

# Monday Morning, December 3, 2018

<b>Nanomaterials</b> <b>Room Naupaka Salon 5 - Session NM-MoM</b> <b>Nanocharacterization</b> <b>Moderator:</b> Roya Maboudian, University of California at Berkeley		<b>Biomaterial Surfaces &amp; Interfaces</b> <b>Room Naupaka Salon 6-7 - Session BI-MoM</b> <b>35 Years of NESAC/BIO I</b> <b>Moderator:</b> David Castner, University of Washington	
8:00am	<b>NM-MoM1</b> Identification of Point Defects in Transition Metal Dichalcogenides by Combining Atomic Resolution Force Microscopy, STM/STS and Density Functional Theory: Missing Vacancies in MoSe <sub>2</sub> and WS <sub>2</sub> , <i>Frank Ogletree</i> , Lawrence Berkeley National Laboratory; <i>S. Barja</i> , UPV/EHU-CISC Ikerbasque, Spain; <i>S. Refaely-Abramson</i> , University of California Berkeley; <i>B. Schuler</i> , Lawrence Berkeley National Laboratory; <i>D. Qiu</i> , University of California Berkeley; <i>S. Wickenberg</i> , Lawrence Berkeley Laboratory; <i>J. Neaton</i> , <i>A. Weber-Bargioni</i> , Lawrence Berkeley National Laboratory	<b>INVITED: BI-MoM1</b> Adventures in Biointerface Engineering Inspired by NESACBio – Combining and Integrating Techniques to Gain Insight into Biointerfaces (and Most Instruments Wins!), <i>Sally L. McArthur</i> , Swinburne Institute of Technology, Australia	
8:20am	<b>NM-MoM2</b> CO-tip AFM Identification and STM-induced Luminescence of Point Defects in Monolayer WS <sub>2</sub> , <i>Bruno Schuler</i> , Lawrence Berkeley National Laboratory; <i>D. Qiu</i> , University of California Berkeley; <i>S. Refaely-Abramson</i> , <i>C. Kastl</i> , <i>K. Cochran</i> , Lawrence Berkeley National Laboratory; <i>S. Barja</i> , Lawrence Berkeley Lab, USA; <i>C.T. Chen</i> , <i>N. Borys</i> , <i>R. Koch</i> , <i>F. Ogletree</i> , <i>S. Aloni</i> , <i>A.M. Schwartzberg</i> , Lawrence Berkeley National Laboratory; <i>S. Louie</i> , University of California Berkeley; <i>J. Neaton</i> , <i>A. Weber-Bargioni</i> , Lawrence Berkeley National Laboratory	Invited talk continues.	
8:40am	<b>NM-MoM3</b> Intermolecular and Molecule-Substrate Interactions in Surface-Supported Nanostructures Characterized by Ultrahigh Vacuum Tip-Enhanced Raman Spectroscopy, <i>J. Schultz</i> , <i>P. Whiteman</i> , <i>S. Mahapatra</i> , <i>Nan Jiang</i> , University of Illinois at Chicago	<b>BI-MoM3</b> ToF-SIMS Label Free Chemical Imaging of Surface Modifications in Materials with Extreme Topography, <i>Michael Taylor</i> , <i>D.J. Graham</i> , <i>L.J. Gamble</i> , University of Washington	
9:00am	<b>NM-MoM4</b> Quantifying the Thermodynamics of Ligand Binding to CsPbBr <sub>3</sub> Quantum Dots via Solution <sup>1</sup> H NMR Characterization, <i>Sara Smock</i> , <i>R.L. Brutchey</i> , University of Southern California	<b>BI-MoM4</b> NESAC/BIO IMPACT: Innovative Multivariate Programs Applied Carefully to ToF-SIMS, <i>Daniel Graham</i> , <i>L.J. Gamble</i> , <i>D. Castner</i> , University of Washington	
9:20am	<b>INVITED: NM-MoM5</b> Nanomaterials for Creating Sensitive and Selective Biosensing Interfaces, <i>Leyla Soleymani</i> , McMaster University, Canada	<b>BI-MoM5</b> Challenges to Nanoparticle Preparation and Analysis: An Unexpected Phase Transformation of Ceria Nanoparticles, <i>Donald Baer</i> , Pacific Northwest National Laboratory; <i>S.V.N.T. Kuchibhatla</i> , Parisodhana Technologies Pvt. Ltd.; <i>A.S. Karakoti</i> , Ahmedabad University; <i>S. Seal</i> , University of Central Florida	
9:40am	Invited talk continues.	<b>BI-MoM6</b> A Calibration Procedure for a Traceable Contamination Analysis on Medical Devices by Combined X-ray Spectrometry and Ambient Spectroscopic Techniques, <i>Beatrix Pollakowski-Herrmann</i> , <i>A. Hornemann</i> , Physikalisch-Technische Bundesanstalt, Germany; <i>A.M. Giovannozzi</i> , INRIM; <i>F. Green</i> , National Physical Laboratory; <i>P. Gunning</i> , Smith & Nephew; <i>C. Portesi</i> , <i>A.M. Rossi</i> , INRIM; <i>C. Seim</i> , Physikalisch-Technische Bundesanstalt; <i>R. Steven</i> , National Physical Laboratory; <i>B.J. Tyler</i> , Westfälische Wilhelms-Universität Münster; <i>B. Beckhoff</i> , Physikalisch-Technische Bundesanstalt	
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am	<b>NM-MoM8</b> Effects of Defects on Band Structure and Excitons in WS <sub>2</sub> Revealed by Nanoscale Photoemission Spectroscopy, <i>Adam Schwartzberg</i> , <i>C. Kastl</i> , <i>S. Aloni</i> , <i>A. Weber-Bargioni</i> , <i>C.T. Chen</i> , Lawrence Berkeley National Laboratory	<b>INVITED: BI-MoM8</b> Protein Catalysis of Minerals and Ice – A Molecular View, <i>Tobias Weidner</i> , University of Aarhus, Denmark	
10:40am	<b>NM-MoM9</b> 4D Nanocharacterization by Spectro-ptychography Tomography of Alumina Aerogels Coated with Zinc Oxide by Atomic Layer Deposition, <i>Adam Hitchcock</i> , <i>J. Wu</i> , <i>X. Zhu</i> , McMaster University, Canada; <i>D.A. Shapiro</i> , Lawrence Berkeley National Laboratory; <i>J.R.I. Lee</i> , <i>MM. Biener</i> , <i>S.A. Gammon</i> , <i>T.T. Li</i> , <i>TF. Baumann</i> , Lawrence Livermore National Laboratory	Invited talk continues.	
11:00am		<b>BI-MoM10</b> Multi-Functional Polyampholyte Hydrogels with Covalently Attached SIBLING Proteins for Bone Tissue Engineering, <i>Matthew Bernards</i> , <i>S.L. Haag</i> , <i>E.M. Mariner</i> , University of Idaho	

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Room Naupaka Salons 4		
8:00am	<b>TF-MoM1</b> Characteristics of ZrO <sub>2</sub> Films Atomic-Layer-Deposited Using Cp-Zr(NMe <sub>2</sub> ) <sub>3</sub> : Effects of Oxidant and Deposition Temperature, <i>Wan Oh, W. Lee, S. Choi, Y. An, C. Lee, S. Wi, H.S. Kim</i> , Sungkyunkwan University, Republic of Korea	<b>Thin Films</b> <b>Session TF-MoM</b> <b>Nanostructured Surfaces and Thin Films: Synthesis and Characterization I</b> <b>Moderator:</b> Toshiyuki Taniuchi, The University of Tokyo
8:20am	<b>TF-MoM2</b> Enantioselective Catalyst on Oxide Support: Study of the Chemical Nature of Tartaric Acid on Rutile TiO <sub>2</sub> (110) by XPS and HREELS, <i>Gregory Cabailh, E. Meriggio</i> , Sorbonne Université, France; <i>R. Lazzari</i> , CNRS, France; <i>C. Méthivier</i> , Sorbonne Université, France; <i>V. Humblot, X. Carrier</i> , Sorbonne Université, France	
8:40am	<b>TF-MoM3</b> The Study on Flash Light Sintering Characteristics of Printed Copper Pattern Electrodes with Respect to their Width and Interval, <i>Yong-Rae Jang, H.-S. Kim, C.H. Ryu, Y.T. Hwang</i> , Hanyang University, Seoul, Korea	
9:00am	<b>TF-MoM4</b> High Throughput XPS Surface Analysis of Novel Materials Generated by a Combinatorial Approach, <i>J. Counsell, S.J. Coultas</i> , Kratos Analytical Ltd., UK; <i>David Surman, C. Moffitt</i> , Kratos Analytical Inc.	
9:20am	<b>INVITED: TF-MoM5</b> Semiconductor Nanowire Y-Junction Arrays Grown by MBE, <i>Esteban Cruz-Hernandez</i> , CIACYT, Universidad Autonoma de San Luis Potosi, Mexico	
9:40am	Invited talk continues.	
10:00am	<b>BREAK</b>	
10:20am	<b>TF-MoM8</b> Controllable Bandgap Design in (2+1) D Colloidal Photonic Crystals, <i>Lijing Zhang</i> , Dalian University of Technology, China	
10:40am	<b>INVITED: TF-MoM9</b> Effects of Interface on Proton Ordering in Heteroepitaxially Grown Ice Films, <i>Toshiki Sugimoto</i> , Institute for Molecular Science, Japan	
11:00am	Invited talk continues.	
11:20am	<b>INVITED: PL-MoM11</b> A Review of Defects in 2D Metal Dichalcogenides: Doping, Alloys, Interfaces, Vacancies and Their Effects in Catalysis & Optical Emission, <i>Mauricio Terrones</i> , Pennsylvania State University	<b>Plenary Session</b> <b>Session PL-MoM</b> <b>Plenary Session I</b> <b>Moderator:</b> Alberto Herrera Gomez, CINVESTAV-Unidad Queretaro, Mexico
11:40am	Invited talk continues.	

