Program Key

Conference Topics

BI Biomaterial Surfaces & Interfaces
EH Energy Harvesting & Storage
NM Nanomaterials
PL Plenary Session
PS Plasma Processing
TF 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

	Nanomaterials **Room Naupaka Salon 5 - Session NM-MoM** **Nanocharacterization** **Moderator:** Roya Maboudian, University of California at Berkeley	**Biomaterial Surfaces & Interfaces** **Room Naupaka Salon 6-7 - Session BI-MoM** **35 Years of NESAC/BIO I** **Moderator:** David Castner, University of Washington
8:00am	**NM-MoM-1** Identification of Point Defects in Transition Metal Dichalcogenides by Combining Atomic Resolution Force Microscopy, STM/STS and Density Functional Theory: Missing Vacancies in $MoSe_2$ and WS_2, ***Frank Ogletree,*** Lawrence Berkeley National Laboratory; *S Barja,* UPV/EHU-CISC Ikerbasque, Spain; *S Refaely-Abramson,* University of California Berkeley; *B Schuler,* Lawrence Berkeley National Laboratory; *D Qiu,* University of California Berkeley; *S Wickenberg,* Lawrence Berkeley Laboratory; *J Neaton, A Weber-Bargioni,* Lawrence Berkeley National Laboratory	**INVITED: BI-MoM-1** Adventures in Biointerface Engineering Inspired by NESACBio – Combining and Integrating Techniques to Gain Insight into Biointerfaces (and Most Instruments Wins!), ***Sally L. McArthur,*** Swinburne Institute of Technology, Australia
8:20am	**NM-MoM-2** CO-tip AFM Identification and STM-induced Luminescence of Point Defects in Monolayer WS_2, ***Bruno Schuler,*** Lawrence Berkeley National Laboratory; *D Qiu,* University of California Berkeley; *S Rafaely-Abramson, C Kastl, K Cochrane,* Lawrence Berkeley National Laboratory; *S Barja,* Lawrence Berkeley Lab, USA, Spain; *C Chen, N Borys, R Koch, F Ogletree, S Aloni, A Schwartzberg,* Lawrence Berkeley National Laboratory; *S Louie,* University of California Berkeley; *J Neaton, A Weber-Bargioni,* Lawrence Berkeley National Laboratory	Invited talk continues.
8:40am	**NM-MoM-3** Intermolecular and Molecule-Substrate Interactions in Surface-Supported Nanostructures Characterized by Ultrahigh Vacuum Tip-Enhanced Raman Spectroscopy, *J Schultz, P Whiteman, S Mahapatra,* ***Nan Jiang,*** University of Illinois at Chicago	**BI-MoM-3** ToF-SIMS Label Free Chemical Imaging of Surface Modifications in Materials with Extreme Topography, ***Michael Taylor,*** *D Graham, L Gamble,* University of Washington
9:00am	**NM-MoM-4** Quantifying the Thermodynamics of Ligand Binding to $CsPbBr_3$ Quantum Dots via Solution ^1H NMR Characterization, ***Sara Smock,*** *R Brutchey,* University of Southern California	**BI-MoM-4** NESAC/BIO IMPACT: Innovative Multivariate Programs Applied Carefully to ToF-SIMS, ***Daniel Graham,*** *L Gamble, D Castner,* University of Washington
9:20am	**INVITED: NM-MoM-5** Nanomaterials for Creating Sensitive and Selective Biosensing Interfaces, ***Leyla Soleymani,*** McMaster University, Canada	**BI-MoM-5** Challenges to Nanoparticle Preparation and Analysis: An Unexpected Phase Transformation of Ceria Nanoparticles, ***Donald Baer,*** Pacific Northwest National Laboratory; *S Kuchibhatla,* Parisodhana Technologies Pvt. Ltd.; *A Karakoti,* Ahmedabad University; *S Seal,* University of Central Florida
9:40am	Invited talk continues.	**BI-MoM-6** A Calibration Procedure for a Traceable Contamination Analysis on Medical Devices by Combined X-ray Spectrometry and Ambient Spectroscopic Techniques, ***Beatrix Pollakowski-Herrmann,*** *A Hornemann,* Physikalisch-Technische Bundesanstalt, Germany; *A Giovannozzi,* INRIM; *F Green,* National Physical Laboratory; *P Gunning,* Smith & Nephew; *C Portesi, A Rossi,* INRIM; *C Seim,* Physikalisch-Technische Bundesanstalt; *R Steven,* National Physical Laboratory; *B Tyler,* Westfälische Wilhelms-Universität Münster; *B Beckhoff,* Physikalisch-Technische Bundesanstalt
10:00am	**BREAK**	**BREAK**
10:20am	**NM-MoM-8** Effects of Defects on Band Structure and Excitons in WS2 Revealed by Nanoscale Photoemission Spectroscopy, ***Adam Schwartzberg,*** *C Kastl, S Aloni, A Weber-Bargioni, C Chen,* Lawrence Berkeley National Laboratory	**INVITED: BI-MoM-8** Protein Catalysis of Minerals and Ice – A Molecular View, ***Tobias Weidner,*** University of Arrhus, Denmark
10:40am	**NM-MoM-9** 4D Nanocharacterization by Spectro-ptychography Tomography of Alumina Aerogels Coated with Zinc Oxide by Atomic Layer Deposition, ***Adam Hitchcock,*** *J Wu, X Zhu,* McMaster University, Canada; *D Shapiro,* Lawrence Berkeley National Laboratory; *J Lee, M Biener, S Gammon, T Li, T Baumann,* Lawrence Livermore National Laboratory	Invited talk continues.
11:00am		**BI-MoM-10** Multi-Functional Polyampholyte Hydrogels with Covalently Attached SIBLING Proteins for Bone Tissue Engineering, ***Matthew Bernards,*** *S Haag, E Mariner,* University of Idaho

