PacSurf 2024 Program Key

BI Biomaterial Surfaces & Interfaces
NM Nano and 2D Materials
PL Plenary Session
RE Renewable Energy and Energy Storage
TF Thin Films and Surface Modification

Key to Session/Paper Numbers

Sessions are labeled with acronyms (e.g. **BI, NM, etc.**), then a number to indicate split sessions running within a morning/eveing block or simultaneous sessions sponsored by the same topic(s) (e.g. TF**1**, TF**2**),
then a dash followed by the first two characters of the day of the week:
Monday, **Tu**esday, **We**dnesday, **Th**ursday,
then a single letter for **M**orning, **E**vening, **P**oster,
and finally a number indicating the starting time slot for the paper.
Example: RE2-MoM10 (Renewable Energy, Monday morning, 11:00 am).

PacSurf 2024 Program Overview

Room /Time	NAUPAKA SALON 1-3	NAUPAKA SALON 4	NAUPAKA SALON 5
MoM		RE1-MoM: Electrochemistry and Photocatalysis I RE2-MoM: Surfaces and Interfaces in Photovoltaics PL-MoM: Plenary Session	BI-MoM: Biomaterials/Interfaces - 3D Systems
MoE		TF1-MoE: Thin Films – Materials I TF2-MoE: Thin Films - Characterization	BI1-MoE: Biomaterials/ Interfaces - Characterization BI2-MoE: Biomaterials/Interfaces - Sustainable Materials
TuM		RE1-TuM: Electrochemistry and Photocatalysis II RE2-TuM: Materials for Energy Conversion	BI1-TuM: Biomaterials/ Interfaces - Biointeractions BI2-TuM: Biomaterials/Interfaces - Biosensing
TuP	POSTER SESSIONS		
TuE		NM1-TuE: Synthesis and Manipulation NM2-TuE: 2D Materials Based on Carbon and Boron	TF1-TuE: Thin Films - Bio- and Medical-related TF2-TuE: Thin Films - Processing
WeM		NM1-WeM: Surface Engineering and Characterization NM2-WeM: Properties of 2D Materials	
WeP	POSTER SESSIONS		
WeE		TF1-WeE: Thin Films - Properties TF2-WeE: Thin Films - Materials II	
ThM		TF1-ThM: Thin Films - Plasma and Etching-related TF2-ThM: Thin Films - Surface Modifications	NM1-ThM: Nanomaterials - Properties and Applications I NM2-ThM: Nanomaterials - Properties and Applications II

Monday Morning, December 9, 2024

	Room Naupaka Salon 4	
8:00am		**Renewable Energy and Energy Storage** **Session RE1-MoM** **Electrochemistry and Photocatalysis I** **Moderator:** **Craig Perkins**, National Renewable Energy Laboratory
8:20am		
8:40am	**INVITED: RE1-MoM-3** Hot Carrier-Driven Plasmonic Photoelectrochemical Processes*, **Jeong Young Park**,* KAIST, Republic of Korea	
9:00am		
9:20am	**RE1-MoM-5** Next-Generation Electrocatalysts Derived from Metal-Organic Frameworks for Hydrogen Production and Conversion*, **Di-Jia Liu**,* Argonne National Laboratory	
9:40am	**RE1-MoM-6** Defective Metal Oxides for Electrochemical Ammonia Synthesis *, **Emma Lovell**,* University of New South Wales, Australia	
10:00am	**BREAK**	
10:20am	**RE2-MoM-8** Stabilizing Zinc Powder Anodes via Functional Mxene Towards Flexible Zinc-Ion Batteries*, **ZIXUAN YANG**,* Deakin University, Australia*; Z. Wang,* RMIT University, Australia*; J. Razal,* Deakin University, Australia	**Renewable Energy and Energy Storage** **Session RE2-MoM** **Surfaces and Interfaces in Photovoltaics** **Moderator:** **Elisa Miller**, National Renewable Energy Laboratory
10:40am	**RE2-MoM-9** Hard X-Ray Photoemission Spectroscopy Possibilities at Scienta Omicron*, **Tamara Sloboda**,* Scienta Omicron, Sweden*; P. Amann,* Scienta Omicron, Germany*; M. Lundwall, D. Allansson,* Scienta Omicron, Sweden*; X. Zhang, A. Yost,* Scienta Omicron	
11:00am	**RE2-MoM-10** Low Dos Tails Dominate Band Alignments in State-of-the-Art Cd(Se,Te) Solar Cells*, **Craig Perkins**,* National Renewable Energy Laboratory	
11:20am	**INVITED: PL-MoM-11** Unlocking Interfacial Water and Dynamics to Design Catalytic Activity and Selectivity*, **Yang Shao-Horn**,* MIT	**Plenary Session** **Session PL-MoM** **Plenary Session** **Moderator:** **Gregory S. Herman**, Argonne National Laboratory
11:40am		

