AVS 70 Program Key

2D 2D Materials
AC Actinides and Rare Earths
AIML AI/ML for Scientific Discovery
AMS Advanced Microscopy and Spectroscopy to Explore Field-Assisted Chemistry
AP Atomic Scale Processing Mini-Symposium
AQS AVS Quantum Science Workshop and Panel on Quantum Industry & Workforce Development
AS Applied Surface Science
BI Biomaterial Interfaces
BP Biomaterials Plenary
CA Chemical Analysis and Imaging of Interfaces
CPS CHIPS Act Mini-Symposium
EL Spectroscopic Ellipsometry
EM Electronic Materials and Photonics
EW Exhibitor Technology Spotlight Sessions
LS Light Sources Enabled Science Mini-Symposium
MI Magnetic Interfaces and Nanostructures
MN MEMS and NEMS
MS Manufacturing Science and Technology
NS Nanoscale Science and Technology
NSP Nanoscale Science and Technology Plenary Session (INVITED SESSION)
PL Plenary Lecture
PS Plasma Science and Technology
QS Quantum Science and Technology Mini-Symposium
SE Advanced Surface Engineering
SS Surface Science
TF Thin Films
UN Undergraduate Poster Session
VT Vacuum Technology

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with:

All sponsoring topic acronyms (e.g. **AC+EM+SS**),
Then a number to indicate simultaneous sessions sponsored by the same topic(s) (e.g. SS**1**, SS**2**),
Then a dash followed by the first two characters of the day of the week:
Monday, **Tu**esday, **We**dnesday, **Th**ursday, **Fr**iday,
Then a single letter for **M**orning, **A**fternoon, **E**vening, **P**oster,
And finally a number indicating the starting time slot for the paper.

Example: SS1-MoM-9 (Surface Science, Monday morning, 11:00 am)

AVS 70 Program Overview

Room /Time	114	115	116	117	120	121
SuA	NSP-SuP: Nanoscale Science and Technology Plenary Session (INVITED SESSION)			BP-SuA: Biomaterials Plenary Session (INVITED SESSION)		
MoM	NS1-MoM: Water and Ionic Transport at the Nanoscale/NS2-MoM: Imaging at the Nano incl. Focused Ion Beam & Electron Microscopy	TF1-MoM: TF for Energy Apps I: Green Fuels and Photovoltaics TF2-MoM: TF Special Session: Remembering Dr. Paul Holloway I	AP+EM+PS+TF-MoM: Area Selective Deposition (ASD) I	BI1-MoM: Biomolecules and Biophysics at Interfaces BI2-MoM: Functional Materials	SS+AMS-MoM: Dynamics and Mechanisms in Heterogeneous Catalysis	LS-MoM: Light Sources Enabled Science Mini-Symposium
MoA	NS1-MoA: Functionality in 2D Nanostruct & Devices NS2-MoA: Light-Matter Interactions at the Nanoscale	TF+AP-MoA: Thin Films Special Session: Remembering Dr. Paul Holloway II & Reception	AS-MoA: Chemical Processes at Surfaces AP1+EM+PS+TF-MoA: ASD II/ AP2+EM+PS +TF-MoA: Model, & Simulation of ALP	BI-MoA: Microbes at Interfaces	SS+AMS-MoA: Surface Chemistry and Reactivity on Oxide Surfaces	VT1-MoA: History of Vac Tech/VT2-MoA: Measure, Part Press, & Gas Anal/VT3-MoA: Leaks, Flows, and Material Outgassing
MoE	**PLENARY LECTURE – BALLROOM B – 5:30-6:30 PM**					
TuM	NS1+2D+QS-TuM: Synthesis and Visualization of Nanostructures I NS2-TuM: Novel Imaging Techniques at the Nanoscale	TF1-TuM: Thin Films: Controlling Crystalline Phases TF2-TuM: Thin Films for Extreme Environments	AP1+EM+PS+TF-TuM: Atomic Layer Etching I: Thermal Processes AP2+EM+PS+TF-TuM: Atomic Layer Etching II: Energy-Enhanced Processes	BI1-TuM: Char of Biological & Bio Surfaces I/BI2-TuM: Char of Biological & Bio Surfaces II: Celebration of Stephanie Allen	SS+CA+LS-TuM: Electrochemical Transformations on Surfaces	VT1-TuM: Vac Tech for Semicond/VT2-TuM: Sustain Energy Prod VT3-TuM: Novel Vac Instrum/VT4-TuM: Accel & Large Vac Systems
TuL						
TuA	EM+2D+BI+QS+TF-TuA: Advances in Photonic Materials and Devices	TF1-TuA: TF for Energy Apps II: Batteries TF2-TuA: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP I)	AP+PS+TF-TuA: Atomic Layer Etching III: Plasma Processes	AS-TuA: Theory, Surface Structure and Processes	SS+CA+LS-TuA: Electrochemistry and Photocatalysis	VT1-TuA: Aerospace Research and Apps VT2-TuA: Vacuum Technology for Fusion Energy
WeM	EM+AIML+AP+QS+TF-WeM: Ferroelectrics and Memory Devices	TF-WeM: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP II)	AP1+EM+PS+TF-WeM: Energy-Enhanced Atomic Layer Proc AP2+EM+PS+TF-WeM: New Advances in ALD	AS-WeM: Quantitative Surface Analysis	SS+2D+AMS-WeM: On-Surface Synth: Atomic & Molecular Ensambling on Surfaces	MI+2D+AC+TF-WeM: Altermagnetism and Spin-Dependent Systems
WeA	EM+AP+TF-WeA: CMOS and BEOL - Advances in Materials Integration and Devices	TF-WeA: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP III)	AMS1-WeA: Adv Micro & Spect to Exp Field-Assisted Chem I /AMS2-WeA: Adv Micro & Spect to Exp Field-Assisted Chem II	AS-WeA: Advanced Materials and Methods	SS+2D+AMS-WeA: Defects Nanoarchitecture and Complex Systems	MI+2D+AC+TF-WeA: 2D Magnetism and Magnetic Nanostructures
ThM	EM+2D+AP+QS+TF-ThM: Epitaxy: Advances in Materials Integration and Devices	TF1+AP-ThM: TF: Fundamentals of ALD TF2+EM-ThM: TF for Microelectronics I: BEOL		AS-ThM: Machine Learning and Data Evaluation	SS-ThM: Celebration of Robert J. Madix and his Contributions to Surface Science (INVITED SESSION)	CA-ThM: In Situ and Operando Analysis of Energy and Environmental Interfaces I
ThA		TF+EM-ThA: Thin Films for Microelectronics II: Ferroelectrics, Dielectrics, and Semiconductors	EL1-ThA: Fundamental Ellipsometry Apps EL2-ThA: Evolving Methodology 8 Anal Methods of Ellipsometry	AS-ThA: Complementary Methods and Industrial Challenges	SS-ThA: Celebration of Robert J Madix and his Contributions to Surface Science & Reception	CA-ThA: In Situ and Operando Analysis of Energy and Environmental Interfaces II
ThP						
FrM		TF1+EM-FrM: TF for Microelectronics III: Wide Band Gap Matls TF2-FrM: TF: Characterization	EL-FrM: Emerging Applications and Workforce Development	MS-FrM: Next Generation and Sustainable Micro-/Nano- Manufacturing	SS+AMS+AS+CA+LS-FrM: Advanced Surface Characterization Techniques & Mort Traum Presentation	CA-FrM: Materials, Interfaces and Metrologies for Electronics

AVS 70 Program Overview

Room /Time	122	123	124	125	Central Hall	West Hall
SuA		AQS-SuA: AVS AQS Workshop and Panel on Quantum Industry & Workforce Development (INVITED SESSION)				
MoM	CPS-MoM: CHIPS Act Mini-Symposium	QS1+VT-MoM: Vacuum Systems for Quantum Applications QS2-MoM: Quant Sim: Matls, Power Dist, Comp, & ML Apps	PS1-MoM: Plasma Processes for Adv Logic PS2-MoM: Atmospheric Plasma Processing	SE-MoM: Plasma-Assisted Surface Modif & Deposition Proc/ Nanostructured & Multifunctional Coatings		
MoA		QS1+EM+MN+PS-MoA: Matls + Devices for Quantum Systems QS2+PS-MoA: Adv Fab & Plasma Tech for Quantum Apps	PS1-MoA: Plasma Surface Interactions PS2-MoA: Plasma Chemistry and Catalysis I	SE-MoA: Surface Engineering Solutions for Sustainable Development		
MoE	**PLENARY LECTURE – BALLROOM B – 5:30-6:30 PM**					
TuM	2D+AP+EM+QS+SS+TF-TuM: 2D Materials: Synthesis and Processing	QS-TuM: Superconducting Qubits and Surface Engineering for Quantum Applications	PS1-TuM: Plasma Processes for Advanced Memory PS2-TuM: Plasma Processing at Cryogenic Temperatures	MN1-TuM: RF and Magnetic MEMS MN2-TuM: Heterogeneous Integration and Packaging		
TuL						EW-TuL: Exhibitor Technology Spotlight Session
TuA	2D+LS+NS+SS-TuA: Electronics Properties	QS-TuA: Advances in Quantum Dots and Dynamic Effects in Josephson Junctions	PS-TuA: Plasma Chemistry and Catalysis II	MN1-TuA: Bio and Environmental MEMS MN2-TuA: MEMS Sensing and Computation		BI-TuA: Future of Biointerface Science Collection (ALL-INVITED SESSION)
WeM	2D+EM+MI+QS-WeM: 2D Materials: Heterostructures, Twistronics, and Proximity Effects	QS-WeM: Quantum Technologies: From Networks and Education to Sensors and User Facilities	PS-WeM: Plasma Modelling	AIML-WeM: AI/ML for Scientific Discovery		
WeA	2D-WeA: 2D Materials: Sensors and Devices		PS1-WeA: Plasma Modelling AI/ML PS2-WeA: Plasma Processes for Emerging Device Technologies			
ThM	2D-ThM: 2D Materials: Defects, Dopants, Edges, Functionalization, and Intercalation	AC+MI-ThM: Superconductivity, Electron Correlation, Magnetism and Complex Behavior	PS-ThM: Plasma Sources, Diagnostics and Control I			
ThA	2D+EM+QS-ThA: 2D Materials: Applications	AC+MI-ThA: Forensics, Disposal and Pu	PS-ThA: Plasma Sources. Diagnostics and Control II			
ThP					POSTER SESSIONS	
FrM	2D+EM+MN+TF-FrM: 2D NEMS and Strain Engineering	AC+MI-FrM: Actinide and Rare Earth Chemistry and Physics	PS+TF-FrM: Plasma Processes for Coatings and Thin Films			

Sunday Afternoon, November 3, 2024

	AVS Quantum Science (AQS) Workshop and Panel on Quantum Industry & Workforce Development (INVITED SESSION) **Room 123 - Session AQS-SuA** **Moderators:** **Charles R. Eddy, Jr.**, Office of Naval Research Global-London, UK, **Dave Pappas**, Rigetti Computing, **Andre Schleife**, University of Illinois at Urbana-Champaign, **Sean Jones**, Argonne National Laboratory	**Biomaterials Plenary Session (INVITED SESSION)** **Room 117 - Session BP-SuA** **Moderators:** **Kenan Fears**, U.S. Naval Research Laboratory, **Christopher So**, Naval Research Laboratory
3:00pm	**INVITED: AQS-SuA-1** Quantum Information Science at the Air Force Research Laboratory, *K.-A. Soderberg, D.Campbell,* ***Mike Fanto,*** Air Force Research Laboratory	
3:15pm		
3:30pm	**INVITED: AQS-SuA-3** Review of AVS Educational Outreach Activities in the Context of an Evolving Quantum Industry and its Related Workforce Development Needs, ***Timothy Gessert,*** AVS Education Committee Chair	
3:45pm		
4:00pm	**INVITED: AQS-SuA-5** Broadening Participation in Quantum Information Science and Engineering as a Generator of Qualified Workforce, ***Tomasz Durakiewicz,*** National Science Foundation	**BREAK**
4:15pm		**INVITED: BP-SuA-6** Biomimetic Chemistry from Sea Creatures for Making Sustainable Adhesives, ***Jonathan Wilker,*** Purdue University
4:30pm	**BREAK**	
4:45pm	**INVITED: AQS-SuA-8** The Quantum Industry: Status and Gaps, ***Jonathan Felbinger,*** SRI	**INVITED: BP-SuA-8** Interfacial Bonding in Underwater Adhesion, ***Joelle Frechette,*** UC Berkeley
5:00pm		
5:15pm	**INVITED: AQS-SuA-10** Alternating Bias Assisted Annealing of Amorphous Oxide Tunnel Junctions, ***Josh Mutus,*** Rigetti Computing, Canada; *D. Pappas, M. Field, C. Kopas,* Rigetti Computing; *L. Zhou,* Ames Laboratory; *X. Wang,* Rigetti Computing; *J. Oh,* Ames Laboratory	**INVITED: BP-SuA-10** Protein Structure at Interfaces – Its Where the Action Is, ***Tobias Weidner,*** Aarhus University, Denmark
5:30pm		
5:45pm	**INVITED: AQS-SuA-12** Progress Towards Merged-Element Transmons with Si Fins – the Si FinMet, ***Chris Palmstrøm,*** University of California, Santa Barbara	
6:00pm		

Sunday Afternoon, November 3, 2024

	Nanoscale Science and Technology Plenary Session **(INVITED SESSION)** **Room 114 - Session NSP-SuP** **Nanoscale Science and Technology Plenary Session** **(INVITED SESSION)** **Moderator: Nikolai Klimov**, NIST	
3:00pm	**INVITED: NSP-SuP-1** NSTD Nanotechnology Recognition Award Talk: The Energy Challenge from a Materials Perspective, ***Federico Rosei***[1], Institut National de la Recherche Scientifique, Centre Énergie, Matériaux et Télécommunications, Canada	
3:15pm		
3:30pm		
3:45pm		
4:00pm		
4:15pm		
4:30pm		

[1] **NSTD Nanotechnology Recognition Award**

	Room 114	
8:15am		**Nanoscale Science and Technology** **Session NS1-MoM** **Water and Ionic Transport at the Nanoscale** **Moderator:** **Mark Hersam**, Northwestern University
8:30am		
8:45am	**INVITED: NS1-MoM-3** Phase Separation and Oxygen Diffusion in Resistive Memory, ***Yiyang Li,*** University of Michigan	
9:00am		
9:15am	**NS1-MoM-5** Advanced Aqueous Separations Using Membranes with Tailored 1D and 2D Confinement, ***Seth Darling,*** Argonne National Laboratory	
9:30am	**NS1-MoM-6** Radioactive Tracer Diffusion through TPT-CNMs, ***Andre Beyer****, N. Khayya, A. Gölzhäuser,* Bielefeld University, Germany	
9:45am	**NS1-MoM-7** Molecular-Resolution Elucidation of Ice Defects Formed by Liquid Water Crystallization, ***Jingshan Du,*** Pacific Northwest National Laboratory*; S. Banik,* University of Illinois - Chicago*; H. Chan,* Argonne National Laboratory*; B. Fritsch,* Helmholtz Institute Erlangen-Nürnberg for Renewable Energy, Germany*; Y. Xia,* University of Washington*; A. Hutzler,* Helmholtz Institute Erlangen-Nürnberg for Renewable Energy, Germany*; S. Sankaranarayanan,* University of Illinois - Chicago*; J. De Yoreo,* Pacific Northwest National Laboratory	
10:00am	**NS1-MoM-8** Reduce Liquid Waste and Improve Throughput in CVD and ALD Processing, ***Kathleen Erickson,*** MSP - A Division of TSI	
10:15am	**BREAK**	
10:30am	**INVITED: NS2-MoM-10** 3D Reconstructions of Dislocation Networks via Focused Ion Beam Electron Channeling Contrast Imaging, ***Julia Deitz,*** *A. Polonsky, T. Ruggles, L. Jauregui, A. Allerman,* Sandia National Laboratories	**Nanoscale Science and Technology** **Session NS2-MoM** **Imaging at the Nanoscale including Focused Ion Beam and Electron Microscopy** **Moderator:** **Alec Talin**, Sandia National Lab
10:45am		
11:00am	**NS2-MoM-12** Transmission Electron Microscopy Investigation of Carbon Nanotube Growth on Stainless Steel Substrates, ***Joshua Hancock****, R. Vanfleet,* Brigham Young University	
11:15am	**NS2-MoM-13** Focused Ion Beam Species Affect Beam Chemistry Applications, ***Gavin Mitchson,*** Thermo Fisher Scientific	
11:30am	**NS2-MoM-14** Detection Efficiency Enhancement for Deterministic Single Ion Implantation, ***Kristian Stockbridge,*** Ionoptika, Ltd., UK*; D. Cox,* University of Surrey, UK*; G. Aresta,* Ionoptika, Ltd., UK*; R. Webb, S. Clowes, B. Murdin,* University of Surrey, UK	
11:45am		

Monday Morning, November 4, 2024

	Room 115	
8:15am	**INVITED: TF1-MoM-1** Unravelling the Role of Stoichiometry of ALD Oxygen Evolution Electrocatalysts on Their Activity, ***Mariadriana Creatore,*** Eindhoven University of Technology, The Netherlands	**Thin Films** **Session TF1-MoM** **Thin Films for Energy Applications I: Green Fuels and Photovoltaics** **Moderators:** **Alexander Kozen**, University of Vermont, **Blake Nuwayhid**, Naval Research Laboratory
8:30am		
8:45am	**TF1-MoM-3** Stability of $CsPbBr_3$ Employing an Ultrathin Al_2O_3 Protective Layer, *F. Quintero-Borbon,* Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey, Mexico*; J. Roy, L. Izquierdo-Fernandez,, R. Wallace, M. Quevedo-Lopez,* Department of Material Science and Engineering, University of Texas at Dallas*;* ***Francisco S. Aguirre-Tostado,*** Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey, Mexico	
9:00am	**TF1-MoM-4** Deposition of Yb-doped Double Halide Perovskite $Cs_2AgBiCl_6$ for High-Efficiency Downconversion of Ultraviolet Photons, ***Pulkita Jain,*** *M. Tran, I. Cleveland, Y. Liu, S. Sarp, E. Aydil,* New York University	
9:15am	**TF1-MoM-5** Low-cost Grown a-Si:H Using Trisilane and its Application to Post Deposition Processes, ***Benedikt Fischer,*** *M. Nuys, S. Haas, U. Rau,* Forschungszentrum Jülich GmbH, Germany	
9:30am	**TF1-MoM-6** Optimization of DC Reactive Sputtering of NiOx Transport Layer and Effects of Annealing Conditions on NiOx film for Perovskite Solar Cells, ***Firdos Ali,*** *S. Gupta,* University of Alabama	
9:45am	**TF1-MoM-7** Tunable Sn_xS_y Deposition onto Functionalized Alkanethiolate Self-Assembled Monolayers by Chemical Bath Deposition, ***Christopher Brewer,*** *R. Woolard, T. Estrada, A. Walker,* University of Texas at Dallas	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: TF2-MoM-10** Fundamental Aspects of Focused Nanoscale Electron-Ion- and Photon-Beam Induced Processing and Recent Advances in Editing Transition Metal Dichalcogenide Materials and Devices, ***Philip Rack,*** Department of Materials Science and Engineering, University of Tennessee, Knoxville	**Thin Films** **Session TF2-MoM** **Thin Films Special Session: Remembering Dr. Paul Holloway I** **Moderators:** **James Fitz-Gerald,** University of Virginia, **Sean Jones**, Argonne National Laboratory, **Robert Grubbs**, IMEC Belgium
10:45am		
11:00am	**INVITED: TF2-MoM-12** Stability of Phosphor Thin Films During Cathodoluminescence and Upconversion, ***Hendrik Swart,*** University of the Free State, South Africa	
11:15am		
11:30am	**TF2-MoM-14** Extracting Diffusing Parameters for Indium Segregating form Copper using TOF-SIMS, ***Jacobus Johannes Terblans,*** *L. Makoloane, S. Cronje, H. Swart,* University of the Free State, South Africa	
11:45am		

Monday Morning, November 4, 2024

	Room 116	
8:15am	**INVITED: AP+EM+PS+TF-MoM-1** Unlocking the Atomic Canvas: Applications and Challenges of Area Selective Deposition in Next-Generation Memory Devices, ***Ebony Mays,*** Micron Technology	**Atomic Scale Processing Mini-Symposium** **Session AP+EM+PS+TF-MoM** **Area Selective Deposition (ASD) I** **Moderators:** **Eric Joseph**, IBM T.J. Watson Research Center, **Adrie Mackus**, Eindhoven University, Netherlands
8:30am		
8:45am	**AP+EM+PS+TF-MoM-3** Area-Selective Atomic Layer Deposition by Sputter Yield Amplification, ***Arthur de Jong****, M. Bär, M. Merkx, E. Kessels, A. Mackus,* Eindhoven University of Technology, Netherlands	
9:00am	**AP+EM+PS+TF-MoM-4** Effectiveness of SiO_2 Functionalization with Methyl versus Silyl Groups to Enable Area-Selective Atomic Layer Deposition of Al_2O_3, ***Andrew Kaye,*** Colorado School of Mines*; S. Agarwal,* Colorado School of Mines, USA*; H. Chandra, R. Pearlstein, X. Lei, A. Derecskei,* EMD Electronics, USA*; B. Zope,* Intermolecular, Inc.	
9:15am	**AP+EM+PS+TF-MoM-5** Progress Towards a New Class of Area Selective Deposition Using Photoassisted Chemical Vapor Deposition on Thermally Sensitive Substrates, *B. Das, R. Rashmi,* University of Florida*; B. Salazar, C. Brewer,* University of Texas at Dallas*; L. McElwee-White,* University of Florida*;* ***Amy Walker,*** University of Texas at Dallas	
9:30am	**AP+EM+PS+TF-MoM-6** Atomic and Molecular Monolayers on Silicon as Resists for Area-Selective Deposition, ***Andrew Teplyakov,*** University of Delaware	
9:45am	**AP+EM+PS+TF-MoM-7** Selective Deposition of Low k SiCOH and Surface Sialylation Repair of Low K Dielectrics for Nano Cu Interconnects, ***Son Nguyen****, H. Shobha, A. Jog, H. Huang, B. Peethala, J. Li, J. Demarest, Y. Yao,* IBM Research Division, Albany, NY	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: AP+EM+PS+TF-MoM-10** Selectivity Loss During Area-Selective Deposition Processes: The Role of Chemical Passivation and Steric Shielding, *M. Merkx, P. Yu, I. Tezsevin, A. Mackus,* Eindhoven University of Technology, Dept. Applied Physics, Netherlands*;* ***Tania E. Sandoval***[1]*,* Universidad Técnica Federico Santa María, Dept. Chemical and Environmental Engineering, Chile	
10:45am		
11:00am	**AP+EM+PS+TF-MoM-12** Computational Screening of Small Molecule Inhibitor Candidates for Area-Selective Atomic Layer Deposition, ***Joost Maas****, I. Tezsevin, P. Yu, M. Merkx,* TU / Eindhoven, Netherlands*; T. Sandoval,* Universidad Tecnica Federico Santa Maria, Chile*; A. Mackus,* TU / Eindhoven, Netherlands	
11:15am	**AP+EM+PS+TF-MoM-13** Ordering of Small Molecule Inhibitors to Block Precursor Adsorption on Cu During Area-Selective Atomic Layer Deposition: A Computational Study, ***Ilker Tezsevin****, J. Maas, M. Merkx,* Eindhoven University of Technology, Netherlands*; S. Semproni, J. Chen,* Intel Corporation*; T. Sandoval,* Universidad Técnica Federico Santa Mariá, Chile*; A. Mackus,* Eindhoven University of Technology, Netherlands	
11:30am	**AP+EM+PS+TF-MoM-14** Revealing the Mechanisms for Loss of Selectivity in Area-Selective ALD Using in-Situ Infrared Spectroscopy, ***Eric H. K. Wong****, M. Merkx, J. Maas, I. Tezsevin, W. Kessels,* Eindhoven University of Technology, The Netherlands*; T. Sandoval,* Universidad Tecnica Federico Santa Maria, Chile*; A. Mackus,* Eindhoven University of Technology, The Netherlands	
11:45am	**AP+EM+PS+TF-MoM-15** Use of Sulfide Inhibitors for Multi-Surface Passivation and Area Selective Deposition, ***Summal Zoha****, B. Gu,* Incheon National University, Republic of Korea*; F. Pieck, R. Tonner Zeck,* Leipzig University, Germany*; H. Lee,* Incheon National University, Republic of Korea	

[1] **AVS Rising Star**

Monday Morning, November 4, 2024

	Room 117	
8:15am	**INVITED: BI1-MoM-1** Molecular Modeling of Peptide and Protein-Based Materials: Role of Surface and Interface on Structure and Function, ***Yaroslava Yingling,*** North Carolina State University	**Biomaterial Interfaces** **Session BI1-MoM** **Biomolecules and Biophysics at Interfaces** **Moderators:** **Christopher So**, Naval Research Laboratory, **Markus Valtiner**, Vienna University of Technology, Austria
8:30am		
8:45am	**BI1-MoM-3** Crowding Accelerates Molecular Aging in Protein Droplets, *M. Brzezinski, P. Argudo, J. Michels,* Max Planck Institute for Polymer Research, Germany; ***Sapun Parekh,*** University of Texas at Austin	
9:00am	**BI1-MoM-4** Self-Healing Nanotubes Consisting of Cyclic Peptides Conjugated by Azobenzene Derivatives, ***Olufolasade Atoyebi,*** *M. Beasley, W. Maza, M. Thum, C. Pyles, S. Tuck, A. Dunkelberger, M. Kolel-Veetil, K. Fears,* US Naval Research Laboratory	
9:15am	**INVITED: BI1-MoM-5** Anti-Biofouling Polymer Coatings with Statistical Amphiphilicity and Improved Environmental Sustainability, ***Rong Yang***[1], Cornell University	
9:30am		
9:45am	**BI1-MoM-7** Aqueous Underwater Adhesives Made from Multiple Agricultural Proteins, ***Zachary Lamberty,*** *C. So,* U.S. Naval Research Laboratory	
10:00am	**BI1-MoM-8** How Is the Hydrophobic Force Modified by an Oscillation Frequency in Saline Conditions?, *C. Wagner, P. Stöcher, M. Valtiner,* ***Laura Mears,*** Vienna University of Technology, Austria	
10:15am	**BREAK**	
10:30am	**BI2-MoM-10** Customizing Naturally-Derived Polymers Using Plasma-Enhanced Chemical Vapor Deposition, ***Morgan Hawker,*** California State University, Fresno	**Biomaterial Interfaces** **Session BI2-MoM** **Functional Materials** **Moderators:** **Kenan Fears**, U.S. Naval Research Laboratory, **Rong Yang**, Cornell University
10:45am	**BI2-MoM-11** Vascularized Polymers: Optimizing Support Systems for Biotic/Abiotic Living Materials, *E. Leonard, S. Zier,* ***Caitlin Howell,*** University of Maine	
11:00am	**BI2-MoM-12** Preserving the Hydrophilicity of Biodegradable Films Post-Plasma Treatment: Impact of Aging Environment on Hydrophobic Recovery, ***Mina Abdelmessih,*** *M. Hawker,* California State University, Fresno	
11:15am	**BI2-MoM-13** 3-D Atomic Layer Infiltrated Metal Oxide Barriers for Thin-Film Active Microelectrode Arrays, ***Martin Niemiec,*** *K. Kim,* University of Connecticut	
11:30am	**BI2-MoM-14** Injectable Siloxane Sponges for on-Site Treatment and Rapid Hemostasis, *P. Sarkar,* ***Kausik Mukhopadhyay,*** University of Central Florida	
11:45am		

