

# Program Key

## Conference Topics

<b>BI</b>	Biomaterial Surfaces & Interfaces
<b>EH</b>	Energy Harvesting & Storage
<b>NM</b>	Nanomaterials
<b>PL</b>	Plenary Session
<b>PS</b>	Plasma Processing
<b>TF</b>	Thin Films

# Program Overview

Room /Time	Naupaka Salon 1-3	Naupaka Salon 5	Naupaka Salon 6-7	Naupaka Salons 4
MoM		NM-MoM: Nanocharacterization	BI-MoM: 35 Years of NESAC/BIO I	PL-MoM: Plenary Session I TF-MoM: Nanostructured Surfaces and Thin Films: Synthesis and Characterization I
MoE		NM-MoE: NanoCatalysis	EH-MoE: Process	TF-MoE: Nanostructured Surfaces and Thin Films: Synthesis and Characterization II
TuM		NM-TuM: Nanofabrication and Nanodevices	BI-TuM: Bioimaging and Bionanotechnology	TF-TuM: Innovations in the Development of Multifunctional Thin Films
TuP	Poster Sessions			
TuE		NM-TuE: Magnetic Properties and Nanocomposites	BI-TuE: 35 Years of NESAC/BIO II	TF-TuE: Next-generation Protective Coatings and Tribological Applications
WeM		EH-WeM: Efficient Power Conversion/Cells	BI-WeM: Soft Surfaces and Biofunctional Coatings	TF-WeM: Nanostructural and Surface Morphological Evolution: Experiment and Theory
WeP	Poster Sessions			
WeE			BI-WeE: Biomolecule/Material Interactions and Medical Applications	TF-WeE: Emerging Topics: Growth and Properties of Electronic Materials, 2D Layers, and Metallic-glass Thin Films
ThM		PS-ThM: Plasma Processing	EH-ThM: Batteries	TF-ThM: Nanostructured Surfaces and Thin Films: Synthesis and Characterization III

# Special Events Monday

## Special Events Monday

10:00 AM Morning Break/Naupaka Lanai Lawn  
11:20 AM Plenary Lecture/Naupaka Salons 4  
12:00 PM Monday Plenary Lunch/Paniolo Ocean Terrace  
7:20 PM Evening Break/Naupaka Lanai Lawn  
8:30 PM Monday Vendor Session/Naupaka Salons 4

# 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-MoM-1</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-MoM-1</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-MoM-2</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 Cochrane</i> , Lawrence Berkeley National Laboratory; <i>S Barja</i> , Lawrence Berkeley Lab, USA, Spain; <i>C Chen</i> , <i>N Borys</i> , <i>R Koch</i> , <i>F Ogletree</i> , <i>S Aloni</i> , <i>A 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-MoM-3</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-MoM-3</b> ToF-SIMS Label Free Chemical Imaging of Surface Modifications in Materials with Extreme Topography, <i>Michael Taylor</i> , <i>D Graham</i> , <i>L Gamble</i> , University of Washington
9:00am	<b>NM-MoM-4</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 Brutchey</i> , University of Southern California	<b>BI-MoM-4</b> NESAC/BIO IMPACT: Innovative Multivariate Programs Applied Carefully to ToF-SIMS, <i>Daniel Graham</i> , <i>L Gamble</i> , <i>D Castner</i> , University of Washington
9:20am	<b>INVITED: NM-MoM-5</b> Nanomaterials for Creating Sensitive and Selective Biosensing Interfaces, <i>Leyla Soleymani</i> , McMaster University, Canada	<b>BI-MoM-5</b> Challenges to Nanoparticle Preparation and Analysis: An Unexpected Phase Transformation of Ceria Nanoparticles, <i>Donald Baer</i> , Pacific Northwest National Laboratory; <i>S Kuchibhatla</i> , Parisodhana Technologies Pvt. Ltd.; <i>A Karakoti</i> , Ahmedabad University; <i>S Seal</i> , University of Central Florida
9:40am	Invited talk continues.	<b>BI-MoM-6</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 Giovannozzi</i> , INRIM; <i>F Green</i> , National Physical Laboratory; <i>P Gunning</i> , Smith & Nephew; <i>C Portesi</i> , <i>A Rossi</i> , INRIM; <i>C Seim</i> , Physikalisch-Technische Bundesanstalt; <i>R Steven</i> , National Physical Laboratory; <i>B 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-MoM-8</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 Chen</i> , Lawrence Berkeley National Laboratory	<b>INVITED: BI-MoM-8</b> Protein Catalysis of Minerals and Ice – A Molecular View, <i>Tobias Weidner</i> , University of Arrhus, Denmark
10:40am	<b>NM-MoM-9</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 Shapiro</i> , Lawrence Berkeley National Laboratory; <i>J Lee</i> , <i>M Biener</i> , <i>S Gammon</i> , <i>T Li</i> , <i>T Baumann</i> , Lawrence Livermore National Laboratory	Invited talk continues.
11:00am		<b>BI-MoM-10</b> Multi-Functional Polyampholyte Hydrogels with Covalently Attached SIBLING Proteins for Bone Tissue Engineering, <i>Matthew Bernards</i> , <i>S Haag</i> , <i>E Mariner</i> , University of Idaho

# Monday Morning, December 3, 2018

Room Naupaka Salons 4		
8:00am	<b>TF-MoM-1</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 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-MoM-2</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-MoM-3</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 Kim, C Ryu, Y Hwang</i> , Hanyang University, Seoul, Korea	
9:00am	<b>TF-MoM-4</b> High Throughput XPS Surface Analysis of Novel Materials Generated by a Combinatorial Approach, <i>J Counsell, S Coultas</i> , Kratos Analytical Ltd., UK; <i>David Surman, C Moffitt</i> , Kratos Analytical Inc.	
9:20am	<b>INVITED: TF-MoM-5</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-MoM-8</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-MoM-9</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-MoM-11</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	
11:40am	Invited talk continues.	

