,* Department of Mechanical Engineering, National Taiwan University of Science and Technology, and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan*; T. Liu,* ***Guan-Lun Shen,*** *I. Chen,* Department of Materials Engineering, Ming Chi University of Technology, Taiwan*; Y. Kuo,* Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taiwan*; C. Chang,* Department of Materials Engineering, Ming Chi University of Technology, and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan
11:00am	**B5-ThM-10** Mechanical Properties of Epitaxial TiN(001)-TiC(001) Superlattices, ***Moishe Azoff-Slifstein,*** Rensselaer Polytechnic Institute, USA*; S. Lee,* University of Connecticut, USA*; D. Gall,* Rensselaer Polytechnic Institute, USA	**B8-2-ThM-10** Highly Ionized Pulse Sputtering of Seed Layers for Through Silicon Vias, ***Juergen Weichart,*** Evatec AG, Switzerland
11:20am	**B5-ThM-11** Tensile and Compressive Stress in Sputtered Cu/W Nanomultilayers: Correlation with Microstructure, Thermal Stability, and Thermal Conductivity, ***Giacomo Lorenzin,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M. bin Hoque,* University of Virginia, USA*; D. Ariosa,* Universidad de la Republica, Montevideo, Uruguay*; L. Jeurgens,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; E. Hoglund, J. Tomko, P. Hopkins,* University of Virginia, USA*; C. Cancellieri,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**B8-2-ThM-11** Deposition Environment and Microstructure of Transition Metal Nitride Thin Films Deposited at CMOS-Compatible Temperatures for Tunable Optoelectronic and Plasmonic Devices, ***Arutiun P. Ehiasarian,*** Sheffield Hallam University, UK*; R. Bower,* Imperial College London, UK*; D. Loch,* Sheffield Hallam University, UK*; A. Berenov, B. Zou,* Imperial College London, UK*; P. Hovsepian,* Sheffield Hallam University, UK*; P. Petrov,* Imperial College London, UK
11:40am	**B5-ThM-12** Investigation of Thermal Properties of PECVD Ti-Si-C-N Nanocomposite Coatings, ***Alexander Thewes,*** *L. Broecker,* IOT TU Braunschweig, Germany*; H. Paschke, T. Brueckner,* Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany*; C. Sternemann, M. Paulus,* DELTA TU Dortmund, Germany	**B8-2-ThM-12** On the Connection between the Self-Sputter Yield and Deposition Rate in High Power Impulse Magnetron Sputtering Operation, ***Jon Tomas Gudmundsson,*** University of Iceland*; M. Rudolph,* Leibniz Institute of Surface Engineering (IOM), Germany*; K. Barynova,* University of Iceland*; J. Fischer,* Linköping University, Sweden*; S. Suresh Babu,* University of Iceland*; N. Brenning, M. Raadu,* KTH Royal Institute of Technology, Sweden*; D. Lundin,* Linköping University, Sweden*; H. Hajihoseini,* University of Twente, Netherlands

Thursday Morning, May 25, 2023

	New Horizons in Coatings and Thin Films **Room Pacific E - Session F4-2-ThM** **Boron-Containing Coatings II** **Moderators: Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, Institute of Materials Science and Technology, Austria, **Johanna Rosén**, Linköping University, Sweden	**Tribology and Mechanical Behavior of Coatings and Engineered Surfaces** **Room Town & Country B - Session E2-1-ThM** **Mechanical Properties and Adhesion I** **Moderators: Jazmin Duarte**, MPI für Eisenforschung GMBH, Germany, **Alice Lassnig**, Austrian Academy of Sciences, Austria, **Bo-Shiuan Li**, National Sun-Yat Sen University, Taiwan
8:00am		**INVITED: E2-1-ThM-1** Residual Stress and Interfaces in Optical Coatings for Space Applications, ***Chelsea Appleget***, *K. Folgner, V. Jiao, S. Dunscombe, S. Sitzman,* The Aerospace Corporation, USA*; D. White, A. Hodge,* University of Southern California, USA*; J. Barrie,* The Aerospace Corporation, USA
8:20am		
8:40am	**INVITED: F4-2-ThM-3** Ternary Tungsten Boride Coatings with Improved Mechanical Properties Deposited by High-Power Pulsed Magnetron Sputtering from One Spark Plasma Sintered Target, ***Tomasz Mościcki***, *R. Psiuk, J. Chrzanowska-Gizynska,* Institute of Fundamental Technological Research of Polish Academy of Science, Poland*; D. Garbiec,* Łukasiewicz Research Network – Poznań Institute of Technology, Poland	**E2-1-ThM-3** Increased Adhesion of Mo Films on Polyimide Through Interface Modification, ***Megan Cordill***, *P. Kreiml,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria*; M. Rausch, C. Mitterer,* Dept. of Materials Science, Montanuniversität Leoben, Austria
9:00am		**E2-1-ThM-4** Picosecond Acoustics as a Local and Quantitative Adhesion Technique, ***Arnaud DEVOS***, *A. Vital-Juarez,* IEMN, France*; J. Desmarres,* CNES, France
9:20am	**F4-2-ThM-5** The Architectural Design of High-Temperature Protective Coatings: Improving the Oxidation Resistance of TMB_2 (TM = Hf, Ti, W) Thin Films, ***Sophie Richter***, *T. Glechner, T. Wojcik,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria*; B. Widrig, O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany*; J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; H. Riedl,* TU Wien, Institute of Materials Science and Technology, Austria	**E2-1-ThM-5** What Controls Size Effects on the Mechanical Properties of Additive Manufactured Polymers, *K. Shergill, Y. Chen,* ***Steve Bull***, Newcastle University, UK
9:40am	**F4-2-ThM-6** Stoichiometry, Structure, and Mechanical Properties of Superhard Zirconium Diboride Films Prepared by the High-Power Impulse Magnetron Sputtering, ***Viktor Šroba***, *K. Viskupová, T. Roch, L. Satrapinskyy, M. Truchlý, T. Fiantok,* Comenius University, Bratislava, Slovakia*; Š. Nagy,* Institute of Materials and Machine Mechanics SAS, Slovakia*; B. Grančič, P. Kúš, M. Mikula,* Comenius University, Bratislava, Slovakia	**E2-1-ThM-6** Mechanical Properties and Microstructure Evaluation of HiPIMS Cu/W and Cu/Cr bilayers with Different Thickness Ratios, ***Tra Anh Khoa Nguyen***, *T. Zhang,* Graduate Institute of Precision Engineering, National Chung Hsing University, Taiwan*; H. Wang, H. Wu,* National Chung Hsing University, Taiwan*; M. Lin,* Graduate Institute of Precision Engineering, National Chung Hsing University, Taiwan
10:00am	**F4-2-ThM-7** Exploring Phase Evolution and its Consequences on Mechanical Properties of a Novel HfB_2-AlB_2 Coating System, ***Samyukta Shrivastav***, *D. Yun, K. Canova, J. Abelson, J. Krogstad,* University of Illinois at Urbana Champaign, USA	**E2-1-ThM-7** Nanoengineered Thin Film Metallic Glasses with Mutual Combination of Large Yield Strength and Ductility, *F. Bignoli,* CNRS, France*; A. Brognara, J. Best,* Max-Planck Institut für Eisenforschung GmbH, Germany*; P. Djemia, D. Faurie,* CNRS, France*; A. Li Bassi,* Politecnico di Milano, Italy*; G. Dehm,* Max-Planck Institut für Eisenforschung GmbH, Germany*;* ***Matteo Ghidelli***, CNRS, France
10:20am	**INVITED: F4-2-ThM-8** Challenges and Perspectives of Wear Resistant Boron-Containing Coatings, ***Jose L Endrino***, Nano4energy SL, Spain*; J. Rao,* Cranfield University, UK*; T. Brzezinka,* Dell Technologies, UK*; A. Mendez, J. Santiago,* Nano4energy SL, Spain*; J. Molina,* Polythecnic University of Madrid, Spain	**E2-1-ThM-8** Measurements and Simulation of Mechanical Behavior of Amorphous and Crystalline Zr(–Hf)–Cu Thin-Film Alloys, ***Stanislav Haviar***, *T. Kozák,* University of West Bohemia, Czechia*; M. Meindlhumer,* Montanuniversität Leoben, Austria*; M. Zítek,* University of West Bohemia, Czechia*; J. Keckes,* Erich Schmid Institute of Materials Science, Austria*; P. Zeman,* University of West Bohemia, Czechia
10:40am		**E2-1-ThM-9** A Nanotwinned CoCrFeNi Medium Entropy Alloy with Ultrahigh Strength Over a Wide Range of Temperature, ***Yun-Xuan Lin***, *J. Wang, C. Tsai, S. Chang, F. Ouyang,* National Tsing Hua University, Taiwan
11:00am	**F4-2-ThM-10** TiB_x Thin Film Synthesis from an Industrial-Sized DC Vacuum Arc Source, ***Igor Zhirkov***, *A. Petruhins, A. Shamshirgar,* Materials Design, Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden*; N. Hellgren,* Department of Computing, Mathematics, and Physics, Messiah University, USA*; S. Kolozsvári, P. Polcik,* PLANSEE Composite Materials GmbH, Germany*; J. Rosen,* Materials Design, Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden	**INVITED: E2-1-ThM-10** Material Properties and Mechanics of Eggshells—Nature's Survival Capsules, ***Jia-Yang Juang***, National Taiwan University, Taiwan
11:20am	**F4-2-ThM-11** Oxidation Behavior of Stochiometric $Ti_{0.35}Al_{0.65}B_2$ Coatings, ***Sebastian Lellig***, Materials Chemistry, RWTH Aachen University, Germany, and Empa, Swiss Federal Lab for Materials Science and Technology, Switzerland*; A. Navidi Kashani,* RWTH Aachen University, Germany*; P. Schweizer,* Empa, Swiss Federal Lab for Materials Science and Technology, Switzerland, and Lawrence Berkeley Lab, USA*; M. Hans,* RWTH Aachen University, Germany*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; J. Schneider,* Materials Chemistry, RWTH Aachen University, Germany	
11:40am		**E2-1-ThM-12** Effects of Cathodic Currents on Mechanical and Corrosion Behaviors of Plasma Electrolytic Oxidation Coatings on 6061 Aluminum Alloy, *C. Tseng,* Department of Materials Engineering, Ming Chi University of Technology. Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan*;* ***Xianghe Wang***, Department of Materials Engineering, Ming Chi University of Technology, Taiwan
12:00pm		

