

# ICMCTF 2024 Program Key

- CM** Advanced Characterization, Modelling and Data Science for Coatings and Thin Films
- EX** Exhibitors Keynote Lecture
- IA** Surface Engineering - Applied Research and Industrial Applications
- KYL** Keynote Lectures
- MA** Protective and High-temperature Coatings
- MB** Functional Thin Films and Surfaces
- MC** Tribology and Mechanics of Coatings and Surfaces
- MD** Coatings for Biomedical and Healthcare Applications
- PL** Plenary Lecture
- PP** Plasma and Vapor Deposition Processes
- TS** Topical Symposium on Sustainable Surface Engineering
  - TS1** Coatings for Batteries and Hydrogen Applications
  - TS2** Sustainable Processing and Materials Selection for Surface Solutions
  - TS3** Solar Thermal Conversion
  - TS4** Coatings and Surfaces for Thermoelectrical Energy Conversion and (Photo)electrocatalysis
  - TS5** Circular Strategies for Surface Engineering

**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 2024 Program Overview

Room /Time	Golden State Ballroom	Palm 1-2	Palm 3-4	Palm 5-6	Town & Country A	Town & Country B	Town & Country C	Town & Country D	
MoPL					PL-MoM: Plenary Lecture				
MoM		MC1-1-MoM: Friction, Wear, Lubrication Effects, and Modeling I	CM1-1-MoM: Spatially-resolved & In-Situ Char of TF and Engineered Surfaces I	PP6-MoM: Microfabrication Techniques with Lasers and Plasmas	MB4-MoM: 2D Materials: Synthesis, Characterization, and Applications	TS1-1-MoM: Coatings for Batteries and Hydrogen Applications I	CM4-1-MoM: Simulations, Mach Learning & Data Sci. for Matls Des. and Discovery I	MA3-1-MoM: Hard and Nanostructured Coatings I	
MoKYL					KYL1-MoA: Keynote Lecture I				
MoA		MC1-2-MoA: Friction, Wear, Lubrication Effects, and Modeling II	CM2-1-MoA: Advanced Mech Testing of Surf, TF, Coatings and Small Volumes I	MA2-1-MoA: Thermal and Environmental Barrier Coatings	MB1-MoA: Thin Films and Surfaces for Optical Applications	TS1-2-MoA: Coatings for Batteries and Hydrogen Applications II	IA1-MoA: Advances in App Driven Research & Hybrid Syst, Proc and Coatings	MA3-2-MoA: Hard and Nanostructured Coatings II	
TuM	<b>EXHIBITION</b>	MA1-1-TuM: Coatings to Resist High-temp Oxidation, Corr, and Fouling I	CM2-2-TuM: Adv Mech Testing of Surf, TF, Coatings & Small Vol II: Fracture & Fatigue	CM4-2-TuM: Simulations, Mach Learning & Data Sci. for Matls Des. & Discovery II	PP1-1-TuM: PVD Coating Technologies I	TS1-3-TuM: Coatings for Batteries and Hydrogen Applications III	IA2-1-TuM: Surface Modi of Components in Auto, Aero & Manuf. Apps I	MA3-3-TuM: Hard and Nanostructured Coatings III	
TuEx					EX-TuM: Exhibition Keynote Lecture				
TuA		MA1-2-TuA: Coatings to Resist High-temp Oxidation, Corr, and Fouling II	CM1-2-TuA: Spatially-resolved and In-Situ Char. of TF & Engineer Surfaces II	TS2-TuA: Sustainable Proc. & Matls Selection for Surface Solutions	PP1-2-TuA: PVD Coating Technologies II	MC2-1-TuA: Mechanical Properties and Adhesion I	IA2-2-TuA: Surface Mod of Components in Auto, Aero & Manuf. Apps II		
WeM		MA1-3-WeM: Coatings to Resist High-temp Oxidation, Corr., and Fouling III	PP3-WeM: CVD Coating Technologies	IA3-WeM: Innov Surf Eng for Adv Cutting and Forming Applications	PP4-1-WeM: Deposition Technologies for Carbon-based Coatings I	MC2-2-WeM: Mechanical Properties and Adhesion II	MA4-1-WeM: High Entropy and Other Multi-principal-element Materials I	MB2-1-WeM: Thin Films for Electronic Devices I	
WeA			MD1-1-WeA: Surf Coatings & Surf Modifications in Biological Environments I	TS5-WeA: Circular Strategies for Surface Engineering	PP4-2-WeA: Deposition Technologies for Carbon-based Coatings II	MC3-1-WeA: Tribology of Coatings & Surf for Industrial Applications I	MA4-2-WeA: High Entropy and Other Multi-principal-element Materials II	MB2-2-WeA: Thin Films for Electronic Devices II	
ThM			MB3-1-ThM: Nanomaterial-based Thin Films and Structures	MD1-2-ThM: Surf Coatings & Surf Modifications in Biological Environments II		PP2-1-ThM: HiPIMS, Pulsed Plasmas and Energetic Deposition I	MC3-2-ThM: Tribology of Coatings & Surf for Industrial Applications II	MA5-1-ThM: Boron-containing Coatings I	TS4-1-ThM: Coati & Surf for Thermoelect Energy Conv & (Photo)elect I
ThA			CM3-1-ThA: Accel TF Dev: Hi-throughput Synth, Automated Char, & Data Analysis I	MD2-ThA: Medical Devices: Bio-Tribo-Corrosion, Diagnostics, 3D Printing		PP2-2-ThA: HiPIMS, Pulsed Plasmas and Energetic Deposition II		MA5-2-ThA: Boron-containing Coatings II	TS4-2-ThA: Coatings & Surf for Thermoelect Energy Conv & (Photo)elect II
ThP		POSTER SESSIONS							
FrM		CM3-2-FrM: Accel TF Dev: Hi-through-put Synth, Auto Char, & Data Anal II	MD3-FrM: Bioactive Surfaces			PP5-FrM: Pla Surf Int & Diag/PP7-FrM: Mod & Dat-Driv Meth for Proc Des, Anal & Cont.	TS3-FrM: Solar Thermal Conversion		

# Monday Morning, May 20, 2024

<b>Plenary Lecture</b> <b>Room Town &amp; Country A - Session PL-MoM</b> <b>Plenary Lecture</b> <b>Moderator: Johanna Rosen, Linköping University, Sweden</b>		
8:00am	<b>Welcome and Opening Remarks</b>	
8:20am	<b>INVITED: PL-MoM-2</b> Engineering 2D MXene Surfaces for Functional Films and Coatings, <b>Yury Gogotsi</b> , Drexel University, USA	
8:40am		
9:00am		

# Monday Morning, May 20, 2024

<b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b> <b>Room Palm 3-4 - Session CM1-1-MoM</b> <b>Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces I</b> <b>Moderators: Damien Faurie, Univ. Sorbonne Paris Nord, France, Barbara Putz, Empa, Switzerland</b>		<b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b> <b>Room Town &amp; Country C - Session CM4-1-MoM</b> <b>Simulations, Machine Learning and Data Science for Materials Design and Discovery I</b> <b>Moderator: Davide G. Sangiovanni, Linköping University, Sweden</b>	
10:00am	<b>INVITED: CM1-1-MoM-1</b> Exploring Nanostructure Behavior and Ordering Dynamics Through Advanced Electron Microscopy, <i>Lilian Vogl</i> , University of California at Berkeley, USA; <i>P. Schweizer</i> , Lawrence Berkeley Lab, University of California, Berkeley, USA; <i>J. Michler</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>A. Minor</i> , University of California at Berkeley, USA	10:20am	<b>INVITED: CM4-1-MoM-1</b> High-Throughput Rapid Experimental Alloy Development (HT-READ)), <i>Kenneth Vecchio</i> , University of California at San Diego, USA
10:40am	<b>CM1-1-MoM-3</b> Autonomous Health Tracking in Self-Reporting MAX and MAB Phases, <i>Peter Pöllmann</i> , <i>S. Lellig</i> , <i>D. Bogdanovski</i> , <i>A. Navid Kashani</i> , <i>M. Hans</i> , Materials Chemistry RWTH Aachen University, Germany; <i>P. Schweizer</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>D. Holzapfel</i> , <i>C. Azina</i> , <i>P. Zöll</i> , Materials Chemistry RWTH Aachen University, Germany; <i>D. Primetzhofer</i> , Department of Physics and Astronomy, Uppsala University, Sweden; <i>S. Kolozsvári</i> , <i>P. Polcik</i> , Plansee Composite Materials GmbH, Germany; <i>J. Michler</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>J. Schneider</i> , Materials Chemistry RWTH Aachen University, Germany	10:40am	<b>CM4-1-MoM-3</b> Fundamental Investigation for Film Quality Prediction Based on Zone Model in Magnetron Sputtering, <i>Kohei Kuroshima</i> , <i>I. Ikeda</i> , Osaka Vacuum, Ltd., Japan; <i>Y. Gotoh</i> , Department of Electronic Science and Engineering, Kyoto University, Japan; <i>M. Iguchi</i> , <i>S. Sugimoto</i> , Osaka Vacuum, Ltd., Japan
11:00am	<b>CM1-1-MoM-4</b> Correlation of Laser-Reflection and Thermionic Emission of Thermally Loaded Coatings Under UHV Conditions, <i>Lukas Wimmer</i> , Vienna University of Technology, Austria; <i>C. Bienert</i> , <i>R. Schiftner</i> , PLANSEE SE, Austria; <i>C. Eisenmenger-Sittner</i> , Vienna University of Technology, Austria	11:00am	<b>INVITED: CM4-1-MoM-4</b> Are ML Potentials Useful to Understand Deformation and Fracture of Ceramics?, <i>Nikola Koutna</i> , <i>S. Lin</i> , TU Wien, Austria; <i>L. Hultman</i> , Linköping University, Sweden; <i>P. Mayrhofer</i> , TU Wien, Austria; <i>D. Sangiovanni</i> , Linköping University, Sweden
11:20am	<b>INVITED: CM1-1-MoM-5</b> Bill Sproul Award and Honorary ICMCTF Lecture: When Stressed Condensed Matter Reveals Its Ultimate Secrets: Thin Film Growth Dynamics Probed by Real-Time Diagnostics, <i>Gregory Abadias</i> <sup>1</sup> , Institut PPrime - CNRS - ENSMA - Université de Poitiers, France; <i>K. Solanki</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>M. Kaminski</i> , Karlsruhe Institute of Technology (KIT), Germany; <i>A. Michel</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>A. Vlad</i> , <i>A. Resta</i> , <i>A. COATI</i> , Synchrotron SOLEIL, France; <i>B. Krause</i> , Karlsruhe Institute of Technology (KIT), Germany; <i>D. Babonneau</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France	11:40am	<b>CM4-1-MoM-6</b> Transformation Plasticity and Fracture in MB <sub>2</sub> (M=Ti, Ta, W, Re) Diborides via Ab-Initio and Machine-Learning-Potential Molecular Dynamics, <i>Shuyao Lin</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>T. Leiner</i> , Montanuniversität Leoben, Leoben, Austria; <i>Z. Chen</i> , Austrian Academy of Sciences, Austria; <i>R. Janknecht</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>F. Tasnadi</i> , Linköping University, Sweden; <i>Z. Zhang</i> , Austrian Academy of Sciences, Austria; <i>L. Hultman</i> , Linköping University, Sweden; <i>P. Mayrhofer</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>D. Holec</i> , Montanuniversität Leoben, Austria; <i>D. Sangiovanni</i> , Linköping University, Sweden; <i>N. Koutna</i> , TU Wien, Institute of Materials Science and Technology, Austria
12:00pm		12:00pm	<b>CM4-1-MoM-7</b> Machine-Learning Potential for Accurate Predictions of Elastic Properties in Amorphous W-B-C, <i>Pavel Ondracka</i> , <i>J. Ženíšek</i> , Masaryk University, Czechia; <i>G. Nayak</i> , RWTH Aachen University, Germany; <i>D. Holec</i> , Montanuniversität Leoben, Austria; <i>P. Vašina</i> , Masaryk University, Czechia

<sup>1</sup> Bill Sproul Awardee

# Monday Morning, May 20, 2024

	<b>Functional Thin Films and Surfaces</b> <b>Room Town &amp; Country A - Session MB4-MoM</b> <b>2D Materials: Synthesis, Characterization, and Applications</b> <b>Moderators: Chih-Yen Chen</b> , National Sun Yat-sen Univ., Taiwan, <b>Ying-Hao Chu</b> , National Tsing Hua University, Taiwan	<b>Plasma and Vapor Deposition Processes</b> <b>Room Palm 5-6 - Session PP6-MoM</b> <b>Microfabrication Techniques with Lasers and Plasmas</b> <b>Moderators: Carles Corbella</b> , George Washington Univ., USA, <b>Valentina Dinca</b> , National Institute for Laser, Plasma, and Radiation Physics, Romania
10:00am	<b>MB4-MoM-1</b> Influence of Plasmonic Coupling and Size Effect on Photocatalysis of MoS <sub>2</sub> /Au Hybrid Nanostructures for Water Splitting, <i>Yi-Hsueh Chen, J. Ruan</i> , NCKU, Taiwan	<b>INVITED: PP6-MoM-1</b> Laser Bioprinting: From the Breast Tumor Microenvironment to Migration in Wound Healing Assays, <i>Doug Chrisey</i> , Tulane University, USA
10:20am	<b>MB4-MoM-2</b> Sputter Deposition of Hexagonal Boron Nitride Films, <i>Minsuk Seo, L. Bayu Aji</i> , Lawrence Livermore National Laboratory, USA; <i>Y. Tzeng, S. Kim</i> , Stanford University, USA; <i>Y. Zhou, L. Wan, C. Kim, B. Wang, T. Heo, L. Zepeda-Ruiz</i> , Lawrence Livermore National Laboratory, USA; <i>S. Chu</i> , Stanford University, USA; <i>S. Kucheyev</i> , Lawrence Livermore National Laboratory, USA	
10:40am	<b>INVITED: MB4-MoM-3</b> Advancing 2D Materials for Future Electronics: Selective Synthesis, Transferring Processes, and Device Integration, <i>Ching Yuan Su</i> , National Central University, Taiwan	<b>INVITED: PP6-MoM-3</b> Plasma-Assisted Nanofabrication of Advanced Nanoplasmonic Surfaces for SERS Applications, <i>Uros Cvelbar</i> , Jozef Stefan Institute, Slovenia
11:00am		
11:20am	<b>MB4-MoM-5</b> Room Temperature Highly Efficient NO <sub>2</sub> Gas Sensors Based on MoSe <sub>2</sub> -WS <sub>2</sub> Nanocomposite-Filled Porous Si, <i>S. Kodan</i> , Indian Institute of technology Roorkee, India; <i>A. Kumar</i> , National Council of Educational Research and Training (NCERT), India; <i>Ramesh Chandra</i> , Indian Institute of Technology Roorkee, India	<b>PP6-MoM-5</b> New Designed PDMS Microtopography Using Laser Methods for Modulating in Vitro Cell Behaviour and Bacteria Growth, <i>Valentina Dinca</i> , INFILPR, Romania; <i>C. Corbella</i> , George Washington University, USA
11:40am	<b>MB4-MoM-6</b> Transport Studies on Pulsed Laser Deposited Ti <sub>3</sub> C <sub>2</sub> T <sub>x</sub> - MoO <sub>3</sub> System, <i>Shravani Kale, D. Sabale, S. Kale</i> , Defence Institute of Advanced Technology Pune, India	<b>PP6-MoM-6</b> Designing Chiral Micropatterns via Ion Beam Colloidal Lithography, <i>S. Portal, Carles Corbella</i> , George Washington University, USA; <i>O. Arteaga</i> , University of Barcelona, Spain; <i>A. Martin, T. Mandal</i> , New York University, USA; <i>V. Dinca</i> , National Institute for Laser, Plasma, and Radiation Physics, Romania; <i>B. Kahr</i> , New York University, USA
12:00pm	<b>MB4-MoM-7</b> Reduced Electrocatalytic potential of Nitrate to Ammonia through MoS <sub>2</sub> Deposited Carbon Felt based Flexible Electrode, <i>Prateek Sharma, C. Liao, Y. Chang, D. Huang, W. Hsu, J. Huang, Y. Lai</i> , Ming Chi University of Technology, Taiwan	<b>PP6-MoM-7</b> Enhancing Tribological Performance of Carbon-Based Coatings Through Pulsed Laser texturation, <i>Constant Boris Rieille, S. LeCoultre</i> , Berner Fachhochschule BFH, Switzerland

# Monday Morning, May 20, 2024

	<b>Protective and High-temperature Coatings</b> <b>Room Town &amp; Country D - Session MA3-1-MoM</b> <b>Hard and Nanostructured Coatings I</b> <b>Moderators: Marcus Günther, Robert Bosch GmbH, Germany,</b> <b>Rainer Hahn, TU Wien, Institute of Materials Science and</b> <b>Technology, Austria,</b> <b>Stanislav Haviar, University of West Bohemia, Czechia,</b> <b>Fan-Yi Ouyang, National Tsing Hua University, Taiwan</b>	<b>Topical Symposium on Sustainable Surface Engineering</b> <b>Room Town &amp; Country B - Session TS1-1-MoM</b> <b>Coatings for Batteries and Hydrogen Applications I</b> <b>Moderators:</b> <b>Nazlim Bagcivan, Schaeffler Technologies GmbH &amp; Co. KG,</b> <b>Germany</b>
10:00am	<b>INVITED: MA3-1-MoM-1</b> Nitride and Carbide Layers: Point Defects, Interfaces, Mechanical Properties, <b>Daniel Gall</b> , Rensselaer Polytechnic Institute, USA	<b>INVITED: TS1-1-MoM-1</b> New Coating Methods for New Electrolyzer Technologies for PEM Electrolyzer and AEM Electrolyzer, <b>Thomas Kolbusch</b> , Coatema, Germany
10:20am		
10:40am	<b>MA3-1-MoM-3</b> The Influence of the Carbon Source on the Mechanical and Electrical Properties of Magnetron-Sputtered Titanium Carbonitride Coatings, <b>Juliana Kessler</b> , Uppsala University, Angstrom Laboratory, Sweden	<b>TS1-1-MoM-3</b> Dual Doped Two-dimensional Carbon Supported Single Atomic Iron for Oxygen Reduction Reaction in Alkaline-Exchange Membrane Fuel Cells, <b>Afandi Yusuf, F. T. D. Wijaya, H. Hsin-Chih, C. Wang</b> , National Taiwan University of Science and Technology, Taiwan
11:00am	<b>MA3-1-MoM-4</b> A Strategic Design Approach Controlling the B-Solubility in Transition Metal Nitride-Based Thin Films, <b>Rebecca Janknecht, K. Weiss, N. Koutna</b> , Institute of Materials Science and Technology, TU Wien, Austria; <b>E. Ntemou</b> , Department of Physics and Astronomy, Uppsala University, Sweden; <b>P. Polcik, S. Kolozsvári</b> , Plansee Composite Materials GmbH, Germany; <b>D. Primetzhofer</b> , Department of Physics and Astronomy, Uppsala University, Sweden; <b>P. Mayrhofer</b> , Institute of Materials Science and Technology, TU Wien, Austria; <b>R. Hahn</b> , Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria	<b>TS1-1-MoM-4</b> CO <sub>2</sub> Laser Processed Nickel Catalyzed Graphene Coating for Electrocatalytic Water Splitting and Energy Storage Applications, <b>Suparna Saha</b> , TCG CREST (RISE), India; <b>S. Hiwase</b> , IISER PUNE, India; <b>S. Ogale</b> , IISER PUNE, TCG-CREST(RISE), India
11:20am	<b>MA3-1-MoM-5</b> The Influence of Bilayer Periods and Ratios on Mechanical and Tribological Properties of TiN/MoN Superlattice Thin Films, <b>Z. Gao, J. Buchinger, R. Hahn</b> , TU Wien, Institute of Materials Science and Technology, Austria; <b>Z. Chen, Z. Zhang</b> , Austrian Academy of Sciences, Austria; <b>Paul Mayrhofer</b> , TU Wien, Institute of Materials Science and Technology, Austria	<b>TS1-1-MoM-5</b> Bimetal Phosphide (NiCoP)/Graphitic Carbon Nitride(g-C <sub>3</sub> N <sub>4</sub> ) Composites for Hydrogen Evolution Reaction in Alkaline Electrolyte, <b>Yu-Hsuan Kao</b> , National Cheng Kung University, Taiwan; <b>S. Wang</b> , Southern Taiwan University of Science and Technology, Taiwan; <b>J. Huang</b> , National Cheng Kung University, Taiwan; <b>Y. Shen</b> , Hierarchical Green-Energy Material (Hi-GEM) Research Center, Taiwan
11:40am	<b>MA3-1-MoM-6</b> TiN/CrN and TiSiN/CrN Multilayer Coatings Deposited in an Industrial-scale HIPIMS System, <b>Neus Sala</b> , IQS School of Engineering - Universitat Ramon Llull, Spain; <b>M. Abad</b> , IQS School of Engineering - Universitat Ramon Llull, Spain; <b>C. Colominas</b> , FLUBETECH, S.L., Spain; <b>R. Franz, C. Kainz, M. Rebelo de Figueiredo</b> , Montanuniversität Leoben, Austria; <b>C. Rojas, J. Sánchez-López</b> , CSIC-Universidad de Sevilla, Spain	<b>TS1-1-MoM-6</b> Hybrid Inorganic-Organic Nanolayered Thin Films Based on Zns-Ethylenediamine for the Photocatalytic Production of Hydrogen, <b>L. Cerezo</b> , Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; <b>K. Valencia</b> , Instituto de Ingeniería, Universidad Nacional Autónoma de México; <b>M. Bizarro, Sandra E. Rodil, A. Hernández-Gordillo</b> , Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México
12:00pm	<b>MA3-1-MoM-7</b> Residual Stress Measurement and Effective Deformation Thickness of Metal Interlayer in Multilayer Hard Coatings - Using TiN/Ti/TiN/Ti as a Model Architecture, <b>I-Sheng Ting, J. Huang</b> , National Tsing Hua University, Taiwan	

# Monday Morning, May 20, 2024

<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Palm 1-2 - Session MC1-1-MoM</b> <b>Friction, Wear, Lubrication Effects, and Modeling I</b> <b>Moderators: Manel Rodriguez Ripoll, AC2T Research GmbH, Austria, Michael Chandross, Sandia National Laboratories, USA</b>		
10:00am	<b>INVITED: MC1-1-MoM-1</b> Fragile Films, <i>Angela Pitenis</i> , UC Santa Barbara, USA	
10:20am		
10:40am	<b>MC1-1-MoM-3</b> Wear-Protection Performance and Durability of <i>in-Situ</i> -Deposited Carbon Tribofilms Derived from Intrinsically Strained Cycloalkane Molecules as Lubricant Additives, <i>Z. Al Hassan, H. Wise, T. Martin, S. Liu, Q. Wang, Y. W. Chung</i> , Northwestern University, USA; <i>S. Berkebile</i> , US Army Research Laboratory, USA	
11:00am	<b>MC1-1-MoM-4</b> Lubricant Interaction of Triboactive CrAlMoCuN Coatings in Steel Contacts, <i>K. Bobzin, C. Kalscheuer, Max Philip Möbius</i> , Surface Engineering Institute - RWTH Aachen University, Germany	
11:20am	<b>MC1-1-MoM-5</b> Enhancing the Tribological Properties of Ti6Al4V Alloy through Duplex Plasma Nitriding and MoS <sub>2</sub> Coating, <i>Kai Le, W. Wang, J. Yang, Y. Liu, S. Xu</i> , Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China	
11:40am	<b>INVITED: MC1-1-MoM-6</b> Modern Analytical Methods for Characterizing Wear Surfaces and Subsurfaces, <i>Thomas Scharf</i> , The University of North Texas, USA	
12:00pm		

# Monday Afternoon, May 20, 2024

## Keynote Lectures

Room Town & Country A - Session KYL1-MoA

### Keynote Lecture I

Moderator: Johanna Rosen, Linköping University, Sweden

1:00pm

**INVITED: KYL1-MoA-1** Engineered Functional Coatings for Clean Energy and Sustainability Applications, **Satishchandra Ogale**, Research Institute for Sustainable Energy, TCG-CREST, Indian Institute of Science Education and Research, India

