ICMCTF 2023 Program Key

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

PROGRAM NUMBERS: They are listed with the Symposium letter first, the session number second, the Day of the Week, Morning (M) or Afternoon (A) and the presentation slot (e.g., B1-1-MoM6).
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<td>WeM</td>
<td>C1-1-WeM: Optical Materials and Thin Films I</td>
<td>H2-2-WeM: Adv Mech Testing of Surf, TF, Coat &amp; Small Volumes II</td>
<td>A2-2-WeM: Thermal and Environmental Barrier Coatings II</td>
<td>H3-2-WeM: Char of Coatings &amp; Small Vol in Extreme &amp; Cyclic Conditions II</td>
<td>E1-2-WeM: Friction, Wear, Lubrication Effects, and Modeling II</td>
<td>G1-WeM</td>
<td>G3-WeM: Innov Surf Engineering for Adv Cutting and Forming Tool Applications</td>
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<td>C1-2-WeA: Optical Materials and Thin Films II</td>
<td>G2-WeA: Surface Mod of Comps in Auto, Aero &amp; Mfg Applications</td>
<td>F4-1-WeA: Boron-Containing Coatings I</td>
<td>TS3-WeA: Proc of Mats for Printed and Flexible Film Technologies</td>
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<td>B8-1-WeA: HIPIMS, Pulsed Plasmas &amp; Energ Deposition I</td>
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<td>8:00am</td>
<td><strong>INVITED: PL-MoM-1</strong> Plenary Lecture: Recent Trends in Artificial Photosynthesis: Atomistic/Surface Design and Probing of Nano-Photocatalysts, <em>Li-Chyong Chen</em>, National Taiwan University, Taiwan</td>
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**Moderator:**

**Jyh-Wei Lee**, Ming Chi University of Technology, Taiwan
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<tr>
<th>Time</th>
<th>Session and Title</th>
<th>Remarks and Authors</th>
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<tr>
<td>10:00am</td>
<td>INVITED: H1-1-MoM-1 In-situ Imaging of Au Bicrystals and Hydrogen-Charged Iron</td>
<td>Wendy Gu, Stanford University, USA; M. Kiani, Cornell University, USA; A. Lee, A. Parakh, Stanford University, USA</td>
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<td>Coatings for Biomedical and Healthcare Applications</td>
<td>D1-1-MoM-1 Ion Release Study of Ag-Cu and Ag-Cu-Mg Coatings</td>
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<td>Room Pacific C - Session D1-1-MoM</td>
<td>Deposited by Magnetron Sputtering, Serdar Sonay Ozbay, Deakin University,</td>
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<td>Surface Coatings and Surface Modifications in Biological Environments</td>
<td>Coventry University, Australia; G. Taghavi Pourian Azar, Coventry University, UK; J. Sharp, G. Rajmohan, Deakin University, Australia; A. Cobley, Coventry University, UK</td>
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<tr>
<td>10:20am</td>
<td>H1-1-MoM-3 Thermal Stability, Microstructure, and Micro-Mechanical Properties of Cu_{x-z}−Al, Solid Solution Multilayered with Thin AlO_{x} Barrier Layers, Amit Sharma, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; S. Supakul, Iowa State University, USA; C. Tian, D. Casari, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; C. Guerra-Nuñez, Swiss Cluster AG Feuerwerkerstrasse 39 3602 Thun, Switzerland; J. Michler, X. Maeder, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland</td>
<td>D1-1-MoM-3 Non- Stick Thin-Film Metallic Glass (Tfmg) Coating for Reducing Trauma, Helmi Son Haji, J. P. Chu, National Taiwan University of Science and Technology, Taiwan; P. Yiu, Ming Chi University of Technology, Taiwan</td>
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<td>11:00am</td>
<td>H1-1-MoM-4 Advanced Experimental Techniques Quantifying Thin Film Delamination at the Nano-Scale, Alice Lassnig, C. Gammer, S. Zakh, M. Cordill, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria</td>
<td>D1-1-MoM-4 Synthesis of Antimicrobial Surfaces by Glancing Angle Deposition with Natural Seeds, Chuang Qu, J. Rozsa, M. Running, S. McNamara, K. Walsh, University of Louisville, USA</td>
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<td>11:20am</td>
<td>H1-1-MoM-5 High-Temperature Oxidation of Titanium Alumininum Nitride Coatings Visualized by Environmental Transmission Electron Microscopy, O. Mokgoro, F. Lenrick, V. Bushlya, Lund University, Sweden; J. Andersson, R. M'Saouli, SECO Tools AB, Sweden; Martin Ek, Lund University, Sweden</td>
<td>INVITED: D1-1-MoM-5 FDA Regulatory Considerations for Performance Evaluation of Coatings in Medical Devices, Nandini Duraiswamy, U.S. Food and Drug Administration, USA</td>
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<td>11:40am</td>
<td>H1-1-MoM-6 High-Throughput Surface Analysis for Accelerated Thin Film Materials Development, S. Zhuk, A. Wiecezorek, K. Thorwarth, J. Patidar, Sebastian Sioi, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</td>
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<td>12:00pm</td>
<td>H1-1-MoM-7 New Generation In Situ Process Control of Chemical Composition of Compound Materials and Superalloys During PVD Process, George Atanasoff, AccuStrata, Inc., USA</td>
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<td>10:00am</td>
<td>INVITED: A1-1-MoM-1</td>
<td>Bill Sproul Award and Honorary ICMCTF Lecture: Strategies for the Development of Robust and Stable, but also Functional Ceramic Coatings, Paul Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria</td>
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<td>B4-1-MoM-1</td>
<td>Effects of Al and Nd additions and Annealing on Microstructures and Mechanical Properties of CoCrNi Medium Entropy Alloy Films, Yi-Ling Wu, C. Hsieh, National Taiwan University, Taiwan</td>
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<td>10:40am</td>
<td>A1-1-MoM-3</td>
<td>TiSi/TiAl Multilayer Coatings as Oxidation Protection for γ-TiAl Peter Philipp Bauer, German Aerospace Center and Brandenburg University of Technology Cottbus, Germany; R. Swadzba, Lukasiewicz Research Network - Institute for Ferrous Metallurgy, Poland; L. Klamann, German Aerospace Center, Germany</td>
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<td>11:00am</td>
<td>A1-1-MoM-4</td>
<td>Max-Phase Based PVD Coatings as Protection for Lightweight Materials in High Temperature Environments, Nodine Laska, R. Anton, German Aerospace Center, Germany; R. Swadzba, Lukasiewicz Research Network - Institute for Ferrous Metallurgy, Poland; P. Nellessen, German Aerospace Center, Germany</td>
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<td>11:20am</td>
<td>A1-1-MoM-5</td>
<td>Oxidation behaviors of [AlCrSiTi]N coatings on AISI 304 steel: A Combinatorial Study, Sheng-Yu Hsu, S. Chang, J. Duh, National Tsing Hua University, Taiwan</td>
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<td>11:40am</td>
<td>A1-1-MoM-6</td>
<td>Enhanced Pitting Resistance of Cathodic Arc Evaporated AlCrXN Coatings, O. Hudak, F. Bohm, P. Kutrowatz, T. Wojcik, Christian Doppler Laboratory for Surface Engineering of high-performance Components, TU Wien, Austria; E. Ntemou, Ion Physics Group, Department of Physics and Astronomy, Uppsala University, Sweden; D. Primetzhofer, Ion Physics Group, Department of Physics and Astronomy, Uppsala University, Austria; L. Shang, O. Hunold, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; P. Polcik, Plansee Composite Materials GmbH, Germany; Helmut Riedl, Institute of Materials Science and Technology, TU Wien, Austria</td>
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<td>12:00pm</td>
<td>A1-1-MoM-7</td>
<td>Novel Approaches for the PVD Synthesis of Advanced Aluminide Thin Films: The Example of Ruthenium-Aluminide, Vincent Ott, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; T. Wojcik, TU Wien, Austria; S. Uhlich, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; S. Kolozsvari, P. Polcik, Plansee Composite Materials GmbH, Germany; P. Mayrhofer, H. Riedl, TU Wien, Austria; M. Stueber, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany</td>
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<td>10:00am</td>
<td>INVITED: F5-MoM 1</td>
<td>Thin Film Process Modeling at Different Scales - from Kinetic Simulation to Digital Twin, Andreas Pflug, Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany</td>
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<td>F5-MoM 3</td>
<td>Coater-Scale Model of DC Magnetron Sputtering, Andrej Roštek, Masaryk University / PlasmaSolve s.r.o., Czechia; P. Zikán, PlasmaSolve s.r.o., Czechia; J. Tungli, Masaryk University, Czechia; A. Obrusnik, PlasmaSolve s.r.o., Czechia</td>
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<td>11:00am</td>
<td>F5-MoM 4</td>
<td>High-Throughput Simulations to Predict History Dependence of Feedback Control During Reactive Magnetron Sputtering, Josja Van Bever, K. Strijkmans, D. Depla, Ghent University, Belgium</td>
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<td>11:20am</td>
<td>F5-MoM 5</td>
<td>Evatec Fabric – a Thin-Film Process and -Metrology Data Tracking System for Large-Scale, Automated Data Analysis in R&amp;D Labs, Clemens Nyffeler, O. Rottunde, D. Joeger, H. Zangerle, R. Gmuender, Evatec AG, Switzerland</td>
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<td>11:40am</td>
<td>F5-MoM 6</td>
<td>Predicting Reactive PVD Processes Using Global Process Modeling – a Physics-Based Alternative to Machine Learning, Petr Zikán, A. Obrusník, PlasmaSolve s.r.o., Czechia</td>
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<td>12:00pm</td>
<td>F5-MoM 7</td>
<td>Structure and Crystallographic Properties of Multi-Material Coatings Deposited in a Combinatorial Sputter Plant Compared to Simulations from the Machine Level to Microstructure, David Bühm, TU Wien, Austria; T. Schrefl, Danube University Krems, Austria; A. Eder, MIBA High Tech Coatings GmbH, Austria; C. Eisenmenger-Sittner, TU Wien, Austria</td>
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<td>12:00pm</td>
<td>INVITED: TS1-MoM 5</td>
<td>High Efficiency of Metal Oxide Catalysts for Vanadium Redox Flow Battery, Chen-Hao Wang, National Taiwan University of Science and Technology, Taiwan</td>
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<td>12:00pm</td>
<td>TS1-MoM 1</td>
<td>The Effect of Microstructure on the Hydrogen Storage Capacity of Ti₄₋ₓZrₓ Thin Films, Ido Zukerman, M. Buzaglo, Division of Chemistry, NRCN, Israel; S. Hayun, Department of Materials Engineering, Ben Gurion University of the Negev, Israel</td>
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<td>12:00pm</td>
<td>TS1-MoM 2</td>
<td>Transition Metal – Doped Ni/YSZ Anode Functional Layers for Solid Oxide Fuel Cells Produced via Magnetron Sputtering, X. Steier, Manchester Metropolitan University, UK; J. Jang, A. Hankio, Imperial College London, UK; P. Kelly, Justyna Kuczyk-Malecka, Manchester Metropolitan University, UK</td>
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<td>12:00pm</td>
<td>TS1-MoM 3</td>
<td>Surface Modification of Graphite Felt Electrode for Vanadium Redox Flow Batteries by High Entropy Alloy Oxide Thin Films: Effect of Oxygen Gas Flow Ratios, Krishnakant Tiwari, C. Wang, National Taiwan University of Science and Technology, Taiwan; B. Lou, Chang Gung University of Technology, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan</td>
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<td>12:00pm</td>
<td>TS1-MoM 4</td>
<td>Temperature Dependency of Specific Electrical Conductivity of DLC Coatings, Simon Donninger, University of Applied Sciences Upper Austria; F. Deffin, University of Applied Sciences Upper Austria, Argentina; C. Forsich, D. Heim, M. Schachinger, University of Applied Sciences Upper Austria; B. Rübig, C. Dipoil, T. Müller, Rubig GmbH &amp; Co KG, Austria</td>
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<td>12:00pm</td>
<td>TS1-MoM 7</td>
<td>Effect of Mg Doping on Characterization and Cycling Performance of LiCoO₂ Thin Film Cathode for Lithium-Ion Batteries, Tai Yan Liu, J. Huang, C. Liu, National Cheng Kung University (NCKU), Taiwan</td>
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<td>1:00pm</td>
<td>INVITED: SIT1-MoSIT-1 Residual Stress Measurement on Hard Coatings and the Evaluation of Energy Relief Efficiency of Architectured Coatings, <em>Jia-Hong Huang</em>, National Tsing Hua University, Taiwan</td>
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Moderator: Jyh-Wei Lee, Ming Chi University of Technology, Taiwan
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<tr>
<td>2:00pm</td>
<td>H1-2-MoA-2 TiN/NbN Superlattice Coatings Deposited by High Power Impulse Magnetron Sputtering Potential Candidate to Protect Medical Grade CoCrMo Alloys, <em>Papken Housepirol</em>, Sheffield Hallam University, UK; A. Ehsiasian, A. Sugumaran, Sheffield Hallam University, United Kingdom; I. Khan, Zimmer- Biomet UK</td>
<td>D1-2-MoA-2 Structural and Nano-Mechanical Characterization, <em>Petter Apato Olubambi</em>, T. Tshephe, University of Johannesburg, South Africa</td>
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<td>3:00pm</td>
<td>H1-2-MoA-5 High Strength and Deformability in 3D Interface Cu/Nb Nanolaminates Under Multiple Loading Orientations, <em>Justin Y. Cheng</em>, University of Minnesota, USA; S. Xu, University of Oklahoma, USA; J. Baldwin, Los Alamos National Laboratory, USA; M. De Leo, University of Minnesota, USA; J. Beyerlein, University of California Santa Barbara, USA; N. Mara, University of Minnesota, USA</td>
<td>D1-2-MoA-6 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>3:20pm</td>
<td>H1-2-MoA-6 Multiaxial Stress-Strain Transfer Across Indenter-Sample Interface During in Situ Indentation of Nanocrystalline Thin Films, <em>Michael Meindrum</em>, J. Todt, Montanuniversität Leoben, Leoben, Austria; A. Medjihed, ESRF, The European Synchrotron, Grenoble, France; M. Burghammer, ESRF, The European Synchrotron, France; M. Zitke, R. Daniel, Montanuniversität Leoben, Leoben, Austria; D. Steinmüller-Nethl, CarbonCompetition GmbH, Wattens, Austria; J. Keckes, Montanuniversität Leoben, Leoben, Austria</td>
<td>D1-2-MoA-6 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>3:40pm</td>
<td>H1-2-MoA-7 Atom Probe Tomography of TiSiN Hard Coatings Synthesized Utilizing Isotopic Substitution, <em>Saeideh Naghdali</em>, M. Tkadletz, Department of Materials Science, Montanuniversität Leoben, Austria; H. Waldl, Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leoben, Austria; M. Hanz, Materials Chemistry, RWTH Aachen University, Germany; D. Primetzhofer, Department of Physics and Astronomy, Uppsala University, Sweden; N. Schalk, (1)Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leoben, (2)Department of Materials Science, Montanuniversität Leoben, Austria</td>
<td>D1-2-MoA-6 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>4:00pm</td>
<td>H1-2-MoA-8 Reactions of Metal-Tmhd Compounds in the Gas-Phase: Insights from Microreactor Studies Using Synchrotron Radiation, <em>Sebastian Grimm</em>, Institute for Combustion and Gas Dynamics, University of Duisburg-Essen, Germany; P. Hemberger, Paul Scherrer Institute, Switzerland; B. Atakan, Institute for Combustion and Gas Dynamics and CENIDE, University of Duisburg-Essen, Germany</td>
<td>D1-2-MoA-8 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>4:20pm</td>
<td>H1-2-MoA-9 How to Simultaneously Determine Absolute Thickness, Chemistry, and Other Properties of Crystalline Layers Using XRD, <em>Thomas Degen</em>, M. Sadiki, N. Norberg, Malvern Panalytical, Netherlands; N. Shin, Deep Solution Inc., Korea (Democratic People’s Republic of)</td>
<td>D1-2-MoA-9 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>4:40pm</td>
<td>H1-2-MoA-10 Dynamic Electrochemical Impedance Spectroscopy as a Tool for Online, In-Situ Monitoring of Adsorption Films Formation, <em>Jacek Ryl</em>, Gdańsk University of Technology, Poland</td>
<td>D1-2-MoA-10 Development of Modified Hydroxyapatite Composite Coating Prepared by the Thermal Spray, <em>Jo-Han Yu</em>, National Taipei University of Technology, Taipei Tech, Taiwan; K. Feng, Ming Chi University of Technology, Taiwan; Y. Yang, National Taipei University of Technology, Taipei Tech, Taiwan</td>
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<td>2:00pm</td>
<td>A1-2-MoA-2</td>
<td>Surface Refinement of Additively Manufactured Components: Microstructure and Mechanical Properties, Agata Kulig, Neue Materialien Bayreuth GmbH, Germany</td>
<td>Germany - University of Bayreuth, Germany</td>
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<td>2:40pm</td>
<td>INVITED: B2-MoA-3</td>
<td>Hybrid Nanocomposite CVD Coating Formations, Zhenyu Liu, Latrobe, USA</td>
<td>USA - DECHEMA, USA</td>
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<td>3:00pm</td>
<td>A1-2-MoA-5</td>
<td>Surface Refinement by Aluminide Diffusion Coatings and its Effect on the Oxidation Behavior and Creep Strength of Additively Manufactured Fe- and Ni-Based Alloys, Ceyhun Oskay, L. Mengis, DECEMA-Forschungsinstitut, Germany; A. Kulig, H. Daoud, Neue Materialien Bayreuth GmbH, Germany; M. Galetz, DECEMA-Forschungsinstitut, Germany; U. Glatzel, University of Bayreuth, Germany and Neue Materialien Bayreuth GmbH, Germany</td>
<td>Germany - TU Bergakademie Freiberg, Germany</td>
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<td>3:20pm</td>
<td>A1-2-MoA-6</td>
<td>Oxidation Behavior of Novel Cr-Si Diffusion Coatings Applied by the Slurry Technique, Michael Kerbstadt, DECEMA, Germany; E. White, DECEMA, USA; M. Galetz, DECEMA, Germany</td>
<td>Czechia - CemeCon AG, Germany</td>
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<td>3:40pm</td>
<td>A1-2-MoA-7</td>
<td>Use of Machine Learning Algorithms to Optimize and Customize Aluminide Diffusion Coatings, Vladislav Kolancik, M. Juez Lorenzo, Fraunhofer Institute for Chemical Technology ICT, Germany; P. Praks, IT4Innovations National Computing Center, VSB - Technical University of Ostrava, Czechia</td>
<td>Czechia - Gifu University, Japan</td>
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<td>4:00pm</td>
<td>INVITED: B2-MoA-4</td>
<td>Effect of the Substrate Treatment on the Microstructure of CVD Ti(C,N)/Al2O3 Hard Coatings, Christiane Wächtler, C. Wüstefeld, TU Bergakademie Freiberg, Germany; M. Sima, J. Pikner, Dormer Pramet, Czechia; D. Rafaj, TU Bergakademie Freiberg, Germany</td>
<td>Germany - TU Bergakademie Freiberg, Germany</td>
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<td>INVITED: B2-MoA-5</td>
<td>Novel ZrB₂ and HfB₂ Metal diboride Coatings by LPCVD, Mandy Höhn, M. Krug, B. Matthey, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany</td>
<td>Germany - TU Bergakademie Freiberg, Germany</td>
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</tbody>
</table>