Thursday Lunch, May 25, 2023

	Focused Topic Session **Room Town & Country C - Session FTS-ThL** **Focused Topic Session**	
12:20pm	**FTS-ThL-1** How to Publish in a Scientific Journal***, Allan Matthews****, University of Manchester, UK; D. Biswanath,* Elsevier, USA	
12:40pm		
1:00pm		

Thursday Afternoon, May 25, 2023

	Functional Thin Films and Surfaces **Room Pacific F-G - Session C2-1-ThA** **Thin Films for Electronic Devices I** **Moderators: Julien Keraudy**, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein, **Jörg Patscheider**, Evatec AG, Switzerland	**Hard Coatings and Vapor Deposition Technologies** **Room Town & Country C - Session B1-2-ThA** **PVD Coatings and Technologies II** **Moderators: Christian Kalscheuer**, RWTH Aachen University, Germany, **Vladimir Pankov**, National Research Council of Canada
1:20pm	**INVITED: C2-1-ThA-1** An Imperfect High k Dielectric (O Vacancies, Contamination) Can Give a Perfect MIM Device, ***Christophe Vallee**, N. Tokranova, K. Beckmann,* SUNY College of Nanoscale Science and Engineering, USA*; N. Cady,* SUNY college of Nanoscale Science and Engineering, USA	**B1-2-ThA-1** Contemporary Trends in the Decorative Coatings, ***Ivan Kolev**, A. Fuchs, P. Immich, H. Vercoulen, D. Barnholt,* IHI Hauzer Techno Coating B.V., Netherlands
1:40pm		**B1-2-ThA-2** Metallic Chromium Coatings with Different Thicknesses on Polycarbonate Surface, ***Filipa Ponte**, P. Sharma, N. Figueiredo, S. Carvalho,* CEMMPRE, Department of Mechanical Engineering, University of Coimbra, Coimbra, Portugal
2:00pm	**C2-1-ThA-3** Optoelectronic and Thermoelectric Properties of New Heterobilayers of Janus-Type Noble-Metal Chalcogenides Materials, ***Mourad Boujnah**,* CINVESTAV-Unidad Queretaro, Mexico	**B1-2-ThA-3** Effect of O_2 Addition During Magnetron Sputtering Deposition on the Growth and Chemistry of Ag Thin Films, ***Ramiro Zapata**,* Laboratoire Surface du Verre et Interfaces UMR 125 / Institut de Nanosciences de Paris UMR 7588, France*; R. Lazzari,* Institut des Nanosciences de Paris UMR 7588, France*; H. Montigaud, M. Balestrieri, I. Gozhyk,* Laboratoire Surface du Verre et Interfaces UMR 125, France
2:20pm	**C2-1-ThA-4** High-Entropy Ba(Ti,Zr,Ta,Hf,Mo)(on)$_3$ Gate Dielectric Films for Zno-Channel Thin Film Transistors, ***Van Dung Nguyen**,* Department of Materials Science and Engineering, National Cheng Kung University (NCKU), Taiwan, Viet Nam*; K. Chang,* Department of Materials Science and Engineering, National Cheng Kung University (NCKU), Taiwan	**B1-2-ThA-4** Effect of Molybdenum Interlayer on Mechanical and Elevated Temperature Tribological Properties of Molybdenum Nitride-Coated D2 Steel, ***Te-Hsin Liu**, J. Huang,* National Tsing Hua University, Taiwan
2:40pm	**C2-1-ThA-5** Hydrothermal Fabrication of The Heterojunction of $BaTiO_3$ Nanorod Arrays with Ag_2O and their Applications, ***Yen-Lun Chiu**, K. Chang,* National Cheng Kung University (NCKU), Taiwan	**B1-2-ThA-5** Enhanced Adhesion and Thermal Stability of Thick $(Al,Cr)_2O_3$ Coatings on Hot Work Steel, *K. Bobzin, C. Kalscheuer,* ***Parisa Hassanzadegan Aghdam**,* RWTH Aachen University, Germany
3:00pm	**C2-1-ThA-6** Toughening Mechanisms of Al Nanoparticles in Flexible Mo Thin Films Revealed by in-Situ Synchrotron Diffraction Experiments, ***Barbara Putz**, T. Edwards,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; P. Kreiml,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria*; E. Huszar, L. Pethö,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; D. Többens,* Helmholtz Zentrum Berlin, Germany*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland	**B1-2-ThA-6** Combinatorial Synthesis of Novel Compositionally, Mechanically, and Structurally Heterogenous CuWCrTi Alloys with Unique Properties, ***Michal Zítek**,* Montanuniversität Leoben, Austria*; E. Rossi,* Università degli Studi Roma Tre, Italy*; G. Konstantopoulos,* National Technical University of Athens, Greece*; M. Sebastiani,* Università degli Studi Roma Tre, Italy*; J. Keckes, R. Daniel,* Montanuniversität Leoben, Austria
3:20pm	**C2-1-ThA-7** Fabrication of 5g sub-6 Ghz Antennas on Polyimide Substrates Using Laser Thermo-Responsive Polymer Silver Nanocatalysts, *Y. Chen, J. You,* National Defense University, Republic of China*; M. Youh,* Ming Chi University of Technology, Taiwan, Republic of China*; C. Lee, T. Chiang,* ***Chang-Pin Chang**, M. Ger,* National Defense University, Republic of China	**B1-2-ThA-7** Deposition Aspects of High Entropy Alloy Nitride Coatings with Arc-PVD, ***Tim Krülle**, M. Kuczyk,* TU Dresden, Germany*; M. Leonhardt, O. Zimmer, J. Kaspar,* Fraunhofer Institute for Material and Beam Technology (IWS), Germany*; C. Leyens,* TU Dresden, Germany
3:40pm	**C2-1-ThA-8** Metal-Semiconductor Amorphous Boron Carbide Contacts, ***Vojislav Medic**, N. Ianno,* University of Nebraska - Lincoln, USA	**B1-2-ThA-8** Compositional Modulations in Coatings Synthesized by Cathodic Arc Deposition from a Multi-Element Target with Substrate Rotation, ***Nicholas Bandiera**, S. Veldhuis,* McMaster University, Canada
4:00pm	**C2-1-ThA-9** Modifying Oxidation State Distribution in Interfacial Layer of Ge Nmosfet with Pre- or Post- Remote Plasma Oxidation Treatment, ***Pei-Hsiu Hsu**,* National Tsing Hua University, Taiwan*; D. Ruan,* Fuzhou University, China*; K. Chang-Liao,* National Tsing Hua University, Taiwan	**B1-2-ThA-9** Modifications of Structure Tuning and Mechanical Properties on CoCrNi Medium-Entropy Alloys Films by Multiple Strengthening Mechanism, ***Chia-lin Li**,* National Taiwan University, Taiwan
4:20pm		