[1] **BID Early Career Researchers Award**

Monday Morning, November 4, 2024

	Surface Science **Room 120 - Session SS+AMS-MoM** **Dynamics and Mechanisms in Heterogeneous Catalysis** **Moderators:** **Abner de Siervo**, University of Campinas (UNICAMP), Brazil **Arthur Utz**, Tufts University	**Light Sources Enabled Science Mini-Symposium** **Room 121 - Session LS-MoM** **Light Sources Enabled Science Mini-Symposium** **Moderators: Slavomir Nemsak**, Advanced Light Source, Lawrence Berkeley National Laboratory, **Jessica McChesney**, Argonne National Laboratory
8:15am	**INVITED: SS+AMS-MoM-1** Accurate Dynamical Modelling of Vibrationally Enhanced N_2 Dissociation on Ru(0001) – Implications (Not Only) for Plasma Catalysis, *F. van den Bosch, N. Gerrits,* ***Jörg Meyer,*** Leiden University, Netherlands	**INVITED: LS-MoM-1** Microsecond Dynamics of Surface Reactions Studied by the Time-resolved Ambient Pressure XPS with Chemical Perturbations, *C. Eads, W. Wang,* Max IV Laboratory, Sweden*; U. Kust, J. Prumbs,* Lund University, Sweden*; R. Temperton,* max iv Laboratory, Sweden*; M. Scardamaglia,* max iv laboratory, Sweden*; J. Knudsen,* Lund University, Sweden*;* ***Andrey Shavorskiy,*** Max IV Laboratory, Sweden
8:45am	**SS+AMS-MoM-3** SSD Morton S. Traum Award Finalist Talk: A Priori Designed NiAg Single-Atom Alloys for Selective Epoxidation Reactions, ***Elizabeth E. Happel***[1]*,* Tufts University*; A. Jalil,* University of California at Santa Barbara*; S. Stratton,* Tulane University*; L. Cramer,* Tufts University*; P. Christopher,* University of California at Santa Barbara*; M. Montemore,* Tulane University*; E. Sykes,* Tufts University	**LS-MoM-3** HAXPES at PETRA III and IV: Electronic Structure, Operando Devices and In-situ Catalysis, ***Christoph Schlueter,*** Desy, Deutsches Elektronen-Synchrotron, Germany
9:00am	**SS+AMS-MoM-4** Effect of Surface Diffusion of Methoxy Intermediates on Methanol Decomposition on Pt/TiO_2(110), *C. Liu, B. Lu,* Hokkaido University, Japan*; H. Ariga-Miwa,* The University of Electro-Communications (UEC-Tokyo), Japan*; S. Ogura,* Tokyo Denki University, Japan*; K. Fukutani,* The University of Tokyo, Japan*; M. Gao, J. Hasegawa, K. Shimizu,* Hokkaido University, Japan*; K. Asakura,* Ritsumeikan University, Japan*;* ***Satoru Takakusagi,*** Hokkaido University, Japan	**LS-MoM-4** Hard X-Ray Photoelectron Spectroscopy and Its Application to the Bonding and Electronic Structure of Metal Dihydrides, ***Anna Regoutz,*** University College London, UK
9:15am	**SS+AMS-MoM-5** Simultaneous Tracking of Ultrafast Surface and Gas-Phase Dynamics in Solid-Gas Interfacial Reactions, ***Keith Blackman,*** *E. Segrest, G. Turner, K. Machamer, A. Gupta, M. Pathan,* University of Central Florida, Department of Physics*; N. Berriel,* University of Central Florida, Department of Material Science and Engineering*; P. Banerjee,* University of Central Florida, Department of Material Science and Engineering, Renewable Energy and Chemical Transformations Cluster (REACT)*; M. Vaida,* University of Central Florida, Department of Physics, Renewable Energy and Chemical Transformations Cluster (REACT)	**LS-MoM-5** The Electric Double Layer at Ultra-Thin Film Electrodes and How to Experimentally Assess It, ***Maximilian Jaugstetter,*** LBNL*; L. Falling,* Technical University Munich, Germany*; S. Nemsak, M. Salmeron,* LBNL
9:30am	**SS+AMS-MoM-6** Controlling Surface Sites on CuO Nanoparticles by Annealing Treatments after Synthesis, *S. Rodriguez Bonet,* Instituto de Desarrollo Tecnológico para la Industria Química (CONICET-UNL), Argentina*; K. Hanium Maria,* University of Dhaka, Bangladesh*; M. Bosco,* Universidad Nacional del Litoral, Argentina*;* ***Florencia C. Calaza,*** Instituto de Desarrollo Tecnológico para la Industria Química (CONICET-UNL), Argentina	
9:45am	**SS+AMS-MoM-7** Velocity Map Imaging of Desorbing Oxygen from sub-Surface States of Single Crystals, *A. Dorst, R. Dissanayake,* Georg-August Universität, Göttingen, Germany*; D. Killelea,* Loyola University Chicago*;* ***Tim Schäfer,*** Georg-August Universität, Göttingen, Germany	
10:00am	**SS+AMS-MoM-8** Kinetic Monte Carlo Modelling of Hydrogen Oxidation on Pt/Pd Surfaces, ***Alexander Kandratsenka,*** MPI for Multidisciplinary Sciences, Germany	
10:15am	**BREAK**	**BREAK**
10:30am	**INVITED: SS+AMS-MoM-10** Designing the Local Environment of Single Atom Catalysts for Product Selectivity: Theory Meets Experiment, ***Talat Shahnaz Rahman,*** University of Central Florida	**INVITED: LS-MoM-10** In situ Synchrotron Characterization of Materials Synthesis and Electrochemical Interfaces, ***Katherine Harmon,*** Stanford University*; F. Heremans, S. Hruszkewycz, M. Highland,* Argonne National Laboratory
11:00am	**SS+AMS-MoM-12** Stabilizing and Characterizing Single-Atom Catalysts: Rhodium on Titania, ***Faith J Lewis,*** *M. Eder, J. Hütner, D. Rath, J. Balajka, J. Pavelec, G. Parkinson,* TU Wien, Austria	**LS-MoM-12** Direct Imaging of Local Orbitals in Quantum Materials, ***Martin Sundermann,*** Max Planck Institute for Chemical Physics of Solids, Germany*; H. Yavas,* PETRA III, Deutsches Electron Synchrotron, DESY, Germany*; P. Dolmantas, C. Chang,* Max Planck Institute for Chemical Physics of Solids, Germany*; H. Gretarsson,* PETRA III, Deutsches Elektron Synchrotron, DESY, Germany*; A. Komarek,* Max Planck Institute for Chemical Physics of Solids, Germany*; A. Severing,* Universität zu Köln, Germany*; M. Haverkort,* Universität Heidelberg, Germany*; L. Tjeng,* Max Planck Institute for Chemical Physics of Solids, Germany
11:15am	**SS+AMS-MoM-13** In-Situ Observation of the Effects of Oxygen-Containing Compounds on MoS_2-Based Catalysts Using Near-Ambient Pressure Scanning Tunnelling Microscopy, ***Kerry Hazeldine,*** *M. Hedevang,* Aarhus University, Denmark*; L. Mohrhusen,* Carl von Ossietzky University of Oldenburg, Germany*; J. Vang Lauritsen,* Aarhus University, Denmark	**LS-MoM-13** Bismuth-Trimer Adlayer and Thin Film Growth on In- and Sb-Terminated InSb(111) Surfaces, ***Rohit Yadav,*** *S. Huang, S. Ritter, R. Timm,* Lund University, Sweden
11:30am	**SS+AMS-MoM-14** Revealing Local Coordination of Ag Single Atom Catalyst Supported on CeO_2(110) and ZrO_2(-111), ***Syeda Sherazi,*** *D. Le, K. Ye, S. Xie, F. Liu, T. Rahman,* University of Central Florida	**LS-MoM-14** Innovative High Energy X-Ray Characterization of Interfaces for Quantum Application, ***Andrea Sartori,*** *J. Drnec,* ESRF, France
11:45am	**SS+AMS-MoM-15** Trends for Predicting Adhesion Energies of Catalytic Late Transition Metal Nanoparticles on Oxide Supports, ***Nida Janulaitis,*** The University of Washington*; K. Zhao, C. Campbell,* University of Washington	

[1] **SSD Morton S. Traum Award Finalist**

Monday Morning, November 4, 2024

	Room 122	
8:15am	**CPS-MoM-1** Midwest Semiconductor Collaborative Network for Work Force Training (MSN Force), *G. Tutuncuoglu*, ***Alireza Moazzeni*** Wayne State University	**CHIPS Act Mini-Symposium** **Session CPS-MoM** **CHIPS Act Mini-Symposium** **Moderators:** **Alain Diebold**, University at Albany-SUNY, **Erica Douglas**, Sandia National Laboratories, **Timothy Gessert**, Gessert Consulting
8:30am	**CPS-MoM-2** Opportunities and Challenges for Interdisciplinary Research and Education in Microelectronics, ***Ashok Kumar,*** University of South Florida	
8:45am	**INVITED: CPS-MoM-3** Strategic Roadmapping for Information and Communication Technologies, ***Victor Zhirnov,*** Semiconductor Research Corporation; *V. Zhirnov,* SRC	
9:00am		
9:15am	**INVITED: CPS-MoM-5** Challenges and Opportunities in Characterization and Metrology for the Microelectronics and Advanced Packaging Technologies (MAPT) Roadmap, ***Markus Kuhn,*** Rigaku; *A. Diebold,* SUNY Polytechnic Institute, Albany	
9:30am		
9:45am	**INVITED: CPS-MoM-7** CHIPs Act and Optoelectronics, Devices, and AI/ML, ***Volker Sorger,*** University of Florida	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: CPS-MoM-10** Bridging Opportunities and Challenges: Examining a Community College's Role in Preparing Technicians for the Semiconductor Industry, ***Nancy Louwagie,*** Normandale Community College	
10:45am		
11:00am	**CPS-MoM-12** CHIPS Act and the Future of the Semiconductor Industry Panel Discussion, ***Erica Douglas,*** Sandia National Lab	
11:15am		
11:30am		
11:45am		

	Room 123	
8:15am	**QS1+VT-MoM-1** High-Precision, Four-Way Comparison of Three Cold Atom Vacuum Standards and an Orifice Flow Standard, ***Stephen Eckel***, *D. Barker, J. Fedchak, J. Scherschligt,* National Institute of Standards and Technology (NIST)	**Quantum Science and Technology Mini-Symposium** **Session QS1+VT-MoM** **Vacuum Systems for Quantum Applications** **Moderators:** **Freek Molkenboer**, TNO Science and Industry, the Netherlands, **David Pappas**, Rigetti Computing
8:30am	**QS1+VT-MoM-2** Vacuum Based Quantum Technology with Aluminum Alloys for Space Applications, ***Klaus Bergner***, *F. Löwinger, C. Gruber, L. Gerlach, S. Hüttl, L. Axtmann, A. Trützschler, J. Hertel,* VACOM, Germany*; J. Schneider, L. Kanzenbach, T. Schmidt, S. Wieland, D. Richter,* Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany*; J. Grosse, M. Warner, M. Elsen,* ZARM Center of Applied Space Technology and Microgravity, Germany	
8:45am	**INVITED: QS1+VT-MoM-3** Compact UHV Technology for Quantum, ***Alex Kato***, IonQ	
9:00am		
9:15am	**QS1+VT-MoM-5** Quantum-Based Sensors and Standards with the NIST on a Chip Program, ***Jay Hendricks***, NIST*; B. Goldstein,* NIST-Gaithersburg	
9:30am	**INVITED: QS1+VT-MoM-6** 3D Printed Ion Traps for Quantum Computation, ***Kristin Beck***, Lawrence Livermore National Laboratory	
9:45am		
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: QS2-MoM-10** Power System Dynamic Simulation with Generalized Quantum Carleman Linearization, *J. Chen,* ***Yan Li***, The Pennsylvania State University	**Quantum Science and Technology Mini-Symposium** **Session QS2-MoM** **Quantum Simulations: Materials, Power Distribution, Computing, and Machine Learning Applications** **Moderators:** **Andre Schleife**, University of Illinois at Urbana-Champaign, **Sisira Kanhirathingal**, Rigetti Computing
10:45am		
11:00am	**QS2-MoM-12** Quantum Computer Simulation of Near-Surface Oxygen Vacancies in α-Al_2O_3 (0001), ***Vijaya Begum-Hudde***, *Y. Lee,* University of Illinois at Urbana-Champaign*; B. Jones,* IBM*; A. Schleife,* University of Illinois at Urbana-Champaign	
11:15am	**QS2-MoM-13** Quantum Inception Score: A Quality Measure of Quantum Generative Models, ***Akira Sone***, University of Massachusetts Boston	
11:30am	**QS2-MoM-14** Deep-learning-based Randomness Assessment of Quantum Random Number Generators, ***Hamid Tebyanian***, University of York, UK	

Monday Morning, November 4, 2024

	Room 124	
8:15am	**PS1-MoM-1** Mechanism of Formation of Roughness During Ru Direct Etching, ***Miyako Matsui,*** Hitachi Ltd., Japan*; M. Miura, K. Kuwahara,* Hitachi High-Tech Corp., Japan	**Plasma Science and Technology** **Session PS1-MoM** **Plasma Processes for Advanced Logic** **Moderators:** **John Arnold**, IBM Research Division, Albany, NY, **Angelique Raley**, TEL Technology Center America
8:30am	**PS1-MoM-2** Enabling Advanced Beol Interconnect Scaling Through Ruthenium Subtractive Etch Patterning, ***Shravana kumar Katakam,*** IBM Research Division, Albany, NY*; N. Joy, D. Yan,* TEL Technology Center, America, LLC, Albany, NY*; C. Penny, C. Park, K. Motoyama, H. Shobha, Y. Mignot, J. Lee,* IBM Research Division, Albany, NY	
8:45am	**INVITED: PS1-MoM-3** Atomic Level Control of Plasma Etching Using Various Pulsing and Cyclic Technologies for Leading-edge LSI, ***Masaru Izawa,*** Hitachi High-Tech Corp., Japan	
9:00am		
9:15am	**PS1-MoM-5** Investigating Plasma Interaction with Ultrathin Polymethylmethacrylate Films for EUV Lithography, ***Shikhar Arvind****, E. Witting Larsen, P. Bezard, J. Petersen, S. De Gendt,* IMEC, Belgium	
9:30am	**PS1-MoM-6** In situ Hard Mask Growth for Break Healing in Ultra-Thin Layers Patterning, ***Rémi Vallat****, P. Bézard, B. Chowrira,* IMEC, Belgium*; A. Fathzadeh,* ku Leuven and Imec, Belgium*; K. Filippidou, L. Souriau, K. Ronse,* IMEC, Belgium	
9:45am	**PS1-MoM-7** Plasma Etching of Low K Materials from Room Temperature to -40ºC in Different Fluorine-Based Chemistries, ***Daniel Santos****, C. Vallee,* University at Albany-SUNY	
10:00am	**PS1-MoM-8** Mitigating Plasma-Induced Damage in Low-K SiCOH Thin Films by Cryogenic Etching Process, *R. Chowdhury, T. Poché,* ***Seonhee Jang****, Y. Tesfamariam,* University of Louisiana at Lafayette	
10:15am	**BREAK**	
10:30am	**PS1-MoM-10** Investigation of Cryogenic Fluorine-Based Etching of TaN with Selectivity to SiOCH Low-κ, ***Ivo Otto IV****, C. Vallée,* University at Albany College of Nanotechnology, Science, and Engineering (CNSE)	
10:45am	**PS1-MoM-11** Overview of Mutually Compatible Approaches for Sustainable Patterning Process Development, ***Philippe BEZARD,*** IMEC Belgium*; A. Fathzadeh,* KU Leuven and Imec, Belgium*; R. Vallat, K. Filippidou, E. Gallagher,* IMEC Belgium*; S. De Gendt,* KU Leuven and Imec, Belgium*; F. Holsteyns,* IMEC Belgium	
11:00am	**INVITED: PS2-MoM-12** Adapting Atmospheric Pressure Plasma Sources to Fit Diverse Applications, ***Michael Johnson,*** Naval Research Laboratory, USA	**Plasma Science and Technology** **Session PS2-MoM** **Atmospheric Plasma Processing** **Moderator:** **Michael Gordon**, University of California at Santa Barbara
11:15am		
11:30am	**PS2-MoM-14** Atmospheric Plasma Deposition of Bio-Based Composite Coatings for Enhanced Functional Properties of Paper, ***Kamal Baba****, F. Loyer, N. Boscher, P. Choquet,* Luxembourg Institute of Science and Technology (LIST), Luxembourg*; I. Husić, A. Mahendran, J. Sinic, C. Jocham, H. Lammer,* Wood K plus - Kompetenzzentrum Holz GmbH, Austria	
11:45am	**PS2-MoM-15** Atmospheric Air Plasma Pre-treatment of Plastics, ***Aunic Goodin,*** North Carolina State University*; R. Walker, J. Alcala,* University of Michigan, Ann Arbor*; T. Das,* California Institute of Technology*; S. Chakraborty, S. Bepari, D. Kuila,* North Carolina A&T State University*; W. Goddard,* California Institute of Technology*; J. Foster,* University of Michigan, Ann Arbor*; S. Shannon,* North Carolina State University	
12:00pm	**PS2-MoM-16** Study of the Thermal Profile of an Atmospheric Pressure Argon Plasma Jet, *J. Lalor,* Technological University Dublin, Ireland*;* ***Vladimir Milosavljevic,*** University of Belgrade, Serbia	

Monday Morning, November 4, 2024

	Room 125	
8:15am	**INVITED: SE-MoM-1** Materials Design in Surface Engineering, ***Johanna Rosen,*** Linköping University, IFM, Sweden	**Advanced Surface Engineering** **Session SE-MoM** **Plasma-Assisted Surface Modification and Deposition Processes/Nanostructured and Multifunctional Coatings** **Moderators:** **Diana Berman**, University of North Texas, **Filippo Mangolini**, The University of Texas at Austin
8:30am		
8:45am	**SE-MoM-3** Development of Texture in Ta_2C Thin Films Sputter-Deposited on Free-Standing Graphene, ***Suneel Kodambaka,*** Virginia Tech; *K. Tanaka,* University of Chicago	
9:00am	**SE-MoM-4** Manufacture and Microstructure of Tantalum Nitride Films by Radio Frequency and High Power Impulse Magnetrom Sputtering Techniques, *Y. Chiang, Y. Chang, F.B. Wu,* National United University, Taiwan; ***Jyh-Wei Lee,*** Ming Chi University of Technology, Taiwan, Republic of China	
9:15am	**SE-MoM-5** In-Situ Laser Diagnostics of Plasma Surface Interactions by Fs-TALIF, ***Mruthunjaya Uddi,*** Advanced Cooling Technologies; *G. Urdaneta, A. Dogariu,* Texas A&M University	
9:30am	**SE-MoM-6** Interlayer Optimization for Nitrogen-Incorporated Tetrahedral Amorphous Carbon Thin Film Optically Transparent Electrode, ***Nina Baule,*** *D. Galstyan, L. Haubold,* Fraunhofer USA Center Midwest	
9:45am	**SE-MoM-7** Highly-Ordered Metallic Nanostructure Arrays: Strategies, Status, and Challenges, ***Jinn P. Chu,*** National Taiwan University of Science and Technology, Taiwan	
10:00am	**SE-MoM-8** Refining Deposition and Thermal Processes for High-Quality Bi-Mo-O Thin Films, *R. Gonzalez-Campuzano, A. Hernandez-Gordillo,* ***Sandra Elizabeth Rodil,*** Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México	
10:15am	**BREAK**	
10:30am	**SE-MoM-10** Low-Temperature Synthesis of Stress-Free, Ceramics Thin Films Using Metal-Ion Irradiation, ***Ivan Petrov,*** Univerisity of Illinois at Urbana-Champaign; *L. Hultman, G. Greczynski,* Linköping University, IFM, Sweden	
10:45am	**SE-MoM-11** ASED Young Investigator Award Finalist Talk: Understanding Ceramics Under Extreme Mechanical Loads via Machine-Learning Potential Molecular Dynamics, ***Nikola Koutna***[1], *S. Lin,* TU Wien, Austria; *L. Hultman, D. Sangiovanni,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *P. Mayrhofer,* TU Wien, Austria	
11:00am	**SE-MoM-12** ASED Rising Star Talk: Coupling CdS/g-C_3N_4 Heterojunctions with Remarkably Transfers Process: Impact of Stacking Grade of g-C_3N_4 Micro-flakes, ***Karen Valencia García***[2], *A. Henández Gordillo, S. Rodil Posada,* National Autonomous University of Mexico	
11:15am	**SE-MoM-13** ASED Young Investigator Award Finalist Talk: Advanced EMI Shielding with Quantum Dots and 2D Nanomaterial Enhanced Dual-Polymer Fiber Films, ***Lihua Lou***[1], Florida International University; *G. Al-Duhni,* Florida International University, Jordan; *O. Cruz,* Florida International University, Nicaragua; *J. Volakis, M. Pulugurtha, A. Agarwal,* Florida International University	
11:30am	**SE-MoM-14** Microstructural, Nanomechanical, and Tribological Properties of Thin Dense Chromium Coatings, ***Esteban Broitman,*** *A. Jahagirdar,* SKF Research and Technology Development, Netherlands; *E. Rahimi,* Delft University of Technology, Netherlands; *R. Meeuwenoord,* SKF Research and Technology Development, Netherlands; *A. Mol,* Delft University of Technology, Netherlands	
11:45am		

[1] **ASED Young Investigator Award Finalist**

[2] **AVS Rising Star**

Monday Afternoon, November 4, 2024

	Room 114	
1:30pm	**INVITED: NS1+2D+QS-MoA-1** Low-Dimensional Neuromorphic Electronic Materials and Applications, ***Mark Hersam,*** Northwestern University	**Nanoscale Science and Technology** **Session NS1+2D+QS-MoA** **Functionality in 2D Nanostructures and Devices** **Moderator:** **Nikolai Klimov**, NIST **Andy Mannix,** Stanford University
2:00pm	**INVITED: NS1+2D+QS-MoA-3** Defect Manipulation in van der Waals Heterostructures and its Applications, ***Son Le,*** Laboratory for Physical Sciences; *T. Mai, M. Munoz, A. Hight Walker, C. Richter,* 100 Bureau Dr.; *A. Hanbicki, A. Friedman,* 8050 Greenmead Dr.	
2:30pm	**NS1+2D+QS-MoA-5** Extraordinary Tunnel Electroresistance in Layer-by-Layer Engineered Van Der Waals Ferroelectric Tunnel Junctions , ***Qinqin Wang,*** Department of Electrical and Computer Engineering and Quantum Technology Center, University of Maryland, College Park	
2:45pm	**NS1+2D+QS-MoA-6** Scanning Tunneling Microscopy Studies of Twisted Transition Metal Dichalcogenides , ***Adina Luican-Mayer,*** STEM 150 Louis Pasteur Private, Canada	
3:00pm		
3:15pm		
3:30pm		
3:45pm	**BREAK**	
4:00pm	**NS2-MoA-11** Time-Resolved Photoemission Electron Microscopy Imaging of the Near-Field Dynamics in Silver Nanowires Excited by Few-Cycle Short-Wave Infrared Pulses, ***Nelia Zaiats,*** Lund University, Sweden	**Nanoscale Science and Technology** **Session NS2-MoA** **Light-Matter Interactions at the Nanoscale** **Moderator:** **Nikolai Klimov**, NIST
4:15pm	**NS2-MoA-12** AFM-IR of EHD-Printed PbS Quantum Dots: Quantifying Ligand Exchange at the Nanoscale, *L. Ferraresi, G. Kara,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; ***Nancy Burnham,*** Worcester Polytechnic Institute; *R. Furrer, D. Dirin, F. La Mattinia, M. Kovalenko, M. Calame, I. Shorubalko,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	
4:30pm	**NS2-MoA-13** AVS National Student Awardee Talk: Slow and Fast Timescale Effects of Photoinduced Surface Oxygen Vacancies on the Charge Carrier Dynamics of TiO_2, ***Bugrahan Guner***[1], *O. Dagdeviren,* École de technologie supérieure, University of Quebec, Canada	
4:45pm	**NS2-MoA-14** Improving the Shape and Optical Stabilities of Plasmonic Au Nanobipyramids by Metal Shell Deposition, ***Thomas Egan,*** *G. Chen,* University of Central Florida	
5:00pm	**NS2-MoA-15** Photonic Chip Packaging for Extreme Environments, ***Nikolai N Klimov,*** *S. Robinson,* National Institute for Science and Technology (NIST); *A. Rao,* National Institute for Science and Technology (NIST); University of Maryland; *D. Barker, F. Bateman, G. Holland, D. Westly,* National Institute for Science and Technology (NIST)	
5:15pm	**NS2-MoA-16** Periodic and Quasi-Periodic Plasmonic Architectures for Strong Light-Matter Interaction, *M. Ferrera, V. Aglieri, J. Pelli Cresi,* Istituto Italiano di bomTecnologia, Italy; *E. Ghidorsi,* Istituto Italiano di Tecnologia, Dipartimento di Fisica, Università degli Studi di Genova, Italy; ***Andrea Toma,*** Istituto Italiano di Tecnologia, Italy	

[1] **AVS National Student Award Finalist**

	Room 115	
1:30pm	**INVITED: TF+AP-MoA-1** A Surface Science Approach to Advancing Area-Selective Deposition and Atomic Layer Etching, ***Adrie Mackus,*** Eindhoven University of Technology, Netherlands	**Thin Films** **Session TF+AP-MoA** **Thin Films Special Session: Remembering Dr. Paul Holloway II & Reception** **Moderators:** **Sean Jones**, Argonne National Laboratory, **Philip Rack**, University of Tennessee
1:45pm		
2:00pm	**INVITED: TF+AP-MoA-3** Tuning Surface Radical Species for Area-Selective Initiated Chemical Vapor Deposition of Polymer Thin Films, ***Junjie Zhao,*** Zhejiang University, China	
2:15pm		
2:30pm	**TF+AP-MoA-5** Recent Trends in Thermal ALD Chemistry, ***Markku Leskelä,*** *G. Popov, M. Mattinen, A. Vihervaara, M. Ritala,* University of Helsinki, Finland	
2:45pm	**TF+AP-MoA-6** Ultrathin Polymers Films: Smart Materials and Functionality, ***Rigoberto Advincula,*** University of Tennessee Knoxville	
3:00pm	**INVITED: TF+AP-MoA-7** Growing Polymers Molecule by Molecule Through Vapor Deposition, ***Matthias J. Young,*** University of Missouri-Columbia; *N. Paranamana, M. Mehregan, S. Mehregan, A. Datta,* University of Missouri, Columbia	
3:15pm		
3:30pm	**INVITED: TF+AP-MoA-9** Solar Cells, Sensors, and Sensorimotor Neural Prosthetics: My Branch of the Holloway Tree, ***Loren Rieth,*** West Virginia University	
3:45pm		