Monday Morning, December 9, 2024

	Room Naupaka Salon 5	
8:00am		**Biomaterial Surfaces & Interfaces** **Session BI-MoM** **Biomaterials/Interfaces - 3D Systems** **Moderator:** **Jenny Malmstrom**, University of Auckland, Australia
8:20am		
8:40am		
9:00am		
9:20am	**BI-MoM-5** Antifouling Strategies From a Marine Biofouler, Acorn Barnacles (Amphibalanus Amphitrite), *Q. Lu, E. McGhee, W. Hervey, S. Tuck, D. Leary, C. Spillmann,* ***Kenan Fears,*** US Naval Research Laboratory	
9:40am	**BI-MoM-6** From Surface to Microbe: The Role of Copper in Marine Biofouling, ***Sara Tuck,*** *K. Fears,* Naval Research Laboratory	
10:00am	**BREAK**	
10:20am	**INVITED: BI-MoM-8** Development of Joint Organoids for the Study of Tissue Integration and Immune Responses, ***Gabriella Lindberg,*** *M. Hofmann, N. Shchotkina, S. South, N. Willett,* University of Oregon	
10:40am		
11:00am	**BI-MoM-10** Metrology of 3D Cell Culture Systems , ***Sally McArthur,*** Deakin University, Australia	

Monday Evening, December 9, 2024

Room Naupaka Salon 4

5:40pm	**INVITED: TF1-MoE-1** Plasma Diagnostic-Based Plasma Processing for Semiconductor and Nanomaterial Manufacturing, ***Hyo-Chang Lee,*** Korea Aerospace University, Republic of Korea	**Thin Films and Surface Modification** **Session TF1-MoE** **Thin Films - Materials I** **Moderator:** **Ryo Toyoshima**, The University of Tokyo, Japan
6:00pm		
6:20pm	**TF1-MoE-3** Tailoring High Temperature Anti-Oxidizing Coatings by Sol-Gel Chemistry for Enhanced Aeronautic Efficiency, *L. Lager,* University Lyon 1, France*; S. Senani-De Monredon, J. Delfosse,* Safran Tech, France*; S. Benayoun,* Ecole Centrale de Lyon, France*;* ***Berangere Toury,*** University Lyon 1, France	
6:40pm	**TF1-MoE-4** Fabrication and Characterizations of Aluminum Doped Cadmium Oxide (Cdo:Al) Thin Film Using Sol-Gel Spin-Coating Method, ***Moniruzzaman Syed,*** *J. Massey, M. Hurd,* LeMoyne Owen College*; M. syeda,* University of Memphis	
7:00pm	**TF1-MoE-5** Structural and Electronic Impact on Various Substrates of Tio2 Thin Film Using Sol-Gel Spin Coating Method, ***Afrika Leiws,*** *T. Crosby, J. Muhammad,* LeMoyne Owen College*; M. Syeda,* University of Memphis*; M. Syed,* LeMoyne Owen College	
7:20pm	**BREAK**	
7:40pm	**INVITED: TF2-MoE-7** In-Situ/Operando Soft X-Ray Measurements for Hydrogen Related Surface Functional Materials, ***Ryo Toyoshima,*** The University of Tokyo, Japan	**Thin Films and Surface Modification** **Session TF2-MoE** **Thin Films - Characterization** **Moderator:** **Chen-Hao Wang**, National Taiwan University of Science and Technology, Taiwan
8:00pm		
8:20pm	**TF2-MoE-9** NAP HAXPES from Tender X-Ray Energies, ***Paul Dietrich,*** SPECS Surface Nano Analysis GmbH, Germany	
8:40pm	**TF2-MoE-10** Redox XPS;Progressive *proxime situ* Oxidation in XPS (and SIMS) as an Aid to Spectrum Interpretation, ***Peter Cumpson,*** La Trobe University, Australia*; D. Devadasan,* Thermo Fisher Scientific, UK*; S. Gazzola,* University of Bath, U.K.*; T. Nunney,* Thermo Fisher Scientific, UK*; R. Weatherup,* Oxford University, UK	

Monday Evening, December 9, 2024

Room Naupaka Salon 5

Biomaterial Surfaces & Interfaces
Session BI1-MoE
Biomaterials/Interfaces - Characterization
Moderator:
David G. Castner, University of Washington

5:40pm **INVITED: BI1-MoE-1** Molecular Structure of Sputtered Species with Large Cluster Ions, ***Jiro Matsuo***, Quantum Science and Engineering Center, Kyoto University, Japan

6:00pm

6:20pm **BI1-MoE-3** GCIB-SIMS Analysis of Skin Cancer Samples, ***John S. Fletcher***, *K. Sjögren Cehajic, K. Dimovska Nilsson, O. Zaar, D. Katasarelias, J. Paoli, R. Olofsson Bagge, N. Neittaanmäki,* University of Gothenburg, Sweden

6:40pm **BI1-MoE-4** Depth Correction of 3D SIMS Depth Profiling Images of Biomaterials Using Only Secondary Ion Signal Intensities, *M. Brunet, B. Gorman,* ***Mary Kraft***, University of Illinois Urbana-Champaign

7:00pm **BI1-MoE-5** Label-Free High-Resolution Molecular Imaging of Sex Steroid Hormones in Zebrafish by Water Cluster Secondary Ion Mass Spectrometry (Cluster SIMS), ***Kate McHardy,*** *N. Sano,* Ionoptika Ltd., UK*; E. Lau, M. Bailey,* University of Surrey, U.K.