Thursday Afternoon, May 25, 2023

	Hard Coatings and Vapor Deposition Technologies **Room Pacific D - Session B7-ThA** **Plasma Surface Interactions, Diagnostics and Growth Processes** **Moderators: Yin-Yu Chang**, National Formosa University, Taiwan , **Arutiun P. Ehiasarian**, Sheffield Hallam University, UK, **Yolanda Aranda Gonzalvo**, University of Minnesota, USA	**New Horizons in Coatings and Thin Films** **Room Pacific E - Session F2-ThA** **High Entropy and Other Multi-principal-element Materials** **Moderators:** **Erik Lewin**, Uppsala University, Sweden, **Jean-François Pierson**, IJL - Université de Lorraine, France
1:20pm 1:40pm	**INVITED: B7-ThA-1** On (simple) Measurement of Energy and Momentum Transport Between Process Plasmas and Substrates, ***Holger Kersten**, T. Trottenberg, M. Klette, L. Hansen,* IEAP, U Kiel, Germany*; F. Schlichting,* IAEP, U Kiel, Germany	**INVITED: F2-ThA-1** Data Driven Methods Enable Rational Design of High Entropy Materials for Hydrogen Storage, ***Matthew Witman**, V. Stavila, M. Allendorf,* Sandia National Laboratories, USA
2:00pm	**B7-ThA-3** Chemical Stability of Sputter Deposited Silver Thin Films, ***Diederik Depla**,* Ghent University, Belgium	**F2-ThA-3** Effect of Mo Content on the Corrosion and Tribocorrosion Behavior of $(CoCrFeNi)_{100-x}Mo_x$ HEA Thin Films Deposited by HiPIMS, ***Alessandro Togni**, R. Tinazzi,* Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Italy*; S. Deambrosis, E. Miorin, F. Montagner, C. Mortalò, V. Zin,* Institute of Condensed Matter Chemistry and Technologies for Energy, National Research Council, Italy*; G. Bolelli, L. Lusvarghi,* Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Italy
2:20pm	**B7-ThA-4** Electron Drift and Electron Property Studies in HiPIMS by Incoherent Thomson Scattering, *T. Dubois, S. Tsikata,* CNRS-ICARE, France*; **Tiberiu Minea**,* Université Paris-Saclay, France	**F2-ThA-4** Corrosion Behavior of Sputter-Deposited CoCrNiFeAl High Entropy Alloy, *A. Korra,* University of Tennessee at Chattanooga, USA*; H. Raji,* Florida Institute of Technology, USA*; **Hamdy Ibrahim**,* University of Tennessee at Chattanooga, USA*; S. Saedi,* Florida Institute of Technology, USA
2:40pm	**B7-ThA-5** Engineered Phase Differences between HIPIMS Power and Substrate bias for Improved Mechanical Properties of TiN and CrN, ***Ying-Xiang Lin**, P. Liu,* National Chung Hsing University, Taiwan*; D. Wuu,* National Chinan International University, Taiwan*; W. Wu,* National United University, Taiwan	**F2-ThA-5** Mechanical Properties of Low Density Ternary Titanium-rich Medium-entropy Alloy with Heterogeneous Structure, ***Che-Wei Chang**,* Department of Materials and Optoelectronic Science, National Sun Yat-sen University, Taiwan*; P. Chen, S. Jang,* Institute of Material Science and Engineering, National Central University, Taiwan*; C. Chen,* Department of Materials and Optoelectronic Science, National Sun Yat-sen University, Taiwan
3:00pm	**B7-ThA-6** Influence of Microwave Power and Substrate Biasing on the Structure and Properties of Zinc Tin Nitride Films Deposited via Microwave Plasma-Assisted R-HiPIMS, ***Caroline Hain**,* EMPA (Swiss Federal Laboratories for Materials Science and Technology), Swiss Cluster AG, Bern University of Applied Sciences, Switzerland*; K. Wieczerzak, D. Casari, A. Sharma, A. Xomalis,* EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland*; P. Sturm,* Tofwerk AG, Switzerland*; J. Michler,* EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland*; A. Hessler-Wyser,* EPFL, Switzerland*; T. Nelis,* Bern University of Applied Sciences, Switzerland	**F2-ThA-6** Charge Transfer Effects in Multicomponent Materials – Shown by Ab-Initio Calculations and X-Ray Photoelectron Spectroscopy XPS, ***Barbara Osinger**,* Uppsala University, Angstrom Laboratory, Sweden*; L. Casillas-Trujillo,* Linköping University, Sweden*; R. Lindblad,* Uppsala University, Angstrom Laboratory, Sweden*; B. Alling,* Linköping University, Sweden*; U. Jansson,* Uppsala University, Angstrom Laboratory, Sweden*; I. Abrikosov,* Linköping University, Sweden*; E. Lewin,* Uppsala University, Angstrom Laboratory, Sweden
3:20pm	**B7-ThA-7** Influence of Duty Cycle on Microstructure of TaN Coatings Prepared by High-Power Pulse Magnetron Sputtering Technique, ***Yung-Chi Chang**,* National United University, Taiwan*; F. Wu,* National United University,, Taiwan	**F2-ThA-7** Toughness Estimation of High Entropy Nitride Coatings by Tensile Testing, ***Martin Kuczyk**, T. Krülle,* Technische Universität Dresden, Germany*; M. Zawischa, M. Leonhardt, O. Zimmer, J. Kaspar,* Fraunhofer IWS, Germany*; C. Leyens, M. Zimmermann,* Technische Universität Dresden, Germany
3:40pm	**B7-ThA-8** Synthesis of Vanadium Dioxide and Vanadium Pentoxide Nanoparticle Films Using Magnetron-Based Gas Aggregation Source, *A. Kuzminova, N. Khomiakova, J. Prokes, T. Kosutova, M. Prochazka, **Ondrej Kylian**,* Charles University, Prague, Czech Republic	**F2-ThA-8** Synthesis and Characterisation of (Gd,Hf,Sc,Ti,Zr)-Oxide Coatings, ***Alexander Kirnbauer**, E. Peck, M. Derflinger,* 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
4:00pm 4:20pm	**B7-ThA-9** Diagnostics with an Optically Trapped Microparticle in the Sheath of an Asymmetric CCP, ***Viktor Schneider**, J. Schleitzer, H. Kersten,* Institute of Experimental and Applied Physics, Kiel University, Germany **B7-ThA-10** Investigating the Plasma Physics of Plasma-Enhanced Pulsed Laser Deposition of Photocatalytic Thin Films, ***Matthew Hill**,* University of York, UK	**INVITED: F2-ThA-9** Functional Materials for Energy Applications, ***Susan Sinnott**,* Pennsylvania State University, USA
4:40pm	**B7-ThA-11** Thin Film Modification in a DC Microplasma – Understanding the Importance of Ions under Atmospheric Pressure Conditions for the Plasma Surface Interaction, ***Luka Hansen**,* Institute of Experimental and Applied Physics, Kiel University, Germany*; N. Kohlmann, L. Kienle,* Institute of Materials Science, Kiel University, Germany*; H. Kersten,* Institute of Experimental and Applied Physics, Kiel University, Germany	

Tribology and Mechanical Behavior of Coatings and Engineered Surfaces
Room Town & Country B - Session E2-2-ThA
Mechanical Properties and Adhesion II
Moderators: Jazmin Duarte, MPI für Eisenforschung GMBH, Germany, **Alice Lassnig**, Austrian Academy of Sciences, Austria, **Bo-Shiuan Li**, National Sun-Yat Sen University, Taiwan

1:20pm	**INVITED: E2-2-ThA-1** Scratching the Surface: Understanding Plasticity Associated with Microscale Asperity Contacts, ***Anna Kareer,*** University of Oxford, UK	
1:40pm		
2:00pm	**E2-2-ThA-3** Effect of Al/Ti ratio and Bias on Mechanical and Tribological Properties of AlTiN Coatings, ***Jiri Nohava,*** Anton Paar TriTec SA, Switzerland; *J. Sondor,* LISS, a.s., Czechia	
2:20pm	**E2-2-ThA-4** Effect of Nb and V Doped Elements on the Mechanical and Tribological Properties of CrYN Coatings, ***İhsan Efeoğlu,*** *G. Gülten, B. Yaylalı, Y. Totik,* Atatürk University, Turkey; *P. Kelly, J. Malecka,* Manchester Metropolitan University, U.K.	
2:40pm	**E2-2-ThA-5** Effect of Mo Interlayer on the Mechanical Properties and Tribology Behavior of Molybdenum Nitride Coatings Deposited by High Power Pulsed Magnetron Sputtering, ***Yu-Che Fang,*** *J. Huang,* National Tsing Hua University, Taiwan	
3:00pm	**E2-2-ThA-6** Tribological Behavior of TiN Thin Film Deposited by Magnetron Sputtering System on Ti6Al4V with different α/β Grain Sizes, *K. Lan,* ***An-Jia Chen,*** National Tsing Hua University, Taiwan	
3:20pm	**E2-2-ThA-7** Tailor the Tribological Behavior of TiN Coatings on D2 Steel by Adjusting Process Parameters during Deposition, ***I-Sheng Ting,*** *J. Huang,* National Tsing Hua University, Taiwan	
3:40pm	**E2-2-ThA-8** Micromechanics of Hydrogen Barrier Coatings During *in Situ* Hydrogen Charging, ***Maria Jazmin Duarte Correa,*** *H. Gopalan, J. Rao, P. Patil, C. Scheu, G. Dehm,* Max-Planck Institut für Eisenforschung, Germany	
4:00pm	**E2-2-ThA-9** Nano-Scale Mechanical Characteristics of Epitaxial Stabilization Zrtin/Nbn Superlattice Coatings, ***Pin-Yuan Lai,*** *T. Ku, S. Hsu, P. Chen, J. Duh,* National Tsing Hua University, Taiwan	
4:20pm	**E2-2-ThA-10** Mechanical and Tribological Behavior of Nitrided AISI/SAE 4340 Steel Coated With NiP and AlCrN, ***Ricardo Torres,*** Pontificia Universidade Católica do Paraná, Brazil; *M. Soares,* Universidade Tecnologica do Parana, Brazil; *P. Soares,* Pontifícia Universidade Católica do Paraná, Brazil	
4:40pm	**E2-2-ThA-11** Designing Hydrogen-Free Diamond Like Multilayer Carbon Coatings for Superior Mechanical and Tribological Performance, ***Muhammad Usman,*** City University of Hong Kong	

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

HP-ThP-1 Femtosecond Laser Ablation (FESLA) XPS – A Novel XPS Depth Profiling Technique for Thin Films, Coatings and Multi-Layered Structures, ***Mark Baker,*** *S. Bacon, S. Sweeney,* University of Surrey, UK*; A. Bushell, T. Nunney, R. White,* ThermoFisher Scientific, UK

HP-ThP-3 *in Situ* and Real-Time Measurements in Metallic Thin Film Research and Applications: The MISSTIC Experimental Setup, ***Ramiro Zapata,*** Laboratoire Surface du Verre et Interfaces UMR 125 / Institut des Nanosciences de Paris UMR 7588, France*; R. Lazzari,* Institut des Nanosciences de Paris UMR 7588, France*; H. Montigaud, M. Balestrieri, I. Gozhyk,* Laboratoire Surface du Verre et Interfaces UMR 125, France