# Monday Evening, December 3, 2018

	<b>Energy Harvesting &amp; Storage</b> <b>Room Naupaka Salon 6-7 - Session EH-MoE</b> <b>Process</b> <b>Moderator:</b> Paul Dastoor, University of Newcastle, Australia	<b>Nanomaterials</b> <b>Room Naupaka Salon 5 - Session NM-MoE</b> <b>NanoCatalysis</b> <b>Moderator:</b> Fumitaro Ishikawa, Ehime University
5:40pm	<b>INVITED: EH-MoE1</b> Surface Engineered Smart Optical Nanostructures for Energy Saving and Thermal Control, <i>Ludvik Martinu</i> , Montreal Ecole Polytechnique, Canada	<b>INVITED: NM-MoE1</b> Strong Interactions Between the Admetal and Molybdenum Carbide Substrates for Catalyzing H <sub>2</sub> Related Reactions, <i>Chuan Shi</i> , Dalian University of Technology, China
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	<b>EH-MoE3</b> Carbon Capture by Metal Oxides: Unleashing the Potential of the (111) Facet, <i>Ryan Richards</i> , Colorado School of Mines, USA; <i>S. Shulda</i> , National Renewable Energy Laboratory, USA; <i>G.A. Mutch</i> , Newcastle University; <i>J.A. Anderson</i> , <i>D. Vega-Maza</i> , University of Aberdeen	<b>NM-MoE3</b> Nanostructured MoO <sub>3</sub> /Al <sub>2</sub> O <sub>3</sub> Powders and Films for Chemical-Looping Oxidative Dehydrogenation of Ethane, <i>H. Henry Lamb</i> , <i>P. Novotný</i> , <i>S. Yusuf</i> , <i>F. Li</i> , North Carolina State University
6:40pm	<b>EH-MoE4</b> Graphene Oxide-cellulose Nanocrystal Sponge as a Tunable Platform for Contaminant and Pathogen Removal from Water, <i>Nathalie Tufenkij</i> , <i>N. Yousefi</i> , <i>R. Allgayer</i> , <i>A. Filina</i> , McGill University, Canada	<b>NM-MoE4</b> Fabrication of Visible Light Active Nanostructured TiO <sub>2</sub> /Cu <sub>2</sub> O Heterojunction Thin Films, <i>Anna Patricia Cristobal</i> , <i>M.G.K. Ramos</i> , <i>A.D. Montallana</i> , University of the Philippines; <i>L.B. Zhang</i> , <i>J.P. Chu</i> , National Taiwan University of Science and Technology, Taiwan, Republic of China; <i>M.R. Vasquez</i> , University of the Philippines
7:00pm	<b>EH-MoE5</b> Surface Science Approach For Alumina Supported Hydrodesulphurisation Catalysts, <i>Anne-Félicie Lamic-Humblot</i> , Sorbonne Université, France; <i>C. Bara</i> , Solvay; <i>R. Garcia de Castro</i> , Sorbonne Université, France; <i>E. Devers</i> , <i>G. Pirngruber</i> , <i>M. Digne</i> , IFPEN; <i>X. Carrier</i> , Sorbonne Université, France	<b>NM-MoE5</b> Enhanced Photocatalytic Activity of Plasma-modified Electrospun PVA/TiO <sub>2</sub> Nanocomposites, <i>Arantxa Danielle Montallana</i> , <i>A.P. Cristobal</i> , University of the Philippines; <i>B.Z. Lai</i> , <i>J.P. Chu</i> , National Taiwan University of Science and Technology, Taiwan, Republic of China; <i>M.R. Vasquez</i> , University of the Philippines
7:20pm	<b>BREAK</b>	<b>BREAK</b>
7:40pm	<b>EH-MoE7</b> Direct 3D Printing of Reactive Agitating Impellers for the Convenient Treatment of Various Pollutants in Water, <i>Xueyan Sun</i> , Dalian University of Technology, China	<b>NM-MoE7</b> Large Scale Production of Nanoparticle Catalysts for Biomass Conversion Processes, <i>E.J. Roberts</i> , <i>L. Wang</i> , University of Southern California; <i>F. Baddour</i> , <i>D. Ruddy</i> , <i>S. Habas</i> , National Renewable Energy Laboratory, USA; <i>N. Malmstadt</i> , <i>Richard Brutchey</i> , University of Southern California
8:00pm	<b>EH-MoE8</b> BN Films for Hydrogen Permeation Barrier, <i>Motonori Tamura</i> , The University of Electro-Communications (UEC-Tokyo), Tokyo, Japan	<b>NM-MoE8</b> Influence of a Tailored Nanoparticle Composite Cathode on Electrochemical Properties of Anode-Supported Solid Oxide Fuel Cells, <i>Jong-Eun Hong</i> , <i>H.A. Ishfaq</i> , <i>T.H. Lim</i> , Korea Institute of Energy Research (KIER), South Korea; <i>S.-B. Lee</i> , Korea Institute of Energy Research (KIER), South Korea; <i>K.T. Lee</i> , DGIST, South Korea; <i>R.H. Song</i> , Korea Institute of Energy Research (KIER), South Korea

# Monday Evening, December 3, 2018

<b>Thin Films</b> <b>Room Naupaka Salons 4 - Session TF-MoE</b> <b>Nanostructured Surfaces and Thin Films: Synthesis and Characterization II</b>	
5:40pm	<b>TF-MoE1</b> Synthesis and Characterization of Novel Nitride Semiconductor Thin Films, <i>S.R. Bauers, A. Holder, S. Lany, Andriy Zakutayev</i> , National Renewable Energy Laboratory
6:00pm	<b>TF-MoE2</b> Rheology Behavior and Flash Light Sintering Characteristics of Cu/Ag hybrid-ink for Multi-layered Flexible Printed Circuit Board (FPCB) Application in Printed Electronics, <i>Ji-Hyeon Chu, S.J. Joo, H.-S. Kim</i> , Hanyang University, Seoul, Korea
6:20pm	<b>TF-MoE3</b> Synthesis and Characterization of Pt-Ag Alloyed Thin Films Deposited using Inverted Cylindrical Magnetron Sputtering with a Configurable Target Assembly, <i>Saxon Tint</i> , Johnson Matthey Inc.; <i>G.V. Taylor</i> , Rowan University; <i>E.M. Burkholder</i> , Johnson Matthey Inc.; <i>J.D. Hettinger</i> , Rowan University; <i>S. Amini</i> , Johnson Matthey Inc.
6:40pm	<b>INVITED: TF-MoE4</b> Surface and Interface Imaging by Ultrahigh Resolution Laser-based Photoemission Electron Microscopy, <i>Toshiyuki Taniuchi</i> , The University of Tokyo, Japan; <i>S. Shin</i> , The University of Tokyo, AIST-UTokyo OPERANDO-OIL, Japan
7:00pm	Invited talk continues.
7:20pm	<b>BREAK</b>
7:40pm	<b>TF-MoE7</b> All Photonic Annealing of Solution based Indium-Gallium-Zinc-Oxide Thin Film Transistor with Printed Ag Electrode via Flash White Light combined with Deep-UV Light, <i>Chang-Jin Moon, H.-S. Kim</i> , Hanyang University, Seoul, Korea
8:00pm	<b>TF-MoE8</b> Carbon-nanotube Dispersed Ga <sub>2</sub> O <sub>3</sub> Films for UV Transparent Electrodes Fabricated by Molecular Precursor Method, <i>Tohru Honda, Y. Takahashi, R. Yoshida, C. Mochizuki, H. Nagai, T. Onuma, T. Yamaguchi, M. Sato</i> , Kogakuin University, Japan

# Tuesday Morning, December 4, 2018

	<b>Biomaterial Surfaces &amp; Interfaces</b> <b>Room Naupaka Salon 6-7 - Session BI-TuM</b> <b>Bioimaging and Bionanotechnology</b> <b>Moderator: Lara Gamble, University of Washington</b>	<b>Nanomaterials</b> <b>Room Naupaka Salon 5 - Session NM-TuM</b> <b>Nanofabrication and Nanodevices</b> <b>Moderator: Adam Hitchcock, McMaster University</b>
8:00am	<b>INVITED: BI-TuM1</b> Exosomes and Extracellular Vesicles: Small Particles with a Big Impact, <i>Renee Goreham</i> , Victoria University of Wellington, New Zealand	<b>NM-TuM1</b> High-throughput, Continuous Flow Synthesis of Colloidal Nanoparticles as a Safe and Sustainable Nanofabrication Method, <i>Emily Roberts, R.L. Brutchey</i> , University of Southern California
8:20am	Invited talk continues.	<b>NM-TuM2</b> Nanoporous Oxide Memristive System & Artificial Synapses for Next Generation Electronic Device Application, <i>Gunuk Wang</i> , Korea University, Republic of Korea
8:40am	<b>BI-TuM3</b> Protein Corona Shield Particles of Drug-loaded Nanocarriers Enhances in vivo Therapeutic Efficacy, <i>Ja-Hyoung Ryu</i> , Ulsan National Institute of Science and Technology School of Natural Science, Republic of Korea	<b>NM-TuM3</b> Synaptic Plasticity and Learning Behaviors Mimicked in Electromigrated Au Nanogaps, <i>Keita Sakai, K. Minami, S. Tani, T. Sato, M. Ito</i> , Tokyo University of Agriculture & Technology, Japan; <i>M. Yagi</i> , National Institute of Technology, Ichinoseki College, Japan; <i>J. Shirakashi</i> , Tokyo University of Agriculture & Technology, Japan
9:00am	<b>BI-TuM4</b> The Role of Lipid Surfaces in Molecular Mechanism of Alzheimer's Disease, <i>E. Drolle, M. Robinson, B.Y. Lee, C. Filice, S. Turnbull, N. Mei, Zoya Leonenko</i> , University of Waterloo, Canada	<b>NM-TuM4</b> Preparation and Corrosion Properties of Bulk Nanocrystalline Two-phase Ag-25Cu Alloys, <i>Zhongqiu Cao, X.T. Yin, Q.Y. Tian, Y. Wang, K. Zhang, J. Lu</i> , Shenyang Normal University, China
9:20am	<b>BI-TuM5</b> An PEEM and Imaging XPS study of Neutrophil Extracellular Traps Capturing Nanoparticles, <i>A. Skallberg, K. Bunnfors, C. Brommesson, Kajsa Uvdal</i> , Linköping University, Sweden	<b>INVITED: NM-TuM5</b> Nanomaterials-enabled Advances in Microfabricated Sensors for Environmental and Health Monitoring, <i>Roya Maboudian</i> , University of California at Berkeley
9:40am	<b>BI-TuM6</b> Chemical Imaging of Aggressive Basal Cell Carcinoma using ToF-SIMS, <i>M. Munem, K. Dimovska Nilsson</i> , University of Gothenburg, Göteborg, Sweden; <i>O. Zaar, N. Neittaanmäki, J. Paoli</i> , Sahlgrenska University Hospital, Gothenburg; <i>John Fletcher</i> , University of Gothenburg, Göteborg, Sweden	Invited talk continues.
10:00am	<b>BREAK</b>	<b>BREAK</b>
10:20am	<b>BI-TuM8</b> Combining the Benefits of GCIB-ToF-SIMS, MALDI-FTICR-MS and LC-MS/MS for Location specific Lipid Identification in Planarian Flatworm Tissue Sections, <i>Tina Angerer</i> , University of Washington, USA; <i>D. Velickovic, J.E. Kyle, C. Nicora, C. Anderton</i> , Pacific Northwest National Laboratory, USA; <i>D.J. Graham, L.J. Gamble</i> , University of Washington, USA	<b>NM-TuM8</b> Nature-Inspired Approaches to Nanotechnologies, <i>Jong-Souk Yeo</i> , Yonsei University, Republic of Korea
10:40am	<b>BI-TuM9</b> Hybrid SIMS: A New SIMS Instrument for High Resolution Organic Imaging with Highest Mass-resolving Power and MS/MS, <i>Nathan Havercroft</i> , ION-TOF USA, Inc.; <i>A. Pirkl</i> , IONTOF GmbH, Germany; <i>D. Scurr, N. Starr</i> , University of Nottingham; <i>R. Moellers, H. Arlinghaus, E. Niehuis</i> , IONTOF GmbH, Germany	<b>NM-TuM9</b> A Reproducible Assay for Versatile Biosensing by Surface-enhanced Raman Scattering, <i>M. Al Mamun, N.A. Cole, S. Juodkazis, Paul Stoddart</i> , Swinburne University of Technology, Australia
11:00am	<b>BI-TuM10</b> Latest Developments in Cluster Beam Technology for ToF SIMS: Towards Greater Spatial Resolution, Improved Ion Yields, and Faster Etch Rates!, <i>Paul Blenkinsopp</i> , Ionoptika Ltd, UK	
11:20am	<b>BI-TuM11</b> SIMS with Higher Resolution and Higher Signal: 40keV Water Cluster Primary Ion Beam and Prospective Orbital Ion Trapping, <i>J. Hood, Peter Cumpson, I. Fletcher</i> , Newcastle University, UK; <i>S. Sheraz</i> , Ionoptika Ltd, UK	<b>NM-TuM11</b> Molecular Dynamics Investigation for Chemical Effects of Nanobubble Collapse on Precision Polishing, <i>Yoshimasa Aoyama, N. Miyazaki, Y. Ootani, N. Ozawa, M. Kubo</i> , Tohoku University, Japan
11:40am	<b>BI-TuM12</b> In-Situ TEM Studies of Biomineralization, <i>Tolou Shokuhfar, R. Shahbazian-Yassar</i> , University of Illinois at Chicago	<b>NM-TuM12</b> Determination of Anisotropic Diffusion Ratio on Si(110)-16x2, <i>Masahiro Yano, T. Terasawa, S. Yasuda, S. Machida, H. Asaoka</i> , Japan Atomic Energy Agency, Japan