7:20pm **BREAK**

Biomaterial Surfaces & Interfaces
Session BI2-MoE
Biomaterials/Interfaces - Sustainable Materials
Moderator:
Gabriella Lindberg, University of Oregon

7:40pm **INVITED: BI2-MoE-7** Advanced BioAFM for Temporal Analysis, ***Amy Gelmi,*** RMIT University, Australia

8:00pm

8:20pm **BI2-MoE-9** Development of an Active Sustainable Polymer Based on Crosslinked Gelatin, ***Monique Lacroix,*** INRS Armand Frappier Health Biotechnology, Canada

8:40pm **BI2-MoE-10** Sustainability Inspired Development of Next Generation Neural Interfacing and Neurostimulation Electrodes via Reactive Hierarchical Surface Restructuring, ***Shahram Amini,*** Pulse Technologies Inc.*; S. Shahbazmohamadi, H. Choi, A. Blagojevic, M. Maniscalco, P. Tavousi,* University of Connecticut

Tuesday Morning, December 10, 2024

	Room Naupaka Salon 4	
8:00am		**Renewable Energy and Energy Storage** **Session RE1-TuM** **Electrochemistry and Photocatalysis II** **Moderator:** **Craig Perkins**, National Renewable Energy Laboratory
8:20am		
8:40am		
9:00am	**INVITED: RE1-TuM-4** Tuning Optoelectronic Properties of 2D Transition Metal Dichalcogenides and p-Conjugated Polymers, ***Elisa Miller,*** National Renewable Energy Laboratory	
9:20am		
9:40am	**RE1-TuM-6** Transition Metal Doped NiOx Faceted Nanosheets for Electrocatalytic Water Oxidation, *K. Ruecker,* German Aerospace Center Oldenburg, Germany*; D. Taffa,* Carl von Ossietzky University of Oldenburg, Germany*; E. Brim, D. Hayes,* Colorado School of Mines, USA*; J. Lorenz,* German Aerospace Center Oldenburg, Germany*; S. Alia, B. Pivovar,* National Renewable Energy Laboratory*; M. Risch,* Hemholtz Center Berlin, Germany*; C. Harms,* German Aerospace Center Oldenburg, Germany*; M. Wark,* Carl von Ossietzky University of Oldenburg, Germany*; **Ryan Richards**,* Colorado School of Mines, USA	
10:00am	**BREAK**	
10:20am	**INVITED: RE2-TuM-8** Physical Properties Control of Metal-Hydride Thin Films and Application of Autonomous Synthesis Systems, ***Ryota Shimizu,*** The University of Tokyo, Japan	**Renewable Energy and Energy Storage** **Session RE2-TuM** **Materials for Energy Conversion** **Moderator:** **Ryan Richards**, Colorado School of Mines
10:40am		
11:00am	**RE2-TuM-10** Non-Precious Metal Electrocatalysts for Anion Exchange Membrane Fuel Cells, ***Jin-Song Hu,*** Institute of Chemistry Chinese Academy of Sciences, China	
11:20am	**INVITED: RE2-TuM-11** Elucidating Early-Stage Lithium Growth and Dendrite Suppression Strategies in Lithium Metal Batteries, ***Seung-Yong Lee,*** Hanyang University, Korea	
11:40am		

Tuesday Morning, December 10, 2024

	Room Naupaka Salon 5	
8:00am		**Biomaterial Surfaces & Interfaces** **Session BI1-TuM** **Biomaterials/Interfaces - Biointeractions** **Moderator:** **Kaori Sugihara**, Institute of Industrial Science, the University of Tokyo, Japan
8:20am		
8:40am	**BI1-TuM-3** Dynamic Supramolecular Gels for 3D Cell Culture*, A. Chalard, H. Porritt,* University of Auckland, New Zealand*; A. Taberner,* The University of Auckland, New Zealand*; J. Fitremann,* CNRS, France*;* ***Jenny Malmstrom****,* University of Auckland, New Zealand	
9:00am	**BI1-TuM-4** Supercritical Angle Raman Microscopy (SAR-M): A Versatile Tool to Study Molecular Conformations at Surfaces on the Example of Amyloid and α-Synuclein Proteins*, N. Münch, S. Das,* ***Stefan Seeger****,* University of Zurich, Switzerland	
9:20am	**INVITED: BI1-TuM-5** Biomimetic Leaf Surfaces as a Platform Technology to Study Bio-Interactions*,* ***Volker Nock****,* University of Cantebury, New Zealand*; S. Sale,* University of Canterbury, New Zealand*; A. Garrill,* University of Cantebury, New Zealand*; M. Bernach,* University of Cantebury, New Zealand, Germany*; M. Remus-Emsermann,* Freie Universität Berlin, Germany	
9:40am		
10:00am	**BREAK**	
10:20am	**INVITED: BI2-TuM-8** Mechanochromic Polymer, Polydiacetylene, for Force-, Bio-Sensing Applications*,* ***Kaori Sugihara****,* Institute of Industrial Science, the University of Tokyo, Japan	**Biomaterial Surfaces & Interfaces** **Session BI2-TuM** **Biomaterials/Interfaces - Biosensing** **Moderator:** **Volker Nock**, University of Cantebury, New Zealand
10:40am		
11:00am	**INVITED: BI2-TuM-10** Inspired by Nature: Next-Gen Multiplex Biosensing with Biomimetic Surfaces*,* ***Saimon Moraes Silva****,* 1/6 Patterson Street, Bonbeach, Australia	
11:20am		
11:40am	**BI2-TuM-12** Polyaniline-Gold Nanocomposite as an Electrode Material for Supercapacitor and Escherichia Coli Detection*,* ***Md Zaved Hossain Khan****,* Jashore University of Science and Technology, Bangladesh	