	Room Naupaka Salons 4	
8:00am	**TF-MoM-1** Characteristics of ZrO_2 Films Atomic-Layer-Deposited Using Cp-$Zr(NMe_2)_3$: Effects of Oxidant and Deposition Temperature, ***Wan Oh***, *W Lee, S Choi, Y An, C Lee, S Wi, H Kim,* Sungkyunkwan University, Republic of Korea	**Thin Films** **Session TF-MoM** **Nanostructured Surfaces and Thin Films: Synthesis and Characterization I** **Moderator:** Toshiyuki Taniuchi, The University of Tokyo
8:20am	**TF-MoM-2** Enantioselective Catalyst on Oxide Support: Study of the Chemical Nature of Tartaric Acid on Rutile TiO_2(110) by XPS and HREELS, ***Gregory Cabailh***, *E Meriggio,* Sorbonne Université, France*; R Lazzari,* CNRS, France*; C Méthivier,* Sorbonne Universitévier, France*; V Humblot, X Carrier,* Sorbonne Université, France	
8:40am	**TF-MoM-3** The Study on Flash Light Sintering Characteristics of Printed Copper Pattern Electrodes with Respect to their Width and Interval, ***Yong-Rae Jang***, *H Kim, C Ryu, Y Hwang,* Hanyang University, Seoul, Korea	
9:00am	**TF-MoM-4** High Throughput XPS Surface Analysis of Novel Materials Generated by a Combinatorial Approach, *J Counsell, S Coultas,* Kratos Analytical Ltd., UK*;* ***David Surman***, *C Moffitt,* Kratos Analytical Inc.	
9:20am	**INVITED: TF-MoM-5** Semiconductor Nanowire Y-Junction Arrays Grown by MBE, ***Esteban Cruz-Hernandez***, CIACYT, Universidad Autonoma de San Luis Potosi, Mexico	
9:40am	Invited talk continues.	
10:00am	**BREAK**	
10:20am	**TF-MoM-8** Controllable Bandgap Design in (2+1) D Colloidal Photonic Crystals, ***Lijing Zhang***, Dalian University of Technology, China	
10:40am	**INVITED: TF-MoM-9** Effects of Interface on Proton Ordering in Heteroepitaxially Grown Ice Films, ***Toshiki Sugimoto***, Institute for Molecular Science, Japan	
11:00am	Invited talk continues.	
11:20am	**INVITED: PL-MoM-11** A Review of Defects in 2D Metal Dichalcogenides: Doping, Alloys, Interfaces, Vacancies and Their Effects in Catalysis & Optical Emission, ***Mauricio Terrones***, Pennsylvania State University	**Plenary Session** **Session PL-MoM** **Plenary Session I** **Moderator:** Alberto Herrera Gomez, CINVESTAV-Unidad Queretaro, Mexico
11:40am	Invited talk continues.	

Monday Afternoon, December 3, 2018

	Energy Harvesting & Storage **Room Naupaka Salon 6-7 - Session EH-MoE** **Process** **Moderator:** Paul Dastoor, University of Newcastle, Australia	**Nanomaterials** **Room Naupaka Salon 5 - Session NM-MoE** **NanoCatalysis** **Moderator:** Fumitaro Ishikawa, Ehime University
5:40pm	**INVITED: EH-MoE-1** Surface Engineered Smart Optical Nanostructures for Energy Saving and Thermal Control, ***Ludvik Martinu,*** Montreal Ecole Polytechnique, Canada	**INVITED: NM-MoE-1** Strong Interactions Between the Admetal and Molybdenum Carbide Substrates for Catalyzing H2 Related Reactions, ***Chuan Shi,*** Dalian University of Technology, China
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	**EH-MoE-3** Carbon Capture by Metal Oxides: Unleashing the Potential of the (111) Facet, ***Ryan Richards,*** Colorado School of Mines, USA; *S Shulda,* National Renewable Energy Laboratory, USA; *G Mutch,* Newcastle University; *J Anderson, D Vega-Maza,* University of Aberdeen	**NM-MoE-3** Nanostructured MoO_3/Al_2O_3 Powders and Films for Chemical-Looping Oxidative Dehydrogenation of Ethane, ***H. Henry Lamb,*** *P Novotný, S Yusuf, F Li,* North Carolina State University
6:40pm	**EH-MoE-4** Graphene Oxide-cellulose Nanocrystal Sponge as a Tunable Platform for Contaminant and Pathogen Removal from Water, ***Nathalie Tufenkji,*** *N Yousefi, R Allgayer, A Filina,* McGill University, Canada	**NM-MoE-4** Fabrication of Visible Light Active Nanostructured TiO_2/Cu_2O Heterojunction Thin Films, ***Anna Patricia Cristobal,*** *M Ramos, A Montallana,* University of the Philippines, Philippines; *L Zhang, J Chu,* National Taiwan University of Science and Technology, Taiwan, Republic of China; *M Vasquez,* University of the Philippines, Philippines
7:00pm	**EH-MoE-5** Surface Science Approach For Alumina Supported Hydrodesulphurisation Catalysts, ***Anne-Félicie Lamic-Humblot,*** Sorbonne Université, France; *C Bara,* Solvay; *R Garcia de Castro,* Sorbonne Université, France; *E Devers, G Pirngruber, M Digne,* IFPEN; *X Carrier,* Sorbonne Université, France	**NM-MoE-5** Enhanced Photocatalytic Activity of Plasma-modified Electrospun PVA/TiO_2 Nanocomposites, ***Arantxa Danielle Montallana,*** *A Cristobal,* University of the Philippines, Philippines; *B Lai, J Chu,* National Taiwan University of Science and Technology, Taiwan, Republic of China; *M Vasquez,* University of the Philippines, Philippines
7:20pm	**BREAK**	**BREAK**
7:40pm	**EH-MoE-7** Direct 3D Printing of Reactive Agitating Impellers for the Convenient Treatment of Various Pollutants in Water, ***Xueyan Sun,*** Dalian University of Technology, China	**NM-MoE-7** Large Scale Production of Nanoparticle Catalysts for Biomass Conversion Processes, *E Roberts, L Wang,* University of Southern California; *F Baddour, D Ruddy, S Habas,* National Renewable Energy Laboratory, USA; *N Malmstadt,* ***Richard Brutchey,*** University of Southern California
8:00pm	**EH-MoE-8** BN Films for Hydrogen Permeation Barrier, ***Motonori Tamura,*** The University of Electro-Communications (UEC-Tokyo), Tokyo, Japan	**NM-MoE-8** Influence of a Tailored Nanoparticle Composite Cathode on Electrochemical Properties of Anode-Supported Solid Oxide Fuel Cells, ***Jong-Eun Hong,*** *H Ishfaq, T Lim,* Korea Institute of Energy Research (KIER), South Korea; *S Lee,* Korea Institute of Energy Research (KIER),South Korea, South Korea; *K Lee,* DGIST, South Korea; *R Song,* Korea Institute of Energy Research (KIER), South Korea

Thin Films
Room Naupaka Salons 4 - Session TF-MoE
Nanostructured Surfaces and Thin Films: Synthesis and Characterization II