	Room 116	
1:30pm	**AS-MoA-1** Investigating the Chemical and Physical Changes of the Boehmite Layer as a Result of AA6061 Surface Etching and Film Growth Time, ***Lyndi Strange***, *S. Niverty, M. Bowden, S. Tripathi, R. Shimskey, J. Wierscheke, M. Pole, V. Joshi,* PNNL	**Applied Surface Science** **Session AS-MoA** **Chemical Processes at Surfaces** **Moderators:** **Jordan Lerach**, PPG Industries, **Alexander Shard**, National Physical Laboratory, UK
1:45pm	**AS-MoA-2** SiO_2 Surfaces Sputtering Profiles: Experimental and Numerical Study, ***Camil Bocaniciu***, *J. Pichler, A. Celebi,* TU Wien, Austria*; M. Ostermann,* CEST GmbH, Austria*; M. Valtiner,* TU Wien, Austria	
2:00pm		
2:15pm		
2:30pm	**INVITED: AP1+EM+PS+TF-MoA-5** Area Selective Deposition: Advances, Challenges and Future Technology Enablement, ***Kandabara Tapily***, *J. Smith, A. deVilliers, G. Leusink,* TEL Technology Center, America, LLC	**Atomic Scale Processing Mini-Symposium** **Session AP1+EM+PS+TF-MoA** **Area Selective Deposition (ASD) II** **Moderators:** **Satoshi Hamaguchi**, Osaka University, Japan, **Richard Vanfleet**, Brigham Young University
2:45pm		
3:00pm	**AP1+EM+PS+TF-MoA-7** Examining UV-Induced Functional Group Formation on 2D Nanomaterials for Patterned ALD, ***Azeez O. Musa***, *A. Werbrouck, N. Paranamana, M. Maschmann, M. Young,* University of Missouri-Columbia	
3:15pm	**AP1+EM+PS+TF-MoA-8** ASD of Low Temperature Cu Capping Layers for Polymers-Based 3D Technologies, ***Silvia Armini***, IMEC Belgium*; A. Brady Boyd,* Aberystwyth University, UK*; E. Chery,* IMEC Belgium	
3:30pm	**AP1+EM+PS+TF-MoA-9** SiO_2 Fluorination/Passivation for Area-Selective Deposition of TiO_2, ZnO, and Polymer on Metal and SiN_x vs. SiO_2, ***Jeremy Thelven***, *H. Oh, H. Margavio, G. Parsons,* North Carolina State University	
3:45pm	**BREAK**	
4:00pm	**INVITED: AP2+EM+PS+TF-MoA-11** Atomistic Simulations on the Fundamental Aspects of Atomic Layer Processing (ALP), ***Bonggeun Shong***, Hongik University, Republic of Korea	**Atomic Scale Processing Mini-Symposium** **Session AP2+EM+PS+TF-MoA** **Modeling and Simulations of Atomic Layer Processing** **Moderators:** **Satoshi Hamaguchi**, Osaka University, Japan,
4:15pm		
4:30pm	**AP2+EM+PS+TF-MoA-13** Understanding Process Parameters in High-Aspect-Ratio ALD via Transport Modeling , ***Victor Vogt***, University of Michigan*; A. Gayle,* National Institute of Standards and Technology (NIST)*; A. Miranda Manon, A. Lenert, N. Dasgupta,* University of Michigan	
4:45pm	**AP2+EM+PS+TF-MoA-14** Modeling Remote Inductively Coupled Plasmas for Plasma-Enhanced Atomic Layer Deposition, ***Mackenzie Meyer***, *D. Boris, M. Johnson, J. Woodward, V. Wheeler,* US Naval Research Laboratory*; M. Kushner,* University of Michigan, Ann Arbor*; S. Walton,* US Naval Research Laboratory	
5:00pm	**AP2+EM+PS+TF-MoA-15** Prediction of Plasma-induced Changes in Surface Morphology and Composition during Atomic Layer Deposition: A Combined Ab-Initio and Monte Carlo Approach, *G. Hwang,* ***Ting-Ya Wang***, University of Texas at Austin	
5:15pm	**AP2+EM+PS+TF-MoA-16** Modelling and Simulation of Plasma-Enhanced Atomic Layer Deposition of Silicon Nitride Over Sidewall Surfaces of a Closing Narrow-Gap Trench, ***Jomar Tercero***, *K. Ikuse, S. Hamaguchi,* Osaka University, Japan	

Monday Afternoon, November 4, 2024

	Biomaterial Interfaces **Room 117 - Session BI-MoA** **Microbes at Interfaces** **Moderators:** **Axel Rosenhahn**, Ruhr-University Bochum, Germany, **Rong Yang**, Cornell University	**Surface Science** **Room 120 - Session SS+AMS-MoA** **Surface Chemistry and Reactivity on Oxide Surfaces** **Moderators:** **Ashleigh Baber**, James Madison University, **Florencia C. Calaza**, Instituto de Desarrollo Tecnológico para la Industria Química, Argentina
1:30pm	**BI-MoA-1** The Role of Surface/Interface Phenomena in The Antibacterial Action of Nano- and Microscale Gallium Oxide and Gallium Hydroxide, ***Yuri M. Strzhemechny,*** *D. Johnson, J. Brannon,* Texas Christian University*; P. Ahluwalia,* Harmony School of Innovation Fort Worth*; T. McHenry, M. Smit, D. Kalluholematham,* Texas Christian University*; Z. Rabine,* Wayne State University*; P. Jodhka,* Tarrant County College Northwest	**SS+AMS-MoA-1** Dynamic Formation of Gem-Dicarbonyl on Rh Decorated Fe_3O_4(001), ***Jiří Pavelec****, C. Wang, P. Sombut, L. Puntscher, M. Eder,* Vienna University of Technology, Austria*; Z. Jakub,* CEITEC, Czechia*; R. Bliem,* Advanced Research Center for Nanolithography, Netherlands*; M. Schmid, U. Diebold,* Vienna University of Technology, Austria*; C. Franchini,* University of Vienna, Austria*; M. Meier, G. Parkinson,* Vienna University of Technology, Austria
1:45pm	**BI-MoA-2** Microbially-Induced Corrosion of Synthetic Granite and Dike Glass by Paenibacillus Polymyxa SCE2 Using ToF-SIMS, ***Gabriel Parker,*** University of Illinois Chicago*; A. Plymale, J. Hager, J. Dhas, Z. Zhu,* PNNL*; L. Hanley,* University of Illinois - Chicago*; X. Yu,* ORNL	**SS+AMS-MoA-2** Water-Gas Shift Reaction Mechanisms on Ligand Coordinated Pt Single Atom Catalyst: Insights from DFT & Microkinetics, ***Dave Austin****, D. Le, T. Rahman,* University of Central Florida
2:00pm	**BI-MoA-3** Titanium Oxynitride Thin Films Deposited in a Custom-Built ALD Reactor with Real-Time Residual Gas Probing to Enhance the Photocatalytic Activity of Polymethylmethacrylate (PMMA) and Induce Antimicrobial Activity on Its Surface, ***Harshdeep Bhatia***, University of Illinois - Chicago*; B. Nagay, V. Barão,* University of Campinas (UNICAMP), Brazil*; G. Jursich, C. Sukotjo, C. Takoudis,* University of Illinois - Chicago	**INVITED: SS+AMS-MoA-3** Surface Chemistry and Catalysis of IrO_2(110), ***Jason Weaver****,* University of Florida*; A. Asthagiri,* Ohio State University*; M. Kim,* Yeungnam University, Republic of Korea*; J. Jamir, C. Pope,* University of Florida*; J. Yun,* Ohio State University*; S. Ramasubramanian,* University of Florida
2:15pm	**BI-MoA-4** Isolation and Identification of Copper-Tolerant Fouling Communities, ***Sara Tuck****, M. Kardish,* US Naval Research Laboratory*; B. Orihuela,* Duke University*; G. Vora,* US Naval Research Laboratory*; K. Franz,* Duke University*; K. Fears,* US Naval Research Laboratory	
2:30pm	**BI-MoA-5** Surface-Cleaning Mechanisms Used by Acorn Barnacles (Amphibalanus Amphitrite) to Prevent Microbial Colonization at Their Adhesive Interface, *Q. Lu, E. McGhee, W. Hervey, D. Leary, C. Spillmann,* ***Kenan Fears,*** US Naval Research Laboratory	**SS+AMS-MoA-5** Room Temperature Activation of Methane and Its Dry Reforming by MgO Nanostructures Embedded in CuO_x on Cu(111), ***Arephin Islam****, K. Reddy,* Brookhaven National Laboratory*; Y. Tian,* Stony Brook University/Brookhaven National Laboratory*; J. Rodriguez,* Brookhaven National Laboratory
2:45pm	**INVITED: BI-MoA-6** BioSAXS - a Tool to Enrich and De-Risk Antimicrobial Drug Development, ***Axel Rosenhahn****, C. Rumancev, A. Gräfenstein,* Ruhr University Bochum, Germany*; K. Hilpert,* University of London, UK	**SS+AMS-MoA-6** Mixed IrO_2/RuO_2(110) Thin Films: Distinct Surface Chemical Properties of the Single-Layer Oxides, ***Suriya Narayanan Ramasubramanian****, C. Sudarshan, J. Shin, C. Lee,* University of Florida, Gainesville*; C. Plaisance,* Louisiana State University*; D. Hibbitts, J. Weaver,* University of Florida, Gainesville
3:00pm	**FLASH SESSION: BI-MoA-7** ***Aurora Battistella****,* University of Colorado at Boulder*;* ***Liza White****,* University of Maine*;* ***Onur Özcan****, École de Technologie Supérieure, University of Quebec* ***Regina Kopecz****,* Ruhr University Bochum, Germany*;* ***Zachary Applebee, Sandro Zier****,* University of Maine*;* ***Louisa Vogler****,* Ruhr University Bochum, Germany*;* ***Torge Hartig****,* Kiel University, Germany*;* ***Lindsay Pierce, Anna Folley****,* University of Maine	**SS+AMS-MoA-7** Active Sites for Oxidation Reactions on Cu_2O Surfaces, ***Dario Stacchiola****,* Brookhaven National Laboratory
3:15pm		**SS+AMS-MoA-8** Tracking Elementary Steps in Conversion of Carboxylic Acids on Single Crystalline and Nanofaceted TiO_2(101), ***Xingyu Wang****,* Pacific Northwest National Lab*; W. Debenedetti,* Los Alamos National Laboratory*; C. O'Connor,* Harvard University*; Z. Dohnalek, G. Kimmel,* Pacific Northwest National Lab
3:30pm		**SS+AMS-MoA-9** Developing First-principles Microkinetic Models for Selective Ethane Oxidation on Cl-substituted IrO2(110), ***Jungwon Yun****,* The Ohio State University*; D. Bae, N. Park,* Yeungnam University, Republic of Korea*; J. Weaver,* University of Florida*; M. Kim,* Yeungnam University, Republic of Korea*; A. Asthagiri,* The Ohio State University
3:45pm	**BREAK**	**BREAK**
4:00pm		**SS+AMS-MoA-11** Small Alcohol Reactivity Over TiO2/Au(111) Inverse Model Catalysts, ***Ashleigh Baber****,* James Madison University
4:15pm		**SS+AMS-MoA-12** Partial Chlorination of IrO_2(110) for Selective Ethane Chemistry, ***Connor Pope****,* University of Florida, Gainesville*; J. Yun,* Ohio State University*; R. Reddy, J. Jamir,* University of Florida, Gainesville*; M. Kim,* Yeungnam University, Republic of Korea*; A. Asthagiri,* Ohio State University*; J. Weaver,* University of Florida, Gainesville
4:30pm		**SS+AMS-MoA-13** Insights into CO_2 Hydrogenation on the InOx/Cu (111) and InOx/Au (111) Surfaces: Surface Electronic Structure and Reaction Mechanistic Studies, ***Prabhakar Reddy Kasala****, J. Rodriguez,* Brookhaven National Laboratory
4:45pm		**SS+AMS-MoA-14** Structural-Electronic Property Evolution of $LiCoO_2$ (001) Under Varied Oxygen Chemical Potentials, ***Yuchen Niu****, J. Reutt-Robey,* University of Maryland College Park
5:00pm		

Monday Afternoon, November 4, 2024

	Room 121	
1:30pm 1:45pm	**INVITED: VT1-MoA-1** Advancements Through the Ages: The Evolution of Vacuum Technology, ***Kurt Lesker IV,*** Kurt J. Lesker Company*; G. Vergason,* Vergason Technology	**Vacuum Technology** **Session VT1-MoA** **History of Vacuum Technology** **Moderators:** **Marcy Stutzman**, Jefferson Lab, **Alan Van Drie**, TAE Technologies
2:00pm	**VT2-MoA-3** Monitoring Chamber Health with an Optical Plasma Gauge, ***Martin Wüest****, S. Kaiser,* INFICON AG, Liechtenstein	**Vacuum Technology** **Session VT2-MoA** **Measurement, Partial Pressure, and Gas Analysis** **Moderators:** **Marcy Stutzman**, Jefferson Lab, **Alan Van Drie**, TAE Technologies
2:15pm	**VT2-MoA-4** Design and Construction of a Fixed Length Optical Cavity (FLOC) Pressure Calibration Standard for Calibration of Military and Commercial Aircraft, ***Jacob Ricker****, K. Douglass, J. Hendricks, T. Bui,* NIST	
2:30pm 2:45pm	**INVITED: VT2-MoA-5** Analysis and Adaptability of the ITER Diagnostic Residual Gas Analyzer Vacuum System, ***Brendan Quinlan****, C. Marcus, J. Perry, C. Smith III, C. Klepper, T. Biewer,* Oak Ridge National Laboratory	
3:00pm	**VT2-MoA-7** Effect of Thermal Transpiration on Calibration of Sapphire-Based Capacitance Manometer, ***Kimihiro Sato****,* Azbil Corporation, Japan	
3:15pm	**VT2-MoA-8** Measurements of Electrode Temperatures in the Standardized Ion Reference Gauge, ***Janez Setina****,* Institute of Metals and Technology, Slovenia	
3:30pm	**VT2-MoA-9** Calibrations of Spinning Rotor Gauges Towards International Comparison of Vacuum Standards, ***Yoshinori Takei****, H. Yoshida,* AIST, Japan	
3:45pm	**BREAK**	
4:00pm 4:15pm	**INVITED: VT2-MoA-11** Vacrysim - Modeling Noise from Residual Gas for Cryogenic Interferometry, ***Henk Jan Bulten****,* Nikhef, Netherlands*; V. Erends,* High Voltage Engineering Europa, Netherlands*; B. Munneke,* Nikhef, Netherlands	
4:30pm	**VT3-MoA-13** Practical Considerations When Using Low Carbon Steel for Extreme High Vacuum Applications, ***Aiman Al-Allaq****,* Old Dominion University*; M. Mamun, M. Poelker,* Thomas Jefferson National Accelerator Facility*; A. Elmustafa,* Old Dominion University	**Vacuum Technology** **Session VT3-MoA** **Leaks, Flows, and Material Outgassing** **Moderators:** **Marcy Stutzman**, Jefferson Lab, **Alan Van Drie**, TAE Technologies
4:45pm	**VT3-MoA-14** Systematic Approach for Ultra-Clean Vacuum, ***Freek Molkenboer****,* TNO Science and Industry, the Netherlands	
5:00pm 5:15pm	**INVITED: VT3-MoA-15** Optimal Load Lock Pressure Measurement Technology?, *T. Swinney****, Cindy Merida,*** *G. Brucker,* MKS Instruments, Inc., Pressure and Vacuum Measurement Group	

	Room 123	
1:30pm	**INVITED: QS1+EM+MN+PS-MoA-1** Elastic Layered Quantum Materials, ***Jiun-Haw Chu,*** University of Washington	**Quantum Science and Technology Mini-Symposium** **Session QS1+EM+MN+PS-MoA** **Materials + Devices for Quantum Systems** **Moderators:** **Jaesung Lee**, University of Central Florida, **Somil Rathi**, Arizona State University
1:45pm		
2:00pm	**QS1+EM+MN+PS-MoA-3** Controllable Extended Defect States in Topological Insulators and Weyl Semimetals, ***Eklavya Thareja****, J. Gayles,* University of South Florida*; I. Vekhter,* Louisiana State University	
2:15pm	**QS1+EM+MN+PS-MoA-4** Topological Interfacial State in One-Dimensional h-BN Phononic Waveguide*, Y. Wang,* ***Sanchaya Pandit****,* University of Nebraska - Lincoln	
2:30pm	**QS1+EM+MN+PS-MoA-5** Scanning Nano-Optical Imaging of Quantum Materials, ***Guangxin Ni,*** Florida State University	
2:45pm	**QS1+EM+MN+PS-MoA-6** Engineering of Erbium-Implanted Lithium Niobate Films for Integrated Quantum Applications, ***Souryaya Dutta,*** College of Nanotechnology, Science, and Engineering (CNSE), University at Albany*; A. Kaloyeros, S. Gallis,* College of Nanotechnology, Science, and Engineering (CNSE), University at Albany (UAlbany)	
3:00pm	**QS1+EM+MN+PS-MoA-7** MBE Grown InAs/GaAs Quantum Dot Platforms with Spatial and Spectral Control for Quantum Devices, ***Nazifa Tasnim Arony****,* University of Delaware*; L. McCabe,* University of Delaware- Now at Yale University*; J. Rajagopal, L. Mai, L. Murray, P. Ramesh, T. Long, M. Doty, J. Zide,* University of Delaware	
3:15pm	**QS1+EM+MN+PS-MoA-8** High Bandwidth Al-Based Single Electron Transistors for Silicon Quantum Dot Charge Sensing, ***Runze Li,*** University of Maryland, College Park*; P. Namboodiri, J. Pomeroy,* NIST-Gaithersburg	
3:30pm		
3:45pm	**BREAK**	
4:00pm	**QS2+PS-MoA-11** High-Rate (>50 nm/hour) Plasma-Enhanced ALD of Superconducting NbxTi1-xN with Substrate Biasing for Quantum Technologies, ***Silke Peeters****, L. Nelissen,* Eindhoven University of Technology, Netherlands*; D. Besprozvannyy,* Oxford Instruments Plasma Technology, UK*; N. Choudhary,* University of Glasgow, UK*; C. Lennon,* Oxford Instruments Plasma Technology, UK*; M. Verheijen,* Eindhoven University of Technology, Netherlands*; M. Powell, L. Bailey,* Oxford Instruments Plasma Technology, UK*; R. Hadfield,* University of Glasgow, UK*; E. Kessels,* Eindhoven University of Technology, Netherlands*; H. Knoops,* Oxford Instruments Plasma Technology, UK	**Quantum Science and Technology Mini-Symposium** **Session QS2+PS-MoA** **Advanced Fabrication and Plasma Techniques for Quantum Applications** **Moderators:** **Angelique Raley**, TEL Technology Center America, **Sebastian Engelmann**, IBM T.J. Watson Research Center, **David Pappas**, Rigetti Computing
4:15pm	**QS2+PS-MoA-12** Plasma etch study of NbTiN/αSi/NbTiN Josephson Junctions for Superconducting Digital Loic, ***Yann Canvel****, S. Kundu, V. renaud, A. Pokhrel, D. Lozano, D. Vangoidsenhoven, B. Kennens, A. Walke,* IMEC Belgium*; A. Herr,* IMEC	
4:30pm	**QS2+PS-MoA-13** Patterning Improvements and Oxidation Mitigation of $Nb_xTi_{(1-x)}N$ Metal Lines Processes for Superconducting Digital Logic, ***Vincent Renaud****, Y. Canvel, A. Pokhrel, S. Iraci, M. Kim, B. Huet, J. Soulie, S. Sarkar, Q. Herr, A. Herr, Z. Tokei,* IMEC, Belgium	
4:45pm	**QS2+PS-MoA-14** Patterning of TiN and TaN for advanced superconducting BEOL, ***Thibaut Chêne,*** CEA-LETI, France*; R. Segaud, F. Nemouchi, S. Minoret,* CEA-Leti, France*; F. Gustavo,* CEA INP Grenoble, IRIG, France*; J. Garrione, T. Chevolleau,* CEA-Leti, France	
5:00pm	**QS2+PS-MoA-15** Optimization of Superconducting Transition Metal Nitride Films Deposited by Reactive High-Power Impulse Magnetron Sputtering, ***Hudson Horne****, C. Hugo, B. Reid, D. Santavicca,* University of North Florida	

	Room 124	
1:30pm	**INVITED: PS1-MoA-1** Advanced Semiconductor Plasma Processes Pioneered by Understanding and Controlling Plasma-Surface Interactions, ***Masaru Hori***, *M. Sekine, T. Tsutsumi, K. Ishikawa,* Nagoya University, Japan	**Plasma Science and Technology** **Session PS1-MoA** **Plasma Surface Interactions** **Moderators:** **Sumit Agarwal**, Colorado School of Mines, **Tetsuya Tatsumi**, Sony Semiconductor Solutions Corporation, Japan
1:45pm		
2:00pm	**PS1-MoA-3** Concurrent Thin Film Deposition in Fluorocarbon Plasmas as a Function of Gas Phase and Surface Reactions, ***Austin Krauss***, University at Albany; *Q. Wang, N. Smieszek, S. Voronin, A. Ko,* Tokyo Electron America; *S. Tahara,* Tokyo Electron Ltd., Japan; *C. Vallee,* University at Albany	
2:15pm	**PS1-MoA-4** Investigation of Highly Diffusive Point Defects During Si Plasma Etching, ***Nobuyuki Kuboi***, *K. Saga, M. Miyoshi, T. Hamano, S. Kobayashi, T. Tatsumi,* Sony Semiconductor Solutions Corporation, Japan; *K. Eriguchi,* Kyoto University, Japan; *Y. Hagimoto, H. Iwamoto,* Sony Semiconductor Solutions Corporation, Japan	
2:30pm	**PS1-MoA-5** Effect of Bias Voltage and H_2 Addition on the Formation of Ammonium Salt Layer during RIE of SiN_x in a CH_2F_2/Ar Plasma, ***Xue Wang***, Colorado School of Mines; *P. Kumar, T. Lill, H. Singh, M. Wang, T. Ozel,* Lam Research Corporation; *S. Agarwal,* Colorado School of Mines	
2:45pm	**PS1-MoA-6** Plasma-Induced Oxidation in Micron-Sized Droplets: Evaluating Transport Limitations, ***Dongxuan Xu***, *P. Bruggeman,* University of Minnesota	
3:00pm	**PS1-MoA-7** Effects of Si/N Ratio on Plasma-induced Damage Creation in Silicon Nitride Films, ***Takahiro Goya***, *K. Urabe, K. Eriguchi,* Kyoto University, Japan	
3:15pm	**PS1-MoA-8** Highly Selective Sin Etching by HF Plasma, ***Megan Manos***, Hitachi High-Tech America, Inc.; *Y. Kurosaki,* Hitachi High-Tech America, Inc., Japan; *J. Ditto,* Hitachi High-Tech America, Inc.; *T. Maeda, T. Hattori,* Hitachi High-Tech, Corp., Japan; *M. Yamada,* Hitachi, Ltd., Japan; *Y. Ishii,* Hitachi High-Tech America, Inc.; *H. Ohtake,* Hitachi High-Tech, Corp., Japan; *K. Maeda,* Hitachi High-Tech Corp., Japan	
3:30pm	**PS1-MoA-9** Dense-Amorphous-Carbon (DAC) Formation from Ion bombardment of Plasma Deposited FCH Films: Temperature and Precursor Dependence, ***Sang-Jin Chung***, University of Maryland, College Park; *P. Luan, M. Park,* TEL Technology Center America; *G. Oehrlein,* University of Maryland, College Park	
3:45pm	**BREAK**	
4:00pm	**INVITED: PS2-MoA-11** Stress Reduction of Hydrogenated Amorphous Carbon Films by Controlling Incorporation of Carbon Nanoparticles, ***Kazunori Koga***, *S. Ono, T. Okumura, K. Kamataki, M. Shiratani,* Kyushu University, Japan	**Plasma Science and Technology** **Session PS2-MoA** **Plasma Chemistry and Catalysis I** **Moderators:** **Michael Gordon**, University of California at Santa Barbara, **Mohan Sankaran**, University of Illinois at Urbana-Champaign
4:15pm		
4:30pm	**PS2-MoA-13** Is Plasma Electrochemistry Just Electrochemistry at Plasma-Liquid Interfaces? Learnings from Organic Reactions, ***Casey Bloomquist***, *E. Aydil, M. Modestino,* New York University	
4:45pm	**PS2-MoA-14** Nonequilibrium Plasma Aerotaxy of $In_xGa_{1-x}N$ Nanocrystals, *D. Moher,* ***Elijah Thimsen***, Washington University in St. Louis	
5:00pm	**PS2-MoA-15** Plasma-Based Reforming of LNG?, *N. Lim,* ***Michael Gordon***, UC Santa Barbara	
5:15pm	**PS2-MoA-16** Hydrogen Production from Nebulized Ethanol in a Nanosecond Pulsed Discharge, ***Linus Nyssen***, *T. Fontaine, D. Petitjean,* Université libre de Bruxelles, Belgium; *N. De Geyter,* Ghent University, Belgium; *F. Reniers,* Université libre de Bruxelles, Belgium	

Monday Afternoon, November 4, 2024

	Room 125	
1:30pm	**INVITED: SE-MoA-1** Towards Responsible Surface Engineering Based on PVD Technology, ***Marcus Hans,*** *J. Schneider,* RWTH Aachen University, Germany*; A. Matthews,* The University of Manchester, UK*; C. Mitterer,* Montanuniversität Leoben, Austria	**Advanced Surface Engineering** **Session SE-MoA** **Surface Engineering Solutions for Sustainable Development** **Moderators:** **Jyh-Wei Lee**, Ming Chi University of Technology, Taiwan, Republic of China, **Ivan Petrov**, University of Illinois at Urbana-Champaign,
1:45pm		
2:00pm	**SE-MoA-3** ASED Rising Star Talk: Unprecedented B Solubility in Cubic (Hf,Ta,Ti,v,Zr)B-C-N Coatings, ***Andreas Kretschmer***[1], TU Wien, Austria*; A. Kirnbauer,* TU Wien, Institute of Materials Science and Technology, Austria*; R. Frost, D. Primetzhofer,* Uppsala University, Sweden*; M. Hans, J. Schneider,* RWTH Aachen University, Germany*; P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria	
2:15pm	**SE-MoA-4** ASED Rising Star Talk: High Temperature Behavior of $Ti_{0.12}Al_{0.21}B_{0.67}$ Coatings Investigated by High-Resolution Transmission Electron Microscopy and DFT Calculations, ***Sebastian Lellig***[1], RWTH Aachen University, Germany, Switzerland*; A. Navidi Kashani,* RWTH Aachen University, Germany*; P. Schweizer,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; M. Hans, G. Nayak,* RWTH Aachen University, Germany*; J. Michler,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; J. Schneider,* RWTH Aachen University, Germany	
2:30pm	**SE-MoA-5** ASED Rising Star Talk: Friction and Wear of MXene/MoS2 Nanocomposite Coating Under Dry and Hydrocarbon-Lubricated Conditions, ***Ali Zayaan Macknojia***[1]*, A. Voevodin, S. Aouadi,* University of North Texas*; S. Berkebile,* Army Research Laboratory*; D. Berman,* University of North Texas	
2:45pm	**SE-MoA-6** ASED Rising Star Talk: Tunable Tribochemical Behavior of Pt-Au Thin Film Alloys Using High-Throughput Testing, ***Tomas Babuska***[1]*, F. DelRio, J. Hall, B. Boyce, D. Adams, J. Custer, M. Jain,* Sandia National Laboratories*; J. Killgore,* NIST-Boulder*; F. Mangolini, C. Edwards,* University of Texas at Austin*; J. Curry,* Sandia National Laboratories	
3:00pm	**SE-MoA-7** ASED Rising Star Talk: Advanced Hipims Nanocrystalline and Metallic-Glass High Z Coatings for Interaction with Liquid Metals, ***Davide Vavassori***[1]*, L. Bana, M. Bugatti, M. Galli De Magistris,* Politecnico di Milano, Italy*; M. Iafrati,* Department of Fusion and Technology for Nuclear Safety and Security, ENEA, Italy*; D. Dellasega, M. Passoni,* Politecnico di Milano, Italy	
3:15pm	**SE-MoA-8** Eliminating Surface Charging in X-Ray Photoelectron Spectroscopy of Insulators for Reliable Bonding Assignments, ***Grzegorz (Greg) Greczynski,*** Linkoping University, Sweden	
3:30pm		
3:45pm	**BREAK**	
4:00pm	**SE-MoA-11** STrengthening Mechanisms for High Entropy Alloy Coatings Fabricated by Magnetron Sputtering, ***Jyh-Wei Lee,*** Ming Chi University of Technology, Taiwan, Republic of China*; B. Lou,* Chang Gung University, Taiwan	
4:15pm	**SE-MoA-12** ASED Rising Star Talk: Multifunctional Optical Surfaces for Displays: From Antireflective to Self-Cleaning and Antimicrobial Functionalities, ***Iliyan Karadzhov***[1]*, C. Graham, A. Mezzadrelli,* ICFO-Institut de Ciencies Fotoniques, Spain*; W. Senaratne, K. Koch, P. Mazumder,* Corning Research and Development Corporation*; V. Pruneri,* ICFO-Institut de Ciencies Fotoniques, Spain	
4:30pm	**SE-MoA-13** Effect of Europium and Gadolinium Alloying Elements on the Tribological Response of Low Hydrogen Content Amorphous Carbon*, C. Edwards, H. Lien, N. Molina,* ***Filippo Mangolini,*** The University of Texas at Austin	
4:45pm	**SE-MoA-14** Importance of the Near-Infrared Optical Properties of Thermal Barrier Coatings*, F. Blanchard, M. Bruzzese, B. Baloukas, J. Klemberg-Sapieha,* ***Ludvik Martinu,*** Polytechnique Montreal, Canada	
5:00pm	**SE-MoA-15** Assessing the Feasibility of Laser Ablation Coating Removal (LACR) on Legacy Bridge Steel: Coating Removal and Adhesion, and Effects on Mechanical Properties, ***W.P. Moffat,*** University of Virginia*; S. Sharp, J. Provines,* Virginia Transportation Research Council*; S. Agnew, J. Fitz-Gerald,* University of Virginia	