Biomaterial Surfaces & Interfaces
Room Naupaka Salon 1-3 - Session BI-MoP
Biomaterial Surfaces & Interfaces Poster Session
4:00pm

BI-MoP-1 Fabrication of Hydrogel-Based Optical Biosensor for Smart Intraocular Lens, ***Soongeun Kwon***, *Y. Eom, H. Choi, J. Ahn, S. Park, H. Lim, G. Kim, K. Choi, J. Lee,* Korea Institute of Machinery and Materials, Republic of Korea

BI-MoP-2 Correlative Microscopy Without the Instrument Manufacturer; Using Computer-Readable Fiducial Markers to Navigate Specimens Irrespective of Who Made the Sample Stage, ***Peter Cumpson,*** La Trobe University, Australia

BI-MoP-3 Supervised MVA and Random Forests for Analysis of GCIB-SIMS Data from Bacteria, ***John Fletcher,*** University of Gothenburg, Sweden

BI-MoP-4 Establishing Semi-Oriented Crimped Dual-Sized Fibrous Skeleton for Soft Tissue Engineering Scaffolds, ***Han Wang***, *L. Ren,* Deakin University, Australia, China; *S. Zhao,* Deakin University, Australia; *H. Yang,* Wuhan Textile University, China; *L. Kong,* Deakin University, Australia

Renewable Energy and Energy Storage
Room Naupaka Salon 1-3 - Session RE-TuP
Renewable Energy and Energy Storage Poster Session
4:00pm

RE-TuP-1 Graphene-Based Solar Cell Energy Harvester Intermittently Recharges a Battery-Powered Temperature Sensor System, ***Paul Thibado***, *J. Mangum, T. Amin, S. Rahman, R. Kabir, A. Ashaduzzaman,* University of Arkansas; *G. Carichner, H. Do, D. Blaauw,* University of Michigan, Ann Arbor

RE-TuP-2 A Study on Robust VO_2 Protection Layer and Defect Inactivation in $BiVO_4$ Photoelectrodes through Photoelectrochemically Transition-Metal Engineering, *H. Cho,* ***Kun Woong Lee***, School of Advanced Materials Science & Engineering, Sungkyunkwan University (SKKU), Republic of Korea

Thin Films and Surface Modification
Room Naupaka Salon 1-3 - Session TF-TuP
Thin Films and Surface Modification Poster Session I
4:00pm

TF-TuP-1 Effect of Ag Layer Thickness on the Transmittance and Conductivity of Transparent Antennas Fabricated Using ITO/Ag/ITO Structures, ***Yoji Yasuda***, *Y. Saitou,* Tokyo Polytechnic University, Japan; *F. Koshiji,* tokyo polytechnic university, Japan; *T. Uchida,* Tokyo Polytechnic University, Japan

TF-TuP-2 Extending the Lifetime of Plasma Torch Electrodes Using a Layer of Carbon Nanotubes, ***Alexandr Ustimenko***, *V. Messerle,* Affiliation, Kazakhstan

TF-TuP-3 Comparative Depth Analysis of Crystalline Phases in Copper Thin Films Using OrbiSims, ***Jong Sung Jin***, *J. Sung,* Korea Basic Science Institute (KBSI), Republic of Korea

TF-TuP-4 Surface Chemistry and Growth Characteristics of SiNx Films via Plasma-Enhanced Atomic Layer Deposition, ***Ilkwon Oh,*** Ajou University, Republic of Korea

TF-TuP-5 Enhanced Oxide versus Nitride Selectivity in Area-Selective Atomic Layer Deposition of SiO2 Thin Films Combining Small Molecule Inhibitors with Atomic Layer Etching, ***Jiwoo Oh***, *J. Lee, W. Kim,* Hanyang University, Korea

TF-TuP-6 Conductive Polymer Film Formation Using Plasma Process in Organic Solution According to Driving Power Condition, ***Hyojun Jang***, *J. Kim, H. Tae,* Kyungpook National University, Republic of Korea

TF-TuP-7 UV Light Extinction Imaging Method for Monitoring Inkjet-Printed Organic Layer in Thin Film Encapsulation Process, ***Jun Young Hwang***, *J. Yu, H. Kang,* Korea Institute of Industrial Technology, Republic of Korea; *D. Lee, G. Yun,* LG Electronics, Republic of Korea; *S. Lee,* Poongsan System Co., Ltd., Republic of Korea