HP-ThP-4 Ultrasonic Contact Impedance Measurements at Nanometer Scale, ***Jurgis Daugela,*** Johns Hopkins University, USA*; A. Daugela,* Nanometronix LLC, USA

HP-ThP-5 A Direct Correlation between Structural and Morphological Defects of Tio_2 Thin Films on Fto Substrates and Photovoltaic Performance of Planar Perovskite Solar Cells, ***Mario Alejandro Millan Franco,*** IER-UNAM, Mexico

HP-ThP-6 In-Situ Stress Evolution in Sputtered Metal Alloy Films, ***Vania Jiao,*** *C. Appleget, C. Panetta, K. Folgner, J. Barrie,* The Aerospace Corporation, USA

HP-ThP-7 Characterising Thin Films Using Hard X-Ray Angle Resolved XPS, ***T Swift,*** Kratos Analytical Inc, USA*; J. Counsell, S. Coultas,* Kratos Analytical Ltd, UK*; C. Tupei, Y. Li,* Nanyang Technological University, Singapore

HP-ThP-8 The Anisotropic Behavior of Super-Hard TiB_2 Films Studied by Synchrotron Nano-Diffraction, ***Anna Hirle,*** *C. Fuger, R. Hahn, T. Wojcik, P. Kutrowatz,* Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria*; M. Weiss,* Institute of Chemical Technologies and Analytics, TU Wien, A-1060 Vienna, Austria*; O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, 9496 Balzers, Liechtenstein*; S. Kolozsvari, P. Polcik,* Plansee Composite Materials GmbH, D-86983 Lechbruck am See, Germany*; H. Riedl,* Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; Institute of Materials Science and Technology, TU Wien, A-1060 Wien, Austria

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

DP-ThP-1 Antibacterial Properties of Ag Doped Tetrahedral Amorphous Carbon Coatings Synthesized Using Hybrid Filtered Cathodic Vacuum Arc and Magnetron Sputtering System, ***SangYul Lee,*** *K. Oh, J. Park,* Korea Aerospace University, Republic of Korea*; D. Kim, J. Kim,* KIMS, Republic of Korea

DP-ThP-2 Adhesion, Corrosion Resistance, and Blood Compatibility of Mao-Pretreated Magnesium Alloy Coated with Graphene Oxide and Pyrolytic 1,8-Diaminooctane-Incorporated Oxidized Polydopamine, ***Chau-Chang Chou,*** *S. Chang, H. Lee,* National Taiwan Ocean University, Taiwan*; W. Chen,* Cheng Gung Memorial Hospital, Keelung, Taiwan

DP-ThP-3 Surface Alloying for Antibacterial Martensitic Stainless Steel Fabrication, *Z. Chen, B. Liu,* ***Wen-Ta Tsai,*** National Cheng Kung University (NCKU), Taiwan*; C. Huang,* Tung Mung Development Co., Ltd., Taiwan

DP-ThP-4 Enhancing the Surface Properties of Polymethylmethacrylate (PMMA) by Functionalizing with Atomic Layer Deposited Titanium(Iv) Dioxide, ***Harshdeep Bhatia,*** *C. Takoudis,* University of Illinois, Chicago, USA

DP-ThP-5 Diffusion-Based Plasma Nitriding for Surgical Needle, ***Takao Yamauchi,*** *P. Abraha,* Meijo University, Japan

DP-ThP-6 Development of TiO_2/Ag Multilayer Antibacterial Coatings Using Magnetron Sputtering Technique for Potential Applications in Non-Permanent Implants, ***Sebastián Rodríguez Maya,*** *M. Restrepo Posada, F. Bolívar Osorio, G. Bejarano Gaitán, J. Lenis Rodas,* Universidad de Antioquia, Colombia

DP-ThP-8 Evaluation of Biocompatibility and Corrosion Resistance of Strontium-Calcium Phosphate Coated Magnesium by Electrodepositon, ***Jung-Eun Park,*** *J. Ji, Y. Kim, S. Byeon, M. Lee,* Chonbuk National University, Korea

DP-ThP-9 Improvement in Corrosion Resistance and Biocompatibility of Biodegradable Mg Surface with Combination of Calcium Phosphate and Chitosan, ***Seo-young Kim,*** *Y. Jang, T. Bae, M. Lee,* Jeonbuk National University, Republic of Korea

DP-ThP-10 Influence of Plasma-Enhanced Chemical Vapor Deposition Associated with Different Finishing Procedure on the Degradation of CAD/CAM Dental Ceramic, ***Aldiéris Alves Pesqueira,*** *L. Scaion Silva,* São Paulo State University (Unesp), School of Dentistry, Araçatuba, Brazil*; V. Adelino Ricardo Barão,* (University of Campinas (UNICAMP), Piracicaba Dental School, Brazil*; K. Henrique Cruz, V. Alves Nascimento, J. Pedro Justino de Oliveira Limírio,* São Paulo State University (Unesp), School of Dentistry, Araçatuba, Brazil*; B. Egumi Nagay,* University of Campinas (UNICAMP), Piracicaba Dental School, Brazil*; E. Cipriano Rangel,* Sao Paulo State University (UNESP), Laboratory of Technological Plasmas (LaPTec), Engineering College, Sorocaba, Brazil

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

AP-ThP-1 Thermal Stability of Thick α- and γ-Al_2O_3 Coatings Deposited by High Speed PVD, *K. Bobzin,* ***Christian Kalscheuer,*** *M. Moebius, P. Hassanzadegan Aghdam,* RWTH Aachen University, Germany

AP-ThP-3 e-Poster Presentation: High-Temperature Stability and Mechanical Properties of Non-Reactive PVD-Synthesized $MoSi_2$ Coatings, ***Sophie Richter,*** *A. Bahr, T. Wojcik,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria*; O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany*; J. Ramm,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; H. Riedl,* TU Wien, Institute of Materials Science and Technology, Austria

AP-ThP-4 Thermal Stability of Atmospheric Pressure Plasma Jet Deposited YSZ Top Coats and Sputtered Al Bond Coats on Inconel 617, ***Yung-I Chen,*** *L. Wang, X. Qiu,* National Taiwan Ocean University, Taiwan

AP-ThP-5 $Ti_{1-x}Al_xN$ PVD Coatings in Hot-Corrosion Environments, *O. Hudak,* ***Rainer Hahn,*** *A. Scheiber,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria*; L. Shang, O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein*; S. Kolozsvari,* Plansee Composite Materials GmbH, Germany*; H. Riedl,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria

Functional Thin Films and Surfaces
Room Golden State Ballroom - Session CP-ThP
Functional Thin Films and Surfaces (Symposium C) Poster Session
5:00pm

CP-ThP-1 Structural and Compositional Analysis of Titanium-Based PVD Coatings, ***Celia Rojo-Blanco,*** Sheffield University, UK, Mexico*; J. Qi,* Sheffield University, UK, China*; G. Wu, L. Yang,* University of Leeds, UK, China*; S. Creasey-Gray, A. Leyland,* Sheffield University, UK

CP-ThP-3 Study of Spatial Distribution of Sputtered Al-Doped Zinc Oxide for Optoelectronic Applications, ***Eduard Llorens,*** *E. Stamate,* DTU, Denmark

CP-ThP-4 Optical and Electrical Characterization of Thin NiO_x Films Obtained by R.F. Sputtering, ***Francisco David Mateos-Anzaldo,*** *R. Nedev, E. Osorio-Urquizo, M. Curiel-Alvarez, O. Perez-Landeros, J. Castillo-Saenz,* Universidad Autónoma de Baja California, Instituto de Ingeniería, Mexico*; A. Arias-Leon,* Universidad Autónoma de Baja California, Facultad de Ingeniería Mexicali, Mexico*; B. Valdez-Salas,* Universidad Autónoma de Baja California, Instituto de Ingeniería, Mexico*; N. Nedev,* Universidad Autonoma de Baja California, Instituto de Ingeniería, Mexico

CP-ThP-5 Deposition of Lanthanum-Doped Barium Stannate as Transparent conducting Oxides, *C. Liu, Y. Yan, S. Chen,* ***Yijia Chen,*** *M. Wong,* National Dong Hwa University, Taiwan

CP-ThP-6 Electrical Evaluation of Micro Water Droplets During Solidification Process Using Galvanic Array with Micro to Nano Gaps, ***K. Hirayama,*** Chiba Institute of Technology, Japan*; M. Mekawy, J. Kawakita,* NIMS, Japan*; Y. Sakamoto,* Chiba Institute of Technology, Japan

CP-ThP-7 Engineered Ionic Diode Membranes Based on Subnanochannel Metal-Organic Frameworks with High Space Charges for Boosted Lithium Ion Transport and Unprecedented Osmotic Energy Conversion in Organic Solution, ***Amalia Rizki Fauziah***, *L. Yeh,* National Taiwan University of Science and Technology, Taiwan

CP-ThP-8 Designing Experimental Determination of Sheet Resistance of a Titanium Self-Aligned Silicide Formation, ***Jau-Shiung Fang***, *Y. Chang, Y. Kuo,* National Formosa University, Taiwan

CP-ThP-9 Hybrid Structures of p-n junction for Improving Efficiency of Photovoltaic Devices, ***Paweł Jarka***, *T. Tański,* Department of Engineering Materials and Biomaterials, Faculty of Mechanical Engineering, Silesian University of Technology, Poland; *B. Hajduk, H. Bednarski,* Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Poland