[1] **AVS Rising Star**

Monday Evening, November 4, 2024

Plenary Lecture
Room Ballroom B - Session PL-MoE
Moderator:
Mark Engelhard, Pacific Northwest National Laboratory

5:30pm	**INVITED: PL-MoE-1** Advancing Measurement Science for Microelectronics: CHIPS R&D Metrology Program*,* ***Marla Dowell,*** NIST CHIPS Metrology Program	
5:45pm		
6:00pm		
6:15pm		

Tuesday Morning, November 5, 2024

	Room 114	
8:00am	**NS1-TuM-1** Fabrication of High Aspect Ratio Gan and AlN Nanopillar Arrays with M-Oriented Sidewalls by Combining Dry and Wet Processes for the Next Generation of Deep Ultraviolet Light-Emitting Diodes, ***Lucas Jaloustre***, *S. Sales de mello,* CNRS-LTM, France*; L. Valera,* CEA, France*; S. Labau, C. Petit-Etienne,* CNRS-LTM, France*; G. Jacopin,* CNRS, France*; C. Durand,* CEA, France*; E. Pargon,* CNRS-LTM, France	**Nanoscale Science and Technology** **Session NS1-TuM** **Synthesis and Visualization of Nanostructures I** **Moderator:** **Aubrey Todd Hanibiki**, Laboratory for Physical Sciences
8:15am	**NS1-TuM-2** Exploring Large PAH in "Stardust" by HR-AFM, ***Percy Zahl***, Brookhaven National Laboratory*; M. Chacon-Patino, J. Frye-Jones,* National High Magnetic Field Laboratory	
8:30am	**NS1-TuM-3** Direct Atomic Manipulation of a Buried Graphene Interface, ***Marek Kolmer,*** Ames National Laboratory*; J. Hall,* Iowa State University*; S. Chen,* Ames National Laboratory*; S. Roberts, Z. Fei,* Iowa State University*; Y. Han,* Ames National Laboratory*; M. Tringides,* Iowa State University	
8:45am	**NS1-TuM-4** Effect of Methanol and Photoinduced Surface Oxygen Vacancies on the Charge Carrier Dynamics in TiO_2*, B. Guner,* ***Omur E. Dagdeviren,*** École de technologie supérieure, University of Quebec, Canada	
9:00am	**NS1-TuM-5** Single Nanofabrication Step of Low Series Resistance Silicon Nanowire-Based Devices for Giant Piezoresistance Characterization*, K. Shao Chi, L. Spejo,* University of Campinas (UNICAMP), Brazil*; R. Minamisawa,* Institut für Mathematik und Naturwissenschaften Fachhochschule, Switzerland*; J. Diniz,* ***Marcos Puydinger***, University of Campinas (UNICAMP), Brazil	
9:15am	**NS1-TuM-6** Size-Dependent Oxidation of Supported Pd and Pd-Pt Nano-Catalysts Under Methane Oxidation Conditions*, A. Large,* Diamond Light Source, UK*; H. Hoddinott, R. Palmer,* University of Swansea, UK*;* ***Georg Held,*** Diamond Light Source, UK	
9:30am	**NS1-TuM-7** Evidence from Molecular Force Microscopy of Magnetic Monopole-Like Behavior in Chiral Molecule-Coated Superparamagnetic Nanoparticles , ***Sidney Cohen,*** *Q. Zhu,* Weizmann Institute of Science, Israel*; J. Fransson,* Uppsala University, Sweden*; O. Brontvein, R. Naaman,* Weizmann Institute of Science, Israel	
9:45am	**NS1-TuM-8** Mapping the Slow-Decay of End States in a Laterally Extended Graphene Nanoribbon, ***Umamahesh Thupakula,*** CEMES-CNRS, France	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am		**Nanoscale Science and Technology** **Session NS2-TuM** **Novel Imaging Techniques at the Nanoscale** **Moderator:** **Adina Luican-Mayer**, University of Ottawa, Canada
11:15am		
11:30am	**NS2-TuM-15** Silicon-Containing Poly(Phthalaldehyde) Resists for Nanofrazor Applications – Direct Patterning of Hard Mask Materials by Thermal Scanning Probe Lithography, ***Nicholas Hendricks***, *E. Çağin,* Heidelberg Instruments Nano AG, Switzerland	
11:45am	**NS2-TuM-16** Atomic Force Microscopy-Based Nanoscale Mechanics as a Function of Temperature, ***Gheorghe Stan,*** National Institute for Science and Technology (NIST)*; C. Ciobanu,* Colorado School of Mines	
12:00pm	**NS2-TuM-17** Cryogenic Scattering Near-Field Optical Microscopy for Probing Optical Properties with 20nm Spatial Resolution at Temperatures < 10k, ***Tobias Gokus***, attocube systems AG, Germany*; A. Danilov,* attocube systems AG*; R. Hentrich, A. Huber,* attocube systems AG, Germany	

Tuesday Morning, November 5, 2024

	Room 115	
8:00am	**INVITED: TF1-TuM-1** Peter Mark Memorial Award Talk: Strain-Induced Magnetism and Superconductivity in Single-Crystalline Heusler Membranes, ***Jason Kawasaki***[1], University of Wisconsin - Madison	**Thin Films** **Session TF1-TuM** **Thin Films: Controlling Crystalline Phases** **Moderators:** **Lauren Garten**, Georgia Institute of Technology, **April Jewell**, Jet Propulsion Laboratory
8:15am		
8:30am	**TF1-TuM-3** Stabilization of P63cm $ScFeO_3$ on (111) Pt Mediated via an Fe_3O_4 Interlayer, ***Marshall Frye****, J. Chin,* Georgia Institute of Technology*; N. Parker, M. Barone,* Cornell University*; L. Garten,* Georgia Institute of Technology	
8:45am	**TF1-TuM-4** Optimizing Sputter Deposition of Bi_2Te_3 and Sb_2Te_3 for Photolithographic Device Fabrication, ***Rumana Zahir****,* University of Central Florida*; F. Gonzalez,* Truventic LLC*; D. Smalley, A. Bharath, E. Nino, K. Sundaram, M. Ishigami, R. Peale,* University of Central FIlorida	
9:00am	**TF1-TuM-5** Hybrid Pulsed Laser Deposition Growth of Epitaxial Chalcogenides, ***Mythili Surendran****,* USC	
9:15am	**TF1-TuM-6** Atomic Layer Deposition of Entropy Stabilized Zr_xTa_yOz*, S. Witsell, J. Haglund,* ***John Conley****,* Oregon State University	
9:30am	**TF1-TuM-7** Stabilizing Oriented Barium Nickelate Thin Films, ***Ian Graham****, M. Frye, L. Garten,* Georgia Institute of Technology	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: TF2-TuM-13** Nanoscale Metasurfaces for UV Spectropolarimetric Applications, ***Tobias Wenger****, D. Nemchick, D. Wilson, R. Muller, K. Manatt, F. Winiberg, W. Johnson,* Jet Propulsion Laboratory (NASA/JPL)*; H. Hsiao,* National Taiwan University, Taiwan*; B. Drouin,* Jet Propulsion Laboratory (NASA/JPL)	**Thin Films** **Session TF2-TuM** **Thin Films for Extreme Environments** **Moderators:** **April Jewell**, Jet Propulsion Laboratory, **Lauren Garten**, Georgia Institute of Technology
11:15am		
11:30am	**TF2-TuM-15** Amorphous Boron Carbide-Amorphous Silicon Heterojunction Devices for Neutron Voltaic Application*, V. Medic,* ***Natale Ianno****,* University of Nebraska - Lincoln	
11:45am	**TF2-TuM-16** Investigating the Practical Limits of Delta Doping by Low-temperature Silicon Molecular Beam Epitaxy, ***April Jewell****, M. Hoenk,* Jet Propulsion Laboratory	
12:00pm	**TF2-TuM-17** Improvement of Coating Uniformity on Non-Planar, Non-Stationary Substrates Through a Combined Experiment-Simulation Approach, ***Sean Hayes****, S. Baxamusa, J. Biener, X. Lepro-Chavez, J. Forien, T. Parham, T. Braun, L. Sohngen,* Lawrence Livermore National Laboratory*; C. Wild, T. Fehrenbach,* Diamond Materials GmbH, Germany	

[1] **Peter Mark Memorial Award Winner**

	Room 116	
8:00am	**INVITED: AP1+EM+PS+TF-TuM-1** Highly Selective and Isotropic Atomic Layer Etching using Dry Chemical Removal, ***Nobuya Miyoshi,*** Hitachi High-Tech America, Inc.	**Atomic Scale Processing Mini-Symposium** **Session AP1+EM+PS+TF-TuM** **Atomic Layer Etching I: Thermal Processes** **Moderators:** **Steven M. George**, University of Colorado at Boulder, **Austin Minnich**, California Institute of Technology
8:15am		
8:30am	**AP1+EM+PS+TF-TuM-3** Selective Si or Ge Dry, Thermal Spontaneous Etching Using HF Vapor, ***Marcel Junige,*** *T. Colleran, S. George,* University of Colorado Boulder	
8:45am	**AP1+EM+PS+TF-TuM-4** Theoretically Designed Thermal Atomic Layer Etching Processes for Interconnect Metals , ***Miso Kim,*** *H. Cho,* Hongik University, Republic of Korea*; D. Lee, J. Lee, J. Kim, W. Kim,* Hanyang University, Republic of Korea*; B. Shong,* Hongik University, Republic of Korea	
9:00am	**AP1+EM+PS+TF-TuM-5** X-ray Photoelectron Studies of Removal of Sputter Damage from InGaP Surfaces Using Thermal Atomic Layer Etching, ***Ross Edel,*** University of Colorado Boulder*; E. Alexander,* MIT*; A. Cavanagh,* University of Colorado Boulder*; T. Nam,* Soonchunhyang University, Republic of Korea*; T. Van Voorhis,* MIT*; S. George,* University of Colorado Boulder	
9:15am	**AP1+EM+PS+TF-TuM-6** Chemical Vapor Etching or Atomic Layer Etching of ZnO? in Situ Ellipsometry and Mass Spectrometric Studies, ***Terrick McNealy-James,*** *S. Berriel, B. Butkus, P. Banerjee,* University of Central Florida	
9:30am	**INVITED: AP1+EM+PS+TF-TuM-7** Examination of Atomic Layer Etch Mechanisms by Nuclear Magnetic Resonance Spectroscopy, ***Taylor Smith,*** *J.P. Chang,* University of California, Los Angeles	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: AP2+EM+PS+TF-TuM-13** Atomic Layer Etching of Lithium Niobate for Quantum Photonics, ***Austin Minnich,*** California Institute of Technology	**Atomic Scale Processing Mini-Symposium** **Session AP2+EM+PS+TF-TuM** **Atomic Layer Etching II: Energy-Enhanced Processes** **Moderators:** **Steven M. George**, University of Colorado at Boulder, **Austin Minnich**, California Institute of Technology
11:15am		
11:30am	**AP2+EM+PS+TF-TuM-15** Tunable Electron Enhanced Etching of β-Ga_2O_3 Using HCl Reactive Background Gas and Positive Sample Voltage, ***Michael Collings,*** University of Colorado Boulder*; J. Steele, D. Schlom, H. Xing,* Cornell University*; S. George,* University of Colorado Boulder	
11:45am	**AP2+EM+PS+TF-TuM-16** Bias-Pulsed Atomic Layer Etching, ***Julian Michaels,*** University of Illinois at Urbana-Champaign*; N. Delegan,* Argonne National Laboratory, USA*; Y. Tsaturyan,* University of Chicago*; R. Renzas,* University of Nevada Reno*; G. Eden,* University of Illinois at Urbana-Champaign*; D. Awschalom,* University of Chicago*; J. Heremans,* Argonne National Laboratory, USA	
12:00pm	**AP2+EM+PS+TF-TuM-17** Atomic Layer Etching of 2D Transition Metal Dichalcogenides Semiconductors and Its 2D Device Application, ***Jeongmin Kim,*** *J. Kim,* Seoul National University, Republic of Korea	

Tuesday Morning, November 5, 2024

	Room 117	
8:00am	**BI1-TuM-1** Biointerfacial Characterisation of Implanted Medical Devices with OrbiSIMS, ***Morgan Alexander,*** University of Nottingham, UK	**Biomaterial Interfaces** **Session BI1-TuM** **Characterization of Biological and Biomaterial Surfaces I: Celebration of Stephanie Allen** **Moderators:** **Morgan Hawker**, California State University, Fresno, **Sapun Parekh**, University of Texas at Austin
8:15am	**BI1-TuM-2** Insights into the Chemistry of Wheat Leaves and their Uptake of Agrochemicals using OrbiSIMS, *M. Khan,* University of Nottingham, UK*; C. Whitehouse, T. Powell,* Syngenta, UK*; C. Roberts,* ***David Scurr,*** University of Nottingham, UK	
8:30am	**BI1-TuM-3** Imaging 3D Cell Culture Systems , ***Sally McArthur,*** Deakin University, Australia	
8:45am	**BI1-TuM-4** SIMS for Label-Free in situ Analysis of Glycosaminoglycans, ***Li Jennifer Lu,*** University of Nottingham, UK*; J. Hippensteel,* University of Colorado - Anschutz Medical Center*; K. Grobe,* University of Münster, Germany*; C. Gorzelanny,* University Medical Center Hamburg - Eppendorf, Germany*; A. Kotowska, D. Scurr, A. Hook,* University of Nottingham, UK	
9:00am	**BI1-TuM-5** Tribochemical Nanolithography – Fast, Simple Biomolecular Nanopatterning with 23 nm Resolution at Speeds of up to 1 mm s-1, *O. Siles-Brugge, C. Ma, A. Meijer,* ***Graham Leggett,*** University of Sheffield, UK	
9:15am	**BI1-TuM-6** Nanoprobe X-Ray Fluorescence Analysis of Frozen-Hydrated Biological Samples - from 2D to 3D, ***Axel Rosenhahn,*** *C. Rumancev, L. Jusifagic, A. Gräfenstein,* Ruhr University Bochum, Germany	
9:30am	**INVITED: BI1-TuM-7** Harnessing Plasmon-Enhanced Fluorescence for Ultrasensitive and Minimally-Invasive Bio-Diagnostics, ***Srikanth Singamaneni,*** Washington University in St. Louis	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am		**Biomaterial Interfaces** **Session BI2-TuM** **Characterization of Biological and Biomaterial Surfaces II** **Moderators:** **Morgan Hawker**, California State University, Fresno, **Sapun Parekh**, University of Texas at Austin
11:15am	**INVITED: BI2-TuM-14** Native Supported Lipid Bilayers: A Bioanalytical Tool to Study and Detect Viruses, ***Marta Bally,*** *H. Pace,* Umea University, Sweden	
11:30am		
11:45am	**BI2-TuM-16** Force Probe Techniques for Probing Biologic and Lipid Bilayer Interactions Under Physiological Conditions, ***Markus Valtiner,*** *L. Mears, I. Peters,* TU Wien, Austria	

Tuesday Morning, November 5, 2024

	Room 120	
8:00am	**INVITED: SS+CA+LS-TuM-1** Beyond Static Models: Chemical Dynamics in Energy Conversion Electrocatalysts, ***Beatriz Roldan Cuenya***, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany	**Surface Science** **Session SS+CA+LS-TuM** **Electrochemical Transformations on Surfaces** **Moderators:** **Florencia C. Calaza**, Instituto de Desarrollo Tecnológico para la Industria Química, Argentina, **Zhuanghe Ren**, University of Central Florida
8:15am		
8:30am	**SS+CA+LS-TuM-3** Sulfur-Doped Carbon Support Boosts CO2RR Activity of Ag Electrocatalysts, ***Xingyi Deng***, *D. Alfonso, T. Nguyen-Phan, D. Kauffman,* National Energy Technology Laboratory	
8:45am	**SS+CA+LS-TuM-4** Non-Metal Cations for Enhancing CO_2 Electroreduction on Bismuth Electrode, ***Theodoros Panagiotakopoulos***, *K. Shi, D. Le, X. Feng,* University of Central Fllorida; *T. Rahman,* University of Central Florida	
9:00am	**SS+CA+LS-TuM-5** AVS Russell and Sigurd Varian Awardee Talk/SSD Morton S. Traum Award Finalist Talk: How do Cations Promote CO_2 Reduction at the Electrode-Electrolyte Interface, ***Kaige Shi***[1,2], *D. Le, T. Panagiotakopoulos, T. Rahman, X. Feng,* University of Central Florida	
9:15am	**INVITED: SS+CA+LS-TuM-6** Atomistic Simulations on the Triple-Phase Boundary in Proton-Exchange Membrane Fuel Cells, *J. Jimenez, G. Soldano, E. Francesichini,* Facultad de Ciencias Quimicas UNC, Argentina; ***Marcelo Mariscal***, Universidad Nacional de Cordoba, Argentina	
9:30am		
9:45am	**SS+CA+LS-TuM-8** Mechanism of Activity Decrease in Orr on Nitrogen-Doped Carbon Catalysts Based on Acid-Base Equilibrium, ***Kenji Hayashida***, *R. Shimizu,* Tsukuba University, Japan; *J. Nakamura, M. Isegawa,* Kyushu University, Japan; *K. Takeyasu,* Hokkaido University, Japan	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**SS+CA+LS-TuM-13** Particle Size Effect of Ru Nanocatalyst for Nitrate Electroreduction, ***Zhen Meng***, *K. Shi, Z. Ren, X. Feng,* University of Central Florida	
11:15am	**SS+CA+LS-TuM-14** Probing Solvation with Liquid Jet Photoelectron Spectroscopy, ***Jared Bruce***, *S. Faussett, R. Woods,* University of Nevada, Las Vegas; *K. Zhang,* MIT; *A. Haines, F. Furche,* University of California Irvine; *R. Seidel,* Helmholtz Zentrum Berlin, Germany; *B. Winter,* Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany; *J. Hemminger,* University of California Irvine	
11:30am		

[1] **AVS National Student Award Finalist**

[2] **SSD Morton S. Traum Award Finalist**

Tuesday Morning, November 5, 2024

	Room 121	
8:00am	**VT1-TuM-1** Optimizing Electron Emitter Module Geometry for Improved Lifetime through Test-Particle Monte Carlo (TPMC) Simulation, ***Naga Chennuri,*** *N. Petrone, L. Muray,* KLA Corporation	**Vacuum Technology** **Session VT1-TuM** **Vacuum Technology for Semiconductor** **Moderators:** **Sol Omolayo**, Lawrence Berkeley National Laboratory, **Jacob Ricker**, NIST
8:15am	**VT1-TuM-2** New Advanced Home-Built Reactor for in-Situ Studies of ALD and ALE, ***Cristian van Helvoirt****, C. van Bommel, M. Merkx, J. Zeebregts, F. van Uittert, E. Kessels, A. Mackus,* Eindhoven University of Technology, Netherlands	
8:30am	**VT1-TuM-3** Improved Thermal Uniformity in Pedestal Heaters Through the Integration of Thermal Pyrolytic Graphite (TPG®), ***Matt Gallaugher****, I. Nas, A. Murugaiah, J. Troha, D. Sabens,* Momentive Technologies	
8:45am	**INVITED: VT2-TuM-4** Photochemistry and Photocatalysis of Alcohols – Vacuum Technology for Sustainable Chemistry, ***Moritz Eder****,* TU Wien, Austria*; P. Petzoldt, C. Aletsee, M. Tschurl,* Technical University of Munich, Germany*; J. Pavelec, G. Parkinson,* TU Wien, Austria*; U. Heiz,* Technical University of Munich, Germany	**Vacuum Technology** **Session VT2-TuM** **Sustainable Energy Production** **Moderators:** **Sol Omolayo**, Lawrence Berkeley National Laboratory, **Jacob Ricker**, NIST
9:00am		
9:15am	**VT3-TuM-6** Enabling Vacuum Process Monitoring with Time-of-Flight Spectroscopy, ***Marco John****, K. Bergner, S. Hüttl, K. Kirsch, A. Trützschler,* VACOM Vakuum Komponenten & Messtechnik GmbH, Germany	**Vacuum Technology** **Session VT3-TuM** **Novel Vacuum Instrumentation** **Moderators:** **Sol Omolayo**, Lawrence Berkeley National Laboratory, **Jacob Ricker**, NIST
9:30am	**VTD Business Meeting**	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**VT4-TuM-13** Vacuum System for the High Magnetic Field Beamline at Cornell High Energy Synchrotron Sources, ***Yulin Li****,* Cornell University	**Vacuum Technology** **Session VT4-TuM** **Accelerators and Large Vacuum Systems** **Moderators:** **Sol Omolayo**, Lawrence Berkeley National Laboratory, **Jacob Ricker**, NIST
11:15am	**VT4-TuM-14** Leveraging SLAC Facilities and Expertise to Optimize Vacuum Beamline for LCLS-II Accelerator, ***Giulia Lanza****,* SLAC National Accelerator Laboratory	
11:30am	**VT4-TuM-15** Factors Affecting XHV Polarized Electron Source Lifetime, ***Marcy Stutzman****,* Jefferson Lab*; J. Yoskowitz,* Jefferson Lab, Los Alamos National Lab	
11:45am	**VT4-TuM-16** Vacuum Technology Developments at Daresbury Laboratory for Modern Accelerators, ***Keith J. Middleman****, C. Benjamin, J. Conlon, R. Luff, O. Malyshev, E. Marshall, O. Poynton, D. Seal, L. Smith, R. Valizadeh, S. Wilde,* STFC Daresbury Laboratory, UK	
12:00pm	**FLASH SESSION: VT4-TuM-17** ***Charles Smith III****,* Oak Ridge National Laboratory ***Aiman Al-Allaq****,* Old Dominion University	

Tuesday Morning, November 5, 2024

	2D Materials **Room 122 - Session 2D+AP+EM+QS+SS+TF-TuM** **2D Materials: Synthesis and Processing** **Moderators:** **Jyoti Katoch**, Carnegie Mellon University, **Huamin Li**, University at Buffalo-SUNY	**Quantum Science and Technology Mini-Symposium** **Room 123 - Session QS-TuM** **Superconducting Qubits and Surface Engineering for Quantum Applications** **Moderators:** **David Pappas**, Rigetti Computing, **Sisira Kanhirathingal**, Rigetti Computing
8:00am	**INVITED: 2D+AP+EM+QS+SS+TF-TuM-1** Tailored Growth of Transition Metal Dichalcogenides Monolayers and Their Heterostructures, ***Andrey Turchanin,*** Friedrich Schiller University Jena, Germany	**QS-TuM-1** Cryogenic Growth of Tantalum on Silicon and the Effect of Substrate Preparation on Superconducting Circuit Performance, ***Teun van Schijndel,*** University of California Santa Barbara*; A. McFadden,* NIST-Boulder*; W. Yánez-Parreño, J. Dong,* University of California Santa Barbara*; R. Simmonds,* NIST-Boulder*; C. Palmstrøm,* University of California Santa Barbara
8:15am		**QS-TuM-2** Thin Film Growth of Alpha- and Beta-Ta on Low-Loss Oxides for Superconducting Resonator Development, *N. Price, C. Wade, L. Don Manuwelge Don,* Miami University*; S. Padhye, H. Yusuf, E. Mikheev,* University of Cincinnati*;* ***Joseph Perry Corbett,*** Miami University
8:30am	**2D+AP+EM+QS+SS+TF-TuM-3** High-Coverage MoS_2 Growth by Two-Step Annealing Process, ***Shinichi Tanabe,*** *H. Miura,* Tokyo Electron Ltd., Japan*; N. Okada, T. Irisawa,* AIST, Japan*; Y. Huang, H. Warashina, A. Fukazawa, H. Maehara,* Tokyo Electron Ltd., Japan	**INVITED: QS-TuM-3** Quantum Engineering of Superconducting Qubits, ***William D. Oliver,*** MIT
8:45am	**2D+AP+EM+QS+SS+TF-TuM-4** Anomalous Isotope Effect on the Optical Bandgap in a Monolayer Transition Metal Dichalcogenide Semiconductor, ***Kai Xiao,*** Center for Nanophase and Materials Sciences Oak Ridge National Laboratory*; Y. Yu,* School of Physics and Technology, Wuhan University, China*; V. Turkowski,* Department of Physics, University of Central Florida*; J. Hachtel,* Center for nanophase and Materials Sciences Oak Ridge National Laboratory*; A. Puretzky, A. Ievlev, C. Rouleau, D. Geohegan,* Center for Nanophase and Materials Sciences Oak Ridge National Laboratory	
9:00am	**2D+AP+EM+QS+SS+TF-TuM-5** CVD Growth and Characterization of High-Quality Janus SeMoS and SeWS Monolayers, ***Julian Picker,*** Friedrich Schiller University Jena, Germany*; M. Ghorbani-Asl,* Helmholtz Zentrum Dresden-Rossendorf, Germany*; M. Schaal, O. Meißner, F. Otto, M. Gruenewald, C. Neumann, A. George,* Friedrich Schiller University Jena, Germany*; S. Kretschmer,* Helmholtz Zentrum Dresden-Rossendorf, Germany*; T. Fritz,* Friedrich Schiller University Jena, Germany*; A. Krasheninnikov,* Helmholtz Zentrum Dresden-Rossendorf, Germany*; A. Turchanin,* Friedrich Schiller University Jena, Germany	
9:15am	**2D+AP+EM+QS+SS+TF-TuM-6** Location-Selective CVD Synthesis of Circular MoS_2 Flakes with Ultrahigh Field-Effect Mobility, ***Chu-Te Chen,*** *A. Cabanillas, A. Ahmed, A. Butler, Y. Fu, H. Hui, A. Chakravarty, H. Zeng,* University at Buffalo-SUNY*; A. Yadav,* Applied Materials, Inc.*; H. Li,* University at Buffalo-SUNY*; K. Wong,* Applied Materials, Inc.*; F. Yao,* University at Buffalo-SUNY	**QS-TuM-6** Characterization of Hydroxyls in Surface Oxides of Tantalum and Their Mitigation for Superconducting Qubits, ***Ekta Bhatia,*** *N. Pieniazek, A. Biedron, S. Schujman,* NY CREATES*; H. Frost,* Tokyo Electron Ltd. Technology Center America (TTCA) LLC*; Z. Xiao, S. Olson, J. Nalaskowski, K. Musick, T. Murray, C. Johnson, S. Papa Rao,* NY CREATES
9:30am	**2D+AP+EM+QS+SS+TF-TuM-7** Optoelectronic Properties of Exfoliated and CVD Grown TMD Heterostructures , ***Elycia Wright,*** *K. Johnson, S. Coye, M. Senevirathna, M. Williams,* Clark Atlanta University	**INVITED: QS-TuM-7** Identifying and Mitigating Sources of Loss in Superconducting Qubits, ***Akshay Murthy,*** *M. Bal, F. Crisa, S. Zhu, D. Bafia, J. Lee, A. Romanenko, A. Grassellino,* Fermilab
9:45am	**2D+AP+EM+QS+SS+TF-TuM-8** Pulsed Laser Deposited Amorphous Boron Nitride for 2D Materials Encapsulation, ***Daniel T. Yimam,*** *S. Harris, A. Puretzky, I. Vlassiouk, G. Eres, K. Xiao, D. Geohegan,* Oak Ridge National Laboratory, USA	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**2D+AP+EM+QS+SS+TF-TuM-13** Topotaxy for Compositional Variations of Transition Metal Dichalcogenides, ***Matthias Batzill,*** University of South Florida	**INVITED: QS-TuM-13** Dielectric Loss and Two-Level Systems in Superconducting Qubits, ***Chen Wang,*** University of Massachusetts
11:15am	**2D+AP+EM+QS+SS+TF-TuM-14** Solid State Reaction Epitaxy to Create van der Waals Heterostructures between Topological Insulators and Transition Metal Chalcogenides, ***Salma Khatun,*** *O. Alanwoko, V. Pathirage, M. Batzill,* University of South Florida	
11:30am	**2D+AP+EM+QS+SS+TF-TuM-15** AVS National Student Awardee Talk: Quasi-Van Der Waals Epitaxial Growth of Thin γ'-Gase Films, ***Mingyu Yu***[1], University of Delaware*; S. Law,* Pennsylvania State University	**QS-TuM-15** Measuring Loss Tangents of Substrates for Superconducting Qubits with Part per Billion Precision, ***Daniel Bafia,*** *A. Murthy, A. Lunin, G. Nahal, A. Clairmont, M. Bal, A. Romanenko, A. Grassellino,* Fermi National Accelerator Laboratory
11:45am	**2D+AP+EM+QS+SS+TF-TuM-16** Investigation of Dry Transfer of Epitaxial Graphene from SiC(0001), ***Jenifer Hajzus,*** *D. Pennachio, S. Mack, R. Myers-Ward,* U.S. Naval Research Laboratory	**INVITED: QS-TuM-16** Enhanced Qubit Frequency Targeting and Quantum Gate Fidelities in a 25-Qubit Superconducting Quantum Processor, ***Amr Osman,*** *L. Chen, H. Li, A. Nylander, M. Rommel, S. Hill, E. Moschandreou, D. Shiri, M. Faucci Giannelli, A. Fadavi Roudsari, G. Tancredi, J. Bylander,* Chalmers University of Technology, Gothenburg, Sweden
12:00pm	**2D+AP+EM+QS+SS+TF-TuM-17** Nickel Foams Enable Space-Confined Chemical Vapor Deposition (CVD) Synthesis of High-Quality MoS2Films, ***Taylor Currie,*** *L. Tetard, T. Jurca,* University of Central Florida	