TF-TuP-8 Room–Temperature Ferromagnetism Observed in Graphene Oxide Fabricated by AFM Lithography, *B. Park,* Department of Physics, Konkuk University, Republic of Korea; ***DaYea Oh***, Deparment of Physcis, Konkuk University, Republic of Korea; *D. Lee,* Department of Physics, Konkuk University, Republic of Korea; *W. Kim,* Korea Research Institute of Standards and Science, Republic of Korea; *J. Choi,* Center for Spintronics, Korea Institute of Science and Technology, Republic of Korea

TF-TuP-9 Reactive Ion Etching of Contact Hole for LTPS Process Using Low Global Warming Potential Gas, ***Jun Won Jeong***, *J. Hong, G. Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

Room Naupaka Salon 4

5:40pm		**Nano and 2D Materials** **Session NM1-TuE** **Synthesis and Manipulation** **Moderator:** **Sarah Burke**, University of British Columbia, Canada
6:00pm	**NM1-TuE-2** Using a Zeolite Imidazolate Framework-8 Nanomaterial for Adsorption and Removal of Thymol from Water and Heparin Recovery, ***Deepak Ganta,*** Texas A&M International University*; M. Karimi Abdolmaleki,* Texas A&M University-Corpus Christi*; S. Gonzalez Torres,* Texas A&M International University*; C. Velazquez,* Texas A &M International University	
6:20pm	**NM1-TuE-3** Interaction of Defects on Mxene Surfaces: Nonlinear and Anisotropic Effects, ***Steven Goldy,*** Colorado School of Mines, USA*; G. Tucker,* Baylor University*; C. Ciobanu,* Colorado School of Mines, USA	
6:40pm	**NM1-TuE-4** Synthesis of Uniform Borophene: In Situ Spectroscopic Analysis and Ex Situ Macroscopic Transfer, ***Marko Kralj,*** *S. Kamal, B. Radatovic, V. Jadrisko, D. Novko, N. Vujicic, M. Petrovic,* Center for Advanced Laser Techniques, Institute of Physics, Croatia	
7:00pm	**NM1-TuE-5** Design at Nanoscale of Thermostable Hybrid Sol-Gel Bondlayer to Functionalize Aeronautical CFRP by Thermal Spray, ***Sophie Senani-de Monredon,*** SAFRAN TECH, France*; L. Rozes,* Sorbonne Université, France*; G. Penvern,* SAFRAN TECH, Sorbonne Univ., France*; A. Joulia,* SAFRAN TECH, France*; S. Bonebeau,* SAFIR, France	
7:20pm	**BREAK**	
7:40pm	**INVITED: NM2-TuE-7** First-Principles Study of Adsorption and Reaction on the Hydrogen Boride Sheet, ***Ikutaro Hamada,*** Osaka University, Japan	**Nano and 2D Materials** **Session NM2-TuE** **2D Materials Based on Carbon and Boron** **Moderator:** **Akitoshi Shiotari**, Fritz-Haber Institute, Germany
8:00pm		
8:20pm	**NM2-TuE-9** N-doped Graphene Synthesis through Nitrogen Ion Irradiation, ***Zbynek Novotny,*** Pacific Northwest National Laboratory*; B. Alupothe Gedara, P. Evans, Z. Dohnalek,* PNNL	
8:40pm	**NM2-TuE-10** Nanoscale Investigation of N-Heterocyclic Carbene Monolayers on Metal Surfaces, ***Francesco Tumino,*** Queen's University, Canada, Italy*; E. DesRoche, M. Aloisio, D. Nanan, A. McLean, C. Crudden,* Queen's University, Canada	

Room Naupaka Salon 5

5:40pm	**INVITED: TF1-TuE-1** Advanced Surface Engineering for Mass-Produced Medical Diagnostic Technology Addressing Tomorrow's Global Public Health Challenges, ***Christopher Muratore****, B. Robertson, M. Muratore,* University of Dayton*; N. Glavin,* Air Force Research Laboratory	**Thin Films and Surface Modification** **Session TF1-TuE** **Thin Films - Bio- and Medical-related** **Moderator:** **Seo-Hyun Lee**, Hanyang University, Republic of Korea
6:00pm		
6:20pm	**TF1-TuE-3** Development of Stretchable Plasma Patch using Kirigami Technique for Biomedical Applications, ***Sunghoon Jung****, J. Kim,* Korea Institute of Materials Science, Republic of Korea	
6:40pm	**INVITED: TF1-TuE-4** Silver-Copper Coatings: Combating Microbes on Surfaces and in Air Filtration, *L. Reyes-Carmona,* UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO, CU, Mexico*; V. Perez-Bucio, A. Almaguer-Flores,* UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO*; O. Sepulveda-Robles,* Instituto Mexicano del Seguro Social, Mexico*;* ***Sandra E Rodil****,* UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	
7:00pm		
7:20pm	**BREAK**	
7:40pm	**TF2-TuE-7** Guided Combinatorial Synthesis, High-Throughput Materials Characterization and Machine Learning Methods Expedite the Discovery of Improved Pt-Au Thin Films, ***David Adams****, T. Shilt, R. Kothari, K. Dorman, C. Martinez, C. Sobczak, S. Addamane, M. Jain, F. DelRio, M. Rodriguez, B. Boyce, R. Dingreville,* Sandia National Laboratories	**Thin Films and Surface Modification** **Session TF2-TuE** **Thin Films - Processing** **Moderator:** **Christopher Muratore**, University of Dayton
8:00pm	**TF2-TuE-8** Dynamic Fracture of Copper/silica interfaces, ***Cristian Ciobanu****,* Colorado School of Mines and NIST*; F. Bobaru,* University of Nebraska-Lincoln, USA*; G. Stan,* National Institute of Standard and Technology, Gaithersburg, Maryland 20899 USA	
8:20pm	**TF2-TuE-9** Maskless Localized Atomic Layer Deposition Applied to Surface Functionalization, *T. Souvignet, J. Carlotti, V. Salles, M. Maillard,* ***Catherine Marichy****,* Laboratoire des Multimatériaux et Interfaces - Universite Claude Bernard Lyon 1, France	
8:40pm	**TF2-TuE-10** Advanced Atomic Level Patterning Process by Area Selective Atomic Layer Deposition Integrating Atomic Layer Etching, ***Seo-Hyun Lee****, J. Lee, J. Oh, W. Kim,* Hanyang University, Korea	