# Tuesday Morning, December 4, 2018

<p><b>Thin Films</b>  <b>Room Naupaka Salons 4 - Session TF-TuM</b>  <b>Innovations in the Development of Multifunctional Thin Films</b>  <b>Moderator:</b> Jolanta Klemberg-Sapieha, Polytechnique Montréal</p>		
8:00am	<p><b>TF-TuM1</b> Anion Interactions with Vapour Deposited Conducting Polymers, <i>Drew Evans</i>, University of South Australia, Australia</p>	
8:20am	<p><b>TF-TuM2</b> Decorative Electro-magnetic Transparent Metal-semiconductor Thin-films for Consumer Electronics, <i>Bastian Stoehr, E. Charrault, D. Evans</i>, University of South Australia, Australia; <i>F. Lacroix</i>, ENSCBP - Bordeaux INP, France; <i>J. Parks</i>, University of Bath, United Kingdom; <i>P.J. Murphy, C. Hall</i>, University of South Australia, Australia</p>	
8:40am	<p><b>TF-TuM3</b> Applications of Polarized Neutron Scattering for Development of Novel Functional Heterostructures, <i>Valeria Lauter</i>, Oak Ridge National Laboratory, USA</p>	
9:00am	<p><b>TF-TuM4</b> Oxygen-Free Palladium/Titanium Coating, a Novel Non-Evaporable Getter Coating with an Activation Temperature of 133 °C, <i>T. Miyazawa</i>, SOKENDAI, Japan; <i>M. Kurihara, S. Ohno</i>, Yokohama National University, Japan; <i>N. Terashima, Y. Natsui, H. Kato</i>, Hirosaki University, Japan; <i>Y. Kato</i>, Irie Koken Co., Ltd., Japan; <i>A. Hashimoto</i>, National Institute for Materials Science, Japan; <i>T. Kikuchi, Kazuhiko Mase</i>, KEK, Japan</p>	
9:20am	<p><b>TF-TuM5</b> Droplet assisted Growth and Shaping (DAGS): A Broadly Applicable Method for Chemical <i>in situ</i> Shaping of Complex Polymeric Nano and Microstructures, <i>Stefan Seeger, G. Artus, N. Saddiqi</i>, University of Zurich, Switzerland</p>	
9:40am	<p><b>TF-TuM6</b> Low Temperature Nitridation of Hafnia with Low Density of N-O Bonds, <i>J.A. Torres-Ochoa, O. Cortazar-Martinez, M. Mayorga-Garay, A De Luna Bugallo, Y. Chipatecua-Godoy, O. Ceballos-Sanchez, D. Silva-Cabral, F. Corona-Davila, J. Raboño-Borbolla</i>, CINVESTAV-Unidad Queretaro, Mexico; <i>Alberto Herrera-Gomez</i>, CINVESTAV-Unidad Queretaro, Mexico, México</p>	
10:00am	<b>BREAK</b>	
10:20am	<p><b>INVITED: TF-TuM8</b> Fundamental Properties of Transition-metal Nitrides: Materials Design Strategies for Extreme Properties, <i>Joe Greene</i>, Linköping University, Sweden, University of Illinois at Urbana-Champaign</p>	
10:40am	Invited talk continues.	
11:00am	<p><b>TF-TuM10</b> Surface Reactions of Metal and Metal Oxides on Hybrid Perovskite Materials for Optoelectronics Applications, <i>J. Cazares-Montañez, M.A. Martínez-Puente, R. Garza-Hernández, E. Martínez-Guerra</i>, CIMAV-Monterrey, Mexico; <i>M. Quevedo-Lopez</i>, University of Texas at Dallas; <i>Francisco Aguirre-Tostado</i>, CIMAV-Monterrey, Mexico</p>	
11:20am	<p><b>INVITED: TF-TuM11</b> Thin-Film Alchemy: Engineering Oxide Films to Unleash their Hidden Properties, <i>Darrell G. Schlom</i>, Cornell University</p>	
11:40am	Invited talk continues.	

## Biomaterial Surfaces & Interfaces

### Room Naupaka Salon 1-3 - Session BI-TuP

#### Biomaterial Interfaces Poster Session

**Moderator:** David Castner, University of Washington

**4:00pm**

**BI-TuP1** Inhibiting Upstream Motility of *Pseudomonas Aeruginosa* via Nanopillared Surface Structuring, **Rachel Rosenzweig**, V.K. Ly, K. Perinbam, A. Sinyaporn, A.F. Yee, University of California, Irvine

**BI-TuP2** Effect of Preheating Treatments on Interfacial Reaction between Dental Porcelain and Low Magnetic Susceptibility Zr-14Nb Alloy, **Atsushi Takaichi**, Tokyo Medical and Dental University, Japan; Y. Kajima, Tohoku University, Japan; H. Doi, T. Hanawa, N. Wakabayashi, Tokyo Medical and Dental University, Japan

**BI-TuP3** Surface Characteristics and Corrosion Behavior of CoCrMo Alloys Fabricated by Selective Laser Melting after Various Heat Treatments, **Yuka Kajima**, Tohoku University, Japan; A. Takaichi, T. Oishi, N. Kittikundecha, Y. Tsutsumi, Tokyo Medical and Dental University, Japan; N. Nomura, Tohoku University, Japan; N. Wakabayashi, T. Hanawa, Tokyo Medical and Dental University, Japan; A. Kawasaki, Tohoku University, Japan

**BI-TuP4** Analysis of Drug Coated Polymer Stents Studied by XPS and Ar<sub>n</sub><sup>+</sup> Sputter Profiling, **David Surman**, Kratos Analytical Inc.; J. Counsell, Kratos Analytical Ltd., UK

**BI-TuP5** Anchored Protease-Activatable Polymersomes for Molecular Diagnostics of Cancer Cells, **Jong-Woo Lim**, Yonsei University, Republic of Korea; H.-O. Kim, Korea University, Republic of Korea; J. Choi, Yonsei University, Republic of Korea; H. Lee, Korea Basic Science Institute, Republic of Korea; H.Y. Son, J. Kim, G. Park, H. Chun, Yonsei University, Republic of Korea; D. Song, Korea University, Republic of Korea; Y.-M. Huh, S. Haam, Yonsei University, Republic of Korea

**BI-TuP6** Study on Meta-material Structure in Oil Repellent Bile Duct Stent, **Tomoki Nishino**, Ritsumeikan University, Japan; H. Tanigawa, The Research Organization of Science and Technology, Japan; A. Sekiguchi, Litho Tech Japan Corporation, Japan; K. Aikawa, Saitama Medical University, Japan

**BI-TuP7** The Blood Cell-nanoparticle Interface: Functional Cellular Responses, Mechanisms of Interaction and Signaling pathways, C. Brommsson, N. Abrikosova, P. Eriksson, Z. Hu, K. Uvdal, **Andreas Skallberg**, Linköping University, Sweden

**BI-TuP8** Developing a pH Responsive Hydrogel as an Alternative for Colonoscopy Preparation, **Phuong Nguyen**, University of New Mexico; S. Mounho, University of Texas at Austin, USA; D. Cuylear, H. Canavan, University of New Mexico

**BI-TuP9** Atmospheric Pressure Mass Spectrometric Imaging of Live Tissue Specimen using Electrospray assisted CW Laser Desorption and Ionization Source, **Jaee Young Kim**, Daegu Gyeongbuk Institute of Science & Technology; S.Y. Lee, M.H. Shin, Daegu Gyeongbuk Institute of Science & Technology, Korea; D.W. Moon, Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea

**BI-TuP10** Improvement of Cell Imaging by Graphene Encapsulation in ToF-SIMS Method, **Sun Young Lee**, Daegu Gyeongbuk Institute of Science & Technology, Korea; H.J. Lim, J.Y. Kim, Daegu Gyeongbuk Institute of Science & Technology; D.W. Moon, Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea

**BI-TuP11** Behavior of *Shewanella Oneidensis* MR-1 in a Sulfur and Zinc-Rich Medium and its Applications for Biosensing and Biomaterials, **James Rees**, S. Sawyer, Y. Gorby, Rensselaer Polytechnic Institute

## Energy Harvesting & Storage

### Room Naupaka Salon 1-3 - Session EH-TuP

#### Energy Harvesting and Storage Poster Session

**Moderator:** Satoshi Ishii, National Institute for Materials Science

**4:00pm**

**EH-TuP1** Oxygen Vacancies Boost  $\delta$ -Bi<sub>2</sub>O<sub>3</sub> as High-Performance Electrode for Rechargeable Aqueous Batteries, **TingTing Qin**, W. Zhang, State Key Laboratory of Automotive Simulation and Control, and School of Materials Science & Engineering, and Electron Microscopy Center, and International Center of Future Science, Jilin University, Changchun 130012, China

**EH-TuP3** Novel Cathode Nanomaterials and Electrolytes for Al-ion Batteries, **Nicolò Canever**, Victoria University of Wellington, New Zealand; N. Bertrand, Ecole Nationale Supérieure de Chimie de Clermont-Ferrand, SIGMA Clermont, Aubière, France; T. Nann, Victoria University of Wellington, New Zealand

**EH-TuP4** Study of Charge Transfer across C<sub>60</sub>/BCP and BCP/Ag Interfaces Using Core-Hole Clock Spectroscopy, **Tetsuya Miyazawa**, SOKENDAI, Japan; K. Ozawa, Tokyo Institute of Technology, Japan; K. Kanai, Tokyo University of Science, Japan; T. Sakurai, Tsukuba University, Japan; K. Mase, KEK, Japan

**EH-TuP6** Structure and Optical Properties of HfO<sub>2</sub>-based Thermal Emitter Films for Thermophotovoltaic Energy Conversion Devices, **Gregory Abadias**, Y. Metayrek, A. Michel, J. Drevillon, Institut Pprime, CNRS-Université de Poitiers, France

**EH-TuP7** Bimetallic Cobalt-Iron Hydroxide Encapsulated in Organic Ligand Derived Carbon Layers as an Efficient Electrocatalyst for Oxygen Evolution Reaction, **Jian Du**, F. Li, Dalian University of Technology, China

**EH-TuP8** Anchoring Water Oxidation Catalysts on a DS-PEC via Pyridine Group for Light-Driven Water Splitting, **Yong Zhu**, F. Li, Dalian University of Technology, China; L. Sun, KTH Royal Institute of Technology, Sweden