# Monday Afternoon, 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-MoE-1</b> Surface Engineered Smart Optical Nanostructures for Energy Saving and Thermal Control, <i>Ludvik Martinu</i> , Montreal Ecole Polytechnique, Canada	<b>INVITED: NM-MoE-1</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-MoE-3</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 Mutch</i> , Newcastle University; <i>J Anderson</i> , <i>D Vega-Maza</i> , University of Aberdeen	<b>NM-MoE-3</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-MoE-4</b> Graphene Oxide-cellulose Nanocrystal Sponge as a Tunable Platform for Contaminant and Pathogen Removal from Water, <i>Nathalie Tufenkji</i> , <i>N Yousefi</i> , <i>R Allgayer</i> , <i>A Filina</i> , McGill University, Canada	<b>NM-MoE-4</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 Ramos</i> , <i>A Montallana</i> , University of the Philippines, Philippines; <i>L Zhang</i> , <i>J Chu</i> , National Taiwan University of Science and Technology, Taiwan, Republic of China; <i>M Vasquez</i> , University of the Philippines, Philippines
7:00pm	<b>EH-MoE-5</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-MoE-5</b> Enhanced Photocatalytic Activity of Plasma-modified Electrospun PVA/TiO <sub>2</sub> Nanocomposites, <i>Arantxa Danielle Montallana</i> , <i>A Cristobal</i> , University of the Philippines, Philippines; <i>B Lai</i> , <i>J Chu</i> , National Taiwan University of Science and Technology, Taiwan, Republic of China; <i>M Vasquez</i> , University of the Philippines, Philippines
7:20pm	<b>BREAK</b>	<b>BREAK</b>
7:40pm	<b>EH-MoE-7</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-MoE-7</b> Large Scale Production of Nanoparticle Catalysts for Biomass Conversion Processes, <i>E 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-MoE-8</b> BN Films for Hydrogen Permeation Barrier, <i>Motonori Tamura</i> , The University of Electro-Communications (UEC-Tokyo), Tokyo, Japan	<b>NM-MoE-8</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 Ishfaq</i> , <i>T Lim</i> , Korea Institute of Energy Research (KIER), South Korea; <i>S Lee</i> , Korea Institute of Energy Research (KIER), South Korea; <i>K Lee</i> , DGIST, South Korea; <i>R Song</i> , Korea Institute of Energy Research (KIER), South Korea

# Monday Afternoon, 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-MoE-1</b> Synthesis and Characterization of Novel Nitride Semiconductor Thin Films, <i>S Bauers, A Holder, S Lany, Andriy Zakutayev</i> , National Renewable Energy Laboratory
6:00pm	<b>TF-MoE-2</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 Joo, H Kim</i> , Hanyang University, Seoul, Korea
6:20pm	<b>TF-MoE-3</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 Taylor</i> , Rowan University; <i>E Burkholder</i> , Johnson Matthey Inc.; <i>J Hettinger</i> , Rowan University; <i>S Amini</i> , Johnson Matthey Inc.
6:40pm	<b>INVITED: TF-MoE-4</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-MoE-7</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 Kim</i> , Hanyang University, Seoul, Korea
8:00pm	<b>TF-MoE-8</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

# Special Events Tuesday

## Special Events Tuesday

10:00 AM Morning Break/Naupaka Lanai Lawn  
7:20 PM Evening Break/Naupaka Lanai Lawn