CP-ThP-10 The Investigation of Electro-Optical Properties of Hybrid Organic-Inorganic Thin Films, ***Tomasz Tański***, Department of Engineering Materials and Biomaterials, Faculty of Mechanical Engineering, Silesian University of Technology, Poland

CP-ThP-11 Multilayer Growth of 2D Layered Material Bi_2Se_3 Through Heteroatom-Assisted Step-Edge Barrier Reduction, ***Namdong Kim***, Pohang Accelerator Laboratory, Republic of Korea

CP-ThP-12 Metallic Ground States of Strained Ti_2O_3 Thin Films, ***Heungsoo Kim***, *S. Mathews, E. Lock, J. Prestigiacomo,* Naval Research Laboratory, USA; *M. Qazilbash,* William and Mary University, USA; *A. Piqué,* Naval Research Laboratory, USA

CP-ThP-14 Rapid Thermal Annealing and Structural Evolution of Sputter-Deposited AlScN Thin Films, ***Hongfei Liu***, *A. Yong, N. Gong, R. Karyappa, T. Meng,* Institute of Materials Research and Engineering (IMRE), Singapore

CP-ThP-15 Work Function Enhancement of WO_3 Filamentous Films Obtained by Resistive Heating Evaporation Technique, ***Fabien Sanchez***, *L. Marot, R. Antunes, R. Steiner, E. Meyer,* University of Basel, Switzerland

CP-ThP-17 Controlled Thermal Conduction-based Detection of Dew Condensation on Target Solid Surface by Galvanic Arrays Sensor Chip, ***K. Iida***, Chiba Institute of Technology, Japan; *M. Mekawy, N. satoh, J. Kawakita,* NIMS (National Institute for Materials Science), Japan; *Y. Sakamoto,* Chiba Institute of Technology, Japan

CP-ThP-18 Polyimide-Based Gate Dielectrics for High-Performance Organic Thin Film Transistors, ***Yan-Ting Chen***, *Y. Yu,* Ming Chi University of Technology, Taiwan

CP-ThP-19 Epitaxially Grown Gold (100) Surfaces for Oxygen Reduction Reactions, ***Katharina Kohlmann***, *D. Guay,* Institut national de la recherche scientifique, Canada; *A. Sarkissian,* Plasmionique Inc., Canada; *C. Schindler,* Munich University of Applied Sciences, Germany; *A. Rüdiger,* Institut national de la recherche scientifique, Canada

CP-ThP-20 Ion-Selective Capacitive Deionization of Saltwater Using Functionalized Graphene Thin-Film Coated Electrodes, *H. Cheng,* National Cheng Kung University, Taiwan; *J. Wang,* Stanford University, USA; ***Hong Paul Wang***, National Cheng Kung University, Taiwan

CP-ThP-21 Research on the Application of the Double-layer Hole Transport Layer of Novel Functional Organic Small Molecule Materials in High-efficiency Inverted-Perovskite Solar Cells, ***Wei-En Wu***, *Y. Yu,* Ming Chi University of Technology, Taiwan

CP-ThP-22 High-Performance non-Fullerene Systems for Organic Solar Cells, ***Chun-Chieh Lee***, *Y. Yu,* Ming Chi University of Technology, Taiwan

CP-ThP-23 Vanadium Doped Zno Nanorod Array Piezoelectric Pressure Sensor, ***Shu-Yu Lin***, *J. Huang, S. Brahma,* National Cheng Kung University (NCKU), Taiwan

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

BP-ThP-1 Superhard Tungsten-tantalum Diboride (W,Ta)B_2 Coatings Prepared by High Power Impulse Magnetron Sputtering HiPIMS, ***Rafał Psiuk***, *P. Denis,* Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland; *Ł. Kurpaska,* National Centre for Nuclear Research, Poland; *T. Mościcki,* Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland

BP-ThP-2 First Principles Calculation of Thermal Properties for an Aeronautic Ni Alloy, ***Luis Dacal***, *M. Lima,* Instituto de Estudos Avançados (IEAv - DCTA), Brazil

BP-ThP-3 Direct Deposition of Nano-crystalline Diamond Coating on Steel (SS 301), ***Nikhil C***, Indian Institute of Technology, Madras, India; *R. Kannan,* Indian Institute of Technology Madras, India; *R. Kannan, P. Bagaria,* Kapindra Precision Engineering Pvt. Ltd., India; *N. Arunachalam, M. Ramachandra Rao,* Indian Institute of Technology, Madras, India

BP-ThP-4 Synergistic Effect of He for the Incorporation of Ne and Ar During Magnetron Sputtering Fabrication of Gas-Charged Silicon Films: A Microstructural and Chemical Characterization Study, ***Asunción Fernández***, *V. Godinho,* Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ. Seville, Spain; *J. Colaux,* Synthesis, Irradiation & Analysis of Materials (SIAM) Platform, Namur Institute of Structured Matter (NISM), University of Namur, Belgium; *J. Ávila,* Synchrotron SOLEIL and Universite Paris-Saclay, France; *J. López-Viejobueno, J. Caballero-Hernández, D. Hufschmidt, M. Jiménez de Haro,* Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ. Seville, Spain; *S. Lucas,* Laboratoire d'Analyse par Réactions Nucléaires (LARN), Namur Institute of Structured Matter (NISM), University of Namur, Belgium; *M. Asensio,* Madrid Institute of Materials Science (ICMM), CSIC, Cantoblanco, Spain

BP-ThP-5 Custom Coating Solution for Coin Minting Dies, ***Guillaume Wahli***, *J. Wehrs, S. Kaminski, A. Lümkemann,* PLATIT AG, Switzerland

BP-ThP-6 Influence of the Period of a Multilayer TiN / TiAlN Coating System on its Microstructure and Electrochemical Behavior for Potential Applications in Hot Work Steel, ***Hernán Darío Mejía Vásquez***, *G. Bejarano Gaitán,* University of Antioquia, Colombia

BP-ThP-7 Diamond Synthesis on 2-Inch Si Substrates by Mode Conversion Type Microwave Plasma CVD, ***Akira Inaba***, Chiba Institute of Technology, Japan

BP-ThP-8 The Phase Transformation and Mechanical Properties of Magnetron Co-Sputtering (MoHf)N Coatings through Heat Treatment, *S. Hsu,* ***Yu-Hsien Liao***, *F. Wu, Y. Chang,* Dept. of Materials Science and Engineering, National United University, Taiwan

BP-ThP-9 Realistic Structural Properties of Amorphous SiN_x from Machine-Learning-Assisted Molecular Dynamics, ***Ganesh Kumar Nayak***, Montanuniversität Leoben, Austria; *P. Srinivasan,* Universität Stuttgart, Germany, Austria; *J. Todt, R. Daniel, D. Holec,* Montanuniversität Leoben, Austria

BP-ThP-10 Reactive Remote Plasma Sputtering of Titania Thin Films Using r.f. Substrate Biasing, ***Joseph Lawton***, University of Surrey, UK; *S. Thornley,* Plasma Quest Limited, UK; *M. Baker,* University of Surrey, UK

BP-ThP-11 Influence of Process Gas on Properties and Residual Stress State of TiAlCrSiN PVD Coatings, *K. Bobzin, C. Kalscheuer, M. Carlet,* ***Muhammad Tayyab***, Surface Engineering Institute - RWTH Aachen University, Germany

BP-ThP-12 Control of TiN Thin Film Properties by the Energy of Sputtered Atoms in DC Magnetron, ***Abderzak el-Farsy***, LPGP - Université Paris Saclay, France; *J. Pierson, T. Gries, L. de Poucques,* IJL - Université de Lorraine, France; *J. Bougdira,* IJL-Université de Lorraine, France

BP-ThP-13 Fabrication of TiN Coatings Using Superimposed HiPIMS and MF: Effect of Target Poisoning Ratios and MF Power, ***Bih-Show Lou***, Chang Gung University, Taiwan; *W. Yang, J. Lee,* Ming Chi University of Technology, Taiwan, Republic of China

BP-ThP-14 Adhesion of Hydrogenated DLC Coatings on Polymer Substrates, ***Akira Chikamoto***, *P. Abraha,* Meijo University, Japan

BP-ThP-15 e-Poster Presentation: Fabrication of Pt-Nanocluster Decorated Porous Ni/MoS_2 for Hydrogen Evolution Reaction Application, ***Po-Chun Chen***, National Taipei University of Technology, Taiwan

BP-ThP-16 Optimization of Doping Content for Sputtered a-C:H:Si:O Coatings, ***Abqaat Naseer***, *M. Evaristo, T. Bin Yaqub, S. Carvalho,* University of Coimbra, Portugal; *M. Kalin,* University of Ljubljana, Slovenia; *A. Cavaleiro,* University of Coimbra, Portugal

BP-ThP-17 Surface Quality Improvement for Ge Device with Ozone ALD Formed Interfacial Layer and In-situ Hydrogen Plasma Treatment, ***Pei-Hsiu Hsu***, National Tsing Hua University, Taiwan; *D. Ruan,* Fuzhou University, China; *K. Chang-Liao,* National Tsing Hua University, Taiwan, China

BP-ThP-18 On the High Temperature Oxidation Behavior of AlCrBN/TiAlNbSiNMultilayer Coatings with Addition of Boron and Silicon, *Y. Chang,* ***He-Qian Feng***, *K. Huang,* National Formosa University, Taiwan

BP-ThP-19 Annealing Modulated Microstructural and Electrical Properties of PEALD-derived HfO_2/SiO_2 Nanolaminates on AlGaN/GaN, *B. Wang, Y. Li, M. Chen,* ***Duo Cao***, *F. Liu, W. Shi,* Shanghai Normal University, China