1:20pm



# Monday Afternoon, May 20, 2024

<p><b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b>  <b>Room Palm 3-4 - Session CM2-1-MoA</b>  <b>Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes I</b>  <b>Moderators:</b>  <b>Thomas Edwards</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland,  <b>Olivier Pierron</b>, Georgia Institute of Technology, USA</p>		<p><b>Functional Thin Films and Surfaces</b>  <b>Room Town &amp; Country A - Session MB1-MoA</b>  <b>Thin Films and Surfaces for Optical Applications</b>  <b>Moderators:</b>  <b>Jörg Patscheider</b>, Evatec AG, Switzerland,  <b>Juan Antonio Zapien</b>, City University of Hong Kong</p>	
1:40pm	<p><b>INVITED: CM2-1-MoA-1</b> Micromechanics During Hydrogen Charging and the Study of Hydrogen Barrier Coatings, <i>Maria Jazmin Duarte, H. Gopalan, J. Rao, C. Scheu, G. Dehm</i>, Max-Planck Institut für Eisenforschung GmbH, Germany</p>	<p><b>INVITED: MB1-MoA-1</b> Improvements to Multilayer Dielectric Coatings to Enable Internal Confinement Fusion at the National Ignition Facility (NIF), <i>Colin Harthcock</i>, Lawrence Livermore Laboratory, USA</p>	
2:00pm			
2:20pm	<p><b>CM2-1-MoA-3</b> The Micromechanical Behavior of Magnetron Sputtered TiN/Nb Multilayers, <i>S. Kagerer, N. Koutná</i>, Institute of Materials Science and Technology, TU Wien, Austria; <i>L. Zauner</i>, Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; <i>T. Wójcik</i>, Institute of Materials Science and Technology, TU Wien, Austria; <i>G. Habler</i>, Department of Lithospheric Research, University of Vienna, Austria; <i>P. Polčík, S. Kolozsvári</i>, Plansee Composite Materials GmbH, Germany; <i>O. Hunold</i>, Oerlikon Surface Solutions AG, Liechtenstein; <i>H. Riedl</i>, Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; <i>P. Mayrhofer</i>, Institute of Materials Science and Technology, TU Wien, Austria; <i>Rainer Hahn</i>, Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria</p>	<p><b>MB1-MoA-3</b> Ultra-Low Thickness Thin Film Multilayer Devices for Application in Water Window Regime of Soft X-Ray, <i>Piyali Sarkar Roy, A. Biswas, D. Bhattacharyya</i>, Bhabha Atomic Research Centre, India</p>	
2:40pm	<p><b>CM2-1-MoA-4</b> Deformation Behaviour and Plasticity in FCC-BCC High Entropy Alloy Nanolaminate Structures, <i>S. Tsianikas</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>C. Tian</i>, EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland; <i>C. Guerra-Nuñez</i>, Swiss Cluster AG, Thun, Switzerland; <i>J. Michler, X. Maeder, Amit Sharma</i>, EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland</p>	<p><b>MB1-MoA-4</b> Key Success Factor of Solid-Phase Crystallization Through Postannealing Under Atmospheric Conditions on Amorphous Conductive W-Doped In<sub>2</sub>O<sub>3</sub> Ultra-Thin Films with Thicknesses of Less Than 10 Nm, <i>Rajasekaran Palani, T. Yamamoto</i>, Kochi University of Technology, Research Institute, Japan; <i>M. Maehara, Y. Okada, K. Kinoshita</i>, Sumitomo Heavy Industries, Ltd., Industrial Equipment Division, Japan</p>	
3:00pm	<p><b>INVITED: CM2-1-MoA-5</b> Characterisation of Hydrogen in Coatings and Thin Films Using Atom Probe and TDMS, <i>Peter Felfer</i>, Friedrich-Alexander University, Germany</p>	<p><b>MB1-MoA-5</b> Investigating Thin Ito Films for Light Detectors at Cryogenic Temperatures, <i>Giorgio Keppel, O. Azzolini, C. Pira, A. Kotliarenko, M. El Idrissi, D. Ford</i>, Legnaro National Laboratories, Italian National Institute for Nuclear Physics, Italy</p>	
3:20pm		<p><b>MB1-MoA-6</b> The Beauty of Single Crystal CrB<sub>2</sub>/TiB<sub>2</sub> Superlattices, Achieved by Modulated Ion-assisted Interface Engineering, <i>Samira Dorri<sup>1</sup>, O. Nyqvist, J. Palisaitis, N. Ghafoor, F. Eriksson, P. Persson, J. Birch</i>, Linköping University, Sweden</p>	
3:40pm	<b>BREAK</b>	<b>BREAK</b>	
4:00pm	<p><b>CM2-1-MoA-8</b> Mechanical Properties of Metal/Ceramic Nanolaminates: A Case Study for Cu<sub>1-x</sub>-Al<sub>x</sub>-Al<sub>2</sub>O<sub>3</sub> Multilayer Composites, <i>A. Sharma, C. Tian</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>C. Guerra-Nuñez</i>, Swiss Cluster AG, Switzerland; <i>J. Michler, Xavier Maeder</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland</p>		
4:20pm	<p><b>CM2-1-MoA-9</b> Tribological and Mechanical Behavior of Hbn-Cr<sub>3</sub>C<sub>2</sub>-Niac Doped h13 Laser Cladding on Die Steel, <i>Jayant Thakare</i>, KCMI, Keshavnagar, India</p>		
4:40pm		<p><b>MB1-MoA-10</b> Optical Properties of Nanoscale Multi-Layered Ti/taC Thin Films, <i>K. Oh, J. Park</i>, Korea Aerospace University, Republic of Korea; <i>J. KIM, KIMS</i>, Republic of Korea; <i>Y. KIM</i>, Yonsei University, Republic of Korea; <i>SANGYUL LEE</i>, Korea Aerospace University, Republic of Korea</p>	
5:00pm		<p><b>MB1-MoA-11</b> Nanostructured Metal Thin Films with Enhanced Mechano-Optical Properties for Solar Radiation Isolation, <i>A. Xomalis</i>, NTNU Trondheim, Norway; <i>Barbara Putz</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>X. Zheng</i>, KU Leuven, Belgium; <i>A. Groetsch</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>G. Vandenbosch</i>, KU Leuven, Belgium; <i>J. Michler, J. Schwiedrzik</i>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland</p>	
5:20pm		<p><b>MB1-MoA-12</b> Strongly Thermochromic VO<sub>2</sub>-Based Smart Coatings for Room-Temperature Applications Prepared on Glass, <i>Michal Kaufman, J. Vlček, J. Houška, S. Farrukh</i>, University of West Bohemia, Czechia</p>	

# Monday Afternoon, May 20, 2024

<b>Protective and High-temperature Coatings</b> <b>Room Palm 5-6 - Session MA2-1-MoA</b> <b>Thermal and Environmental Barrier Coatings</b> <b>Moderators:</b> <b>Sabine Faulhaber</b> , University of California, San Diego, USA, <b>Pantcho Stoyanov</b> , Concordia University, Canada		<b>Protective and High-temperature Coatings</b> <b>Room Town &amp; Country D - Session MA3-2-MoA</b> <b>Hard and Nanostructured Coatings II</b> <b>Moderators: Marcus Günther</b> , Robert Bosch GmbH, Germany, <b>Rainer Hahn</b> , TU Wien, Institute of Materials Science and Technology, Austria, <b>Stanislav Haviar</b> , University of West Bohemia, Czechia, <b>Fan-Yi Ouyang</b> , National Tsing Hua University, Taiwan	
1:40pm	<b>INVITED: MA2-1-MoA-1</b> Oxygen Permeability, Degradation and Failure Analysis Formulated by Artificial Intelligence of Environmental Barrier Coatings under Adverse Environments Environments, <b>Kuiying Chen</b> , National Research Council of Canada; <b>K. Lee</b> , NASA Glenn Research Center, USA	<b>INVITED: MA3-2-MoA-1</b> In Operando Studies of Hard Coatings Using High-Energy X-Ray Diffraction, <b>Lina Rogström</b> , Linköping University, IFM, Sweden	
2:00pm			
2:20pm	<b>MA2-1-MoA-3</b> Effect of Thermal Barrier Coatings on the Thermal Management of a Jet Engine Combustion Chamber, <b>Rodrigue Beaini</b> , Polytechnique Montréal, Canada	<b>MA3-2-MoA-3</b> Exploring High Temperature Decomposition and Age Hardening in Wurtzite $Ti_{1-x}Al_xN_y$ ( $X=0.75$ to $0.98$ , $Y=0.82$ to $1$ ) Thin Films, <b>Janella Mae Rosario Salamina</b> , Seco Tools AB, Sweden; <b>F. Bock</b> , Linköping University, Sweden; <b>L. Johnson</b> , <b>K. Calamba Kwick</b> , <b>I. Schramm</b> , Sandvik Coromant, Sweden; <b>A. Farhadzadeh</b> , Linköping University, Sweden; <b>T. Hsu</b> , Sandvik Coromant, Sweden; <b>F. Tasnadi</b> , <b>I. Abrikosov</b> , <b>L. Rogström</b> , <b>M. Odén</b> , Linköping University, Sweden	
2:40pm	<b>MA2-1-MoA-4</b> Elevated Temperature Micro-Scale Impact Testing of Thermal Barrier Coatings for Erosion Simulation, <b>Ben Beake</b> , <b>J. Roberts</b> , Micro Materials Ltd, UK; <b>L. Isern</b> , <b>C. Chalk</b> , <b>J. Nicholls</b> , Cranfield University, UK	<b>MA3-2-MoA-4</b> Enhancing the Thermal Stability of $V_{0.25}Al_{0.25}N_{0.50}$ by Oxygen Incorporation, <b>Matej Fekete</b> , <b>D. Neuß</b> , <b>M. Hans</b> , <b>G. Nayak</b> , RWTH Aachen University, Germany; <b>Z. Czirány</b> , Center for Energy Research, Hungary; <b>S. Karimi Aghda</b> , RWTH Aachen University, Germany; <b>D. Primetzhofer</b> , Uppsala University, Sweden; <b>J. Sälker</b> , <b>J. Schneider</b> , RWTH Aachen University, Germany	
3:00pm	<b>MA2-1-MoA-5</b> Influence of Coating Variables on the Steam Oxidation of Modified Si / $Yb_2Si_2O_7$ Environmental Barrier Coatings, <b>Kang Lee</b> , <b>R. Webster</b> , <b>J. Stuckner</b> , <b>A. Garg</b> , <b>L. Wilson</b> , NASA Glenn Research Center, USA	<b>MA3-2-MoA-5</b> Interplay of Substrate Template Effects and Bias Voltage Regarding the Microstructure of Cathodic Arc Evaporated fcc- $Ti_{0.5}Al_{0.5}N$ Coatings, <b>Michael Tkadletz</b> , <b>N. Schalk</b> , <b>H. Waldl</b> , Montanuniversität Leoben, Austria; <b>B. Sartory</b> , <b>J. Wosik</b> , Materials Center Leoben Forschung GmbH, Austria; <b>J. Keckes</b> , <b>J. Todt</b> , Montanuniversität Leoben, Austria; <b>M. Burghammer</b> , European Synchrotron Radiation Facility, France; <b>C. Czettel</b> , CERATIZIT Austria GmbH, Austria; <b>M. Pohler</b> , Ceratizit Austria GmbH, Austria	
3:20pm	<b>MA2-1-MoA-6</b> Effect of Pre-Oxidation on the Growth of Thermally Grown Oxide and High Temperature Durability of Thermal Barrier Coatings, <b>Do Hyun Kim</b> , <b>Y. Kang</b> , <b>H. Kwon</b> , <b>Y. Yoo</b> , <b>Y. Park</b> , <b>S. Lee</b> , Korea Institute of Materials Science, Republic of Korea	<b>MA3-2-MoA-6</b> Decomposition of Single Crystal $Hf_{1-x}Al_xN$ Films Grown at High Temperatures and the Effect on Mechanical Properties, <b>Marcus Lorentzon</b> , Linköping Univ., IFM, Thin Film Physics Div., Sweden; <b>T. Zhu</b> , Nagoya University, Japan, China; <b>N. Takata</b> , Nagoya University, Japan; <b>S. Nayak</b> , <b>J. Palisaitis</b> , <b>G. Greczynski</b> , Linköping Univ., IFM, Thin Film Physics Div., Sweden; <b>J. Rosen</b> , Linköping University, IFM, Sweden; <b>J. Birch</b> , <b>N. Ghafoor</b> , Linköping Univ., IFM, Thin Film Physics Div., Sweden	
3:40pm	<b>BREAK</b>	<b>BREAK</b>	
4:00pm	<b>MA2-1-MoA-8</b> Correlative Microscopy and AI-assisted Image Analysis Synergetic Approach on High Temperature Applications Coatings, <b>Hugues Francois-Saint-Cyr</b> , Thermo Fisher Scientific, USA; <b>A. Scarpellini</b> , Thermo Fisher Scientific, Netherlands; <b>B. Winiarski</b> , Thermo Fisher Scientific, Czechia; <b>J. Yorston</b> , <b>R. Pelapur</b> , Thermo Fisher Scientific, USA	<b>MA3-2-MoA-8</b> Influence of the Thickness of $TiAlSiN$ on the Thermal Properties as Input Parameter for FEM-Simulation, <b>K. Bobzin</b> , <b>C. Kalscheuer</b> , <b>Nina Stachowski</b> , Surface Engineering Institute (IOT) - RWTH Aachen University, Germany; <b>B. Breidenstein</b> , <b>B. Bergmann</b> , <b>F. Grzeschik</b> , Institute of Production Engineering and Machine Tools (IFW) - Leibniz Universität Hannover, Germany	
4:20pm	<b>MA2-1-MoA-9</b> Characterization of $SiO_2$ Thermally Grown Oxide Kinetics and Stress Evolution of EBCs with Al-Containing Dopants, <b>Michael Lance</b> , <b>M. Ridley</b> , <b>B. Pint</b> , Oak Ridge National Laboratory, USA	<b>MA3-2-MoA-9</b> Non-Reactive Magnetron Sputtering of Ti-Al-N Coatings, <b>Balint Hajas</b> , <b>S. Bermanschlager</b> , <b>T. Wojcik</b> , TU Wien, Institute of Materials Science and Technology, Austria; <b>D. Primetzhofer</b> , Uppsala University, Angstrom Laboratory, Sweden; <b>S. Kolozsvari</b> , Plansee SE, Germany; <b>P. Mayrhofer</b> , TU Wien, Institute of Materials Science and Technology, Austria	
4:40pm	<b>MA2-1-MoA-10</b> Deposition and Characterization of Si-B-C-N Coatings by HiPIMS/RFMS Co-sputtering, <b>L. Chang</b> , Department of Materials Engineering, Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan; <b>Yun-Rui Zhang</b> , Department of Materials Engineering, Ming Chi University of Technology, Taiwan; <b>Y. Chiang</b> , International PhD Program in Plasma and Thin Film Technology Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan; <b>P. Huang</b> , <b>Y. Zhang</b> , <b>B. Jiang</b> , Department of Materials Engineering, Ming Chi University of Technology, Taiwan; <b>W. Chen</b> , Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan	<b>MA3-2-MoA-10</b> nc-SiC/a-C Coating for Industrial Applications, <b>Mojmir Jilek</b> , <b>O. Zindulka</b> , SHM sro, Czechia; <b>Z. Studeny</b> , University of Defence, Czech Republic	
5:00pm	<b>MA2-1-MoA-11</b> Influence of Gas Composition on the Growth Behavior of CVD Processed HfC Coatings for Ultra-high Temperature Application, <b>Byung-Hyuk Jun</b> , <b>J. Lee</b> , <b>D. Kim</b> , <b>H. Lee</b> , Korea Atomic Energy Research Institute, Republic of Korea	<b>MA3-2-MoA-11</b> Synthesis and Investigation of Crystalline $(Ta,Al)B_2$ and $AlB_2$ Thin Films, <b>Chun Hu</b> <sup>1</sup> , <b>S. Lin</b> , Institute of Materials Science and Technology, TU Wien, Austria; <b>P. Pöllmann</b> , <b>S. Mráz</b> , RWTH Aachen University, Germany; <b>T. Wojcik</b> , Institute of Materials Science and Technology, TU Wien, Austria; <b>J. Schneider</b> , RWTH Aachen University, Germany; <b>N. Koutná</b> , <b>P. Mayrhofer</b> , Institute of Materials Science and Technology, TU Wien, Austria	
5:20pm	<b>MA2-1-MoA-12</b> Promising $SiO_xNyCz$ Coatings for Glass Protection in Aggressive Chemical Media, <b>Farah Inoubli</b> , <b>B. Diallo</b> , CNRS/Université D'Orleans, France; <b>K. Topka</b> , Air Liquide Laboratories, Japan; <b>T. Sauvage</b> , CNRS/Université D'Orleans, France; <b>R. Laloo</b> , <b>V. Turq</b> , CNRS-CIRIMAT, France; <b>B. Caussat</b> , CNRS, France; <b>N. Pellerin</b> , CNRS/Université D'Orleans, France	<b>MA3-2-MoA-12</b> Tribocorrosion and Biocompatibility Analysis of Carbide-derived Carbon (CDC) Surface Modification for Hip Implants, <b>Yani Sun</b> <sup>1</sup> , <b>H. Kanniyappan</b> , <b>M. Karunanidhi</b> , <b>M. Daly</b> , <b>M. McNallan</b> , <b>M. Mathew</b> , University of Illinois at Chicago, USA	

# Monday Afternoon, May 20, 2024

	<p><b>Surface Engineering - Applied Research and Industrial Applications</b>  <b>Room Town &amp; Country C - Session IA1-MoA</b>  <b>Advances in Application Driven Research and Hybrid Systems, Processes and Coatings</b>  <b>Moderators: Ladislav Bardos</b>, Uppsala University, Sweden,  <b>Vikram Bedekar</b>, Timken Company, USA,  <b>Hana Barankova</b>, Uppsala University, Sweden</p>	<p><b>Topical Symposium on Sustainable Surface Engineering</b>  <b>Room Town &amp; Country B - Session TS1-2-MoA</b>  <b>Coatings for Batteries and Hydrogen Applications II</b>  <b>Moderators:</b>  <b>Nazlim Bagcivan</b>, Schaeffler Technologies GmbH &amp; Co. KG, Germany</p>
1:40pm	<p><b>INVITED: IA1-MoA-1</b> PVD Thin Film Coating Materials in Semiconductors and Impact of CHIPS Act, <b>Shlok Sundaresh</b>, Tosoh SMD, Inc., USA</p>	<p><b>TS1-2-MoA-1</b> Effect of Atomic Layer Deposited Films on Three-Dimensional Electrodes for Lithium-Ion Batteries, <b>P. Lin</b>, National Chung Hsing University, Taiwan; <b>Chih-Liang Wang</b>, National Tsing Hua University, Taiwan</p>
2:00pm		<p><b>TS1-2-MoA-2</b> Mechanism Study of <math>\text{MoO}_x/\text{TiO}_2</math> as the Anode of Lithium Ion Battery by Various In Situ Techniques, <b>Zhen Chong</b>, National Cheng Kung University (NCKU), Taiwan; <b>Y. Shen</b>, Hierarchical Green-Energy Materials Research Center (HI-GEM), Taiwan; <b>J. Huang</b>, National Cheng Kung University (NCKU), Taiwan</p>
2:20pm	<p><b>IA1-MoA-3</b> Production and Characterization of Coating-Substrate Combinations for Ceramic Data Storage Media, <b>Erwin Peck</b>, TU Wien, Institute of Materials Science and Technology, Austria; <b>B. Hajas</b>, TU Wien, Austria; <b>A. Kirnbauer</b>, <b>L. Kreuziger</b>, TU Wien, Institute of Materials Science and Technology, Austria; <b>C. Pflaum</b>, Ceramic data solutions holding GmbH, Germany; <b>G. Liedl</b>, TU Wien, Austria; <b>P. Mayrhofer</b>, TU Wien, Institute of Materials Science and Technology, Austria</p>	<p><b>TS1-2-MoA-3</b> Effects of Additives on Electrochemical Performance of Sodium Ion Batteries, <b>Ting Ching Lin</b>, <b>J. Huang</b>, National Cheng Kung University (NCKU), Taiwan; <b>C. Chang</b>, National University of Tainan, Taiwan</p>
2:40pm	<p><b>INVITED: IA1-MoA-4</b> Microstructure Tuning of MXene (<math>\text{Ti}_3\text{C}_2\text{T}_x</math>) Systems for Device Applications, <b>Sangeeta Kale</b>, <b>S. Kale</b>, <b>D. Sable</b>, Defence Institute of Advanced Technology, India</p>	<p><b>TS1-2-MoA-4</b> Effect of <math>\text{SiO}_x/\text{RGO}</math> via Phosphorus Doping as Anode Materials for Lithium-Ion Batteries, <b>Wen-Feng Lin</b>, <b>J. Huang</b>, <b>S. Brahma</b>, National Cheng Kung University (NCKU), Taiwan; <b>Y. Shen</b>, Hierarchical Green-Energy Materials Research Center (HI-GEM), Taiwan</p>
3:00pm		<p><b>TS1-2-MoA-5</b> The Research of Different Pre-Lithiation Methods to Enhance Coulombic Efficiency of <math>\text{SnO}_2</math> Modified <math>\text{TiO}_2</math> as Anode Material in Lithium-Ion Battery, <b>Cheng-Hsun Ho</b>, <b>J. Huang</b>, National Cheng Kung University (NCKU), Taiwan; <b>Y. Shen</b>, Hierarchical Green-Energy Materials Research Center (HI-GEM), Taiwan</p>
3:20pm	<p><b>IA1-MoA-6</b> Decorative Coatings in Watch Making Industry: From Laboratory to Industry, <b>Joël Matthey</b>, Positive Coating SA, Switzerland; <b>O. Banakh</b>, Haute Ecole Arc Ingénierie, Switzerland; <b>L. Steinmann</b>, Positive Coating SA, Switzerland</p>	<p><b>TS1-2-MoA-6</b> Study on the Characteristics of Garnet-Type Solid Electrolytes in Lithium Metal Solid-State Batteries with Multilayer Interfaces, <b>Hung-Ju Chen</b>, <b>J. Hung</b>, <b>S. Lin</b>, National Cheng Kung University (NCKU), Taiwan</p>
3:40pm	<b>BREAK</b>	<b>BREAK</b>
4:00pm	<p><b>INVITED: IA1-MoA-8</b> Real-Time Particle Detection for Enhanced Coating Deposition Processes, <b>Sylvain LeCoultré</b>, <b>C. Rieille</b>, Berner Fachhochschule ALPS, Switzerland</p>	<p><b>TS1-2-MoA-8</b> Characterization Study of Sustainable Lithium Ion Battery with Cathode of Recycled <math>\text{LiNi}_x\text{Mn}_y\text{Co}_{1-x-y}\text{O}_2</math> (NMC), <b>Yi-Chieh Tseng</b>, National Cheng Kung University (NCKU), Taiwan; <b>Y. Shen</b>, Hierarchical Green-Energy Materials Research Center, Taiwan; <b>J. Huang</b>, National Cheng Kung University (NCKU), Taiwan</p>
4:20pm		<p><b>TS1-2-MoA-9</b> Investigation of Y-doped <math>\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}</math>(Y-LLZO) Coatings by Colloidal Coating Process for the Electrolyte of all Solid-state Battery, <b>Yen-Yu Chen</b>, <b>G. Yao</b>, National Pingtung University of Science and Technology, Taiwan; <b>X. Yan</b>, Chinese Culture University, Taiwan</p>
4:40pm	<p><b>IA1-MoA-10</b> Microscopic Characterization of Optical Properties and Film Thickness Using Imaging Spectroscopic Ellipsometry, <b>Hanaul Noh</b>, Park Systems, USA</p>	
5:00pm	<p><b>IA1-MoA-11</b> Plasma PVD by Small Spiral Ta Hollow Cathode, <b>H. Baranková</b>, <b>N. Suntornwipat</b>, <b>Ladislav Bardos</b>, Uppsala University, Angstrom Laboratory, Sweden</p>	
5:20pm	<p><b>IA1-MoA-12</b> Improvement of Surface Adhesion of Fluoropolymer Using Linear Ion Beam Source, <b>Sunghoon Jung</b>, <b>J. Yang</b>, <b>E. Byeon</b>, <b>D. Kim</b>, <b>S. Lee</b>, <b>J. Park</b>, Korea Institute of Materials Science, Republic of Korea</p>	

# Monday Afternoon, May 20, 2024

<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Palm 1-2 - Session MC1-2-MoA</b> <b>Friction, Wear, Lubrication Effects, and Modeling II</b> <b>Moderators: Michael Chandross, Sandia National Labs, USA,</b> <b>Manel Rodriguez Ripoll, AC2T Research GmbH, Austria</b>		
1:40pm	<b>INVITED: MC1-2-MoA-1</b> Thermally Sprayed Hardmetal Coatings - Strategies for Replacement of WC-Co(Cr), <b>Lutz-Michael Berger, J. Pötschke, S. Conze</b> , Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany	
2:00pm		
2:20pm	<b>MC1-2-MoA-3</b> Tribological Properties of Metallic Surfaces Obtained by 3D Additive Manufacturing (Laser Metal Deposition Process), for Repairing Applications, <b>T. ZURCHER, E. CHARKALUK</b> , Ecole Polytechnique, France; <b>Vincent FRIDRICI</b> , Ecole Centrale de Lyon - LTDS, France	
2:40pm	<b>MC1-2-MoA-4</b> Self-Lubricating Coatings by Laser Metal Deposition for Mitigating Adhesion During Forming of Aluminum Alloys, <b>Manel Rodriguez Ripoll, K. Pichelbauer, H. Torres</b> , AC2T Research GmbH, Austria; <b>B. Podgornik</b> , Institute of Metals and Technology, Slovenia	
3:00pm	<b>MC1-2-MoA-5</b> Tribological Study of Magnetron Spurred W-S-(C) Thin Films Sliding Against Aluminium at High Temperatures, <b>Todor Vuchkov, S. Jahan Sunny, A. Cavaleiro</b> , University of Coimbra, Portugal	
3:20pm	<b>MC1-2-MoA-6</b> Improved Anti-Friction of Diamond-Like Carbon Incorporating Titanium, <b>Jae-II Kim, Y. Jang, J. Kim</b> , Korea Institute of Materials Science (KIMS), Republic of Korea; <b>N. Umehara</b> , Nagoya University, Japan	
3:40pm	<b>BREAK</b>	
4:00pm	<b>MC1-2-MoA-8</b> Understanding the Tribological Mechanisms of TiO <sub>2</sub> Thin Layers: The Role of Composition and Structure of the Oxide Layer on Wear in Relation to Color Variation, <b>Sarah Marion, M. LENCI</b> , Mines Saint-Etienne, Université de Lyon, CNRS, France; <b>C. MINFRAY, V. FRIDRICI</b> , Laboratoire de Tribologie et Dynamique des Systèmes, Université de Lyon, Ecole Centrale de Lyon, France; <b>L. DUBOST, IREIS, HEF group</b> , France; <b>J. FAUCHEU, R. CHARRIERE</b> , Mines Saint-Etienne, Université de Lyon, CNRS, France	
4:20pm	<b>MC1-2-MoA-9</b> Tribocorrosion Behaviours of TiZrNbTaFeC High Entropy Carbide Coatings by Superimposed HiPIMS and MF System, <b>Ismail Rahmadtulloh, C. Wang</b> , National Taiwan University of Science and Technology, Taiwan; <b>B. Lou</b> , Chang Gung University, Taiwan; <b>J. Lee</b> , Ming Chi University of Technology, Taiwan	
4:40pm	<b>MC1-2-MoA-10</b> Friction and Wear of a-C:H and a-C:H:Si Coatings Sliding Against Different Counterpart Materials Under Dry and Moist Environments, <b>Francisco A. Delfin</b> , National University of Technology, Regional Faculty of Concepción del Uruguay (UTN – FRCU), Argentina; <b>J. Jeoffrey</b> , Universiti Teknologi Petronas, Malaysia; <b>M. Schachinger, C. Forsich</b> , University of Applied Sciences Upper Austria; <b>S. Brühl</b> , National University of Technology, Regional Faculty of Concepción del Uruguay (UTN – FRCU), Argentina; <b>D. Heim</b> , University of Applied Sciences Upper Austria	
5:00pm	<b>MC1-2-MoA-11</b> Evaluation of the Sliding Wear Performance of Binary CrN and Nanocomposite CrSiCN Coatings in Arctic Environments, <b>N. D'Attilio, Forest Thompson, N. Madden</b> , South Dakota School of Mines and Technology, USA; <b>E. Asenath-Smith</b> , US Army Corps of Engineers Cold Regions Research and Engineering Laboratory, USA; <b>G. Crawford</b> , South Dakota School of Mines and Technology, USA	
5:20pm	<b>MC1-2-MoA-12</b> Designing Hydrogen-Free Thick Diamond Like Multilayer Carbon Coatings for Load Bearing Applications, <b>Muhammad Usman</b> , City University of Hong Kong	