# 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:</b> Lara Gamble, University of Washington	<b>Nanomaterials</b> <b>Room Naupaka Salon 5 - Session NM-TuM</b> <b>Nanofabrication and Nanodevices</b> <b>Moderator:</b> Adam Hitchcock, McMaster University
8:00am	<b>INVITED: BI-TuM-1</b> Exosomes and Extracellular Vesicles: Small Particles with a Big Impact, <i>Renee Goreham</i> , Victoria University of Wellington, New Zealand	<b>NM-TuM-1</b> High-throughput, Continuous Flow Synthesis of Colloidal Nanoparticles as a Safe and Sustainable Nanofabrication Method, <i>Emily Roberts, R Brutchey</i> , University of Southern California
8:20am	Invited talk continues.	<b>NM-TuM-2</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-TuM-3</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-TuM-3</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-TuM-4</b> The Role of Lipid Surfaces in Molecular Mechanism of Alzheimer's Disease, <i>E Drolle, M Robinson, B Lee, C Filice, S Turnbull, N Mei, Zoya Leonenko</i> , University of Waterloo, Canada	<b>NM-TuM-4</b> Preparation and Corrosion Properties of Bulk Nanocrystalline Two-phase Ag-25Cu Alloys, <i>Zhongqiu Cao, X Yin, Q Tian, Y Wang, K Zhang, J Lu</i> , Shenyang Normal University, China
9:20am	<b>BI-TuM-5</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-TuM-5</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-TuM-6</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-TuM-8</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 Kyle, C Nicora, C Anderton</i> , Pacific Northwest National Laboratory, USA; <i>D Graham, L Gamble</i> , University of Washington, USA	<b>NM-TuM-8</b> Nature-Inspired Approaches to Nanotechnologies, <i>Jong-Souk Yeo</i> , Yonsei University, Republic of Korea
10:40am	<b>BI-TuM-9</b> Hybrid SIMS: A New SIMS Instrument for High Resolution Organic Imaging with Highest Mass-resolving Power and MS/MS, <i>Nathan Havercraft</i> , ION-TOF USA, Inc.; <i>A Pirkel</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-TuM-9</b> A Reproducible Assay for Versatile Biosensing by Surface-enhanced Raman Scattering, <i>M Al Mamun, N Cole, S Juodkazis, Paul Stoddart</i> , Swinburne University of Technology, Australia
11:00am	<b>BI-TuM-10</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-TuM-11</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-TuM-11</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-TuM-12</b> In-Situ TEM Studies of Biomineralization, <i>Tolou Shokuhfar, R Shahbazian-Yassar</i> , University of Illinois at Chicago	<b>NM-TuM-12</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	<b>TF-TuM-1</b> Anion Interactions with Vapour Deposited Conducting Polymers, <i>Drew Evans</i> , University of South Australia, Australia
8:20am	<b>TF-TuM-2</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 Murphy, C Hall</i> , University of South Australia, Australia
8:40am	<b>TF-TuM-3</b> Applications of Polarized Neutron Scattering for Development of Novel Functional Heterostructures, <i>Valeria Lauter</i> , Oak Ridge National Laboratory, USA
9:00am	<b>TF-TuM-4</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
9:20am	<b>TF-TuM-5</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
9:40am	<b>TF-TuM-6</b> Low Temperature Nitridation of Hafnia with Low Density of N-O Bonds, <i>J Torres-Ochoa, O Cortazar-Martinez, M Mayorga-Garay, A De Luna Bugallo, Y Chipatecua-Goday, O Ceballos-Sanchez, D Silva-Cabrales, F Corona-Davila, J Raboño-Borballa</i> , CINVESTAV-Unidad Queretaro, Mexico; <i>Alberto Herrera-Gomez</i> , CINVESTAV-Unidad Queretaro, Mexico, México
10:00am	<b>BREAK</b>
10:20am	<b>INVITED: TF-TuM-8</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
10:40am	Invited talk continues.
11:00am	<b>TF-TuM-10</b> Surface Reactions of Metal and Metal Oxides on Hybrid Perovskite Materials for Optoelectronics Applications, <i>J Cazares-Montañez, M 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
11:20am	<b>INVITED: TF-TuM-11</b> Thin-Film Alchemy: Engineering Oxide Films to Unleash their Hidden Properties, <i>Darrell G. Schlom</i> , Cornell University
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-TuP-1** Inhibiting Upstream Motility of *Pseudomonas Aeruginosa* via Nanopillared Surface Structuring, *Rachel Rosenzweig, V Ly, K Perinbam, A Siryaporn, A Yee*, University of California, Irvine

**BI-TuP-2** 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-TuP-3** 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-TuP-4** 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-TuP-5** Anchored Protease-Activatable Polymersomes for Molecular Diagnostics of Cancer Cells, *Jong-Woo Lim*, Yonsei University, Republic of Korea; *H Kim*, Korea University, Republic of Korea; *J Choi*, Yonsei University, Republic of Korea; *H Lee*, Korea Basic Science Institute, Republic of Korea; *H Son, J Kim, G Park, H Chun*, Yonsei University, Republic of Korea; *D Song*, Korea University, Republic of Korea; *Y Huh, S Haam*, Yonsei University, Republic of Korea

**BI-TuP-6** 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-TuP-7** The Blood Cell-nanoparticle Interface: Functional Cellular Responses, Mechanisms of Interaction and Signaling pathways, *C Brommesson, N Abrikosova, P Eriksson, Z Hu, K Uvdal, Andreas Skallberg*, Linköping University, Sweden

**BI-TuP-8** 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-TuP-9** 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 Lee, M Shin*, Daegu Gyeongbuk Institute of Science & Technology, Korea; *D Moon*, Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea

**BI-TuP-10** Improvement of Cell Imaging by Graphene Encapsulation in ToF-SIMS Method, *Sun Young Lee*, Daegu Gyeongbuk Institute of Science & Technology, Korea; *H Lim, J Kim*, Daegu Gyeongbuk Institute of Science & Technology; *D Moon*, Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea

**BI-TuP-11** 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-TuP-1** 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-TuP-3** 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-TuP-4** 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-TuP-6** 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-TuP-7** 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-TuP-8** 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-TuP-9** On the Thermal Characterization of Heptane-Isooctane Mixtures, *Adrian Bedoya, E Marin, S Alvarado*, Cicata Legaria, Mexico

**EH-TuP-10** 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-TuP-1** alginate based Nanocomposite for Microencapsulation of Probiotic: Effect of Cellulose Nanocrystal (CNC) and Lecithin, *Monique Lacroix*, INRS-Institut Armand-Frappier, Canada

**NM-TuP-2** In-situ Low Energy Electron Microscopy at Near Ambient Pressures, *Thomas Schulmeyer*, SPECS-TII, Inc.

**NM-TuP-4** 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 Rehman*, Korea Institute of Energy Research (KIER), South Korea; *T Lim, J Hong, R Song*, Korea Institute of Energy Research (KIER), South Korea

**NM-TuP-5** Analysis Insitu of Diffusion-nucleation in Multilayer InAs/GaAs Quantum Dots, *Christian Mercado-Ornelas, A Belio-Manzano, L Espinosa-Vega*, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, Mexico; *V Mendez-Garcia*, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, México

**NM-TuP-6** Analytical Model Proposal for the 2D-3D Growth Mode Transition in the Synthesis of InAs/GaAs Quantum Dots, *Christian Mercado-Ornelas, L Espinosa-Vega, E Eugenio-Lopez, I Cortes-Mestizo*, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, Mexico; *V Mendez-Garcia*, Center for the Innovation and Application of Science and Technology, Universidad Autónoma de San Luis Potosí, México