**EH-TuP9** On the Thermal Characterization of Heptane-Isooctane Mixtures, **Adrian Bedoya**, E. Marin, S. Alvarado, Cicata Legaria, Mexico

**EH-TuP10** A steady-state thermoreflectance method to measure thermal conductivity, **Jeffrey Braun**, D. Olson, J. Gaskins, P. Hopkins, University of Virginia

## Nanomaterials

### Room Naupaka Salon 1-3 - Session NM-TuP

#### Nanomaterials Poster Session I

**Moderator:** Shintaro Fujii, Tokyo Institute of Technology

**4:00pm**

**NM-TuP1** alginate based Nanocomposite for Microencapsulation of Probiotic: Effect of Cellulose Nanocrystal (CNC) and Lecithin, **Monique Lacroix**, INRS-Institut Armand-Frappier, Canada

**NM-TuP2** In-situ Low Energy Electron Microscopy at Near Ambient Pressures, **Thomas Schulmeyer**, SPECS-TII, Inc.

**NM-TuP4** High-performance Nanofibrous LaCoO<sub>3</sub> Perovskitecathode for Solid Oxide Fuel Cells Fabricated via Chemically assisted Electrodeposition, **Seung-Bok Lee**, Korea Institute of Energy Research (KIER), South Korea; S.U. Rehman, Korea Institute of Energy Research (KIER), South Korea; T.H. Lim, J.E. Hong, R.H. Song, Korea Institute of Energy Research (KIER), South Korea

**NM-TuP5** Analysis Insitu of Diffusion-nucleation in Multilayer InAs/GaAs Quantum Dots, **Christian Mercado-Ornelas**, A. Belio-Manzano, L.I. Espinosa-Vega, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, Mexico; V.H. Mendez-Garcia, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, México

**NM-TuP6** Analytical Model Proposal for the 2D-3D Growth Mode Transition in the Synthesis of InAs/GaAs Quantum Dots, **Christian Mercado-Ornelas**, L.I. Espinosa-Vega, E. Eugenio-Lopez, I.E. Cortes-Mestizo, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, Mexico; V.H. Mendez-Garcia, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, México

**NM-TuP7** Fano Resonances at Interference of Electron Waves in Geometrically Inhomogeneous Semiconductor 2D Nanostructures, **Victor Petrov**, Institute of Radio Engineering and Electronics RAS, Russian Federation

**NM-TuP8** Surface Nanostructures Composed of Thiolated Cyclodextrin/Au and Fe Species: Gas- and Liquid-Phase Preparation, S. Kotorova, Institute of Nuclear and Physical Engineering, FEI STU, Slovakia; **Monika Jerigova**, Comenius University, Bratislava, Slovakia; D. Lorenc, International laser center, Bratislava, Slovakia; M. Prochazka, Polymer Institute, Slovak Academy of Sciences, Bratislava, Slovakia; D. Velic, Comenius University, Bratislava, Slovakia

**NM-TuP9** Controlled Pore Arrangement of Silicon Nanoparticles Having Mesoporous Structure, **Taisuke Kuga**, K. Sato, Tokyo Denki University, Japan

**NM-TuP10** Nanobiosensor Comprising Conductive Polymer Enclosed with Polymer Vesicles for Selective Detection of Influenza A Virus, **Geunseon Park**, Yonsei University, Republic of Korea; H.O. Kim, Korea University, Republic of Korea; J.-W. Lim, C. Park, S. Haam, Yonsei University, Republic of Korea

**NM-TuP11** Efficient Antiviral Delivery Polymersomes by Optimization of Surface Density of Cell-targeting Groups for Virus Treatment, **Chaewon Park**, H. Chun, Yonsei University, Republic of Korea; M. Yeom, H.-O. Kim, Korea University, Republic of Korea; J.-W. Lim, Yonsei University, Republic of Korea; W. Na, Korea University, Republic of Korea; G. Park, Yonsei University, Republic of Korea; A. Kang, Korea University, Republic of Korea; D. Yun, Yonsei University, Republic of Korea; J. Kim, Yonsei University, Republic of Korea; D. Song, Korea University, Republic of Korea; S. Haam, Yonsei University, Republic of Korea

# Tuesday Afternoon Poster Sessions, December 4, 2018

**NM-TuP12** Photovoltaic Performance of Inorganic/Organic Hybrid Solar Cells using Boron-doped Silicon Nanoparticles, *Kuniaki Furuya, K. Sato*, Tokyo Denki University, Japan

## Plasma Processing

### Room Naupaka Salon 1-3 - Session PS-TuP

#### Plasma Processing Poster Session

**Moderator:** Martin Nieto-Perez, CICATA Queretaro

**4:00pm**

**PS-TuP1** Synthesis of TiO<sub>2</sub>/CuOx Thin Film Composites by the Simultaneous Ablation of Ti and Cu Metallic Targets, *A. Valeria Garcia-Caraveo*, Instituto Tecnológico y de Estudios Superiores de Occidente, Mexico; *E. Camps, E. Campos-Gonzalez*, Instituto Nacional de Investigaciones Nucleares, Mexico; *A. Perez-Centeno*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, Mexico; *M.A. Santana-Aranda*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara; *G. Gomez-Rosas, L.P. Rivera*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, Mexico; *D. Cardona*, Instituto Tecnológico y de Estudios Superiores de Occidente, Mexico; *J.G. Quiñones-Galván*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, Mexico

**PS-TuP2** Study of Carbon Fiber Manufacturing Process by Plasma Oxidation/stabilization and Microwave assisted Carbonization, *Seok-Kyun Song, B.Y. Kim, M.K. Jung*, Cheorwon Plasma Research Institute, Republic of Korea; *S. Lee*, Korea Institute of Science and Technology, Republic of Korea

**PS-TuP3** Design and Diagnosis of Atmospheric Microwave Plasma by Transmission Line Resonator, *Jun Choi*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

**PS-TuP4** Nitridation of SiO<sub>2</sub> by using a VHF (162 MHz) Multi-tile Push-pull Plasma Source, *You Jin Ji, K.S. Kim, K.H. Kim, J.Y. Byun, S.J. Lee*, Sungkyunkwan University, Republic of Korea; *A.R. Ellingboe*, Dublin City University, Ireland; *G.Y. Yeom*, Sungkyunkwan University, Republic of Korea

**PS-TuP5** Fabrication of SnO Thin Films by Reducing Plasma on Atomic Layer Deposited SnO<sub>2</sub>, *Jaehong PARK, B.E. PARK, H.J. Kim*, Yonsei University, Republic of Korea

**PS-TuP6** Plasma-Surface Interactions in Atmospheric Pressure Plasmas: In situ Measurements of Electron Heating in Materials, *S. Walton*, Naval Research Laboratory; *B. Foley*, Pennsylvania State University; *J. Tomko*, University of Virginia; *D.R. Boris, E.D. Gillman, S.C. Hernandez*, Naval Research Laboratory; *A. Giri*, University of Virginia; *T.B. Petrova*, Naval Research Laboratory; *Patrick Hopkins*, University of Virginia

**PS-TuP7** Classification of Aluminum Alloys by an Inexpensive Laser Induced Breakdown Spectroscopy System, *Kevin Renato Maldonado Dominguez, R. Sangines del Castro*, CNYN-UNAM, Mexico

**PS-TuP8** Optimizing Deposition Parameters for Reactive Magnetron Sputtering by Monitoring the Plasma Optical Emission Spectroscopy., *Genaro Soto-Valle Angulo, R. Sangines*, CNYN-UNAM, Mexico

**PS-TuP9** Origin of Plasma Damage during Sputtering of Ultrathin ITO Contact Layer on p-GaN for InGaN/GaN LEDs, *T.K. Kim, Y.-J. Cha, Joon Seop Kwak*, Sunchon National University, Republic of Korea

## Thin Films

### Room Naupaka Salon 1-3 - Session TF-TuP

#### Thin Films Poster Session I

**Moderator:** Darrell G. Schlom, Cornell University

**4:00pm**

**TF-TuP1** Oxidation Behavior of Sputtered NiFe<sub>2</sub> Coating on Ferritic Stainless Steel for SOFC Interconnect Application, *Shujiang Geng, F. Wang*, Corrosion and Protection Division, Shenyang National Laboratory for Materials Science, Northeastern University

**TF-TuP2** Effects of Bias Voltage on the Structure and Corrosion Properties of Thick Cr Coatings Deposited Using Cathodic Arc ion Plating, *Jung-Hwan Park, Y.I. Jung, D.J. Park, H.G. Kim, B.K. Choi, Y.H. Lee, J.H. Yang*, Korea Atomic Energy Research Institute

**TF-TuP3** Graphite Tribofilm Extracted from Base Oil by Self-Oxidizing Coating: A Highway for Friction and Wear Reduction, *Lina Yang*, State Key Laboratory of Superhard Materials, Department of Materials Science and Key Laboratory of Automobile Materials, MOE, Jilin University, Changchun 130012, People's Republic of China., China; *K. Zhang*, State Key Laboratory of Superhard Materials, Department of Materials Science and Key Laboratory of Automobile Materials, MOE, Jilin University, Changchun 130012, People's Republic of China

**TF-TuP4** Solute Ag Atom Incorporated into TaN with Excellent Tribological Property and Robust Antibacterial Activity, *Ping Ren, M. Wen*, State Key Laboratory of Superhard Materials, School of Materials Science and Engineering and Key Laboratory of Automobile Materials, MOE, Jilin University, Changchun 130012, People's Republic of China

**TF-TuP5** Influence of Ag Content on the Tribological Properties of MoNbn-Ag Coatings at Elevated Temperature, *K. Zhang, Xuan Dai*, State Key Laboratory of Superhard Materials, Department of Materials Science, Key Laboratory of Automobile Materials, MOE, and Jilin University, Changchun, People's Republic of China; *M. Wen*, State Key Laboratory of Superhard Materials, School of Materials Science and Engineering and Key Laboratory of Automobile Materials, MOE, Jilin University, Changchun, People's Republic of China; *W. Zheng*, State Key Laboratory of Superhard Materials, School of Materials Science and Engineering and Key Laboratory of Automobile Materials, MOE, Jilin University, Changchun, People's Republic of China

**TF-TuP6** High rate Reactive Sputter-deposition of WO<sub>3</sub> Films by using Two Different Deposition Methods, *Yoji Yasuda, Y. Hoshi*, Tokyo Polytechnic University, Japan

**TF-TuP7** Initial Growth of Pentacene Thin Film on Si(001) Substrate, *Takayuki Suzuki, K. Yagyu, H. Tochiwara*, Fukuoka University, Japan

**TF-TuP8** Thermal Stability of Atomic Layer Deposition Precursors, *Kyuyoung Heo, J. Son, G. Jung, W. Lee*, Korea Research Institute of Chemical Technology, Republic of Korea

**TF-TuP9** Growth Behavior and Film Properties of Titanium Dioxide by Plasma-Enhanced Atomic Layer Deposition with Discrete Feeding Method, *Heungseop Song, D. Shin, J. Jeong, H.S. Park, D.H. Ko*, Yonsei University, Korea, Republic of Korea

**TF-TuP10** Properties of nm Scale Tungsten Thin Film Deposited using Inductively Coupled Plasma Assisted Sputtering, *Soojung Lee, T. Kim, B. Jeong, C.H. Song, J.Y. Byun, J. Kim, Y.J. Ji, G.Y. Yeom*, Sungkyunkwan University, Republic of Korea