**Monday Afternoon, May 22, 2023**

**Coatings for Use at High Temperatures**

**Room Pacific E - Session A1-2-MoA**
- **Coatings to Resist High-temperature Oxidation, Corrosion, and Fouling II**
  - **Moderators:**
  - Gustavo García-Martin, REP-Energy Solutions, Spain, Justyna Kulczyk-Malecka, Manchester Metropolitan University,
  - **Presentations:**
    - **A1-2-MoA-1** Microstructural Changes of Yttria-Containing MMC-Coatings and Their Influence on Hot Corrosion, Wear and Mechanical Behavior, Christoph Grimm, C. Oskay, DECEMA-Forschungsinstitut, Germany
    - **A1-2-MoA-2** Surface Refinement of Additively Manufactured Components: Microstructure and Mechanical Properties, Agata Kulig, Neue Materialien Bayreuth GmbH, Germany

**Hard Coatings and Vapor Deposition Technologies**

**Room Town & Country C - Session B2-MoA**
- **CVD Coatings and Technologies**
  - **Moderators:**
  - Raphaël Boichot, Grenoble-INP/CNRS, France, Hiroki Kondo, Nagoya University, Japan
  - **Presentations:**
    - **B2-MoA-1** Si and SiC-based CVD Coatings for High Temperature Structural Applications, A. Le Doze, P. Drieux, Laboratoire des Composites Thermostructuraux - CNRS, France; S. Jacques, Laboratoire de Composites Thermostructuraux - CNRS, France
    - **B2-MoA-3** Hybrid Nanocomposite CVD Coating Formations, Zhenyu Liu, Latrobe, USA
    - **B2-MoA-4** Effect of the Substrate Treatment on the Microstructure of CVD Ti(C,N)/Al₂O₃ Hard Coatings, Christane Wächtler, C. Wüstefeld, TU Bergakademie Freiberg, Germany; M. Sima, J. Pikner, Dormer Pramet, Czechia; D. Rafaj, TU Bergakademie Freiberg, Germany
    - **B2-MoA-5** Novel ZrB₂ and HfB₂ Metal diboride Coatings by LPCVD, Mandy Höhn, M. Krug, B. Matthey, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