**NM-TuP-7** 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-TuP-8** 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-TuP-9** Controlled Pore Arrangement of Silicon Nanoparticles Having Mesoporous Structure, *Taisuke Kuga, K Sato*, Tokyo Denki University, Japan

**NM-TuP-10** Nanobiosensor Comprising Conductive Polymer Enclosed with Polymer Vesicles for Selective Detection of Influenza A Virus, *Geunseon Park*, Yonsei University, Republic of Korea; *H Kim*, Korea University, Republic of Korea; *J Lim, C Park, S Haam*, Yonsei University, Republic of Korea

**NM-TuP-11** 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 Kim*, Korea University, Republic of Korea; *J 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, Republic of Korea

# Tuesday Afternoon Poster Sessions, December 4, 2018

**NM-TuP-12** 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-TuP-1** 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 Santana-Aranda*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara; *G Gomez-Rosas, L Rivera*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, Mexico; *D Cardona*, Instituto Tecnológico y de Estudios Superiores de Occidente, Mexico; *J Quiñones-Galván*, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, Mexico

**PS-TuP-2** Study of Carbon Fiber Manufacturing Process by Plasma Oxidation/stabilization and Microwave assisted Carbonization, *Seok-Kyun Song, B Kim, M Jung*, Cheorwon Plasma Research Institute, Republic of Korea; *S Lee*, Korea Institute of Science and Technology, Republic of Korea

**PS-TuP-3** Design and Diagnosis of Atmospheric Microwave Plasma by Transmission Line Resonator, *Jun Choi*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

**PS-TuP-4** Nitridation of SiO<sub>2</sub> by using a VHF (162 MHz) Multi-tile Push-pull Plasma Source, *You Jin Ji, K Kim, K Kim, J Byun, S Lee*, Sungkyunkwan University, Republic of Korea; *A Ellingboe*, Dublin City University, Ireland; *G Yeom*, Sungkyunkwan University, Republic of Korea

**PS-TuP-5** Fabrication of SnO Thin Films by Reducing Plasma on Atomic Layer Deposited SnO<sub>2</sub>, *Jaehong PARK, B PARK, H Kim*, Yonsei University, Republic of Korea

**PS-TuP-6** 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 Boris, E Gillman, S Hernandez*, Naval Research Laboratory; *A Giri*, University of Virginia; *T Petrova*, Naval Research Laboratory; *Patrick Hopkins*, University of Virginia

**PS-TuP-7** Classification of Aluminum Alloys by an Inexpensive Laser Induced Breakdown Spectroscopy System, *Kevin Renato Maldonado Dominguez, R Sangines del Castro*, CNyN-UNAM, Mexico

**PS-TuP-8** Optimizing Deposition Parameters for Reactive Magnetron Sputtering by Monitoring the Plasma Optical Emission Spectroscopy., *Genaro Soto-Valle Angulo, R Sangines*, CNyN-UNAM, Mexico

**PS-TuP-9** Origin of Plasma Damage during Sputtering of Ultrathin ITO Contact Layer on p-GaN for InGaN/GaN LEDs, *T Kim, Y 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-TuP-1** 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-TuP-2** Effects of Bias Voltage on the Structure and Corrosion Properties of Thick Cr Coatings Deposited Using Cathodic Arc ion Plating, *Jung-Hwan Park, Y Jung, D Park, H Kim, B Choi, Y Lee, J Yang*, Korea Atomic Energy Research Institute

**TF-TuP-3** 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, China

**TF-TuP-4** 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, China

**TF-TuP-5** Influence of Ag Content on the Tribological Properties of MoNbN-Ag Coatings at Elevated Temperature, *K Zhang*, 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, People's Republic of China; *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, 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, 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-TuP-6** 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-TuP-7** Initial Growth of Pentacene Thin Film on Si(001) Substrate, *Takayuki Suzuki, K Yagyu, H Tochihara*, Fukuoka University, Japan

**TF-TuP-8** Thermal Stability of Atomic Layer Deposition Precursors, *Kyuyoung Heo, J Son, G Jung*, Korea Research Institute of Chemical Technology, Republic of Korea; *W Lee*, Korea Research Institute of Chemical Technology, Republic of Korea, Republic of Korea

**TF-TuP-9** 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 Park, D Ko*, Yonsei University, Korea, Republic of Korea

**TF-TuP-10** Properties of nm Scale Tungsten Thin Film Deposited using Inductively Coupled Plasma Assisted Sputtering, *Soojung Lee, T Kim, B Jeong, C Song, J Byun, J Kim, Y Ji, G Yeom*, Sungkyunkwan University, Republic of Korea