# Tuesday Morning, May 21, 2024

<b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b> <b>Room Palm 3-4 - Session CM2-2-TuM</b> <b>Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes II: Fracture and Fatigue</b> <b>Moderator:</b> <b>Matteo Ghidelli, CNRS, France</b>		<b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b> <b>Room Palm 5-6 - Session CM4-2-TuM</b> <b>Simulations, Machine Learning and Data Science for Materials Design and Discovery II</b> <b>Moderators: Po-Liang Lu, National Chung Hsing Univ., Taiwan, Ferenc Tasnadi, Linköping University, Sweden</b>	
8:00am	<b>INVITED: CM2-2-TuM-1</b> Minimizing FIB Artifacts in Microcantilever Fracture: A Case Study on the Role of Grain Boundaries in Microfracture, <b>Subin Lee, Y. Zhang</b> , Karlsruhe Institute of Technology (KIT), Germany; <b>S. Brinckmann</b> , Forschungszentrum Jülich GmbH, Germany; <b>M. Bartosik</b> , Montanuniversität Leoben, Austria; <b>C. Kirchlechner</b> , Karlsruhe Institute of Technology (KIT), Germany	<b>INVITED: CM4-2-TuM-1</b> DFT + ML + Calphad: From Qualitative to Quantitative Phase Stability Predictions, <b>Moritz to Baben, P. Keuter, C. Früh, B. Reis, F. Tang</b> , GTT-Technologies, Germany	
8:20am			
8:40am	<b>CM2-2-TuM-3</b> Exploring Crystalline-Amorphous Interface Fracture Across Different Length Scales, <b>Alice Lassnig</b> , UC Berkeley, USA; <b>C. Gammer, M. Cordill</b> , Austrian Academy of Sciences, Austria; <b>A. Minor</b> , UC Berkeley, USA	<b>CM4-2-TuM-3</b> Cu-Zr-Al Thin Film Metallic Glasses in a Wide Range of Compositions and Growth Conditions, <b>Jiri Houska, P. Zeman</b> , University of West Bohemia, Czechia	
9:00am	<b>CM2-2-TuM-4</b> Influence of Annealing-Induced Substrate Element Diffusion on the Microstructure and Mechanical Properties of TiN/TiCN Coatings Synthesized using Chemical Vapor Deposition, <b>Fabian Konstantiniuk, M. Schiester</b> , Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leoben, Austria; <b>M. Tkadletz</b> , Department of Materials Science, Montanuniversität Leoben, Austria; <b>C. Czetti</b> , CERATIZIT Austria GmbH, Austria; <b>N. Schalk</b> , Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leoben, Austria	<b>CM4-2-TuM-4</b> Impact of TM Elements on Structural, Thermodynamic and Mechanical Properties of CrN, <b>David Holec</b> , Montanuniversität Leoben, Austria; <b>P. Mayrhofer</b> , TU Wien, Institute of Materials Science and Technology, Austria	
9:20am	<b>CM2-2-TuM-5</b> Mechanical Properties of Thin Films Deposited by HiPIMS onto Flexible Substrates, <b>Tereza Kosutova</b> , Uppsala University, Department of Electrical Engineering, Sweden; <b>M. Tavares da Costa</b> , Karlstad University, Sweden; <b>K. Gamstedt</b> , Uppsala University, Department of Materials Science and Engineering, Sweden; <b>D. Drozdenko</b> , Charles University, Czechia; <b>T. Kubart</b> , Uppsala University, Department of Electrical Engineering, Sweden	<b>CM4-2-TuM-5</b> Fracture Toughness: Atomistic Understanding of Directional and Temperature Dependence for the case of $Ti_{1-x}Al_xN_y$ , <b>Davide Sangiovanni</b> , Linköping University, Sweden	
9:40am	<b>CM2-2-TuM-6</b> Fatigue-Induced Abnormal Grain Growth in Metallic Thin Films, <b>Q. Li</b> , Georgia Institute of Technology, USA; <b>A. Barrios</b> , Colorado School of Mines, USA; <b>Y. Yang</b> , Georgia Institute of Technology, USA; <b>M. Jain</b> , Sandia National Laboratories, USA; <b>Y. Liu</b> , Georgia Institute of Technology, USA; <b>B. Boyce</b> , Sandia National Laboratories, USA; <b>T. Zhu, Olivier Pierron</b> , Georgia Institute of Technology, USA	<b>CM4-2-TuM-6</b> Exploring Surface Energy and Work Function Changes in ZnGa <sub>2</sub> O <sub>4</sub> (111) via Ab Initio Studies, <b>Po-Liang Liu, Y. Lin</b> , National Chung Hsing University, Taiwan	
10:00am	<b>CM2-2-TuM-7</b> Nanoscale Fatigue Measurements on Diamond-Like Carbon Coatings, <b>Joshua Vetter, M. Günther, P. Hofmann, S. Grosse</b> , Robert Bosch GmbH, Germany; <b>S. Schmauder</b> , University of Stuttgart, Germany	<b>CM4-2-TuM-7</b> CM4 Flash Session	
10:20am	<b>CM2-2-TuM-8</b> Bending Fatigue Testing of 3D-printed PETG and ABS to Investigate Feasibility for Tidal Turbine Blades, <b>H. Myers</b> , Oxford University, UK; <b>Y. Chen, Steve Bull</b> , Newcastle University, UK		

# Tuesday Morning, May 21, 2024

<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP1-1-TuM</b> <b>PVD Coating Technologies I</b> <b>Moderators:</b> <b>Christian Kalscheuer</b> , RWTH Aachen University, Germany, <b>Vladimir Pankov</b> , National Research Council of Canada		<b>Protective and High-temperature Coatings</b> <b>Room Palm 1-2 - Session MA1-1-TuM</b> <b>Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling I</b> <b>Moderators:</b> <b>Gustavo García-Martín</b> , REP-Energy Solutions, Spain, <b>Justyna Kulczyk-Malecka</b> , Manchester Metropolitan Univ, UK, <b>Eli Ross</b> , Pratt & Whitney, USA	
8:00am	<b>INVITED: PP1-1-TuM-1</b> Discharges Modes Relevant to Plasma-Based Coatings: an Analysis of Their Physics and Economics, <b>Andre Anders</b> , Leibniz Inst. of Surface Eng. (IOM), Germany		
8:20am		<b>INVITED: MA1-1-TuM-2</b> Tunable Aluminide Coatings for Surface Finish and Improved Oxidation and Hot Corrosion Behaviour of Additive Manufactured Ni-Based Superalloys, <b>Fernando Pedraza</b> , D. PIEL, T. KEPA, La Rochelle University, France	
8:40am	<b>PP1-1-TuM-3</b> Design of an Innovative Cathodic Arc Source with High Deposition Rate and Low Macroparticles Generation, <b>Raül Bonet</b> , Eurecat Technological Center of Catalonia, Spain; <b>L. Carreras</b> , Tratamientos Térmicos Carreras S.A, Spain; <b>J. Orrit-Prat</b> , <b>J. Caro</b> , Eurecat Technological Center of Catalonia, Spain		
9:00am	<b>PP1-1-TuM-4</b> Ta <sub>x</sub> Thin Film Synthesis from an Industrial-Sized DC Vacuum Arc Source, <b>Igor Zhirkov</b> , <b>A. Petruhins</b> , <b>A. Shamshirgar</b> , Materials Design Division, IFM, Linköping University, Sweden; <b>S. Kolozsvári</b> , <b>P. Polcik</b> , PLANSEE Composite Materials GmbH, Germany; <b>J. Rosen</b> , Materials Design Division, IFM, Linköping University, Sweden	<b>MA1-1-TuM-4</b> Application of Machine Learning Algorithms to Characterize Aluminide Diffusion Coatings and to Predict their Ageing Behavior, <b>Vladislav Kolarik</b> , <b>M. Juez Lorenzo</b> , Fraunhofer Institute for Chemical Technology ICT, Germany; <b>P. Praks</b> , IT4Innovations National Supercomputing Center, VSB - Technical University of Ostrava, Czechia; <b>R. Praksava</b> , IT4Innovation National Supercomputing Center, VSB - Technical University of Ostrava, Czechia	
9:20am	<b>INVITED: PP1-1-TuM-5</b> Plasma Enhanced Magnetron Sputtering and Its Applications in Industry, <b>Jianliang Lin</b> , Southwest Research Institute, USA	<b>MA1-1-TuM-5</b> Pack-Aluminizing Mechanisms in Stainless Steel Additively Manufactured, <b>E. B. Varela</b> , PGMEC-Universidade Federal do Paraná, Brazil; <b>H. Abreu-Castillo</b> , PIPE - Universidade Federal do Paraná, Brazil; <b>G. Prass</b> , <b>J. Pacheco</b> , Instituto SENAI de Inovação em processamento a laser, Brazil; <b>Ana Sofia C. M. D'Oliveira</b> , Universidade Federal do Paraná, Brazil	
9:40am		<b>MA1-1-TuM-6</b> Synthesis of Novel Multi-Element TM-Aluminides by Multilayer Magnetron Sputtering, <b>Vincent Ott</b> , <b>M. Duerrschnabel</b> , <b>U. Jaentsch</b> , <b>M. Klimenkov</b> , <b>S. Ulrich</b> , <b>M. Stueber</b> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany	
10:00am	<b>PP1-1-TuM-7</b> Sustainable and Economical Production of High-Quality HIPIMS Coatings, <b>Stephan Bolz</b> , <b>B. Mesic</b> , <b>O. Lemmer</b> , <b>C. Schiffers</b> , CemeCon AG, Germany	<b>MA1-1-TuM-7</b> Structural Evolution and Oxidation Resistance of Al/Si Alloyed Transition Metal Carbide Thin Films, <b>Sophie Richter</b> , Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; <b>E. Ntemou</b> , <b>D. Primetzhofner</b> , Department of Physics and Astronomy, Uppsala University, Sweden; <b>T. Wojcik</b> , Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; <b>O. Hunold</b> , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <b>S. Kolozsvári</b> , <b>P. Polcik</b> , Plansee Composite Materials GmbH, Germany; <b>J. Ramm</b> , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <b>H. Riedl</b> , Institute of Materials Science and Technology, TU Wien, Austria	
10:20am	<b>PP1-1-TuM-8</b> Increasing the Metal Ion Flux Fraction in Industrial Conditions, <b>Peter Klein</b> , <b>J. Hnilica</b> , Masaryk University, Czechia; <b>V. Sochora</b> , SHM s.r.o., Czechia; <b>P. Vašina</b> , Masaryk University, Czechia	<b>MA1-1-TuM-8</b> Hot Corrosion of Arc Evaporated Ti <sub>1-x</sub> Al <sub>x</sub> N on Ni-Cr-Co Based Superalloys, <b>O. Hudak</b> , <b>A. Scheiber</b> , <b>P. Kutrowatz</b> , <b>T. Wojcik</b> , Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; <b>J. Ramm</b> , <b>O. Hunold</b> , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <b>S. Kolozsvári</b> , <b>P. Polcik</b> , Plansee Composite Materials GmbH, Germany; <b>Helmut Riedl</b> , Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria	
10:40am	<b>PP1-1-TuM-9</b> Unraveling the Dynamics of Reactive Magnetron Sputtering: Insights into Feedback Control, Metastable Conditions, and Long-term Stability, <b>Josja Van Bever</b> , <b>K. Strijckmans</b> , <b>D. Depla</b> , Ghent University, Belgium	<b>MA1-1-TuM-9</b> Characterization of Li-rich Corrosion Products Formed onto Aluminized and Uncoated Steels after Molten Carbonates Exposure, <b>P. Audigié</b> , <b>S. Rodríguez</b> , <b>Alina Agüero</b> , Instituto Nacional de Técnica Aeroespacial (INTA), Spain	

# Tuesday Morning, May 21, 2024

	<p><b>Protective and High-temperature Coatings</b>  <b>Room Town &amp; Country D - Session MA3-3-TuM</b>  <b>Hard and Nanostructured Coatings III</b>  <b>Moderators:</b> Marcus Günther, Robert Bosch GmbH, Germany,  <b>Rainer Hahn</b>, TU Wien, Institute of Materials Science and Technology, Austria,  <b>Stanislav Haviar</b>, University of West Bohemia, Czechia,  <b>Fan-Yi Ouyang</b>, National Tsing Hua University, Taiwan</p>	<p><b>Surface Engineering - Applied Research and Industrial Applications</b>  <b>Room Town &amp; Country C - Session IA2-1-TuM</b>  <b>Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications I</b>  <b>Moderators:</b>  <b>Jan-Ole Achenbach</b>, KCS Europe GmbH, Germany,  <b>Masaki Okude</b>, Mitsubishi Materials Corporation, Japan</p>
8:00am	<p><b>MA3-3-TuM-1</b> Physical Properties of Pure Tantalum Nitrides Thin Films, <b>Angeline Poulon-Quintin</b>, Univ. Bordeaux, CNRS, ICMCB, France; <b>A. Achille</b>, ICMCB, CNRS, France; <b>D. Michau</b>, CNRS, ICMCB, France; <b>M. Cavarroc</b>, SAFRAN, France</p>	<p><b>IA2-1-TuM-1</b> Influence of Plasma Carburizing on Corrosion Behavior and Interfacial Contact Resistance of Austenitic Stainless Steels, <b>Phillip Marvin Reinders</b>, <b>P. Kaestner</b>, <b>G. Bräuer</b>, Technische Universität Braunschweig, Germany</p>
8:20am	<p><b>MA3-3-TuM-2</b> Magnetron Sputtered Cr<sub>1-x</sub>Ta<sub>x</sub> Coatings, <b>Jan-Ove Söhngen</b>, <b>V. Ott</b>, <b>S. Ulrich</b>, <b>M. Stueber</b>, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany</p>	<p><b>IA2-1-TuM-2</b> Laser-Induced Diffusion of an Aluminum Clad in an Aerospace Aluminum Alloy: Microstructure and Corrosion Behavior, <b>Milton Lima</b>, <b>E. Morais</b>, <b>S. Silva</b>, <b>R. Siqueira</b>, Institute for Advanced Studies, Brazil</p>
8:40am	<p><b>INVITED: MA3-3-TuM-3</b> Overview and Trends in Application Driven Developments of Wear Resistant Coatings, <b>Denis Kurapov</b>, Oerlikon Surface Solutions AG Pfäffikon, Zweigniederlassung Balzers, Liechtenstein</p>	<p><b>IA2-1-TuM-3</b> Tribological and Corrosion Behaviour of Crn and AlCrn Coatings over Nitrided Medium Alloy Steel, <b>J. Maskavizan</b>, <b>E. Dalibon</b>, National University of Technology (UTN), Argentina; <b>Sonia Brühl</b>, National University of Technology (UTN), Argentina</p>
9:00am		<p><b>IA2-1-TuM-4</b> Influence of the Cathodic Bias Parameters on Corrosion Resistance in the Micro-Arc Oxidation Coating of AZ31B Magnesium Alloy, <b>Shih-Yen Huang</b>, <b>Y. Lee</b>, <b>Y. Chu</b>, National Taiwan University, Taiwan</p>
9:20am	<p><b>MA3-3-TuM-5</b> Enhancing the Thermal Stability and Cutting Performance of fcc-AlCrN by Oxygen Incorporation, <b>A. Michau</b>, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <b>Tomasz Wojcik</b>, <b>P. Kutrowatz</b>, Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; <b>D. Kurapov</b>, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <b>H. Riedl</b>, Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria</p>	<p><b>INVITED: IA2-1-TuM-5</b> Nanolubricants: Pioneering Sustainable Solutions for the Lubrication Industry, <b>Anirudha Sumant</b>, Argonne National Laboratory, USA</p>
9:40am	<p><b>MA3-3-TuM-6</b> Enhancing Toughness in Nanocomposite AlCrSiN Thin Films by Crack Deflection at Sublayers: Correlating Microstructure and Micromechanical Properties, <b>Kevin Kutlesa</b>, <b>M. Meindlhuber</b>, Montanuniversität Leoben, Austria; <b>A. Lassnig</b>, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; <b>R. Daniel</b>, Montanuniversität Leoben, Austria; <b>A. Medjahed</b>, ESRF, France; <b>J. Keckes</b>, Montanuniversität Leoben, Austria</p>	
10:00am	<p><b>MA3-3-TuM-7</b> Mechanical Properties and Tribological Performance of AlCrMoN/TiSiN Nanostructured Multilayer Coatings, <b>Ming-Xun Yang</b>, <b>Y. Chang</b>, National Formosa University, Taiwan</p>	<p><b>IA2-1-TuM-7</b> Structural – Tribological Performance Evaluation of Ti-6Al-4V ELI Alloy after Sequential Surface Treatments, <b>Daniel Tobola</b>, <b>P. Chandran</b>, Łukasiewicz Research Network – Krakow Institute of Technology, Poland; <b>J. Morgiel</b>, Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland</p>
10:20am	<p><b>MA3-3-TuM-8</b> Influence of Deposition Pressure and Gas Mixture on the Microstructure and Phase Composition of Arc Evaporated TiSiN Coatings, <b>Nina Schalk</b>, <b>Y. Moritz</b>, <b>G. Nayak</b>, <b>D. Holec</b>, Montanuniversität Leoben, Austria; <b>C. Hugenschmidt</b>, Technical University of Munich, Germany; <b>V. Burwitz</b>, Technical University Munich, Germany; <b>L. Mathes</b>, Technical University of Munich, Germany; <b>C. Saringer</b>, Montanuniversität Leoben, Austria; <b>C. Czettl</b>, <b>M. Pohler</b>, CERATIZIT Austria GmbH, Austria; <b>M. Tkadletz</b>, Montanuniversität Leoben, Austria</p>	<p><b>IA2-1-TuM-8</b> Wear Particle Emission Influenced by Surface Conditions of an Alumina-Coated Cast Iron Disc, <b>Ran Cai</b>, <b>X. Nie</b>, University of Windsor, Canada; <b>Y. Lyu</b>, Lund University, Sweden</p>
10:40am	<p><b>MA3-3-TuM-9</b> Enhanced Mechanical Properties and Thermal Stability of Novel Nanocrystalline AlNi / Al<sub>2</sub>O<sub>3</sub> Multi-layered Coatings Deposited by a Combined Physical Vapour Deposition and Atomic Layer Deposition Approach, <b>Hendrik Constantin Jansen</b>, EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland</p>	<p><b>IA2-1-TuM-9</b> Metal Coated Carbon Fiber EMI Shielding Material, <b>Y. Li</b>, National United University, Taiwan; <b>H. Chen</b>, Michigan State University, USA; <b>S. Chen</b>, National Yang Ming Chiao Tung University, Taiwan; <b>H. Yang</b>, <b>Z. Hsieh</b>, <b>Chien-Chon Chen</b>, National United University, Taiwan</p>

# Tuesday Morning, May 21, 2024

<b>Topical Symposium on Sustainable Surface Engineering</b> <b>Room Town &amp; Country B - Session TS1-3-TuM</b> <b>Coatings for Batteries and Hydrogen Applications III</b> <b>Moderators:</b> <b>Nazlim Bagcivan</b> , Schaeffler Tech GmbH & Co. KG, Germany, <b>Chen-Hao Wang</b> , National Taiwan University of Science and		
8:00am	<b>INVITED: TS1-3-TuM-1</b> Oxygen Vacancy in Atomic Metal Oxide Clusters Demonstrate Outstanding Electrochemical Activity, <b>Tsan-Yao Chen</b> , National Tsing Hua University, Taiwan; <b>K. Wang</b> , National Central University, Taiwan	
8:20am		
8:40am	<b>TS1-3-TuM-3</b> Enabling Lightweight PEMFCs Based on PVD-Coated Aluminium Bipolar Plates for Aviation Applications, <b>Parnia Navabpour</b> , <b>G. Sanzone</b> , <b>S. Field</b> , Teer Coatings Limited, UK; <b>K. Zhang</b> , University of Birmingham, UK; <b>H. Sun</b> , Teer Coatings Limited, UK	
9:00am	<b>TS1-3-TuM-4</b> Tailoring Tungsten Compositions alongside VNbMoTaWO Deposited on Graphite Felt Electrode via HIPIMS for Performance Enhancement in Vanadium Redox Flow Batteries, <b>KRISHNAKANT TIWARI</b> , <b>C. Wang</b> , National Taiwan University of Science and Technology, Taiwan; <b>B. Lou</b> , Chang Gung University, Taiwan; <b>J. Lee</b> , Ming Chi University of Technology, Taiwan, Republic of China	
9:20am	<b>TS1-3-TuM-5</b> Influence of Composition and Microstructure on the Hydrogen Desorption Temperature and Storage Capacity of $Ti_xZr_{1-x}$ Thin Films, <b>Ido Zukerman</b> , <b>M. Buzaglo</b> , NRCN, Israel; <b>S. Hayun</b> , Ben Gurion University, Israel	
9:40am	<b>TS1-3-TuM-6</b> Grazing Magnetron Sputtering of $Cu_xO-MoS_2$ Electrodes for Hydrogen Production, <b>J. Castro</b> , <b>D. Cavaleiro</b> , University of Coimbra, Portugal; <b>M. Lima</b> , University of Minho, Portugal; <b>Albano Cavaleiro</b> , <b>S. Carvalho</b> , University of Coimbra, Portugal	



# Tuesday Morning, May 21, 2024

**Exhibitors Keynote Lecture**  
**Room Town & Country A - Session EX-TuM**  
**Exhibition Keynote Lecture**  
**Moderator:**  
**Jyh-Wei Lee**, Ming Chi University of Technology, Taiwan

11:00am **INVITED: EX-TuM-1** Material Innovations and Challenges of Thin Films and Plasma Applications for 3 nm Node and Beyond, *Samuel Chiu*, Applied Materials, Taiwan

11:20am

# Tuesday Afternoon, May 21, 2024

<b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b> <b>Room Palm 3-4 - Session CM1-2-TuA</b> <b>Spatially-resolved and In-Situ Characterization of Thin Films and Engineered Surfaces II</b> <b>Moderators: Naureen Ghafoor, Linköping University, Sweden, Michael Tkadletz, Montanuniversität Leoben, Austria</b>		<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP1-2-TuA</b> <b>PVD Coating Technologies II</b> <b>Moderators:</b> <b>Christian Kalscheuer, RWTH Aachen University, Germany, Vladimir Pankov, National Research Council of Canada</b>	
1:40pm	<b>INVITED: CM1-2-TuA-1</b> Structural Evolution of Nanoparticles Under Realistic Conditions Observed with Bragg Coherent X-Ray Imaging, <i>Marie-Ingrid Richard</i> , CEA Grenoble, France	1:40pm	<b>INVITED: PP1-2-TuA-1</b> Use of van der Waals Layers and Ultrahigh Vacuum Environment to Control Composition and Crystallinity in Sputter-Deposited Thin Films, <i>Suneel Kodambaka</i> , Virginia Tech, USA; <i>K. Tanaka</i> , <i>A. Deshpande</i> , <i>P. Arias</i> , <i>A. Aleman</i> , <i>H. Zaid</i> , <i>M. Liao</i> , University of California at Los Angeles, USA; <i>C. Ciobanu</i> , Colorado School of Mines, US; <i>M. Goorsky</i> , University of California at Los Angeles, USA
2:00pm		2:00pm	
2:20pm	<b>INVITED: CM1-2-TuA-3</b> Pulsed Laser Deposition (PLD) <i>in-situ</i> Neutron and X-ray Investigations--Lab-scale PLD <i>in-situ</i> ARPES, XRD, XRR on Liquid Jet X-Ray Source, <i>Aleksandr Goikhman</i> , Koenigs Systems, Germany; <i>A. Grunin</i> , <i>K. Maksimova</i> , Koenig Systems, Germany	2:20pm	<b>PP1-2-TuA-3</b> Methods for Rapid Modeling of PVD Processes to Establish a Digital Twin of a Coater, <i>Stephane Lucas</i> , Laboratoire d'Analyse par Réactions Nucléaires (LARN), Namur Institute of Structured Matter (NISM), University of Namur, Belgium; <i>G. Atanasoff</i> , AccuStrata, USA; <i>P. Moskovkin</i> , <i>J. Muller</i> , Laboratoire d'Analyse par Réactions Nucléaires (LARN), Namur Institute of Structured Matter (NISM), University of Namur, Belgium; <i>E. Hoyer</i> , Innovative Coating Solutions - ICS., Belgium
2:40pm		2:40pm	<b>PP1-2-TuA-4</b> Generating Spokes in Direct Current Magnetron Sputtering Discharges by an Azimuthal Strong-to-Weak Magnetic Field Strength Transition, <i>Martin Rudolph</i> , <i>W. Diyatmika</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>O. Rattunde</i> , <i>E. Schuengel</i> , Evatec AG, Switzerland; <i>D. Kalanov</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>J. Patscheider</i> , Evatec AG, Switzerland; <i>A. Anders</i> , Leibniz Institute of Surface Engineering (IOM), Germany
3:00pm	<b>CM1-2-TuA-5</b> Grain Boundary Segregation/Complexions in MT-CVD Ti(C,N) Thin Hard Coatings Analyzed by Nano-SIMS and Atom Probe Tomography, <i>Idriss El Azhari</i> , <i>J. Barrirero</i> , Saarland University, Germany; <i>N. Valle</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg; <i>J. Garcia</i> , Sandvik Coromant, Sweden; <i>C. Pauly</i> , <i>F. Soldera</i> , Saarland University, Germany; <i>L. Llanes</i> , Universitat Politècnica de Catalunya, Spain; <i>F. Mücklich</i> , Saarland University, Germany	3:00pm	<b>PP1-2-TuA-5</b> the Surface Temperature of a 2" Water-Cooled Ti Target Measured During DC Magnetron Sputtering, <i>Stephen Muhl</i> , <i>J. Cruz</i> , <i>A. Garzon</i> , Universidad Nacional Autonoma de Mexico
3:20pm	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	3:20pm	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>
3:40pm		3:40pm	
4:00pm	<b>INVITED: CM1-2-TuA-8</b> <i>In situ</i> Studies of Nucleation and Growth by High Energy X-Ray Scattering, <i>Jens Birch</i> , <i>N. Ghafoor</i> , <i>F. Eriksson</i> , Linköping University, Sweden; <i>S. Stendahl</i> , Uppsala University, Sweden; <i>S. Dorri</i> , <i>S. Nayak</i> , Linköping University, Sweden; <i>L. Rogström</i> , Uppsala University, Sweden	4:00pm	<b>PP1-2-TuA-8</b> Black Metal Thin Films Deposited on Cooled Substrates by Sputtering, <i>Midori Kawamura</i> , <i>H. Iino</i> , <i>H. Mori</i> , <i>Y. Otomo</i> , <i>T. Kiba</i> , <i>Y. Abe</i> , Kitami Institute of Technology, Japan; <i>M. Ueda</i> , Hokkaido University, Japan; <i>M. Micusik</i> , Slovak Academy of Sciences, Slovakia; <i>M. Hruska</i> , <i>M. Novotny</i> , <i>P. Fitl</i> , University of Chemistry and Technology, Czechia
4:20pm		4:20pm	<b>PP1-2-TuA-9</b> Intelligent Lubricating Coatings Based on the Oblique Angle Deposition Technology, <i>J. Liang</i> , <i>K. Li</i> , <i>K. Le</i> , <i>Shusheng Xu</i> , Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China