5:40pm	**TF-MoE-1** Synthesis and Characterization of Novel Nitride Semiconductor Thin Films, *S Bauers, A Holder, S Lany,* ***Andriy Zakutayev***, National Renewable Energy Laboratory	
6:00pm	**TF-MoE-2** Rheology Behavior and Flash Light Sintering Characteristics of Cu/Ag hybrid-ink for Multi-layered Flexible Printed Circuit Board (FPCB) Application in Printed Electronics, ***Ji-Hyeon Chu***, *S Joo, H Kim,* Hanyang University, Seoul, Korea	
6:20pm	**TF-MoE-3** Synthesis and Characterization of Pt-Ag Alloyed Thin Films Deposited using Inverted Cylindrical Magnetron Sputtering with a Configurable Target Assembly, ***Saxon Tint***, Johnson Matthey Inc.*; G Taylor,* Rowan University*; E Burkholder,* Johnson Matthey Inc.*; J Hettinger,* Rowan University*; S Amini,* Johnson Matthey Inc.	
6:40pm	**INVITED: TF-MoE-4** Surface and Interface Imaging by Ultrahigh Resolution Laser-based Photoemission Electron Microscopy, ***Toshiyuki Taniuchi***, The University of Tokyo, Japan*; S Shin,* The University of Tokyo, AIST-UTokyo OPERANDO-OIL, Japan	
7:00pm	Invited talk continues.	
7:20pm	**BREAK**	
7:40pm	**TF-MoE-7** 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, ***Chang-Jin Moon***, *H Kim,* Hanyang University, Seoul, Korea	
8:00pm	**TF-MoE-8** Carbon-nanotube Dispersed Ga_2O_3Films for UV Transparent Electrodes Fabricated by Molecular Precursor Method, ***Tohru Honda***, *Y Takahashi, R Yoshida, C Mochizuki, H Nagai, T Onuma, T Yamaguchi, M Sato,* 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

	Biomaterial Surfaces & Interfaces **Room Naupaka Salon 6-7 - Session BI-TuM** **Bioimaging and Bionanotechnology** **Moderator:** Lara Gamble, University of Washington	**Nanomaterials** **Room Naupaka Salon 5 - Session NM-TuM** **Nanofabrication and Nanodevices** **Moderator:** Adam Hitchcock, McMaster University
8:00am	**INVITED: BI-TuM-1** Exosomes and Extracellular Vesicles: Small Particles with a Big Impact, ***Renee Goreham,*** Victoria University of Wellington, New Zealand	**NM-TuM-1** High-throughput, Continuous Flow Synthesis of Colloidal Nanoparticles as a Safe and Sustainable Nanofabrication Method, ***Emily Roberts,*** *R Brutchey,* University of Southern California
8:20am	Invited talk continues.	**NM-TuM-2** Nanoporous Oxide Memristive System & Artificial Synapses for Next Generation Electronic Device Application, ***Gunuk Wang,*** Korea University, Republic of Korea
8:40am	**BI-TuM-3** Protein Corona Shield Particles of Drug-loaded Nanocarriers Enhances in vivo Therapeutic Efficacy, ***Ja-Hyoung Ryu,*** Ulsan National Institute of Science and TechnologySchool of Natural Science, Republic of Korea	**NM-TuM-3** Synaptic Plasticity and Learning Behaviors Mimicked in Electromigrated Au Nanogaps, ***Keita Sakai,*** *K Minami, S Tani, 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
9:00am	**BI-TuM-4** The Role of Lipid Surfaces in Molecular Mechanism of Alzheimer's Disease, *E Drolle, M Robinson, B Lee, C Filice, S Turnbull, N Mei,* ***Zoya Leonenko,*** University of Waterloo, Canada	**NM-TuM-4** Preparation and Corrosion Properties of Bulk Nanocrystalline Two-phase Ag-25Cu Alloys, ***Zhongqiu Cao,*** *X Yin, Q Tian, Y Wang, K Zhang, J Lu,* Shenyang Normal University, China
9:20am	**BI-TuM-5** An PEEM and Imaging XPS study of Neutrophil Extracellular Traps Caputuring Nanoparticles, *A Skallberg, K Bunnfors, C Brommesson,* ***Kajsa Uvdal,*** Linköping University, Sweden	**INVITED: NM-TuM-5** Nanomaterials-enabled Advances in Microfabricated Sensors for Environmental and Health Monitoring, ***Roya Maboudian,*** University of California at Berkeley
9:40am	**BI-TuM-6** Chemical Imaging of Aggressive Basal Cell Carcinoma using ToF-SIMS, *M Munem, K Dimovska Nilsson,* University of Gothenburg, Göteborg, Sweden*; O Zaar, N Neittaanmäki, J Paoli,* Sahlgrenska University Hospital, Gothenburg*;* ***John Fletcher,*** University of Gothenburg, Göteborg, Sweden	Invited talk continues.
10:00am	**BREAK**	**BREAK**
10:20am	**BI-TuM-8** Combining the Benefits of GCIB-ToF-SIMS, MALDI-FTICR-MS and LC-MS/MS for Location specific Lipid Identification in Planarian Flatworm Tissue Sections, ***Tina Angerer,*** University of Washington, USA*; D Velickovic, J Kyle, C Nicora, C Anderton,* Pacific Northwest National Laboratory, USA*; D Graham, L Gamble,* University of Washington, USA	**NM-TuM-8** Nature-Inspired Approaches to Nanotechnologies, ***Jong-Souk Yeo,*** Yonsei University, Republic of Korea
10:40am	**BI-TuM-9** Hybrid SIMS: A New SIMS Instrument for High Resolution Organic Imaging with Highest Mass-resolving Power and MS/MS, ***Nathan Havercroft,*** ION-TOF USA, Inc.*; A Pirkl,* IONTOF GmbH, Germany*; D Scurr, N Starr,* University of Nottingham*; R Moellers, H Arlinghaus, E Niehuis,* IONTOF GmbH, Germany	**NM-TuM-9** A Reproducible Assay for Versatile Biosensing by Surface-enhanced Raman Scattering, *M Al Mamun, N Cole, S Juodkazis,* ***Paul Stoddart,*** Swinburne University of Technology, Australia
11:00am	**BI-TuM-10** Latest Developments in Cluster Beam Technology for ToF SIMS: Towards Greater Spatial Resolution, Improved Ion Yields, and Faster Etch Rates!, ***Paul Blenkinsopp,*** Ionoptika Ltd, UK	
11:20am	**BI-TuM-11** SIMS with Higher Resolution and Higher Signal: 40keV Water Cluster Primary Ion Beam and Prospective Orbital Ion Trapping, *J Hood,* ***Peter Cumpson,*** *I Fletcher,* Newcastle University, UK*; S Sheraz,* Ionoptika Ltd, UK	**NM-TuM-11** Molecular Dynamics Investigation for Chemical Effects of Nanobubble Collapse on Precision Polishing, ***Yoshimasa Aoyama,*** *N Miyazaki, Y Ootani, N Ozawa, M Kubo,* Tohoku University, Japan
11:40am	**BI-TuM-12** In-Situ TEM Studies of Biomineralization, ***Tolou Shokuhfar,*** *R Shahbazian-Yassar,* University of Illinois at Chicago	**NM-TuM-12** Determination of Anisotropic Diffusion Ratio on Si(110)-16×2, ***Masahiro Yano,*** *T Terasawa, S Yasuda, S Machida, H Asaoka,* Japan Atomic Energy Agency, Japan