**INVITED:**
- **A1-2-MoA-1** Study on Small-Volume and Flow-Type Hard DLC Film Process Using Substrate-Surrounding Microwave Plasma, Hiroyluki Kousaka, Gifu University, Japan
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker/Venue</th>
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<tbody>
<tr>
<td>1:40pm</td>
<td>INVITED: B4-MoA-1</td>
<td>Amorphous Carbon Coatings for Tribological Applications in Hydrogen and Natural Gas Environments, Thomas Gradt, Bundesanstalt für Materialforschung und -prüfung (BAM), Germany</td>
<td>INVITED: B6-MoA-1 Selection of Photosensitive Materials on Metal Oxide Surface by Using Machine Learning, Yen-Hsun Su, National Cheng Kung University, Taiwan</td>
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<td>2:00pm</td>
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<tr>
<td>2:20pm</td>
<td>B4-MoA-3</td>
<td>Effect of Bio-Lubricants on Wear and Friction of Borided TiAlV Alloy, A. Nieto-Sosa, G. Rodríguez-Castro, J. Escobar-Hernández, A. Meneses-Amador, José Arciniega-Martínez, H. Martínez-Gutiérrez, National Polytechnic Institute, Mexico</td>
<td>B6-MoA-3 On the Modeling of Particle Growth in Film Deposition, Rahul Basu, JNTU, India</td>
</tr>
<tr>
<td>3:00pm</td>
<td>B4-MoA-5</td>
<td>Microstructure and Tribological Characteristics of Binary Refractory Metal Nitride Coatings, Yu-Hsien Liao, S. Hsu, F. Wu, Dept. of Materials Science and Engineering, National United University, Taiwan</td>
<td>INVITED: B6-MoA-5 Computational Supports to Identify Structural and Elastic Relationship of Metastable Crystalline Amorphous Thin Films Alloys: MoN, Ni, and Mo3Si, Case Studies, C. Li, State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, China; G. Abodias, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; Philippe Djemia, LSPM UPR 3407, France</td>
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<tr>
<td>3:20pm</td>
<td>B4-MoA-6</td>
<td>Investigation of the Effect of Nitrogen Additions on the Microstructure, Mechanical and Tribological Properties of CoCrNialTi-Based High Entropy Alloy Coatings, Fayeka Mansura, P. Munroe, University of New South Wales, Australia</td>
<td></td>
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<tr>
<td>3:40pm</td>
<td>B4-MoA-7</td>
<td>Influence of Si Content on the Mechanical Properties, Microstructure and Tribological Behaviors of (AlCrNbsit)N Coatings, Yun-Chen Chan, S. Hsu, P. Chen, J. Duh, National Tsing Hua University, Taiwan</td>
<td>B6-MoA-7 On the Quantification of Lattice Distortions and Their Correlation with Kinetics in High Entropy Sublattice Nitrides, Ganesh Kumar Nayak, Montanuniversität Leoben, Austria; A. Kretschmer, TU Wien, Austria; J. Sölker, RWTH Aachen University, Germany; P. Mayrhofer, TU Wien, Austria; M. Hams, J. Schneider, RWTH Aachen University, Germany; D. Holec, Montanuniversität Leoben, Austria</td>
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<tr>
<td>4:00pm</td>
<td>B4-MoA-8</td>
<td>Effect of CrMoN Addition on the Thermal Stability and Tribological Property of T1VN Coatings, Y. Chang, He-Qian Feng, National Formosa University, Taiwan</td>
<td>B6-MoA-8 Machine-Learning Guided Ab-Initio Exploration of Thermal/Mechanical Properties in Transition Metal Nitrides, Andreas Kretschmer, TU Wien, Institute of Materials Science and Technology, Austria; M. Fedirko, Oerlikon Digital Hub, Germany; L. Lezuo, TU Wien, Institute of Materials Science and Technology, Austria; K. Yakamanchili, H. Rudiger, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; P. Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria</td>
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<tr>
<td>4:20pm</td>
<td>B6-MoA-9</td>
<td>Descriptors Development for Stability Prediction of N-Doped High Entropy Alloy Coatings: A DFT Study, Chih-Heng Lee, National Tsing Hua University, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan; H. Chen, National Tsing Hua University, Taiwan</td>
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<tr>
<td>1:40pm</td>
<td>TS1-2-Moa-1</td>
<td>Influence of Oxygen Content During the Deposition of Scandium Stabilized Zirconia Thin Films by Reactive High Power Impulse Magnetron Sputtering (R-HiPIMS)</td>
<td>Isabel Fernandez Romero, Corporate Sector Research and Advance Engineering - Robert Bosch, Germany; S. Klein, C. Engel, Corporate Sector Research and Advance Engineering - Robert Bosch, Germany; J. Fling, Technical University of Vienna, Austria</td>
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<tr>
<td>2:00pm</td>
<td>TS1-2-Moa-2</td>
<td>Comparison of the Impacts of High Entropy Oxide/Alloy Coatings for Lithium-Sulfur Battery Separators</td>
<td>Ming-Roe Wann, Y. Lin, S. Chung, J. Ting, National Cheng Kung University (NCKU), Taiwan</td>
</tr>
<tr>
<td>2:20pm</td>
<td>INVITED: TS1-2-Moa-3</td>
<td>Coatings and Surface Modifications for Hydrogen Storage Applications</td>
<td>N. Kostoglou, C. Mitterer, Montanuniversität Leoben, Austria; Claus Rebholz, University of Cyprus</td>
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<td>3:00pm</td>
<td>TS1-2-Moa-5</td>
<td>BaCeZrY0.5Coatings Deposited by Solution Precursor Plasma Spray (SPPS) for Sustainable Energy Application</td>
<td>Yen-Yu Chen, W. Zeng, C. Liu, G. Yao, Chinese Culture University, Taiwan</td>
</tr>
<tr>
<td>3:20pm</td>
<td>TS1-2-Moa-6</td>
<td>Aluminum-Doped Non-Stoichiometric Titanium Oxide (Al-TiOx) for Anode in Lithium-Ion Batteries</td>
<td>Guan-Bo Liao, National Cheng Kung University (NCKU), Taiwan; Y. Shen, Hierarchical Green-Energy Materials (Hi-GEM) Research Center, Taiwan; J. Huang, National Cheng Kung University (NCKU), Taiwan</td>
</tr>
<tr>
<td>3:40pm</td>
<td>TS1-2-Moa-7</td>
<td>Unveiling Capacitive and Diffusion-Limited Li-Ion Storage in Semiconducting 2d-Mos Composites with Aluminium Nitride Nanoflowers for Flexible Electrodes of Supercapacitors</td>
<td>D. Kaur, Gagan Kumar Sharma, Indian Institute of Technology Roorkee, India</td>
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<td>8:00am</td>
<td>TuM</td>
<td>Advanced Characterization Techniques for Coatings, Thin Films, and Small Volumes</td>
<td>Olivier Pierron, Georgia Institute of Technology, USA</td>
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<td>8:20am</td>
<td>TuM</td>
<td>Coatings for Biomedical and Healthcare Applications</td>
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<td>8:40am</td>
<td>TuM</td>
<td>INVITED: H2-1-TuM-3 Multifunctional Characterization of Nanomultilayers</td>
<td>Andrea Maria Hodge, University of Southern California, USA</td>
</tr>
<tr>
<td>9:00am</td>
<td>TuM</td>
<td>D2-TuM-4 Corrosion Evaluation of Plasma Electrolytic Oxidation Coatings on Titanium Alloys</td>
<td>Holger Hoche, Center for Structural Materials, TU-Darmstadt, Germany</td>
</tr>
<tr>
<td>9:20am</td>
<td>TuM</td>
<td>D2-TuM-5 Large-Scale Metallic Nanotubes Array (MeNTA) with Plasmonic Nanoparticles for SERS Application</td>
<td>Alfreda Krisna Altama, J. Chu, National Taiwan University of Science and Technology, Taiwan</td>
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<td>9:40am</td>
<td>TuM</td>
<td>H2-1-TuM-6 Link between Cracking Mechanisms of Trilayer Films on Flexible Substrates and Electro-Mechanical Reliability Under Biaxial Loading</td>
<td>Shuhel Altaf Husain, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; P. Kreiml, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; P. Renault, Institut Pprime - CNRS - ENSMA - Université de Poitiers, France; C. Mitterer, Montanuniversität Leoben, Leoben, Austria; M. Cordill, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; D. Faurie, CNRS, France</td>
</tr>
<tr>
<td>10:00am</td>
<td>TuM</td>
<td>D2-TuM-6 Carbide-derived Carbon (CDC) for Implant Application: Tribocorrosion Kinetics and Mechanisms</td>
<td>Kyle Kinnerk, Department of Biomedical Engineering, University of Illinois at Chicago, USA</td>
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<tr>
<td>10:20am</td>
<td>TuM</td>
<td>H2-1-TuM-8 Influence of the Aspect Ratio of the Micro-Cantilever on the Determined Young’s Modulus Using the Euler-Bernoulli Equation</td>
<td>F. Konstantinuk, Montanuniversität Leoben, Austria; M. Krobath, W. Ecker, Materials Center Leoben Forschungs GmbH, Austria; C. Czettl, CERATIZIT Austria GmbH, Austria; Nina Schall, M. Tkadletz, Montanuniversität Leoben, Austria</td>
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<tr>
<td>10:40am</td>
<td>TuM</td>
<td>H2-1-TuM-9 Engineering Metal-MAX Phase Multilayered Nanolaminates for Tunable Strength and Toughness</td>
<td>S. Pothak, Iowa State University, USA; K. Yaddanapudi, University of California at Davis, USA</td>
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**Tuesday Morning, May 23, 2023**
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<th>Time</th>
<th>Session</th>
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<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:00am</td>
<td>A1-3-TuM-1</td>
<td>Excellent Tribological, Mechanical, and Anti-Corrosion Performance of Agro-Waste as Corrosion Inhibitor for Carbon Steel in an Acidic Environment, Omotayo Sanni, J. Ren, T. Jen, Department of Mechanical Engineering Science, University of Johannesburg, Cnr Kingsway and University Roads, Auckland Park, 2092, Johannesburg, South Africa</td>
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<tr>
<td>8:20am</td>
<td>A1-3-TuM-2</td>
<td>Study of Materials and Coatings for Use in High Temperature CO₂ Environments, Jianliang Lin, Southwest Research Institute, USA</td>
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<td>8:40am</td>
<td>A1-3-TuM-3</td>
<td>Multi-Element Thin Film Deposition by Reactive HiPIMS for SOEC Interconnects Protection, Théo Dejob, F. Rouillard, A. Casadebaigt, CEA Saclay, France; J. Couturier, CEA LITEN Grenoble, France; F. Misereau, F. Lomello, CEA Saclay, France; F. Sanchette, Université de Technologie de Troyes, France</td>
<td>B4-3-TuM-3 The Oxidation Behavior of VMoN Thin Films Deposited by High Power Pulsed Magnetron Sputtering, Nan-Cheng Lai, J. Huang, National Tsing Hua University, Taiwan</td>
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<tr>
<td>9:00am</td>
<td>A1-3-TuM-4</td>
<td>Characteristics and Resistance of CVD Hafnium Carbide Coating in Extreme Environments, Hyeon-Geun Lee, J. Lee, D. Kim, B. Jun, W. Kim, J. Park, Korea Atomic Energy Research Institute, Republic of Korea</td>
<td>B4-3-TuM-4 Correlation Between Microstructure and Mechanical Properties of BuC Thin Films Deposited by Pulsed Laser Deposition, Falko John, S. Weißmantel, Laserinstitut Hochschule Mittweida, Germany</td>
</tr>
<tr>
<td>9:40am</td>
<td>A1-3-TuM-6</td>
<td>Effect of Vacuum Annealing on the Residual Stress of ZrN Thin Film deposited on Ni-based Superalloy Haynes 282, Kuan-Che Lan, C. Li, National Tsing Hua University, Taiwan; H. Tung, Institute of Nuclear Energy Research, Taiwan</td>
<td>B4-3-TuM-6 Stress Evolution in Binary Metal Alloy Systems, Tong Su, Brown University, USA; J. Robinson, G. Thompson, The University of Alabama, USA; E. Chason, Brown University, USA</td>
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<td>10:00am</td>
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<td>INVITED: B4-3-TuM-7 Molecular Engineering of Inorganic Thin Film Interfaces for Accessing Multiple Novel Properties for Diverse Applications, Ganpati Ramanath, Rensselaer Polytechnic Institute, USA</td>
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<td>8:00 am</td>
<td>TS1-TuM-1</td>
<td>rGo-SiOx Nanocomposite as Anode Material in Lithium Ion Battery</td>
<td>INVITED: E3-TuM-1 Carbon Based Coatings Deposited Over Aisi 4140 to Improve Wear Resistance in Machine Components, F. Delfin, UTN, Argentina; D. Heim, Upper University of Applied Sciences, Wels Campus, Austria; Sonia Brühl, UTN, Argentina.</td>
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<tr>
<td>8:20 am</td>
<td>TS1-TuM-2</td>
<td>High-Performance Rechargeable Zinc Ion Batteries: From Surface Modification of Zn Anode and Structural Engineered Cathode to Deep Eutectic Solvent (DES)-Based Electrolytes, Yu-Lun Chueh, National Tsing Hua University, Taiwan</td>
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<tr>
<td>8:40 am</td>
<td>TS1-TuM-3</td>
<td>Electrochemical Performances of LiNi0.8Co0.1Mn0.1O2 Synthesized by Hydroxide Coprecipitation Method, Chia-Hsin Lo, J. Huang, National Cheng Kung University (NCKU), Taiwan; C. Chang, National University of Tainan, Taiwan</td>
<td>E3-TuM-3 Tribological Behaviour of Diamond Coated Reaction-Bonded Silicon Carbide Under Dry and Seawater Environment, R. Kannan, N. C, Indian Institute of Technology Madras, India; R. Ganguly, S. Mandal, S. Rao, Carborundum Universal Limited, Industrial Ceramic Division, India; M. S Ramachandra Rao, Indian Institute of Technology Madras, India.</td>
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<tr>
<td>9:00 am</td>
<td>TS1-TuM-4</td>
<td>Pb-Free Halide Perovskite/TiO2 Heterostructure for Enhanced Solar-Driven PFC, Yong Yu, Jyh-Ming, National Cheng Kung University (NCKU), Taiwan</td>
<td>E3-TuM-4 Friend or Foe? The Role of Oxygen in the Tribological Performance of Solid Lubricant MoS2, Andrey Bondarev, I. Ponomarev, T. Polcar, Czech Technical University in Prague, Czechia</td>
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<td>9:40 am</td>
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<td>INVITED: E3-TuM-6 Modification of Diamond Like Carbon (DLC) to Improve Specific Tribological Characteristics for Automotive Applications, Denis Romagnoli, F. Lavalle, STS srl, Italy.</td>
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<td>10:00 am</td>
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<td>E3-TuM-8 Fabrication and Tribological Behaviors of DLC Coatings Embedded with Graphene Nanoplatelets, Guizhi Wu, A. Morina, L. Yang, University of Leeds, UK</td>
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<td>10:20 am</td>
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<td>E3-TuM-9 Tribological Properties MoS2-WC Duplex Coatings in Low Viscosity Hydrocarbons, Euan Cairns, University of North Texas, USA; S. Dixit, Plasma Technology Inc., USA; D. Berman, S. Aouadi, A. Voevodin, University of North Texas, USA.</td>
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Tuesday Morning, May 23, 2023