**TF-TuP11** A New High Wear-resistant Conductive Coating Based on Transition Metal Nitrides with Solid Solution Structure, *Yuankai Li, C. Hu*, State Key Laboratory of Superhard Materials, Key Laboratory of Automobile Materials of MOE, and School of Materials Science and Engineering, China

**TF-TuP13** Tribo-mechanical and Tribo-corrosion Properties of Thin-on-thick Duplex PVD/HVOF Coatings, *Jolanta Klemberg-Sapieha, F. Pougoum, J. Qian, L. Martinu*, Polytechnique Montréal, Canada; *Z. Zhou, K. Li*, City University of Hong Kong; *R. Schulz*, Institut de recherche d'Hydro-Québec



# Tuesday Evening, December 4, 2018

	<b>Biomaterial Surfaces &amp; Interfaces</b> <b>Room Naupaka Salon 6-7 - Session BI-TuE</b> <b>35 Years of NESAC/BIO II</b> <b>Moderator:</b> Sally L. McArthur, Swinburne Institute of Technology	<b>Nanomaterials</b> <b>Room Naupaka Salon 5 - Session NM-TuE</b> <b>Magnetic Properties and Nanocomposites</b> <b>Moderator:</b> H. Henry Lamb, North Carolina State University
5:40pm	<b>INVITED: BI-TuE1</b> History of Biomaterials and the Founding of NESAC/BIO, <b>Buddy D. Ratner</b> , University of Washington	<b>INVITED: NM-TuE1</b> Voltage-Assisted Magnetic Switching in MgO/CoFeB-Based Magnetic Tunnel Junctions by Way of Interface Reconstruction, <b>J. Ko, Jongill Hong</b> , Yonsei University, Republic of Korea
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	<b>INVITED: BI-TuE3</b> The Evolution of Biomedical Surface Analysis at NESAC/BIO, <b>David Castner</b> , University of Washington, USA	<b>NM-TuE3</b> A Theoretical Outlook on the Exotic Properties of Spin Ice and Other Magnetic Pyrochlore Thin Films, <b>Michel Gingras</b> , University of Waterloo, Canada
6:40pm	<b>INVITED: BI-TuE4</b> Future Directions and Challenges in Biomedical Surface Analysis, <b>Lara Gamble</b> , University of Washington	<b>INVITED: NM-TuE4</b> Extending Compound Semiconductor Nanowire Functions by the Introduction of Additional Elements, <b>Fumitaro Ishikawa</b> , Ehime University, Japan
7:00pm	<b>BI-TuE5</b> Characterizing Protein Fiber Structures and their Interactions in Biological Environments with Vibrational Sum-frequency Scattering Spectroscopy, <b>Patric Johansson, D. Castner</b> , University of Washington	Invited talk continues.
7:20pm	<b>BREAK</b>	<b>BREAK</b>
7:40pm	<b>BI-TuE7</b> Albumin and Fibrinogen Adsorption on New Fluorinated Polyurethanes as an Indication of Blood-compatibility, <b>Le Zhen</b> , University of Washington, USA; <b>M. Mecwan, S. Zhang, F. Simonovsky, B.D. Ratner</b> , University of Washington	<b>INVITED: NM-TuE7</b> Single-molecule Study on Nanocarbon Materials, <b>Shintaro Fujii</b> , Tokyo Institute of Technology, Japan
8:00pm	<b>BI-TuE8</b> Disclosing the Aggregation Mechanism and Orientation of Self-assembled Cysteine-modified Oligopeptides through Low Energy Dual Beam Depth Profiling Experiments, <b>Luca Tortora, S. De Rosa</b> , National Institute of Nuclear Physics Roma Tre, Italy; <b>M. Dettin</b> , University of Padua, Italy; <b>V. Secchi, C. Battocchio, G. Iucci</b> , Roma Tre University, Italy	Invited talk continues.
8:20pm	<b>BI-TuE9</b> Multimolecular Omics in Single Frozen-hydrated Cells using High-resolution Gas Cluster Ion Beam Secondary Ion Mass Spectrometry Imaging (GCIB-SIMS), <b>Hua Tian, N. Winograd</b> , Pennsylvania State University	<b>NM-TuE9</b> Interfacial Defect Vibrations Enhance Thermal Transport in Amorphous Multilayers with Ultrahigh Thermal Boundary Conductance, <b>Ashutosh Giri, J. Braun, J. Gaskins</b> , University of Virginia; <b>S. King</b> , Intel Corporation; <b>A. Henry</b> , Massachusetts Institute of Technology; <b>W. Lanford</b> , University at Albany; <b>P. Hopkins</b> , University of Virginia
8:40pm	<b>BI-TuE10</b> Pretty Gross: Surface Analysis Illustrating How Beauty Tools Aren't Only Biocompatible for the Human Face, <b>P. Nguyen, V. Mitchell, J. Romero-Kotovskiy, B. Mattheson, L. Ista, Heather Canavan</b> , University of New Mexico	<b>NM-TuE10</b> Icephobic and Hydrophobic Behaviour of Laser Patterned Polyurethane Nanocomposite Coatings, <b>Bartlomiej Przybyszewski</b> , Warsaw University of Technology, Poland; <b>R.K. Kozera</b> , Technology Partners Foundation, Poland; <b>A. Boczkowska</b> , Warsaw University of Technology, Poland; <b>A.G. Gonzalez-Elipe, A.B. Borrás</b> , Instituto de Ciencia de Materiales de Sevilla, Spain

# Tuesday Evening, December 4, 2018

<b>Thin Films</b> <b>Room Naupaka Salons 4 - Session TF-TuE</b> <b>Next-generation Protective Coatings and Tribological Applications</b> <b>Moderator:</b> Lars Hultman, Linköping University	
5:40pm	<b>TF-TuE1</b> Effects of Ar:N <sub>2</sub> gas ratio on TiN and TiAlN Thin Films Synthesized via RF Magnetron Sputtering, <i>Jason Audrey Licerio, A.R. Alibadbad, M.R. Vasquez</i> , University of the Philippines
6:00pm	
6:20pm	<b>TF-TuE3</b> Formation Mechanism of Tribofilm of Silicon Carbide under Water Lubrication: Molecular Dynamics Simulation, <i>Fumiya Nakamura, Y. Wang, N. Miyazaki, Y. Ootani, N. Ozawa, K. Adachi, M. Kubo</i> , Tohoku University, Japan
6:40pm	<b>INVITED: TF-TuE4</b> Recent Advances in Surface Engineering. <i>Ivan Petrov</i> , Linköping University, Sweden, Frederick Seitz Materials Research Laboratory, University of Illinois
7:00pm	Invited talk continues.
7:20pm	<b>BREAK</b>
7:40pm	<b>TF-TuE7</b> Influence of Defect Structures in MoS <sub>2</sub> Tribo-film Generated from MoDTC at DLC/DLC Interface on Friction Behavior: A Molecular Dynamics Simulation, <i>Masahiro Saito, N. Miyazaki, Y. Ootani, N. Ozawa, M. Kubo</i> , Tohoku University, Japan
8:00pm	<b>TF-TuE8</b> Diamond-like Carbon Thin Film Deposition using Low-energy Ion Beams, <i>A.G. Cuevas, M.G.K. Ramos, A.V. Catapang, Magdalena, Jr. Vasquez</i> , University of the Philippines
8:20pm	<b>TF-TuE9</b> A Study on Copper/Silver Core-shell Microparticles with Silver Nanoparticles Hybrid Ink and its Sintering Characteristics with Flash Light for High Oxidation Resistance, <i>Jong-Whi Park, Y.R. Jang, H.-S. Kim</i> , Hanyang University, Seoul, Korea

# Wednesday Morning, December 5, 2018

<b>Biomaterial Surfaces &amp; Interfaces</b> <b>Room Naupaka Salon 6-7 - Session BI-WeM</b> <b>Soft Surfaces and Biofunctional Coatings</b> <b>Moderator: Tobias Weidner, Aarhus University</b>		<b>Energy Harvesting &amp; Storage</b> <b>Room Naupaka Salon 5 - Session EH-WeM</b> <b>Efficient Power Conversion/Cells</b> <b>Moderator: Paul Braun, University of Illinois at Urbana-Champaign, USA</b>	
8:00am		<b>EH-WeM1</b> Linear and Multi-photon Fluorescence of Thiophene based Copolymer as Novel Potential Material for Photovoltaics, <i>L. Slusna</i> , Comenius University, Bratislava, Slovakia; <i>L. Haizer</i> , International Laser Center, Bratislava, Slovakia; <i>E. Jane</i> , Institute of Chemistry, Slovak Academy of Sciences, Bratislava, Slovakia; <i>D. Bondarev</i> , Polymer Institute, Slovak Academy of Sciences, Bratislava, Slovakia; <i>V. Szocs, M. Drzik</i> , International Laser Center, Bratislava, Slovakia; <i>E. Noskovicova</i> , Comenius University, Bratislava, Slovakia; <i>D. Lorenc</i> , International Laser Center, Bratislava, Slovakia; <i>M. Jerigova</i> , Comenius University, Bratislava, Slovakia; <b>Dusan Velic</b> , Comenius University, Bratislava, Slovakia	
8:20am		<b>EH-WeM2</b> Novel Semi-Transparent Inorganic Sb <sub>2</sub> S <sub>3</sub> Thin Film Solar Cells, <b>Shi-Joon Sung</b> , <i>S.-J. Lee, K.-J. Yang, J.-K. Kang, D.-H. Kim</i> , DGIST, Republic of Korea	
8:40am	<b>INVITED: BI-WeM3</b> Surface Micropatterning Techniques for Reconstituting Functional Neuronal Networks in Culture, <b>Hideaki Yamamoto</b> , <i>A. Hirano-Iwata</i> , Tohoku University, Japan	<b>EH-WeM3</b> In situ Scanning Tunneling Microscopy of the Electrocatalytic Reactions, <b>Dong Wang</b> , ICCAS, China	
9:00am	Invited talk continues.	<b>EH-WeM4</b> Fabrication of Free-standing Thin Film by Injecting Polymer into Porous Substrate for Thin Film Solid Oxide Fuel Cells, <b>Yusung Kim</b> , <i>S.W. Cha, W. Yu, W. Jeong, J.H. So</i> , Seoul National Univeristy, Republic of Korea	
9:20am	<b>BI-WeM5</b> Inhibiting Bacterial and Fungal Growth via Biomimetic Nanopillared Surface Structuring, <b>Rachel Rosenzweig</b> , <i>V.K. Ly, K. Perinbam, M. Marshall, E. Pearlman, A. Siryaporn, A.F. Yee</i> , University of California, Irvine	<b>EH-WeM5</b> First-Principles Study on Influence of Metal Oxide on H <sub>2</sub> S Poisoning Tolerance of Pt Nano-Particle Catalyst in Polymer Electrolyte Fuel Cell, <b>Kota Kuranari</b> , <i>N. Miyazaki, Y. Ootani, N. Ozawa</i> , Tohoku University, Japan; <i>M. Kubo</i> , Institute for Materials Research, Tohoku University, Japan	
9:40am	<b>BI-WeM6</b> Chemo-enzymatic Pathways for Sustainable Terpene-based Polymeric Materials, <b>Arne Stamm</b> , <i>L. Fogelström, P.-O. Syren, E. Malmström</i> , KTH Royal Institute of Technology, Sweden	<b>EH-WeM6</b> Impurity Tolerance of Pt/ Metal-Oxide Anode Catalyst for Polymer Electrolyte Fuel Cell: First-Principles Calculation, <b>Nobuki Ozawa</b> , <i>K. Kuranari, M. Kubo</i> , Tohoku University, Japan	
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am	<b>INVITED: BI-WeM8</b> Chemical Surface Modification of Carbon Nanostructures Towards Biological Applications, <b>Mildred Quintana</b> , Universidad Autónoma de San Luis Potosí, México	<b>INVITED: EH-WeM8</b> Harvesting Sunlight for Photoelectric and Photothermal Conversions with Titanium Nitride Nanostructures, <b>Satoshi Ishii</b> , National Institute for Materials Science, Japan; <i>S.L. Shinde, R.P. Sugavaneshwar, M. Kaur, T. Nagao</i> , National Institute for Materials Science	
10:40am	Invited talk continues.	Invited talk continues.	
11:00am	<b>BI-WeM10</b> Roles of Anodic Oxide Layer on the Improvement of Cellular Response of Titanium Implant , <b>Naofumi Ohtsu</b> , <i>T. Kuji, M. Hirano</i> , Kitami Institute of Technology, Japan	<b>INVITED: EH-WeM10</b> Solar Printing: From Benchtop to Rooftop, <b>Paul Dastoor</b> , University of Newcastle, Australia	
11:20am	<b>BI-WeM11</b> (Electro)Chemically Synthesis et Characterization of New Coating having N-Halamine Groups giving them Regenerative Antibacterial Properties, <b>Vincent Humblot</b> , <i>N. Nazi</i> , LRS - CNRS Sorbonne Université, France; <i>C. Debiemme-Chouvy</i> , LISE - CNRS Sorbonne Université, France	Invited talk continues.	
11:40am	<b>BI-WeM12</b> Effect of Salts on Friction of Zwitterionic Polymer Brush: Molecular Dynamics Simulation, <b>Shuichi Uehara</b> , <i>Z. Liu, N. Miyazaki, Y. Ootani, N. Ozawa, M. Kubo</i> , Tohoku University, Japan		