Thin Films
Room Naupaka Salons 4 - Session TF-TuM
Innovations in the Development of Multifunctional Thin Films
Moderator: Jolanta Klemberg-Sapieha, Polytechnique Montréal

8:00am	**TF-TuM-1** Anion Interactions with Vapour Deposited Conducting Polymers, ***Drew Evans,*** University of South Australia, Australia	
8:20am	**TF-TuM-2** Decorative Electro-magnetic Transparent Metal-semiconductor Thin-films for Consumer Electronics, ***Bastian Stoehr,*** *E Charrault, D Evans,* University of South Australia, Australia*; F Lacroix,* ENSCBP - Bordeaux INP, France*; J Parks,* University of Bath, United Kingdom*; P Murphy, C Hall,* University of South Australia, Australia	
8:40am	**TF-TuM-3** Applications of Polarized Neutron Scattering for Development of Novel Functional Heterostructures, ***Valeria Lauter,*** Oak Ridge National Laboratory, USA	
9:00am	**TF-TuM-4** Oxygen-Free Palladium/Titanium Coating, a Novel Non-Evaporable Getter Coating with an Activation Temperature of 133 °C*, T Miyazawa,* SOKENDAI, Japan*; M Kurihara, S Ohno,* Yokohama National University, Japan*; N Terashima, Y Natsui, H Kato,* Hirosaki University, Japan*; Y Kato,* Irie Koken Co., Ltd., Japan*; A Hashimoto,* National Institute for Materials Science, Japan*; T Kikuchi,* ***Kazuhiko Mase,*** KEK, Japan	
9:20am	**TF-TuM-5** Droplet assisted Growth and Shaping (DAGS): A Broadly Applicable Method for Chemical *in situ* Shaping of Complex Polymeric Nano and Microstructures, ***Stefan Seeger,*** *G Artus, N Saddiqi,* University of Zurich, Switzerland	
9:40am	**TF-TuM-6** Low Temperature Nitridation of Hafnia with Low Density of N-O Bonds*, J Torres-Ochoa, O Cortazar-Martinez, M Mayorga-Garay, A De Luna Bugallo, Y Chipatecua-Godoy, O Ceballos-Sanchez, D Silva-Cabrales, F Corona-Davila, J Raboño-Borbolla,* CINVESTAV-Unidad Queretaro, Mexico*;* ***Alberto Herrera-Gomez,*** CINVESTAV-Unidad Queretaro, Mexico, México	
10:00am	**BREAK**	
10:20am	**INVITED: TF-TuM-8** Fundamental Properties of Transition-metal Nitrides: Materials Design Strategies for Extreme Properties, ***Joe Greene,*** Linköping University, Sweden, University of Illinois at Urbana-Champaign	
10:40am	Invited talk continues.	
11:00am	**TF-TuM-10** Surface Reactions of Metal and Metal Oxides on Hybrid Perovskite Materials for Optoelectronics Applications*, J Cazares-Montañez, M Martínez-Puente, R Garza-Hernández, E Martínez-Guerra,* CIMAV-Monterrey, Mexico*; M Quevedo-Lopez,* University of Texas at Dallas*;* ***Francisco Aguirre-Tostado,*** CIMAV-Monterrey, Mexico	
11:20am	**INVITED: TF-TuM-11** Thin-Film Alchemy: Engineering Oxide Films to Unleash their Hidden Properties, ***Darrell G. Schlom,*** 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_n^+ 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 Institue, 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 Abrikossova, 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, ***Jae 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 δ-Bi_2O_3 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_{60}/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_2-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 $LaCoO_3$ 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, 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, Republic of Korea; *D Song,* Korea University, Republic of Korea; *S Haam,* Yonsei University, Republic of Korea, Republic of Korea

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 TiO2/CuOx Thin Film Composites by the Simultaneous Ablation of Ti and Cu Metallic Targets, ***A. Valeria García-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_2 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_2,* ***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 $NiFe_2$ 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,* tate 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_3 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