# Tuesday Afternoon, May 21, 2024

	<p><b>Protective and High-temperature Coatings</b>  <b>Room Palm 1-2 - Session MA1-2-TuA</b>  <b>Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II</b>  <b>Moderators:</b>  <b>Gustavo García-Martín</b>, REP-Energy Solutions, Spain,  <b>Justyna Kulczyk-Malecka</b>, Manchester Metropolitan Univ., UK,  <b>Eli Ross</b>, Pratt &amp; Whitney, USA</p>	<p><b>Surface Engineering - Applied Research and Industrial Applications</b>  <b>Room Town &amp; Country C - Session IA2-2-TuA</b>  <b>Surface Modification of Components in Automotive, Aerospace and Manufacturing Applications II</b>  <b>Moderators:</b>  <b>Satish Dixit</b>, Plasma Technology Inc., USA,  <b>SangYul Lee</b>, Korea Aerospace University, Republic of Korea</p>
1:40pm	<p><b>MA1-2-TuA-1</b> Fabrication, Characterisation and Fretting Wear Testing of Magnetron Sputtered Cr and CrN Coated Zr Alloy Cladding for Enhanced Accident Tolerance in Light Water Reactors, <i>T. Rachid Netto</i>, Manchester Metropolitan University, Brazil; <i>A. Evans</i>, <i>Peter Kelly</i>, Manchester Metropolitan University, UK; <i>D. Goddard</i>, <i>J. Cooper</i>, National Nuclear Laboratory, UK</p>	<p><b>IA2-2-TuA-1</b> Transformative Manufacturing of Adaptive Wire Feedstocks with Atomic Layer Deposition of Nb<sub>2</sub>O<sub>5</sub> onto Uranium, <i>Mai Her</i>, <i>R. Bloom</i>, <i>I. Usov</i>, <i>T. Gorey</i>, Los Alamos National Laboratory, USA</p>
2:00pm	<p><b>MA1-2-TuA-2</b> Fuel-cladding Thermochemical Interaction Study of Cr<sub>2</sub>O<sub>3</sub> Coating Deposited by DLI-MOCVD on Zircaloy-2 Substrate, <i>Kenza Zougagh</i>, Université Paris-Saclay, CEA, Service de Recherche en Matériaux et procédés Avancés, France; <i>R. Chanson</i>, <i>A. Quaini</i>, <i>F. Rouillard</i>, <i>S. Gossé</i>, Université Paris-Saclay, CEA, Service de recherche en Corrosion et Comportement des Matériaux, France</p>	<p><b>INVITED: IA2-2-TuA-2</b> Impact of Novel Thermal Spray Material Solutions for Future Aerospace Applications and the Impact on Sustainability for the Environment and Business, <i>Matthew Gold</i>, Rolls-Royce North America</p>
2:20pm	<p><b>MA1-2-TuA-3</b> Evaluation of Wear and Corrosion Resistance in Acidic and Chloride Solutions of Pvd-Crn Coatings on Untreated and Plasma Nitrided Aisi 4140 Steel, <i>A. Maskavizan</i>, <i>E. Dalibon</i>, National University of Technology (UTN), Faculty of Concepción del Uruguay, Argentina; <i>S. Farina</i>, CNEA and CONICET, Buenos Aires, Argentina; <i>J. Quintana</i>, CNEA (CAC), Buenos Aires, Argentina; <i>Sonia P. Brühl</i>, National University of Technology (UTN), Faculty of Concepción del Uruguay, Argentina</p>	
2:40pm	<p><b>MA1-2-TuA-4</b> Deposition using CHC-PVD Method and High Temperature Oxidation of TiAlCrYSi Coatings on TiAl, <i>Radoslaw Swadzba</i>, Lukaszewicz Research Network – Uppersilesian Institute of Technology, Poland; <i>B. Mendala</i>, <i>L. Swadzba</i>, Silesian University of Technology, Poland; <i>U. Schulz</i>, <i>N. Laska</i>, <i>P. Bauer</i>, German Aerospace Center (DLR), Germany</p>	<p><b>IA2-2-TuA-4</b> Evaluation of Thick Erosion-Resistant TiCrN Coating Deposited on Engine Impellers, <i>Q. Wang</i>, The University of British Columbia; Aurora Scientific Corp, Canada; <i>L. Hsu</i>, Aurora Scientific Corp, Canada; <i>Da-Yung Wang</i>, The University of British Columbia, Canada; Aurora Scientific Corp, Canada; SurfTech Corp, Taiwan; Canada</p>
3:00pm		<p><b>IA2-2-TuA-5</b> Enhancing Aeronautical Ice Protection Systems through Innovative Porous Ceramic Coatings, <i>Alessandro Corozzi</i>, ISSMC-CNR, Italy; <i>J. Mora Nogues</i>, INTA (National Institute of Aerospace Technology) - Spain; <i>M. Caruso</i>, <i>M. Raimondo</i>, ISSMC-CNR, Italy</p>
3:20pm	<p><b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b></p>	<p><b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b></p>
3:40pm		
4:00pm	<p><b>MA1-2-TuA-8</b> Investigations of Water Vapor Enhanced Oxidation on TiAl-Based Alloys: Evaluation of Protective Coating Systems, <i>Ronja Anton</i>, <i>N. Laska</i>, German Aerospace Center (DLR), Germany</p>	<p><b>INVITED: IA2-2-TuA-8</b> Next Generation of Compositions &amp; Coatings for Netzero &amp; Sustainable Aviation, <i>Tanvir Hussain</i>, University of Nottingham, UK</p>
4:20pm	<p><b>MA1-2-TuA-9</b> Effect of Duty Cycle and N<sub>2</sub> Flow Rate on Structure and Oxidation Behavior of VN Coatings Deposited by High Power Impulse Magnetron Sputtering, <i>Ruo-Syuan Chen</i>, <i>J. Huang</i>, National Tsing Hua University, Taiwan</p>	
4:40pm		<p><b>IA2-2-TuA-10</b> Improved High Temperature Tribology for Aero-Engine Components by PVD Coatings, <i>A.O. M. Eriksson</i>, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein; <i>T. Middlemiss</i>, Oerlikon Balzers Coating UK Ltd., UK; <i>C. Jerg</i>, <i>E. Vaziri Beiraghdar</i>, <i>P. Kaller</i>, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein; <i>T. Stelzig</i>, Oerlikon Balzers Coating Germany GmbH, Germany; <i>J. Ramm</i>, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein</p>
5:00pm		<p><b>IA2-2-TuA-11</b> Development of Environmentally Friendly Solid Carburizing for Improving Fatigue Properties of AISI 4118 Steel, <i>Tomofumi Aoki</i>, <i>D. Kasai</i>, Graduate School of Science and Technology, Keio University, Japan; <i>M. Hayama</i>, Keio University, Japan; <i>S. Takesue</i>, Kyoto Institute of Technology, Japan; <i>M. Tsukahara</i>, <i>Y. Misaka</i>, Neturen Co., Ltd., Japan; <i>J. Komotori</i>, Keio University, Japan</p>

# Tuesday Afternoon, May 21, 2024

<b>Topical Symposium on Sustainable Surface Engineering</b> <b>Room Palm 5-6 - Session TS2-TuA</b> <b>Sustainable Processing and Materials Selection for Surface Solutions</b> <b>Moderators: Jörg Vetter, J.Vetter-S3-consulting, Germany,</b> <b>Fan-Bean Wu, National United University, Taiwan</b>		<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Town &amp; Country B - Session MC2-1-TuA</b> <b>Mechanical Properties and Adhesion I</b> <b>Moderators:</b> <b>Jazmin Duarte, MPI für Eisenforschung GMBH, Germany,</b> <b>Alice Lassnig, Austrian Academy of Sciences, Austria,</b> <b>Bo-Shiuan Li, National Sun-Yat Sen University, Taiwan</b>	
1:40pm	<b>INVITED: TS2-TuA-1</b> Microplasma-Enabled Upcycling for Nanomaterials Synthesis and Applications, <i>Wei-Hung Chiang</i> , National Taiwan University of Science and Technology, Taiwan	1:40pm	<b>INVITED: MC2-1-TuA-1</b> Boosting Mechanical Properties of Metallic Thin Films Through Advanced Nanoengineered Design Strategies, <i>B. Francesco</i> , LSPM-CNRS, France; <i>A. Brognara</i> , Max-Planck-Institut für Eisenforschung, Germany; <i>P. Djemia, D. Faurie</i> , LSPM-CNRS, France; <i>A. Li Bassi</i> , Politecnico di Milano, Italy; <i>G. Dehm</i> , Max-Planck-Institut für Eisenforschung, Germany; <b>Matteo Ghidelli</b> , Laboratoire des Sciences des Procédés et des Matériaux (LSPM), CNRS, France
2:00pm		2:00pm	
2:20pm	<b>TS2-TuA-3</b> Enhancing Hydrogen Production in 2D Materials via Surface Modifications: An Atomistic Study, <i>N. Khossossi, S. Sagar, Paulumi Dey</i> , TU Delft, Netherlands	2:20pm	<b>MC2-1-TuA-3</b> The Evolution of Residual Stress in the Immiscible Cr-W Alloy System, <i>Tong Su</i> , Brown University, USA; <i>J. Robinson, G. Thompson</i> , University of Alabama, USA; <i>E. Chason</i> , Brown University, USA
2:40pm	<b>TS2-TuA-4</b> Surface Wettability Modification of Polymers for Use in Electrocaloric Heat Pumps, <i>Maria Barrera</i> , Fraunhofer FEP, Germany; <i>D. Pinkal, M. Wegener</i> , Fraunhofer IAP, Germany; <i>F. Fietzke</i> , Fraunhofer FEP, Germany	2:40pm	<b>MC2-1-TuA-4</b> Adhesion and Friction-wear Characterization of W-doped Hydrogenated Diamond-like Carbon (a-C:H) Coatings, <i>Ihsan Efeoglu, Y. Totik, G. Gulten, B. Yaylali, M. Yesilyurt</i> , Atatürk University, Turkey; <i>R. Gunay, G. Kara, B. Altintas</i> , TUSAS ENGINE INDUSTRIES (TEI), Turkey
3:00pm	<b>TS2-TuA-5</b> High Volume Coating of Metallic Plates for Hydrogen Applications—A Challenge for Coating Machine Builders, <i>Philipp Immich, R. Bosch, K. Fuchigami, R. Jacobs, T. Karla, P. Broekx</i> , IHI Hauzer Techno Coating B.V., Netherlands; <i>T. Hurkmans, J. Ummels, F. Schuivens</i> , IHI Ionbond AG, Netherlands	3:00pm	
3:20pm	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	3:20pm	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>
3:40pm		3:40pm	
4:00pm	<b>TS2-TuA-8</b> Iron Aluminide-Based Coatings as Sustainable Alternative for High Temperature Wear Protection, <i>Harald Rojacz, K. Pichelbauer, M. Rodriguez Ripoll</i> , AC2T Research GmbH, Austria; <i>G. Piringer</i> , University of Applied Sciences Burgenland, Austria; <i>P. Mayrhofer</i> , TU Wien, Institute of Materials Science and Technology, Austria	4:00pm	<b>MC2-1-TuA-8</b> Mechanical Characterization of Nb-doped MoS <sub>2</sub> Coatings Deposited on H13 Tool Steel using Nb-based Interlayers, <i>Miguel Rubira Danelon, N. Kyioshi Fukumasu</i> , University of São Paulo, Brazil; <i>A. Alves Carvalho</i> , Aeronautic Institute of Technology, Brazil; <i>R. Rodrigo Rego</i> , Aeronautics Institute of Technology, Brazil; <i>I. Fernanda Machado, R. Martins de Souza, A. Paulo Tschiptschin</i> , University of São Paulo, Brazil
4:20pm		4:20pm	<b>MC2-1-TuA-9</b> Mechanical Properties and Adhesion of Al Thin Films with Al <sub>2</sub> O <sub>3</sub> Interlayers on Flexible Substrates, <i>Johanna Byloff</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>P. Renault</i> , University of Poitiers, France; <i>D. Faurie</i> , Université Paris-Saclay, France; <i>S. Husain</i> , University of Poitiers, France; <i>D. Casari, T. Edwards, B. Putz</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
4:40pm		4:40pm	<b>MC2-1-TuA-10</b> Buckling Structures, a Relevant Signature of the Mechanical Properties of Film/Substrate Systems, <i>Christophe COUPEAU</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; <i>G. PARRY</i> , SIMAP, Grenoble-INP, CNRS, France; <i>J. DURINCK</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France
5:00pm		5:00pm	<b>MC2-1-TuA-11</b> Elastic-Plastic Buckling of Gold Thin Films Into Straight-Sided Blisters and Bubbles, <i>Kimheng Meng, G. Parry</i> , INP Grenoble, France; <i>M. Hurier, N. Dahmane, C. Coupeau</i> , Institut Pprime - CNRS - ENSMA - Université de Poitiers, France

# Wednesday Morning, May 22, 2024

<b>Functional Thin Films and Surfaces</b> <b>Room Town &amp; Country D - Session MB2-1-WeM</b> <b>Thin Films for Electronic Devices I</b> <b>Moderators: Claudiu Falub</b> , Evatec AG, Switzerland, <b>Julien Keraudy</b> , Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein, <b>Panos Patsalas</b> , Aristotle University of Thessaloniki, Greece		<b>Plasma and Vapor Deposition Processes</b> <b>Room Palm 3-4 - Session PP3-WeM</b> <b>CVD Coating Technologies</b> <b>Moderators:</b> <b>Hiroki Kondo</b> , Kyushu University, Japan, <b>Frederic Mercier</b> , University of Grenoble Alpes, France	
8:00am		<b>INVITED: PP3-WeM-1</b> Area-Selective Deposition of DLC Using Optoelectronic-Controlled Plasma CVD Method, <b>Susumu Takabayashi</b> , National Institute of Technology, Ariake College, Japan	
8:20am			
8:40am	<b>INVITED: MB2-1-WeM-3</b> Strain-Induced Self-Rolled-Up Thin Films for Extreme Miniaturization and Integration of Passive Electronic Components, <b>Xiuling Li</b> , The University of Texas at Austin, USA	<b>PP3-WeM-3</b> Advanced and Economical Hot-Filament CVD Diamond Coating Technology for Deposition of High-Performance Diamond Coatings on Tungsten Carbide Tools, <b>Frank-R. Weber</b> , Weber Technologies GmbH, Germany	
9:00am		<b>PP3-WeM-4</b> CVD Diamond Coating Technology for Cutting Tool Applications, <b>Marvin Wegh</b> , M. Woda, W. Puetz, O. Lemmer, C. Schiffers, CemeCon AG, Germany	
9:20am	<b>MB2-1-WeM-5</b> Enhanced Synaptic Characteristics Under Applied Magnetic Field in V <sub>2</sub> O <sub>5</sub> /Ni-Mn-In Based Switching Device for Neuromorphic Computing, <b>Kumar Kaushlendra</b> , D. Kaur, Indian Institute of Technology Roorkee, India	<b>PP3-WeM-5</b> Plasma Assisted Atomic Layer Deposition of Aluminum-Nitride, <b>Noureddine Adjeroud</b> , Luxembourg Institute of Science and Technology (LIST), Luxembourg	
9:40am	<b>MB2-1-WeM-6</b> Electrolyte Gated Transistors for Neuromorphic Signal Processing and Biosensing, <b>Luke Sylvander</b> , P. Le, C. Tan, H. Tran, RMIT University, Australia; D. McKenzie, University of Sydney, Australia; D. McCulloch, J. Partridge, RMIT University, Australia	<b>PP3-WeM-6</b> Microstructure and Mechanical Properties of TiZrN and TiZrCN Coatings Grown by Chemical Vapor Deposition, <b>Akihiro Murakami</b> , M. Okude, Mitsubishi Materials Corporation, Japan	
10:00am	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	
10:20am			
10:40am			
11:00am	<b>MB2-1-WeM-10</b> Investigation Of Piezoelectric Properties And Defect Structure In Vanadium Doped ZnO Thin Films, <b>Y. Chang</b> , <b>Yu-Tsung Lin</b> , S. Brahma, J. Huang, National Cheng Kung University (NCKU), Taiwan	<b>INVITED: PP3-WeM-10</b> New Perspectives of Atmospheric Pressure Dielectric Barrier Discharges for the Deposition of Thin Films : From Uncontrolled Amorphous Plasma-Polymer Layers to Chemically Patterned and Crystalline (in)Organic Coatings, <b>François Reniers</b> , Université libre de Bruxelles, Belgium	
11:20am	<b>MB2-1-WeM-11</b> Tracking the Metal-Insulator Transition at YTiO <sub>3</sub> /LaTiO <sub>3</sub> Interfaces Grown by the Soft Chemical Method, <b>Alexandre Simoes</b> , UNESP, Brazil		
11:40am	<b>MB2-1-WeM-12</b> Combining a Hybrid-AlN Buffer Layer in the Epitaxial Growth and Characterization of Gan Thin Films on Graphene/Sapphire Substrate, <b>Solomon Teklahymanot Tesfay</b> , Ming Chi University of Technology, Taiwan; K. Wen-Cheng, National Taiwan University of Science and Technology, Taiwan	<b>PP3-WeM-12</b> Novel Metal Boride Coatings in the System Zr-Hf-Ti-B by LPCVD, <b>Mandy Höhn</b> , M. Krug, S. Höhn, B. Matthey, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany	

# Wednesday Morning, May 22, 2024

<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP4-1-WeM</b> <b>Deposition Technologies for Carbon-based Coatings I</b> <b>Moderators:</b> <b>Ivan Kolev</b> , IHI Hauzer Techno Coating B.V., Netherlands, <b>Biplab Paul</b> , PLATIT AG, Switzerland		<b>Protective and High-temperature Coatings</b> <b>Room Palm 1-2 - Session MA1-3-WeM</b> <b>Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling III</b> <b>Moderators:</b> <b>Gustavo García-Martín</b> , REP-Energy Solutions, Spain, <b>Justyna Kulczyk-Malecka</b> , Manchester Metropolitan Univ., UK, <b>Eli Ross</b> , Pratt & Whitney, USA	
8:00am	<b>INVITED: PP4-1-WeM-1</b> Molecular Dynamics Study of Interfacial Phenomena in Diamond-Like Carbon Films, <b>Kwang-Ryeol Lee</b> , Korea Institute of Science and Technology (KIST), Republic of Korea; <b>X. Li</b> , Chinese University of Mining and Technology, China	<b>MA1-3-WeM-1</b> Characterization and Evaluation of Physical-Chemical Properties of Novel Ternary and Quaternary Molten Salts and Their Economic and Environmental Impact in Parabolic Trough Technology: Corrosion Effects, <b>M. Lambrecht</b> , <b>D. Maria Teresa</b> , <b>L. Maria Isabel</b> , <b>Gustavo Garcia Martin</b> , <b>J. Chaves</b> , <b>F. Perez Trujillo</b> , Universidad Complutense de Madrid, Spain; <b>P. Audigie</b> , <b>A. Aguero</b> , INTA, Spain	
8:20am		<b>MA1-3-WeM-2</b> Influence of the BN Content on the Microstructure and the Mechanical Properties of Cr <sub>3</sub> C <sub>2</sub> -NiCr-BN Composite Coatings Prepared by a Novel HVOF Process Using Ethanol as a Fuel, <b>S. Liu</b> , UTBM, France; <b>M. Arab Pour Yazdi</b> , <b>Pavel Sedmak</b> , <b>J. Nohava</b> , Anton Paar, Switzerland; <b>M. Moliere</b> , <b>H. Liao</b> , UTBM, France	
8:40am	<b>PP4-1-WeM-3</b> Study of ta-C Thick Film Deposition Using FCVA-Based Hybrid Coating System, <b>Jongkuk Kim</b> , <b>J. Kim</b> , <b>J. Jang</b> , <b>Y. Jang</b> , Korea Institute of Materials Science, Republic of Korea	<b>MA1-3-WeM-3</b> Oxidation Behavior of Si-Based Coatings on Refractory Multi-Principal Element Alloys, <b>Brady Bresnahan</b> , <b>D. Poerschke</b> , University of Minnesota, USA	
9:00am	<b>PP4-1-WeM-4</b> Diamond-Like Films of Tetrahedral Amorphous Carbon Deposited by Anodic Arc Evaporation of Graphite, <b>Bert Scheffel</b> , <b>O. Zywitzki</b> , Fraunhofer FEP, Germany	<b>MA1-3-WeM-4</b> Multifunctional Nanostructured ZrN-Cu Coating for Maritime Applications, <b>José D. Castro</b> , University of Coimbra, Portugal; <b>M. Lima</b> , <b>J. Carvalho</b> , University of Minho, Portugal; <b>J. Sánchez-López</b> , Instituto de Ciencia de Materiales de Sevilla (ICMS), Spain; <b>R. Escobar-Galindo</b> , University of Sevilla, Spain; <b>C. Rojas</b> , Instituto de Ciencia de Materiales de Sevilla (ICMS), Spain; <b>S. Carvalho</b> , University of Coimbra, Portugal	
9:20am	<b>PP4-1-WeM-5</b> Constitution and Properties of TiC <sub>1-x</sub> H/a-C:H Nanocomposite Thin Films Prepared by HiPIMS Processes at Low and Elevated Temperature, <b>Sven Ulrich</b> , <b>C. Poltorak</b> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; <b>H. Sternschulte</b> , <b>J. Grau</b> , Technical University of Applied Sciences Augsburg, Germany; <b>J. Julin</b> , <b>T. Sajavaara</b> , RADIATE, University of Jyväskylä, Finland; <b>A. Bergmaier</b> , University of the Bundeswehr Munich, Germany; <b>K. Seemann</b> , <b>M. Dürrschnabel</b> , <b>M. Stüber</b> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany	<b>MA1-3-WeM-5</b> New Black Ceramic Coating on LZ91 Magnesium Alloys by Micro-Arc Oxidation, <b>Hung-Chi Chen</b> , <b>S. Jian</b> , Ming Chi University of Technology, Taiwan	
9:40am	<b>PP4-1-WeM-6</b> Effect of Deposition Temperature and Nitrogen Concentration on Highly Conductive a-C:H:N Films Obtained by Means of DC PACVD, <b>Manuel Schachinger</b> , University of Applied Sciences Upper Austria; <b>F. Delfin</b> , University of Applied Sciences Upper Austria, Argentina; <b>C. Forsich</b> , <b>D. Heim</b> , University of Applied Sciences Upper Austria; <b>B. Rübiger</b> , <b>T. Müller</b> , <b>C. Dipolt</b> , Rubig GmbH & Co KG, Austria		
10:00am	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	
10:20am			
10:40am			
11:00am		<b>MA1-3-WeM-10</b> Study on the Characterization of Adding CeO <sub>2</sub> Particles on Micro-arc Oxidation Coated AZ91D Magnesium Alloys, <b>Po-Wei Lien</b> , MING Chi University of Technology, Taiwan	
11:20am		<b>MA1-3-WeM-11</b> Characteristics Of High-temperature Resistant Coating Prepared By the Liquid Spray Technique, <b>Yan-Rui Chen</b> , National Taipei University of Technology, Taiwan; <b>T. Wu</b> , Researcher of National Chung-Shan Institute of Science & Technology, Taoyuan city, Taiwan; <b>Y. Yang</b> , Distinguished professor of National Taipei University of Technology, Taiwan; <b>Y. Wu</b> , Professor of National Taipei University of Technology, Taiwan	
11:40am		<b>MA1-3-WeM-12</b> Development of Tantalum Bond Coating for Thermal Barrier Coating by the Cold Spray, <b>Wei-Che Hung</b> , National Taipei University of Technology, Taiwan; <b>W. Li</b> , <b>Y. Chung</b> , Researcher of National Chung-Shan Institute of Science & Technology, Taiwan; <b>Y. Yang</b> , <b>Y. Wu</b> , National Taipei University of Technology, Taiwan	