# Wednesday Morning, December 5, 2018

<p><b>Thin Films</b>  <b>Room Naupaka Salons 4 - Session TF-WeM</b>  <b>Nanostructural and Surface Morphological Evolution:</b>  <b>Experiment and Theory</b>  <b>Moderator:</b> Andres De Luna Bugallo, CINVESTAV-Unidad Queretaro, Mexico</p>		
8:00am	<p><b>INVITED: TF-WeM1</b> Nanostructure and Morphological Evolution During Thin Film Growth of Metals and Silicides Using Real-time Diagnostics, <b>Gregory Abadias</b>, C. Furgeaud, Institut Pprime, CNRS-Université de Poitiers, France; <b>B. Krause</b>, KIT, Germany; <b>A. Jamnig</b>, Institut Pprime, CNRS-Université de Poitiers and IFM Linköping University, Sweden; <b>K. Sarakinos</b>, Linköping University, Sweden; <b>J.J. Colin</b>, <b>L. Simonot</b>, <b>A. Michel</b>, <b>C. Mastail</b>, Institut Pprime, CNRS-Université de Poitiers, France</p>	
8:20am	Invited talk continues.	
8:40am	<p><b>TF-WeM3</b> Seeding and Growth of Metallic Ultra-thin Film Deposited on Amorphous Polymeric Substrates, <b>Jitesh Hora</b>, <b>D. Evans</b>, <b>E. Charrault</b>, <b>P.J. Murphy</b>, Future Industries Institute, University of South Australia</p>	
9:00am	<p><b>TF-WeM4</b> <i>In situ</i> Studies of Surface Morphological Evolution During Indium Nitride Growth by Atomic Layer Epitaxy, <b>Charles Eddy, Jr.</b>, <b>N. Nepal</b>, <b>S.G. Rosenberg</b>, U.S. Naval Research Laboratory; <b>V.R. Anderson</b>, Sotera Defense Solutions; <b>J.M. Woodward</b>, U.S. Naval Research Laboratory; <b>C. Wagenbach</b>, Boston University; <b>A.C. Kozen</b>, U.S. Naval Research Laboratory; <b>Z.R. Robinson</b>, College at Brockport - SUNY; <b>L.O. Nyakiti</b>, Texas A&amp;M University; <b>S.B. Qadri</b>, U.S. Naval Research Laboratory; <b>M.J. Mehl</b>, U.S. Naval Academy; <b>K.F. Ludwig</b>, Boston University; <b>J.K. Hite</b>, US Naval Research Laboratory</p>	
9:20am	<p><b>TF-WeM5</b> Nanostructured Material Surface and Thin Film Interface Characterization by X-ray Photoelectron Spectroscopy, <b>Jisheng Pan</b>, Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research), Singapore</p>	
9:40am	<p><b>TF-WeM6</b> Sputter Epitaxy via Inverse Stranski-Krastanov Growth Mode: A Method of Single Crystal Growth <i>beyond</i> Lattice Matching Condition, <b>Naho Itagaki</b>, <b>D. Yamashita</b>, <b>K. Kamataki</b>, <b>K. Koga</b>, <b>M. Shiratani</b>, Kyushu University, Japan</p>	
10:00am	<b>BREAK</b>	
10:20am	<p><b>INVITED: TF-WeM8</b> Self-organized Nanostructure Formation in Functional Nitride Alloy Thin Films – Playing Games with Physical Metallurgy, <b>Lars Hultman</b>, Linköping University, Sweden</p>	
10:40am	Invited talk continues.	
11:00am	<p><b>TF-WeM10</b> Effect of Atomic Layer Deposition Grown VO<sub>2</sub> Film Morphology and Crystallinity on Opto-Electronic Phase Transition., <b>Jason Avila</b>, ASEE postdoc fellow; <b>M. Currie</b>, <b>B.P. Downey</b>, <b>V.D. Wheeler</b>, Naval Research Laboratory</p>	
11:20am	<p><b>TF-WeM11</b> Relationship between Relaxation ratio and growth temperature of GaInN by RF-MBE, <b>Yusuke Nakajima</b>, <b>T. Honda</b>, <b>T. Yamaguchi</b>, <b>T. Onuma</b>, Kogakuin University, Japan</p>	
11:40am	<p><b>TF-WeM12</b> The Effect of Interface Structure on MgO/Al/MgO Multilayer Photocathodes, <b>Jeff Terry</b>, <b>Z.-R. Lee</b>, <b>L. Spentzouris</b>, Illinois Institute of Technology</p>	

## Nanomaterials

Room Naupaka Salon 1-3 - Session NM-WeP

### Nanomaterials Poster Session II

Moderator: Paul Stoddart, Swinburne University of Technology

4:00pm

**NM-WeP1** Fabrication of Morpho Butterfly Structure using Standing Wave Effect, *Tomoki Nishino, H. Tanigawa*, Ritsumeikan University, Japan; *A. Sekiguchi*, Litho Tech Japan Corporation, Japan

**NM-WeP2** Photovoltaic Performance of Organic Polymer Solar Cells using Silicon Nanoparticles with Various Phosphorus Contents, *Naoki Ikeda, K. Sato*, Tokyo Denki University, Japan

**NM-WeP3** Effect of Phosphorus-doping on Photovoltaic Performance of Si Nanoparticles/Polymer Hybrid Solar Cells, *Masataka Takase, K. Sato*, Tokyo Denki University, Japan

**NM-WeP4** Effect of Amino Modification on Photovoltaic Performance of Silicon/Polymer Solar Cells with Porous Desert Structures, *Kento Saito, K. Sato*, Tokyo Denki University, Japan

**NM-WeP6** Indoor Light Photocatalytic Performance of Graphene Quantum Dot-TiO<sub>2</sub>-PAN Composite based on Electrospinning Matrix, *Hyonkwang Choi, W. Yang*, KwangWoon University, Korea, Republic of Korea

**NM-WeP7** Multispectral Optical Imaging Retrofitted to XPS and SIMS Instruments, *Peter Cumpson, I. Fletcher, N. Sano*, Newcastle University, UK

**NM-WeP8** Synthesis of Small Cubic Metal Nanoparticles of Fe<sup>0</sup>, Co<sup>0</sup> and Ni<sup>0</sup> by using Calcium Hydrate as Reducing Agent, *Maria Volokhova, A. Boldin, L. Seinberg*, National Institute of Chemical Physics and Biophysics, Estonia

**NM-WeP9** Synthesis And Characterization Of Hydrogel With Ag Nanoparticles For 3-D Printable Prosthetics, *Kari Martínez Reyna, G. García Valdívieso, H.R. Navarro Contreras*, Universidad Autónoma de San Luis Potosí, México

**NM-WeP10** Control of Fluorescence Color and Magnetic Intensity of Magnetofluorescent Microparticles, *Takafumi Yasuzawa, K. Sato*, Tokyo Denki University, Japan

**NM-WeP11** Nonideality in Atomic Layer Deposition and Its Implication in Efficient Electrolysis, *Changdeuck Bae, T.A. Ho, H. Shin*, Sungkyunkwan University, Korea, Republic of Korea

**NM-WeP12** Stretchable Temperature Sensor Based on Elastomeric rGO/PU Nanocomposite Fiber, *Tran Quang Trung, N.-E. Lee*, Sungkyunkwan University, Republic of Korea

**NM-WeP13** Study on the Application of Raman Spectroscopy for Early Detection of Cervical Cancer, *Alondra Hernández Cedillo*, Universidad Autónoma de San Luis Potosí, Mexico

**NM-WeP14** Au Nanoparticle Decorated rGO/MoS<sub>2</sub> Sandwich Catalyst for Photodegradation, *Jyh-Ming Ting*, National Cheng Kung University, Republic of China

**NM-WeP15** Surface Modification of CFRP by CNT-Doped Buckypapers, *Bartłomiej Przybyszewski, K. Dydek, P. Latko-Duralek, A. Boczkowska*, Warsaw University of Technology, Poland

**NM-WeP16** Characterizing the Quality of Molten Al Alloys with Hydrogen, Porosity and Bifilm Content, *H. Jang, P. Youn, H. Kang, G. Lee, J.B. Jeon, J. Park, E. Kim, Sunmi Shin*, Korea Institute of Industrial Technology, Korea

**NM-WeP17** Molecular Confinement on Nanostructured Polymer Surfaces, *Sara Heedy, A.F. Yee*, University of California, Irvine

**NM-WeP18** Non-volatile Memory Based on Negative Capacitance and Photovoltaic Effect, *Kai-Wen Chen, S.-Y. Chen, Y.-C. Tseng, S.-J. Chang*, National Chiao Tung University, Republic of China

**NM-WeP19** Particle Embedded Slippery Surface for Icephobic Paint, *M.-J. Kim*, Korea Electronics Technology Institute, Republic of Korea; *B. Lee, D. Kim*, Kangnam Jevisco Co., LTD., Republic of Korea; *J.H. Kim, B.J. Yoon, Young-Seok Kim*, Korea Electronics Technology Institute, Republic of Korea

**NM-WeP20** Effect of the Addition of Ti<sup>4+</sup> Ions on Magnetic and Dielectric Properties of BaFe<sub>2</sub>O<sub>19</sub> Ceramics Prepared by Coprecipitation Method, *Carlos A. Rodriguez Garcia, M. Bravo-Sanchez, M.E. Cano Gonzalez, O. Blanco Alonso*, Universidad de Guadalajara, Mexico