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

11:00am INVITED: EX-TuM-1 Future Requirements for Advanced Surface Modification and Coatings Technologies for Turbine Engine Applications, David Furrer, Pratt and Whitney, USA
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<th>Time</th>
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<tbody>
<tr>
<td>1:40pm</td>
<td>TuA-1</td>
<td>Local Deformation Mechanisms under Ambient and Non-Ambient Conditions Tested via Advanced Nanoindentation</td>
<td>Verena Maier-Kliener, Montanuniversität Leoben, Austria</td>
</tr>
<tr>
<td>2:00pm</td>
<td>TuA-3</td>
<td>Extracting High-Temperature Stress-Strain Curves and Assessing Transformation Pressures: The Spherical Indentation of Silicon</td>
<td>Gerald Schaffr, Montanuniversität Leoben, Austria; D. Tscharnutzer, KAI Kompetenzzentrum Automobil- und Industrielektronik GmbH, Austria; V. Maier-Kliener, Montanuniversität Leoben, Austria</td>
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<tr>
<td>2:40pm</td>
<td>TuA-4</td>
<td>Micro-Impact Tests of Novel Thermal Barrier Coating Systems and &gt;1000C Nanindentation on Ni-Base Superalloy</td>
<td>Ben Beake, Micro Materials Ltd, UK; C. Chalk, Cranfield University, UK; S. Goodes, A. Harris, Micro Materials Ltd, UK; L. Isem, J. Nicholls, Cranfield University, UK</td>
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<tr>
<td>3:00pm</td>
<td>TuA-5</td>
<td>Influence of Si on the Mechanical Properties and High-temperature Fracture Toughness of Cr-Si-B$_{25}$ Coatings</td>
<td>L. Zoumer, Rainer Hahn, C. Chalk, Cranfield University, UK; O. Hrnolík, J. Ramm, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein; S. Kalouzová, P. Polcik, Plansee Composite Materials GmbH, Germany; H. Riedl, CDL-SEC at TU Wien, Austria</td>
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<td>3:40pm</td>
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<td>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</td>
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<tr>
<td>4:00pm</td>
<td>TuA-8</td>
<td>Nanindentation Measurements at Combined High Sustained Strain Rates and Elevated Temperatures</td>
<td>Benoît Merle, University of Kassel, Germany</td>
</tr>
<tr>
<td>4:20pm</td>
<td>TuA-10</td>
<td>Development of a New Test Method to Evaluate Local Adhesion Properties of Diamond-like Carbon (DLC) coating Using Vibration-Induced Cavitation</td>
<td>Junaid Ul Hasnain, Center for Structural Materials, Germany</td>
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<tr>
<td>1:40pm</td>
<td>TuA-1</td>
<td>Influence of Microstructure on Phase Transformation of Plasma Sprayed YSZ Coatings Under Thermal Gradient Cycling</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<tr>
<td>2:00pm</td>
<td>TuA-2</td>
<td>A New Method to Diagnose Early Stages of CMAS Infiltration in Thermal Barrier Coatings</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<tr>
<td>2:20pm</td>
<td>TuA-3</td>
<td>Mechanical Behavior of a Nial Coating: Effect of Thermal Aging on the Brittle-to-Ductile Transition Temperature</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<tr>
<td>2:40pm</td>
<td>TuA-4</td>
<td>Failure Mechanisms of Conventional Thermal Barrier Coatings and Development of Alternate Coating Systems for IGT Applications</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<td>3:00pm</td>
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<td>COMPLIMENTARY REFRESHMENTS IN EXHIBIT HALL</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<td>Room Pacific E - Session A2-1-TuA</td>
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<td>4:00pm</td>
<td>TuA-8</td>
<td>Manufacturing and Performance of a Three-Layer Environmental Barrier Coating System for SiC/SiC CMCs by Magnetron Sputtering</td>
<td>Room Pacific E - Session A2-1-TuA</td>
</tr>
<tr>
<td>4:20pm</td>
<td>TuA-9</td>
<td>EBC Multi-Layer Coatings on SiC-CMC Substrates Synthesized in a Continuous Vacuum Deposition Process</td>
<td>Room Pacific E - Session A2-1-TuA</td>
</tr>
<tr>
<td>4:40pm</td>
<td>TuA-10</td>
<td>Developments of the Slag-Based Geopolymer Coatings by the Flame Spray</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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<tr>
<td>5:00pm</td>
<td>TuA-11</td>
<td>Thermal Spray Coating with Ceramic Microspheres for Acoustic Absorption Applications</td>
<td>Room Pacific E - Session A2-1-TuA</td>
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**Tuesday Afternoon, May 23, 2023**
**New Horizons in Coatings and Thin Films**

**Room Town & Country C - Session F3-TuA**

**2D Materials: Synthesis, Characterization, and Applications**

**Moderators:** Ying-Hao Chu, National Tsing Hua Univ., Taiwan, Chih-Yen Chen, National Sun Yat-sen University, Taiwan, Yi-Cheng Chen, National Tsing Hua University, Taiwan

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**Topical Symposia**

**Room Pacific C - Session TS2-TuA**

**Sustainable Surface Solutions, Materials, Processes and Applications**

**Moderators:** Joerg Vetter, Oerlikon Balzers Coating Germany GmbH, Germany, Fan-Bean Wu, National United University, Taiwan

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<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
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<tr>
<td>1:40pm</td>
<td>F3-TuA-1</td>
<td>Tellurene Electronics and Sensors, <em>Wenzhuo Wu</em>, Purdue University, USA</td>
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<td>2:00pm</td>
<td>TS2-TuA-2</td>
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<td><em>Joerg Vetter</em>, Oerlikon Balzers Coating Germany GmbH, Germany, <em>J. Becker</em>, <em>M. Esselbach</em>, Oerlikon Surface Solutions AG, Liechtenstein</td>
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<tr>
<td>2:20pm</td>
<td>F3-TuA-3</td>
<td>Phase/Structure-Engineered Two-Dimensional Layered Materials for Innovative Nanoelectronics, <em>Yu-Lun Chueh</em>, National Tsing Hua University, Taiwan</td>
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<td>2:40pm</td>
<td>TS2-TuA-3</td>
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<td><em>Yashar Musayev</em>, <em>L. Dobrenizki</em>, Siemens Energy Global GmbH &amp; Co. KG, Germany</td>
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<td>3:00pm</td>
<td>F3-TuA-5</td>
<td>Tellurene-Based Wearable Biosensor for Real-Time Longitudinal Monitoring of Neurotransmitters in Human Sweat, <em>Ruijiang Zhang</em>, <em>W. Wu</em>, Purdue University, USA</td>
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<td>4:00pm</td>
<td>F3-TuA-8</td>
<td>A Two-Dimensional Ti$_3$C$_2$T$_x$, MXene/Mesochannel Ionic Diode Membrane for High-Performance Osmotic Energy Harvesting, <em>Wen-Hsin Hung</em>, National Taiwan University of Science and Technology, Taiwan, <em>C. Chu</em>, <em>Feng Chia University, Taiwan, L. Yeh</em>, National Taiwan University of Science and Technology, Taiwan</td>
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<td>4:20pm</td>
<td>F3-TuA-9</td>
<td>Discussion on the Growth Parameters and Oxygen Evolution Reaction Performance of Copper Sulfide, <em>Li-Wen Lin</em>, <em>C. Chen</em>, Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan</td>
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<td>4:40pm</td>
<td>F3-TuA-10</td>
<td>Cation and Anion Co-Doped iron Oxide Toward Efficient Hydrogen Peroxide Formation and Electro-Fenton Degradation of Organic Pollutant, <em>Yemima Purba</em>, <em>J. Ting</em>, National Cheng Kung University (NCKU) Tainan, Taiwan</td>
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<tr>
<td>5:00pm</td>
<td>F3-TuA-11</td>
<td>Molten Salt Synthesis of Highly Dispersible Hexagonal Boron Nitride Nanosheets for Ultrafiltration, <em>Neon Vicente III Rosell</em>, National Cheng Kung University (NCKU), Taiwan, <em>Philippines; K. Chang</em>, National Cheng Kung University (NCKU), Taiwan</td>
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<td>TS2-TuA-11</td>
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<td><em>Yu-Chun Su</em>, <em>L. Yeh</em>, National Taiwan University of Science and Technology, Taiwan</td>
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**Tuesday Afternoon, May 23, 2023**

**1:40 PM**
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<td>1:40pm</td>
<td>E1-TuA-1</td>
<td>INVITED: E1-TuA-1 Chemistry and Mechanical Properties of 2D Transition Metal Carbides and Carbonitrides (MXenes).</td>
<td>Vadym Mochalin, University of Missouri S&amp;T, USA</td>
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<td>2:20pm</td>
<td>E1-TuA-3</td>
<td>Tribocorrosion Behaviours of VNbMoTaWCr High Entropy Alloy Coatings</td>
<td>Ismail Rahmadtulloh, C. Wang, W. Wang, National Taiwan University of Science and Technology, Taiwan; B. Lou, Chang Gung University, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan</td>
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<tr>
<td>2:40pm</td>
<td>E1-TuA-4</td>
<td>Fundamentals of Phototribology.</td>
<td>B. Perotti, UCS, Brazil; A. Cammarata, Czech Technical University in Prague, Czech Republic; F. Cemin, Nantes Université, France; S. Sales de Mello, Université Grenoble Alpes, CNRS, France; L. Leidens, UCS, Brazil; F. Echeverrigaray, UNICAMP, Brazil; T. Minea, Université Paris-Saclay, France; F. Alvarez, UNICAMP, Brazil; A. Michels, UCS, Brazil; T. Polcar, University of Southampton, UK; Carlos Figueroa, UCS, Brazil</td>
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<td>3:00pm</td>
<td>E1-TuA-5</td>
<td>Ultra-thin nanotwinned (CoCrNi)100-W Medium Entropy Alloy Film: Role of Nanotwin in Mechanical and Tribology Behaviors.</td>
<td>Jhen-De You, National Taiwan University, Taiwan; P. Yiu, Ming Chi University of Technology, Taiwan; C. Hsueh, National Taiwan University, Taiwan</td>
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### Special Interest Talks
**Room Town & Country A - Session SIT2-TuSIT**

**Special Interest Session II**

**Moderator:**

Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

<table>
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<th>Title</th>
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<tr>
<td>7:00pm</td>
<td>INVITED</td>
<td><strong>SIT2-TuSIT-1</strong> Functional Nitride and Oxide Thin Films – the Key to Our Digital World,</td>
<td>Joerg Patscheider</td>
<td>Evatec AG, Switzerland</td>
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### Functional Thin Films and Surfaces
**Room Pacific C - Session C1-1-WeM**