# Wednesday Morning, May 22, 2024

	<p><b>Protective and High-temperature Coatings</b>  <b>Room Town &amp; Country C - Session MA4-1-WeM</b>  <b>High Entropy and Other Multi-principal-element Materials I</b>  <b>Moderators:</b>  <b>Erik Lewin</b>, Uppsala University, Sweden,  <b>Jean-François Pierson</b>, IJL - Université de Lorraine, France</p>	<p><b>Surface Engineering - Applied Research and Industrial Applications</b>  <b>Room Palm 5-6 - Session IA3-WeM</b>  <b>Innovative Surface Engineering for Advanced Cutting and Forming Applications</b>  <b>Moderators: Christoph Schiffrers</b>, CemeCon AG, Germany,  <b>Markus Esselbach</b>, Oerlikon Balzers, Liechtenstein</p>
8:00am		<p><b>INVITED: IA3-WeM-1</b> How to Design a Coating for Metal Sheet Deformation Starting from Cutting Tools, <b>Alessandro Bertè</b>, <b>P. Colombi</b>, Lafer Spa, Italy</p>
8:20am		
8:40am	<p><b>INVITED: MA4-1-WeM-3</b> Growth and Properties of Epitaxial High-Entropy Alloy Thin Films, <b>Thomas Seyller</b>, Chemnitz University of Technology, Germany</p>	<p><b>IA3-WeM-3</b> Effect of Current Density on the Pulsed-DC Powder-Pack Boriding Process (PDCPB), <b>I. Campos-Silva</b>, <b>J.L. Rosales-Lopez</b>, <b>M. Olivares-Luna</b>, <b>K. Chaparro-Pérez</b>, <b>E. Hernández-Ramírez</b>, Instituto Politécnico Nacional, Mexico; <b>A. Contreras-Hernández</b>, Tecnológico Nacional de México/Instituto Tecnológico de Tuxtepec, Mexico</p>
9:00am		<p><b>INVITED: IA3-WeM-4</b> Challenges Dealing with Industrial Coating Development and Tailor-Made Production, <b>Klaus Pagh Almqvist</b>, <b>B. Christensen</b>, Danish Technological Institute, Denmark</p>
9:20am	<p><b>MA4-1-WeM-5</b> Effect of Elemental Additions (X: Pt, Al, Ti, and Ag) on the Microstructure and Electrical Properties of CrMnFeCoNiX-Based High-Entropy Alloy Thin Films, <b>Salah-eddine Benrazzouq</b>, <b>J. Ghanbaja</b>, <b>S. Migot</b>, <b>A. Nominé</b>, <b>J. Pierson</b>, <b>V. Milichko</b>, Institut Jean Lamour - Université de Lorraine, France</p>	
9:40am	<p><b>MA4-1-WeM-6</b> Property Evaluation of Nd Doped NiCoFeAlTi Non-equiatomc High Entropy Alloy Films and the Influence of Post-annealing Treatment, <b>Chia-Lin Li</b>, Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan</p>	<p><b>IA3-WeM-6</b> a Comprehensive Study of HiPIMS Coated Tool and Microtool Performance: From Edge Preparation to Micro-Machining Tests, <b>Pablo Díaz Rodríguez</b>, <b>J. Santiago</b>, Nano4Energy, Spain; <b>A. García</b>, Nano4Energy, Colombia; <b>I. Fernández</b>, <b>A. Wennberg</b>, Nano4Energy, Spain; <b>P. Collignon</b>, PD2i, France; <b>Á. Guzmán</b>, <b>D. Sanmartín</b>, <b>J. Molina-Aldeguia</b>, Universidad Politécnica de Madrid, Spain; <b>M. Monclus</b>, IMDEA Materiales, Spain</p>
10:00am	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>
10:20am		
10:40am		
11:00am	<p><b>MA4-1-WeM-10</b> Exploring the Effects of Titanium and Molybdenum Contents, and Enhancing the Crystallinity Through Post-Annealing Treatment on the Microstructure and Mechanical Properties of CoCrNi Medium Entropy Alloy Thin Films, <b>Pin-Yu Chen</b>, <b>C. Hsueh</b>, National Taiwan University, Taiwan</p>	<p><b>IA3-WeM-10</b> Effect of Phase Separation in the Anticorrosion Performance of AlCrFeNi High-Entropy Alloy, <b>Chih-Chen Lee</b>, <b>I. Tasi</b>, National Yang-Ming Chiao Tung University, Taiwan; <b>H. Chen</b>, Michigan State University, Taiwan; <b>C. Chen</b>, National United University, Taiwan; <b>S. Chen</b>, National Yang-Ming Chiao Tung University, Taiwan</p>
11:20am	<p><b>MA4-1-WeM-11</b> Effect of Substrate Temperature on Properties and Microstructure of High Entropy Alloy Thin Films Deposited by Magnetron Sputtering Systems, <b>Yi-Jun Yan</b>, <b>F. Ouyang</b>, National Tsing Hua University, Taiwan</p>	
11:40am	<p><b>MA4-1-WeM-12</b> A Combinatorial Approach to Developing Sputter-Deposited AuBiTaW High-Entropy Alloy Films for Inertial Confinement Fusion Applications, <b>Daniel Goodelman</b>, <b>D. Strozzi</b>, <b>S. Kucheyev</b>, <b>L. Bayu Aji</b>, Lawrence Livermore National Laboratory, USA</p>	
12:00pm	<p><b>MA4-1-WeM-13</b> Tungsten-Based Complex Concentrated Alloys for Fusion Applications, <b>M. Vigil</b>, University of Wisconsin-Madison, USA; <b>Sabine Faulhaber</b>, <b>M. Patino</b>, <b>D. Nishijima</b>, <b>A. Zaloznik</b>, <b>M. Simmonds</b>, <b>T. Lynch</b>, <b>M. Baldwin</b>, <b>K. Vecchio</b>, <b>G. Tynan</b>, University of California San Diego, USA</p>	

# Wednesday Morning, May 22, 2024

<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Town &amp; Country B - Session MC2-2-WeM</b> <b>Mechanical Properties and Adhesion II</b> <b>Moderators:</b> <b>Jazmin Duarte</b> , MPI für Eisenforschung GMBH, Germany, <b>Alice Lassnig</b> , Austrian Academy of Sciences, Austria, <b>Bo-Shiuan Li</b> , National Sun-Yat Sen University, Taiwan	
8:00am	<b>INVITED: MC2-2-WeM-1</b> <i>In Situ</i> Micromechanical Characterization of Thin Films: Strain Rate, Size and Microstructure Related Experiments in the SEM, <b>Szylvia Kalacska</b> , CNRS LGF, Mines St. Etienne, France; <b>L. Petho</b> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <b>G. Kermouche</b> , Mines St. Etienne, France; <b>J. Michler</b> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <b>P. Ispanovity</b> , Eötvös Loránd University, Hungary
8:20am	
8:40am	<b>MC2-2-WeM-3</b> Assessing Brittleness of Indium Tin Oxide Layers on Glass Substrates with Nanoindentation, <b>Kurt Johanns</b> , <b>S. Varma</b> , <b>J. Hay</b> , <b>B. Crawford</b> , KLA-Tencor, USA
9:00am	<b>MC2-2-WeM-4</b> The Effect of Substrate Bias on the Mechanical Properties and Corrosion Resistance of TiN Thin Film Deposited on aa6061 by HCD-IP Method, <b>Ching-Cheng Chen</b> , <b>K. Lan</b> , National Tsing Hua University, Taiwan
9:20am	<b>MC2-2-WeM-5</b> Effect of Metal Interlayers on Stress Relief of Mo <sub>2</sub> N/Mo and Mo <sub>2</sub> N/Ti Bilayer Coatings on Si Substrate by High Power Impulse Magnetron Sputtering, <b>Yun-Yang Sun</b> , <b>J. Huang</b> , National Tsing Hua University, Taiwan
9:40am	<b>MC2-2-WeM-6</b> Microstructure and Mechanical Behavior of Magnetron Co-Sputtering Mo-Ta-N Coatings, <b>JIA-YI HSU</b> , <b>F. Wu</b> , Department of Materials Science and Engineering, National United University, Miaoli, Taiwan
10:00am	<b>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</b>
10:20am	
10:40am	
11:00am	<b>MC2-2-WeM-10</b> Function of Mo Metal Interlayer in $\gamma$ -Mo <sub>2</sub> N/Mo Bilayer Coatings on D2 Steel Deposited by High Power Pulsed Magnetron Sputtering, <b>Y. Fang</b> , <b>Jia-Hong Huang</b> , National Tsing Hua University, Taiwan
11:20am	<b>MC2-2-WeM-11</b> Micro-Arc Oxidation of Commercially Pure Titanium Subjected to Hydrostatic Extrusion, <b>Lukasz Maj</b> , Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland; <b>F. Muhaffel</b> , Istanbul Technical University, Turkey; <b>A. Jarzebska</b> , <b>A. Trelka</b> , <b>D. Wojtas</b> , <b>K. Trembecka</b> , Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland; <b>J. Kawalko</b> , AGH University of Science and Technology, Poland; <b>M. Kulczyk</b> , Unipress Extrusion, Poland; <b>M. Bieda</b> , Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland; <b>H. Cimenoglu</b> , Istanbul Technical University, Turkey
11:40am	<b>MC2-2-WeM-12</b> Effect of Ultrasonic-Assisted Machining for Surface Functionalization of Innovative Work-Hardening Multi-Principal-Element Alloys, <b>Marcel Giese</b> , <b>D. Schroepfer</b> , <b>M. Rhode</b> , Bundesanstalt für Materialforschung und -prüfung, Germany; <b>B. Preuss</b> , <b>T. Lindner</b> , <b>N. Hanisch</b> , <b>T. Lampke</b> , Institute of Materials Science and Engineering (IWW), Chemnitz University of Technology, Germany



# Wednesday Afternoon, May 22, 2024

<b>Coatings for Biomedical and Healthcare Applications</b> <b>Room Palm 3-4 - Session MD1-1-WeA</b> <b>Surface Coatings and Surface Modifications in Biological Environments I</b> <b>Moderators: Mathew T. Mathew</b> , University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA, <b>Phaedra Silva-Bermudez</b> , Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico		<b>Functional Thin Films and Surfaces</b> <b>Room Town &amp; Country D - Session MB2-2-WeA</b> <b>Thin Films for Electronic Devices II</b> <b>Moderators:</b> <b>Claudiu Falub</b> , Evatec AG, Switzerland, <b>Julien Keraudy</b> , Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein, <b>Panos Patsalas</b> , Aristotle University of Thessaloniki, Greece	
2:00pm	<b>MD1-1-WeA-1</b> Synergistic Antibacterial Activity and Ion Release of Ag-Cu and Ag-Cu-Mg Coatings, <b>Serdar Sonay Ozbay</b> , G. Rajmohan, Deakin University, Australia; A. Copley, Coventry University, UK; J. Sharp, Deakin University, Australia; G. Azar, Coventry University, UK	<b>INVITED: MB2-2-WeA-1</b> Electro-optic Thin Film Switch for Silicon Photonics Quantum Computer, <b>Vimal Kamineni</b> , PsiQuantum Ltd., USA	
2:20pm	<b>INVITED: MD1-1-WeA-2</b> Iridium Oxide Based Electrodes for Bio-Interface Applications, <b>Po-Chun Chen</b> , National Taipei University of Technology, Taiwan		
2:40pm		<b>MB2-2-WeA-3</b> Growth and Characterization of Thermoelectric–Topological Insulator Bi <sub>2</sub> Se <sub>x</sub> Te <sub>3-x</sub> (X = 0, 1.5, 2, 3) Films Grown Using Pulsed Laser Deposition, <b>Phuoc Huu Le</b> , Ming Chi University of Technology, Taiwan, Viet Nam; N. Quyen, L. Tuyen, National Yang Ming Chiao Tung University, Taiwan, Viet Nam; S. Jian, I-Shou University, Taiwan; C. Luo, J. Lin, National Yang Ming Chiao Tung University, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan	
3:00pm	<b>MD1-1-WeA-4</b> Ultra-Thick Yttrium Deposition via Magnetron Sputtering Deposition for Cyclotron Solid Targets Manufacturing, <b>Alisa Kotliarenko</b> , O. Azzolini, G. Keppel, C. Pira, Legnaro National Laboratories, Italian National Institute for Nuclear Physics, Italy	<b>MB2-2-WeA-4</b> Stoichiometric Engineering of Rotary Metal Oxide Targets for Thin Film Applications: A Focus on Zinc Oxide Based Alternatives, <b>Jing Yang</b> , SCI Engineered Materials, Inc., USA	
3:20pm	<b>MD1-1-WeA-5</b> Nanospectroscopy and Nanochemical Imaging Using Photothermal AFM-IR on Biomolecular Sensors and Hydrated Self-Assembled-Monolayers, <b>Nafiseh Samiseresht</b> , Max-Planck Institut für Eisenforschung, Germany; G. Figueroa-Miranda, D. Mayer, Forschungszentrum Juelich GmbH, Germany; M. Rabe, MPI für Eisenforschung GMBH, Germany	<b>MB2-2-WeA-5</b> Flexible FSMA Based Magnetoelectric Sensor, <b>Davinder Kaur</b> , Indian Institute of Technology Roorkee, India	
3:40pm	<b>MD1-1-WeA-6</b> An Electrochromic IrOx Nanofibrous Film for Multifunctional Bio-Interface Sensing Applications, <b>Yu-Jen Tao</b> , P. Chen, National Taipei University of Technology, Taiwan	<b>MB2-2-WeA-6</b> Growth of Nanostructured Molybdenum Disulfide (MoS <sub>2</sub> ) Thin Film for the Application of Electronic Materials, I. Giwa, K. Qian, F. Sanchez, E. Mawire, S. Dong, E. Smith, Q. Yuan, <b>Zhigang Xiao</b> , Alabama A&M University, USA	
4:00pm	<b>MD1-1-WeA-7</b> Bespoke Atmospheric Pressure Plasma Polymerization Process with an Acrylic Acid-Based Hybrid Precursor on Poly(lactic Acid) Nonwoven for Antibacterial Scaffolds, <b>Wei-Yu Chen</b> , Y. Chiang, T. Chu, L. Chang, J. Lee, Ming Chi University of Technology, Taiwan	<b>MB2-2-WeA-7</b> High Voltage on-Chip Micro Supercapacitor as a Miniaturized Energy Storage Device for Microelectronic Applications, <b>Sheetal Issar</b> , Indian Institute of Technology Roorkee, India; D. Jhajhria, Indian Institute of Technology Kanpur, India; R. Chandra, Indian Institute of Technology Roorkee, India	
4:20pm	<b>MD1-1-WeA-8</b> Improvement of Corrosion Resistance of Biodegradable Mg-Ca Alloy by Atomic Layer Deposition Technique, <b>Hsin-Chih Lin</b> , P. Lin, H. Chen, K. Lin, National Taiwan University, Taiwan	<b>MB2-2-WeA-8</b> Few-layered Multi-transition Metal Dichalcogenide Alloy Absorber for High-performance Photodetector, <b>I-Hsi Chen</b> , T. Nguyen, J. Ting, National Cheng Kung University (NCKU), Taiwan	

# Wednesday Afternoon, May 22, 2024

	<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP4-2-WeA</b> <b>Deposition Technologies for Carbon-based Coatings II</b> <b>Moderators:</b> <b>Ivan Kolev</b> , IHI Hauzer Techno Coating B.V., Netherlands, <b>Biplab Paul</b> , PLATIT AG, Switzerland	<b>Protective and High-temperature Coatings</b> <b>Room Town &amp; Country C - Session MA4-2-WeA</b> <b>High Entropy and Other Multi-principal-element Materials II</b> <b>Moderators: Erik Lewin</b> , Uppsala University, Sweden, <b>Jean-François Pierson</b> , IJL - Université de Lorraine, France
2:00pm	<b>INVITED: PP4-2-WeA-1</b> DLC-Coating Against the Backdrop of High Economic Requirements, <b>Jens Emmerlich</b> , D. Tiedemann, Robert Bosch Manufacturing Solutions GmbH, Germany; V. Gupta, Robert Bosch Manufacturing Solutions GmbH, India; K. Boebel, Robert Bosch Manufacturing Solutions GmbH, Germany	<b>MA4-2-WeA-1</b> Effect of Bilayer Periodic Thickness Ratios on the Mechanical Properties and Corrosion Resistance of TiZrNbTaFeN/TiN High Entropy Alloy Nitride Multilayer Thin Films, <b>Sheng-Yuan Hung</b> , Ming Chi University of Technology, New Taipei, Taiwan; B. Lou, Chang Gung University, Taoyuan, Taiwan; J. Lee, Ming Chi University of Technology, New Taipei, Taiwan
2:20pm		<b>MA4-2-WeA-2</b> Enhanced Mechanical Properties of Nitrogen-Supersaturated High-Entropy Alloys via Phase Manipulation, <b>Yujie Chen</b> , University of Adelaide, Australia
2:40pm	<b>PP4-2-WeA-3</b> Comparison of Performance Parameters of Carbon Coatings by Different PVD Methods, <b>Martin Kopte</b> , J. Walther, B. Gebhardt, H. Proehl, VON ARDENNE GmbH, Germany	<b>MA4-2-WeA-3</b> Super-Hard (MoNbTaW)N Coatings: Impact of Deposition Temperature on Structural and Mechanical Properties, S. Katta, <b>Venkata Girish Kotnur</b> , University of Hyderabad, India
3:00pm	<b>PP4-2-WeA-4</b> Carbon-Based Coatings with Tailorable Properties as a Function of sp <sup>3</sup> :sp <sup>2</sup> Hybridization, <b>Biplab Paul</b> , G. Wahli, J. Kluson, H. Bolvardi, A. Lümkmann, PLATIT AG, Switzerland	<b>MA4-2-WeA-4</b> Structure and Mechanical Properties of (Al,B,Cr,Si,Ti)-based Thin Films, <b>Alexander Kirnbauer</b> , P. Konecny, TU Wien, Institute of Materials Science and Technology, Austria; R. Hahn, Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; S. Kolozsvari, Plansee Composite Materials GmbH, Germany; P. Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria
3:20pm	<b>INVITED: PP4-2-WeA-5</b> Atmospheric Pressure Plasma Functionalization of Diamond Particles for Use as Quantum Sensors, <b>Gary E. McGuire</b> , Ravis, Inc., USA; M. Torelli, N. Nunn, O. Shenderova, Adámas Nanotechnologies, Inc., USA	<b>MA4-2-WeA-5</b> Synthesis and Characterization of High Entropy Ceramic Coatings from Cr-Hf-Mo-Ta-W Refractory Metal System, S. Debnárová, T. Stasiak, V. Buršíková, Masaryk University, Czechia; Z. Czigány, K. Balázs, HUN-REN Centre for Energy Research, Hungary; S. Lin, N. Koutná, Technische Universität Wien, Austria; <b>Pavel Souček</b> , Masaryk University, Czechia
3:40pm		<b>MA4-2-WeA-6</b> Mechanical and Oxidation Properties Evaluation of Equimolar and Non-Equimolar High Entropy Alloy Boron Carbonitride Coatings, <b>Igamcha Moirangthem</b> , National Taiwan University of Science and Technology, Taiwan; B. Lou, Chang Gung University, Taiwan; C. Wang, National Taiwan University of Science and Technology, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan
4:00pm	<b>PP4-2-WeA-7</b> Quantification of the sp <sup>3</sup> Content in DLC Films Deposited by HiPIMS Using EELS and NEXAFS, <b>João Carlos Oliveira</b> , University of Coimbra, Portugal; A. Vahidi, University of Coimbra, Pakistan; R. Serra, University of Coimbra, Portugal	<b>MA4-2-WeA-7</b> Research on the Effects of Various Acetylene Contents on the Mechanical Properties of TiZrNbTaFeBCN High Entropy Alloy Films, <b>Meng-Hsueh Chuang</b> , National Taiwan University of Science and Technology, Taiwan; B. Lou, Chang Gung University, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan; C. Wang, National Taiwan University of Science and Technology, Taiwan
4:20pm		<b>MA4-2-WeA-8</b> Influences of Target Poisoning on the Mechanical Properties of AlCrNbSiTiBCN Thin Films Grown by a Superimposed Highpower Impulse and Medium-Frequency Magnetron Sputtering, <b>Tse Wei Chen</b> , J. Lee, Ming Chi University of Technology, Taiwan; B. Lou, Chemistry Division, Center for General Education, Chang Gung University, Taiwan
4:40pm		<b>MA4-2-WeA-9</b> Mechanical and Anticorrosive Properties of Laminated (NbTaMoW) <sub>N</sub> Films, <b>Yan-Zhi Liao</b> , Y. Chen, National Taiwan Ocean University, Taiwan

# Wednesday Afternoon, May 22, 2024

<b>Topical Symposium on Sustainable Surface Engineering</b> <b>Room Palm 5-6 - Session T55-WeA</b> <b>Circular Strategies for Surface Engineering</b> <b>Moderators:</b> <b>Marcus Hans</b> , RWTH Aachen University, Germany, <b>Nina Schalk</b> , Montanuniversität Leoben, Austria		<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Town &amp; Country B - Session MC3-1-WeA</b> <b>Tribology of Coatings and Surfaces for Industrial Applications I</b> <b>Moderators:</b> <b>Nazlim Bagcivan</b> , Schaeffler Tech GmbH & Co. KG, Germany, <b>Rainer Cremer</b> , KCS Europe GmbH, Germany, <b>Stephan Tremmel</b> , University of Bayreuth, Germany	
2:00pm	<b>INVITED: T55-WeA-1</b> Coated Cemented Carbides – Tooling a Sustainable Future, <b>Uwe Schleinkofer</b> , C. Czettl, CERATIZIT Austria GmbH, Austria	<b>INVITED: MC3-1-WeA-1</b> Tribological Coatings to meet Future Requirements for Green Mobility, <b>Steffen Hoppe</b> , Tenneco Powertrain, Product & Technology, Germany	
2:20pm			
2:40pm	<b>T55-WeA-3</b> Designing Selective Stripping Processes for Al-Cr-N Hard Coatings on WC-Co Cemented Carbides, <b>Andreas Kretschmer</b> , V. Jaszfi, V. Dalbauer, TU Wien, Institute of Materials Science and Technology, Austria; V. Schott, S. Benedikt, A. Eriksson, Oerlikon Balzers, Liechtenstein; A. Limbeck, TU Wien, Austria; P. Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria	<b>MC3-1-WeA-3</b> Current-Induced Friction and Graphitization Effects in Amorphous and Tetrahedral Amorphous Carbon Coatings on M2 Steel: An Electro-Tribological Investigation, <b>Amir Masoud Khodadadi Behtash</b> , A. Alpas, University of Windsor, Canada	
3:00pm	<b>INVITED: T55-WeA-4</b> Perspectives on Sustainability of Coated Metal Cutting Tools, <b>Lars Johnson</b> , Sandvik Coromant R&D Materials and Processes, Sweden	<b>MC3-1-WeA-4</b> Compositionally Graded MoS <sub>2</sub> -WC Spray Coatings for Robust Tribological Protection in Low Viscosity Fuels, <b>Euan Cairns</b> , J. Decker, University of North Texas, USA; S. Dixit, Plasma Technology Inc., USA; S. Berkebile, Army Research Laboratory, USA; D. Berman, S. Aouadi, A. Voevodin, University of North Texas, USA	
3:20pm		<b>MC3-1-WeA-5</b> Tribological Behavior of DLC Coatings: Wear Map of Oil Lubricated Contacts in a Three-Pins-on-Disc Test Configuration, <b>Julien Keraudy</b> , N. Manninen, F. Rovere, Oerlikon Surface Solutions AG, Liechtenstein	
3:40pm	<b>T55-WeA-6</b> Towards Responsible Surface Engineering, <b>Marcus Hans</b> , J. Schneider, RWTH Aachen University, Germany; A. Matthews, University of Manchester, UK; C. Mitterer, Montanuniversität Leoben, Austria	<b>MC3-1-WeA-6</b> Tribological Behaviour of Cobalt-Based and Nickel-Based Systems Under Various Environmental Conditions for Gas Turbine Engines, <b>Marie-Laurence Cliche</b> , P. Stoyanov, Concordia University, Canada	
4:00pm	<b>INVITED: T55-WeA-7</b> Reprocessing High Performance Cutting Tools – Performance Plus with Dedicated Coating Solutions, <b>Dominik Blösch</b> , C. Krieg, PLATIT AG, Switzerland; J. Kluson, PLATIT a.s., Czechia; H. Bolvardi, A. Lümekemann, PLATIT AG, Switzerland; B. Torp, PLATIT Inc., Switzerland	<b>MC3-1-WeA-7</b> Development and Process Optimization of Suspension Plasma Spray Coating to Enhance the Frictional Properties and Wear Resistance, <b>Yong-Jin Kang</b> , Y. Yoo, S. Lee, D. Kim, Korea Institute of Materials Science, Republic of Korea	
4:20pm		<b>MC3-1-WeA-8</b> Excellent Mechanical, Tribological and Anticorrosive Properties of Nanocomposite Coating Based on Polyvinyl Alcohol/MXene/Tannic Acid, <b>Dieter Rahmadiawan</b> , National Cheng Kung University (NCKU), Taiwan, Indonesia; S. Chen Shi, National Cheng Kung University (NCKU), Taiwan	
4:40pm		<b>MC3-1-WeA-9</b> Effects of Various Al/Cr Composition and Deposition Conditions on Surface Properties, Mechanical and Tribological Properties of AlCrN Coatings, <b>SHINICHI TANIFUJI</b> , M. NAKAMURA, R. TAKEI, S. KUJIME, T. TAKAHASHI, Kobe Steel, Ltd., Japan	
5:00pm		<b>MC3-1-WeA-10</b> Effect of Multilayer Architecture on Mechanical Properties and Cutting Performance of AlTiBN/AlCrBN Coatings, <b>Chung-En Chang</b> , Y. Chang, National Formosa University, Taiwan	
5:20pm		<b>MC3-1-WeA-11</b> Structural and Tribo-mechanical Properties of AlCrVYON Thin Films with Varying O Contents Sputtered from Either AlCrVY or AlCrY and V Targets, <b>W. Tillmann</b> , <b>Finn Ontrup</b> , D. Aubry, Institute of Materials Engineering, TU Dortmund University, Germany; E. Schneider, M. Paulus, C. Sternemann, Fakultät Physik/DELTA, TU Dortmund University, Germany; N. Lopes Dias, Institute of Materials Engineering, TU Dortmund University, Germany	