	Biomaterial Surfaces & Interfaces **Room Naupaka Salon 6-7 - Session BI-TuE** **35 Years of NESAC/BIO II** **Moderator:** Sally L. McArthur, Swinburne University of Technology, Australia	**Nanomaterials** **Room Naupaka Salon 5 - Session NM-TuE** **Magnetic Properties and Nanocomposites** **Moderator:** H. Henry Lamb, North Carolina State University
5:40pm	**INVITED: BI-TuE-1** History of Biomaterials and the Founding of NESAC/BIO, ***Buddy D. Ratner,*** University of Washington	**INVITED: NM-TuE-1** Voltage-Assisted Magnetic Switching in MgO/CoFeB-Based Magnetic Tunnel Junctions by Way of Interface Reconstruction, *J Ko,* ***Jongill Hong,*** Yonsei University, Republic of Korea
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	**INVITED: BI-TuE-3** The Evolution of Biomedical Surface Analysis at NESAC/BIO, ***David Castner,*** University of Washington, USA	**NM-TuE-3** A Theoretical Outlook on the Exotic Properties of Spin Ice and Other Magnetic Pyrochlore Thin Films, ***Michel Gingras,*** University of Waterloo, Canada
6:40pm	**INVITED: BI-TuE-4** Future Directions and Challenges in Biomedical Surface Analysis, ***Lara Gamble,*** University of Washington	**INVITED: NM-TuE-4** Extending Compound Semiconductor Nanowire Functions by the Introduction of Additional Elements, ***Fumitaro Ishikawa,*** Ehime University, Japan
7:00pm	**BI-TuE-5** Characterizing Protein Fiber Structures and their Interactions in Biological Environments with Vibrational Sum-frequency Scattering Spectroscopy, ***Patrik Johansson,*** *D Castner,* University of Washington	Invited talk continues.
7:20pm	**BREAK**	**BREAK**
7:40pm	**BI-TuE-7** Albumin and Fibrinogen Adsorption on New Fluorinated Polyurethanes as an Indication of Blood-compatibility, ***Le Zhen,*** University of Washington, USA*; M Mecwan, S Zhang, F Simonovsky, B Ratner,* University of Washington	**INVITED: NM-TuE-7** Single-molecule Study on Nanocarbon Materials, ***Shintaro Fujii,*** Tokyo Institute of Technology, Japan
8:00pm	**BI-TuE-8** Disclosing the Aggregation Mechanism and Orientation of Self-assembled Cysteine-modified Oligopeptides through Low Energy Dual Beam Depth Profiling Experiments, ***Luca Tortora,*** *S De Rosa,* National Institute of Nuclear Physics Roma Tre, Italy*; M Dettin,* University of Padua, Italy*; V Secchi, C Battocchio, G Iucci,* Roma Tre University, Italy	Invited talk continues.
8:20pm	**BI-TuE-9** Multimolecular Omics in Single Frozen-hydrated Cells using High-resolution Gas Cluster Ion Beam Secondary Ion Mass Spectrometry Imaging (GCIB-SIMS), ***Hua Tian,*** *N Winograd,* Pennsylvania State University	**NM-TuE-9** Interfacial Defect Vibrations Enhance Thermal Transport in Amorphous Multilayers with Ultrahigh Thermal Boundary Conductance, ***Ashutosh Giri,*** *J Braun, J Gaskins,* University of Virginia*; S King,* Intel Corporation*; A Henry,* Massachusetts Institute of Technology*; W Lanford,* University at Albany*; P Hopkins,* University of Virginia
8:40pm	**BI-TuE-10** Pretty Gross: Surface Analysis Illustrating How Beauty Tools Aren't Only Biocompatible for the Human Face, *P Nguyen, V Mitchell, J Romero-Kotovsky, B Mattheson, L Ista,* ***Heather Canavan,*** University of New Mexico	**NM-TuE-10** Icephobic and Hydrophobic Behaviour of Laser Patterned Polyurethane Nanocomposite Coatings, ***Bartlomiej Przybyszewski,*** Warsaw University of Technology, Poland*; R Kozera,* Technology Partners Foundation, Poland*; A Boczkowska,* Warsaw University of Technology, Poland*; A Gonzalez-Elipe, A Borras,* Instituto de Ciencia de Materiales de Sevilla, Spain

Thin Films
Room Naupaka Salons 4 - Session TF-TuE
Next-generation Protective Coatings and Tribological Applications
Moderator: Lars Hultman, Linkoping University

5:40pm	**TF-TuE-1** Effects of Ar:N_2 gas ratio on TiN and TiAlN Thin Films Synthesized via RF Magnetron Sputtering, ***Jason Audrey Licerio***, *A Alibadbad, M Vasquez,* University of the Philippines, Philippines	
6:00pm		
6:20pm	**TF-TuE-3** Formation Mechanism of Tribofilm of Silicon Carbide under Water Lubrication: Molecular Dynamics Simulation, ***Fumiya Nakamura***, *Y Wang, N Miyazaki, Y Ootani, N Ozawa, K Adachi, M Kubo,* Tohoku University, Japan	
6:40pm	**INVITED: TF-TuE-4** Recent Advances in Surface Engineering, ***Ivan Petrov***, Linköping University, Sweden, Frederick Seitz Materials Research Laboratory, University of Illinois	
7:00pm	Invited talk continues.	
7:20pm	**BREAK**	
7:40pm	**TF-TuE-7** Influence of Defect Structures in MoS_2 Tribo-film Generated from MoDTC at DLC/DLC Interface on Friction Behavior: A Molecular Dynamics Simulation, ***Masahiro Saito***, *N Miyazaki, Y Ootani, N Ozawa, M Kubo,* Tohoku University, Japan	
8:00pm	**TF-TuE-8** Diamond-like Carbon Thin Film Deposition using Low-energy Ion Beams, *A Cuevas, M Ramos, A Catapang,* ***Magdaleno, Jr. Vasquez***, University of the Philippines, Philippines	
8:20pm	**TF-TuE-9** A Study on Copper/Silver Core-shell Microparticles with Silver Nanoparticles Hybrid Ink and its Sintering Characteristics with Flash Light for High Oxidation Resistance, ***Jong-Whi Park***, *Y Jang, H Kim,* 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