**TF-TuP-11** 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-TuP-13** 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 Afternoon, 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 University of Technology, Australia		<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-TuE-1</b> History of Biomaterials and the Founding of NESAC/BIO, <i>Buddy D. Ratner</i> , University of Washington		<b>INVITED: NM-TuE-1</b> Voltage-Assisted Magnetic Switching in MgO/CoFeB-Based Magnetic Tunnel Junctions by Way of Interface Reconstruction, <i>J Ko, Jongill Hong</i> , Yonsei University, Republic of Korea
6:00pm	Invited talk continues.		Invited talk continues.
6:20pm	<b>INVITED: BI-TuE-3</b> The Evolution of Biomedical Surface Analysis at NESAC/BIO, <i>David Castner</i> , University of Washington, USA		<b>NM-TuE-3</b> A Theoretical Outlook on the Exotic Properties of Spin Ice and Other Magnetic Pyrochlore Thin Films, <i>Michel Gingras</i> , University of Waterloo, Canada
6:40pm	<b>INVITED: BI-TuE-4</b> Future Directions and Challenges in Biomedical Surface Analysis, <i>Lara Gamble</i> , University of Washington		<b>INVITED: NM-TuE-4</b> Extending Compound Semiconductor Nanowire Functions by the Introduction of Additional Elements, <i>Fumitaro Ishikawa</i> , Ehime University, Japan
7:00pm	<b>BI-TuE-5</b> Characterizing Protein Fiber Structures and their Interactions in Biological Environments with Vibrational Sum-frequency Scattering Spectroscopy, <i>Patrik Johansson, D Castner</i> , University of Washington		Invited talk continues.
7:20pm	<b>BREAK</b>		<b>BREAK</b>
7:40pm	<b>BI-TuE-7</b> Albumin and Fibrinogen Adsorption on New Fluorinated Polyurethanes as an Indication of Blood-compatibility, <i>Le Zhen</i> , University of Washington, USA; <i>M Mecwan, S Zhang, F Simonovsky, B Ratner</i> , University of Washington		<b>INVITED: NM-TuE-7</b> Single-molecule Study on Nanocarbon Materials, <i>Shintaro Fujii</i> , Tokyo Institute of Technology, Japan
8:00pm	<b>BI-TuE-8</b> Disclosing the Aggregation Mechanism and Orientation of Self-assembled Cysteine-modified Oligopeptides through Low Energy Dual Beam Depth Profiling Experiments, <i>Luca Tortora, S De Rosa</i> , National Institute of Nuclear Physics Roma Tre, Italy; <i>M Dettin</i> , University of Padua, Italy; <i>V Secchi, C Battocchio, G Iucci</i> , Roma Tre University, Italy		Invited talk continues.
8:20pm	<b>BI-TuE-9</b> Multimolecular Omics in Single Frozen-hydrated Cells using High-resolution Gas Cluster Ion Beam Secondary Ion Mass Spectrometry Imaging (GCIB-SIMS), <i>Hua Tian, N Winograd</i> , Pennsylvania State University		<b>NM-TuE-9</b> Interfacial Defect Vibrations Enhance Thermal Transport in Amorphous Multilayers with Ultrahigh Thermal Boundary Conductance, <i>Ashutosh Giri, J Braun, J Gaskins</i> , University of Virginia; <i>S King</i> , Intel Corporation; <i>A Henry</i> , Massachusetts Institute of Technology; <i>W Lanford</i> , University at Albany; <i>P Hopkins</i> , University of Virginia
8:40pm	<b>BI-TuE-10</b> Pretty Gross: Surface Analysis Illustrating How Beauty Tools Aren't Only Biocompatible for the Human Face, <i>P Nguyen, V Mitchell, J Romero-Kotovsky, B Mattheson, L Ista, Heather Canavan</i> , University of New Mexico		<b>NM-TuE-10</b> Icephobic and Hydrophobic Behaviour of Laser Patterned Polyurethane Nanocomposite Coatings, <i>Bartlomiej Przybyszewski</i> , Warsaw University of Technology, Poland; <i>R Kozera</i> , Technology Partners Foundation, Poland; <i>A Boczkowska</i> , Warsaw University of Technology, Poland; <i>A Gonzalez-Elipe, A Borrás</i> , Instituto de Ciencia de Materiales de Sevilla, Spain

# Tuesday Afternoon, 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, Linkoping University	
5:40pm	<b>TF-TuE-1</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 Alibadbad, M Vasquez</i> , University of the Philippines, Philippines
6:00pm	
6:20pm	<b>TF-TuE-3</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-TuE-4</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-TuE-7</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-TuE-8</b> Diamond-like Carbon Thin Film Deposition using Low-energy Ion Beams, <i>A Cuevas, M Ramos, A Catapang, Magdaleno, Jr. Vasquez</i> , University of the Philippines, Philippines
8:20pm	<b>TF-TuE-9</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 Jang, H Kim</i> , Hanyang University, Seoul, Korea

# Special Events Wednesday

## Special Events Wednesday

10:00 AM Morning Break/Naupaka Lanai Lawn  
7:20 PM Evening Break/Naupaka Lanai Lawn