**Optical Materials and Thin Films I**

**Moderators:**
- Silvia Schwyn-Theony, Evatec AG, Switzerland
- Juan Antonio Zaplen, City University of Hong Kong

**Conference Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Course</th>
<th>Speaker/Institution</th>
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<tbody>
<tr>
<td>8:00am</td>
<td><strong>INVITED: C1-1-WeM-1</strong> Structural Colors and Flexible Transparent Conductors Based on Thin Film Technology, <em>L. Jay Guo</em>, The University of Michigan, USA</td>
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<td>8:20am</td>
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<tr>
<td>8:40am</td>
<td><strong>C1-1-WeM-3</strong> High-Rate Deposition of Calcium Fluoride Coatings Using Radio-Frequency Magnetron Sputtering, <em>Sharon Waichman, J. Zukerman, M. Buzaglo, S. Barzilai</em>, NRCN, Israel</td>
<td><strong>INVITED: H2-2-WeM-3</strong> The Nature of Defects and their Dynamics Characterized using Scanning Electron Microscopy Approaches, <em>Dan S. Gianola</em>, University of California Santa Barbara, USA</td>
</tr>
<tr>
<td>9:00am</td>
<td><strong>C1-1-WeM-4</strong> Reactive Sputter Deposition of Nanoporous Black Zinc and White Zinc Oxide Coatings, <em>J. Zawadzki, Michal Borysiewicz</em>, Research Network - Institute of Microelectronics and Photonics, Poland</td>
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<tr>
<td>9:20am</td>
<td><strong>C1-1-WeM-5</strong> High Hall Mobility W-Doped InO(_x) Conductive Films with Thicknesses of Less Than 10 Nm Deposited on Glass Substrates, <em>Tetsuya Yamamoto, R. Palani, H. Makino</em>, Kochi University of Technology, Japan</td>
<td><strong>H2-2-WeM-5</strong> Measurement of Hardness and Elastic Modulus by Depth Sensing Indentation: Improvements to the Technique Based on Continuous Stiffness Measurement, <em>Warren Oliver</em>, KLA-Tencor, USA; <em>P. Sudharshan, ARCI, India; G. Pharr</em>, Texas A&amp;M University, USA</td>
</tr>
<tr>
<td>9:40am</td>
<td><strong>C1-1-WeM-6</strong> The Effects of Growth and Post-Annealing Temperatures on MoS(_2) Thin Films Deposited by Magnetron Sputtering, <em>C. Chao</em>, National Dong Hwa University, Taiwan; <em>P. Tsai</em>, National Chung-Shan Institute of Science &amp; Technology, Taiwan; <em>P. Wu</em>, Stone &amp; Resource Industry R&amp;D Center, Taiwan; <em>Ing-Song Yu</em>, National Dong Hwa University, Taiwan</td>
<td><strong>H2-2-WeM-6</strong> Ultrasonically Induced Nanofatigue During Nanoindentation, <em>Antonas Daugela</em>, Nanometronics LLC, USA; <em>J. Daugela</em>, Johns Hopkins University, USA</td>
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<td>11:00am</td>
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<td><strong>H2-2-WeM-10</strong> Comparison of Electrical and Image-Based Sensing for Quantitative in Situ TEM Nanomechanical Testing, <em>S. Stangebye, L. Dazo, X. Liu, J. Kacher, Olivier Pierron</em>, Georgia Tech, USA</td>
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<td>11:20am</td>
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<td><strong>H2-2-WeM-11</strong> Unraveling Deformation Localization in Thin Film Metallic Glasses During in-Situ Deformation Using 4D-STEM, <em>Christoph Gammer</em>, L. Schretter, A. Lassnig, S. Fellner, J. Eckert, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria</td>
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<td>8:00am</td>
<td>A2-WeM-1</td>
<td>On the Suitability of MoNbTaW Based Thin Films to Act as Diffusion Barriers</td>
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<td>A2-WeM-2 Improvement of EBC Performance by Controlling Driving Forces for Mass Transfers in Oxides</td>
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<td>9:00am</td>
<td>A2-WeM-4</td>
<td>Steam Oxidation Kinetics of Si / Modified YbSi2O5</td>
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<td>9:20am</td>
<td>A2-WeM-5</td>
<td>Oxygen Permeability, Failure Analysis and Life Prediction of Environmental Barrier Coatings Under Adverse Environments</td>
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<td>A2-WeM-6</td>
<td>Raman Spectroscopic Investigation of SiO2 TGO Phase Transformation and Si and SiC Substrate Stress</td>
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<td>11:00am</td>
<td>INVITED</td>
<td>A2-WeM-10 Hot Section Coating Technology as an Enabler for Sustainable Propulsion</td>
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<td>A2-WeM-12</td>
<td>Internal Coating for Nuclear Cladding Deposited by DLI-MOCVD: Application to the Mitigation of Pellet-Cladding Interaction (PCI)</td>
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<td>12:00pm</td>
<td>A2-WeM-13</td>
<td>Development of Tantalum Coating by the Cold Spray</td>
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### Tribology and Mechanical Behavior of Coatings and Engineered Surfaces

**Session E1-2-WeM**

**Friction, Wear, Lubrication Effects, and Modeling II**

**Moderators:**
- Michael Chandross, Sandia National Laboratories, USA
- Andreas Rosenkranz, Universidad de Chile
- Noora Manninen, Oerlikon Balzers, Oerlikon Surface Solutions AG, Liechtenstein

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<tr>
<td>8:00 am</td>
<td><strong>E1-2-WeM-4</strong> Catalytic Transformation of Lubricants to Wear-Protective Tribofilms on Selected Steel Surfaces During Sliding. <em>Yip Wah Chung, A. Khan, J. Ahmed, T. Martin, S. Liu</em>, Northwestern University, USA; <em>S. Berkebile</em>, Army Research Laboratory, USA; <em>Q. Wang</em>, Northwestern University, USA</td>
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<tr>
<td>8:20 am</td>
<td><strong>INVITED: E1-2-WeM-5</strong> Aromatic Compounds as Sustainable Lubricants for Iron, <em>Sophie Loehlé</em>, TotalEnergies, France</td>
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<tr>
<td>9:00 am</td>
<td><strong>E1-2-WeM-6</strong> How Efficient Is the Self Adaptation Concept for Low Friction with TMD-Based Sputtered Coatings, <em>Albano Cavaleiro</em>, University of Coimbra, Portugal</td>
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<td>9:40 am</td>
<td><strong>E1-2-WeM-8</strong> Electrodeposited of Silver Nano-Particules Plant Based to Improve Lubrication of Composite Films, <em>Pierre-Antoine Gay</em>, Haute Ecole Arc Ingénierie, Switzerland; <em>I. Markovic Milosevic</em>, HEPIA Institut inSTI, Switzerland; <em>T. Journot</em>, HE ARC Ingénierie, Switzerland; <em>J. Maurer</em>, Faculty of Biology and Medicine. Clinical pharmacology, Switzerland</td>
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### Special Interest Talks

**Room Town & Country A - Session SIT3-WeSIT**

**Special Interest Session III**

**Moderator:**

Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

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<td>1:00pm</td>
<td><strong>INVITED: SIT3-WeSIT-1</strong> Thin Film Sputtering</td>
<td>Koukou Suu</td>
<td>ULVAC, Inc., USA</td>
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<td>Technologies Enabling Manufacturing of Functional</td>
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<td>Devices for Smart Society</td>
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**Adapted from the original page:**

**Wednesday Afternoon, May 24, 2023**

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**Special Interest Talks**

**Room Town & Country A - Session SIT3-WeSIT**

**Special Interest Session III**

**Moderator:**

Jyh-Wei Lee, Ming Chi University of Technology, Taiwan

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<td><strong>INVITED: SIT3-WeSIT-1</strong> Thin Film Sputtering</td>
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<td>ULVAC, Inc., USA</td>
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<tr>
<td>2:00pm</td>
<td>Studies on Sulfur Induced Binary Targets for the Formation of Cu₂ZnSnS₃ (CZTS) Absorber Layer Thin Films for the Fabrication of SLG/Mo/CZTS/CdS/GZO/Al Thin Film Solar Cells, Balaji Gururajan, Yuan Ze University, Taiwan; B. Rangasamy, P. Sankaran, PSG College of Technology, India; L. Wei-Sheng, Yuan Ze University, Taiwan; D. McIlroy, Oklahoma State University, USA; E. Echeverria, The Center for Bright Beams, Cornell University, USA; S. Kavippan, PSG College of Technology, India; D. Velauthapillai, Western Norway University of Applied Sciences, Norway</td>
<td>Modeling of High Power Impulse Magnetron Sputtering Discharges with Tungsten Target, Swotha Suresh Babu, University of Iceland; M. Rudolph, Leibniz Institute of Surface Engineering (IOM), Germany; D. Lundin, Linköping University, Sweden; T. Shimizu, Tokyo Metropolitan University, Japan; J. Fischer, Linköping University, Sweden; J. Bradley, University of Liverpool, UK; J. Gudmundsson, University of Iceland</td>
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<td>2:20pm</td>
<td>Effect of Synchronous Bias Mode with Different Duty Cycles on 3D Complex Geometries, Ivan Fernandez, J. Santiago-Varela, P. Diaz-Rodriguez, NANO4ENERGY SLNE, Spain; L. Mendizabal, C. Zubizarreta, IK4 TEKNIKER, Spain</td>
<td>邀请：Benjamin van der Linden, Eindhoven University of Technology, Netherlands; Didier Gourdon, IFM, Sweden; Yannick Guillot, University of Bordeaux, France; Daniel Vina, University of Massachusetts Lowell, USA; Mark Baker, University of West Bohemia, Czechia; Tomasz Kozak, University of West Bohemia, Czechia; Farahani, A. Pajdarová, University of West Bohemia, Czechia; A. Bahin, R. Hahn, H. Riedl, TU Wien, Austria; P. Zeman, University of West Bohemia, Czechia</td>
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<tr>
<td>3:00pm</td>
<td>Hysteresis on Voltage-Current Characteristics and Optical Responses of PEDOT:PSS/ZnO Nanorods/ZnO:Ga Heterojunctions, Tomoaki Terasako, Graduate School of Science and Engineering, Ehime University, Japan; M. Yagi, National Institute of Technology, Kagawa College, Japan; T. Yamazato, Materials Design Center, Research Institute, Kochi University of Technology, Japan</td>
<td>Combinatorial Deposition of Highly Oriented AlScN Films Using Synchronized HiPIMS for Piezoelectric Applications, Jyotish Patidar, S. Zhuk, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; A. Sharma, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; M. Ghosh, A. Wieczorek, K. Thorwarth, S. Siol, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</td>
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<td>3:20pm</td>
<td>Effective Ways to Enhance the Performance of n-MoS₂/p-CuO Heterojunction Based Self-Powered Photodetectors, Krishan Kumar, D. Kaur, Indian Institute of Technology Roorkee, India</td>
<td>Fabrication of TiZrNbTaFeBN Coatings Using Superimposed HiPIMS-MF Systems: Mechanical and Chemical Properties Evaluation, Igamcha Moirangthem, S. Chen, C. Wang, National Taiwan University of Science and Technology, Taiwan; B. Lou, Chang Gung University, Taiwan; J. Lee, Ming Chi University of Technology, Taiwan</td>
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<td>3:40pm</td>
<td>Femtosecond Laser Ablation (FESLA) XPS – A Novel XPS Depth Profiling Technique for Optical/Electrical Thin Films and Multi-Layered Structures, Mark Baker, S. Bacon, S. Sweeney, University of Surrey, UK; A. Bushell, T. Nunney, R. White, Thermo Fisher Scientific, UK</td>
<td>Effect of Synchronous Bias Mode with Different Duty Cycles on Microstructure and Mechanical Properties of ALTIN Coatings Deposited by HiPIMS Process, J. Tang, Department of Electronic Engineering, Lunghua University of Science and Technology, Germany; S. Huang, J-Hong Chen, G. Shen, Department of Materials Engineering, Ming Chi University of Technology, Germany; C. Chang, Department of Materials Engineering, Center for Plasma and Thin Film Technologies, Ming Chi University, Germany</td>
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<td>4:00pm</td>
<td>2-Dimensional Growth of GaS₅ Crystal by Low-Pressure Vapor Phase Deposition, Yijia Chen, National Dong Hwa University, Taiwan; C. Huang, National Dong Hwa University, Taiwan</td>
<td>Bipolar HiPIMS: A New Route to Deposit Advanced Coatings on 3D Complex Geometries, Ivan Fernandez, J. Santiago-Varela, P. Diaz-Rodriguez, NANO4ENERGY SLNE, Spain; L. Mendizabal, C. Zubizarreta, IK4 TEKNIKER, Spain</td>
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<td>4:20pm</td>
<td>On the Control of the Composition of NbC Films Deposited by HiPIMS from a Compound Target: Plasma Diagnostics, Tomasz Kozak, M. Farahani, A. Pajdarova, University of West Bohemia, Czechia; A. Bahin, R. Hahn, H. Riedl, TU Wien, Austria; P. Zeman, University of West Bohemia, Czechia</td>
<td>邀请：Benjamin van der Linden, Eindhoven University of Technology, Netherlands; Didier Gourdon, IFM, Sweden; Yannick Guillot, University of Bordeaux, France; Daniel Vina, University of Massachusetts Lowell, USA; Mark Baker, University of West Bohemia, Czechia; Tomasz Kozak, University of West Bohemia, Czechia; Farahani, A. Pajdarová, University of West Bohemia, Czechia; A. Bahin, R. Hahn, H. Riedl, TU Wien, Austria; P. Zeman, University of West Bohemia, Czechia</td>
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<td>2:20pm</td>
<td>INVITED: F4-1-WeA-2</td>
<td>Quaternary CrTa2N: Experimental and Theoretical Insights Into a Novel Coating Material with Promising Mechanical Properties and Exceptional Thermal Stability</td>
<td>Christina Kainz, Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Montanuniversität Leoben, Austria, M. Tkadletz, Department of Materials Science, Montanuniversität Leoben, Austria, L. Patterer, D. Bagdanovskii, Materials Chemistry, RWTH Aachen University, Germany, H. Kräger, Institute of Mineralogy and Petrography, University of Innsbruck, Austria, A. Stark, N. Schell, Institute of Materials Physics, Helmholtz-Zentrum Hereon, Germany, J. Letofsky-Papst, Institute for Electron Microscopy and Nanoanalysis and Center for Electron Microscopy, Austria, M. Pohler, C. Cettì, Ceratizit Austria GmbH, Austria, J. Schneider, Materials Chemistry, RWTH Aachen University, Germany, C. Mitterer, Department of Materials Science, Montanuniversität Leoben, Austria, N. Schalk, Christian Doppler Laboratory for Advanced Coated Cutting Tools at the Department of Materials Science, Austria</td>
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<td>2:40pm</td>
<td>G2-WeA-1</td>
<td>Effect of Different Diffusion Treatments on the Surface Properties of Austenitic Stainless Steels</td>
<td>Philip Marvin Reinders, P. Kaestner, G. Bräuer, Technische Universität Braunschweig, Germany</td>
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<td>3:00pm</td>
<td>F4-1-WeA-4</td>
<td>Transition Metal Diboride Superlattices: Combination of Ab Initio and Experimental Approach for Investigation of Ceramic Thin Films with Improved Ductility and Fracture Toughness</td>
<td>Tomáš Fantok, Comenius University, Slovakia, N. Koutník, Linköping University, IFM, Sweden, V. Šroba, Comenius University, Slovakia, M. Meindlhuber, Austrian Academy of Sciences, Austria, T. Bach, M. Truchýl, M. Vídli, L. Sotropinský, M. Gocnik, Comenius University, Slovakia, D. G. Sangiovanni, Linköping University, IFM, Sweden, M. Mikula, Comenius University, Slovakia</td>
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<td>3:40pm</td>
<td>INVITED: F4-1-WeA-6</td>
<td>Characterization of Ti-Al-La-B-N Hard Coating and Cutting Tool Application</td>
<td>Shin Takayama, T. Ishigaki, M. Takahashi, Mitsubishi Materials Corporation, Japan</td>
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<td>4:00pm</td>
<td>G2-WeA-6</td>
<td>Analysis of the Temperature Variation of Bizarre Thermal Barrier Coatings and Their Impacts on Engine</td>
<td>Ole Achenbach, B. Mingo, A. Yerokhin, University of Manchester, UK</td>
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<td>4:20pm</td>
<td>F4-1-WeA-8</td>
<td>Mechanical Properties and Thermal Stability of ZrBSi4N Films</td>
<td>Kuo-Hong Yeh, National Taiwan Ocean University, Taiwan, L. Chang, Ming Chi University of Technology, Taiwan, Y. Chen, National Taiwan Ocean University, Taiwan</td>
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<td>5:00pm</td>
<td>G2-WeA-10</td>
<td>Evolution of Microstructure And Composition of Superalloy</td>
<td>Philip Marvin Reinders, National Tsi College of Engineering and Technology, India, P. Sivanandi, Government College of Technology, Coimbatore, India, S. Dhandabani, V. Murugan, Sri Ramakrishna Institute of Technology, India</td>
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<td>5:20pm</td>
<td>G2-WeA-11</td>
<td>Chemical Vapor Infiltration Technology for Coatings of Fibers and 3D Porous Bodies</td>
<td>Dennis Zywitzki, H. Strakov, IWI Bernex AG, Switzerland</td>
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<td>2:00pm</td>
<td>INVITED</td>
<td>TS3-WeA-1 Upscalable Nanomanufacturing of Thin-Film Electronics</td>
<td>Thomas Anthopoulos, King Abdullah University of Science and Technology (KAUST), Division of Physical Sciences and Engineering, Saudi Arabia</td>
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<td>2:40pm</td>
<td>TS3-WeA-3</td>
<td>Plasma Technologies for Sustainable Packaging Materials</td>
<td>Glen West, Manchester Metropolitan University, U.K.; T. Cosnahan, C. Struller, N. Copeland, Bobst Manchester Ltd., UK; P. Kelly, Manchester Metropolitan University, U.K.</td>
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<td>3:00pm</td>
<td>TS3-WeA-4</td>
<td>Oxide-Based Nanostructured Thin Film Electrodes for High Performance Flexible Asymmetric Supercapacitor Application</td>
<td>M. Sharma, R. Adaloti, Ramesh Chandra, Indian Institute of Technology Roorkee, India</td>
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<td>3:20pm</td>
<td>TS3-WeA-5</td>
<td>Fully Inkjet-Printed Gas Sensing Antenna Based on Carbon Nanotubes for Wireless Communication Applications</td>
<td>Hsuan-Ling Kao, Chang Gung University, Taiwan; L. Chang, Ming Chi University of Technology, Taiwan; Y. Tsai, Chang Gung University, Taiwan</td>
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<td>3:40pm</td>
<td>TS3-WeA-6</td>
<td>Characterization and Evaluation of PVD-Coatings on Bipolar Plates for PEMFC</td>
<td>Julian Kapp, V. Lukassek, V. Mackert, J. Wartmann, H. Hoster, ZBT Zentrum für BrennstoffzellenTechnik GmbH, Germany; R. Cremer, P. Jaschinski, KCS Europe GmbH, Germany</td>
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<td>4:00pm</td>
<td>INVITED</td>
<td>TS3-WeA-7 Towards Large Area Scalable Organic Solar Cells using Solution Processsing</td>
<td>S. Ravi P. Silva, Advanced Technology Institute, University of Surrey, UK</td>
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<td>TS3-WeA-9</td>
<td>Transition Metal Nitride Colloids: From PVD Targets to Laser-Ablated Nanoparticles</td>
<td>N. Pilotsakis, S. Panos, I. Fekas, S. Kassavetis, Panos Patsalas, Aristotle University of Thessaloniki, Greece</td>
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<td><strong>Awards Ceremony and Honorary Lecture</strong></td>
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<td><strong>Room Town &amp; Country A - Session HL-WeHL</strong></td>
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<td><strong>Bunshah Award Honorary Lecture</strong></td>
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<td><strong>Moderator:</strong> <strong>Ivan G. Petrov</strong>, University of Illinois at Urbana-Champaign, USA</td>
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<td>6:05pm</td>
<td><strong>INVITED:</strong> <strong>HL-WeHL-2</strong> R.F. Bunshah Award and ICMCTF Lecture Invited Talk: What TEM, XRD, STM, AFM, HIM, LEED, 3DATP, DSC, Nanoindentation, DFT, and MD Tell You About Functional Nanostructured Ceramics, <strong>Lars Hultman</strong>, Linköping University, Sweden</td>
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<td>6:25pm</td>
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<td><strong>R.F. Bunshah Awardee</strong> <strong>1</strong></td>
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## Thursday Morning, May 25, 2023