	Biomaterial Surfaces & Interfaces **Room Naupaka Salon 6-7 - Session BI-WeM** **Soft Surfaces and Biofunctional Coatings** **Moderator:** Tobias Weidner, Aarhus University, Denmark	**Energy Harvesting & Storage** **Room Naupaka Salon 5 - Session EH-WeM** **Efficient Power Conversion/Cells** **Moderator:** Paul Braun, University of Illinois at Urbana-Champaign, USA
8:00am		**EH-WeM-1** Linear and Multi-photon Fluorescence of Thiophene based Copolymer as Novel Potential Material for Photovoltaics, *L Slusna,* Comenius University, Bratislava, Slovakia*; L Haizer,* International Laser Center, Bratislava, Slovakia*; E Jane,* Institute of Chemistry, Slovak Academy of Sciences, Bratislava, Slovakia*; D Bondarev,* Polymer Institute, Slovak Academy of Sciences, Bratislava, Slovakia*; V Szocs, M Drzik,* International Laser Center, Bratislava, Slovakia*; E Noskovicova,* Comenius University, Bratislava, Slovakia*; D Lorenc,* International Laser Center, Bratislava, Slovakia*; M Jerigova,* ***Dusan Velic****,* Comenius University, Bratislava, Slovakia
8:20am		**EH-WeM-2** Novel Semi-Transparent Inorganic Sb_2S_3 Thin Film Solar Cells*,* ***Shi-Joon Sung****, S Lee, K Yang, J Kang, D Kim,* DGIST, Republic of Korea
8:40am	**INVITED: BI-WeM-3** Surface Micropatterning Techniques for Reconstituting Functional Neuronal Networks in Culture*,* ***Hideaki Yamamoto****, A Hirano-Iwata,* Tohoku University, Japan	**EH-WeM-3** In situ Scanning Tunneling Microscopy of the Electrocatalytic Reactions*,* ***Dong Wang****,* ICCAS, China
9:00am	Invited talk continues.	**EH-WeM-4** Fabrication of Free-standing Thin Film by Injecting Polymer into Porous Substrate for Thin Film Solid Oxide Fuel Cells*,* ***Yusung Kim****, S Cha, W Yu, W Jeong, J So,* Seoul National Univeristy, Republic of Korea
9:20am	**BI-WeM-5** Inhibiting Bacterial and Fungal Growth *via* Biomimetic Nanopillared Surface Structuring*,* ***Rachel Rosenzweig****, V Ly, K Perinbam, M Marshall, E Pearlman, A Siryaporn, A Yee,* University of California, Irvine	**EH-WeM-5** First-Principles Study on Influence of Metal Oxide on H_2S Poisoning Tolerance of Pt Nano-Particle Catalyst in Polymer Electrolyte Fuel Cell*,* ***Kota Kuranari****, N Miyazaki, Y Ootani, N Ozawa,* Tohoku University, Japan*; M Kubo,* Institute for Materials Research, Tohoku University, Japan
9:40am	**BI-WeM-6** Chemo-enzymatic Pathways for Sustainable Terpene-based Polymeric Materials*,* ***Arne Stamm****, L Fogelström, P Syren, E Malmström,* KTH Royal Institute of Technology, Sweden	**EH-WeM-6** Impurity Tolerance of Pt/ Metal-Oxide Anode Catalyst for Polymer Electrolyte Fuel Cell: First-Principles Calculation*,* ***Nobuki Ozawa****, K Kuranari, M Kubo,* Tohoku University, Japan
10:00am	**BREAK**	**BREAK**
10:20am	**INVITED: BI-WeM-8** Chemical Surface Modification of Carbon Nanostructures Towards Biological Applications*,* ***Mildred Quintana****,* Universidad Autónoma de San Luis Potosí, México	**INVITED: EH-WeM-8** Harvesting Sunlight for Photoelectric and Photothermal Conversions with Titanium Nitride Nanostructures*,* ***Satoshi Ishii****,* National Institute for Materials Science, Japan*; S Shinde, R Sugavaneshwar, M Kaur, T Nagao,* National Institute for Materials Science
10:40am	Invited talk continues.	Invited talk continues.
11:00am	**BI-WeM-10** *Roles of Anodic Oxide Layer on the Improvement of Cellular Response of Titanium Implant ,* ***Naofumi Ohtsu****, T Kuji, M Hirano,* Kitami Institute of Technology, Japan	**INVITED: EH-WeM-10** Solar Printing: From Benchtop to Rooftop*,* ***Paul Dastoor****,* University of Newcastle, Australia
11:20am	**BI-WeM-11** (Electro)Chemically Synthesis et Characterization of New Coating having N-Halamine Groups giving them Regenerative Antibacterial Properties*,* ***Vincent Humblot****, N Nazi,* LRS - CNRS Sorbonne Université, France*; C Debiemme-Chouvy,* LISE - CNRS Sorbonne Université, France	Invited talk continues.
11:40am	**BI-WeM-12** Effect of Salts on Friction of Zwitterionic Polymer Brush: Molecular Dynamics Simulation*,* ***Shuichi Uehara****, Z Liu, N Miyazaki, Y Ootani, N Ozawa, M Kubo,* Tohoku University, Japan	

Thin Films
Room Naupaka Salons 4 - Session TF-WeM
Nanostructural and Surface Morphological Evolution: Experiment and Theory
Moderator: Andres De Luna Bugallo, CINVESTAV-Unidad Queretaro, Mexico

8:00am	**INVITED: TF-WeM-1** Nanostructure and Morphological Evolution During Thin Film Growth of Metals and Silicides Using Real-time Diagnostics, ***Gregory Abadias***, *C Furgeaud,* Institut Pprime, CNRS-Université de Poitiers, France; *B Krause,* KIT, Germany; *A Jamnig,* Institut Pprime, CNRS-Université de Poitiers and IFM Linköping University, Sweden; *K Sarakinos,* Linköping University, Sweden; *J Colin, L Simonot, A Michel, C Mastail,* Institut Pprime, CNRS-Université de Poitiers, France	
8:20am	Invited talk continues.	
8:40am	**TF-WeM-3** Seeding and Growth of Metallic Ultra-thin Film Deposited on Amorphous Polymeric Substrates, ***Jitesh Hora***, *D Evans, E Charrault, P Murphy,* Future Industries Institute, University of South Australia, Australia	
9:00am	**TF-WeM-4** *In situ* Studies of Surface Morphological Evolution During Indium Nitride Growth by Atomic Layer Epitaxy, ***Charles Eddy, Jr.***, *N Nepal, S Rosenberg,* U.S. Naval Research Laboratory; *V Anderson,* Sotera Defense Solutions; *J Woodward,* U.S. Naval Research Laboratory; *C Wagenbach,* Boston University; *A Kozen,* U.S. Naval Research Laboratory; *Z Robinson,* College at Brockport - SUNY; *L Nyakiti,* Texas A&M University; *S Qadri,* U.S. Naval Research Laboratory; *M Mehl,* U.S. Naval Academy; *K Ludwig,* Boston University; *J Hite,* US Naval Research Laboratory	
9:20am	**TF-WeM-5** Nanostructured Material Surface and Thin Film Interface Characterization by X-ray Photoelectron Spectroscopy, ***Jisheng Pan***, Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research), Singapore	
9:40am	**TF-WeM-6** Sputter Epitaxy via Inverse Stranski-Krastanov Growth Mode: A Method of Single Crystal Growth *beyond* Lattice Matching Condition, ***Naho Itagaki***, *D Yamashita, K Kamataki, K Koga, M Shiratani,* Kyushu University, Japan	
10:00am	**BREAK**	
10:20am	**INVITED: TF-WeM-8** Self-organized Nanostructure Formation in Functional Nitride Alloy Thin Films – Playing Games with Physical Metallurgy, ***Lars Hultman***, Linkoping University, Sweden	
10:40am	Invited talk continues.	
11:00am	**TF-WeM-10** Effect of Atomic Layer Deposition Grown VO2 Film Morphology and Crystallinity on Opto-Electronic Phase Transition., ***Jason Avila***, ASEE postdoc fellow; *M Currie, B Downey, V Wheeler,* Naval Research Laboratory	
11:20am	**TF-WeM-11** Relationship between Relaxation ratio and growth temperature of GaInN by RF-MBE, ***Yusuke Nakajima***, *T Honda, T Yamaguchi, T Onuma,* Kogakuin University, Japan	
11:40am	**TF-WeM-12** The Effect of Interface Structure on MgO/Al/MgO Multilayer Photocathodes, ***Jeff Terry***, *Z Lee, L Spentzouris,* Illinois Institute of Technology	