# 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, Denmark</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-WeM-1</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</i> , <i>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> , <b>Dusan Velic</b> , Comenius University, Bratislava, Slovakia	
8:20am		<b>EH-WeM-2</b> Novel Semi-Transparent Inorganic Sb <sub>2</sub> S <sub>3</sub> Thin Film Solar Cells, <b>Shi-Joon Sung</b> , <i>S Lee</i> , <i>K Yang</i> , <i>J Kang</i> , <i>D Kim</i> , DGIST, Republic of Korea	
8:40am	<b>INVITED: BI-WeM-3</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-WeM-3</b> In situ Scanning Tunneling Microscopy of the Electrocatalytic Reactions, <b>Dong Wang</b> , ICCAS, China	
9:00am	Invited talk continues.	<b>EH-WeM-4</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 Cha</i> , <i>W Yu</i> , <i>W Jeong</i> , <i>J So</i> , Seoul National University, Republic of Korea	
9:20am	<b>BI-WeM-5</b> Inhibiting Bacterial and Fungal Growth via Biomimetic Nanopillared Surface Structuring, <b>Rachel Rosenzweig</b> , <i>V Ly</i> , <i>K Perinbam</i> , <i>M Marshall</i> , <i>E Pearlman</i> , <i>A Siryaporn</i> , <i>A Yee</i> , University of California, Irvine	<b>EH-WeM-5</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</i> , <i>Y Ootani</i> , <i>N Ozawa</i> , Tohoku University, Japan; <i>M Kubo</i> , Institute for Materials Research, Tohoku University, Japan	
9:40am	<b>BI-WeM-6</b> Chemo-enzymatic Pathways for Sustainable Terpene-based Polymeric Materials, <b>Arne Stamm</b> , <i>L Fogelström</i> , <i>P Syren</i> , <i>E Malmström</i> , KTH Royal Institute of Technology, Sweden	<b>EH-WeM-6</b> Impurity Tolerance of Pt/ Metal-Oxide Anode Catalyst for Polymer Electrolyte Fuel Cell: First-Principles Calculation, <b>Nobuki Ozawa</b> , <i>K Kuranari</i> , <i>M Kubo</i> , Tohoku University, Japan	
10:00am	<b>BREAK</b>	<b>BREAK</b>	
10:20am	<b>INVITED: BI-WeM-8</b> Chemical Surface Modification of Carbon Nanostructures Towards Biological Applications, <b>Mildred Quintana</b> , Universidad Autónoma de San Luis Potosí, México	<b>INVITED: EH-WeM-8</b> Harvesting Sunlight for Photoelectric and Photothermal Conversions with Titanium Nitride Nanostructures, <b>Satoshi Ishii</b> , National Institute for Materials Science, Japan; <i>S Shinde</i> , <i>R Sugavaneshwar</i> , <i>M Kaur</i> , <i>T Nagao</i> , National Institute for Materials Science	
10:40am	Invited talk continues.	Invited talk continues.	
11:00am	<b>BI-WeM-10</b> Roles of Anodic Oxide Layer on the Improvement of Cellular Response of Titanium Implant, <b>Naofumi Ohtsu</b> , <i>T Kuji</i> , <i>M Hirano</i> , Kitami Institute of Technology, Japan	<b>INVITED: EH-WeM-10</b> Solar Printing: From Benchtop to Rooftop, <b>Paul Dastoor</b> , University of Newcastle, Australia	
11:20am	<b>BI-WeM-11</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 Debienne-Chouvy</i> , LISE - CNRS Sorbonne Université, France	Invited talk continues.	
11:40am	<b>BI-WeM-12</b> Effect of Salts on Friction of Zwitterionic Polymer Brush: Molecular Dynamics Simulation, <b>Shuichi Uehara</b> , <i>Z Liu</i> , <i>N Miyazaki</i> , <i>Y Ootani</i> , <i>N Ozawa</i> , <i>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-WeM-1</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 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-WeM-3</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 Murphy</b>, Future Industries Institute, University of South Australia, Australia</p>	
9:00am	<p><b>TF-WeM-4</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 Rosenberg</b>, U.S. Naval Research Laboratory; <b>V Anderson</b>, Sotera Defense Solutions; <b>J Woodward</b>, U.S. Naval Research Laboratory; <b>C Wagenbach</b>, Boston University; <b>A Kozen</b>, U.S. Naval Research Laboratory; <b>Z Robinson</b>, College at Brockport - SUNY; <b>L Nyakiti</b>, Texas A&amp;M University; <b>S Qadri</b>, U.S. Naval Research Laboratory; <b>M Mehl</b>, U.S. Naval Academy; <b>K Ludwig</b>, Boston University; <b>J Hite</b>, US Naval Research Laboratory</p>	
9:20am	<p><b>TF-WeM-5</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-WeM-6</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-WeM-8</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-WeM-10</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 Downey</b>, <b>V Wheeler</b>, Naval Research Laboratory</p>	
11:20am	<p><b>TF-WeM-11</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-WeM-12</b> The Effect of Interface Structure on MgO/Al/MgO Multilayer Photocathodes, <b>Jeff Terry</b>, <b>Z 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-WeP-1** Fabrication of Morpho Butterfly Structure using Standing Wave Effect, *Tomoki Nishino, H Tanigawa*, Ritsumeikan University, Japan; *A Sekiguchi*, Litho Tech Japan Corporation, Japan

**NM-WeP-2** Photovoltaic Performance of Organic Polymer Solar Cells using Silicon Nanoparticles with Various Phosphorus Contents, *Naoki Ikeda, K Sato*, Tokyo Denki University, Japan

**NM-WeP-3** Effect of Phosphorus-doping on Photovoltaic Performance of Si Nanoparticles/Polymer Hybrid Solar Cells, *Masataka Takase, K Sato*, Tokyo Denki University, Japan

**NM-WeP-4** 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-WeP-6** 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-WeP-7** Multispectral Optical Imaging Retrofitted to XPS and SIMS Instruments, *Peter Cumpson, I Fletcher, N Sano*, Newcastle University, UK

**NM-WeP-8** 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-WeP-9** Synthesis And Characterization Of Hydrogel With Ag Nanoparticles For 3-D Printable Prosthetics, *Karí Martínez Reyna, G García Valdívieso, H Navarro Contreras*, Universidad Autónoma de San Luis Potosí, México

**NM-WeP-10** Control of Fluorescence Color and Magnetic Intensity of Magnetofluorescent Microparticles, *Takafumi Yasuzawa, K Sato*, Tokyo Denki University, Japan

**NM-WeP-11** Nonideality in Atomic Layer Deposition and Its Implication in Efficient Electrolysis, *Changdeuck Bae, T Ho, H Shin*, Sungkyunkwan University, Korea, Republic of Korea

**NM-WeP-12** Stretchable Temperature Sensor Based on Elastomeric rGO/PU Nanocomposite Fiber, *Tran Quang Trung*, Sungkyunkwan University, Republic of Korea; *N Lee*, Sungkyunkwan University, Republic of Korea, Republic of Korea

**NM-WeP-13** Study on the Application of Raman Spectroscopy for Early Detection of Cervical Cancer, *Alondra Hernández Cedillo*, Universidad Autónoma de San Luis Potosí, Mexico