[1] **AVS National Student Award Finalist**

Tuesday Morning, November 5, 2024

	Room 124	
8:00am	**PS1-TuM-1** Control of High Aspect Ratio Dielectric Etch Profile using Additive Etching Gases, ***Hyun Woo Tak***, *C. Choi, M. Park, J. Lee, B. Kim, J. Jang, E. Kim, D. Kim, G. Yeom,* Sungkyunkwan University (SKKU), Republic of Korea	**Plasma Science and Technology** **Session PS1-TuM** **Plasma Processes for Advanced Memory** **Moderators:** **John Arnold**, IBM Research Division, Albany, NY, **Jeffrey Shearer**, TEL
8:15am	**PS1-TuM-2** Experimental and Molecular Dynamics Simulation Study of W and WSi Hard-Mask Etching by Fluorocarbon Plasmas, ***Hojun Kang***, Osaka University, Japan, Republic of Korea; *S. Kawabata,* Osaka University, Japan; *N. Mauchamp,* Osaka University, Japan, France; *E. Tinacba,* Osaka University, Japan, Philippines; *T. Ito,* Osaka University, Japan; *S. Kang, D. Lee, J. Son,* Samsung Electronics, Republic of Korea; *K. Karahashi, S. Hamaguchi,* Osaka University, Japan	
8:30am	**INVITED: PS1-TuM-3** 3D NAND Dielectric Etch Technology Challenges and Breakthrough, ***Youn-Jin Oh***, *T. Lill, M. Wilcoxson, T. Kim, H. Singh,* Lam Research Corporation	
8:45am		
9:00am	**PS1-TuM-5** Patterning Challenges of Thick Tungsten Carbide Hard Mask Layers, ***Daniel Montero***, *K. Katcko, F. Lazzarino,* IMEC, Belgium	
9:15am	**PS1-TuM-6** Sheath Uniformity with Pulsed Low Frequency Biases for High Aspect Ratio Plasma Etching, ***Evan Litch***, *M. Kushner,* University of Michigan	
9:30am	**PS1-TuM-7** Study of Electrode Material Effects on High Aspect Ratio SiO_2 Etching in CCP Etch Systems, ***Chanhyuk Choi***, *H. Tak, S. Kim, M. Park, J. Lee, B. Kim, J. Jang, E. Kim, D. Kim, G. Yeom,* Sungkyunkwan University (SKKU), Republic of Korea	
9:45am	**PS1-TuM-8** Low GWP and Low Emission Gases for High Aspect Ratio Etching Application, ***Scott Biltek***, *N. Stafford, P. Nguyen, F. Qin,* Air Liquide; *P. Forest,* Air Liquide, France	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: PS2-TuM-13** Plasma Prize Award Talk: The Evolution of Cryogenic Etching Plasma Processes Since Their Introduction 35 Years Ago, ***Remi Dussart***[1], GREMI CNRS/Université d'Orléans, France	**Plasma Science and Technology** **Session PS2-TuM** **Plasma Processing at Cryogenic Temperatures** **Moderators:** **Phillipe Bezard**, IMEC Belgium, **Harutyun Melikyan**, Micron Technology
11:15am		
11:30am	**PS2-TuM-15** The Role of PF_3 on Etching Characteristics of SiO_2 and SiN Using HF-Based Cryogenic Plasma Etching Analyzed with in situ Monitoring Techniques, ***Shih-Nan Hsiao***, *M. Sekine,* Nagoya University, Japan; *Y. Iijima, R. Suda, M. Yokoi, Y. Kihara,* Tokyo Electron Ltd. Miyagi, Japan; *M. Hori,* Nagoya University, Japan	
11:45am	**PS2-TuM-16** MD Simulations of Cryogenic Etching of SiO_2 by HF Plasmas, ***Nicolas Mauchamp***, Osaka University, Japan; *T. Lill, M. Wang, H. Singh,* Lam Research Corporation; *S. Hamaguchi,* Osaka University, Japan	
12:00pm	**PS2-TuM-17** Mechanisms for Cryogenic Plasma Etching, *Y. Yook,* ***Mark J. Kushner***, University of Michigan	

[1] **PSTD Plasma Prize Winner**

Tuesday Morning, November 5, 2024

	Room 125	
8:00am		**MEMS and NEMS** **Session MN1-TuM** **RF and Magnetic MEMS** **Moderators:** **Robert Davis**, Brigham Young University, **Vikrant Gokhale**, Naval Research Laboratory
8:15am		
8:30am	**INVITED: MN1-TuM-3** Acoustoelectric Devices on Thin-Film Piezoelectric on Substrate Platform: Harnessing the Potential of Phonon-Electron Coupling, ***Reza Abdolvand,*** University of Central Florida	
8:45am		
9:00am	**MN1-TuM-5** Enhanced Performance of Thin-Film Lithium Niobate RF Acoustic Devices through Novel Material Process, *T. Busani,* ***Arjun Aryal,*** University of New Mexico*; S. Tiwari, D. Branch, A. Siddiqui,* Sandia National Laboratories, USA	
9:15am	**MN1-TuM-6** Garnet Based Integrated GHz Thin Film Inductors With High Quality Factor and High Inductance Density, ***Rafael Puig****, D. Hedlund, P. Kulik,* University of Central Florida	
9:30am	**MN1-TuM-7** Fabrication of Strip Line Micro Inductors Using Nickel-Iron Oxide Nanocomposite for Power-Supply on Chip Applications, ***Sai Pranesh Amirisetti****, D. P. Arnold,* University of Florida, Gainesville	
9:45am	**MN1-TuM-8** Rapid Fabrication of Tunable Resonators on Garnet based Magnetic Thin-Films, ***Nicholas Gagnon****, M. Franz, M. Gamez, D. Hedlund, R. Abdolvand, P. Kulik,* University of Central Florida	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: MN2-TuM-13** Advanced Packaging Driven Heterogeneous Integration, ***Robert Patti,*** NHanced Semiconductors Inc	**MEMS and NEMS** **Session MN2-TuM** **Heterogeneous Integration and Packaging** **Moderators:** **Robert Davis**, Brigham Young University, **Vikrant Gokhale**, Naval Research Laboratory
11:15am		
11:30am	**MN2-TuM-15** Advances in Reliability Monitoring and Failure Analysis in Three-Dimensional Microsystems, ***Matthew B. Jordan****, M. Bahr, L. Basso, A. Mounce, A. Ferris, J. McDow, J. Christiansen, J. Walraven, W. Mook,* Sandia National Laboratories*; J. Lee,* University of Central Florida*; A. Jarzembski, W. Hodges, J. Carroll, B. Young, G. Pickrell, L. Yates, J. Neely,* Sandia National Laboratories	
11:45am		

Exhibitor Technology Spotlight Sessions
Room West Hall - Session EW-TuL
Exhibitor Technology Spotlight Session
Moderator: Christopher Moffitt, Kratos Analytical Inc

12:00pm		
12:15pm		
12:30pm	**EW-TuL-3** New Developments for Surface Analysis from Thermo Fisher Scientific, ***Tim Nunney***, *P. Mack, R. Simpson, H. Tseng,* Thermo Fisher Scientific, UK	
12:45pm	**EW-TuL-4** Physical Electronics Spotlight Session: Driving Discoveries Through Surface Analysis: New Methods for Thin Film Characterization, ***Amy Ferryman,*** Physical Electronics	
1:00pm	**EW-TuL-5** Kratos Spotlight Session: Kratos Axis Supra+ -- Automated XPS analysis, including HAXPES and operando measurements, ***Chris Moffitt,*** Kratos Analytical Inc.,	
1:15pm	**EW-TuL-6** Enviroesca II: An Evolution in Surface Chemical Analysis Under Environmental Conditions, ***Stefan Böttcher***, *F. Mirabella, P. Dietrich, A. Thissen,* SPECS Surface Nano Analysis GmbH, Germany	
1:30pm	**EW-TuL-7** Impedans Spotlight Session: Advancing Plasma Understanding and Control: Cutting-Edge Solutions from Impedans Ltd., ***Angus McCarter***, *A. Verma, T. Gilmore,* Impedans Ltd., Ireland	
1:45pm	**EW-TuL-8** Vital Materials Spotlight Session: Film Properties of LTC V2 - A Low Process Temperature TCO, ***Rajiv Pethe***, *S. Yoon,* Vital Chemicals	
2:00pm	**EW-TuL-9** Using VSim to Predict Magnetron Performance Through Multiscale Computations, ***Daniel Main,*** Tech-X Corporation	

Room 114

Electronic Materials and Photonics
Session EM+2D+BI+QS+TF-TuA
Advances in Photonic Materials and Devices
Moderators:
Leland Nordin, University of Central Florida,
Philip Lee, University of Kentucky

2:15pm	**INVITED: EM+2D+BI+QS+TF-TuA-1** New Materials for Metamaterials: Electrochemical Materials and Switchable Chiral Nanostructures, ***Vivian Ferry,*** University of Minnesota
2:30pm	
2:45pm	**EM+2D+BI+QS+TF-TuA-3** Optoelectronic Nanowire Neuron, ***Thomas Kjellberg Jensen,*** Lund University, Sweden; *J. E. Sestoft,* Niels Bohr Institute, Denmark; *D. Alcer, N. Löfström, V. Flodgren, A. Das,* Lund University, Sweden; *R. D. Schlosser, T. Kanne Nordqvist,* Niels Bohr Institute, Denmark; *M. Borgström,* Lund University, Sweden; *J. Nygård,* Niels Bohr Institute, Denmark; *A. Mikkelsen,* Lund University, Sweden
3:00pm	**EM+2D+BI+QS+TF-TuA-4** Modulation of Optical and Plasmonic Properties of Epitaxial and Precision Titanium Nitride Thin Films, *I. Chris-Okoro,* North Carolina A&T State University; *S. Cherono,* North Carolina A & T State Uni; *C. Martin,* Ramapo College of New Jersey; *V. Craciun,* National Institute for Laser, Plasma, and Radiation Physics, Romania; *S. Kim, J. Mahl, J. Yano,* Lawrence Berkeley National Laboratory; *E. Crumlin,* Lawrence Berkeley Lab; *D. Kumar,* North Carolina A & T State Uni; ***Wisdom Akande,*** North Carolina A&T State University
3:15pm	**EM+2D+BI+QS+TF-TuA-5** Nano-Focusing and Characterization of the OAM Beam Through an Optical Fiber Using Plasmonic Nanostructure, ***Rohil Kayastha,*** *W. Zhang, B. Birmingham,* Baylor University; *Z. Gao,* Texas A&M University; *J. Hu,* Baylor University; *R. Quintero-Torres,* UNAM, Mexico; *A. V. Sokolov,* Texas A&M University; *Z. Zhang,* Baylor University
3:30pm	**BREAK**
3:45pm	
4:00pm	**EM+2D+BI+QS+TF-TuA-8** Templated Block Copolymer Network Thin Films as 3D Chiral Optical Metamaterials: Connecting Finite-Difference Time-Domain and Self-Consistent Field Theory Simulations, *E. McGuinness, B. Magruder, P. Chen, K. Dorfman, C. Ellison,* ***Vivian Ferry,*** University of Minnesota
4:15pm	**EM+2D+BI+QS+TF-TuA-9** Solution Processing of Optical Phase Change Materials, ***Brian Mills,*** Massachusetts Institute of Technology; *R. Sharma, D. Wiedeman,* University of Central Florida; *C. Schwarz,* Ursinus College; *N. Li,* Massachusetts Institute of Technology; *E. Bissell,* University of Central Florida; *C. Constantin Popescu,* massachusetts Institute of Technology; *D. Callahan,* Charles Stark Draper Laboratory, Inc.; *P. Banerjee, K. Richardson,* University of Central Florida; *J. Hu,* Massachusetts Institute of Technology
4:30pm	**EM+2D+BI+QS+TF-TuA-10** Effects of Ce Concentration on the Microstructural, Optical, and Luminescence Properties in Ce:GAGG Ceramic Phosphors, ***William Bowman,*** *S. Lass,* University of Central Florida; *F. Moretti, W. Wolszczak,* Lawrence Berkeley National Laboratory; *R. Gaume,* University of Central Florida
4:45pm	**EM+2D+BI+QS+TF-TuA-11** Solution Based Processing of $Ge_2Sb_2Se_4Te_1$ Phase Change Material for Optical Applications, ***Daniel Wiedeman,*** *R. Sharma, E. Bissel, P. Banerjee,* University of Central Florida; *B. Mills, J. Hu,* Massachusetts Institute of Technology; *M. Sykes, J. Stackawitz, J. Lucinec, C. Schwarz,* Ursinus College; *K. Richardson,* University of Central Florida
5:00pm	**EM+2D+BI+QS+TF-TuA-12** Multi-Dimensional p-WSe_2/n-Ga_2O_3 Enhancement-Mode Phototransistors for Stand-Alone Deep-Ultraviolet Sensing, *J. Kim,* ***Soobeen Lee,*** Seoul National University, South Korea

	Room 115	
2:15pm		**Thin Films** **Session TF1-TuA** **Thin Films for Energy Applications II: Batteries** **Moderators:** **Mark Losego**, Georgia Institute of Technology, **Adriana Creatore**, Eindhoven University of Technology, Netherlands
2:30pm	**TF1-TuA-2** Surface Chemistry of Plasma Exposure on Sulfide Solid Electrolytes, ***Alexander Kozen***, University of Vermont; *Y. Wang, D. Fontecha, G. Rubloff, S. Lee,* University of Maryland, College Park	
2:45pm	**TF1-TuA-3** Tuning the Composition and Structure of High Mobility Nasicon-Type Thin Films Through Atomic Layer Deposition, ***Daniela R. Fontecha***[1], University of Maryland College Park; *A. Kozen,* University of Vermont; *D. Stewart, G. Rubloff, K. Gregorczyk,* University of Maryland College Park	
3:00pm	**TF1-TuA-4** Unlocking Novel Chemistry in Atomic Layer Deposition: Transformative Insights from Trimethylaluminum Interactions with Battery Materials, ***Donghyeon Kang***, *A. Mane, J. Elam,* Argonne National Laboratory	
3:15pm	**TF1-TuA-5** Mapping Lithium Diffusion in Thin-Film V_2O_5 using Raman Spectroscopy, ***Daniel MacAyeal***, University of Vermont; *L. Tapia-Aracayo, S. Caverly, D. Stewart, G. Rubloff,* University of Maryland; *A. Kozen,* University of Vermont	
3:30pm	**BREAK**	
3:45pm		
4:00pm	**INVITED: TF2-TuA-8** Roll-to-Roll Photoinitiated Chemical Vapor Deposition of Polymer Films for Liquid-Repellent Textiles, ***Trisha Andrew***, University of Massachusetts - Amherst; *W. Viola, E. Chalouhi,* Soliyarn	**Thin Films** **Session TF2-TuA** **Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP I)** **Moderators:** **Mark Losego**, Georgia Institute of Technology, **Adriana Creatore**, Eindhoven University of Technology, Netherlands
4:15pm		
4:30pm	**TF2-TuA-10** Battery Separators with Ultrathin iCVD-Polymer Coatings Mitigate Polysulfide Crossover in Lithium-Sulfur Batteries, ***Ramsay Nuwayhid***, *H. Ford, J. Yeom, C. Love, J. Long, R. Carter,* U.S. Naval Research Laboratory	
4:45pm	**TF2-TuA-11** Synthesis and Characterization of Ion Beam Nano-Engineered Metal-Polymer Nanocomposite Thin Films for SERS Application, ***Jai Prakash***, National Institute of Technology Hamirpur, India; *H. Swart,* University of the Free State, South Africa	
5:00pm	**TF2-TuA-12** In situ Analysis of Temperature Dependence During Molecular Layer Deposition of Polyurea, ***Wallis Scholl***, Colorado School of Mines; *T. Lill, H. Singh, M. Wang,* Lam Research Corporation; *S. Agarwal,* Colorado School of Mines	
5:15pm	**INVITED: TF2-TuA-13** Multi-Stimuli Responsive Sensors for Electronic Skin Applications, ***Anna Maria Coclite***, University of Bari, Italy	
5:30pm		

[1] **TFD James Harper Award Finalist**

	Atomic Scale Processing Mini-Symposium **Room 116 - Session AP+PS+TF-TuA** **Atomic Layer Etching III: Plasma Processes** **Moderators:** **Robert Bruce**, IBM Research, T. J. Watson Research Center, **Udyavara Sagar**, Lam Research	**Applied Surface Science** **Room 117 - Session AS-TuA** **Theory, Surface Structure and Processes** **Moderators:** **Paul S. Bagus**, University of North Texas, **Jodi Grzeskowiak**, Tokyo Electron America, USA
2:15pm	**INVITED: AP+PS+TF-TuA-1** Atomic Layer Etching with Plasma Processing for Semiconductor Device Fabrication, ***Heeyeop Chae,*** Sungkyunkwan University (SKKU), Republic of Korea	**INVITED: AS-TuA-1** Advances in Understanding Structure and Electron Transfer Dynamics at Iron Oxide/Water Interfaces, ***Kevin Rosso,*** Pacific Northwest National Laboratory
2:30pm		
2:45pm	**AP+PS+TF-TuA-3** Atomic Layer Etching in HBr/He/Ar/O_2 Plasmas, ***Qinzhen Hao,*** *M. Elgarhy,* University of Houston*; P. Kim, S. Nam, S. Kang,* Samsung Electronics Co., Republic of Korea*; V. Donnelly,* University of Houston	**AS-TuA-3** Manifestation of Correlated Electronic Structure in a Kagome Metal $YbTi_3Bi_4$, ***Anup Pradhan Sakhya,*** University of Central Florida*; B. Ortiz,* Materials Science and Technology Division, Oak Ridge National Laboratory*; B. Ghosh,* Northeastern University, US*; M. Sprague, M. Mondal,* University of Central Florida*; M. Matzelle,* Northeastern University, US*; I. Elius, N. Valadez,* University of Central Florida*; D. Mandrus,* University of Tennessee Knoxville*; A. Bansil,* Northeastern University, US*; M. Neupane,* University of Central Florida
3:00pm	**AP+PS+TF-TuA-4** Comparisons of Atomic Layer Etching of Silicon in Cl_2 and HBr-Containing Plasmas, ***Mahmoud Elgarhy,*** *Q. Hao,* University of Houston*; P. Kim, S. Nam, S. Kang,* Samsung Electronics Co.*; V. Donnelly,* University of Houston	**AS-TuA-4** Impact of Surface Pretreatment on Al_2O_3/GaN and HfO_2/GaN Band Offsets Measured by X-Ray Photoelectron Spectroscopy, ***Melissa Meyerson,*** *P. Dickens, J. Klesko, B. Rummel, P. Kotula, A. Binder,* Sandia National Laboratories
3:15pm	**AP+PS+TF-TuA-5** Atomic Layer Etching of Crystalline MoS_2 by Plasma Fluorination and Oxygenation, ***Sanne Deijkers***[1]*, C. Palmer, N. Chittock, E. Kessels, A. Mackus,* Eindhoven University of Technology, The Netherlands	**AS-TuA-5** Absence of Electronic Structure Reconfiguration in EuSnP Across the Antiferromagnetic Transition, ***Milo Sprague,*** *A. Sakhya,* University of Central Florida*; S. Regmi,* Idaho National Laboratory*; M. Mondal, I. Bin Elius, N. Valadez,* University of Central Florida*; T. Romanova, A. Ptok, D. Kaczorowski,* Polish Academy of Sciences, Poland*; M. Neupane,* University of Central Florida
3:30pm	**BREAK**	**BREAK**
3:45pm		
4:00pm	**AP+PS+TF-TuA-8** A Reduced Order Model of Plasma-Surface Interactions in Atomic Layer Etching, ***David Graves,*** Princeton University*; J. Vella,* TEL Technology Center, America, LLC	**INVITED: AS-TuA-8** Calculation of X-Ray Absorption Spectra of f-Element Compounds from First Principles, ***Jochen Autschbach,*** University at Buffalo, SUNY
4:15pm	**AP+PS+TF-TuA-9** Atomic Layer Etching of SiO_2 using Sequential Exposures of $Al(CH_3)_3$ and H_2/SF_6 Plasma, ***David Catherall,*** *A. Hossain, A. Minnich,* California Institute of Technology	
4:30pm	**AP+PS+TF-TuA-10** Atomic Layer Etching of Cu Using Alternating Cycles of Hexafluoroacetylacetone and O_2 Plasma, ***Yusuke Nakatani,*** Hitachi High-Tech, Japan*; A. Kaye,* Colorado School of Mines, USA*; Y. Sonoda, M. Tanaka, K. Maeda,* Hitachi High-Tech, Japan*; S. Agarwal,* Colorado School of Mines, USA	**AS-TuA-10** The XPS of Ni Compounds – A Comparative Study, ***Paul S. Bagus,*** University of North Texas*; C. Nelin,* Consultant*; N. Lahiri,* pacific Northwest National Lab*; E. Ilton,* Pacific Northwest National Lab
4:45pm	**AP+PS+TF-TuA-11** Enabling Anisotropic and Selective Etch Through Surface Modification of Ru, ***Owen Watkins,*** UCLA*; H. Simka,* Samsung Electronics*; J. Chang,* UCLA	**AS-TuA-11** The Experimental Asymmetry of the 2*p*, 3*d*, and 4*f*, Photoemission Spectra of the Elements of the 3rd, 4th, and 5th Periods, ***Alberto Herrera-Gomez,*** Cinvestav, Mexico*; A. Dutoi,* University of the Pacific*; D. Guzman-Bucio,* CINVESTAV-Queretaro, Mexico*; D. Cabrera-German,* Universidad de Sonora, Mexico*; A. Carmona-Carmona,* Benemerita Universidad Autonoma de Puebla, Mexico*; O. Cortazar-Martinez,* CINVESTAV-Unidad Queretaro, Mexico*; B. Crist,* The XPS Library*; M. Mayorga-Garay,* CINVESTAV-Unidad Queretaro, Mexico
5:00pm	**AP+PS+TF-TuA-12** Enhanced Control of Plasma Surface Interaction to Etch Alloys Using Transient Assisted Plasma Etching (Tape), ***Atefeh Fathzadeh,*** KU Leuven/ IMEC, Belgium*; P. Bezard,* IMEC Belgium*; T. Conard, F. Holsteyns,* IMEC, Belgium*; S. De Gendt,* KU Leuven/Imec, Belgium	**AS-TuA-12** Computational Exploration of Dimension Limits for Narrow Gap Transport of Reactive Species, ***Greg Hartmann,*** *S. Sridhar, P. Ventzek,* Tokyo Electron America, Inc.
5:15pm	**AP+PS+TF-TuA-13** Leveraging Plasma Nitridation for Atomic Layer Etching of Ni_3Al, ***Taylor G. Smith,*** University of California, Los Angeles*; J. de Marneffe,* imec, Belgium*; J. Chang,* University of California, Los Angeles	**AS-TuA-13** High-Temperature Diffraction and Surface Electron-Phonon Coupling of the Unreconstructed Metallic and (3x1)-O Reconstructed Nb(100) Surfaces by Helium Atom Scattering, ***Michael Van Duinen,*** *C. Thompson,* University of Chicago*; M. Kelley, C. Mendez,* Cornell University*; S. Willson, V. Do,* University of Chicago*; T. Arias,* Cornell University*; S. Sibener,* University of Chicago
5:30pm		**AS-TuA-14** The Type of Ru Oxide on Ru(0001) Determines the Activity for the Decomposition of Silane, ***Ester Perez Penco,*** *R. Bliem,* ARCNL

[1] **TFD James Harper Award Finalist**

	Room 120	
2:15pm 2:30pm	**INVITED: SS+CA+LS-TuA-1** Surface Sensitive Studies of the Electrolyte-Electrode Interface, ***Edvin Lundgren***, Lund University, Sweden	**Surface Science** **Session SS+CA+LS-TuA** **Electrochemistry and Photocatalysis** **Moderators:** **Jared Bruce**, University of Nevada Las Vegas, **Taku Suzuki**, NIMS (National Institute for Materials Science), Japan
2:45pm	**SS+CA+LS-TuA-3** Operando Studies of CO2, CO and N2 Catalytic Hydrogenation Reactions investigated with Ambient Pressure XPS, *P. Amann,* Scienta Omicron, Germany; ***Andrew Yost,*** *Scienta Omicron USA*	
3:00pm	**SS+CA+LS-TuA-4** Understanding the Intrinsic Activity and Selectivity of Cu for Ammonia Electrosynthesis from Nitrate, ***Zhuanghe Ren****, K. Shi, Z. Meng, X. Feng,* University of Central Florida	
3:15pm	**SS+CA+LS-TuA-5** Insights Into Photocatalytic Reduction Activities of Different Well-Defined Single Bulk Crystal TiO_2 Surfaces in Liquid, ***Olawale Ayoade****, W. Lu, H. Zhu, Z. Zhang,* Baylor University	
3:30pm 3:45pm	**BREAK**	
4:00pm 4:15pm	**INVITED: SS+CA+LS-TuA-8** Selectivity Control by Ionic Liquid Layers: From Surface Science to the Electrified Interface, ***Joerg Libuda****,* Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Germany	
4:30pm	**SS+CA+LS-TuA-10** Area Selective Atomic Layer Deposition for Spatial Control of Reaction Selectivity on Model Photocatalysts, ***Wilson McNeary****,* National Renewable Energy Laboratory*; W. Stinson,* Columbia University*; W. Zang, M. Waqar, X. Pan,* University of California Irvine*; D. Esposito,* Columbia University*; K. Hurst,* National Renewable Energy Laboratory	
4:45pm	**SS+CA+LS-TuA-11** Titanium-Based Catalysts for CO_2 Activation: Experimental Modelling of Hybride (Photo-)Catalysts*, N. Kruse, J. Klimek, C. Groothuis,* ***Lars Mohrhusen****,* University of Oldenburg, Germany	
5:00pm	**SS+CA+LS-TuA-12** Tracking the Ultrafast Dynamics of a Photoinduced Reaction at the Surface of a Reactive Semiconductor: CH_3I Photoinduced Reaction on TiO_2 (110) Surface*, A. Gupta,* University of Central Florida*; T. Wang,* University of Washington*; K. Blackman, C. Smith,* University of Central Florida*; X. Li,* University of Washington*;* ***Mihai E. Vaida****,* University of Central Florida	
5:15pm	**SS+CA+LS-TuA-13** Kinetic Theory of Mixed-Potential-Driven Catalysis and the Experimental Proof*, M. Yan, N. Namari, R. Arsyad, H. Suzuki,* University of Tsukuba, Japan*; J. Nakamura,* Kyushu University, Japan*;* ***Kotaro Takeyasu****,* Hokkaido University, Japan	
5:30pm	**FLASH SESSION: SS+CA+LS-TuA-14** ***Elizabeth E. Happel****,* Tufts University*;* ***Ayoyele Ologun****,* University of Illinois - Chicago*;* ***Mohammad Rahat Hossain****,* University of Illinois at Chicago*;* ***Irene Barba-Nieto****,* Brookhaven National Laboratory, Spain*;* ***Filippo Longo****,* Empa, Swiss Federal Labs for Materials Science and Technology, Switzerland*;* ***Asishana Onivefu****,* University of Delaware*;* ***Ravi Ranjan****,* University of California - Riverside*;* ***Kaige Shi****,* University of Central Florida*;* ***Rivaldo Marsel Tumbelaka****,* Nara Institute of Science and Technology, Japan	