### Functional Thin Films and Surfaces
- **Room Pacific D - Session C3-1-ThM**
- **Thin Films and Novel Surfaces for Energy I**
- **Moderators:**
  - Clio Azina, RWTH Aachen University, Germany
  - Carlos Tavares, University of Minho, Portugal
- **Invited:**
  - C3-1-ThM-1 New Challenges and Opportunities for PVD Coatings in Metal Cutting Applications, **Aharon Inspektor**, Carnegie Mellon University, USA
  - C3-1-ThM-3 Custom-Fit Hipim Coatings for Cutting Tools Used in a Wide Variety of Machining Applications, **Stephan Bolz**, B. Mesic, O. Lemmer, W. Kliker, C. Schiffer, CemeCon AG, Germany
  - C3-1-ThM-4 Film Growth Control at Cutting Edges to Overcome Edge Rounding, **Otmar Zimmer**, T. Litterst, Fraunhofer Institute for Material and Beam Technology (IW5), Germany; T. Kruelle, Technical University Dresden, Germany
  - C3-1-ThM-5 The Influence of Sb Doping on the Local Structure and Disorder in Thermoelectric ZnO:SB Thin Films, **Khaled Mahmoud**, Department Of Physics, Government College University, Faisalabad, Pakistan
  - C3-1-ThM-6 An Economic Experimental Approach to Optimize the Microstructure and Thermoelectric Performance of ZnSe Thin Films, **Haemin Paik**, MIT, USA; J. Rupp, Technical University Munich, Germany
  - C3-1-ThM-7 Toward Energy-efficient Physical Vapor Deposition: Routes Fodrosification of (Ti1-xAlx)1-yWzN Thin Films Grown with no External Heating, **Xiao Li**, A. Pshyk, B. Bakhit, Linköping Univ., IFM, Thin Film Physics Div., Sweden; M. Johansson IBesaoa, J. Andersson, SECO Tools AB, Sweden; I. Petrov, University of Illinois at Urbana, USA; L. Hultman, G. Greckynski, Linköping Univ., IFM, Thin Film Physics Div., Sweden
  - C3-1-ThM-8 Effects of Nitrogen Contents on the Microstructure and Corrosion Resistant Evaluation of ZrTiNiFeSiN High Entropy Alloy Coatings, **Chen Wei Yang**, K. Yu-Lin, National Taiwan University of Science and Technology, Taiwan; L. Bih-Show, Chang Gung University, Taiwan; L. Jyh-Wei, Ming Chi University of Technology, Taiwan
  - C3-1-ThM-9 Development of a Multilayer Ti/TiAlN/Re/N Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, **Hernán Darío Mejía Vásquez**, G. Bejarano Gaitán, University of Antioquia, Colombia
  - C3-1-ThM-10 A Comparative Study of the Thermochromic Performances of VOx Films Obtained by Air Oxidation of V and VN Precursors, **David Pilloud**, A. Garcia-Wong, F. Capon, J. Pierson, Institut Jean Lamour - Université de Lorraine, France
  - C3-1-ThM-11 Tribocactive CrAlN+XS Coatings Deposited by Pulsed Arc PVD, **K. Bobzin, C. Kalscheuer, Max Philip Möbius**, Surface Engineering Institute - RWTH Aachen University, Germany
  - C3-1-ThM-12 Mechanical and Electrochemical Properties of AlCrN/FexN Coating Deposited onto AISI 4140 Steel, **Omar Ramirez-Reyna**, National Polytechnic Institute, Mexico; J. Perez-Alvarez, University of Guadalajara, Mexico; G. Rodriguez-Castro, National Polytechnic Institute, Mexico; C. Rivero-Tello, University of Guadalajara, Mexico; A. Meneses-Amador, National Polytechnic Institute, Mexico
  - C3-1-ThM-13 Mechanical and Electrochemical Properties for SiC:N, Coating as a Function of Nitrogen Content, L. Chang, **Pin-Feng Huang**, B. Chen, S. Tsai, Ming Chi University of Technology, Taiwan

### Hard Coatings and Vapor Deposition Technologies
- **Room Town & Country C - Session B1-1-ThM**
- **PVD Coatings and Technologies I**
- **Moderators:**
  - Christian Kalscheuer, RWTH Aachen University, Germany
  - Vladimir Pankov, National Research Council of Canada
  - **Invited:**
    - B1-1-ThM-1 High-Power-Density Sputtering of Industrial-Scale Targets: Micromechanical Case Study of Al-Cr-N, **Fedor F. Klimashin**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; A. Lümkemann, PLATIT AG, Switzerland; J. Klußon, M. Uzik, M. Jilek, PLATIT a.s., Czechia; J. Michler, T. Edwards, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
    - B1-1-ThM-2 Development of a Multilayer Ti/TiAlN/Re/N Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, **Hernán Darío Mejía Vásquez**, G. Bejarano Gaitán, University of Antioquia, Colombia
    - B1-1-ThM-3 Custom-Fit Hipim Coatings for Cutting Tools Used in a Wide Variety of Machining Applications, **Stephan Bolz**, B. Mesic, O. Lemmer, W. Kliker, C. Schiffer, CemeCon AG, Germany
    - B1-1-ThM-4 Film Growth Control at Cutting Edges to Overcome Edge Rounding, **Otmar Zimmer**, T. Litterst, Fraunhofer Institute for Material and Beam Technology (IWS), Germany; T. Kruelle, Technical University Dresden, Germany
    - B1-1-ThM-5 The Influence of Sb Doping on the Local Structure and Disorder in Thermoelectric ZnO:SB Thin Films, **Khaled Mahmoud**, Department Of Physics, Government College University, Faisalabad, Pakistan
    - B1-1-ThM-6 An Economic Experimental Approach to Optimize the Microstructure and Thermoelectric Performance of ZnSe Thin Films, **Haemin Paik**, MIT, USA; J. Rupp, Technical University Munich, Germany
    - B1-1-ThM-7 Toward Energy-efficient Physical Vapor Deposition: Routes Fodrosification of (Ti1-xAlx)1-yWzN Thin Films Grown with no External Heating, **Xiao Li**, A. Pshyk, B. Bakhit, Linköping Univ., IFM, Thin Film Physics Div., Sweden; M. Johansson IBesaoa, J. Andersson, SECO Tools AB, Sweden; I. Petrov, University of Illinois at Urbana, USA; L. Hultman, G. Greckynski, Linköping Univ., IFM, Thin Film Physics Div., Sweden
    - B1-1-ThM-8 Effects of Nitrogen Contents on the Microstructure and Corrosion Resistant Evaluation of ZrTiNiFeSiN High Entropy Alloy Coatings, **Chen Wei Yang**, K. Yu-Lin, National Taiwan University of Science and Technology, Taiwan; L. Bih-Show, Chang Gung University, Taiwan; L. Jyh-Wei, Ming Chi University of Technology, Taiwan
    - B1-1-ThM-9 Development of a Multilayer Ti/TiAlN/Re/N Coating System and Evaluation of their Microstructural, Mechanical and Tribological Properties, **Hernán Darío Mejía Vásquez**, G. Bejarano Gaitán, University of Antioquia, Colombia
    - B1-1-ThM-10 A Comparative Study of the Thermochromic Performances of VOx Films Obtained by Air Oxidation of V and VN Precursors, **David Pilloud**, A. Garcia-Wong, F. Capon, J. Pierson, Institut Jean Lamour - Université de Lorraine, France
    - B1-1-ThM-11 Tribocactive CrAlN+XS Coatings Deposited by Pulsed Arc PVD, **K. Bobzin, C. Kalscheuer, Max Philip Möbius**, Surface Engineering Institute - RWTH Aachen University, Germany
    - B1-1-ThM-12 Mechanical and Electrochemical Properties of AlCrN/FexN Coating Deposited onto AISI 4140 Steel, **Omar Ramirez-Reyna**, National Polytechnic Institute, Mexico; J. Perez-Alvarez, University of Guadalajara, Mexico; G. Rodriguez-Castro, National Polytechnic Institute, Mexico; C. Rivero-Tello, University of Guadalajara, Mexico; A. Meneses-Amador, National Polytechnic Institute, Mexico
    - B1-1-ThM-13 Mechanical and Electrochemical Properties for SiC:N, Coating as a Function of Nitrogen Content, L. Chang, **Pin-Feng Huang**, B. Chen, S. Tsai, Ming Chi University of Technology, Taiwan
### Thursday Morning, May 25, 2023