# Wednesday Afternoon, May 22, 2024

**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	<b>INVITED: HL-WeHL-2</b> R.F. Bunshah Award and ICMCTF Lecture Invited Talk: Making More Wear-Resistant Surfaces via Tribochemistry – from Cutting Tools to Flying Things, <i><b>Yip-Wah Chung</b></i> <sup>1</sup> , Northwestern University	
6:25pm		

<sup>1</sup> **R.F. Bunshah Awardee**

# Thursday Morning, May 23, 2024

<b>Coatings for Biomedical and Healthcare Applications</b> <b>Room Palm 3-4 - Session MD1-2-ThM</b> <b>Surface Coatings and Surface Modifications in Biological Environments II</b> <b>Moderators: Mathew T. Mathew</b> , University of Illinois College of Medicine at Rockford and Rush University Medical Center, USA, <b>Phaedra Silva-Bermudez</b> , Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico		<b>Functional Thin Films and Surfaces</b> <b>Room Palm 1-2 - Session MB3-1-ThM</b> <b>Nanomaterial-based Thin Films and Structures</b> <b>Moderators:</b> <b>Ondrej Kylian</b> , Charles University, Prague, Czechia, <b>Vladimir Popok</b> , Aalborg University, Denmark	
8:00am		<b>INVITED: MB3-1-ThM-1</b> Dual Scale Structures Based on Nanocolumns and Nanoparticles, <i>Lidia Martinez</i> , ICMM-CSIC, Spain; <i>J. Garcia-Martin</i> , IMN-CSIC, Spain; <i>Y. Huttel</i> , ICMM-CSIC, Spain	
8:20am			
8:40am	<b>MD1-2-ThM-3</b> The Biocompatibility of Thermal Sprayed Bioactive Glass Hydroxyapatite Compositing Coatings, <i>Pin-Jie Chen</i> , <i>C. Wu</i> , <i>R. Chung</i> , <i>Y. Yang</i> , National Taipei University of Technology, Taiwan	<b>MB3-1-ThM-3</b> MGA Nanoparticle Thin Films for Enhanced Hydrogen Gas Sensing: Synthesis, Modeling, and Characterization, <i>Stanislav Haviar</i> , <i>T. Kozák</i> , <i>K. Shaji</i> , University of West Bohemia, Czechia; <i>T. Košutová</i> , Charles University, Czechia; <i>B. Priffling</i> , <i>V. Schmidt</i> , Ulm University, Germany; <i>J. Čapek</i> , University of West Bohemia, Czechia	
9:00am	<b>MD1-2-ThM-4</b> Mineralization Ability and Inflammatory Reaction of HFOB 1.19 and THP-1 Cells on the Surface of the Borided AISI 316 L Steel, <i>Erick Japhet Hernandez-Ramirez</i> , <i>R. Perez Pasten Borja</i> , <i>Y. Marquez-Flores</i> , <i>N. Hernandez-Delgado</i> , Instituto Politecnico Nacional, Mexico; <i>I. Mejia-Caballero</i> , Universidad Autonoma Metropolitana, Mexico; <i>I. Campos-Silva</i> , Instituto Politecnico Nacional, Mexico	<b>MB3-1-ThM-4</b> Enhanced Dimer Sputtering and Production of Nanoparticles by Pulsed Magnetron Discharge, <i>Pavel Čurda</i> , University of South Bohemia, Czechia; <i>R. Hippler</i> , University of Greifswald, Germany; <i>M. Cada</i> , Institute of Physics, Czech Academy of Sciences, Czechia; <i>O. Kylián</i> , Charles University, Czechia; <i>Z. Hubicka</i> , Institute of Physics, Czech Academy of Sciences, Czechia; <i>V. Stranak</i> , University of South Bohemia, Czechia	
9:20am	<b>INVITED: MD1-2-ThM-5</b> Tribological Composite Coatings Prepared by Cold Spray, <i>Sima Alidokht</i> , Department of Mechanical and Mechatronics Engineering, Memorial University of Newfoundland, Canada	<b>MB3-1-ThM-5</b> Plasma Polymer - Ag Nanocomposites: Is the Gas Aggregation Source of Nanoparticles an Appropriate Technique for Their Synthesis?, <i>Zdenek Krtous</i> , <i>T. Kosutova</i> , <i>P. Pleskunov</i> , Charles University, Prague, Czech Republic; <i>B. Baloukas</i> , <i>L. Martinu</i> , Polytechnique Montréal, Canada	
9:40am		<b>MB3-1-ThM-6</b> Fabrication of $\alpha$ -Fe <sub>2</sub> O <sub>3</sub> Nanorod Arrays/Au Nanoparticles with an Enhanced Visible-Light Photocatalysis Activity, <i>Yu-Han Hsu</i> , <i>K. Chang</i> , <i>Y. Chiu</i> , National Cheng Kung University (NCKU), Taiwan	
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am	<b>MD1-2-ThM-8</b> Bio-Tribocorrosion Performance of AISI 316 L Steel Enhanced by Pulsed-DC Powder-Pack Boriding, <i>Alan Daniel Contla-Pacheco</i> , TecNM/Tecnologico de Estudios Superiores de Jocotitlan, Mexico; <i>I. Mejia-Caballero</i> , Universidad Autonoma Metropolitana-Azcapotzalco, Mexico; <i>A. Delgado-Brito</i> , <i>V. Castrejon-Sanchez</i> , TecNM/Tecnologico de Estudios Superiores de Jocotitlan, Mexico; <i>R. Perez Pasten-Borja</i> , <i>I. Campos-Silva</i> , Instituto Politecnico Nacional, Mexico	<b>MB3-1-ThM-8</b> Combinatorial Approach of Zr-Ti-Al Thin Films: Understanding Glass-Forming Behavior, Morphological Changes, and Thermal Stability, <i>Zil Fernández-Gutiérrez</i> , <i>D. Pilloud</i> , <i>S. Bruyère</i> , <i>S. Hupont</i> , <i>J. Pierson</i> , Institut Jean Lamour - Université de Lorraine, France	
10:40am	<b>MD1-2-ThM-9</b> Sers Substrates Based on Self-Organized Dimple Nanostructures on Polyethylene Naphthalate Films Produced via Oxygen Ion Beam Sputtering, <i>SEUNGHUN LEE</i> , KIMS, Republic of Korea; <i>J. Yang</i> , Korea institute of materials science, Republic of Korea	<b>MB3-1-ThM-9</b> Study of Interfacial Reactions in Artificially Nanolayered Mg-Mo-N Thin Films, <i>Baptiste Julien</i> , National Renewable Energy Laboratory, USA	
11:00am		<b>MB3-1-ThM-10</b> Stainless-steel Nano-Pyramid Structure Coating to Enhance Oil/Water Separation, <i>Helmi San Haji</i> , National Taiwan University of Science and Technology, Taiwan; <i>P. Chu</i> , National Taiwan University of Science and Technology, Taiwan	
11:20am		<b>MB3-1-ThM-11</b> The Impact of Laser Annealing on Electrical Resistivity and Mechanical Properties in Highly(111)-Oriented Nanotwinned Ag Thin Films, <i>Tsai-Shaun Kuo</i> , <i>C. Yang</i> , <i>F. Ouyang</i> , National Tsing Hua University, Taiwan	
11:40am		<b>MB3-1-ThM-12</b> Development of Porous Ceramic Scaffolds for the Fabrication of SLIPS Coatings, <i>M. Caruso</i> , National Research Council of Italy; <i>A. Corozzi</i> , National Research Council of Italy; <i>Andrea Ruffini</i> , <i>M. Raimondo</i> , National Research Council of Italy	

# Thursday Morning, May 23, 2024

	<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP2-1-ThM</b> <b>HiPIMS, Pulsed Plasmas and Energetic Deposition I</b> <b>Moderators:</b> <b>Martin Rudolph</b> , Leibniz Inst. of Surface Eng. (IOM), Germany, <b>Tetsuhide Shimizu</b> , Tokyo Metropolitan University, Japan	<b>Protective and High-temperature Coatings</b> <b>Room Town &amp; Country C - Session MA5-1-ThM</b> <b>Boron-containing Coatings I</b> <b>Moderators:</b> <b>Martin Dahlqvist</b> , Linköping University, Sweden, <b>Anna Hirle</b> , TU Wien, Austria
8:00am		
8:20am		<b>INVITED: MA5-1-ThM-2</b> Study of W and Zr Interdiffusion in the $WB_2 - ZrB_2$ System, <b>Y. Zhou</b> , <b>S. Filipovic</b> , <b>D. Lipke</b> , <b>W. Fahrenholtz</b> , <b>G. Hilmas</b> , Missouri University of Science and Technology, USA
8:40am		
9:00am	<b>INVITED: PP2-2-1-ThM-4</b> Metal-Ion Synchronized HiPIMS of AlN and AlScN for Piezoelectric Applications, <b>J. Patidar</b> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>S. Bette</b> , aixACCT systems GmbH, Aachen, Germany; <b>O. Pshyk</b> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>R. Kessels</b> , aixACCT Systems GmbH, Aachen, Germany; <b>Sebastian Siol</b> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	<b>MA5-1-ThM-4</b> W-Based Thin Film Metallic Glasses Doped with Ni, Zr and B for Industrial Applications, <b>Antonin Kubicek</b> , <b>V. Sochora</b> , SHM, s.r.o., Czechia; <b>Z. Studeny</b> , University of Defence, Czech Republic; <b>P. Soucek</b> , Masaryk University, Czechia; <b>Z. Pokorny</b> , University of Defence, Czech Republic; <b>T. Schmidtova</b> , <b>J. Zenisek</b> , Masaryk University, Czechia
9:20am		<b>MA5-1-ThM-5</b> Effect of Ti and Zr Contents on the Microstructure, Mechanical Properties, and Corrosion Resistance of WZrTiB Boride Thin Films, <b>Wei-Xiang Fang</b> , Ming Chi University of Technology, Taiwan; <b>B. Lou</b> , Chang Gung University, Taiwan; <b>J. Lee</b> , Ming Chi University of Technology, Taiwan
9:40am	<b>PP2-1-ThM-6</b> Optimization of Deposition Parameters of Titanium Oxide Films by Taguchi Method, <b>Shih-Yang Hsu</b> , Department of Materials and Mineral Resources Engineering, Institute of Materials Science and Engineering, National Taipei University of Technology, Taipei, Taiwan; <b>B. Lou</b> , Chemistry Division, Center for General Education, Chang Gung University, Taoyuan, Taiwan; <b>J. Lee</b> , Department of Materials Engineering, Ming Chi University of Technology, New Taipei, Taiwan; <b>Y. Yang</b> , Department of Materials and Mineral Resources Engineering, Institute of Materials Science and Engineering, National Taipei University of Technology, Taipei, Taiwan	<b>MA5-1-ThM-6</b> Influence of Spatial Heterogeneity on Mechanical Properties in Multilayered Coatings, <b>M. Gocnik</b> , Montanuniversität Leoben, Austria; <b>M. Vidiš</b> , <b>T. Fiantok</b> , Comenius University Bratislava, Slovakia; <b>P. Švec, Jr.</b> , Institute of Physics, Slovak Academy of Sciences, Slovakia; <b>Š. Nagy</b> , Institute of Materials and Machine Mechanics, Slovak Academy of Sciences, Slovakia; <b>M. Truchlý</b> , <b>V. Izai</b> , <b>T. Roch</b> , <b>L. Satrapinskyy</b> , <b>V. Šroba</b> , Comenius University, Bratislava, Slovakia; <b>M. Meindlhuber</b> , Montanuniversität Leoben, Austria; <b>B. Grančič</b> , <b>P. Kúš</b> , Comenius University, Bratislava, Slovakia; <b>J. Kečekš</b> , Montanuniversität Leoben, Austria; <b>M. Mikula</b> , Comenius University, Slovak Academy of Sciences, Slovakia
10:00am	<b>BREAK</b>	<b>BREAK</b>
10:20am	<b>PP2-1-ThM-8</b> Phase Transformation of Boron Carbon Nitride Coatings Deposited by High-Power Impulse Magnetron Sputtering, <b>H. Nagakura</b> , <b>H. Komiya</b> , Tokyo Metropolitan University, Japan; <b>Y. Tauta</b> , Tokyo Metropolitan Industrial Technology Research Institute, Japan; <b>I. Fernandez</b> , Nano4Energy, Spain; <b>R. Boyd</b> , <b>U. Helmersson</b> , <b>D. Lundin</b> , Linköping University, Sweden; <b>Tetsuhide Shimizu</b> , Tokyo Metropolitan University, Japan	<b>MA5-1-ThM-8</b> Self-Formation of Dual-Phase Nanocomposite Coatings Within Ternary Zr-Cu-B System, <b>D. Thakur</b> , <b>M. Cervena</b> , <b>J. Houska</b> , <b>S. Haviar</b> , <b>R. Cerstvy</b> , <b>Petr Zeman</b> , University of West Bohemia, Czechia
10:40am	<b>PP2-1-ThM-9</b> Thick and Smooth Nanostructured Cr Coatings with Enhanced HiPIMS Ionization, <b>Ricardo Serra</b> , University of Coimbra, Portugal; <b>S. Adebayo</b> , University of Coimbra, Nigeria; <b>J. Oliveira</b> , university of coimbra, Portugal	<b>MA5-1-ThM-9</b> High-Rate Deposition of Ultrathick Boron Carbide Coatings for Inertial Confinement Fusion, <b>J. B. Merlo</b> , <b>K. Kawasaki</b> , <b>J. Forien</b> , <b>S. Gonzalez</b> , <b>G. Taylor</b> , <b>S. Shin</b> , <b>L. Bayu Aji</b> , <b>S. Kucheyev</b> , Lawrence Livermore National Laboratory, USA
11:00am	<b>PP2-1-ThM-10</b> Implementation of HiPIMS Technology in Different Industrial Sectors, <b>IVAN FERNANDEZ</b> , NANO4ENERGY SL, Spain	<b>MA5-1-ThM-10</b> Ion Beam Assisted Pulsed Laser Deposition of Hexagonal Boron Nitride Thin Films, <b>Venkata Ananth Kandadai</b> , <b>J. Petersen</b> , <b>B. Jasthi</b> , South Dakota School of Mines and Technology, USA
11:20am	<b>PP2-1-ThM-11</b> Impact of Energetic Film-Forming Particles in Ion Beam Sputter Deposition of Epitaxial $Ga_2O_3$ Thin Films, <b>Dmitry Kalanov</b> , <b>Y. Unutulmazsoy</b> , <b>J. Gerlach</b> , <b>A. Lotnyk</b> , <b>J. Bauer</b> , <b>A. Anders</b> , <b>C. Bundesmann</b> , Leibniz Institute of Surface Engineering (IOM), Germany	<b>MA5-1-ThM-11</b> Taking Advantage of Unique Lattice Sites – How to Find New Boron-Based Materials Through Large-Scale Stability Predictions, <b>Martin Dahlqvist</b> , <b>A. Carlsson</b> , <b>J. Rosen</b> , Linköping University, IFM, Materials Design, Sweden
11:40am	<b>PP2-1-ThM-12</b> Quantification of the Negative Oxygen Ion Yield, <b>Diederik Depla</b> , Ghent University, Belgium	

# Thursday Morning, May 23, 2024

<b>Topical Symposium on Sustainable Surface Engineering</b> <b>Room Town &amp; Country D - Session TS4-1-ThM</b> <b>Coatings and Surfaces for Thermoelectrical Energy Conversion and (Photo)electrocatalysis I</b> <b>Moderators:</b> <b>Clio Azina</b> , RWTH Aachen University, Germany, <b>Carlos Tavares</b> , University of Minho, Portugal		<b>Tribology and Mechanics of Coatings and Surfaces</b> <b>Room Town &amp; Country B - Session MC3-2-ThM</b> <b>Tribology of Coatings and Surfaces for Industrial Applications II</b> <b>Moderators:</b> <b>Nazlim Bagcivan</b> , Schaeffler Tech GmbH & Co. KG, Germany, <b>Rainer Cremer</b> , KCS Europe GmbH, Germany, <b>Stephan Tremmel</b> , University of Bayreuth, Germany	
8:00am	<b>INVITED: TS4-1-ThM-1</b> Inorganic Thermoelectric Films for Harvesting Waste Heat Near Room Temperature: Opportunities and Challenges, <i>Rui Shu</i> , Linköping University, Sweden, USA	<b>INVITED: MC3-2-ThM-1</b> Interactions between Coatings/Surfaces and Lubricants: How to Manage the Tribochemical Wear in ZDDP-lubricated DLC Coatings?, <i>Maria Isabel De Barros</i> , Laboratory of Tribology and System Dynamics Ecole Centrale de Lyon, France	
8:20am			
8:40am	<b>TS4-1-ThM-3</b> Retaining Crystallinity of as-deposited Thermoelectric Fe <sub>2</sub> VAI-based Thin Films Grown from DCMS and HiPIMS, <i>Ludwig Enzberger</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>S. Kolozsvari</i> , Plansee SE, Germany; <i>P. Mayrhofer</i> , TU Wien, Institute of Materials Science and Technology, Austria	<b>MC3-2-ThM-3</b> Coating of Plastic Parts with Tetrahedral Amorphous Carbon for Wear Protection Using Laser-Arc Technology, <i>B. Gebhardt</i> , <i>M. Holzherr</i> , <i>M. Kopte</i> , <i>H. Pröhl</i> , <i>R. Seifert</i> , <b>Marc Tobias Wenzel</b> , VON ARDENNE, Germany; <i>F. Kaulfuß</i> , <i>F. Hörtwig</i> , Fraunhofer IWS, Germany	
9:00am	<b>TS4-1-ThM-4</b> Thermoelectrical Investigations of TaC-Based Superlattice Protective Coatings, <i>Barbara Schmid</i> , <i>S. Lin</i> , <i>T. Schönggruber</i> , <i>N. Koutná</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>S. Bühler-Paschen</i> , TU Wien, Austria; <i>L. Mitterhuber</i> , Materials Center Leoben, Austria; <i>D. Ingerle</i> , TU Wien, Austria; <i>S. Kolozsvari</i> , Plansee SE, Germany; <i>P. Mayrhofer</i> , TU Wien, Institute of Materials Science and Technology, Austria	<b>MC3-2-ThM-4</b> Investigation of the Mechanical and Tribological Properties of TiBCN Thin Films, <b>Cennet Yıldırım</b> , Turkish Energy, Nuclear and Mineral Research Agency – Boron Research Institute / Istanbul Technical University, Türkiye, Turkey; <i>Ö. Kısacık</i> , <i>H. Doyuran</i> , <i>C. Eseroğlu</i> , Turkish Energy, Nuclear and Mineral Research Agency – Boron Research Institute, Türkiye, Turkey; <i>E. Kaçar</i> , Hakkari University, Türkiye, Turkey	
9:20am	<b>INVITED: TS4-1-ThM-5</b> Exploring the Potential and Challenges of Solution-Processed Inorganic Thermoelectric Materials, <i>M. Ibáñez</i> , <b>Tobias Kleinhanns</b> , Institute of Science and Technology Austria (ISTA), Austria	<b>MC3-2-ThM-5</b> Investigating the Influence of B, C, and N on the Tribomechanical Properties of the Chemically Complex TiSiBCN Thin Film using Design of Experiments, <i>W. Tillmann</i> , <b>Julia Urbanczyk</b> , <i>A. Ebady</i> , Institute of Materials Engineering, TU Dortmund University, Germany; <i>A. Thewes</i> , <i>G. Bräuer</i> , Institute for Surface Technology, TU Braunschweig, Germany; <i>N. Lopes Dias</i> , Institute of Materials Engineering, TU Dortmund University, Germany	
9:40am		<b>MC3-2-ThM-6</b> Effect of Alloy Modification on the Wear Protection Coatings Made of Ni- and Co-Based Materials and Surface Machinability via Ultrasonic Milling Process, <b>Maraïke Gräbner</b> , Clausthal University of Technology, Institute of Welding and Machining, Germany; <i>M. Giese</i> , Federal Institute for Materials Research and Testing, Germany; <i>K. Treutler</i> , Clausthal University of Technology, Institute of Welding and Machining, Germany; <i>S. Lorenz</i> , <i>V. Wesling</i> , Clausthal University of Technology, Institute of Welding and Machining, Germany; <i>D. Schröpfer</i> , <i>T. Kannengießer</i> , Federal Institute for Materials Research and Testing, Germany	
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am	<b>TS4-1-ThM-8</b> 3D Nanoscale Spatial Imaging of Doped ZnO and TiO <sub>2</sub> Transparent Thermoelectric Thin Films, <i>J. Ribeiro</i> , <i>F. Correia</i> , <i>H. Faria</i> , University of Minho, Portugal; <i>A. Welle</i> , <i>T. Boll</i> , Karlsruhe Institute of Technology (KIT), Germany; <b>Carlos Jose Tavares</b> , University of Minho, Portugal	<b>MC3-2-ThM-8</b> An Alternative Thermal Route to Improve an Aluminum Alloy through a Deposition of NiP Coating, <i>R. Davies</i> , Pontificia Universidade Católica do Parana, Brazil; <i>M. Soares</i> , Universidade Tecnológica Federal do Parana, Brazil; <i>F. Amorim</i> , <i>P. Soares</i> , <i>C. Neitzke</i> , <b>Ricardo Torres</b> , Pontificia Universidade Católica do Parana, Brazil	
10:40am	<b>TS4-1-ThM-9</b> Ni-B-based Polyalloy Electrocatalyst Coatings Deposited by MSPVD for Efficient Oxygen Evolution Reaction, <b>Kubilay Sahin</b> , Institute for Clean Growth and Future Mobility, Coventry University, Department of Metallurgy, University of Mons (UMONS), UK; <i>V. Vitry</i> , Department of Metallurgy, University of Mons (UMONS), 23 Place du Parc, B-7000 Mons, Belgium., Belgium; <i>A. Copley</i> , Institute for Clean Growth and Future Mobility, Coventry University, Priory St, Coventry, CV1 5FB, UK.; <i>J. Graves</i> , <i>G. Pourian Azar</i> , Institute for Clean Growth and Future Mobility, Coventry University, UK		
11:00am	<b>TS4-1-ThM-10</b> Role of Grain Boundaries in the Stress Corrosion Cracking of Nanoporous Gold Thin Films, <b>Aparna Saksena</b> , Max-Planck Institut für Eisenforschung GmbH, Germany; <i>A. El-Zoka</i> , Imperial College London, UK; <i>A. Saxena</i> , <i>E. Hatipoglu</i> , Max-Planck Institut für Eisenforschung GmbH, Germany; <i>J. Schneider</i> , RWTH Aachen University, Germany; <i>B. Gault</i> , Max-Planck Institut für Eisenforschung GmbH, Germany		
11:20am	<b>TS4-1-ThM-11</b> Metal/Oxide Heterostructure as Hydrogen Evolution Reaction Electrocatalyst, <b>Thi Y Phung Nguyen</b> , National Cheng Kung University (NCKU), Taiwan, Viet Nam; <i>J. Ting</i> , National Cheng Kung University (NCKU), Taiwan		
11:40am	<b>TS4-1-ThM-12</b> Copper-Based Porous Surfaces for Electrocatalytic CO <sub>2</sub> Reduction, <b>Maria José Lima</b> , University of Minho, Portugal; <i>J. Castro</i> , <i>S. Carvalho</i> , University of Coimbra, Portugal		