## Thin Films

Room Naupaka Salon 1-3 - Session TF-WeP

### Thin Films Poster Session II

Moderator: Ivan Petrov, Linköping University, Sweden, Frederick Seitz Materials Research Laboratory, University of Illinois

4:00pm

**TF-WeP2** Effect of Modulation Structure on the Microstructural and Mechanical Properties of TiAlSiN/CrN Thin Films Prepared by HiPIMS Process, *H. Liu*, Institute of Advanced Wear & Corrosion Resistant and Functional Materials, Jinan University, China; *F.C. Yang*, Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan; *Y.J. Tsai*, Department of Materials Engineering, Ming Chi University of Technology, Taiwan; *Chi-Lung Chang*, Department of Materials Engineering, Ming Chi University of Technology, Taiwan, Taiwan, Republic of China

**TF-WeP3** Effect of  $\alpha$ -(Al<sub>x</sub>Ga<sub>1-x</sub>)<sub>2</sub>O<sub>3</sub> Overgrowth on MSM-Type  $\alpha$ -Ga<sub>2</sub>O<sub>3</sub> Ultraviolet Photodetectors Grown by Mist CVD, *Kenichiro Rikitake, T. Yamaguchi, T. Onuma, T. Honda*, Kogakuin University, Japan

**TF-WeP4** Continuous Dielectric Function of Monolayer MoSe<sub>2</sub> for Temperature Range from 31 to 300 K by Spectroscopic Ellipsometry, *Tae Jung Kim, H.G. Park, V.L. Le, H.T. Nguyen, X.A. Nguyen, Y.D. Kim*, Kyung Hee University, Republic of Korea

**TF-WeP5** Formation of Microwire Arrays with Dot Structure on Sol-gel Derived Cu<sub>2</sub>O Surfaces by Thermal Annealing, *Katsuhiko Uesugi, K. Matsumoto, W. Ikesugi, Y. Nakata, Y. Hoshiyama, K. Obara, H. Fukuda*, Muroran Institute of Technology, Japan

**TF-WeP6** Surface Plasmon Excited on Metallic-Glass Nanotube Arrays for Surface-Enhanced Raman Scattering Applications, *Yi-Chi Lu*, National Taiwan University of Science and Technology, Taiwan, Republic of China; *H.C. Ho, C.H. Hsueh*, National Taiwan University, Republic of China; *J.K. Chen*, National Taiwan University of Science and Technology, Republic of China; *J.P. Chu*, National Taiwan University of Science and Technology, Taiwan, Republic of China

**TF-WeP7** Study on Characteristics of the REBCO Thin Film Superconducting Wire according to the Thickness and Properties of the Wire's Stabilization Layer, *Ho-Ik Du, S.C. Yang, H.G. Jeong*, Chonbuk National University, Republic of Korea

**TF-WeP8** Arginine and Aspartic Acid on Cu(110) to Predict RGD Adsorption, *Vincent Humblot, R. Totani, C. Methivier*, LRS - CNRS Sorbonne Université, France; *H. Cruguel*, INSP - CNRS Sorbonne Université, France; *C. Pradier*, LRS - CNRS Sorbonne Université, France

**TF-WeP10** Improvement of Pumping Characteristics of Oxygen-Free Palladium/Titanium Non-Evaporable Getter (NEG) Coating Based on Removal of Carbon Contamination, *Tetsuya Miyazawa*, SOKENDAI, Japan; *Y. Kano, Y. Nakayama*, Tokyo University of Science, Japan; *K. Ozawa*, Tokyo Institute of Technology, Japan; *T. Kikuchi, K. Mase*, KEK, Japan

**TF-WeP11** Development of a New NEG Pump Using Oxygen-Free Pd/Ti Thin Film that can be Activated by Baking at 150 °C for 12 h, *T. Kikuchi*, KEK, Japan; *T. Miyazawa*, SOKENDAI, Japan; *H. Nishiguchi*, Baroque International Inc., Japan; *Kazuhiko Mase*, KEK, Japan

**TF-WeP12** The Effect of Cu Oxide Shell on the Flash Light Sintering of Cu Nanoparticle-ink on Si Wafer Substrate for Solar Cell Electrode, *Chung-hyeon Ryu, J.H. Chu, A.P. Supriya, H.-S. Kim*, Hanyang University, Seoul, Korea

**TF-WeP13** Realization of Three Optical States with High Contrast by Doping Nitrogen into Ge<sub>2</sub>Sb<sub>2</sub>Te<sub>5</sub>, *Chaobin Bi, C. Hu*, Jilin University, China

**TF-WeP14** Self-Assembly of Nanocrystalline@amorphous Core-Shell Nanostructure in the TA-19 Alloy Film to Achieve High Strength, *M. Wen, Meijia Wang, M. Wu*, Jilin University, China

**TF-WeP15** On the Deposition and Properties of Carbon-based Single- and Multilayer Systems Prepared by PLD, *René Bertram, D. Haldan, S. Weissmantel*, University of Applied Sciences Mittweida, Germany

**TF-WeP16** Microstructure and Phase Transformation Behavior of High Carbon M4 Steel Layers Prepared by Direct Energy Deposition Process, *Jong Bae Jeon, T.H. Nam, G.W. Park, H. Jo, W. Lee*, Korea Institute of Industrial Technology, Korea

**TF-WeP23** Development of Low-Emissivity Optical Filters Using Double Cannon Sputtering, *Ramon Rodriguez Lopez, N. Abundiz Cisneros*, Centro de Investigación Científica y de Educación Superior de Ensenada, México; *R. Sangines de Castro, J. Cruz Cardenas, R. Machorro Mejia*, Universidad Nacional Autonoma de Mexico, México

**TF-WeP25** Investigation of CO<sub>2</sub> Sensing Efficiency and Mechanism Based on P-type MoS<sub>2</sub>, *Kuan-Sheng Li, C.-C. Yang*, National Chiao Tung University, Republic of China; *C.-H. Wang*, National Synchrotron Radiation Research Center; *Y.-C. Tseng, S.-J. Chang*, National Chiao Tung University, Republic of China

**TF-WeP26** Ion-beam Irradiation Induced Surface Chemical and Physical Modification of Polyethylene Glycol Film for Liquid Crystal Alignment, *In Ho Song, J.H. Lee, H.-C. Jeong, D.-S. Seo*, Yonsei University, Republic of Korea

**TF-WeP27** Ultraviolet Nanoimprint Lithography for Homogeneous Liquid Crystal Alignment using Surface Wrinkling Driven by Ion-beam Irradiation, *Dong Wook Lee, J.H. Lee, H.-C. Jeong, D.-S. Seo*, Yonsei University, Republic of Korea

**TF-WeP28** Fabrication of Au Atomic Junctions Using Artificial Intelligence Implemented on FPGA, *Takuya Sakurai, Y. Hirata, K Takebayashi, Y. Iwata, J. Shirakashi*, Tokyo University of Agriculture & Technology, Japan

**TF-WeP29** Electromigration-Induced Structural Modification of Series-Parallel-Connected Au Nanogaps, *Koji Minami, S. Tani, K. Sakai, T. Sato, M. Ito*, Tokyo University of Agriculture & Technology, Japan; *M. Yagi*, National Institute of Technology, Ichinoseki College, Japan; *J. Shirakashi*, Tokyo University of Agriculture & Technology, Japan

**TF-WeP30** Oxygen Reduction Reaction Mechanism for N-doped Graphene Nanoribbons, *Haruyuki Matsuyama, S. Gomi, J. Nakamura*, The University of Electro-Communications (UEC-Tokyo), Japan

**TF-WeP31** The Structure, Oxidation Resistance, Mechanical and Tribological Properties of TiAlSiNO Nanocomposite Coatings for Cutting Tools, *Wang Ryeol Kim, S. Heo*, Korea Institute of Industrial Technology (KITECH), South Korea; *H. Kim*, Korean Institute of Industrial Technology (KITECH), South Korea; *J. Kim, I.W. Park*, Korea Institute of Industrial Technology (KITECH), South Korea

**TF-WeP32** Influence of Silicon Addition on the Mechanical and Tribological Properties of Zirconium Nitride Coatings Deposited by Hybrid Deposition System, *Sungbo Heo, W.-R. Kim, J. Lee, J. Kim, I.W. Park*, Korea Institute of Industrial Technology (KITECH), South Korea

**TF-WeP33** Coincident Raman and XPS Analysis of 2D-Materials, *Joseph Robinson, P. Mack*, Thermo Fisher Scientific, UK

**TF-WeP34** Two-Dimensional Doping Layer for Flexible Transparent Conducting Graphene Electrodes with Low Sheet Resistance and High Stability, *Y-M. Seo, H-S. Jang, W. Jang, J-Y. Lim, Y. Jang, T. Gu, Dongmok Whang*, Sungkyunkwan University, Republic of Korea

**TF-WeP35** Measurements of Reactive Species in Plasma-Activated Liquids Controlled by Atmospheric Pressure Plasma Operating Parameter, *Hea Min Joh, T.H. Chung*, Dong-A University, Republic of Korea

**TF-WeP36** Ultrafast and Highly-Scalable Organic-Inorganic Hybrid Perovskite Memory Devices for Emerging Memory Applications, *Jang-Sik Lee, B. Hwang*, Pohang University of Science and Technology (POSTECH), Korea