Wednesday Morning, December 11, 2024

	Room Naupaka Salon 4	
8:00am		**Nano and 2D Materials** **Session NM1-WeM** **Surface Engineering and Characterization** **Moderator:** **Gregory S. Herman**, Argonne National Laboratory
8:20am	**INVITED: NM1-WeM-2** Synthesis, Doping, and Encapsulation of 2D Transition Metal Dichalcogenides, ***Yu-Chuan Lin***, National Yang Ming Chiao Tung University (NYCU), Taiwan	
8:40am		
9:00am	**INVITED: NM1-WeM-4** Small Clusters of Molecular Anions: Locally Probing a Model Hubbard System, ***Sarah Burke***, University of British Columbia, Canada	
9:20am		
9:40am	**NM1-WeM-6** Tunable Areal Density and Defined Morphology Regimes of Langmuir Monolayers of PEGylated Gold Nanoparticles, *H. Cameron, I. Curtis, R. Takai,* Mount Allison University, Canada*; M. Radford,* Simon Fraser University, Canada*; A. Williams,* Mount Allison University, Canada*; B. Gates,* Simon Fraser University, Canada*;* ***M.-Vicki Meli,*** Mount Allison University, Canada	
10:00am	**BREAK**	
10:20am	**INVITED: NM2-WeM-8** Atomic-Scale Control of Plasmon-Driven Single-Molecular Switch, ***Akitoshi Shiotari***, Fritz-Haber Institute, Germany	**Nano and 2D Materials** **Session NM2-WeM** **Properties of 2D Materials** **Moderator:** **Zbynek Novotny**, Pacific Northwest National Laboratory
10:40am		
11:00am	**NM2-WeM-10** Tunable Metasurface with Gap and Collective Surface Plasmon Modes, ***Anatoliy Pinchuk***, University of Colorado at Colorado Springs	
11:20am	**NM2-WeM-11** Probing Inherent Optical Anisotropy in Transition Metal Dichalcogenide Substrates via Mie Scattering-Induced Surface Analysis (MISA), *H. Woo,* Korea Research Institute of Standards and Science, Republic of Korea*; J. Han, S. Ji, B. Shin,* Sungkyunkwan University (SKKU), Republic of Korea*; S. Lee,* Nanyang Technological University, Singapore*;* ***Young Jae Song***, Sungkyunkwan University (SKKU), Republic of Korea	
11:40am	**NM2-WeM-12** Enhancement of Photocatalytic Water Splitting Upon Induced Structural Evolution and Increase of Phase Polarity of Two-Dimensional Covalent Organic Frameworks, ***Jrjeng Ruan***, National Cheng Kung University (NCKU), Taiwan	

Nano and 2D Materials
Room Naupaka Salon 1-3 - Session NM-WeP
Nano and 2D Materials Poster Session
4:00pm

NM-WeP-1 Introduction to Measurement Uncertainty Evaluation Method and Results of Silicon Nitride Thin Film Layer Thickness and Complex Dielectric Constant, ***Yong Jai Cho***, *W. Chegal,* Korea Research Institute of Standards and Science, Republic of Korea

NM-WeP-2 A New Tool for Single Ion Implantation and Nanoscale Materials Engineering: System Design and Source Development, ***Paul Blenkinsopp***, Ionoptika Ltd., UK; *K. McHardy,* Ionoptika, Ltd., UK; *G. Aresta,* Ionoptika Ltd., UK

NM-WeP-3 Graphene-Incorporated Dielectric Composites by Varying the Mixing Method and Degree of Oxidation of Graphene, *S. Jun,* ***Kwangsin John Ahn***, *S. Yu,* Hankuk University of Foreign Studies, Republic of Korea

NM-WeP-4 Deep Learning-Based Prediction of Adsorption Energies for MoO_2Cl_2 Precursor on SiO_2 Surface Using Density Functional Theory, ***Do-Hyun Kwon***, *J. Lee,* Korea University of Technology and Education, Republic of Korea; *J. Kim,* Pohang University of Science and Technology (POSTECH), Republic of Korea; *Y. Kim,* Korea University of Technology and Education, Republic of Korea