#### Hard Coatings and Vapor Deposition Technologies

**Room Pacific C - Session B5-ThM**

**Hard and Multifunctional Nanostructured Coatings**

**Moderators:** Rainer Hahn, TU Wien, Institute of Materials Science and Technology, Austria; Tomas Kozak, University of West Bohemia, Czechia

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<td>8:20am</td>
<td><strong>B5-ThM-2</strong> Development of TiB2 Coatings in a New Generation Industrial Reactor Based on Hybrid DC-Pulsed and HiPIMS Magnetron Sputtering on HS5 Steels – A Tribological Study, <strong>Gonzalo Garcia Fuentes</strong>, J. Fernández, J. Fernández-Palacio, AIN, Spain; H. Gabriel, PVT Vakuum Technik, Germany</td>
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<td>8:40am</td>
<td><strong>B5-ThM-3</strong> Effect of Ion Density Flux Ratio on Properties of Protective Hard (Ti,V)B Coatings Sputtered by Cylindrical Magnetron, <strong>Daniel Karpinski</strong>, P. Karpankova, C. Krieg, Platin AG, Switzerland; J. Klucon, Platin a.s., Czechia; B. Tarp, Platin Inc., USA; A. Lünemann, Platin AG, Switzerland</td>
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<td>9:00am</td>
<td><strong>INVITED: B5-ThM-4</strong> High-Temperature Properties of Multicomponent Nitride Coatings Deposited by PVD, <strong>Yuxiang Xu</strong>, Guangdong University of Technology, China</td>
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<td>9:20am</td>
<td><strong>B8-2-ThM-4</strong> Ion Beam Sputter Deposition of Epitaxial Ga2O3 Thin Films, <strong>Dmitry Kalanov</strong>, Y. Unutulmazsoy, J. Gerlach, A. Lrotyn, A. Anders, C. Bundesmann, Leibniz Institute of Surface Engineering (IOM), Germany</td>
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<td>9:40am</td>
<td><strong>B5-ThM-5</strong> The Effect of Water Uptake on the Mechanical Behavior of Hybrid Thin Films Fabricated by Sequential Infiltration Synthesis, <strong>Shachar Keren</strong>, Technion–Israel Institute of Technology, Israel; C. Bukowski, M. Kin, A. Crosby, University of Massachusetts, Amherst, USA; N. Cohen, T. Segal-Pazetz, Technion–Israel Institute of Technology, Israel</td>
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<td>10:00am</td>
<td><strong>INVITED: B5-ThM-7</strong> Spokes in HiPIMS: Help or Hindrance?, <strong>Julian Held</strong>, University of Minnesota, USA; P. Maagf, M. George, W. Breilmann, S. Thiemann-Monjé, V. Schul-von der Gathen, A. von Brandt, Ruhr University Bochum, Germany</td>
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<td><strong>INVITED: B5-ThM-8</strong> Nanoporous/Nanocomposite Thin Films by Magnetron Sputtering Deposition in Helium and Other Light Gases: New Materials and Applications, <strong>Asunción Fernández</strong>, Instituto de Ciencia de Materiales de Sevilla (CSIC-US), Spain</td>
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<td>10:40am</td>
<td><strong>B8-2-ThM-9</strong> Effect of Plasma Nitriding Pretreatment on the Mechanical and Wear Properties of Tungsten Carbide Substrate, and AlCrN Coating Deposited by High-Power Impulse Magnetron Sputtering, <strong>F. Yang</strong>, Department of Mechanical Engineering, National Taiwan University of Science and Technology, and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan; T. Liu, Guan-Lun Shen, I. Chen, Department of Materials Engineering, Ming Chi University of Technology, Taiwan; Y. Kuo, Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taiwan; C. Chang, Department of Materials Engineering, Ming Chi University of Technology, and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan</td>
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<td>11:00am</td>
<td><strong>B8-ThM-10</strong> Mechanical Properties of Epitaxial Ti(N)(001)-TiC(001) Superlattices, <strong>Moishe Azoff-Silfstein</strong>, Rensselaer Polytechnic Institute, USA; S. Lee, University of Connecticut, USA; D. God, Rensselaer Polytechnic Institute, USA</td>
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<td>11:20am</td>
<td><strong>B8-ThM-11</strong> Tensile and Compressive Stress in Sputtered Cu/W Nanomultilayers: Correlation with Microstructure, Thermal Stability, and Thermal Conductivity, <strong>Giacomo Lorenzin</strong>, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; M. bin Hoque, University of Virginia, USA; D. Arriosa, Universidad de la Republica, Montevideo, Uruguay; L. Jeurgens, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; E. Haglund, J. Tomko, P. Hopkins, University of Virginia, USA; C. Cancellieri, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</td>
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<td>11:40am</td>
<td><strong>B8-ThM-12</strong> Investigation of Thermal Properties of PECVD Ti-Si-C-N Nanocomposite Coatings, <strong>Alexander Thewes</strong>, L. Broecker, IOT TU Braunschweig, Germany; H. Paschke, T. Brueckner, Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany; C. Sternemann, M. Paulus, DELTA TU Dortmund, Germany</td>
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#### HiPIMS, Pulsed Plasmas and Energetic Deposition II

**Room Town & Country D - Session B8-2-ThM**

**Moderators:** Tiberiu Minea, Université Paris-Saclay, France; Martin Rudolph, Leibniz Inst. of Surface Eng. (IOM), Germany

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<td>8:20am</td>
<td><strong>B8-2-ThM-6</strong> On Working Gas Rarefaction in High Power Impulse Magnetron Sputtering, <strong>Kateryna Barynina</strong>, S. Suresh Babu, University of Iceland; M. Rudolph, Leibniz Institute of Surface Engineering (IOM), Germany; J. Gudmundsdottir, University of Iceland</td>
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<td>8:40am</td>
<td><strong>B8-2-ThM-8</strong> Highly Ionized Pulse Sputtering of Seed Layers for Through Silicon Vias, <strong>Juergen Weichart</strong>, Evatec AG, Switzerland</td>
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<td>9:00am</td>
<td><strong>B8-2-ThM-9</strong> Deposition Environment and Microstructure of Transition Metal Nitride Thin Films Deposited at CMOS-Compatible Temperatures for Tunable Optoelectronic and Plasmonic Devices, <strong>Arutun P. Ehiasarian</strong>, Sheffield Hallam University, UK; R. Bower, Imperial College London, UK; D. Loch, Sheffield Hallam University, UK; A. Berenov, B. Zou, Imperial College London, UK; P. Houpevian, Sheffield Hallam University, UK; P. Petrov, Imperial College London, UK</td>
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<td>9:20am</td>
<td><strong>B8-2-ThM-10</strong> On the Connection between the Self-Sputter Yield and Deposition Rate in High Power Impulse Magnetron Sputtering Operation, <strong>Jon Tomas Gudmundsdottir</strong>, University of Iceland; M. Rudolph, Leibniz Institute of Surface Engineering (IOM), Germany; K. Barynina, University of Iceland; J. Fischer, Linköping University, Sweden; S. Suresh Babu, University of Iceland; N. Brenning, M. Rauda, KTH Royal Institute of Technology, Sweden; D. Lundin, Linköping University, Sweden; H. Højhoseini, University of Twente, Netherlands</td>
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| 8:00am| **New Horizons in Coatings and Thin Films**  
**Room Pacific E - Session F4-2-ThM**  
**Boron-Containing Coatings II**  
**Moderators:** Marcus Hans, RWTH Aachen University, Germany, Helmut Riedl, TU Wien, Institute of Materials Science and Technology, Austria, Johanna Rosén, Linköping University, Sweden |
| 8:20am| **Tribology and Mechanical Behavior of Coatings and Engineered Surfaces**  
**Room Town & Country B - Session E2-1-ThM**  
**Mechanical Properties and Adhesion I**  
**Moderators:** Jazmin Duarte, MPI für Eisenforschung GMBH, Germany, Alice Lassnig, Austrian Academy of Sciences, Austria, Bo-Shuan Li, National Sun-Yat Sen University, Taiwan |
| 8:40am| **INVITED: F4-2-ThM-3**  
**Terrella Tungsten Boride Coatings with Improved Mechanical Properties Deposited by High-Power Pulsed Magnetron Sputtering from One Spark Plasma Sintered Target, Tomasz Mosići, Institute of Fundamental Technological Research of Polish Academy of Science, Poland; R. Ptak, Institute of Fundamental Technological Research of Polish Academy of Science, Warsaw, Poland; J. Chrzanoska-Gizynska, Institute of Fundamental Technological Research of Polish Academy of Science, Poland; D. Garbiec, Lukasiewicz Research Network – Poznań Institute of Technology, Poland** |
| 9:00am| **E2-1-ThM-3**  
**Increased Adhesion of Mo Films on Polyimide Through Interface Modification, Megan Cordill, P. Kreml, Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria; M. Rausch, C. Mitterer, Dept. of Materials Science, Montanuniversität Leoben, Austria** |
| 9:20am| **F4-2-ThM-5**  
| 9:40am| **F4-2-ThM-6**  
| 10:00am| **F4-2-ThM-7**  
**Exploring Phase Evolution and its Consequences on Mechanical Properties of a Novel HfB–AlB₂ Coatings, Samyukta Shrivastav, D. Yun, K. Canova, J. Abelson, J. Krogstad, University of Illinois at Urbana Champaign, USA** |
| 10:20am| **INVITED: F4-2-ThM-8**  
**Challenges and Perspectives of Wear Resistant Boron-Containing Coatings, Jose L Endrino, Nano4energy SL, Spain; J. Rao, Cranfield University, UK; T. Brzezinska, Dell Technologies, UK; A. Mendez, J. Santiago, Nano4energy SL, Spain; J. Molling, Polytechnic University of Madrid, Spain** |
| 10:40am| **E2-1-ThM-8**  
**Measurements and Simulation of Mechanical Behavior of Amorphous and Crystalline Zr(–Hf)–Cu Thin-Film Alloys, Stanislav Haviar, T. Kozák, University of West Bohemia, Czechia; M. Mertlhummer, Montanuniversität Leoben, Austria; M. Zitek, University of West Bohemia, Czechia; J. Keckes, Erich Schmid Institute of Materials Science, Austria; P. Zeman, University of West Bohemia, Czechia** |
| 11:00am| **E2-1-ThM-9**  
**A Nanotwinned CoCrFeNi Medium Entropy Alloy with Ultrahigh Strength Over a Wide Range of Temperature, Jia Yang-Juan, National Taiwan University, Taiwan** |
| 11:20am| **INVITED: E2-1-ThM-10**  
**Material Properties and Mechanics of Eggshells—Nature’s Survival Capsules, Jia-Yang-Juan, National Taiwan University, Taiwan** |
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<td><strong>FTS-ThL-1</strong> How to Publish in a Scientific Journal, <em>Dutta Biswanath</em>, Elsevier, USA</td>
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Coatings for Biomedical and Healthcare Applications Room Golden State Ballroom - Session DP-ThP Coatings for Biomedical and Healthcare Applications (Symposium D) Poster Session 5:00pm