BP-ThP-20 Self-Formation of Dual-Phase Nanocomposite nc-ZrN/a-ZrCu Coatings by Reactive Magnetron Co-Sputtering, ***Stanislav Haviar***, *M. Červená,* University of West Bohemia, Czechia; *A. Bondarev,* Czech Technical University in Prague, Czechia; *R. Čerstvý, P. Zeman,* University of West Bohemia, Czechia

BP-ThP-21 Structural Configuration of Functionalized Amorphous Silica Surfaces using Classical and *ab initio* Molecular Dynamics, ***Azharul Islam***, *R. Fleming,* Arkansas State University, USA

BP-ThP-22 The Mechanical and Corrosion Resistance Properties Study of Ultra-thick DLC Film by Filtered Arc Ion Plating (FAIP), ***Hao-Wen Cheng,*** Industrial Technology Research Institute, Taiwan

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

FP-ThP-1 Fabrication of Chemical Bath Deposited ZnO Nanorods Layer Based Ultraviolet Light Detectors and Their Device Properties: Influences of Solution Concentration and Thermal Annealing, ***Tomoaki Terasako***, *T. Fujikawa, K. Hirota, K. Kobayashi,* Graduate School of Science and Engineering, Ehime University, Japan; *M. Yagi,* National Institute of Technology, Kagawa College, Japan; *T. Yamamoto,* Materials Design Center, Research Institute, Kochi University of Technology, Japan

FP-ThP-2 Advances in Nanosynthesis by Atmospheric Pulsed Arc Discharges, *C. Corbella*, ***Sabine Portal,*** George Washington University, USA; *M. Kundrapu,* Tech-X Corporation, USA; *M. Keidar,* George Washington University, USA

FP-ThP-3 Structure, Mechanical Properties, and Thermal Stability of (Gd,Hf,Sc,Ti,Zr)-Nitride Thin Films, ***Alexander Kirnbauer***, *M. Derflinger,* 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

FP-ThP-4 Demystifying the Entropy Forming Ability – The Role of Atomic Size Effects, ***Andreas Kretschmer***, *P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

FP-ThP-5 High-Temperature Oxidation Resistance of CrB_2 Coatings Alloyed by Transition Metal Disilicide Phases, ***Ahmed Bahr***, *T. Glechner, T. Wojcik, P. Kutrowatz,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; *J. Ramm, O. Hunold,* Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *S. Kolozsvári, P. Polcik,* Plansee Composite Materials GmbH, Germany; *E. Ntemou, D. Primetzhofer,* Department of Physics and Astronomy, Uppsala University, Sweden; *H. Riedl,* Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria

FP-ThP-6 The Photodetection of the in-, Sn-, and Te-Doped Bi_2Se_3 Nanoplatelets, ***Chih-Chiang Wang***, National Chin-Yi University of Technology, Taiwan; *H. Shih,* Chinese Culture University, Taiwan; *F. Shieu,* National Chung Hsing University, Taiwan; *A. Lo,* National Chin-Yi University of Technology, Taiwan

FP-ThP-7 Metallic Zn and Mg Nanowire Coatings by Conventional Reactive DC Sputter Deposition, *J. Zawadzki,* ***Michał, Adam Borysiewicz***, *M. Wzorek,* Łukasiewicz Research Network - Institute of Microelectronics and Photonics, Poland

FP-ThP-8 Synthesis and Electrical Properties of Gasb Nanowires, ***Tzai-Wei Chen***, *C. Wang,* National Taiwan University of Science and Technology, Taiwan

FP-ThP-9 Spacing-controllable core@shell TiO_2@Ru/RuOx Nanotube Array for Biocompatible Stimulating Electrode Applications, ***Jia-Jun Li,*** National Taipei University of Technology, Taiwan

FP-ThP-10 Nickel Sulfide on Organic Framework for Efficient Hydrogen Evolution Reaction, ***Yu-An Chi,*** Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan; *T. Chang, C. Kung,* Department of Chemical Engineering, National Cheng Kung University, Taiwan; *C. Chen,* Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan

FP-ThP-11 Research of The Growth Mechanism of Solvothermally Synthesized Sb_2Te_3 Nanosheets, ***Yen-Jen Lin***, *C. Chen,* Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan

FP-ThP-12 Exploring Zn-Sn-O (ZTO) Composition Spreads with Combinatorial Sputtering, ***Siang-Yun Li***, *Y. Shen, K. Chang, W. Wu, J. Ting,* National Cheng Kung University, Taiwan

FP-ThP-14 High-Precision Feedback Control Measurements of the Aluminum-Oxygen Double Hysteresis Curve in Reactive Magnetron Sputtering, ***Josja Van Bever***, *K. Strijckmans, D. Depla,* Ghent University, Belgium

FP-ThP-16 Synthesis and Characterization of Titanium Thin Films by Magnetron Sputtering and the Effect of the Addition of a Graphite Anode, *D. Jacobo Mora, M. Martinez Fuentes,* ***Stephen Muhl,*** Universidad Nacional Autónoma de México

FP-ThP-17 Developing Materials for Future Generation Nuclear Reactors, ***Vladimir Vishnyakov,*** Huddersfield University, UK

FP-ThP-19 Effect of Surface Treatment on the Bifunctional Performance of Core-Shelled High Entropy Spinel Oxides, ***Yi- Ting Jhuo,*** National Cheng Kung University (NCKU), Taiwan; *T. Nguyen,* National Cheng Kung University (NCKU), Taiwan, Viet Nam; *J. Ting,* National Cheng Kung University (NCKU), Taiwan

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

GP-ThP-1 Enhanced Corrosion Resistance, Wear and Antibacterial Properties of TiO_2-Incorporated Micro-Arc Oxidation on AZ31 Magnesium Alloy, ***Wei-Hao Chen***, *Y. Lee, S. Huang, Y. Chu,* National Taiwan University, Taiwan

GP-ThP-2 The Influence of the Pause Time on Microstructure and Corrosion Resistance of AZ31 Magnesium Alloy Micro-Arc Oxidation Coating, ***Shih-Yen Huang***, *Y. Lee, Y. Chu,* National Taiwan University, Taiwan

GP-ThP-3 Microstructure and Properties of HVOF Sprayed Coatings Remelted by Laser, *E. Jonda,* ***Marek Sroka***, *W. Pakieła,* Silesian University of Technology, Poland; *T. Jung,* Łukasiewicz Research Network - Institute for Ferrous Metallurgy, Poland

GP-ThP-4 Fabrication Feasibility Study on Cu and Cu Alloy Coating for Spent Fuel Canister of Deep Geological Disposal, ***Young-Ho Lee***, *Y. Jung, D. Kim, S. Yoon, H. Kim,* Korea Atomic Energy Research Institute, Republic of Korea

GP-ThP-5 Etching of B-doped Diamond Films Using RF Plasma, ***Ryuhei UEDA,*** Chiba Institute of Technology, Japan

GP-ThP-6 Fabrication of Si/C/SiNW Arrays Sandwich Structure at Different Annealing Parameters for Solar Cell Application, ***Ai-Huei Chiou***, *J. Wei,* National Formosa University, Taiwan

GP-ThP-7 Barrier Properties Enhancement of Bio-Based Polymers by Means of Multilayer Coatings Applied by Pulsed DC PACVD, *C. Nicoletti, C. Forsich,* University of Applied Sciences Upper Austria; ***Francisco A. Delfin***, University of Applied Sciences Upper Austria, Austria, National University of Technology, Concepción del Uruguay, Argentina; *S. Augl, S. Danninger,* University of Applied Sciences Upper Austria; *M. Schachinger,* (University of Applied Sciences Upper Austria; *C. Burgstaller, D. Heim, J. Weghuber,* University of Applied Sciences Upper Austria

GP-ThP-8 Effect of Fluoride on Adhesion of Electroless Nickel–Phosphorus Coating on MAO-Coated AZ31B Magnesium Alloy, *J. Lee, C. Lee,* National Defense University, Republic of China; *J. Lee,* Lung Hwa University of Science and Technology, Taiwan; *S. Jian,* Ming Chi University of Technology, Taiwan, Republic of China; ***Ming-Der Ger***, *A. Cheng,* National Defense University, Republic of China

GP-ThP-9 Effect of Mechanical Stress on Electrical Characteristics of Low-Dielectric-Constant Dielectric Materials, ***Yi-Lung Cheng,*** National Chi-Nan University, Taiwan

GP-ThP-10 Monolithic Integration of Lead Selenide Films via Surface Morphology Engineering, ***Sejeong Park***, *J. Park,* Opto Diode Corporation, USA

GP-ThP-12 Degradation Effect of Multilayer Stacking Super-latticeSi/SiGe/Sichannel on FinFET and GAAFET Device, ***Yu-Hsin Chen,*** National Tsing Hua University, Taiwan; *D. Ruan,* Fuzhou University, China; *K. Chang-Liao,* National Tsing Hua University, Taiwan

GP-ThP-13 Industrialization of Precious Metal-Free Bipolar Plates for Use in Pem Fuel Cells, ***Julian Kapp***, *V. Lukassek, V. Mackert, ,* ZBT GmbH; *M. Welters, KCS Europe GmbH; H. Hoster, ,* ZBT GmbH; *R. Cremer, P. Jaschinski,* KCS Europe GmbH, Germany

GP-ThP-15 Corrosion Resistance in Synthetic Seawater Plus Diluted Sulfuric Acid of DLC/Crc/Cr Multilayers Co-Deposited by HIPIMS and DCMS, ***Martin Flores***, *L. Flores Cova,* Universidad de Guadalajara, Mexico