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 Photocalytic Performance of Graphene Quantum Dot-TiO_2-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^0, Co^0 and Ni^0 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 Valdivieso, 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 Nanoomposite 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_2 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, ***Bartlomiej 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^{4+} Ions on Magnetic and Dielectric Properties of $BaFe_{12}O_{19}$ 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 α-$(Al_xGa_{1-x})_2O_3$ Overgrowth on MSM-Type α-Ga_2O_3 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 $MoSe_2$ 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_2O Surfaces by Thermal Annealing, ***Katsuhiro 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 $Ge_2Sb_2Te_5$, ***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 Autonoma de Mexico, México

TF-WeP-25 Investigation of CO_2 Sensing Efficiency and Mechanism Based on P-type MoS_2, ***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

	Biomaterial Surfaces & Interfaces **Room Naupaka Salon 6-7 - Session BI-WeE** **Biomolecule/Material Interactions and Medical Applications** **Moderator:** Buddy D. Ratner, University of Washington	**Thin Films** **Room Naupaka Salons 4 - Session TF-WeE** **Emerging Topics: Growth and Properties of Electronic Materials, 2D Layers, and Metallic-glass Thin Films** **Moderator:** Lars Hultman, Linkoping University
5:40pm	**INVITED: BI-WeE-1** Engineered Biointerfaces – Organisation and Functionalisation of Proteins at Surfaces, ***Jenny Malmstrom,*** University of Auckland, New Zealand	**INVITED: TF-WeE-1** Novel Metallic-Glass Nanotube Arrays: Synthesis, Characterization and Applications, ***Jinn P. Chu,*** National Taiwan University of Science and Technology, Taiwan, Republic of China
6:00pm	Invited talk continues.	Invited talk continues.
6:20pm	**BI-WeE-3** Tunable Thermal Transport and Reversible Thermal Conductivity Switching in Topologically Networked Bio-Inspired Materials, *J Tomko,* University of Virginia*; A Pena-Francesh, H Jun,* Pennsylvania State University*; M Tyagi,* National Institute of Standards and Technology*; B Allen, M Demirel,* Pennsylvania State University*;* ***Patrick Hopkins,*** University of Virginia	**TF-WeE-3** Growth and Characterization of Atomically-thin MoS_2-$MoSe_2$ Hetero-Junctions Synthesized by Vapor-Phase Chalcogenization, ***Andres De Luna Bugallo,*** CINVESTAV Querétaro México, Mexico*; I Bilgin, D Rubin,* Northeastern University*; K Fujisawa,* Penn State University*; M Terrones,* Pennsylvania State University*; S Kar,* Northeastern University
6:40pm		**TF-WeE-4** Band-engineering of $(TiO_2)_{1-x}(TaON)_x$ Thin Films for Photochemical Applications, ***Tetsuya Hasegawa,*** University of Tokyo, Japan
7:00pm	**BI-WeE-5** Design Principles and Potential Applications of Cyclic Peptide Polymer-based Nanomaterials, ***Kenan Fears,*** US Naval Research Laboratory, USA	**TF-WeE-5** Exploring Mechanical and Liquid-phase Exfoliation of HOPG through Low-energy Ion Beam Analysis, ***Paolo Branchini,*** INFN RomaTre, Italy*; S De Rosa,* National Institute of Nuclear Physics Roma Tre, Italy*; L Tortora,* INFN RomaTre, Italy*; R Yivlialin, G Bussetti,* Politecnico di Milano, Italy
7:20pm	**BREAK**	**BREAK**
7:40pm	**BI-WeE-7** Metal Oxides and Bone Healing, *H Nygren,* University of Gothenburg, Göteborg, Sweden*; C Zhang,* Science for Life Laboratory, Stockholm, Sweden*;* ***Per Malmberg,*** Chalmers University of Technology, Sweden	**TF-WeE-7** Altering Cu-Ni Alloy Composition to Control 2D h-BN Growth, ***Boris Feigelson,*** Naval Research Laboratory*; K Sridhara, J Hite, J Wollmershauser,* US Naval Research Laboratory
8:00pm	**BI-WeE-8** Thin Films, Coatings and Surface Solutions for Medical Devices, ***Shahram Amini,*** Johnson Matthey Inc.	**TF-WeE-8** Internal Photoemission Spectroscopy Measurements of Energy Barriers between Metallic Glass Thin Films and ALD Dielectrics, *M Jenkins,* ***John Conley, Jr.,*** Oregon State University
8:20pm	**BI-WeE-9** Effects of Metal Implants on Bone Healing Analysed by Transcriptomics, ***Håkan Nygren,*** University of Gothenburg, Göteborg, Sweden*; C Zhang, M Arif, M Uhlen,* Science for Life Laboratory, Stockholm, Sweden	**TF-WeE-9** New Insights into the Kinetics of Chemical Vapor Deposition of Two-dimensional hBN Layers on Pd(111), ***Pedro Arias,*** University of California, Los Angeles*; A Abdulslam,* Colorado School of Mines*; A Ebnonnasir,* University of California, Los Angeles*; C Ciobanu,* Colorado School of Mines*; S Kodambaka,* University of California, Los Angeles
8:40pm	**BI-WeE-10** Synthesis and Characterization of Reactively Sputtered Platinum Group Metal Oxides for Stimulating and Recording Applications, *G Taylor, N Page, A Marti, R Paladines,* Rowan University*; A Fones,* Johnson Matthey Inc., UK*; S Tint,* Johnson Matthey Inc.*; H Hamilton,* Johnson Matthey Inc., UK*; S Amini,* Johnson Matthey Inc.*;* ***Jeffrey Hettinger,*** Rowan University	**TF-WeE-10** Very High Refractive Index Transition Metal Dichalcogenide Photonic Conformal Coatings by Conversion of ALD Metal Oxides, ***Shaul Aloni,*** *A Schwartzberg, C Chen, C Kastl,* 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