NM-WeP-5 Induced Self-Assembly of Small (3 - 5 nm) Nanoparticles Into Flexible Nanofilms at Air- and Oil-Water Interfaces, *H. Cameron, Y. Zhang, K. Leslie, B. Scott, I. Curtis, L. Gamble,* ***M.-Vicki Meli,*** Mount Allison University, Canada

NM-WeP-6 Molecular Structure and Vapor Pressure of Molybdenum Pentachloride Using Ab-Initio Thermodynamics, *N. Lee,* Korea University of Technology and Educaiton, Republic of Korea; *S. Kim, J. Kim,* ***Yeong-Cheol Kim***, Korea University of Technology and Education, Republic of Korea

NM-WeP-7 Isotropic Atomic Layer Control of 2d Ws_2 Using Organic Solvent Vapor, ***Hye Won Han***, *J. Kang, J. Kim, G. Yeom,* Sungkyunkwan University, Republic of Korea

NM-WeP-8 Uniform Vertical Doping of TMDC Materials via , ***Jimin Kim***, *J. Kang, H. Han, G. Yeom,* Sungkyunkwan University, Republic of Korea

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Thin Films and Surface Modification
Room Naupaka Salon 1-3 - Session TF-WeP
Thin Films and Surface Modification Poster Session II
4:00pm

TF-WeP-1 Annealing Temperature Effects on Liquid Crystal Behavior and Electro-Optical Properties in Inorganic Alignment Films, *H. Lee, J. Sim,* Ulsan National Institute of Science Technology, Republic of Korea; ***Hong-Gyu Park***, Changwon National University, Republic of Korea

TF-WeP-3 Synaptic Characteristics of Memristive Au/$LiNbO_3$/Pt Device Based on Schottky Barrier Modulation, ***Sejoon Lee***, *Y. Lee, D. Kim,* Dongguk University, Republic of Korea

TF-WeP-4 X-Ray Photoelectron Spectroscopy and X-Ray Emission Spectroscopy Data Fitting Using a Genetic Algorithm, ***Alaina Humiston***, *J. Terry,* Illinois Institute of Technology

TF-WeP-5 Synaptic Characteristics of Au/$Hf_xZr_{1-x}O_2$/Pt Memristors Based on Double-Barrier Schottky Junctions, ***Youngmin Lee***, *S. Lee, D. Kim,* Dongguk University, Republic of Korea

TF-WeP-6 Isotope Labeling Study of CO2 Formation Pathways in CO-H2O Ice Films under Ultraviolet Irradiation, ***Koichiro Yamakawa***, *A. Hirayama, I. Arakawa,* Japan Atomic Energy Agency, Japan

TF-WeP-10 Synthesis and Characterization of Mo and W Compounds for Disulfide Materials, ***Sunyoung Shin***, *C. Kim, T. Chung, B. Park,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

TF-WeP-11 Creating Multiple Catalytic Sites for Enhanced CO_2 Photoreduction Activity Through Synergistic Catalysis of MIL-TiO_2-PI Hybrids, ***Lipei Ren***, *H. Wang,* Deakin University, Australia, China; *M. Laghaei,* Deakin University, Australia, Iran (Islamic Republic of); *S. zhao, L. Kong,* Deakin University, Australia

TF-WeP-12 Synthesis of Novel Yttrium and Lanthanide Precursors and Fabrication of La_2O_3 Thin Films Through High-Temperature ALD, ***Yongmin GO***, *B. Park,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea; *T. Park,* Hanyang University, Korea

TF-WeP-13 X-Ray Photoelectron Spectroscopy Analysis of Gallium Nitride Thin Film Prepared by Atomic Layer Deposition, *Y. Choi, H. Yoo, H. Kim, W. Lee,* ***Sun Jae Kim***, Sejong University, Republic of Korea

Wednesday Evening, December 11, 2024

	Room Naupaka Salon 4	
5:40pm	**INVITED: TF1-WeE-1** Superlubricity: Toward Design of Zero-Friction and Zero-Wear Materials, ***Diana Berman,*** University of North Texas	**Thin Films and Surface Modification** **Session TF1-WeE** **Thin Films - Properties** **Moderator:** **Tetsuhide Shimizu**, Tokyo Metropolitan University, Japan
6:00pm		
6:20pm	**TF1-WeE-3** Langmuir Monolayer Studies of First-Generation Photoswitchable DASA Surfactants, *H. Kaur,* University of Saskatchewan, Canada*; S. Sumat, S. Murphy,* University of Regina, Canada*;* ***Matthew Paige****,* University of Saskatchewan, Canada	
6:40pm	**TF1-WeE-4** Precise Synthesis of Covalent Organic Framework Thin Films, ***Dong Wang,*** Institute of Chemistry, Chinese Academy of Sciences, China	
7:00pm		
7:20pm	**BREAK**	
7:40pm	**INVITED: TF2-WeE-7** On the Growth of Cubic Boron Nitride Thin Films Using High-Power Impulse Magnetron Sputtering, ***Tetsuhide Shimizu****, H. Nagakura,* Tokyo Metropolitan University, Japan*; Y. Tokuta,* Tokyo Metropolitan Industrial Technology Research Institute, Japan*; I. Fernandez,* Nano4Energy, Spain*; R. Boyd,* Linköping University, Japan*; D. Lundin, U. Helmersson,* Linköping University, Sweden	**Thin Films and Surface Modification** **Session TF2-WeE** **Thin Films - Materials II** **Moderator:** **Diana Berman**, University of North Texas
8:00pm		
8:20pm	**TF2-WeE-9** Physical Properties of Pure Vanadium Nitrides Thin Films, ***Marjorie Cavarroc****, J. Neyrat,* Safran, France*; D. Marquez, D. Michau, A. Poulon-Quintin,* ICMCB, France	
8:40pm	**TF2-WeE-10** Sputter Depth Profile Study of Zrn as a Barrier to Silver Migration in Triso Fuels Using the XPS Neo Artificial Intelligence Fitting Package, ***Jeff Terry,*** Illinois Institute of Technology	