Topical Symposia
Room Golden State Ballroom - Session TS1P-ThP
Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications - TS1 Poster Session
5:00pm

TS1P-ThP-1 Bacezryybo$_{3-\delta}$ Coatings Deposited by Colloidal Coating Process for Sustainable Energy Application, ***Chien-Ming Lei***, *P. Lin, Y. Chen,* Department of Chemical and Materials Engineering, Chinese Culture University, Taiwan

TS1P-ThP-2 PVD Core-Shell-Catalysts for Use in Electrolyzers, ***Jan-Ole Achenbach***, *S. Cremer, R. Cremer,* KCS Europe GmbH, Germany

TS1P-ThP-3 Repressing Noble Metal Ruthenium Target to Reduce the Cost of Bipolar Plate Manufacture in Fuel Cells, ***Jing Yang***, SCI Engineered Materials, inc, USA

TS1P-ThP-4 Corrosion Protection of Bipolar Plates in Electrolysers, *M. Welters,* KCS Europe GmbH, Germany; *N. Kruppe,* Schaeffler Technologies GmbH & Co. KG, Germany; ***Peter Jaschinski***, *T. Breuer, S. Yang, R. Cremer,* KCS Europe GmbH, Germany; *M. Öte, N. Bagcivan,* Schaeffler Technologies GmbH & Co. KG, Germany

TS1P-ThP-5 MOF-Derived Molybdenum Carbide-Copper as an Electrocatalyst for The Hydrogen Evolution Reaction, *W. Chen,* ***Yu-Chin Shen***, *J. Huang,* National Cheng Kung University (NCKU), Taiwan; *S. Wang,* Southern Taiwan University of Science and Technology, Taiwan; *Y. Shen,* National Cheng Kung University (NCKU), Taiwan

TS1P-ThP-7 rGo-SiOx Nanocomposite as Anode Material in Lithium Ion Battery, ***Sheng Hsu***, *J. Huang,* National Cheng Kung University (NCKU), Taiwan; *B. Sanjaya,* National Cheng Kung University (NCKU), Taiwan, India

Topical Symposia
Room Golden State Ballroom - Session TS2P-ThP
Sustainable Surface Solutions, Materials, Processes and Applications - TS2 Poster Session
5:00pm

TS2P-ThP-1 The Study of Different Crystalline Moissanite: Nucleation and Growth of Nanoparticle Gold Coatings, ***Tsung-Jen Wu***, *S. Song, W. Chen,* Institute of Geosciences, National Taiwan University, Taiwan; *W. Lin,* Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taiwan

TS2P-ThP-2 Multilayered Structure of PE-Based Polymer Film Composites, ***Marcin Bilewicz***, Silesan University of Technology, Poland

TS2P-ThP-3 Understanding the Mechanical Behavior of Nanoporous Si by Molecular Dynamics Simulations, *B. Crutchfield,* ***Robert Fleming***, Arkansas State University, USA

Topical Symposia
Room Golden State Ballroom - Session TS3P-ThP
Processes of Materials for Printed and Flexible Film Technologies - TS3 Poster Session
5:00pm

TS3P-ThP-1 Organic and Perovskite Solar Cells based on 3D-Printed Transparent Conducting Electrodes, *H. Lee, B. Tyagi,* ***Jae-Wook Kang***, Jeonbuk National University, Republic of Korea

TS3P-ThP-2 Development of a Microfluidic System for Oxygen Environment Detection in Cell Culture, ***Wen-Cheng Kuo***, *L. Wu, J. Wang,* National Kaohsiung University of Science and Technology, Taiwan

TS3P-ThP-3 Radiation Effect on Trapping States Modification for Nanowire Junction-less Charge Trapping Flash Memory Devices, ***Che-Wei Lin***, National Tsing Hua University, Taiwan; *D. Ruan,* Fuzhou University, China; *K. Chang-Liao,* National Tsing Hua University, Taiwan

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

EP-ThP-1 e-Poster Presentation: Combinatorial Study of Mo_2N-Cu Coatings to Optimize Tribological Performance in Low Viscosity Fuel Environments, ***Slater Caldwell***, *M. Dockins, E. Cairns,* University of North Texas, USA; *S. Berkebile,* US DEVCOM Army Research Laboratory, USA; *A. Voevodin, D. Berman, S. Aouadi,* University of North Texas, USA

EP-ThP-2 Triboactive CrAlXN Coatings for Wear and Friction Reduction under Grease Lubrication, *K. Bobzin,* Surface Engineering Institute - RWTH Aachen University, Germany; *C. Kalscheuer,* surface Engineering Institute - RWTH Aachen University, Germany; ***Max Philip Möbius***, Surface Engineering Institute - RWTH Aachen University, Germany; *M. Rank,* Institute of Machine Elements, Gears and Tribology - TU Kaiserslautern, Germany; *M. Oehler, O. Koch,* Institute for Machine Elements, Gears and Tribology, Germany

EP-ThP-3 Influence of Nb and Ta Added Elements on the Corrosion and Mechanical Properties of CrYN Coatings, ***İhsan Efeoğlu***, *B. Yaylalı, G. Gülten, Y. Totik,* Atatürk University, Turkey; *P. Kelly, J. Malecka,* Manchester Metropolitan University, U.K.

EP-ThP-4 Evaluation of the Adhesive Strength of a Nitrided Stainless Steel Under Cyclic Contact Loads, *D. Fernández-Valdés,* ***Jesús Vidal-Torres***, SEPI ESIME Instituto Politécnico Nacional, Mexico; *A. López-Liévano,* Universidad Veracruzana, Mexico; *G. Rodríguez-Castro, A. Meneses-Amador,* SEPI ESIME Instituto Politécnico Nacional, Mexico

EP-ThP-5 Effect of Annealing Treatment on Mechanical Properties of Nanostructured Metallic Films Deposited by Pulsed Laser Deposition, ***Francesco Bignoli***, CNRS, France; *S. Rashid, E. Rossi,* Università degli studi Roma 3, Italy; *P. Djemia,* CNRS, France; *M. Sebastiani,* Università degli studi Roma 3, Italy; *A. Li Bassi,* Politecnico di Milano, Italy; *M. Ghidelli,* CNRS, France

EP-ThP-6 Accurate Measurement of Thin Film Elastic Properties Using Thermal Loading, *C. Trost,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences & Dept. of Materials Science, Montanuniversität Leoben, 8700 Leoben, Austria; *S. Zak,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria; ***Megan J. Cordill***, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences & Dept. of Materials Science, Montanuniversität Leoben, 8700 Leoben, Austria

EP-ThP-7 Microstructural, Mechanical and Tribological Properties of TiAlSiN–Cu Superhard Nanocomposite Coatings Deposited by Filtered Cathodic Arc Ion Plating Technique, ***In-Wook Park***, *S. Heo, W. Kim, J. Kim, E. Choi, S. Choe,* Korea Institute of Industrial Technology (KITECH), Republic of Korea; *J. Lim,* BMT Co., Ltd, Republic of Korea

EP-ThP-8 Adhesion of WTi to Polyimide Measured by Complementary Methods, *D. Gutnik,* ***Alice Lassnig***, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; *A. Kleinbichler,* Infineon Technologies AG, Austria; *P. Imrich,* KAI Kompetenzzentrum Automobil- und Industrieelektronik, Austria; *M. Cordill,* Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria

EP-ThP-9 On the Use of Integrated 3D-Profilometry to Bring New Insights on Mechanical Characterization of PVD Coatings by Scratch and Tribology Tests, ***Philippe Kempe***, Rtec-Instruments SA, Switzerland

EP-ThP-10 Typical Gaffes During the Nanoindentation of Coatings, ***Esteban Broitman***, SKF - Research and Technology Development, Netherlands

EP-ThP-11 High Temperature Tribological Behavior of TiAlN Coatings with Different Ti/Al Ratios, *C. Pereira, F. Amorim,* Pontifícia Universidade Católica do Paraná, Brazil; *G. Souza,* UEPG, Brazil; *P. Soares, M. Meruvia,* ***Ricardo Torres***, Pontifícia Universidade Católica do Paraná, Brazil

EP-ThP-12 Structural, Phase, Electrochemical, and Tribological Evaluation of TiO_2 and SiO_2 Multilayer Coatings Obtained by Reactive Magnetron Sputtering with Potential Biomedical Applications, ***Julián Andrés Lenis Rodas***, University of Antioquia, Politécnico Colombiano Jaime Isaza Cadavid and Servicio Nacional de Aprendizaje - SENA, Colombia

EP-ThP-13 Tribological Performance of Sliding Pads Against Ti_6Al_4V for Aeronautic Applications, ***Manel Rodriguez Ripoll***, *A. Ventura,* AC2T Research GmbH, Austria