**NM-WeP-14** Au Nanoparticle Decorated rGO/MoS<sub>2</sub> Sandwich Catalyst for Photodegradation, *Jyh-Ming Ting*, National Cheng Kung University, Republic of China

**NM-WeP-15** Surface Modification of CFRP by CNT-Doped Buckypapers, *Bartłomiej Przybyszewski, K Dydek, P Latko-Duralek, A Boczkowska*, Warsaw University of Technology, Poland

**NM-WeP-16** Characterizing the Quality of Molten Al Alloys with Hydrogen, Porosity and Bifilm Content, *H Jang, P Youn, H Kang, G Lee, J Jeon, J Park, E Kim, Sunmi Shin*, Korea Institute of Industrial Technology, Korea

**NM-WeP-17** Molecular Confinement on Nanostructured Polymer Surfaces, *Sara Heedy, A Yee*, University of California, Irvine

**NM-WeP-18** Non-volatile Memory Based on Negative Capacitance and Photovoltaic Effect, *Kai-Wen Chen, S Chen, Y Tseng, S Chang*, National Chiao Tung University, Republic of China

**NM-WeP-19** Particle Embedded Slippery Surface for Icephobic Paint, *M Kim*, Korea Electronics Technology Institute, Republic of Korea; *B Lee, D Kim*, Kangnam Jevisco Co., LTD., Republic of Korea; *J Kim, B Yoon, Young-Seok Kim*, Korea Electronics Technology Institute, Republic of Korea

**NM-WeP-20** Effect of the Addition of Ti<sup>4+</sup> Ions on Magnetic and Dielectric Properties of BaFe<sub>2</sub>O<sub>7</sub> Ceramics Prepared by Coprecipitation Method, *Carlos A. Rodriguez Garcia, M Bravo-Sanchez, M 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, University of Illinois at Urbana-Champaign

**4:00pm**

**TF-WeP-2** 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 Yang*, Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan; *Y 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-WeP-3** 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-WeP-4** Continuous Dielectric Function of Monolayer MoSe<sub>2</sub> for Temperature Range from 31 to 300 K by Spectroscopic Ellipsometry, *Tae Jung Kim, H Park, V Le, H Nguyen, X Nguyen, Y Kim*, Kyung Hee University, Republic of Korea

**TF-WeP-5** 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-WeP-6** 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 Ho, C Hsueh*, National Taiwan University, Republic of China; *J Chen*, National Taiwan University of Science and Technology, Republic of China; *J Chu*, National Taiwan University of Science and Technology, Taiwan, Republic of China

**TF-WeP-7** 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 Yang, H Jeong*, Chonbuk National University, Republic of Korea

**TF-WeP-8** 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-WeP-10** 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-WeP-11** 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-WeP-12** 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 Chu, A Supriya, H Kim*, Hanyang University, Seoul, Korea

**TF-WeP-13** 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-WeP-14** 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-WeP-15** 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-WeP-16** Microstructure and Phase Transformation Behavior of High Carbon M4 Steel Layers Prepared by Direct Energy Deposition Process, *Jong Bae Jeon, T Nam, G Park, H Jo, W Lee*, Korea Institute of Industrial Technology, Korea

**TF-WeP-23** 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 Autónoma de México, México

# Wednesday Afternoon Poster Sessions, December 5, 2018

**TF-WeP-25** Investigation of CO<sub>2</sub> Sensing Efficiency and Mechanism Based on P-type MoS<sub>2</sub>, *Kuan-Sheng Li, C Yang*, National Chiao Tung University, Republic of China; *C Wang*, National Synchrotron Radiation Research Center; *Y Tseng, S Chang*, National Chiao Tung University, Republic of China

**TF-WeP-26** Ion-beam Irradiation Induced Surface Chemical and Physical Modification of Polyethylene Glycol Film for Liquid Crystal Alignment, *In Ho Song, J Lee, H Jeong, D Seo*, Yonsei University, Republic of Korea

**TF-WeP-27** Ultraviolet Nanoimprint Lithography for Homogeneous Liquid Crystal Alignment using Surface Wrinkling Driven by Ion-beam Irradiation, *Dong Wook Lee, J Lee, H Jeong, D Seo*, Yonsei University, Republic of Korea

**TF-WeP-28** 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-WeP-29** 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-WeP-30** Oxygen Reduction Reaction Mechanism for N-doped Graphene Nanoribbons, *Haruyuki Matsuyama, S Gomi, J Nakamura*, The University of Electro-Communications (UEC-Tokyo), Japan

**TF-WeP-31** 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 Park*, Korea Institute of Industrial Technology (KITECH), South Korea

**TF-WeP-32** Influence of Silicon Addition on the Mechanical and Tribological Properties of Zirconium Nitride Coatings Deposited by Hybrid Deposition System, *Sungbo Heo, W Kim, J Lee, J Kim, I Park*, Korea Institute of Industrial Technology (KITECH), South Korea

**TF-WeP-33** Coincident Raman and XPS Analysis of 2D-Materials, *Joseph Robinson, P Mack*, Thermo Fisher Scientific, UK

**TF-WeP-34** Two-Dimensional Doping Layer for Flexible Transparent Conducting Graphene Electrodes with Low Sheet Resistance and High Stability, *Y Seo, H Jang, W Jang, J Lim, Y Jang, T Gu, Dongmok Whang*, Sungkyunkwan University, Republic of Korea

**TF-WeP-35** Measurements of Reactive Species in Plasma-Activated Liquids Controlled by Atmospheric Pressure Plasma Operating Parameter, *Hea Min Joh, T Chung*, Dong-A University, Republic of Korea