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

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


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

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

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

BP-ThP-2 First Principles Calculation of Thermal Properties for an Aeronautical Ni Alloys, Luis Damil, M. Lima, Instituto de Estudos Avancados [IEAv - DCTA], Brazil

Thursday, May 25, 2023
New Horizons in Coatings and Thin Films
Room Golden State Ballroom - Session FP-THp
New Horizons in Coatings and Thin Films (Symposium F) Poster Session
5:00pm
FP-THp-1 Fabrication of Chemical Bath Deposited ZnO Nanorods Layer Based Ultraviolet Light Detectors and Their Device Properties: Influences of Solution Concentration and Thermal Annealing, Tomoaki Terasako, T. Fujikawa, K. Hirota, K. Kobayashi, Graduate School of Science and Engineering, Ehime University, Japan; M. Yogi, National Institute of Technology, Kagawa College, Japan; T. Yamamoto, Materials Design Center, Research Institute, Kochi University of Technology, Japan
FP-THp-2 Advances in Nanosynthesis by Atmospheric Pulsed Arc Discharges, Carlos Corbella, S. Portal, George Washington University, USA; M. Kundrapu, Tech-X Corporation, USA; M. Kridar, George Washington University, USA
FP-THp-4 Demystifying the Entropy Forming Ability – The Role of Atomic Size Effects, Andreas Kretschmer, P. Mayrhofer, TU Wien, Institute of Materials Science and Technology, Austria
FP-THp-6 The Photodetection of the in-, Sn-, and Te-Doped BiSe Nanoplatelets, Chih-Chiang Wang, National Chin-Yi University of Technology, Taiwan; H. Shih, Chinese Culture University, Taiwan; F. Shie, National Chung Hsing University, Taiwan; A. Lo, National Chin-Yi University of Technology, Taiwan
FP-THp-7 Metallic Zn and Mg Nanowire Coatings by Conventional Reactive DC Sputter Deposition, Jakub Zawodzki, M. Borysiewicz, M. Wzorek, Lukasiewicz Research Network - Institute of Microelectronics and Photonics, Poland
FP-THp-8 Synthesis and Electrical Properties of Gasb Nanowires, Tsai-Wei Chen, C. Wang, National Taiwan University of Science and Technology, Taiwan
FP-THp-9 Spacing-controllable core@shell TiOx@RuOx Nanotube Array for Biocompatible Stimulating Electrode Applications, Jia-Jun Li, National Taipei University of Technology, Taiwan
FP-THp-10 Nickel Sulfide on Organic Framework for Efficient Hydrogen Evolution Reaction, Yuan-Ai J., Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan; T. Chang, C. Kang, Department of Chemical Engineering, National Cheng Kung University, Taiwan; C. Chen, Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan
FP-THp-11 Research of The Growth Mechanism of Solvothermally Synthesized Sb2Te3 Nanosheets, Yen-Jen Lin, C. Chen, Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan
Surface Engineering - Applied Research and Industrial Applications
Room Golden State Ballroom - Session GP-THp
Surface Engineering - Applied Research and Industrial Applications (Symposium G) Poster Session
5:00pm
GP-THp-1 Enhanced Corrosion Resistance, Wear and Antibacterial Properties of TiO2-Incorporated Micro-Arc Oxidation on AZ31 Magnesium Alloy, Wei-Hao Chen, Y. Lee, S. Huang, Y. Chu, National Taiwan University, Taiwan
GP-THp-2 The Influence of the Pause Time on Microstructure and Corrosion Resistance of AZ31 Magnesium Alloy Micro-Arc Oxidation Coating, Shih-Yen Huang, Y. Lee, Y. Chu, National Taiwan University, Taiwan
GP-THp-3 Microstructure and Properties of HVOF Sprayed Coatings Remelted by Laser, E. Jonda, Marek Sroka, W. Pakie, Silesian University of Technology, Poland; T. Jung, Lukasiewicz Research Network - Institute for Ferrous Metallurgy, Poland
GP-THp-5 Etching of B-doped Diamond Films Using RF Plasma, Ryouhei Ueda, Chiba Institute of Technology, Japan
GP-THp-6 Fabrication of Si/C/SiNW Arrays Sandwich Structure at Different Annealing Parameters for Solar Cell Application, Ai-Huei Chiao, J. Wei, National Formosa University, Taiwan
GP-THp-8 Effect of Fluoride on Adhesion of Electroless Nickel–Phosphorus Coating on MAO-Coated AZ31B Magnesium Alloy, J. Lee, C. Lee, National Defense University, Republic of China; J.-W. Lee, Chung Hwa University of Science and Technology, Taiwan; S. Jam, Ming Chi University of Technology, Taiwan, Republic of China; Ming-De Ger, A. Cheng, National Defense University, Republic of China
GP-THp-9 Effect of Mechanical Stress on Electrical Characteristics of Low-Dielectric-Constant Dielectric Materials, Yi-Lung Cheng, National Chi-Nan University, Taiwan
GP-THp-10 Monolithic Integration of Lead Selenide Films via Surface Morphology Engineering, Sejeong Park, J. Park, Opto Diode Corporation, USA
Topical Symposia
Room Golden State Ballroom - Session TS1P-ThP
Coatings for Energy Storage and Conversion - Batteries and Hydrogen Applications - TS1 Poster Session
5:00pm


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

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

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

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

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

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

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

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

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

EP-ThP-3 Influence of Nb and Ta Added Elements on the Corrosion and Mechanical Properties of CrYN Coatings, İhsan Efeoğlu, B. Yaylalı, G. Gülen, Y. Topkı, Atatürk University, Turkey; P. Kelly, J. Malecka, Manchester Metropolitan University, U.K.
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<td>Functional Thin Films and Surfaces</td>
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<td>Room Pacific C - Session C2-2-FrM</td>
<td>Room Town &amp; Country B - Session C3-2-FrM</td>
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<td>Thin Films for Electronic Devices II</td>
<td>Thin Films and Novel Surfaces for Energy II</td>
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<td>Moderators: Julien Keraudy, Oerlikon Balzers, Oerlikon Surface Solution AG, Liechtenstein,</td>
<td>Moderators: Clio Azina, RWTH Aachen University, Germany, Carlos Tavares, University of Minho, Portugal</td>
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<td>Jörg Patscheider, Evatec AG, Switzerland</td>
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<td>INVITED: C2-2-FrM-3 3D Device Integration Technology for AI Computing, S. Chang, Powerchip Semiconductor, Taiwan; Shou-Zen Chang, Powerchip Semiconductor Manufacturing Corporation, Taiwan</td>
<td>INVITED: C2-2-FrM-3 Survey for Ferroelectric/Antiferroelectric Films for Energy Storage, Mitsuru Itoh, H. Takashima, National Institute of Advanced Industrial Science and Technology/Tokyo Institute of Technology, Japan</td>
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<td>9:40am</td>
<td>C2-2-FrM-6 Tungsten-Based Thin Film Metallic Glass as Diffusion Barrier between Copper and Silicon, Pei-Yu Chen, J. You, C. Hsueh, National Taiwan University, Taiwan</td>
<td>C2-2-FrM-6 Effect of Oxygen Flow Rate on the Hydrogenation Resistance of ZrN,O Thin Films on Zircaloy-4, Yen-Ting Chen, K. Lan, National Tsing Hua University, Taiwan; H. Tung, Institute of Nuclear Energy Research, Taiwan</td>
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<td>10:00am</td>
<td>C2-2-FrM-7 Investigation of Properties and Microstructures of Ag-Cu Alloy Thin Films by Co-sputtering and First-principles Calculations, Yu-Chieh Wang, C. Chen, F. Ouyang, H. Chen, National Tsing Hua University, Taiwan</td>
<td>C2-2-FrM-7 Engineered Metal-Organic Framework-Based Heterogeneous Membranes with High Ionic Rectification for Ultrahigh Osmotic Power Generation from Organic Solutions, Amalia Rizki Fauziah, L. Yeh, National Taiwan University of Science and Technology, Taiwan</td>
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<td>C2-2-FrM-8 Hybrid Structures of p-n junction for Improving Efficiency of Photovoltaic Devices, Pawel Jarka, T. Tarski, Department of Engineering Materials and Biomaterials, Faculty of Mechanical Engineering, Silesian University of Technology, Poland; B. Hajduk, H. Bednarski, Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Poland</td>
<td>C2-2-FrM-8 CVD Process Development of Thin Film Triniobium-Tin on Copper SRF Cavities, Mohamed A. Cheikh, S. McNeal, V. Arrieta, Ultramet, USA</td>
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<td>C2-2-FrM-9 Multi-Step Method for the Fabrication of High-Performance Continuous Ultra-Thin Silver Films for Energy Applications, Phillip Rumsby, B. Baloukas, O. Zabeida, L. Martinu, Polytechnique Montréal, Canada</td>
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<td>B1-3-FrM-1</td>
<td>Effect of Wettability Modification of Ti-Al-Based Thin Films on Heat Transfer Exchange During Water Drop Cooling</td>
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<td>B1-3-FrM-3</td>
<td>The Microstructure and Properties of Highly (111)-Oriented Nano-Twinned Cu-Ag Thin Film Prepared by DC Sputtering System</td>
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<td>B1-3-FrM-4</td>
<td>Titanium Chromium Nitride Thin Films Deposited by Direct Current, Mid-Frequency, and Inductively Coupled Plasma Assisted Magnetron Sputtering</td>
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<td>ta-C by Magnetron Sputtering Using a Newly Designed Cylindrical Rotating Cathode with Significantly Enhanced Sputter Power Density</td>
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<td>B3-FrM-4</td>
<td>High Performance ta-C Coatings with Enhanced Temperature Stability for Industrial Applications</td>
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<td>INVITED: F1-FrM-3</td>
<td>Brain-Like Behaviour in Percolating Films of Nanoparticles, Simon Brown, The MacDiarmid Institute for Advanced Materials and Nanotechnology, School of Physical and Chemical Sciences, University of Canterbury, New Zealand</td>
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<td>F1-FrM-5</td>
<td>RBS Study of Silver/Copper Diffusions in the Matrix of Amorphous Carbon Coatings Produced by Magnetron Sputtering, G. Sanzone, Teer Coatings Ltd, UK; M. Sharpe, P. Couture, J. England, University of Surrey, UK; S. Field, H. Sun, Jinhong Yin, Teer Coatings Ltd, UK</td>
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<td>F1-FrM-6</td>
<td>C:H:N:O Plasma-polymer with Anchored LSPR Active Ag Nanoparticles for Detection of Borrelia Pathogen, S. Kumar, University of South Bohemia, Czechia; H. Maslova, University of South Bohemia, Biology Centre ASCR, Institute of Parasitology Branisovska, Czechia; A. Kuzminova, Charles University, Czechia; R. Repo, University of South Bohemia, Biology Centre ASCR, Institute of Parasitology Branisovska, Czechia; J. Sterba, University of South Bohemia, Czechia; O. Kylian, Charles University, Czechia; Vitezslav Stranak, University of South Bohemia, Czechia</td>
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<td>F1-FrM-7</td>
<td>AlN Nanostructures for Piezoelectric Nanogenerators, Manohar Chirumamilla, M. Sandager, V. Popok, K. Pedersen, Aalborg University, Denmark</td>
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<td>F1-FrM-8</td>
<td>Super-Amphiphobic Nano-Wall Structured Teflon Films Deposited by Microwave Plasma, Ta-Chin Wei, Chung Yuan Christian University, Taiwan</td>
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<td>F1-FrM-9</td>
<td>Diamond-Based Nanostructured Interfaces for Electrochemical Applications, Robert Bogdanowicz, Gdansk University of Technology, Poland</td>
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<td>F1-FrM-10</td>
<td>Engineering Nanostructured Metallic Thin Films by Pulsed Laser Deposition with an Outstanding Combination of Mechanical Properties, Francesco Bignoli, D. Faurie, CNRS, France; C. Gammer, A. Lassnig, Austrian Academy of Sciences, Austria; S. Lee, C. Aguilar Teixeira, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), Germany; A. Li Bassi, Politecnico di Milano, Italy; M. Ghidelli, CNRS, France</td>
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<td>Preparation and Properties of Fluoroalkyl End-Capped Oligomer/Cellulose Nanofiber Composites, Hideo Sawada, Y. Endo, Y. Oikawa, Hirosaki University, Japan</td>
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<td>F1-FrM-12</td>
<td>Synthesis and Electrical Properties of Single Crystalline CuGe Nanowires, Chang Ting-Hsiang, L. Bo-Yan, W. Chiu-Yen, National Taiwan University of Science and Technology, Taiwan</td>
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