Friday Morning, May 26, 2023

	Functional Thin Films and Surfaces **Room Pacific F-G - Session C2-2-FrM** **Thin Films for Electronic Devices II** **Moderators: Julien Keraudy**, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein, **Jörg Patscheider**, Evatec AG, Switzerland	**Functional Thin Films and Surfaces** **Room Town & Country B - Session C3-2-FrM** **Thin Films and Novel Surfaces for Energy II** **Moderators:** **Clio Azina**, RWTH Aachen University, Germany, **Carlos Tavares**, University of Minho, Portugal
8:00am	**INVITED: C2-2-FrM-1** 3D Device Integration Technology for AI Computing*, S. Chang,* Powerchip Semiconductor, Taiwan*; S.-Z. Chang,* ***Chun-Lin Lu,*** Powerchip Semiconductor Manufacturing Corporation, Taiwan	
8:20am		
8:40am	**C2-2-FrM-3** Magnetic Nanolaminates Deposited by Magnetron Sputtering for Next Generation Electronic Devices*,* ***Claudiu V. Falub****, M. Bless, J. Richter, X. Zhao, H. Rohrmann, M. Tschirky, M. Padrun,* Evatec AG, Switzerland	**INVITED: C3-2-FrM-3** Survey for Ferroelectric/Antiferroelectric Films for Energy Storage*,* ***Mitsuru Itoh****, H. Takashima,* National Institute of Advanced Industrial Science and Technology/Tokyo institute of Technology, Japan
9:00am	**C2-2-FrM-4** Tungsten-Based Thin Film Metallic Glass as Diffusion Barrier between Copper and Silicon*,* ***Pei-Yu Chen****, J. You, C. Hsueh,* National Taiwan University, Taiwan	
9:20am	**C2-2-FrM-5** Investigation of Properties and Microstructures of Ag-Cu Alloy Thin Films by Co-sputtering and First-principles Calculations*,* ***Yu-Chieh Wang****, C. Chen, F. Ouyang, H. Chen,* National Tsing Hua University, Taiwan	**C3-2-FrM-5** First Attempt to Describe the Effect of the Substrate Temperature on the Depth Concentration Profile of Reactively Sputtered $ZnGeN_2$ Thin Films*, A. Virfeu, F. Alnjiman, A. Borroto, S. Migot, J. Ghanbaja, D. Mangin, D. Pilloud,* ***Jean-Francois Pierson****,* Institut Jean Lamour - Université de Lorraine, France
9:40am	**C2-2-FrM-6** Multi-Step Method for the Fabrication of High-Performance Continuous Ultra-Thin Silver Films for Energy Applications*,* ***Phillip Rumsby****, B. Baloukas, O. Zabeida, L. Martinu,* Polytechnique Montréal, Canada	**C3-2-FrM-6** CVD Process Development of Thin Film Triniobium-Tin on Copper SRF Cavities*,* ***Mohamed A. Cheikh****, S. McNeal, V. Arrieta,* Ultramet, USA
10:00am	**C2-2-FrM-7** Structural, Electrical, and Thermal Properties of Ge-Rich $Ge_2Sb_2Te_5$ Alloys*,* ***Matias Kalaswad****, A. Jarzembski, P. Kotula,* Sandia National Laboratories, USA*; T. Beechem,* Purdue University, USA*; M. King, D. Adams,* Sandia National Laboratories, USA	**C3-2-FrM-7** Engineered Metal-Organic Framework-Based Heterogeneous Membranes with High Ionic Rectification for Ultrahigh Osmotic Power Generation from Organic Solutions*,* ***Amalia Rizki Fauziah****, L. Yeh,* National Taiwan University of Science and Technology, Taiwan
10:20am	**C2-2-FrM-8** Preparation and Electrical Properties of Tantalum Silicate Thin Films*,* ***You-Sheng Lu****, C. Chen, C. Huang, S. Chen, Y. Liu,* Ming Chi University of Technology, Taiwan*; W. Huang,* Chien Hwa Coating Technology Inc., Taiwan*; W. Yang,* General Research Institute for Nonferrous Metals, China	
10:40am	**C2-2-FrM-9** Enhanced Reliability Characteristic Oftri-Gatepoly-Ge Charge Trapping Flash Memory with Ultra-Thin Tunneling Layer Engineering*,* ***Che-Wei Lin****,* National Tsing Hua University, Taiwan*; D. Ruan,* Fuzhou University, China*; K. Chang-Liao,* National Tsing Hua University, Taiwan	
11:00am		
11:20am		

Hard Coatings and Vapor Deposition Technologies
Room Town & Country C - Session B1-3-FrM
PVD Coatings and Technologies III
Moderators:
Christian Kalscheuer, RWTH Aachen University, Germany,
Vladimir Pankov, National Research Council of Canada

8:00am	**B1-3-FrM-1** Effect of Wettability Modification of Ti-Al-Based Thin Films on Heat Transfer Exchange During Water Drop Cooling, ***Alexis Carlos García Wong***, *G. Marcos,* Institut Jean Lamour - Université de Lorraine, France*; G. Castanet, O. Caballina, F. Lemoine,* Laboratoire d'Energétique et de Mécanique Théorique et Appliquée, France*; J. Pierson, T. Czerwiec,* Institut Jean Lamour - Université de Lorraine, France	
8:20am	**B1-3-FrM-2** Rf-Bias Assisted, Combinatorial Sputtering of Conductive (TiZr)N Hard Coatings on Insulating Substrates, ***Kerstin Thorwarth***, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; M. Watroba,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; J. Sommerhaeuser, S. Zhuk, J. Patidar, A. Wieczorek, S. Siol,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	
8:40am	**B1-3-FrM-3** The Microstructure and Properties of Highly (111)-Oriented Nano-Twinned Cu-Ag Thin Film Prepared by DC Sputtering System, ***Ko-Chieh Hsueh***, National Tsing Hua University, Taiwan*; J. Lee, F. Ouyang,* National Tsing Hua University, Taiwan	
9:00am	**B1-3-FrM-4** High Gain CMOS inverter with Vertically-Stacked Hybrid PVD-Formed IWZO TFT and Monolithic FinFET, ***Yu-Hsin Chen***, National Tsing Hua University, Taiwan*; D. Ruan,* Fuzhou University, China*; K. Chang-Liao,* National Tsing Hua University, Taiwan	
9:20am	**B1-3-FrM-5** Development of New Magnetron Sputter Deposition Processes for Inertial Confinement Fusion Targets, ***S. O. Kucheyev***, *S. Shin, L. Bayu Aji, G. Taylor, A. Engwall, J. Merlo, L. Sohngen,* Lawrence Livermore National Laboratory, USA*; J. Bae,* General Atomics, USA	

New Horizons in Coatings and Thin Films
Room Pacific E - Session F1-FrM
Nanomaterial-based Coatings and Structures
Moderators: Ondrej Kylian, Charles University, Prague, Czechia,
Vladimir Popok, Aalborg University, Denmark

8:00am		
8:20am	**F1-FrM-2** Giant Actuated Van der Waals Metal/Muscovite Heteroepitaxy, ***Jia-Wei Chen,*** National Yang Ming Chiao Tung University, Taiwan*; Y. Chu,* National Tsing Hua University, Taiwan	
8:40am	**INVITED: F1-FrM-3** Brain-Like Behaviour in Percolating Films of Nanoparticles, ***Simon Brown,*** The MacDiarmid Institute for Advanced Materials and Nanotechnology, School of Physical and Chemical Sciences, University of Canterbury, New Zealand	
9:00am		
9:20am	**F1-FrM-5** RBS Study of Silver/Copper Diffusions in the Matrix of Amorphous Carbon Coatings Produced by Magnetron Sputtering, *G. Sanzone,* Teer Coatings Ltd, UK*; M. Sharpe, P. Couture, J. England,* University of Surrey, UK*; S. Field, H. Sun,* ***Jinlong Yin,*** Teer Coatings Ltd, UK	
9:40am	**F1-FrM-6** C:H:N:O Plasma-polymer with Anchored LSPR Active Ag Nanoparticles for Detection of Borrelia Pathogen, *S. Kumar,* University of South Bohemia, Czechia*; H. Maskova,* University of South Bohemia, Biology Centre ASCR, Institute of Parasitology Branisovska, Czechia*; A. Kuzminova,* Charles University, Czechia*; R. Rego,* University of South Bohemia, Biology Centre ASCR, Institute of Parasitology Branisovska, Czechia*; J. Sterba,* University of South Bohemia, Czechia*; O. Kylian,* Charles University, Czechia*;* ***Vitezslav Stranak,*** University of South Bohemia, Czechia	
10:00am	**F1-FrM-7** Aln Nanostructures for Piezoelectric Nanogenerators, ***Manohar Chirumamilla****, M. Sandager, V. Popok, K. Pedersen,* Aalborg University, Denmark	
10:20am	**F1-FrM-8** Super-Amphiphobic Nano-Wall Structured Teflon Films Deposited by Microwave Plasma, ***Ta-Chin Wei,*** Chung Yuan Christian University, Taiwan	
10:40am	**F1-FrM-9** Diamond-Based Nanostructured Interfaces for Electrochemical Applications, ***Robert Bogdanowicz,*** Gdańsk University of Technology, Poland	
11:00am	**F1-FrM-10** Engineering Nanostructured Metallic Thin Films by Pulsed Laser Deposition with an Outstanding Combination of Mechanical Properties, ***Francesco Bignoli****, D. Faurie,* CNRS, France*; C. Gammer, A. Lassnig,* Austrian Academy of Sciences, Austria*; S. Lee, C. Aguiar Teixeira,* Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany*; A. Li Bassi,* Politecnico di Milano, Italy*; M. Ghidelli,* CNRS, France	
11:20am	**F1-FrM-11** Preparation and Properties of Fluoroalkyl End-Capped Oligomer/Cellulose Nanofiber Composites, ***Hideo Sawada****, Y. Endo, Y. Oikawa,* Hirosaki University, Japan	
11:40am	**F1-FrM-12** Synthesis and Electrical Properties of Single Crystalline Cu_3Ge Nanowires, ***Chang Ting- Hsiang****, L. Bo-Yan, W. Chiu-Yen,* National Taiwan University of Science and Technology, Taiwan	

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