**TF-WeP-36** 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 Afternoon, 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-WeE-1</b> Engineered Biointerfaces – Organisation and Functionalisation of Proteins at Surfaces, <i>Jenny Malmstrom</i> , University of Auckland, New Zealand	<b>INVITED: TF-WeE-1</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-WeE-3</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-WeE-3</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-WeE-4</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-WeE-5</b> Design Principles and Potential Applications of Cyclic Peptide Polymer-based Nanomaterials, <i>Kenan Fears</i> , US Naval Research Laboratory, USA	<b>TF-WeE-5</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-WeE-7</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-WeE-7</b> Altering Cu-Ni Alloy Composition to Control 2D h-BN Growth, <i>Boris Feigelson</i> , Naval Research Laboratory; <i>K Sridhara, J Hite, J Wollmershauser</i> , US Naval Research Laboratory
8:00pm	<b>BI-WeE-8</b> Thin Films, Coatings and Surface Solutions for Medical Devices, <i>Shahram Amini</i> , Johnson Matthey Inc.	<b>TF-WeE-8</b> Internal Photoemission Spectroscopy Measurements of Energy Barriers between Metallic Glass Thin Films and ALD Dielectrics, <i>M Jenkins, John Conley, Jr.</i> , Oregon State University
8:20pm	<b>BI-WeE-9</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-WeE-9</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 Ciobanu</i> , Colorado School of Mines; <i>S Kodambaka</i> , University of California, Los Angeles
8:40pm	<b>BI-WeE-10</b> Synthesis and Characterization of Reactively Sputtered Platinum Group Metal Oxides for Stimulating and Recording Applications, <i>G Taylor, N Page, A Marti, R Paladines</i> , Rowan University; <i>A Fones</i> , Johnson Matthey Inc., UK; <i>S 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-WeE-10</b> Very High Refractive Index Transition Metal Dichalcogenide Photonic Conformal Coatings by Conversion of ALD Metal Oxides, <i>Shaul Aloni, A Schwartzberg, C Chen, C Kastl</i> , Lawrence Berkeley National Laboratory

# Special Events Thursday

## Special Events Thursday

10:00 AM Morning Break/Naupaka Lanai Lawn  
11:40 AM Closing Remarks/Naupaka Salons 4

# 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-ThM-1</b> Plasma Surface Modification: Optimizing the Positives of Plasma-Materials Interactions, <i>Ellen Fisher</i> , Colorado State University
8:20am	<b>EH-ThM-2</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-ThM-3</b> Reactive Ion Beam Etching of Piezoelectric ScAlN and LiTaO <sub>3</sub> for RF Filter Applications, <i>Robinson James, Y Pilloux, H Hegde</i> , Plasma Therm		<b>PS-ThM-3</b> Super-reactive Haloester Surface Initiator for ARGET ATRP Readily Prepared by RF Glow Discharge Plasma, <i>Marvin Mecwan, B Ratner</i> , University of Washington
9:00am	<b>EH-ThM-4</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-ThM-5</b> Direct Electrodeposition of High-Performance Li-ion Battery Electrodes, <i>Paul Braun</i> , University of Illinois at Urbana-Champaign, USA		<b>INVITED: PS-ThM-5</b> Practical Applications of Plasmas in Microelectronics, <i>David Ruzic, 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-ThM-8</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-ThM-10</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-ThM-11</b> Thermo-Corrosive and Mechanical Properties of ZrO <sub>2</sub> based Thermal Barrier Coatings, <i>Byung-Koog Jang</i> , Kyushu University; <i>H 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-ThM-1</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-ThM-3</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</i> , <i>M Chung</i> , National Chiao Tung University, Republic of China; <i>Y Liu</i> , <i>H Lee</i> , National Synchrotron Radiation Research Center; <i>Y Tseng</i> , National Chiao Tung University, Republic of China
9:00am	<b>TF-ThM-4</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-ThM-6</b> Charge Induced Disorder Controls the Thermal Conductivity of Entropy Stabilized Oxides, <i>Jeffrey Braun</i> , <i>C Rost</i> , University of Virginia; <i>M Lim</i> , North Carolina State University; <i>A Giri</i> , <i>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 Maria</i> , Pennsylvania State University; <i>P Hopkins</i> , University of Virginia
10:00am	<b>BREAK</b>
10:20am	<b>TF-ThM-8</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</i> , <i>T Bai</i> , University of California, Los Angeles; <i>E Sachet</i> , <i>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 Maria</i> , Pennsylvania State University; <i>P Hopkins</i> , University of Virginia
10:40am	<b>TF-ThM-9</b> Studies on Hot-wall Deposited Cadmium Sulphide (CdS) Thin Films for Buffer Layers in Thin Film Solar Cell, <i>Balaji Gururajan</i> , <i>B Rangasamy</i> , <i>P Sankaran</i> , <i>P Nagarajan</i> , <i>S Kaliappan</i> , <i>K 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-ThM-10</b> Intrinsic Photoluminescent Properties of Crystalline and Amorphous Cd <sub>2</sub> V <sub>2</sub> O <sub>7</sub> , <i>Erika Cervantes Juárez</i> , <i>R Lozada Morales</i> , <i>A Meza Rocha</i> , <i>R Licona Ibarra</i> , BUAP, Mexico
11:20am	<b>TF-ThM-11</b> The Effect of Tin Impurities on CdTe Thin Films Solar Cell, <i>J Ríos-González</i> , CINVESTAV-Unidad Mérida, Mexico; <i>R Mis-Fernández</i> , <i>I Rimmaudo</i> , <i>E Camacho-Espinosa</i> , <i>Juan Luis Peña</i> , CINVESTAV-Unidad Mérida, Mexico, México

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