	Energy Harvesting & Storage Room Naupaka Salon 6-7 - Session EH-ThM Batteries **Moderator:** Ludvik Martinu, Polytechnique Montréal	Plasma Processing Room Naupaka Salon 5 - Session PS-ThM Plasma Processing **Moderator:** Martin Nieto-Perez, CICATA Queretaro
8:00am		**INVITED: PS-ThM-1** Plasma Surface Modification: Optimizing the Positives of Plasma-Materials Interactions, ***Ellen Fisher,*** Colorado State University
8:20am	**EH-ThM-2** Real-Time TEM Observation of Electrochemistry and Failure in Battery Materials, ***Reza Shahbazian-Yassar,*** University of Illinois at Chicago	Invited talk continues.
8:40am	**EH-ThM-3** Reactive Ion Beam Etching of Piezoelectric ScAlN and LiTaO3 for RF Filter Applications, ***Robinson James,*** *Y Pilloux, H Hegde,* Plasma Therm	**PS-ThM-3** Super-reactive Haloester Surface Initiator for ARGET ATRP Readily Prepared by RF Glow Discharge Plasma, ***Marvin Mecwan,*** *B Ratner,* University of Washington
9:00am	**EH-ThM-4** Lead-free Epitaxial Ferroelectric Heterostructures for Energy Storage and Harvesting Applications, ***Amrit Sharma,*** Center for Materials Research, Norfolk State University	
9:20am	**INVITED: EH-ThM-5** Direct Electrodeposition of High-Performance Li-ion Battery Electrodes, ***Paul Braun,*** University of Illinois at Urbana-Champaign, USA	**INVITED: PS-ThM-5** Practical Applications of Plasmas in Microelectronics, ***David Ruzic,*** *E Barlaz, J Mettler, G Panici, D Qerimi,* University of Illinois at Urbana-Champaign
9:40am	Invited talk continues.	Invited talk continues.
10:00am	**BREAK**	**BREAK**
10:20am		**INVITED: PS-ThM-8** From Atomic- to macro- via Nano-scales: Plasma and Ion Effects in Surface *Structuring,* ***Kostya (Ken) Ostrikov,*** Queensland University of Technology, Australia
10:40am		Invited talk continues.
11:00am		**PS-ThM-10** 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, ***Jing Zhang,*** Donghua University, China
11:20am		**PS-ThM-11** Thermo-Corrosive and Mechanical Properties of ZrO_2 based Thermal Barrier Coatings, ***Byung-Koog Jang,*** Kyushu University; *H Kim,* Korea Institute of Ceramic Engineering and Technology

Thin Films
Room Naupaka Salons 4 - Session TF-ThM
Nanostructured Surfaces and Thin Films: Synthesis and Characterization III

8:00am	**TF-ThM-1** Interface and Surface Control of MoS2-based Nanoelectronic Devices with Organic Treatment, ***Takhee Lee,*** Seoul National University, Republic of Korea	
8:20am	Talk continues.	
8:40am	**TF-ThM-3** Epitaxial $GdFe_{0.8}Ni_{0.2}O_3$ Multiferroic Thin Films Grown Device Using Operando X-ray Technique, ***Shu-Jui Chang,*** *M Chung,* National Chiao Tung University, Republic of China*; Y Liu, H Lee,* National Synchrotron Radiation Research Center*; Y Tseng,* National Chiao Tung University, Republic of China	
9:00am	**TF-ThM-4** Effect of the Ultrasonic Treatment on the Si-SiO_2 System Defects Structure, ***Daniel Kropman,*** Tallinn University, Estonia*; V Seeman,* Tartu University, Estonia*; A Medvids,* Riga Technical University, Latvia*; P Onufrievs,* Riga Technicacal University, Latvia	
9:20am		
9:40am	**TF-ThM-6** Charge Induced Disorder Controls the Thermal Conductivity of Entropy Stabilized Oxides, ***Jeffrey Braun,*** *C Rost,* University of Virginia*; M Lim,* North Carolina State University*; A Giri, D Olson,* University of Virginia*; G Kotsonis,* Pennsylvania State University*; G Stan,* National Institute of Standards and Technology*; D Brenner,* North Carolina State University*; J Maria,* Pennsylvania State University*; P Hopkins,* University of Virginia	
10:00am	**BREAK**	
10:20am	**TF-ThM-8** Thermal Boundary Conductance Across Heteroepitaxial ZnO/GaN Interfaces: Experimental Assessment of the Phonon Gas Model, ***John Gaskins,*** University of Virginia*; G Kotsonis,* Pennsylvania State University*; A Giri,* University of Virginia*; S Ju,* University of Tokyo, Japan*; A Rohskopf,* Massachusetts Institute of Technology*; Y Wang, T Bai,* University of California, Los Angeles*; E Sachet, C Shelton,* North Carolina State University*; Z Liu,* University of Notre Dame*; Z Cheng,* Georgia Institute of Technology*; B Foley,* Pennsylvania State University*; S Graham,* Georgia Institute of Technology*; T Luo,* University of Notre Dame*; A Henry,* Massachusetts Institute of Technology*; M Goorsky,* University of California, Los Angeles*; J Shiomi,* University of Tokyo, Japan*; J Maria,* Pennsylvania State University*; P Hopkins,* University of Virginia	
10:40am	**TF-ThM-9** Studies on Hot-wall Deposited Cadmium Sulphide (CdS) Thin Films for Buffer Layers in Thin Film Solar Cell, ***Balaji Gururajan,*** *B Rangasamy, P Sankaran, P Nagarajan, S Kaliappan, K Dhonan,* PSG College of Technology, India*; V Asokan,* Chalmers University of Technology, Sweden*; M Natarajan,* Coimbatore Institute of Technology, India*; D Velauthapillai,* Western Norway University of Applied Sciences, Norway	
11:00am	**TF-ThM-10** Intrinsec Photoluminiscent Properties of Crystalline and Amorphous $Cd_2V_2O_7$, ***Erika Cervantes Juárez,*** *R Lozada Morales, A Meza Rocha, R Licona Ibarra,* BUAP, Mexico	
11:20am	**TF-ThM-11** The Effect of Tin Impurities on CdTe Thin Films Solar Cell, *J Ríos-González,* CINVESTAV-Unidad Mérida, Mexico*; R Mis-Fernández, I Rimmaudo, E Camacho-Espinosa,* ***Juan Luis Peña,*** CINVESTAV-Unidad Mérida, Mexico, México	

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