Room Naupaka Salon 4

8:00am		**Thin Films and Surface Modification** **Session TF1-ThM** **Thin Films - Plasma and Etching-related** **Moderator:** **Gregory S. Herman**, Argonne National Laboratory
8:20am	**TF1-ThM-2** Reactive Ion Etching of InGaZnO using HFC-based Gas and Chamber Cleaning, ***Sang Jin Lee***, *J. Hong,* Sungkyunkwan University, Republic of Korea*; Y. Jeong, H. Cho, D. Jung, Y. Yeo,* Samsung Display, Republic of Korea*; D. Kim, G. Yeom,* Sungkyunkwan University, Republic of Korea	
8:40am	**TF1-ThM-3** Eco-Friendly Dry-Cleaning of Silicon Dioxide Deposition Chambers using a Cylinder-Type Remote Plasma Source with NF_3/N_2 Mixtures, ***Won Kyun Yeom***, *H. Gil,* Sungkyunkwan University, Republic of Korea*; G. Yeom,* Sungkyunkwan University (SKKU), Republic of Korea	
9:00am	**INVITED: TF1-ThM-4** Innovative Fluorite-Based High-Entropy Oxide: A Novel Electrocatalyst for All-Vanadium Redox Flow Batteries, ***Chen-Hao Wang***, National Taiwan University of Science and Technology, Taiwan	
9:20am		
9:40am		
10:00am	**BREAK**	
10:20am	**TF2-ThM-8** Wafer-Level Glassblowing Process for Fabrication of 3d Micro-Resonators and Associated Imperfections Due to Surface Modifications and Change in Material Composition, ***Andrei Shkel***, University of California Irvine	**Thin Films and Surface Modification** **Session TF2-ThM** **Thin Films - Surface Modifications** **Moderator:** **Hyo-Chang Lee**, Korea Aerospace University, Republic of Korea
10:40am	**TF2-ThM-9** Relationship between the Uniformity of the r- and S-plane nanofaceted Substrate and the Nuclei Formation for Molecular Beam Epitaxial Layer of ZnTe on Sapphire, ***Shumpei Tanaka***, *M. Kobayashi,* Waseda university, Japan	
11:00am	**INVITED: TF2-ThM-10** Atomic Force Microscope-Based Surface Investigation of Low-Dimensional Materials and Fabrication of the Microscale Probes, ***Sangmin An***, Jeonbuk National University, Republic of Korea	
11:20am		

Thursday Morning, December 12, 2024

	Room Naupaka Salon 5	
8:00am		**Nano and 2D Materials** **Session NM1-ThM** **Nanomaterials - Properties and Applications I** **Moderator:** **Santosh KC**, San Diego State University
8:20am		
8:40am	**INVITED: NM1-ThM-3** Different Directions In Layered Materials, ***Joshua Goldberger,*** The Ohio State University	
9:00am		
9:20am	**NM1-ThM-5** Evaluation of Vapor Pressure of MoO_2Cl_2 and Its Initial Chemical Reaction on a SiO_2 Surface by Ab Initio Thermodynamics, *H. Kim, N. Lee,* ***Yeong-Cheol Kim,*** Korea University of Technology and Education, Republic of Korea	
9:40am	**NM1-ThM-6** Development of TiAl Alloys: A Future Light-Weight Material for Extreme Condition, ***Seong-Woong Kim,*** Korea Institute of Materials Science, Republic of Korea	
10:00am	**BREAK**	
10:20am	**NM2-ThM-8** 2D Metal Carbides (MXenes) for Catalysis, ***Yue Wu,*** Iowa State University	**Nano and 2D Materials** **Session NM2-ThM** **Nanomaterials - Properties and Applications II** **Moderator:** **Yu-Chuan Lin**, National Yang Ming Chiao Tung University (NYCU), Taiwan
10:40am	**NM2-ThM-9** Investigating 2D-Materials Using Correlative Spectroscopy & Microscopy, ***James Lallo,*** *L. Ping, T. Nunney, P. Mack, R. Simpson, H. Tseng,* Thermo Fisher Scientific	
11:00am	**NM2-ThM-10** Electronic, and Optical Properties of 2D Metal Chalcogenophosphates, *H. Chiu,* ***Santosh KC,*** San Diego State University	

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