	Room 121	
2:15pm	**INVITED: VT1-TuA-1** Gas Analysis and Vacuum Characterization for Space and Lunar Exploration, ***Andres Diaz,*** INFICON	**Vacuum Technology** **Session VT1-TuA** **Aerospace Research and Applications** **Moderators:** **Giulia Lanza**, SLAC National Accelerator Laboratory, **Julia Scherschligt**, National Institute of Standards and Technology
2:30pm		
2:45pm		
3:00pm	**VT2-TuA-4** ITER Service Vacuum System Client Connections, *C. Smith III,* ***Jared Tippens,*** Oak Ridge National Laboratory	**Vacuum Technology** **Session VT2-TuA** **Vacuum Technology for Fusion Energy** **Moderators: Giulia Lanza**, SLAC National Accelerator Laboratory, **Julia Scherschligt**, National Institute of Standards and Technology
3:15pm	**VT2-TuA-5** All-Metal Mechanical Pumping Solution Replacing the ITER Cryogenic Regeneration Roughing Pump System, ***Jonathan Perry,*** Oak Ridge National Laboratory; *S. Hughes,* ITER Organization, France; *C. Smith,* Oak Ridge National Laboratory	
3:30pm	**BREAK**	
3:45pm		
4:00pm	**INVITED: VT2-TuA-8** Exploring Vacuum Technology in Nuclear Fusion: Challenges and Opportunities within STEP Fuel Cycle, ***Sophie Davies,*** United Kingdom Atomic Energy Authority, UK; *A. Tarazona,* United Kingdom Atomic Energy Authority (UKAEA), UK	
4:15pm		
4:30pm		
4:45pm	**VT2-TuA-11** Overview of the Vacuum Pumping Systems for the SPARC Tokamak, ***Matt Fillion,*** *A. Kuang, O. Mulvany, J. Fountas, P. Winn,* Commonwealth Fusion Systems	
5:00pm	**VT2-TuA-12** Design and Development of an Optical Gas Sensor for Fusion Applications, ***Joe Brindley,*** *P. McCarthy,* Gencoa, UK; *C. Marcus, C. Klepper, B. Quinlan,* ORNL	
5:15pm	**VT2-TuA-13** Development of the SPARC Tokamak Exhaust Purification System, ***Eric Dombrowski,*** Commonwealth Fusion Systems	

	2D Materials **Room 122 - Session 2D+LS+NS+SS-TuA** **Electronics Properties** **Moderators: Masa Ishigami**, University of Central Florida, **Slavomir Nemsak**, Advanced Light Source, Lawrence Berkeley National Laboratory	**Quantum Science and Technology Mini-Symposium** **Room 123 - Session QS-TuA** **Advances in Quantum Dots and Dynamic Effects in Josephson Junctions** **Moderators: Sisira Kanhirathingal**, Rigetti Computing, **Ekta Bhatia**, NY CREATES
2:15pm	**INVITED: 2D+LS+NS+SS-TuA-1** NanoARPES for the Study of 2D Materials, ***Aaron Bostwick,*** Advanced Light Source, Lawrence Berkeley National Laboratory	**INVITED: QS-TuA-1** Toward Robust Spin-Optical Interfaces in Molecular Spin Qubits, ***Leah Weiss,*** *G. Smith,* University of Chicago*; R. Murphy, B. Golesorkhi, J. Long,* University of California at Berkeley*; D. Awschalom,* University of Chicago
2:30pm		
2:45pm	**2D+LS+NS+SS-TuA-3** Observation of Interlayer Plasmon Polaron in Graphene/WS_2 Heterostructures, *S. Ulstrup,* Aarhus University, Denmark*; Y. Veld,* Radboud University, Netherlands*; J. Miwa, A. ones,* Aarhus University, Denmark*; K. McCreary, J. Robinson, B. Jonker,* Naval Research Laboratory*; S. Singh,* Carnegie Mellon University, USA*; R. Koch, E. Rotenberg, A. Bostwick, C. Jozwiak,* Advanced Light Source, Lawrence Berkeley National Laboratory*; M. Rosner,* Radboud University, Netherlands*; **Jyoti Katoch,*** Carnegie Mellon University, USA	**QS-TuA-3** Characterization of epitaxially grown Al-Ge/SiGe quantum wells for voltage-controlled Josephson junctions, ***Joshua Thompson,*** Laboratory for Physical Sciences*; S. Davari,* University of Arkansas*; C. Gaspe, K. Sardashti,* Laboratory for Physical Sciences*; H. Churchill,* University of Arkansas*; C. Richardson,* Laboratory for Physical Sciences
3:00pm	**2D+LS+NS+SS-TuA-4** Harnessing the Synergy of X-ray Photoelectron Spectroscopy (XPS) and Argon Cluster Etching for Profound Analysis of MoS_2 and Graphene, ***Jonathan Counsell,*** Kratos Analytical Limited, UK*; C. Moffitt, D. Surman,* Kratos Analytical Inc.*; L. Soomary, K. Zahra,* Kratos Analytical Limited, UK	**QS-TuA-4** Nanoscale Spatial Control of Colloidal Quantum Dots and Rods Using DNA for Next-Generation Quantum Devices, ***Xin Luo,*** *C. Chen, M. Bathe,* MIT
3:15pm	**2D+LS+NS+SS-TuA-5** Monark Quantum Foundry: Advancing 2d Quantum Materials Through Automated Pipelines, ***Amirhossein Hasani,*** *N. Borys,* Montana State University, USA*; H. Churchill,* University of Arkansas	
3:30pm	**BREAK**	**BREAK**
3:45pm		
4:00pm	**INVITED: 2D+LS+NS+SS-TuA-8** Manipulation of Chiral Interface States in a Moiré Quantum Anomalous Hall Insulator, ***Tiancong Zhu,*** Purdue University	**QS-TuA-8** Developing a Novel Approach to Extract the Current-Phase Relation of Josephson Junctions with On-Wafer Microwave Probing and Calibration Techniques, ***Elyse McEntee Wei,*** Colorado School of Mines*; P. Dresselhaus, A. Fox, D. Williams, C. Long,* National Institute of Standards and Technology, Boulder*; S. Eley,* University of Washington
4:15pm		**QS-TuA-9** Aging effects after Alternating Bias Assisted Annealing of Josephson Junctions, ***David P. Pappas,*** *X. Wang, J. Howard, E. Sete,* Rigetti Computing*; G. Stiehl,* rice University*; S. Poletto, X. Wu, M. Field, N. Sharac, C. Eckberg, H. Cansizoglu, J. Mutus, K. Yadavalli, A. Bestwick,* Rigetti Computing
4:30pm	**2D+LS+NS+SS-TuA-10** Scanning Tunneling Microscopy and Spectroscopy of Single Layer $NiTe_2$ on Au, ***Stephanie Lough,*** University of Central Florida*; M. Ishigami,* University of Central Florida	**QS-TuA-10** Evaluating Radiation Impact on Transmon Qubits Using a Fast Decay Protocol in Above and Underground Laboratories, ***Tanay Roy,*** Fermi Lab
4:45pm	**2D+LS+NS+SS-TuA-11** Nanoscale heterogeneities at Transition Metal Dichalcogenide-Au Interfaces, ***Taisuke Ohta,*** *A. Boehm, A. Kim, C. Spataru, K. Thuermer, J. Sugar,* Sandia National Laboratories*; J. Fonseca Vega, J. Robinson,* Naval Research Laboratory	**QS-TuA-11** Quantum Enhanced Josephson Junction Field-Effect Transistors for Logic Applications, ***W. Pan,*** *A. Muhowski, W. Martinez, C. Sovinec, J. Mendez, D. Mamaluy,* Sandia National Laboratories
5:00pm	**2D+LS+NS+SS-TuA-12** Xenon Trapping in Silica Nanocages Supported on Metal Powder, ***Laiba Bilal,*** SBU*; A. Boscoboinik,* Brookhaven National Laboratory	**QS-TuA-12** Revealing Signatures of Unconventional Superconductivity in Tunneling Andreev Spectroscopy, ***Petro Maksymovych,*** *S. Song,* Oak Ridge National Laboratory*; C. Lane,* Los Alamos National Laboratory*; J. Wang,* Oak Ridge National Laboratory*; W. Ko,* University of Tennessee Knoxville*; J. Lado,* Aalto University, Finland

	Room 124	
2:15pm	**INVITED: PS-TuA-1** Nonthermal Plasmas for Advanced Nanomanufacturing, ***Rebecca Anthony***, Michigan State University	**Plasma Science and Technology** **Session PS-TuA** **Plasma Chemistry and Catalysis II** **Moderators:** **Michael Gordon**, University of California at Santa Barbara, **Michael Johnson**, Naval Research Laboratory, USA
2:30pm		
2:45pm	**PS-TuA-3** Conversion of Liquid Hydrocarbons to H_2 and C_2 Olefins in AC Plasma Discharges, ***Norleakvisoth Lim***, *M. Gordon,* UCSB Chemical Engineering	
3:00pm	**PS-TuA-4** Pulsing a Methane Discharge for Temperature Control and Better Energy Efficiency for Hydrogen Production, ***Thomas Fontaine***, *L. Nyssen, D. Petitjean,* Université libre de Bruxelles, Belgium; *N. De Geyter,* Ghent University, Belgium; *R. Snyders,* University of Mons, Belgium; *F. Reniers,* Université libre de Bruxelles, Belgium	
3:15pm		
3:30pm	**BREAK**	
3:45pm		
4:00pm	**PS-TuA-8** Integrated Reactor Models of Diamond Growth: Advancing Towards Low-Temperature CVD, ***Yuri Barsukov***, *I. Kaganovich, M. Mokrov,* PPPL; *A. Khrabry,* Princeton University	
4:15pm	**PS-TuA-9** Solid State Generated Microwave Power for Hydrogen Plasma Reduction of Iron Oxide, ***Daniel Ellis***, *J. Rebollar,* University of Illinois Urbana-Champaign; *B. Jurczyk,* Starfire Industries; *J. Krogstad, M. Sankaran,* University of Illinois Urbana-Champaign	
4:30pm	**PS-TuA-10** Plasma Synthesis of Hydrogen from Ethanol Solution: A Mechanistic Study, *D. Lojen, T. Fontaine, L. Nyssen, N. Roy,* Université Libre de Bruxelles, Belgium; *R. Snyders,* Universite de Mons, Belgium; *N. De Geyter,* Ghent University, Belgium; ***François Reniers***, Université libre de Bruxelles, Belgium	
4:45pm	**PS-TuA-11** Study of Plasma-Catalyst Surface Interactions for Coking Reduction, ***Michael Hinshelwood***, *G. Oehrlein,* University of Maryland, College Park	

	Room 125	
2:15pm	**INVITED: MN1-TuA-1** Gaede-Langmuir Award Talk: Ingestible Technologies for Disease Assessment and Treatment in the Gastrointestinal Tract, ***Reza Ghodssi***[1], University of Maryland, College Park	**MEMS and NEMS** **Session MN1-TuA** **Bio and Environmental MEMS** **Moderators:** **Matthew Jordan**, Sandia National Laboratories, **Yanan Wang**, University of Nebraska-Lincoln
2:30pm		
2:45pm	**MN1-TuA-3** Packaging Development with an Integrated Wireless System for an Electrochemical Cardiac Biosensor, ***Jorge Manrique Castro***, *The University of Texas at El Paso; B. Walker, F. Kashem, S. Rajaraman,* University of Central Florida	
3:00pm	**MN1-TuA-4** Self-Powered, Eco-Friendly, and Edible UV Sensors for Food Packaging Applications, ***Pouya Borjian***, *M. Chimerad, P. Pathak, H. Cho,* University of Central Florida	
3:15pm	**MN1-TuA-5** Inkjet Printing of $AgNO_3$ inks With Solvent-Selective Morphologies on Liquid Crystal Polymer Substrates, *L. Murthy,* ***Christian Zorman***, *A. Hess-Dunning,* Case Western Reserve University	
3:30pm	**BREAK**	
3:45pm		
4:00pm		**MEMS and NEMS** **Session MN2-TuA** **MEMS Sensing and Computation** **Moderators:** **Matthew Jordan**, Sandia National Laboratories, **Yanan Wang**, University of Nebraska-Lincoln
4:15pm	**MN2-TuA-9** Facile Fabrication of CuO/ZnO Heterojunctions from Sputtered Films UV Sensing, *P. Pathak,* ***Mohammadreza Chimehrad***, *P. Borjian, H. Cho,* University of Central Florida	
4:30pm	**MN2-TuA-10** Design and Development of a Wearable to Monitor UV Exposure, ***Sushma Kotru***,*S. Kothapally,* The University of Alabama	
4:45pm	**MN2-TuA-11** Diamagnetically Levitating Graphite Plate Resonators, *Y. Wang, S. Yousuf,* University of Florida; *J. Lee,* University of Central Florida; *P. Feng,* University of Florida; ***Alexander Gage***, University of Central Florida	
5:00pm	**MN2-TuA-12** A Novel MEMS Reservoir Computing Approach for Classifying Human Acceleration Activity Signal, *F. Alsaleem,* ***Mohammad Okour***, *M. Megdadi, A. Al Zubi, M. Fayad,* University of Nebraska - Lincoln	

[1] **Gaede-Langmuir Award Winner**

	Room West Hall	
2:15pm		**Biomaterial Interfaces** **Session BI-TuA** **Future of Biointerface Science Collection (ALL-INVITED SESSION)** **Moderators:** **Kenan Fears**, U.S. Naval Research Laboratory, **Tobias Weidner**, Aarhus University, Denmark
2:30pm		
2:45pm	**INVITED: BI-TuA-3** Adsorption of Cytochrome C on Different Self-Assembled Monolayers:the Role of Surface Chemistry and Charge Density, ***Shengjiang Yang,*** School of Chinese Ethnic Medicine, Guizhou Minzu University, Key Laboratory of Guizhou Ethnic Medicine Resource Development and Utilization, China*; C. Peng,* School of Chemistry and Chemical Engineering, Guangdong Provincial Key Lab for Green Chemical Product Technology, South China University of Technology, China*; J. Liu,* Key Laboratory for Green Chemical Process of Ministry of Education, School of Chemical Engineering and Pharmacy, Wuhan Institute of Technology, China*; H. Yu, Z. Xu,* School of Chemistry and Chemical Engineering, Guangdong Provincial Key Lab for Green Chemical Product Technology, South China University of Technology, China*; Y. Xie,* Guangdong Provincial Key Laboratory of Electronic Functional Materials and Devices, Huizhou University, China*; J. Zhou,* School of Chemistry and Chemical Engineering, Guangdong Provincial Key Lab for Green Chemical Product Technology, South China University of Technology, China	
3:00pm	**INVITED: BI-TuA-4** Spatiotemporal Control of Cellular Signaling Cues in 3D Biointerfaces for Tailored Cellular Functionality, ***Sadegh Ghorbani,*** Stanford University*; D. Sutherland,* Aarhus University, Denmark	
3:15pm	**INVITED: BI-TuA-5** Exploring the Dynamics of Proteins, Nucleic Acids, and Their Interplay by Coherent Anti-Stokes Raman Spectroscopy, ***Pablo G. Argudo****, M. Brzezinski,* Max Planck Institute for Polymer Research, Germany*; W. Chen, B. Dúzs, A. Samanta, A. Walther,* Johannes Gutenberg University, Germany*; S. H. Parekh,* The University of Texas at Austin	
3:30pm	**BREAK**	
3:45pm		

Wednesday Morning, November 6, 2024

	Electronic Materials and Photonics **Room 114 - Session EM+AIML+AP+QS+TF-WeM** **Ferroelectrics and Memory Devices** **Moderators:** **Samantha Jaszewski**, Sandia National Labs, **Erin Cleveland**, Laboratory of Physical Sciences	**Thin Films** **Room 115 - Session TF-WeM** **Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP II)** **Moderators: Trisha Andrew**, Univ. of Massachusetts - Amherst, **Siamak Nejati**, University of Nebraska-Lincoln
8:00am	**EM+AIML+AP+QS+TF-WeM-1** A Scalable Ferroelectric Non-Volatile Memory Operating at High Temperature, ***Dhiren Pradhan***, Department of Electrical and Systems Engineering, University of Pennsylvania; *D. Moore,* 2Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; *G. Kim,* Department of Engineering Chemistry, Chungbuk National University, Cheongju, Republic of Korea; *Y. He,* Department of Electrical and Systems Engineering, University of Pennsylvania; *P. Musavigharavi,* Department of Materials Science and Engineering, University of Central Florida; *K. Kim, N. Sharma, Z. Han, X. Du,* Department of Electrical and Systems Engineering, University of Pennsylvania; *V. Puli,* Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; *E. Stach,* Department of Materials Science and Engineering, University of Pennsylvania; *W. Kennedy, N. Glavin,* Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; *R. Olsson III, D. Jariwala,* Department of Electrical and Systems Engineering, University of Pennsylvania	**INVITED: TF-WeM-1** Chemical Vapor Deposition of Metalloporphyrins: Engineering and Integration of Advanced Conjugated Polymers for Catalysis and Sensing, ***Nicolas Boscher,*** Luxembourg Institute of Science and Technology (LIST), Luxembourg
8:15am	**EM+AIML+AP+QS+TF-WeM-2** Oxygen Diffusion Coefficients in Ferroelectric Hafnium Zirconium Oxide Thin Films, ***Jon Ihlefeld***, *L. Shvilberg,* University of Virginia; *C. Zhou,* North Carolina State University	
8:30am		**TF-WeM-3** Introducing Non-Covalent Interactions during initiated Chemical Vapor Deposition (iCVD), *R. Yang,* ***Pengyu Chen***, Cornell University
8:45am		**TF-WeM-4** oCVD PEDOT Thin Film as the Hole Transport Layer in Perovskite Solar Cellto Enhance Device Stability and Performance, ***Meysam Heydari Gharahcheshmeh***, San Diego State University/ Department of Mechanical Engineering
9:00am	**EM+AIML+AP+QS+TF-WeM-5** Iridium Etching: Exploring Reactive Ion Etching Parameters for Efficient Electrode Fabrication in Ferroelectric Memory, ***Yanan Li***, *P. Bezard, S. Kundu, F. Lazzarino, X. Piao, Y. Canvel,* IMEC Belgium	**TF-WeM-5** Networking Density Effects on the Patterning Performance of Metal-Organic Resists Deposited via Hybrid Molecular Layer Deposition, ***Long Viet Than***, *G. D'Acunto, S. Bent,* Stanford University
9:15am	**EM+AIML+AP+QS+TF-WeM-6** Investigations in Current Transport Mechanisms of Multi-Resistance State Hafnia Zirconia Ferroelectric Tunnel Junctions, ***Troy Tharpe***, Sandia National Laboratories; *M. Lenox,* University of Virginia; *S. Jaszewski, G. Esteves,* Sandia National Laboratories; *J. Ihlefeld,* University of Virginia; *M. Henry,* Sandia National Laboratories	**TF-WeM-6** Synthesis of Disulfide Polymer by Oxidative Molecular Layer Deposition (oMLD), ***Amit K. Datta***, University of Missouri, Columbia; *N. Paranamana, P. Kinlen, M. Young,* University of Missouri-Columbia
9:30am	**EM+AIML+AP+QS+TF-WeM-7** Correlation between Elastic Modulus and Biaxial Stress in Hafnium Zirconium Oxide (HZO) Thin Films, ***Megan Lenox***, University of Virginia; *S. Jaszewski,* Sandia National Laboratories; *S. Fields,* Naval Research Laboratory; *A. Salanova, M. Islam, M. Hoque,* University of Virginia; *J. Maria,* Penn State University; *P. Hopkins, J. Ihlefeld,* University of Virginia	**TF-WeM-7** High-Throughput MLD for Advanced EUV Photoresists: Stability and Performance of Organic-Inorganic Hybrid Films, ***Duncan Reece***, University of Washington, UK; *E. Crum, A. Dao, J. Keth, D. Bergsman,* University of Washington
9:45am	**EM+AIML+AP+QS+TF-WeM-8** Ferroelectric Behavior of ε−Wo3, ***Mohammad Mahafuzur Rahaman***, *A. Annerino, J. Shell, P. Gouma,* The Ohio State University	**TF-WeM-8** Development of a 300mm Wafer Scale Molecular Layer Deposition Process, *C. Vallee,* ***Van Long Nguyen***, University at Albany-SUNY; *O. Sathoud, D. Newman, J. Sathoud, J. McAdams, C. Wajda, K. Tapily, G. Leusink,* TEL Technology Center America
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: EM+AIML+AP+QS+TF-WeM-13** Innovations in DARPA's Optimum Processing Technology Inside Memory Arrays (OPTIMA) Program, ***Todd Bauer***, DARPA	**INVITED: TF-WeM-13** Area Selective Deposition of Ferrocene-Functionalized Thin Films, *J. Lomax,* The University of Western Ontario, Canada; *E. Goodwin,* Carleton University, Canada; *J. Bentley,* The University of Western Ontario, Canada; *M. Aloisio, C. Crudden,* Queen's University, Canada; *S. Barry,* Carleton University, Canada; ***Paul Ragogna***, The University of Western Ontario, Canada
11:15am		
11:30am	**EM+AIML+AP+QS+TF-WeM-15** A Transition Toward Solid-State in TiO_2 Protonic ECRAM, ***John Hoerauf***, University of Maryland, College Park; *M. Schroeder,* Army Research Laboratory; *D. Stewart, G. Rubloff,* University of Maryland, College Park	**TF-WeM-15** Infiltration of Methanol Vapor Induces Lattice Flexibility in Microporous $Ni_2(BDC)_2DABCO$ Thin Films, ***Greg Szulczewski,*** The University of Alabama
11:45am	**EM+AIML+AP+QS+TF-WeM-16** Effects of Gamma Radiation on the Structural and Ferroelectric Properties of Hafnium Zirconium Oxide Capacitors, ***Samantha Jaszewski,*** Sandia National Laboratories; *M. Lenox, J. Ihlefeld,* University of Virginia; *M. Henry,* Sandia National Laboratories	**TF-WeM-16** Nanomolecularly-Induced Kinetic, Chemical, and Morphological Effects During Thin Film Synthesis of Hybrid Inorganic/Organic Nanolaminate Multilayers, ***Collin Rowe***, *G. Sharma,* Materials Science and Engineering Department, Rensselaer Polytechnic Institute; *A. Devos,* Institute of Electronics, Microelectronics and Nanotechnology, CNRS UMR 8250, France; *H. Pedersen,* Department of Physics, Chemistry, and Biology, Linköping University, Sweden; *G. Ramanath,* Materials Science and Engineering Department, Rensselaer Polytechnic Institute
12:00pm	**EM+AIML+AP+QS+TF-WeM-17** Reconfigurable Ferroelectric Field-Effect Transistor Arrays from SWCNTs, ***Dongjoon Rhee***, *K. Kim, S. Song,* University of Pennsylvania; *L. Peng,* Peking University, China; *J. Kang,* Sungkyunkwan University (SKKU), Republic of Korea; *R. Olsson III, D. Jariwala,* University of Pennsylvania	**TF-WeM-17** The Impact of Copolymer Molecular Sequence on Electronic Transport, ***Mahya Mehregan***, University of Missouri-Columbia; *J. Schultz, M. Maschman, M. Young,* University of Missouri, Columbia

	Room 116	
8:00am	**AP1+EM+PS+TF-WeM-1** Low-Temperature Synthesis of Crystalline $In_xGa_{1-x}N$ Films via Plasma-Assisted Atomic Layer Alloying, *S. Allaby, F. Bayansal, H. Silva, B. Willis,* ***Necmi Biyikli,*** University of Connecticut	**Atomic Scale Processing Mini-Symposium** **Session AP1+EM+PS+TF-WeM** **Energy-Enhanced Atomic Layer Processing** **Moderators:** **Ashley Bielinski**, Argonne National Laboratory, USA, **John F. Conley, Jr.**, Oregon State University
8:15am	**AP1+EM+PS+TF-WeM-2** Comparison of Low Temperature Methods for Crystallization of Vanadium Oxide Produced by Atomic Layer Deposition, ***Peter Litwin,*** Naval Research Laboratory, USA*; M. Currie, N. Nepal, M. Sales, D. Boris, S. Walton, V. Wheeler,* US Naval Research Laboratory	
8:30am	**AP1+EM+PS+TF-WeM-3** Temperature-Dependent Dielectric Function of Plasma-Enhanced ZnO Atomic Layer Deposition using in-Situ Spectroscopic Ellipsometry, ***Yousra Traouli,*** *U. Kilic,* University of Nebraska-Lincoln, USA*; M. Schubert,* University of Nebraska - Lincoln*; E. Schubert,* University of Nebraska-Lincoln, USA	
8:45am	**AP1+EM+PS+TF-WeM-4** Optical Properties and Carrier Transport Characteristics of NiO Films Grown via Low-Temperature Hollow-cathode Plasma-assisted Atomic Layer Deposition, ***Fatih Bayansal****, S. Allaby, H. Mousa, H. Silva, B. Willis, N. Biyikli,* University of Connecticut	
9:00am	**AP1+EM+PS+TF-WeM-5** Characterizing Inductively Coupled Plasmas in Ar/SF_6 Mixtures for Atomic Layer Deposition, ***David Boris****, V. Wheeler,* U.S. Naval Research Laboratory*; M. Sales,* NRC Research Associateship Program*; L. Rodriguez de Marcos, J. Del Hoyo,* NASA Goddard Space Flight Center*; A. Lang,* U.S. Naval Research Laboratory*; E. Wollack, M. Quijada,* NASA Goddard Space Flight Center*; M. Meyer,* NRC Research Associateship Program*; S. Walton,* U.S. Naval Research Laboratory	
9:15am	**AP1+EM+PS+TF-WeM-6** Dynamic Global Model of Cl_2/Ar Plasmas: In-Depth Investigations on Plasma Kinetics, ***Tojo Rasoanarivo****, C. Mannequin,* Institut des Matériaux de Nantes Jean ROUXEL - Nantes Université, France*; F. Roqueta, M. Boufnichel,* ST Microelectronics, France*; A. Rhallabi,* Institut des Matériaux de Nantes Jean ROUXEL - Nantes Université, France	
9:30am	**AP1+EM+PS+TF-WeM-7** Precise Growth and Removal of Carbon Films by Electron-Enhanced Chemical Vapor Deposition (EE-CVD) and Chemical Vapor Etching (EE-CVE), *Z. Sobell,* ***Steven George,*** University of Colorado at Boulder	
9:45am	**AP1+EM+PS+TF-WeM-8** Microwave Enhanced ALD of Al_2O_3, ***Benjamin Kupp****, J. Haglund, S. Witsell, J. Conley,* Oregon State University	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am		**Atomic Scale Processing Mini-Symposium** **Session AP2+EM+PS+TF-WeM** **New Advances in Atomic Layer Deposition** **Moderators:** **Ashley Bielinski**, Argonne National Laboratory, USA, **John F. Conley, Jr.**, Oregon State University
11:15am	**AP2+EM+PS+TF-WeM-14** Direct Atomic Layer Processing (Dalp™): Revolutionizing Precision Coatings for Emerging Device Technologies, *S. Santucci, M. Akbari, B. Borie,* ***Mira Baraket****, I. Kundrata, M. Plakhotnyuk,* ATLANT 3D Nanosystems, Denmark	
11:30am	**AP2+EM+PS+TF-WeM-15** Electrical and Optical Properties of Macroscopic Nanocomposites Fabricated by ALD Infiltration and Pressure-Assisted Sintering of Nanoparticle Compacts, ***Benjamin Greenberg****, K. Anderson, A. Jacobs,* U.S. Naval Research Laboratory*; A. Cendejas,* American Society for Engineering Education*; E. Patterson, J. Freitas, J. Wollmershauser, B. Feigelson,* U.S. Naval Research Laboratory	
11:45am	**AP2+EM+PS+TF-WeM-16** Tunable Growth of Layered Double Hydroxide Nanosheets through Hydrothermal Conversion of ALD Seed Layers, ***Daniel Delgado Cornejo****, A. Ortiz-Ortiz, K. Fuelling,* University of Michigan, Ann Arbor*; A. Bielinski,* Argonne National Laboratory, USA*; T. Ma, N. Dasgupta,* University of Michigan, Ann Arbor	
12:00pm	**AP2+EM+PS+TF-WeM-17** Passivation Strategies for Far-Ultraviolet Al Mirrors Using Plasma-Based AlF_3 Processing, ***Maria Gabriela Sales****, D. Boris,* U.S. Naval Research Laboratory*; L. Rodriguez de Marcos,* NASA Goddard Space Flight Center*; J. Hart, A. Lang, B. Albright, T. Kessler,* U.S. Naval Research Laboratory*; E. Wollack, M. Quijada,* NASA Goddard Space Flight Center*; S. Walton, V. Wheeler,* U.S. Naval Research Laboratory	