# Wednesday Evening, December 5, 2018

	<b>Biomaterial Surfaces &amp; Interfaces</b> <b>Room Naupaka Salon 6-7 - Session BI-WeE</b> <b>Biomolecule/Material Interactions and Medical Applications</b> <b>Moderator:</b> Buddy D. Ratner, University of Washington	<b>Thin Films</b> <b>Room Naupaka Salons 4 - Session TF-WeE</b> <b>Emerging Topics: Growth and Properties of Electronic Materials, 2D Layers, and Metallic-glass Thin Films</b> <b>Moderator:</b> Lars Hultman, Linkoping University
5:40pm	<b>INVITED: BI-WeE1</b> Engineered Biointerfaces – Organisation and Functionalisation of Proteins at Surfaces, <i>Jenny Malmstrom</i> , University of Auckland, New Zealand	<b>INVITED: TF-WeE1</b> Novel Metallic-Glass Nanotube Arrays: Synthesis, Characterization and Applications, <i>Jinn P. Chu</i> , National Taiwan University of Science and Technology, Taiwan, Republic of China
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	<b>BI-WeE3</b> Tunable Thermal Transport and Reversible Thermal Conductivity Switching in Topologically Networked Bio-Inspired Materials, <i>J. Tomko</i> , University of Virginia; <i>A. Pena-Francesh, H. Jun</i> , Pennsylvania State University; <i>M. Tyagi</i> , National Institute of Standards and Technology; <i>B. Allen, M. Demirel</i> , Pennsylvania State University; <i>Patrick Hopkins</i> , University of Virginia	<b>TF-WeE3</b> Growth and Characterization of Atomically-thin MoS <sub>2</sub> -MoSe <sub>2</sub> Hetero-Junctions Synthesized by Vapor-Phase Chalcogenization, <b>Andres De Luna Bugallo</b> , CINVESTAV Querétaro México, Mexico; <i>I. Bilgin, D. Rubin</i> , Northeastern University; <i>K. Fujisawa</i> , Penn State University; <i>M. Terrones</i> , Pennsylvania State University; <i>S. Kar</i> , Northeastern University
6:40pm		<b>TF-WeE4</b> Band-engineering of (TiO <sub>2</sub> ) <sub>1-x</sub> (TaON) <sub>x</sub> Thin Films for Photochemical Applications, <i>Tetsuya Hasegawa</i> , University of Tokyo, Japan
7:00pm	<b>BI-WeE5</b> Design Principles and Potential Applications of Cyclic Peptide Polymer-based Nanomaterials, <i>Kenan Fears</i> , US Naval Research Laboratory, USA	<b>TF-WeE5</b> Exploring Mechanical and Liquid-phase Exfoliation of HOPG through Low-energy Ion Beam Analysis, <i>Paolo Branchini</i> , INFN RomaTre, Italy; <i>S. De Rosa</i> , National Institute of Nuclear Physics Roma Tre, Italy; <i>L. Tortora</i> , INFN RomaTre, Italy; <i>R. Yivlialin, G. Bussetti</i> , Politecnico di Milano, Italy
7:20pm	<b>BREAK</b>	<b>BREAK</b>
7:40pm	<b>BI-WeE7</b> Metal Oxides and Bone Healing, <i>H. Nygren</i> , University of Gothenburg, Göteborg, Sweden; <i>C. Zhang</i> , Science for Life Laboratory, Stockholm, Sweden; <i>Per Malmberg</i> , Chalmers University of Technology, Sweden	<b>TF-WeE7</b> Altering Cu-Ni Alloy Composition to Control 2D h-BN Growth, <i>Boris Feigelson</i> , Naval Research Laboratory; <i>K. Sridhara, J.K. Hite, J.A. Wollmershauser</i> , US Naval Research Laboratory
8:00pm	<b>BI-WeE8</b> Thin Films, Coatings and Surface Solutions for Medical Devices, <i>Shahram Amini</i> , Johnson Matthey Inc.	<b>TF-WeE8</b> Internal Photoemission Spectroscopy Measurements of Energy Barriers between Metallic Glass Thin Films and ALD Dielectrics, <i>M.A. Jenkins, John Conley, Jr.</i> , Oregon State University
8:20pm	<b>BI-WeE9</b> Effects of Metal Implants on Bone Healing Analysed by Transcriptomics, <i>Håkan Nygren</i> , University of Gothenburg, Göteborg, Sweden; <i>C. Zhang, M. Arif, M. Uhlen</i> , Science for Life Laboratory, Stockholm, Sweden	<b>TF-WeE9</b> New Insights into the Kinetics of Chemical Vapor Deposition of Two-dimensional hBN Layers on Pd(111), <i>Pedro Arias</i> , University of California, Los Angeles; <i>A. Abdulslam</i> , Colorado School of Mines; <i>A. Ebnonnasir</i> , University of California, Los Angeles; <i>C.V. Ciobanu</i> , Colorado School of Mines; <i>S. Kodambaka</i> , University of California, Los Angeles
8:40pm	<b>BI-WeE10</b> Synthesis and Characterization of Reactively Sputtered Platinum Group Metal Oxides for Stimulating and Recording Applications, <i>G.V. Taylor, N. Page, A. Marti, R. Paladines</i> , Rowan University; <i>A. Fones</i> , Johnson Matthey Inc., UK; <i>S.D. Tint</i> , Johnson Matthey Inc.; <i>H. Hamilton</i> , Johnson Matthey Inc., UK; <i>S. Amini</i> , Johnson Matthey Inc.; <i>Jeffrey Hettinger</i> , Rowan University	<b>TF-WeE10</b> Very High Refractive Index Transition Metal Dichalcogenide Photonic Conformal Coatings by Conversion of ALD Metal Oxides, <i>Shaul Aloni, A.M. Schwartzberg, C.T. Chen, C. Kastl</i> , Lawrence Berkeley National Laboratory

# Thursday Morning, December 6, 2018

<b>Energy Harvesting &amp; Storage</b> <b>Room Naupaka Salon 6-7 - Session EH-ThM</b> <b>Batteries</b> <b>Moderator:</b> Ludvik Martinu, Polytechnique Montréal		<b>Plasma Processing</b> <b>Room Naupaka Salon 5 - Session PS-ThM</b> <b>Plasma Processing</b> <b>Moderator:</b> Martin Nieto-Perez, CICATA Queretaro	
8:00am			<b>INVITED: PS-ThM1</b> Plasma Surface Modification: Optimizing the Positives of Plasma-Materials Interactions, <i>Ellen Fisher</i> , Colorado State University
8:20am	<b>EH-ThM2</b> Real-Time TEM Observation of Electrochemistry and Failure in Battery Materials, <i>Reza Shahbazian-Yassar</i> , University of Illinois at Chicago		Invited talk continues.
8:40am	<b>EH-ThM3</b> Reactive Ion Beam Etching of Piezoelectric ScAlN and LiTaO3 for RF Filter Applications, <i>Robinson James, Y. Pilloux, H. Hegde</i> , Plasma Therm		<b>PS-ThM3</b> Super-reactive Haloester Surface Initiator for ARGET ATRP Readily Prepared by RF Glow Discharge Plasma, <i>Marvin Mecwan, B.D. Ratner</i> , University of Washington
9:00am	<b>EH-ThM4</b> Lead-free Epitaxial Ferroelectric Heterostructures for Energy Storage and Harvesting Applications, <i>Amrit Sharma</i> , Center for Materials Research, Norfolk State University		
9:20am	<b>INVITED: EH-ThM5</b> Direct Electrodeposition of High-Performance Li-ion Battery Electrodes, <i>Paul Braun</i> , University of Illinois at Urbana-Champaign, USA		<b>INVITED: PS-ThM5</b> Practical Applications of Plasmas in Microelectronics, <i>David Ruzic, D.E. Barlaz, J. Mettler, G. Panici, D. Qerimi</i> , University of Illinois at Urbana-Champaign
9:40am	Invited talk continues.		Invited talk continues.
10:00am	<b>BREAK</b>		<b>BREAK</b>
10:20am			<b>INVITED: PS-ThM8</b> From Atomic- to macro- via Nano-scales: Plasma and Ion Effects in Surface Structuring, <i>Kostya (Ken) Ostrikov</i> , Queensland University of Technology, Australia
10:40am			Invited talk continues.
11:00am			<b>PS-ThM10</b> Atmospheric Plasma Synthesis of Nanoparticulates at Low Temperature and Roll-to-Roll Binder-Free Coating on Polyethylene Separator for Lithium Ion Battery with Improved Performances, <i>Jing Zhang</i> , Donghua University, China
11:20am			<b>PS-ThM11</b> Thermo-Corrosive and Mechanical Properties of ZrO <sub>2</sub> based Thermal Barrier Coatings, <i>Byung-Koog Jang</i> , Kyushu University; <i>H.-T. Kim</i> , Korea Institute of Ceramic Engineering and Technology



# Thursday Morning, December 6, 2018

<b>Thin Films</b> <b>Room Naupaka Salons 4 - Session TF-ThM</b> <b>Nanostructured Surfaces and Thin Films: Synthesis and Characterization III</b>	
8:00am	<b>TF-ThM1</b> Interface and Surface Control of MoS <sub>2</sub> -based Nanoelectronic Devices with Organic Treatment, <i>Takhee Lee</i> , Seoul National University, Republic of Korea
8:20am	Talk continues.
8:40am	<b>TF-ThM3</b> Epitaxial GdFe <sub>0.8</sub> Ni <sub>0.2</sub> O <sub>3</sub> Multiferroic Thin Films Grown Device Using Operando X-ray Technique, <i>Shu-Jui Chang, M.-H. Chung</i> , National Chiao Tung University, Republic of China; <i>Y.-T. Liu, H.-Y. Lee</i> , National Synchrotron Radiation Research Center; <i>Y.-C. Tseng</i> , National Chiao Tung University, Republic of China
9:00am	<b>TF-ThM4</b> Effect of the Ultrasonic Treatment on the Si-SiO <sub>2</sub> System Defects Structure, <i>Daniel Kropman</i> , Tallinn University, Estonia; <i>V. Seeman</i> , Tartu University, Estonia; <i>A. Medvids</i> , Riga Technical University, Latvia; <i>P. Onufrievs</i> , Riga Technicacal University, Latvia
9:20am	
9:40am	<b>TF-ThM6</b> Charge Induced Disorder Controls the Thermal Conductivity of Entropy Stabilized Oxides, <i>Jeffrey Braun, C. Rost</i> , University of Virginia; <i>M. Lim</i> , North Carolina State University; <i>A. Giri, D. Olson</i> , University of Virginia; <i>G. Kotsonis</i> , Pennsylvania State University; <i>G. Stan</i> , National Institute of Standards and Technology; <i>D. Brenner</i> , North Carolina State University; <i>J.-P. Maria</i> , Pennsylvania State University; <i>P. Hopkins</i> , University of Virginia
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10:20am	<b>TF-ThM8</b> Thermal Boundary Conductance Across Heteroepitaxial ZnO/GaN Interfaces: Experimental Assessment of the Phonon Gas Model, <i>John Gaskins</i> , University of Virginia; <i>G. Kotsonis</i> , Pennsylvania State University; <i>A. Giri</i> , University of Virginia; <i>S. Ju</i> , University of Tokyo, Japan; <i>A. Rohskopf</i> , Massachusetts Institute of Technology; <i>Y. Wang, T. Bai</i> , University of California, Los Angeles; <i>E. Sachet, C. Shelton</i> , North Carolina State University; <i>Z. Liu</i> , University of Notre Dame; <i>Z. Cheng</i> , Georgia Institute of Technology; <i>B. Foley</i> , Pennsylvania State University; <i>S. Graham</i> , Georgia Institute of Technology; <i>T. Luo</i> , University of Notre Dame; <i>A. Henry</i> , Massachusetts Institute of Technology; <i>M. Goarsky</i> , University of California, Los Angeles; <i>J. Shiomi</i> , University of Tokyo, Japan; <i>J.-P. Maria</i> , Pennsylvania State University; <i>P. Hopkins</i> , University of Virginia
10:40am	<b>TF-ThM9</b> Studies on Hot-wall Deposited Cadmium Sulphide (CdS) Thin Films for Buffer Layers in Thin Film Solar Cell, <i>Balaji Gururajan, B. Rangasamy, P. Sankaran, P. Nagarajan, S. Kaliappan, K.M. Dhonan</i> , PSG College of Technology, India; <i>V. Asokan</i> , Chalmers University of Technology, Sweden; <i>M. Natarajan</i> , Coimbatore Institute of Technology, India; <i>D. Velauthapillai</i> , Western Norway University of Applied Sciences, Norway
11:00am	<b>TF-ThM10</b> Intrinsic Photoluminescent Properties of Crystalline and Amorphous Cd <sub>2</sub> V <sub>2</sub> O <sub>7</sub> , <i>Erika Cervantes Juárez, R. Lozada Morales, A Meza Rocha, R. Licona Ibarra</i> , BUAP, Mexico
11:20am	<b>TF-ThM11</b> The Effect of Tin Impurities on CdTe Thin Films Solar Cell, <i>J. Ríos-González, R.J. Mis-Fernández, I. Rimmaudo, E. Camacho-Espinosa, Juan Luis Peña</i> , CINVESTAV-Unidad Mérida, Mexico

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