# Thursday Afternoon, May 23, 2024

	<p><b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b>  <b>Room Palm 1-2 - Session CM3-1-ThA</b>  <b>Accelerated Thin Film Development: High-throughput Synthesis, Automated Characterization, and Data Analysis I</b>  <b>Moderators:</b>  <b>Davi Marcelo Febba</b>, NREL, USA,  <b>Sebastian Siol</b>, Empa, Switzerland,  <b>Andriy Zakutayev</b>, NREL, USA</p>	<p><b>Coatings for Biomedical and Healthcare Applications</b>  <b>Room Palm 3-4 - Session MD2-ThA</b>  <b>Medical Devices: Bio-Tribo-Corrosion, Diagnostics, 3D Printing</b>  <b>Moderators:</b>  <b>Steve Bull</b>, Newcastle University, UK,  <b>Hamdy Ibrahim</b>, University of Tennessee at Chattanooga, USA</p>
1:20pm		
1:40pm	<p><b>INVITED: CM3-1-ThA-2</b> Collaborative Intelligence in Thin Film Research for Clean Energy Technologies, <b>Shijing Sun</b>, University of Washington, USA</p>	<p><b>MD2-ThA-2</b> Corrosion Risk Analysis of CoCrMo alloy as a Function of Microstructure: Biomedical Applications, <b>Maansi Thapa</b>, University of Illinois at Chicago, USA; <b>Y. Sun, B. Keaty, M. Mathew, C. Takoudis, M. Daly, D. Ozevin</b>, University of Illinois - Chicago, USA</p>
2:00pm		<p><b>MD2-ThA-3</b> Wear and Corrosion Behavior of WC/C Coated AISI420 for Dental Instruments, <b>Sara Blunk</b>, Pontificia Universidade Católica do Paraná, Brazil; <b>R. Torres</b>, Pontificia Universidade Católica do Paraná, Brazil; <b>L. Bemben</b>, Neodent, Brazil; <b>M. Manosso</b>, Straumann Group, Switzerland; <b>P. Soares</b>, Pontificia Universidade Católica do Paraná, Brazil</p>
2:20pm	<p><b>CM3-1-ThA-4</b> Discovery and Design of a New Functional Amorphous Nitride: Y-W-N, <b>Oleksandr Pshyk, S. Zhuk, J. Patidar, A. Wiecek</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>A. Sharma, J. Michler</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <b>C. Cancellieri</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>V. Stevanovic</b>, Colorado School of Mines, USA; <b>S. Siol</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</p>	<p><b>MD2-ThA-4</b> Comparative Study of Composite Coatings on Magnesium for Biomedical Devices, <b>V. Patil</b>, University of Tennessee at Chattanooga, USA; <b>B. Williams</b>, University of Arkansas, USA; <b>J. Rich</b>, University of Tennessee at Chattanooga, USA; <b>M. Elsaadany</b>, University of Arkansas, USA; <b>Hamdy Ibrahim</b>, University of Tennessee at Chattanooga, USA</p>
2:40pm	<p><b>CM3-1-ThA-5</b> Deposition of Highly Crystalline AlScN Films Using Synchronized HiPIMS – From Combinatorial Screening to Piezoelectric Devices, <b>Jyotish Patidar</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>S. Bette</b>, aixACCT Systems GmbH, Germany; <b>O. Pshyk, K. Thorwarth</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>R. Kessels</b>, aixACCT Systems GmbH, Germany; <b>S. Siol</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</p>	<p><b>INVITED: MD2-ThA-5</b> Laser-Induced Graphene Coatings on Polymers for Biomedical Devices, <b>Mostafa Bedewy</b>, University of Pittsburgh, USA</p>
3:00pm	<p><b>CM3-1-ThA-6</b> Advancing Metallic Glasses for Biomedical Applications: A Comprehensive Study on CuAgZr Alloys Using Combinatorial Synthesis, High-Throughput Characterization, and Machine Learning, <b>Krzysztof Wiczerzak</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Laboratory of Mechanics of Materials and Nanostructures, Switzerland</p>	
3:20pm		<p><b>MD2-ThA-7</b> Microfluidic Device for the Isolation, Detection, and Purification of Exosomes Based on Metallic Nanostructure Arrays, <b>Alfreda Krisna Altama, Y. Hsiao, C. Chen</b>, National Taiwan University of Science and Technology, Taiwan; <b>R. Haliq</b>, National Taiwan University of Science and Technology, Indonesia; <b>P. Yiu</b>, Ming Chi University of Technology, Taiwan; <b>P. Wu, J. Chu</b>, National Taiwan University of Science and Technology, Taiwan</p>
3:40pm	<b>BREAK</b>	<b>BREAK</b>
4:00pm	<p><b>INVITED: CM3-1-ThA-9</b> Accelerating Materials Discovery by Combining Combinatorial Synthesis of Thin-Film Libraries, High-Throughput Characterization and Data Science, <b>Alfred Ludwig</b>, Ruhr University Bochum, Germany</p>	<p><b>MD2-ThA-9</b> Mass-Production of Ultra-Sensitive 2d Electronic Biosensors via Roll-to-Roll Sputtering and Laser Patterning, <b>Ben Robertson, M. Muratore</b>, University of Dayton, USA; <b>N. Glavin</b>, Air Force Research Laboratory, USA; <b>C. Muratore</b>, University of Dayton, USA</p>
4:20pm		
4:40pm	<p><b>CM3-1-ThA-11</b> Autonomous Sputter Synthesis and Data Management for Nitride Thin Films, <b>Davi Febba, K. Talley, K. Johnson, S. Schaefer, S. Bauers, J. Mangum, R. Smaha, A. Zakutayev</b>, National Renewable Energy Laboratory, USA</p>	



# Thursday Afternoon, May 23, 2024

	<b>Plasma and Vapor Deposition Processes</b> <b>Room Town &amp; Country A - Session PP2-2-ThA</b> <b>HiPIMS, Pulsed Plasmas and Energetic Deposition II</b> <b>Moderators:</b> <b>Simizu Tetuhide</b> , Tokyo Metropolitan University, Japan, <b>Martin Rudolph</b> , Leibniz Inst. of Surface Eng. (IOM), Germany	<b>Protective and High-temperature Coatings</b> <b>Room Town &amp; Country C - Session MA5-2-ThA</b> <b>Boron-containing Coatings II</b> <b>Moderators:</b> <b>Martin Dahlqvist</b> , Linköping University, Sweden, <b>Anna Hirle</b> , TU Wien, Austria
1:20pm		<b>MA5-2-ThA-1</b> Tuning Oxidation Resistance and Mechanical Properties of Diborides by Transition Metal Alloying Deposited by Combination of Magnetron Sputtering and Cathodic ARC Evaporation, <b>Daniel Karpinski</b> , <i>P. Karvankova</i> , C. Krieg, PLATIT AG, Switzerland; <i>H. Joost</i> , <i>H. Frank</i> , Gesellschaft für Fertigungstechnik und Entwicklung Schmalkalden e.V., Germany; <i>A. Lümekemann</i> , PLATIT AG, Switzerland
1:40pm		<b>MA5-2-ThA-2</b> Coherent Coexistence of Crystalline Phases Enabled by Planar Defect Formation in Annealed $V_{1-x}W_xB_{2-δ}$ Films, <b>Katarína Viskupová</b> , <i>B. Grančič</i> , Comenius University in Bratislava, Slovakia; <i>P. Švec Jr.</i> , Slovak Academy of Sciences, Slovakia; <i>T. Roch</i> , <i>M. Truchlý</i> , <i>V. Šroba</i> , <i>L. Satrapinskyy</i> , <i>M. Mikula</i> , <i>P. Kúš</i> , Comenius University in Bratislava, Slovakia
2:00pm	<b>INVITED: PP2-2-ThA-3</b> Strategies for Low Temperature Reactive Deposition of Crystalline TiO <sub>2</sub> Thin Films, <b>Tomas Kubart</b> , Uppsala University, Department of Electrical Engineering, Sweden	<b>MA5-2-ThA-3</b> Powder Synthesis and Application of Atmospheric Plasma Spraying Zirconium Diboride Coating, <b>Ching Lee</b> , National Taipei University of Technology, Taiwan; <i>Y. Chen</i> , Researcher of National Chung-Shan Institute of Science & Technology, Taiwan; <i>Y. Chung</i> , Researcher of National Chung-Shan Institute of Science & Technology, Taoyuan city, Taiwan; <i>Y. Yang</i> , National Taipei University of Technology, Taiwan
2:20pm		<b>MA5-2-ThA-4</b> Annealing Twins in Sputtered Tantalum Boride Coatings, <b>Branislav Grančič</b> , <i>K. Viskupová</i> , <i>T. Fiantok</i> , Comenius University in Bratislava, Slovakia; <i>P. Švec Jr.</i> , Slovak Academy of Sciences, Slovakia; <i>V. Šroba</i> , <i>V. Izai</i> , <i>T. Roch</i> , <i>M. Truchlý</i> , <i>M. Mikula</i> , Comenius University in Bratislava, Slovakia
2:40pm	<b>PP2-2-ThA-5</b> Plasma Dynamics of Individual HiPIMS Pulses Investigated by High-Frame-Rate Camera, <b>Matjaz Panjan</b> , Jozef Stefan Institute, Slovenia	<b>MA5-2-ThA-5</b> Constitution, Microstructure and Properties of Magnetron Sputtered CrB <sub>2</sub> -TiB <sub>2</sub> and CrB <sub>2</sub> -ZrB <sub>2</sub> Thin Films, <i>V. Ott</i> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; <i>H. Riedl</i> , <i>T. Wojcik</i> , Vienna University of Technology, Austria; <i>S. Ulrich</i> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; <i>P. Mayrhofer</i> , Vienna University of Technology, Austria; <b>Michael Stueber</b> , Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany
3:00pm	<b>PP2-2-ThA-6</b> PowerFlex 500CG: A New HiPIMS Machine for Microtools Coating, <b>Gerardo Coletta</b> , VIA BENACO 88, Italy	<b>MA5-2-ThA-6</b> Fracture Characteristics of Si Containing Ternary and Quaternary Transition Metal Diborides, <b>Anna Hirle</b> , <i>A. Bahr</i> , <i>O. Beck</i> , <i>R. Hahn</i> , Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; <i>S. Kolozsvári</i> , <i>P. Polcik</i> , Plansee Composite Materials GmbH, Germany; <i>O. Hunold</i> , Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; <i>H. Riedl</i> , Institute of Materials Science and Technology, TU Wien, Austria
3:20pm	<b>PP2-2-ThA-7</b> Toward Decoupling the Effects of Kinetic and Potential Ion Energies: Ion Flux Dependent Structural Properties of Thin (V,Al)N Films Deposited by Pulsed Filtered Cathodic Arc, <b>Yeliz Unutulmazsoy</b> , <i>D. Kalanov</i> , <i>K. Oh</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>S. Karimi Aghda</i> , RWTH Aachen University, Germany; <i>J. Gerlach</i> , <i>N. Braun</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>F. Munnik</i> , Helmholtz-Zentrum Dresden - Rossendorf, Germany; <i>A. Lotnyk</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>J. Schneider</i> , RWTH Aachen University, Germany; <i>A. Anders</i> , Leibniz Institute of Surface Engineering (IOM), Germany	
3:40pm	<b>BREAK</b>	<b>BREAK</b>
4:00pm	<b>PP2-2-ThA-9</b> On Working Gas Rarefaction in High Power Impulse Magnetron Sputtering, <b>Kateryna Barynova</b> , University of Iceland; <i>M. Rudolph</i> , Leibniz Institute of Surface Engineering (IOM), Germany; <i>S. Suresh Babu</i> , University of Iceland; <i>J. Fischer</i> , Linköping University, Sweden; <i>N. Brenning</i> , <i>M. Raadu</i> , KTH Royal Institute of Technology, Sweden; <i>D. Lundin</i> , Linköping University, Sweden; <i>J. Gudmundsson</i> , University of Iceland	
4:20pm	<b>PP2-2-ThA-10</b> Tough Plasmonic Titanium Nitride Films Deposited by High Power Impulse Magnetron Sputtering, <i>E. Muir</i> , Sheffield Hallam University, UK; <i>R. Bower</i> , <i>P. Petrov</i> , Imperial College of Science, Technology and Medicine, UK; <b>Arutjun P. Ehasarian</b> , Sheffield Hallam University, UK	
4:40pm	<b>PP2-2-ThA-11</b> Synthesis and Characterization TiAlZrTaNb Coatings Obtained by High-power Impulse Magnetron Sputtering, <i>I. Gonzalez Avila</i> , <i>J. González Lozano</i> , <i>O. Piamba Tulcan</i> , <b>Jhon Jairo Olaya Florez</b> , Departamento de Ingeniería Mecánica y Mecatrónica, Universidad Nacional de Colombia	

# Thursday Afternoon, May 23, 2024

<p><b>Topical Symposium on Sustainable Surface Engineering</b>  <b>Room Town &amp; Country D - Session TS4-2-ThA</b>  <b>Coatings and Surfaces for Thermoelectrical Energy Conversion and (Photo)electrocatalysis II</b>  <b>Moderators: Clio Azina, RWTH Aachen University, Germany,</b>  <b>Carlos Tavares, University of Minho, Portugal</b></p>		
1:20pm		
1:40pm	<p><b>INVITED: TS4-2-ThA-2</b> Multifunctional Materials for Emerging Technologies, <b>Federico Rosei</b>, University of Trieste, Italy</p>	
2:00pm		
2:20pm	<p><b>TS4-2-ThA-4</b> Enhanced Photoelectrochemical Water Splitting on ZnCo<sub>2</sub>O<sub>4</sub> Electrodes in Chloroplasts Driven by Spin Injection, <b>Chien-Yu Lin, Y. Su</b>, National Cheng Kung University (NCKU), Taiwan</p>	
2:40pm	<p><b>TS4-2-ThA-5</b> Piezoelectricity-Assisted Photocatalyst of BiOBr-Based Composites on a Flexible Substrate, <b>Thi Nghi Nhan Nguyen, K. Chang</b>, National Cheng Kung University (NCKU), Taiwan</p>	
3:00pm	<p><b>TS4-2-ThA-6</b> Hydrothermal Synthesis of (Ba,Sr)TiO<sub>3</sub>/AgBr Films and Their Application for the Visible-light Piezo-photocatalysis, <b>Yen-Lun Chiu, K. Chang, S. Han</b>, National Cheng Kung University (NCKU), Taiwan</p>	
3:20pm	<p><b>TS4-2-ThA-7</b> Advances in Piezo-Photothermal Effect Enhanced Photocatalytic Activities of Heterostructure Composites, <b>Van Ty Tran, D. Chen</b>, National Cheng Kung University (NCKU), Taiwan</p>	
3:40pm	<b>BREAK</b>	
4:00pm	<p><b>TS4-2-ThA-9</b> Photoelectrochemical Properties of Chlorophyll Coating on Cu<sub>2</sub>O Photocatalyst by Mediating Charge Transfer Characteristic, <b>Yu-Teng Wu, Y. Su</b>, National Cheng Kung University (NCKU), Taiwan</p>	
4:20pm	<p><b>TS4-2-ThA-10</b> Ligand Modified Bimetallic Metal-Organic Frameworks Electrocatalysts for Urea Oxidation Reaction, <b>Hui Chuan Chen</b>, National Cheng Kung University (NCKU), Taiwan; <b>T. Nguyen</b>, National Cheng Kung University (NCKU), Taiwan, Viet Nam; <b>J. Ting</b>, National Cheng Kung University (NCKU), Taiwan</p>	

## Advanced Characterization, Modelling and Data Science for Coatings and Thin Films

Room Golden State Ballroom - Session CM-ThP

## Advanced Characterization, Modelling and Data Science for Coatings and Thin Films (Symposium CM) Poster Session

5:00pm

**CM-ThP-1** Localized Surface Plasmon Resonance of Silver Nanoparticle Thin Films on Moissanite: Simulation, Fabrication, and Characterization, *Tsung-Jen Wu, S. Song, W. Chen*, National Taiwan University, Taiwan; *W. Lin*, National Taiwan University of Science and Technology, Taiwan; *M. Phan*, National Taiwan University, Taiwan; *S. Tseng*, National Synchrotron Radiation Research Center, Taiwan

**CM-ThP-2** Greybox-Models to Describe the Wear Behavior of Coated Cutting Tools, *K. Bobzin, C. Kalscheuer, Nina Stachowski*, Surface Engineering Institute (IOT) - RWTH Aachen University, Germany

**CM-ThP-3** Flow Curve Determination of TiAlSiN Coatings Using Nanoindentation and Iterative FEM Simulations, *K. Bobzin, Christian Kalscheuer, X. Liu*, Surface Engineering Institute - RWTH Aachen University, Germany

**CM-ThP-4** Material Property Distributions of Sputter-Deposited Thin Films on a Two-Dimensional Diagram with Incident Particle Energy and Substrate Temperature, *Ichiro Ikeda, K. Kuroshima*, Osaka Vacuum, Ltd., Japan; *Y. Gotoh*, Department of Electronic Science and Engineering, Kyoto University, Japan; *M. Iguchi, S. Sugimoto*, Osaka Vacuum, Ltd., Japan

**CM-ThP-5** Ai-Enabled Construction and Prediction of Atomic Models for Thin-Film Heterostructures via Materials Genome Approach, *Po-Liang Liu, J. Dai*, National Chung Hsing University, Taiwan

**CM-ThP-7** Transfer Learning in Characterization of Nanoindentation Induced Acoustic Signatures, *Jurgis Daugela*, Johns Hopkins University, USA; *M. Daugela, A. Daugela*, Nanometronix LLC, USA

**CM-ThP-8** In-Situ Characterization of the Crystallization Kinetics of Sputtered TiO<sub>2</sub> Thin Films, *Daniel Félix Fernandes*, Department of Electrical Engineering, Division of Solid-State Electronics, The Ångström Laboratory, Uppsala University, SE-751 03 Uppsala, Sweden; *J. Hernández*, Madrid Institute for Advanced Studies in Nanoscience (IMDEA Nanoscience), Ciudad Universitaria de Cantoblanco, C/ Faraday 9, 28049 Madrid, Spain; *J. Martínez*, ALBA Synchrotron, Carrer de la Llum 2-26, 08290 Cerdanyola del Vallès, Barcelona, Spain; *T. Kubart*, Department of Electrical Engineering, Division of Solid-State Electronics, The Ångström Laboratory, Uppsala University, SE-751 03 Uppsala, Sweden, Spain

## Coatings for Biomedical and Healthcare Applications

Room Golden State Ballroom - Session MD-ThP

## Coatings for Biomedical and Healthcare Applications (Symposium MD) Poster Session

5:00pm

**MD-ThP-1** Investigation of Silver/Copper Diffusions in the Matrix of Amorphous Carbon Thin Films Produced by Magnetron Sputtering, *Hailin Sun*, Teer Coatings Ltd, UK

**MD-ThP-2** Enhanced Biomedical Implant Surfaces: Stainless Steel Modification Through Hipims-Coated Titanium and Peo Treatment, *Bruno Pereira*, Pontifícia Universidade Católica do Paraná, Luxembourg; *L. Fontana*, Universidade do Estado de Santa Catarina, Brazil; *C. Lepiński*, Universidade Federal do Paraná, Brazil; *P. Soares*, Pontifícia Universidade Católica do Paraná, Brazil

**MD-ThP-3** Nanospectroscopy and Nanochemical Imaging Using Photothermal AFM-IR on Biomolecular Sensors and Hydrated Self-Assembled-Monolayers, *Nafiseh Samiresht*, MPI für Eisenforschung GMBH, Germany; *G. Figueroa-Miranda, D. Mayer*, Forschungszentrum Juelich GmbH, Germany; *M. Rabe*, MPI für Eisenforschung GMBH, Germany

**MD-ThP-4** Development of Hierarchical Surfaces Coated with Zinc Nanoparticle-Doped Polycaprolactone on 316LVM Stainless Steel Substrate for Biomedical Applications, *Tarciana Dieb Toscano*, Pontifícia Universidade Católica do Paraná (PUCPR), Brazil; *A. Bhattacharjee*, Colorado State University, USA; *K. C. Popat*, George Mason University, USA; *P. Soares*, Pontifícia Universidade Católica do Paraná (PUCPR), Brazil

**MD-ThP-5** Catastrophic Corrosion in Metal Guitar Strings with or Without DLC Films Using Artificial Sweat, *C. Andrés Velásquez Andrade*, Universidade do Vale do Paraíba, Brazil; *N. Pereira Alves Granado*, IGTPAN, Brazil; *Lucia Vieira*, Universidade do Vale do Paraíba - Univap, Brazil

## Functional Thin Films and Surfaces

Room Golden State Ballroom - Session MB-ThP

## Functional Thin Films and Surfaces (Symposium MB) Poster Session

5:00pm

**MB-ThP-1** Effective Ways to Enhance the Performance of n-MoS<sub>2</sub>/p-CuO Heterojunction Based Self-Powered Photodetectors, *Davinder Kaur*, Indian Institute of Technology Roorkee, India

**MB-ThP-2** Porous Metal/Metal-Oxide Nanostructured Coatings Produced Using Gas Aggregation Sources of Nanoparticles as Recyclable SERS-Active Platforms, *A. Hanková, D. Novák, N. Khomiakova, E. Kačíšová, M. Procházka, Ondřej Kylián*, Charles University, Prague, Czech Republic

**MB-ThP-3** Exploring the Magnetoelectric Functionality in PMN-PT/FSMA Multiferroic Heterostructure for Flexible MEMS Applications, *Diksha Arora, D. Kaur*, Indian Institute of Technology Roorkee, India

**MB-ThP-4** A Carbon Nanotubes-Based Microwave Resonator for Ammonia Gas Sensing, *Hsuan-Ling Kao, Y. Tsai*, Chang Gung University, Taiwan

**MB-ThP-5** Investigating 2D-Materials Using Correlative Spectroscopy & Microscopy, *T. Nunney*, Thermo Fisher Scientific, UK; *James Lalla*, Thermo Fisher Scientific, USA; *P. Mack, R. Simpson, H. Tseng*, Thermo Fisher Scientific, UK

**MB-ThP-6** CsPbI<sub>3</sub>-Based Perovskite Thin Film Using All Vacuum Deposition Process, *HYO SIK CHANG, M. Jeong, j. Park*, Chungnam National University, Republic of Korea

**MB-ThP-7** Synthesis and Characterization of AlCrTiZrSiW High Entropy Alloy Coating by High-Power Impulse Magnetron Sputtering, *C. Chang*, Ming Chi University of Technology, Taiwan; *J. Tang*, Lunghwa University of Science and Technology, Taiwan; *Bo-Ruei Lu, J. Tsao, M. Lin*, Ming Chi University of Technology, Taiwan; *F. Yang*, National Taiwan University of Science and Technology, Taiwan

**MB-ThP-8** Increasing the Sensitivity of ZnO Piezoelectric Pressure Sensor by Vanadium Doping, *Heng-Chi Chu, S. Brahma, J. Huang*, National Cheng Kung University (NCKU), Taiwan

**MB-ThP-9** Location-Dependent Super-amphiphobic Nano-Structured Films Deposited by Tubular Microwave Plasma, *Ta-Chin Wei, Y. Shen*, Chung Yuan Christian University, Taiwan

**MB-ThP-10** Enhancing Oxygen Evolution Reaction Performance with Sputter-Deposited High Entropy Alloy Thin Film Electrocatalysts, *Siang-Yun Li, T. Nguyen, Y. Su, Y. Shen, C. Liu, J. Ruan, K. Chang, J. Ting*, National Cheng Kung University, Taiwan

**MB-ThP-11** Transition Metal Nitride Anti-Reflective Coatings, *Barbara Schmid, B. Hajas, N. Koutná*, TU Wien, Institute of Materials Science and Technology, Austria; *J. Blaschke*, TU Wien, Austria; *P. Polcik*, Plansee SE, Germany; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MB-ThP-12** Enabling Robust Chemical State Analysis of Sn-Based Perovskites via Auger Parameter Analysis in XPS, *Alexander Wiczorek, S. Siol*, Empa – Swiss Federal Laboratories for Materials Science and Technology, Switzerland

**MB-ThP-13** Pvd Deposition of Tin Based Antimultipacting Thin Films for Applications in Particle Accelerators, *Yanis Pisi*, CNRS, Université Paris-Sud, France

**MB-ThP-14** Influence of Oxygen Partial Pressure and Temperature on the Optical and Electrical Properties of NiO<sub>x</sub> Thin Films obtained by r.f. Sputtering, *E. Osorio-Urquiza, Francisco David Mateos-Anzaldo, M. Curriel-Alvarez, R. Nedev, O. Pérez-Landeros, B. Valdez-Salas, N. Nedev*, Instituto de Ingeniería-Universidad Autónoma de Baja California, Mexico

**MB-ThP-15** Characterization of Tin Oxide deposited by ALD for EUV Photoresist Applications, *Sangwoo Lee, T. Choi*, Sejong University, Republic of Korea; *I. Choi, J. Park, J. Yang*, TES Co., Ltd, Republic of Korea

**MB-ThP-16** Vertical Graphene Deposited on Stainless Steels for Anti-Biological Adhesion, *Aidan An-Cheng Sun*, Department of Chemical Engineering and Materials Science, Yuan Ze University, Chung-Li 32003, Taiwan; *S. Wang*, Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taipei 106, Taiwan

**MB-ThP-17** Effect of the R.F. Power and Thermal Annealing on the Properties of NiO<sub>x</sub> Thin Films, *Roumen Nedev, F. Mateos-Anzaldo, M. Curriel-Alvarez, O. Pérez-Landeros, E. Osorio-Urquiza, B. Valdez-Salas, N. Nedev*, Instituto de Ingeniería-Universidad Autónoma de Baja California, Mexico

**MB-ThP-18** Nanocrystalline MoO<sub>3</sub> Thin Films Prepared by Reactive DC Magnetron Sputtering for NO<sub>2</sub> Gas Sensing, *S. Singh, D. Kaur, Ramesh Chandra, S. Issar*, Indian Institute of Technology Roorkee, India

**MB-ThP-19** Vernier Ellipsometry Sensing with Ultralow Limit-of-Detection and Large Dynamic Range by Tuning of Zero-Reflection Points, *Yun Zhang, M. Thawda Phao, F. Yishu, X. Li, Y. Lam, J. Zapien*, City University of Hong Kong

**MB-ThP-20** Nano Indentation Pop-in Response on Basal Plane of 4H Hexagonal SiC Surface, *Jacob C. Huang*, National Sun Yat-sen University, Taiwan

## Plasma and Vapor Deposition Processes

### Room Golden State Ballroom - Session PP-ThP

#### Plasma and Vapor Deposition Processes (Symposium PP)

##### Poster Session

5:00pm

**PP-ThP-1** Topological Insulator Bi<sub>2</sub>Se<sub>3</sub> Nanoplatelets Enhanced Photo-Detectivity of UV and Visible Light by Ag Depositing, *Chih-Chiang Wang, A. Lo*, National Chin-Yi University of Technology, Taiwan; *P. Lin*, Texas A&M University, USA; *F. Shieu*, National Chung Hsing University, Taiwan; *H. Shih*, Chinese Culture University, Taiwan

**PP-ThP-2** Modeling and Synthesis of Long Scale Coherence Time Vacancy Defects in Silicon Carbide via Pulsed UV Laser and Photonic Curing for Industrial Scale Qubit Manufacturing, *N. Khatoon, S. Khalili, Douglas Chrisey*, Tulane University, USA

**PP-ThP-3** Comparison of Metal Drift in SiO<sub>2</sub> film for Co, Ru, and CoRu, *Yi-Lung Cheng, H. Zhang, B. Liao*, National Chi-Nan University, Taiwan

**PP-ThP-4** Recirculating Atmospheric Inductively Coupled Plasma (Icp) Beam Systems for Conversion of Si Sawdust in Si Nanoanode, *Michael ryaboy*, UC Berkeley, USA

**PP-ThP-5** Recyclable Thin Coatings Deposited by Means of Plasma-Assisted Techniques on Polymer Foils for Food Packaging Applications, *Francisco A. Delfin, C. Forsich, M. Schachinger, S. Augl*, University of Applied Sciences Upper Austria; *S. Brühl*, National University of Technology, Regional Faculty of Concepción del Uruguay (UTN – FRCU), Argentina; *C. Burgstaller, D. Heim*, University of Applied Sciences Upper Austria