Wednesday Morning, November 6, 2024

	Applied Surface Science **Room 117 - Session AS-WeM** **Quantitative Surface Analysis** **Moderators:** **David Morgan**, Cardiff University, UK, **Samantha Rosenberg**, Lockheed Martin	**Surface Science** **Room 120 - Session SS+2D+AMS-WeM** **On-Surface Synthesis: Atomic and Molecular Ensambling on Surfaces** **Moderators: Irene Groot**, Leiden University, The Netherlands, **Nan Jiang**, University of Illinois - Chicago
8:00am	**AS-WeM-1** Analyzing the Extrinsic Inelastic Background of HAXPES Spectra Accounting for X-Ray Extinction in an Iron Oxide Finite Thickness Film, ***Dulce-Maria Guzman-Bucio***, *O. Cortazar-Martinez,* CINVESTAV-Unidad Queretaro, Mexico*; D. Cabrera-German,* Universidad de Sonora, Mexico*; J. Torres-Ochoa,* Universidad Politecnica de Juventino Rosas, Mexico*; A. Carmona-Carmona,* CINVESTAV-Unidad Queretaro, Mexico*; O. Ceballos-Sanchez,* Universidad de Guadalajara, Mexico*; W. Limestall, Z. Lee, J. Terry, M. Warren,* Illinois Institute of Technology*; A. Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico	
8:15am	**AS-WeM-2** Non-Destructive Characterization of Multi-Layered Thin Films Using XPS, HAXPES and Structure Modeling in StrataPHI*, N. Biderman, D. Watson,* ***Kateryna Artyushkova***, Physical Electronics USA	
8:30am	**INVITED: AS-WeM-3** The Challenge of Quantifying Photoemission Spectra Using Multiple Photon Energies, ***Thierry Conard***, *A. Vanleenhove,* IMEC, Belgium*; I. Hoflijk, I. Vaesen,* IMEC Belgium	**SS+2D+AMS-WeM-3** Tailoring Pt-Based Organometallic Nanomesh on Ag(111): A Model System for "Host-Guest" Chemistry, *V. Carreño-Diaz, A. Ceccatto, E. Ferreira,* ***Abner de Siervo***, University of Campinas (UNICAMP), Brazil
8:45am		**SS+2D+AMS-WeM-4** Modulating the Reactivity of "Single-Atom Catalyst" Sites Within 2D Metal-Organic Frameworks by Small Structural Distortions, ***Zdenek Jakub***, CEITEC - Central European Institute of Technology, Czechia*; J. Planer, D. Hruza, A. Shahsavar, P. Prochazka, J. Cechal,* CEITEC, Czechia
9:00am	**AS-WeM-5** Angle-Resolved XPS Depth Profiling for Extreme Ultraviolet (EUV) Lithography Optics Research – Monoatomic vs Cluster Ion Source, ***Veronique de Rooij-Lohmann***, *S. Mukherjee,* TNO Science and Industry, the Netherlands*; J. Counsell,* Kratos Analytical Limited, UK	**INVITED: SS+2D+AMS-WeM-5** On-Surface Synthesis of Polycyclic Heteroatom-Substituted Nanocarbon Materials, ***Willi Auwärter***, Technical University of Munich, Germany
9:15am	**AS-WeM-6** Beyond the Surface: A Simple Algorithm for Obtaining Surface-Free Depth Distribution Information from Combined XPS and HAXPES Spectra, ***Benjamen Reed***, National Physical Laboratory, UK*; J. Counsell,* Kratos Analytical Limited, UK*; A. Shard,* National Physical Laboratory, UK	
9:30am	**AS-WeM-7** Depth Differentiated Surface Analysis by a Combination of XPS, HAXPES and Ion Scattering Spectroscopy, ***Paul Mack***, Thermo Fisher Scientific, UK	**SS+2D+AMS-WeM-7** Atomic-Scale Investigation of the Highly Enantiospecific Decomposition of Tartaric Acid on Chiral Cu Surfaces, ***Avery Daniels***, *C. Sykes,* Tufts University
9:45am		**SS+2D+AMS-WeM-8** Competition between Hydrogen Bonding and van der Waals Interactions During Binary Self-Assembled Monolayer Formation, ***Rachael Farber***, *L. Penland, H. Hirushan, N. Dissanayake,* University of Kansas
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:15am		
10:30am		
10:45am		
11:00am	**AS-WeM-13** Femtosecond Laser Ablation (fs-LA) – A New Approach to XPS Depth Profiling, ***Simon Bacon***, Thermo Fisher Scientific, UK*; S. Sweeney,* University of Glasgow, UK*; S. Hinder,* University of Surrey, UK*; A. Bushell, T. Nunney, R. White,* Thermo Fisher Scientific, UK*; M. Baker,* University of Surrey, UK	**INVITED: SS+2D+AMS-WeM-13** Paul Holloway Awardee Talk: Learning More with Less: High-Throughput Screening of Molecular Layer Deposition Processes, ***David Bergsman***[1], University of Washington
11:15am	**AS-WeM-14** Top Atomic Layer Analysis of Bimetallic Nanoparticles by Low-Energy Ion Scattering (LEIS), *P. Brüner,* IONTOF GmbH, Germany*; D. Niedbalka, P. Abdala, C. Müller,* ETH Zürich, Laboratory of Energy Science and Engineering, Switzerland*;* ***Thomas Grehl***, IONTOF GmbH, Germany	
11:30am	**AS-WeM-15** Multilayer Adhesives-Ideal Samples for Showcasing GCIB Profiling Capabilities, ***Michaeleen Pacholski***, *B. Caruso,* Dow Chemical Company*; I. Uhl,* Dow Chemical Company, France*; A. Peera,* dow*; D. Keely, E. Glor,* Dow Chemical Company	**SS+2D+AMS-WeM-15** Organic Molecular Architectures Synthesized on Si(001) by Means of Selective Click Reactions, *T. Glaser, J. Peters,* Justus Liebig University Giessen, Germany*; D. Scharf, U. Koert,* Philipps University Marburg, Germany*;* ***Michael Dürr***, Justus Liebig University Giessen, Germany
11:45am	**AS-WeM-16** Similarities between Silicon and Aluminum with Suboxides Formation Using XPS Spectra, ***Orlando Cortazar-Martinez***, *D. Guzman Bucio, J. Torres Ochoa, C. Gómez Muñoz, J. Raboño Borbolla, A. Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico	**SS+2D+AMS-WeM-16** Confinement Effects at Surfaces, *J. A. Boscoboinik,* **Dario Stacchiola**, Brookhaven National Laboratory
12:00pm	**AS-WeM-17** 3kV Vertical Gallium Nitride Photoconductive Semiconductor Switches, ***Geoffrey Foster***, *A. Koehler, A. Jacobs, K. Hobart,* Naval Research Laboratory*; S. Lowery, S. Atwinmah, S. Mahmud, R. Khanna,* University of Toledo*; J. Leach,* Kyma Technologies*; M. Mastro,* Naval Research Laboratory	**SS+2D+AMS-WeM-17** Facilitating CO_2 Capture Enabled by Weak Intermolecular Interactions Among CO_2, Water and PEEK-Ionenes Membrane, ***Jennifer Yao***, *L. Strange, J. Dhas,* PNNL*; S. Ravula, J. Bara,* University of Alabama*; D. Heldebrant, Z. Zhu,* PNNL

[1] **TFD Paul Holloway Award Winner**

Wednesday Morning, November 6, 2024

	Magnetic Interfaces and Nanostructures **Room 121 - Session MI+2D+AC+TF-WeM** **Altermagnetism and Spin-Dependent Systems** **Moderators:** **Markus Donath**, Muenster University, Germany, **Valeria Lauter**, Oak Ridge National Laboratory	**2D Materials** **Room 122 - Session 2D+EM+MI+QS-WeM** **2D Materials: Heterostructures, Twistronics, and Proximity Effects** **Moderators: Aaron Bostwick**, Advanced Light Source, Lawrence Berkeley National Laboratory, **Tiancong Zhu**, Purdue University
8:00am 8:15am	**INVITED: MI+2D+AC+TF-WeM-1** Twisted Electrons in Momentum Space: A Photoemission Perspective on Spin and Orbital Angular Momentum in Quantum Materials, ***Maximilian Ünzelmann,*** University of Würzburg, Germany*; B. Geldiyev,* Univsersity of Würzburg, Germany*; T. Figgemeier,* University of Würzburg, Germany*; H. Bentmann,* NTNU Trondheim, Norway*; F. Reinert,* Univsersity of Würzburg, Germany	**INVITED: 2D+EM+MI+QS-WeM-1** Van der Waals Semiconductors: From Stacking-Controlled Crystals to Unconventional Heterostructures, ***Peter Sutter,*** *E. Sutter,* University of Nebraska - Lincoln
8:30am	**MI+2D+AC+TF-WeM-3** Falicov Student Award Finalist Talk: Gap Tuning by Hole Doping in EuZn2As2 Semimetal, ***Dejia Kong***[1], University of Virginia*; S. Karbasizadeh,* University of South Carolina*; G. Narasimha,* Oak Ridge National Laboratory*; P. Regmi,* University of South Carolina*; C. Tao,* Oak Ridge National Laboratory*; S. Mu,* University of South Carolina*; R. Vasudevan,* Oak Ridge National Laboratory*; I. Harrison,* University of Virginia*; R. Jin,* University of South Carolina*; Z. Gai,* Oak Ridge National Laboratory	**2D+EM+MI+QS-WeM-3** Deterministic Assembly, Transfer, and Flipping of 2D Materials Using Tunable Polymer Films, ***Jeffrey J. Schwartz****, S. Le,* University of Maryland, College Park*; K. Grutter, A. Hanbicki, A. Friedman,* Laboratory for Physical Sciences
8:45am	**MI+2D+AC+TF-WeM-4** Characterization of $LaMnO_3/SrTiO_3$ Thin Films and Its Mn Valance State Correlated with Ferromagnetism, ***Ghadendra Bhandari,*** *P. Tavazohi, V. Dewasurendra, M. Johnson, M. Holcomb,* West Virginia University	**2D+EM+MI+QS-WeM-4** Cleaning of Low-Dimensionality Materials: Challenge and Solutions, ***Jean-Francois de Marneffe****, P. Wyndaele, M. Timmermans, C. Cunha,* IMEC, Belgium*; B. Canto, Z. Wang,* AMO GmbH, Aachen, Germany*; R. Slaets, G. He, I. Asselberghs, C. J. Lockhart de la Rosa, G. Sankar Kar, C. Merckling, S. De Gendt,* IMEC, Belgium
9:00am 9:15am	**INVITED: MI+2D+AC+TF-WeM-5** Altermagnetism: From Spintronics to Unconventional Magnetic Phases, ***Libor Šmejkal,*** Uni Mainz, Germany	**INVITED: 2D+EM+MI+QS-WeM-5** Spin-Valley Physics in Mixed-Dimensional Van Der Waals Heterostructures, ***Vikram Deshpande,*** University of Utah
9:30am	**MI+2D+AC+TF-WeM-7** Growth Study of Kagome-structured Mn_3Sn on Gallium Nitride (000_1) Using Molecular Beam Epitaxy, *H. Hall, S. Upadhyay, T. Erickson, A. Shrestha, A. Abbas,* ***Arthur Smith,*** Ohio University	**2D+EM+MI+QS-WeM-7** Exploring Incommensurate Lattice Modulations in BSCCO van der Waals Heterostructures: Implications for Q-Bit Development, ***Patryk Wasik,*** Brookhaven National Laboratory*; S. Zhao,* Harvard University*; R. Jangid,* Brookhaven National Laboratory*; A. Cui,* Harvard University*; J. Sinsheimer,* Brookhaven National Laboratory*; P. Kim,* Harvard University*; N. Poccia,* IFW Dresden, Germany*; C. Mazzoli,* Brookhaven National Laboratory
9:45am	**MI+2D+AC+TF-WeM-8** Exchange Bias Effect in Single-Layer Antiferromagnetic Mn3GaN Films, ***Ali Abbas****, A. Shrestha,* Ohio University*; D. Russell, F. Yang,* The Ohio State University*; A. Smith,* Ohio University	
10:00am 10:15am 10:30am 10:45am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**MI+2D+AC+TF-WeM-13** L-Gap Surface Resonance at Pt(111): Influence of Atomic Structure, d Bands, and Spin-Orbit Interaction, ***Markus Donath****, F. Schöttke, P. Krüger,* University of Münster, Germany*; L. Hammer, T. Kißlinger, M. Schneider,* University of Erlangen-Nürnberg, Germany	**INVITED: 2D+EM+QS-WeM-13** Atomic Layer Deposition of Transition Metal Dichalcogenides: Precursors, Processes, and Applications Perspectives, ***Thong Ngo****, A. Azcatl, N. Vu, C. Cheng, M. Miller, C. Chen, R. Kanjolia, M. Moinpour, M. Clark,* EMD Electronics, USA
11:15am	**MI+2D+AC+TF-WeM-14** Substrate-Induced Strain Effects on $SrFeO_3$ Thin Films, ***Lucas Barreto,*** University of Pennsylvania*; P. Rogge, J. Wang, B. Lefler,* Drexel University*; D. Puggioni, J. Rondinelli,* Northwestern University*; S. Koroluk, R. Green,* University of Saskatchewan, Canada*; S. May,* Drexel University	
11:30am	**MI+2D+AC+TF-WeM-15** Tunable Localized Currents at Crystallographic Domain Boundaries in Altermagnet RuO2, ***Gina Pantano****, E. Thareja,* University of South Florida*; L. Šmejkal,* the Czech Academy of Sciences and Johannes Gutenberg Universität Mainz, Germany*; J. Sinova,* Johannes Gutenberg Universität Mainz, Germany*; J. Gayles,* University of South Florida	**2D+EM+MI+QS-WeM-15** Writing and Detecting Topological Spin Textures in Exfoliated Fe_5-x$Gete_2$, ***Luis Balicas,*** Florida State University - National High Magnetic Field Lab - FSU Quantum Initiative

[1] **Falicov Student Award Finalist**

Wednesday Morning, November 6, 2024

	Quantum Science and Technology Mini-Symposium **Room 123 - Session QS-WeM** **Quantum Technologies: From Networks and Education to Sensors and User Facilities** **Moderators:** **Vijaya Begum-Hudde**, Univ. of Illinois at Urbana-Champaign, **Sean Jones**, Argonne National Laboratory	**Plasma Science and Technology** **Room 124 - Session PS-WeM** **Plasma Modelling** **Moderators:** **Pingshan Luan**, TEL Technology Center America, **Mackenzie Meyer**, US Naval Research Laboratory
8:00am	**INVITED: QS-WeM-1** The New York Quantum Network: An Advanced Platform for Experiments in Real-Life Conditions, ***Gabriella Carini***, Brookhaven National Laboratory	**PS-WeM-1** Challenges and Opportunities of a Holistic Approach toward Simulation-Assisted Plasma Etch Technology Development, ***Du Zhang***, *Y. Tsai,* TEL Technology Center, America, LLC; *T. Nishizuka,* Tokyo Electron Miyagi Limited, Japan; *A. Ko, P. Biolsi,* TEL Technology Center, America, LLC
8:15am		**PS-WeM-2** Some Lessons from Particle-in-Cell Modeling of Intermediate Pressure Capacitively Coupled Plasmas, ***Shahid Rauf***, *A. Verma, R. Sahu, N. Nuwal, K. Bera,* Applied Materials, Inc.
8:30am	**QS-WeM-3** Building Quantum Information Science Capabilities at HBCUs: Insights and Recommendation, *K. Lee,* IBM; *M. Lowe,* IBM HBCU Quantum Center, Howard University; ***Thomas A. Searles***, University of Illinois - Chicago	**INVITED: PS-WeM-3** Modeling to Inform Optimization of Radiofrequency Plasma Sources, ***Amanda Lietz***, *C. Wagoner, S. Zulqarnain, S. Bin Amir, M. Hossain,* North Carolina State University
8:45am	**INVITED: QS-WeM-4** The UCSB NSF Quantum Foundry, ***John Harter***, UC Santa Barbara	
9:00am		**PS-WeM-5** Stability Model for Capacitively Coupled Radiofrequency Argon Plasma at Moderate Pressures*, ***Omar Alsaeed***, NCSU - Nuclear Engineering Department; *A. Lietz,* North Carolina State University; *B. Yee, B. Scheiner, M. Mamunuru, C. Qu,* Lam Research Corporation
9:15am	**QS-WeM-6** Recent Progress in Quantum Applications via the Q-One Single Ion Implantation System, *G. Aresta, K. Stockbrodge,* Unit B6, UK; ***Kate McHardy***, *P. Blenkinsopp,* Ionoptika Ltd., UK	**PS-WeM-6** Plasma Modeling Guided Process Development and Optimization forHigh Density Plasma Sources, ***Qiang Wang***, *G. Hartmann, P. Conlin, R. Longo, S. Sirdhar, P. Ventzek,* Tokyo Electron America, Inc.
9:30am	**INVITED: QS-WeM-7** Laying the Foundation for a Global Quantum EconomyThrough Sensors and Standards, ***Barbara Goldstein***, NIST	**PS-WeM-7** Investigating Instabilities in Magnetized Low-Pressure Asymmetric Capacitively Coupled Plasma Sources, ***Sathya Ganta***, *K. Bera, S. Rauf,* Applied Materials, Inc.; *I. Kaganovich, A. Khrabrov, A. Powis,* Princeton University Plasma Physics Lab; *D. Sydorenko,* University of Alberta, Canada; *L. Xu,* Soochow University (SUDA), Suzhou, Jiangsu, China
9:45am		**PS-WeM-8** Fast Kinetic Modeling of Magnetron Sputtering, ***Daniel Main***, *T. Jenkins,* Tech-X Corporation; *J. Theiss, G. Werner,* University of Colorado Boulder; *S. Kruger, J. Cary,* Tech-X Corporation
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: QS-WeM-13** PARADIM: An NSF-Supported National User Facility that can help YOU Discover and Perfect Quantum Materials, ***Darrell Schlom***, Cornell University	**PS-WeM-13** Advancements in Multiscale Simulation of Silicon Etching: Broader Implications for Plasma Processing, ***Rim Ettouri***, *A. Rhallabi,* Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, France
11:15am		**PS-WeM-14** Modeling of Modern Plasma Processing Reactors Using Particle-in-Cell Codes, ***Igor Kaganovich***, Princeton Plasma Physics Laboratory, Princeton University; *D. Sydorenko,* University of Alberta, Canada; *A. Khrabrov,* Princeton Plasma Physics Laboratory, Princeton University; *S. Sharma,* Institute for Plasma Research, India; *S. Jubin, A. Powis, W. Villafana, S. Ethier,* Princeton Plasma Physics Laboratory, Princeton University
11:30am	**FLASH SESSION; QS-WeM-15** ***Drew Rebar***, PNNL; ***Jessica McChesney***, Argonne National Laboratory; ***Jay Hendricks***, NIST-Gaithersburg; ***Yashwanth Balaji***, Lawrence Berkeley National Laboratory	**PS-WeM-15** Intermediate Pressure Capacitively Coupled Ar/N_2 Plasmas – Experimental Diagnostics and Modeling, ***Abhishek Verma***, *K. Bera, S. Rauf,* Applied Materials Inc.; *S. Hussain, M. Goeckner,* University of Texas at Dallas
11:45am		**PS-WeM-16** Controlling the Etch Process by Changing the Plasma Chemistry Through Pulsing, ***Evrim Solmaz***, *D. Zhang,* TEL Technology Center America; *B. Lane,* Tokyo Electron America; *Y. Sakakibara, S. Uda, M. Yamazaki, C. Thomas, T. Saito,* Tokyo Electron, Japan; *Y. Tsai,* TEL Technology Center America; *T. Hisamatsu, Y. Yamazawa,* Tokyo Electron, Japan

Wednesday Morning, November 6, 2024

	Room 125	
8:00am	**INVITED: AIML-WeM-1** "Beyond Fingerprinting": Rapid Process Exploration and Optimization via High-Throughput and Machine Learning, ***Brad Boyce,*** Sandia National Laboratories, USA*; R. Dingreville, J. Coleman, E. Fowler, C. Martinez,* Sandia National Labs*; D. Adams,* Sandia National Laboratories	**AI/ML for Scientific Discovery** **Session AIML-WeM** **AI/ML for Scientific Discovery** **Moderators:** **Alain Diebold**, University at Albany-SUNY, **Erica Douglas**, Sandia National Laboratories
8:15am		
8:30am	**INVITED: AIML-WeM-3** Simulations of Epitaxial Inorganic Interfaces Using DFT with Machine-Learned Hubbard U Corrections, ***Noa Marom,*** Carnegie Mellon University	
8:45am		
9:00am	**AIML-WeM-5** On-The-Fly Analysis of RHEED Images During Deposition Using Artificial Intelligence, ***Tiffany Kaspar****, J. Pope, S. Akers, H. Sprueill, A. Ter-Petrosyan, D. Hopkins, E. King, J. Drgona,* Pacific Northwest National Laboratory	
9:15am	**AIML-WeM-6** An Unsupervised Machine Learning Approach for the Identification of Adsorbates on a Semiconductor Surface: BCl_3 Adsorption on Si(100), ***Azadeh Farzaneh,*** University of Maryland, College Park*; C. Wang, S. Kalinin,* University of Tennessee Knoxville*; R. Butera,* Laboratory for Physical Sciences	
9:30am	**AIML-WeM-7** Quantum and Classical Supervised Learning Analysis of Synthesis–Structure Relationships in Epitaxially–Grown Semiconductors, ***Andrew Messecar,*** Western Michigan University*; S. Durbin,* University of Hawai'i at Mānoa*; R. Makin,* Western Michigan University	
9:45am	**AIML-WeM-8** 'DECIEDD with CARE' - Building an Autonomous Ecosystem for the Discovery and Optimization of Metal Nanoparticle Inks, ***J. Elliott Fowler,*** Sandia National Laboratories*; N. Trask,* University of Pennsylvania*; M. Kottwitz, N. Bell, A. Hesu, A. Roth,* Sandia National Laboratories*; J. Hanna,* University of Wisconsin - Madison*; J. Foster,* University of Texas at Austin*; J. Boissiere,* Sandia National Laboratories	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		
11:00am	**AIML-WeM-13** Machine Learning for Accelerating Atomic Layer Deposition Process Optimization, ***Minjong Lee****, D. Kim, T. Chu, D. Le, J. Kim, D. Narayan, J. Kim,* University of Texas at Dallas	
11:15am	**AIML-WeM-14** Utilizing a Machine Learning Potential for Investigating Defects in Hexagonal Boron Nitride, ***John Janisch****, D. Le, T. Rahman,* University of Central Florida	
11:30am	**AIML-WeM-15** Accelerating Innovation: Using AI for Process Pathfinding, *L. Medina,* SandBox Semiconductor*; **Mokbel Karam,** S. Sirard, M. Chopra,* Sandbox Semiconductor	
11:45am	**AIML-WeM-16** AI-Driven Synthesis of Thin Films with Pulsed Laser Deposition, ***Sumner Harris,*** Oak Ridge National Laboratory*; A. Biswas,* University of Tennessee, Oak Ridge National Laboratory*; C. Rouleau, A. Puretzky, S. Yun, R. Vasudevan, D. Geohegan, K. Xiao,* Oak Ridge National Laboratory	
12:00pm	**AIML-WeM-17** Active-Learning Based Structure Discovery in STM, ***Ganesh Narasimha,*** Oak Ridge National Laboratory*; S. Hus,* Oak Ridge National Lab (ORNL)*; A. Biswas,* Oak Ridge National Laboratory, USA*; D. Kong,* University of Virginia, USA*; Z. Gai, R. Vasudevan,* Oak Ridge National Laboratory, USA*; M. Ziatdinov,* Pacific Northwest National Laboratory	