**PP-ThP-6** Design and Manufacturing of Low-Cost Atomic Layer Deposition System to obtain Semiconductor and Dielectric Thin Films, *J. Navarro-Rodríguez, F. Mateos-Anzaldo*, Instituto de Ingeniería-Universidad Autónoma de Baja California, Mexico; *Jesús Román Martínez-Castelo*, Facultad de Ingeniería, Mexicali-Universidad Autónoma de Baja California, Mexico; *A. Pérez-Sánchez, J. Ruiz-Ochoa*, Facultad de Ciencias de la Ingeniería y Tecnología, Valle de las Palmas-Universidad Autónoma de Baja California, Mexico; *A. Gaytán-Pérez*, Facultad de Ciencias de la Ingeniería y Tecnología-Valle de las Palmas-Universidad Autónoma de Baja California, Mexico; *H. Tiznado-Vázquez*, Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México; *N. Nedev*, Instituto de Ingeniería-Universidad Autónoma de Baja California, Mexico

**PP-ThP-7** Neon Addition to the Plasma for Enhanced Ionization in the Deposition of Cr films by HiPIMS-DOMS, *João Carlos Oliveira*, University of Coimbra, Portugal; *S. Adebayo*, University of Coimbra, Nigeria; *R. Serra*, University of Coimbra, Portugal

**PP-ThP-8** Study of Transitional Element Dopants on CeO<sub>2</sub> Thin Films for Resistance Random Access Memory Application, *A. Sun*, Department of Chemical Engineering and Materials Science, Yuan Ze University, Taiwan; *Sea-Fue Wang*, Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taipei 106, Taiwan

**PP-ThP-9** Mechanical Properties Thermal Stabilities of Multilayered AlCrBN/AlTiSiN Hard Coatings, *Chung-En Chang, T. Tsai, H. Feng, M. Yang, Y. Chang*, National Formosa University, Taiwan

**PP-ThP-10** CVD Equipment: Yesterday, Today and Tomorrow, *Anne Zhang, H. Strakov*, IHI Bernex AG, Switzerland

**PP-ThP-11** Target Erosion Simulation in Full 3D for Optimization of Target Utilization in Magnetron Sputtering, *Kryštof Mrózek, P. Zikán, A. Obrusnik*, PlasmaSolve s.r.o., Czechia

## Protective and High-temperature Coatings

### Room Golden State Ballroom - Session MA-ThP

#### Protective and High-temperature Coatings (Symposium MA)

##### Poster Session

5:00pm

**MA-ThP-1** Predictive Modeling and Experimental Validation of Phase Formation in High-Entropy Alloys Thin Films, *Salah-eddine Benrazouq, J. Ghanbaja, S. Migot, J. Pierson, V. Milichko*, Institut Jean Lamour - Université de Lorraine, France

**MA-ThP-2** Study of ALD Nano-Oxide Films on Corrosion Protection of Al-SiC Composites, *H. Chen, Hsin-Chih Lin, Y. Chen, P. Lin, K. Lin*, National Taiwan University, Taiwan; *J. Lin*, Huang Chieh Metal Composite Material Technology Company, Taiwan

**MA-ThP-3** Optimizing Temperature Stability in Non-Reactively Sputtered (Hf,Ta,Ti,V,Zr)B-C-N Coatings by Design of the Non-Metal Sublattice, *Andreas Kretschmer, A. Kirnbauer*, TU Wien, Institute of Materials Science and Technology, Austria; *R. Frost, D. Primetzhofer*, Uppsala University, Sweden; *H. Rojacz, E. Badisch*, AC2T Research GmbH, Austria; *M. Hans, J. Schneider*, RWTH Aachen, Germany; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MA-ThP-4** Unravelling Diffusion Processes and Morphology Changes of Ternary and Quaternary Diborides During High-Temperature Oxidation, *Sophie Richter, A. Bahr, T. Glechner, T. Wojcik*, Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; *S. Kolozsvári, P. Polcik*, Plansee Composite Materials GmbH, Germany; *O. Hunold, J. Ramm*, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *D. Primetzhofer*, Department of Physics and Astronomy, Uppsala University, Sweden; *P. Felfer*, Department of Materials Science and Engineering, FAU Erlangen, Germany; *H. Riedl*, Institute of Materials Science and Technology, TU Wien, Austria

**MA-ThP-5** Influence of Mo on DCMS and HiPIMS Deposited TiB<sub>2+z</sub> Thin Films, *Anna Hirle, P. Dörflinger, R. Hahn, T. Wojcik*, Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; *S. Kolozsvári, P. Polcik*, Plansee Composite Materials GmbH, Germany; *O. Hunold*, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; *H. Riedl*, Institute of Materials Science and Technology, TU Wien, Austria

**MA-ThP-6** Investigation of Microstructure and Mechanical Properties of TiCrAlNiCu High Entropy Alloy Nitride Nanocomposite Coatings Deposited by DC Magnetron Sputtering, *J. Shin, G. Kang, H. Park, S. Hong, T. Choi*, Sejong University, Republic of Korea; *J. Lee*, Kongju National University, Republic of Korea; *H. Lee*, Korea Institute of Industrial Technology, Republic of Korea; *Ki Buem Kim*, Sejong University, Republic of Korea

**MA-ThP-7** Impact of the B/Ti-ratio on Microstructure, Mechanical Properties, and Thermal Stability of DCMS and HiPIMS TiB<sub>2</sub> Thin Films, *Ludwig Enzberger*, TU Wien, Institute of Materials Science and Technology, Austria; *M. Podsednik*, TU Wien, Austria; *S. Kolozsvári*, Plansee SE, Germany; *A. Limbeck*, TU Wien, Austria; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MA-ThP-8** Synthesis and Characterization of AlMgB<sub>14</sub> Thin Films, *Erwin Peck, A. Kirnbauer*, TU Wien, Institute of Materials Science and Technology, Austria; *S. Kolozsvári*, Plansee Composite Materials GmbH, Germany; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MA-ThP-9** Non-Reactive Magnetron Sputtering of Al-N Coatings, *Balint Hajas, A. Foki, T. Wojcik*, TU Wien, Institute of Materials Science and Technology, Austria; *D. Primetzhofer*, Uppsala University, Angstrom Laboratory, Sweden; *S. Kolozsvári*, Plansee SE, Germany; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MA-ThP-10** Effects of the Modulation Period and Ratio on Mechanical Properties and Oxidation Resistance of WB<sub>2</sub>/AlB<sub>2</sub> Superlattices, *Chun Hu*, Institute of Materials Science and Technology, TU Wien, Austria; *R. Hahn*, Christian Doppler Laboratory for Surface Engineering of High-performance Components, TU Wien, Austria; *T. Wojcik, R. Janknecht, N. Koutná, P. Mayrhofer*, Institute of Materials Science and Technology, TU Wien, Austria

**MA-ThP-11** Effect of Preplaced Graphene and Graphite Films on Stellite 6 Metallurgical Coatings, *J. Sippel*, PG-MEC/ Universidade Federal do Paraná, Brazil; *W. de Oliveira*, Universidade Estadual de Ponta Grossa, Brazil; *J. Ribeiro da Cruz Alves*, Instituto Senai de Inovação - Sistema de manufatura e Processamento a laser, Brazil; *Ana Sofia C. M. d'Oliveira*, Universidade Federal do Paraná, Brazil

**MA-ThP-12** Modified High Hardness Steel Coating for Biomass Combustion Boilers, *Alina Agüero Bruna*, Ctra. Ajalvir km 4, Spain; *M. Gutierrez, S. Rodriguez*, Instituto Nacional de Técnica Aeroespacial (INTA), Spain

**MA-ThP-13** Effect of Austenite Stability on Pack Aluminizing of Stainless Steels, *Bryant Hernandez, C. Sullivan, L. Rodriguez, V. Ravi*, California State Polytechnic University, Pomona, USA

**MA-ThP-14** Co-Deposition of Chromium and Silicon on Nickel, and Iron-Based Alloys, *Catherine Sullivan, B. Hernandez, L. Rodriguez, A. Coronado, V. Ravi*, California State Polytechnic University, Pomona, USA

**MA-ThP-15** Corrosion Behavior of Galvanized Coils in Coastal Warehouse Environment, *Baiyou Fang*, Baosteel-NSC Automotive steel Sheets Co., Ltd, China

## Surface Engineering - Applied Research and Industrial Applications

### Room Golden State Ballroom - Session IA-ThP

#### Surface Engineering - Applied Research and Industrial Applications (Symposium IA) Poster Session 5:00pm

**IA-ThP-1** Application and Practice of Surface Aluminization Treatment in Zinc Pot Equipment of Hot Dip Galvanizing Production Line, *Lu Wang*, BAOSTEEL, China

**IA-ThP-3** The Behavior of Surface-Activated Fine Particles with Variation of Acoustic Field, *Hyo-Soo Lee*, Gaetbeol-ro 156, Republic of Korea; *K. Kim, T. Choi*, Sejong University, Republic of Korea; *J. Lee*, Kongju National University, Republic of Korea

**IA-ThP-4** Protective Layer Formation of Magnesium Fluoride Resistant to Fluorine Plasma on Al Alloys, *Younseon wang, j. nam, Y. Kim, H. Choi*, Samsung Electronics, Republic of Korea

**IA-ThP-5** Bismuth Thin Film Electrodes, *B. Frontana-Uribe, V. Ugalde-Saldivar, A. Hernandez-Gordillo, A. Vazquez*, Universidad Nacional Autónoma de Mexico; *Sandra E. Rodil*, Universidad Nacional Autónoma de Mexico

**IA-ThP-6** Fabrication of TiO<sub>2</sub> Nanotube/SiNW Arrays Structure at Different Synthesis Parameters for Solar Cell Application, *Al-Huei Chiou, Z. Lin*, National Formosa University, Taiwan

## Topical Symposium on Sustainable Surface Engineering

### Room Golden State Ballroom - Session TS1-ThP

#### Coatings for Batteries and Hydrogen Applications - TS1 Poster Session 5:00pm

**TS1-ThP-1** Formulating Advanced Materials for Energy Storage using Composite Solid- State Electrolyte Incorporating Al-Doped LLZO (Al-LLZO) in NCM811 for Solid State Lithium- Metal Batteries, *C. Yang*, Ming Chi University of Technology, Taiwan; *Adere Tarekegne Habte*, Ming Chi University of Technology, Ethiopia

**TS1-ThP-2** Corrosion Stability and Electrical Conductivity of PVD Coated Electrolyzer Bipolar Plates, *Martin Welters*, KCS Europe GmbH, Germany; *N. Kruppe*, Schaeffler Technologies AG & Co. KG, Germany; *R. Cremer*, KCS Europe GmbH, Germany; *M. Öte, N. Bagcivan*, Schaeffler Technologies AG & Co. KG, Germany

**TS1-ThP-3** PVD Core-Shell-Catalysts for Water Electrolysis, *Jan-Ole Achenbach*, KCS Europe GmbH, Germany; *M. Berger*, Institute of Technical and Macromolecular Chemistry, Germany; *M. Pilaski*, The Hydrogen and Fuel Cell Center - ZBT, Germany; *R. Cremer*, KCS Europe GmbH, Germany

## Topical Symposium on Sustainable Surface Engineering

### Room Golden State Ballroom - Session TS3-ThP

#### Solar Thermal Conversion - TS3 Poster Session 5:00pm

**TS3-ThP-1** Tailoring the Structural, Optical and Electrical Properties in Perovskite Nickelates Through the Tilt Control of Nd<sub>1-x</sub>Sm<sub>x</sub>NiO<sub>3</sub> Thin Films, *Zil Fernández-Gutiérrez, T. Easwarakhanthan, S. Bruyère, D. Pilloud, S. Barrat, F. Capon*, Institut Jean Lamour - Université de Lorraine, France

## Topical Symposium on Sustainable Surface Engineering

### Room Golden State Ballroom - Session TS4-ThP

#### Coatings and Surfaces for Thermoelectrical Energy Conversion and (Photo)electrocatalysis - TS4 Poster Session 5:00pm

**TS4-ThP-1** Dopant-defect engineering in SnS<sub>2</sub> Thin Films for Improved Gas-phase Photocatalytic CO<sub>2</sub> Reduction, *Tadios Tesfaye Mamo*, Department of Chemistry, National Taiwan University, Taiwan; *M. Qorbani*, Center for Condensed Matter Sciences, National Taiwan University, Taiwan; *A. Hailemariam*, Department of Applied Chemistry, National Yang-Ming Chiao Tung University, Taiwan; *A. Sabbah*, Center for Condensed Matter Sciences, National Taiwan University, Taiwan; *S. Kholimatussadiyah*, Department of Physics, National Taiwan University, Taiwan; *C. Huang*, Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan; *L. Chen*, Center for Condensed Matter Sciences, National Taiwan University, Taiwan; *K. Chen*, Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan

**TS4-ThP-2** Copper-Based Coatings on Polylactic Acid for Electrocatalytic CO<sub>2</sub> Reduction, *M.J. Lima*, University of Minho, Portugal; *J. Castro, Sandra Carvalho*, University of Coimbra, Portugal

## Tribology and Mechanics of Coatings and Surfaces

### Room Golden State Ballroom - Session MC-ThP

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

**MC-ThP-1** Influence of Cobalt Content on the Adhesion of TiAlN and AlTiN/TiSiN Coatings on WC-Co Substrates, *Bruna Michelle de Freitas, R. Diego Torres, D. Stolle da Luz Weiss, P. Cesar Soares Junior, C. Augusto Henning Laurindo*, Pontificia Universidade Católica do Paraná, Brazil; *F. Lacerda Amorim*, Pontificia Universidade Católica do Paraná, Brazil

**MC-ThP-2** The Multi-Component Alloy Powder Manufacturing and Coating on Router Cutters for Carbon Fiber Composite Materials, *Sung-Mao Chiu, H. Hsueh*, Metal Industries R&D Centre, Taiwan

**MC-ThP-3** Application of *In Situ* Hydrogen Charging During Micromechanical Testing of Thin Films, *Szilvia Kalacska*, CNRS LGF, Mines St. Etienne, France

**MC-ThP-4** Shrouding Gas Plasma Deposition Technique for Generating Wear Resistant ZnO/WS<sub>2</sub> Composite Films on PEEK, *Dietmar Kopp*, Leobner Straße 94a, Austria

**MC-ThP-5** Wear and Corrosion Characterization and Parametric Optimization of Nb-doped Hydrogenated Diamond-like Carbon (a-C:H) Coatings, *Ihsan Efeoglu, Y. Totik, G. Gulen, B. Yaylali, M. Yesilyurt*, Atatürk University, Turkey; *R. Gunay, G. Kara, B. Altintas*, TUSAS ENGINE INDUSTRIES (TEI), Turkey

**MC-ThP-6** Improving Tribological Properties of Al 7075 Alloy by Two-Step Soft Plasma Electrolytic Oxidation, *Thiago de Lima Gontarski, G. Caetano, J. dos Santos Junior, B. Leandro Pereira, R. Diego Torres, P. Soares*, Pontifical Catholic University of Paraná, Brazil

**MC-ThP-7** Influence of Surface Treatment on the Interfacial Structure of Fe-Ni-Mn/Fe-Ni Bimetallic Strips, *Jin Kyu Lee, H. Choi*, Kongju National University, Republic of Korea

**MC-ThP-8** Mechanical and Tribological Behavior of Nanolayered Sputtering MoN/MoWN Coatings, *Wan-Chang Hsu, F. Wu*, Department of Materials Science and Engineering, National United University, Taiwan

**MC-ThP-9** Mxene Nanosheets Exhibiting Layer-Dependent Friction Properties, *Ankitendran Mishra, P. Pendyala, E. Yoon*, Korea Institute of Science and Technology (KIST), Republic of Korea

**MC-ThP-10** Influence of Carbon and Boron Additions on the Wear Resistance of Fe<sub>3</sub>Al Based Laser Claddings, *Harald Rojacz, K. Pichelbauer, M. Varga*, AC2T Research GmbH, Austria; *P. Mayrhofer*, TU Wien, Institute of Materials Science and Technology, Austria

**MC-ThP-11** Understanding Stress in Sputter-Deposited Ti-Zr-N Alloy Films, *E. Chason, Tong Su, Z. Rao*, School of Engineering, Brown University, USA

# Friday Morning, May 24, 2024

<p><b>Advanced Characterization, Modelling and Data Science for Coatings and Thin Films</b>  <b>Room Palm 1-2 - Session CM3-2-FrM</b>  <b>Accelerated Thin Film Development: High-throughput Synthesis, Automated Characterization, and Data Analysis II</b>  <b>Moderators: Davi Marcelo Febba</b>, NREL, USA,  <b>Sebastian Siol</b>, Empa, Switzerland,  <b>Shijing Sun</b>, University of Washington, USA</p>		<p><b>Coatings for Biomedical and Healthcare Applications</b>  <b>Room Palm 3-4 - Session MD3-FrM</b>  <b>Bioactive Surfaces</b>  <b>Moderators:</b>  <b>Valentim A.R. Barão</b>, University of Campinas (UNICAMP), Brazil,  <b>Sandra E. Rodil</b>, Universidad Nacional Autónoma de México</p>	
8:00am		<p><b>MD3-FrM-1</b> The Investigation and Application of Carbon-Based Composite Electrochemical Biosensor for Parkinson's Disease, <b>Tzu-Yu Chen</b>, <b>Y. Shen</b>, <b>J. Huang</b>, National Cheng Kung University (NCKU), Taiwan</p>	
8:20am		<p><b>INVITED: MD3-FrM-2</b> Electrochemical Aspects of Interaction between Surface Engineered Metal Implants and Biological Environment, <b>Aleksey Yerokhin</b>, University of Manchester, UK</p>	
8:40am			
9:00am	<p><b>INVITED: CM3-2-FrM-4</b> From Automated to Autonomous Thin Film Deposition Experiments, <b>Andriy Zakutayev</b>, NREL, USA</p>	<p><b>MD3-FrM-4</b> Metal Oxide Coatings on 3D Printed Templates to Promote Osteogenesis, <b>Phaedra Silva-Bermudez</b>, <b>D. Morquecho-Marin</b>, Unidad de Ingeniería de Tejidos, Terapia Celular y Medicina Regenerativa, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico; <b>S. Rodil</b>, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; <b>G. Prado-Prone</b>, División de Investigación y Estudios de Posgrado, Facultad de Odontología, Universidad Nacional Autónoma de México; <b>J. Gracia-López</b>, Unidad de Ingeniería de Tejidos, Terapia Celular y Medicina Regenerativa, Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico; <b>B. Millán-Ramos</b>, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México</p>	
9:20am		<p><b>INVITED: MD3-FrM-5</b> Promoting Angiogenesis/Osteogenesis of Titanium Dental Implants Using Mimicking Extracellular Matrix Surface Features, <b>Her-Hsiung Huang</b>, <b>C. Liu</b>, National Yang Ming Chiao Tung University, Taiwan</p>	
9:40am	<p><b>CM3-2-FrM-6</b> Advancing High-Throughput Combinatorial Aging Studies of Hybrid Perovskite Thin-Films <i>via</i> Precise Automated Characterization Methods and Machine Learning Assisted Analysis, <b>Alexander Wiczorek</b>, Empa – Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>A. Kuba</b>, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; <b>J. Sommerhäuser</b>, <b>N. Caceres</b>, Empa – Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <b>Q. Guesnay</b>, <b>C. Wolff</b>, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; <b>S. Siol</b>, Empa – Swiss Federal Laboratories for Materials Science and Technology, Switzerland</p>		
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am		<p><b>MD3-FrM-8</b> Enhanced Tribocorrosion Resistance and Antibacterial Activity of Titanium Implants with Peo+Pcl Hybrid Coatings Embedded with ZnO Nanoparticles, <b>Paulo Soares</b>, Pontificia Universidade Católica do Paraná - Department of Mechanical Engineering, Brazil; <b>A. Bhattacharjee</b>, Colorado State University - School of Advanced Materials Discovery, USA; <b>L. Sopchenski</b>, Vrije Universiteit Brussel - Department of Materials and Chemistry, Belgium; <b>K. Popat</b>, George Mason University - Department of Bioengineering, USA</p>	
10:40am		<p><b>MD3-FrM-9</b> New Approach for Controlling Peri-Implant Infections Integrates Multifunctional Photocatalytic Coating and Photodynamic Therapy – an in Vitro and in Vivo Study, <b>Valentim A. R. Barão</b>, <b>B. Nagay</b>, <b>R. Costa</b>, <b>C. Dini</b>, <b>A. Santos</b>, University of Campinas (UNICAMP), Brazil; <b>L. Cintra</b>, Sao Paulo State University (UNESP), Brazil; <b>N. da Cruz</b>, <b>L. Faverani</b>, São Paulo State University (UNESP), Brazil; <b>J. van den Beucken</b>, Radboudumc, Netherlands</p>	

# Friday Morning, May 24, 2024

<b>Room Town &amp; Country C</b>		
8:00am	<p><b>INVITED: TS3-FrM-1</b> Application of Surface Engineering Solutions in Concentrating Solar Power Key Components, <i>Ramón Escobar-Galindo</i>, University of Seville, Spain; <i>J. Sanchez-Lopez, T. Rojas</i>, CSIC-University Sevilla, Spain; <i>H. Barshilia</i>, CSIR-National Aerospace Laboratories, India; <i>M. Krause</i>, Helmholtz Zentrum Dresden-Rossendorf, Germany</p>	<p><b>Topical Symposium on Sustainable Surface Engineering</b>  <b>Session TS3-FrM</b>  <b>Solar Thermal Conversion</b>  <b>Moderators:</b>  <b>Telmo Echániz</b>, University of the Basque Country, Spain,  <b>Marcus Hans</b>, RWTH Aachen University, Germany</p>
8:20am		
8:40am	<p><b>INVITED: TS3-FrM-3</b> Development and Thermal Characterization of High-Temperature Coating Materials for Solar Thermal Energy Conversion, <i>Renkun Chen</i>, University of California, San Diego, USA</p>	
9:00am		
9:20am	<p><b>INVITED: TS3-FrM-5</b> Smart Coatings for Concentrated Solar Thermal: from Optical Design and Plasma Synthesis to Performance and Durability Assessment, <i>Audrey Soum-Glaude, A. Diop</i>, PROMES-CNRS, France; <i>A. Mahammou, D. Ngoue</i>, PROMES-CNRS, Perpignan University, France; <i>A. Grosjean</i>, EPF Montpellier, France; <i>B. Plujat, S. Quoizola</i>, PROMES-CNRS, Perpignan University, France; <i>A. Bousquet, E. Tomasella</i>, University Clermont Auvergne, France; <i>L. Thomas</i>, PROMES-CNRS, Perpignan University, France</p>	
9:40am		
10:00am	<b>BREAK</b>	
10:20am	<p><b>TS3-FrM-8</b> Controlling Infrared Emissivity of Thermochromic <math>\text{VO}_2</math> Films via <math>\text{v}_2\text{N}</math> Precursor Thickness for Enhanced Solar Thermal Regulation, <i>A. Garcia-Wong, D. Pilloud, S. Bruyère, S. Migot, S. Hupont, F. Capon, Jean-François Pierson</i>, Institut Jean Lamour - Université de Lorraine, France</p>	
10:40am	<p><b>TS3-FrM-9</b> Emissivity and Reflectivity Measurements of Coatings for Solar Applications, <i>Telmo Echaniz, I. Gonzalez de Arrieta, M. Sainz-Menchon, J. Gabirondo-Lopez, G. Lopez</i>, University of the Basque Country, Spain</p>	

# Friday Morning, May 24, 2024

<b>Room Town &amp; Country B</b>			
8:00am	<p><b>INVITED: PP5-FrM-1</b> The Role of Plasma in Plasma Enhanced Atomic Layer Deposition, <b>Scott Walton</b>, D. Boris, M. Johnson, V. Wheeler, US Naval Research Laboratory, USA; M. Sales, P. Litwin, NRC, USA; J. Woodward, US Naval Research Laboratory, USA; S. Rosenberg, Lockheed Martin Space Advanced Technology Center, USA; J. Hite, D. Pennachio, M. Mastro, US Naval Research Laboratory, USA</p>	<p style="text-align: center;"><b>Plasma and Vapor Deposition Processes Session PP5-FrM Plasma Surface Interactions and Diagnostics Moderators:</b> <b>Arutun P. Ehasarian</b>, Sheffield Hallam University, UK</p>	
8:20am			
8:40am	<p><b>PP5-FrM-3</b> Navigating the Complexity of Microwave Plasma-Assisted ALD During AlN and TiN Fabrication, <b>Caroline Hain</b>, K. MacKosz, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; C. Guerra, Swiss Cluster AG, Switzerland; T. Nelis, BFH, Bern University of Applied Sciences, Switzerland; J. Michler, I. Utke, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</p>		
9:00am	<p><b>PP5-FrM-4</b> Advanced Ion Energy Measurement Tools to Understand the Effect of Ion Energy on Film Properties, <b>Angus McCarter</b>, Impedans, Ireland</p>		
9:20am	<p><b>INVITED: PP5-FrM-5</b> Plasma Polymerization Processes, <b>Dirk Hegemann</b>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</p>		
9:40am			
10:00am			
10:20am			<p style="text-align: center;"><b>Plasma and Vapor Deposition Processes Session PP7-FrM Modeling and Data-Driven Methods for Process Design, Analysis and Control Moderators:</b> <b>Petr Zikán</b>, PlasmaSolve s.r.o., Czechia</p>
10:40am			
11:00am	<p><b>INVITED: PP7-FrM-10</b> Insights on Plasma Processing from Multi-Scale Physical and Data-Driven Modeling, L. Vialetto, Stanford University, USA; T. Gergs, Kiel University, Germany; I. Chaerony Siffa, Leibniz Institute for Plasma Science and Technology (INP), Germany; C. Stüwe, Kiel University, Germany; T. Mussenbrock, Ruhr University Bochum, Germany; M. Becker, Leibniz Institute for Plasma Science and Technology (INP), Germany; <b>Jan Trieschmann</b>, Kiel University, Germany</p>		
11:20am			
11:40am	<p><b>PP7-FrM-12</b> Utilizing Digital Twin Technology for Automated Coating Recipe Development, <b>Petr Zikán</b>, A. Obrusnik, PlasmaSolve s.r.o., Czechia</p>		



**Bold page numbers indicate presenter**

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