Wednesday Afternoon, November 6, 2024

	Electronic Materials and Photonics **Room 114 - Session EM+AP+TF-WeA** **CMOS and BEOL - Advances in Materials Integration and Devices** **Moderators: Erica Douglas**, Sandia National Laboratories, **Cheng Gong**, University of Maryland College Park	**Thin Films** **Room 115 - Session TF-WeA** **Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP III)** **Moderators: David Bergsman**, University of Washington, **Rong Yang**, Cornell University
2:15pm	**INVITED: EM+AP+TF-WeA-1** All-Acoustic and Single-Chip Radio Frequency Signal Processing via Heterogeneous Integration of Semiconductors and Piezoelectric Materials, ***Matt Eichenfeld***, University of Arizona	**INVITED: TF-WeA-1** Chemical Vapor Deposition of Polymers for Lithium Ion Batteries, ***Kenneth Lau***, Rowan University
2:30pm		
2:45pm	**EM+AP+TF-WeA-3** Breaking the Quantum Conductance Barrier in CMOS Interconnect Design, ***William Kaden***, University of Central Florida	**TF-WeA-3** Exploring the Influence of Reduced Vacuum Conditions on Structural and Chemical Variations in Hybrid Perovskite Films Deposited by Resonant Infrared Matrix-Assisted Pulsed Laser Evaporation, ***Joshua Ayeni***, *A. Stiff-Roberts,* Duke University
3:00pm	**EM+AP+TF-WeA-4** "Suboxide MBE" — A Route to p-Type and n-Type Semiconducting Oxides at BEOL Conditions, ***Darrell Schlom***, Cornell University	**TF-WeA-4** Low Surface Energy for Tuning the Surface Repellency through Initiated Chemical Vapor Deposition, ***Syed Ibrahim Gnani Peer Mohamed***, *G. Kaufman, D. Egbebunmi, M. Bavarian, J. Shield, C. Zuhlke, S. Nejati,* University of Nebraska Lincoln
3:15pm	**EM+AP+TF-WeA-5** Epitaxial Metastable Cubic CO(001)/MgO(001): Potential Interconnect Conductor, ***Anshuman Thakral***, *D. Gall,* RPI	**TF-WeA-5** From iCVD Thin Films to 3D Aeropolymers for Biomedical Applications, ***Torge Hartig***[1], *J. Paulsen, W. Reichstein, M. Hauck, J. Piehl,* Kiel University, Germany; *M. Taale,* Universität Heidelberg, Germany; *T. Strunskus,* Kiel University, Germany; *C. Selhuber-Unkel,* Universität Heidelberg, Germany; *G. Schnell,* University of Rostock, Germany; *A. Amin,* National Research Center, Giza, Egypt; *R. Adelung,* Kiel University, Germany; *B. Freedman,* Harvard University; *F. Schütt, F. Faupel, S. Schröder,* Kiel University, Germany
3:30pm	**EM+AP+TF-WeA-6** Characteristics of Reconfigurable FETs Implemented on Bulk Silicon Using Reduced Pressure CVD, *S. Lee, S. Kim, J. Park, W. Lee,* ***Dongwoo Suh***, Electronics and Telecommunications Research Institute, Republic of Korea	**TF-WeA-6** Investigating PEDTT Thin Films: Comparing Synthesis Methods and Properties for Electronic Applications, ***Siamak Nejati***, *S. Gnani Peer Mohamed, L. Okpaire, V. Medic, M. Bavarian,* University of Nebraska-Lincoln, USA
3:45pm	**BREAK**	**BREAK**
4:00pm		
4:15pm	**EM+AP+TF-WeA-9** Forward Bias Annealing of Proton Radiation Damage in NiO/Ga_2O_3 Rectifiers, ***Jian-Sian Li***, *C. Chiang, H. Wan,* University of Florida, Gainesville; *M. Rasel, A. Haque,* Pennsylvania State University; *J. Kim,* Seoul National University, Republic of Korea; *F. Ren,* University of Florida; *L. Chernyak,* University of Central Florida; *S. Pearton,* University of Florida	**INVITED: TF-WeA-9** Exploring New Avenues Resulting from the Rational Process Design of Sequential Infiltration Synthesis, ***Nari Jeon***, Chungnam National University, Republic of Korea
4:30pm	**EM+AP+TF-WeA-10** Studies of the Effects of Doping and Nanolamination on the Temperature Coefficient of Resistivity of Ru-TiO_2 Thin Films, *S. Berriel,* ***Gouri Syamala Rao Mullapudi***, University of Central Florida; *N. Rudawski,* University of Florida; *P. Banerjee,* University of Central Florida	
4:45pm	**EM+AP+TF-WeA-11** Dorothy M. and Earl S. Hoffman Scholarship Awardee Talk: Determination of Band Offsets at the Interfaces of NiO, SiO_2, Al_2O_3 and ITO with AlN, ***Hsiao-Hsuan Wan***[2], *J. Li, C. Chiang, X. Xia, D. Hays,* University of Florida; *N. Al-Mamun, A. Haque,* Pennsylvania State University; *F. Ren, S. Pearton,* University of Florida	**TF-WeA-11** Vapor Phase Infiltration of ZnO into Photo-Polymerizable Polyacrylates: Patterning and the Importance of Free Volume, ***Mark Losego***, Georgia Tech; *L. Demelius,* Graz University of Technology, Austria; *A. Coclite,* University of Bari, Italy
5:00pm	**EM+AP+TF-WeA-12** Ferroelectric Al0.2Sc0.8N Diodes on NbN Electrodes Deposited on Sapphire Substrates, ***Giovanni Esteves***, *T. Tharpe, T. Young, D. Henry,* Sandia National Laboratories	**TF-WeA-12** Effect of Alumina Priming on Structural and Electrical Properties of Zno Nanostructures Synthesized via Vapor-Phase Infiltration Into Self-Assembled Block Copolymer Thin Films, *C. Nam,* ***Won-Il Lee***, *A. Subramanian,* Stony Brook University/Brookhaven National Laboratory; *K. Kisslinger,* brookhaven National Laboratory; *N. Tiwale,* Brookhaven National Laboratory
5:15pm	**EM+AP+TF-WeA-13** Optimizing Sputtering Parameters for Tantalum Oxide-Based Resistive Memory: A Design of Experiments Approach, ***Alireza Moazzeni***, *S. Karakaya, A. Khan, G. Tutuncuoglu,* Wayne State University	**TF-WeA-13** Spectroscopic Study of the Inorganic Structure in Pim-1/Metal Oxyhydroxide Hybrid Membranes Synthesized via Vapor Phase Infiltration, ***Benjamin Jean***, *I. Slagle, F. Alamgir, M. Losego,* Georgia Tech
5:30pm		**TF-WeA-14** Nanoporous TiO_2 Coating Designed by Swelling-Assisted Sequential Infiltration Synthesis (SIS) of Block Copolymer for Self-Cleaning Application, ***Khalil Omotosho***, *D. Berman,* University of North Texas
5:45pm		**TF-WeA-15** Permanent Electric Polarization in Vapor Phase Deposited Polymer Thin Films, ***Stefan Schröder***, *T. Hartig, L. Schwäke, T. Strunskus, F. Faupel,* Kiel University, Germany
6:00pm		**TF-WeA-16** Using ALD to Alter the Biological Response of Cellulose Fabrics, ***Li Zhang***, *M. Losego,* Georgia Institute of Technology

[1] **TFD James Harper Award Finalist**

[2] **AVS National Student Award Finalist**

	Room 116	
2:15pm 2:30pm	**INVITED: AMS1-WeA-1** Influence of External Electric Fields on Catalytic Reactions: An Insight through Atom Probe Microscopy and Field Ion Microscopy, ***Thierry Visart de Bocarmé,*** Université libre de Bruxelles, Belgium	**Advanced Microscopy and Spectroscopy to Explore Field-Assisted Chemistry** **Session AMS1-WeA** **Advanced Microscopy and Spectroscopy to Explore Field-Assisted Chemistry I** **Moderators:** **Sten Lambeets**, Pacific Northwest National Laboratory, **Daniel E Perea**, Pacific Northwest National Laboratory
2:45pm 3:00pm	**INVITED: AMS1-WeA-3** Ab-Initio Simulation of Field Evaporation in Atom Probe Tomography, ***Wolfgang Windl,*** The Ohio State University; *J. Qi,* Ohio State University; *E. Marquis,* University of Michigan	
3:15pm 3:30pm		
3:45pm 4:00pm	**BREAK**	
4:15pm 4:30pm	**INVITED: AMS2-WeA-9** Lanthanide Adsorption in Micas: The Implications for Rare Earth Elements Separations, *Y. Wen,* US DOE Ames National Laboratory; *K. Verma,* Ames National Laboratory; *D. Jing,* Iowa State University; *M. Lacount, S. Kathmann,* Pacific Northwest National Laboratory; ***Tanya Prozorov,*** US DOE Ames Laboratory	**Advanced Microscopy and Spectroscopy to Explore Field-Assisted Chemistry** **Session AMS2-WeA** **Advanced Microscopy and Spectroscopy to Explore Field-Assisted Chemistry II** **Moderators: Sten Lambeets**, Pacific Northwest National Laboratory, **Daniel E Perea**, Pacific Northwest National Laboratory
4:45pm	**AMS2-WeA-11** Single-Molecule Spectroscopic Probing of N-Heterocyclic Carbenes on a Two-Dimensional Metal, ***Nan Jiang,*** University of Illinois Chicago	
5:00pm	**AMS2-WeA-12** Electric Fields and Co2 Coverage Effects on the Surface Chemistry of La-Based Perovskites, ***Ariel Whitten,*** *J. McEwen,* Washington State University; *E. Nikolla,* University of Michigan, Ann Arbor; *R. Denecke,* Leipzig University, Germany	
5:15pm	**AMS2-WeA-13** Interfacial Quantum Electric Fields, ***Shawn Kathmann,*** Pacific Northwest National Laboratory	

Wednesday Afternoon, November 6, 2024

	Applied Surface Science - Room 117 - Session AS-WeA **Advanced Materials and Methods** **Moderators: Tanguy Terlier**, Rice University, **Julia Zakel**, IONTOF GmbH, Germany	**Surface Science - Room 120 - Session SS+2D+AMS-WeA** **Defects Nanoarchitecture and Complex Systems** **Moderators: Dario Stacchiola**, Brookhaven National Laboratory, **Zhenrong Zhang**, Baylor University
2:15pm	**INVITED: AS-WeA-1** Ion Migration and Chemical Phenomena in Functional Materials: Correlative Studies via Combined AFM/Tof-SIMS Approach, ***Anton Ievlev,*** Oak Ridge National Laboratory	
2:30pm		**SS+2D+AMS-WeA-2** Molecular Sensing ZnO Surfaces Studied by Operando Low-Energy Ion Beam Analysis, ***Taku Suzuki,*** *Y. Adachi, T. Ogaki, I. Sakaguchi,* National Institute for Materials Science, Japan
2:45pm	**AS-WeA-3** Elemental and Chemical Quantification of Porous Transport Electrodes with X-Ray Photoelectron Spectroscopy Analysis and Scanning Electron Microscopy – Energy Dispersive X-Ray Spectroscopy, ***Lonneke van Eijk,*** Colorado School of Mines*; J. Foster,* Colorado School of Mines, USA*; S. Khandavalli,* National Renewable Energy Laboratory*; L. Ding,* University of Tennessee, Knoxville*; G. Stelmacovich,* Colorado School of Mines, USA*; S. Mauger,* National Renewable Energy Laboratory*; F. Zhang,* University of Tennessee, Knoxville*; A. Paxson,* Plug Power*; S. Pylypenko,* Colorado School of Mines, USA	**INVITED: SS+2D+AMS-WeA-3** Finding Surface Defects in Electronic Materials, ***Sujitra Pookpanratana,*** National Institute of Standards and Technology
3:00pm	**AS-WeA-4** Comprehensive Characterization of Porous Transport Layers and Porous Transport Electrodes with Time-of-Flight Secondary Ion Mass Spectrometry, ***Genevieve Stelmacovich,*** *L. van Eijk, J. Foster,* Colorado School of Mines*; L. Ding,* Univ. of Tennessee, Knoxville*; S. Ware, J. Young,* National Renewable Energy Lab*; F. Zhang,* Univ. of Tennessee, Knoxville*; A. Paxson,* Plug Power Inc.*; G. Bender,* National Renewable Energy Lab*; D. Cullen,* Oak Ridge National Lab*; S. Pylypenko,* Colorado School of Mines	
3:15pm	**AS-WeA-5** Characterization of the Nanostructure and Composition of Mollusc Shells Using Advanced Spectroscopic and Imaging Techniques, ***David Morgan,*** Cardiff University, UK	**SS+2D+AMS-WeA-5** SSD Morton S. Traum Award Finalist Talk: Silver Iodide – Surface Structure and Ice Nucleation Investigated by Noncontact AFM, ***Johanna Hütner***[1]*, D. Kugler,* Vienna Univ. of Tech, Austria*; F. Sabath,* Bielefeld Univ., Germany*; M. Schmid,* Vienna Univ. of Tech, Austria*; A. Kühnle,* Bielefeld Univ., Germany*; U. Diebold, J. Balajka,* Vienna Univ. of Tech, Austria
3:30pm	**AS-WeA-6** Development of Best Practices for Cryo-XPS – Opening the Possibility to New Sample Analysis and Paving a Route to Standardization*, K. Zahra,* ***Liam Soomary,*** Kratos Analytical Limited, UK*; C. Moffitt, D. Surman,* Kratos Analytical Inc.*; J. Counsell,* Kratos Analytical Limited, UK	**SS+2D+AMS-WeA-6** SSD Morton S. Traum Award Finalist Talk: Reversible Non-Metal to Metal Transition and Effective Debye Temperatures of Highly Crystalline $NiFe_2O_4$ Thin Films, ***Arjun Subedi***[1]*, D. Yang, X. Xu, P. Dowben,* University of Nebraska-Lincoln, USA
3:45pm	**BREAK**	**BREAK**
4:15pm	**AS-WeA-9** ASSD Student Award Finalist Talk: 3D ToF-SIMS Imaging of Polyethylene Oxide-Lithium Nitrate Electrolytes in Lithium Ion Batteries, ***Reyhane Shavandi***[2]*,* University of Illinois Chicago	**SS+2D+AMS-WeA-9** In situ Structure Study of a MnOX-Na2WO4/SiO2 Catalyst for OCM under Na_2WO_4 Melting Conditions, ***Yong Yang,*** ShanhaiTech University, China*; D. Wang, E. Vovk,* Shanghaitech.edu.cn, China*; Y. Liu, J. Lang,* ShanghaiTech University, China
4:30pm	**AS-WeA-10** Understanding the Impacts of Battery Electrode Manufacturing Processes through Surface Characterization Techniques, ***Mikhail Trought,*** *T. Kravchuk, S. Peczonczyk, A. Straccia, M. Nichols,* Ford Motor Co	**SS+2D+AMS-WeA-10** Characterization of Nanoplastics Samples, *T. Roorda, M. Brohet, S. Campos Jara,* ***Irene Groot,*** Leiden University, Netherlands
4:45pm	**INVITED: AS-WeA-11** Characterization of Sodium Ion Batteries - from *Postmortem* to *Operando*, ***Marcus Rohnke,*** *T. Ortmann, D. Schäfer, J. Janek,* Justus Liebig University Giessen, Germany	**SS+2D+AMS-WeA-11** Oxidation of NiCr and NiCrMo- Unraveling the Role of Mo with XPEEM Studies, ***Keithen Orson,*** *D. Jessup,* University of Virginia*; W. Blades,* Juniata College*; J. Sadowski,* Brookhaven National Laboratory*; Y. Niu, A. Zakharov,* Lund University, Sweden*; P. Reinke,* University of Virginia
5:00pm		**SS+2D+AMS-WeA-12** An Investigation of Local Distortions on High Entropy Alloy Surfaces, ***Lauren Kim,*** University of Wyoming*; P. Sharma,* Lehigh University*; G. Balasubramanian,* lehigh University*; T. Chien,* University of Wyoming
5:15pm	**AS-WeA-13** Surface Analysis of Engineered Particles for Improved Battery Performance and Stability, ***Jennifer Mann,*** *S. Zaccarine,* Physical Electronics*; I. Oladeji,* ULVAC Technologies, Inc.*; K. Suu,* Ulvac Technologies, Inc., Germany*; K. Artyushkova,* Physical Electronics	**SS+2D+AMS-WeA-13** Grain Boundary and Twin Boundary Solute Segregations in Nanocrystalline Al-Mg Alloy, ***Xuanyu Sheng,*** *z. Shang, A. Shang,* Purdue University, China*; H. Wang, X. Zhang,* Purdue University
5:30pm	**AS-WeA-14** X-ray Photoelectron Spectroscopy for Battery Research Applications, ***Tatyana Bendikov,*** *A. Maity, N. Yahalom, Y. Steinberg, H. Weissman, B. Rybtchinski, M. Leskes,* Weizmann Institute of Science, Israel	**SS+2D+AMS-WeA-14** Charge Ordering Phase Transition in Bilayer Sn on Si(111), ***Nathan Guisinger,*** *M. Chan,* Argonne National Laboratory*; C. Lilley,* University of Illinois – Chicago
5:45pm	**AS-WeA-15** AVS AVS Nellie Yeoh Whetten Awardee Talk: Investigating the Substrate Mediated Growth Pathways and High-Field Superconducting Behavior of Nb3Sn Films for Particle Accelerator Cavities, ***Sarah Willson***[3]*,* University of Chicago*; A. Harbick,* Brigham Young University*; R. Farber,* University of Kansas*; H. Lew-Kiedrowska, V. Do,* University of Chicago*; M. Transtrum,* Brigham Young University*; S. Sibener,* University of Chicago	**SS+2D+AMS-WeA-15** SSD Morton S. Traum Award Finalist Talk: On-Surface Design of Highly-Ordered Two-Dimensional Networks Stabilized by Nonmetal Atoms, ***Alisson Ceccatto***[1]*,* Univ. of Campinas (UNICAMP), Brazil*; G. Campi,* Yachay Tech Univ., Ecuador*; V. Carreño, E. Ferreira,* Univ. of Campinas (UNICAMP), Brazil*; N. Waleska-Wellnhofer, E. Freiberger, S. Jaekel,* Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU), Germany*; C. Papp,* Freie Univ. Berlin, Germany*; H. Steinrück,* Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU), Germany*; D. Mowbray,* Yachay Tech Univ., Ecuador*; A. de Siervo,* Univ. of Campinas (UNICAMP), Brazil
6:00pm	**AS-WeA-16** Silicon Wafer Doping with Mineral Films Prepared via Tethering by Aggregation and Growth, ***Peter Thissen,*** KIT, Germany	**FLASH SESSION: SS+2D+AMS-WeA-16** ***Eliseo Perez Gomez,*** Stony Brook University*;* ***Buddhika Alupothe Gedara,*** Pacific Northwest National Laboratory*;* ***Bushra Ashraf,*** University of Central Florida*;* ***Samantha Rau,*** University of Colorado Boulder ***Kerim T. Arat,*** Quantum Design Inc.*;* ***Van Do,*** University of Chicago

[1] **SSD Morton S. Traum Award Finalist**

[2] **ASSD Student Award Finalist**

[3] **AVS National Student Awardee**

Wednesday Afternoon, November 6, 2024

	Magnetic Interfaces and Nanostructures **Room 121 - Session MI+2D+AC+TF-WeA** **2D Magnetism and Magnetic Nanostructures** **Moderators: Mikel Holcomb**, West Virginia University, **Tiffany Kaspar**, Pacific Northwest National Laboratory	**2D Materials** **Room 122 - Session 2D-WeA** **2D Materials: Sensors and Devices** **Moderators: Vikram Deshpande**, University of Utah, **Andrey Turchanin**, University of Jena, Germany
2:15pm	**INVITED: MI+2D+AC+TF-WeA-1** Interface Tunable Magnetism in Transition Metal Telluride Thin Films and Heterostructures, ***Hang Chi,*** University of Ottawa, Canada	**INVITED: 2D-WeA-1** Electric-Field-Sensitive Polymer Electrolytes for Non-Volatile Doping of Two-Dimensional Field-Effect Transistors, ***Susan Fullerton Shirey,*** *D. Sarawate, P. Prem,* University of Pittsburgh*; K. Xu,* Rochester Institute of Technology*; E. Beckman,* University of Pittsburgh
2:30pm		
2:45pm	**MI+2D+AC+TF-WeA-3** AVS National Student Awardee Talk/Falicov Student Award Finalist Talk: Probing Intrinsic Magnetization Dynamics of the $Y_3Fe_5O_{12}/Bi_2Te_3$ Interface at Low Temperature, *A. Willcole,* Sandia National Laboratories, USA*; V. Lauter,* Oak Ridge National Laboratory, USA*; A. Grutter,* National Institute of Standards and Technology (NIST)*; C. Dubs,* INNOVENT e.V. Technologieentwicklung, Germany*; D. Lidsky,* Sandia National Laboratories, USA*;* ***Bin Luo***[1,2]*,* Northeastern University, US*; M. Lindner, T. Reimann,* INNOVENT e.V. Technologieentwicklung, Germany*; N. Bhattacharjee,* Northeastern University, US*; T. Lu, P. Sharma, N. Valdez, C. Pearce, T. Monson,* Sandia National Laboratories, USA*; M. Matzelle, A. Bansil, D. Heiman, N. Sun,* Northeastern University, US	**2D-WeA-3** Systematic Identification of the Optical Characterization of Hexagonal Boron Nitride Thickness on 300-nm Oxide Substrate, ***Emily Frederick,*** *K. Lina,* University of Central Florida*; M. Lodge,* Truventic LLC*; M. Ishigami,* University of Central Florida
3:00pm	**MI+2D+AC+TF-WeA-4** Falicov Student Award Finalist Talk: Surface Investigation of ε-phase Mn3Ga on GaN (0001) Substrate using Scanning Tunneling Microscopy, ***Ashok Shrestha***[2]*, A. Abbas, D. Ingram, A. Smith,* Ohio University	**2D-WeA-4** Selective Etching of Hexagonal Boron Nitride Under Graphene Stack Using Sulfur Hexafluoride Gas in Different Pressure to Create Two-Dimentional Material Devices, ***Swastik Ballav****, R. Tsuchikawa, R. Ben Khallouq, D. Castro,* University of Central Florida*; M. Lodge,* Truventic*; M. Ishigami,* University of Central Florida
3:15pm	**INVITED: MI+2D+AC+TF-WeA-5** Thermally Generated Spin Transport Across Magnetic Interfaces, ***Hari Srikanth,*** USF Tampa	**2D-WeA-5** Printed Contacts to Layered Materials, ***Sharadh Jois****, E. Lee, J. Fleischer, P. Li, T. Esatu, E. Quinn, A. Hanbicki, A. Friedman,* Laboratory for Physical Sciences
3:30pm		**2D-WeA-6** Electrical Transport of High-Quality CVD-Grown $MoSe_2$ Nanoribbons, ***Y.-J. Leo Sun,*** University of Maryland, College Park*; O. Ambrozaite, T. Kempa,* Johns Hopkins University*; T. Murphy,* University of Maryland, College Park*; A. Friedman, A. Hanbicki,* Laboratory for Physical Sciences
3:45pm	**BREAK**	**BREAK**
4:00pm		
4:15pm	**MI+2D+AC+TF-WeA-9** Spin Switchable 2D-Superlattice Metal-Halide Perovskite Film via Multiferroic Interface Coupling, ***Bogdan Dryzhakov,*** Oak Ridge National Laboratory*; B. Hu,* University of Tennessee Knoxville*; V. Lauter,* Oak Ridge Natinal Laboratory	**INVITED: 2D-WeA-9** Ultra-Low Energy Consumption Memory Study Using 2D Materials Heterostructures, ***Young-Jun Yu,*** Chungnam National University, Republic of Korea
4:30pm	**MI+2D+AC+TF-WeA-10** Engineering the Hybrid Nanocolumnar Metamaterial Platforms for Advanced Optical and Magnetic Applications, ***Ufuk Kilic****, C. Briley,* University of Nebraska-Lincoln*; R. Feder,* Fraunhofer Institute for Microstructure of Materials and Systems, Germany*; D. Sekora,* University of Nebraska-Lincoln*; A. Ullah,* University of Nebraska - Lincoln*; A. Mock,* Weber State University*; C. Binek,* University of Nebraska - Lincoln*; H. Schmidt,* Friedrich Schiller University, Germany*; C. Argyropoulos,* The Pennsylvania State University*; E. Schubert, M. Schubert,* University of Nebraska - Lincoln	
4:45pm	**MI+2D+AC+TF-WeA-11** Magnetic Field Affects Oxygen Evolution Reaction Only in Metal Oxy-Hydroxides, ***Filippo Longo,*** Chemical Energy Carriers and Vehicle Systems Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; R. Peremadathil Pradeep, E. Darwin, H. Hug,* Magnetic and Functional Thin Films Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; A. Borgschulte,* Chemical Energy Carriers and Vehicle Systems Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**2D-WeA-11** 2D Metal-Dielectric Hybrid Nanostructures via Electrochemical Deposition, ***Chao Dun Tan****, M. Buck,* University of St Andrews, UK
5:00pm		**2D-WeA-12** Disentangling Anisotropic Resistivities of the Topological Insulator Bi_4Br_4, ***Bert Voigtländer****, J. Hofmann, S. Kovalchuk, V. Cherepanov, T. Balashov, F. Lüpke,* Forschungszentrum Juelich GmbH, Germany*; Z. Wang, Y. Yao,* Beijing Institute of Technology, China*; S. Tautz,* Forschungszentrum Juelich GmbH, Germany
5:15pm		**2D-WeA-13** Electrical Breakdown of 2D Ruddlesden-Popper Metal Halide Perovskites, ***Mengru Jin,*** Texas A&M University*; E. Vasileiadou,* Northwestern University*; I. Spanopoulos,* University of South Florida*; K. Lee,* Texas A&M University*; M. Kanatzidis,* Northwestern University*; Q. Tu,* Texas A&M University

[1] **AVS National Student Award Finalist**

[2] **Falicov Student Award Finalist**

	Room 124	
2:15pm	**PS1-WeA-1** Sequential Plasma Process Design by Genetic Algorithm, ***Patrick Conlin**, G. Hartmann, Q. Wang, R. Longo, S. Sridhar, P. Ventzek,* Tokyo Electron America, Inc.	**Plasma Science and Technology** **Session PS1-WeA** **Plasma Modelling AI/ML** **Moderators:** **Harutyun Melikyan**, Micron Technology, **Mingmei Wang**, Lam Research Corporation
2:30pm	**PS1-WeA-2** Machine-Learning-Based Force Fields for Molecular Dynamics Simulation of Silicon and Silicon Dioxide Ion Beam Etching, ***Shunya Tanaka**, S. Hamaguchi,* Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan*; H. Kino,* National Institute for Materials Science (NIMS), Japan	
2:45pm	**PS1-WeA-3** Machine Learning Interatomic Potentials for Plasma-Surface Interaction Simulations, ***Jack Draney**, A. Panagiotopoulos, D. Graves,* Princeton University	
3:00pm	**PS1-WeA-4** Dry Etching Process with NLD Plasma Distribution Determined by Machine Learning, ***Keiichiro Asakawa**, K. Doi, Y. Morikawa,* ULVAC, Inc., Japan	
3:15pm	**PS1-WeA-5** Accelerating Plasma-based Process Development and Chamber Productivity with Artificial Intelligence, ***Meghali Chopra**, S. Sirard,* SandBox Semiconductor Incorporated	
3:30pm	**PS1-WeA-6** A Unified Global Model Accompanied with a Voltage and Current Sensor for Low-Pressure Capacitively Coupled Rf Discharge, ***Inho Seong**, S. Kim,* Chungnam national university, Republic of Korea*; W. Lee,* Chungnam nation univerisity, Republic of Korea*; Y. Lee, C. Cho, W. Jeong,* Chungnam national university, Republic of Korea*; M. Choi,* Chungnam national univerisity, Republic of Korea*; B. Choi,* Chungnam nation univerisity, Republic of Korea*; H. Seo, S. Song,* SK Hynix, Korea*; S. You,* Chungnam national univerisity, Republic of Korea	
3:45pm	**BREAK**	
4:00pm		
4:15pm	**PS2-WeA-9** Low Damaged GaN Surface Through Passivating Plasma Etching and Post-Etch Treatments for Improved GaN-MOS Capacitor Performance, ***David Cascales,*** CEA-LETI & LTM, France*; P. Pimenta-Barros, E. Martinez,* CEA-LETI, France*; B. Salem,* LTM - MINATEC - CEA/LETI, France	**Plasma Science and Technology** **Session PS2-WeA** **Plasma Processes for Emerging Device Technologies** **Moderators:** **Phillipe Bezard**, IMEC Belgium, **Catherine Labelle**, Intel Corporation
4:30pm	**PS2-WeA-10** Anisotropic and Sub-Micrometric InGaP Plasma Etching for High Efficiency Photovoltaics, ***Alison Clarke**, M. de Lafontaine,* University of Ottawa, Canada*; R. King, C. Honsberg,* Arizona State University*; K. Hinzer,* University of Ottawa, Canada	
4:45pm	**PS2-WeA-11** On the Plasma Etching Mechanisms of Patterned Aluminum Nitride Nanowires with High Aspect Ratio, *S. Sales de Mello,* ***Lucas Jaloustre**,* University Grenoble Alpes, CNRS, LTM, France*; S. Labau, C. Petit-Etienne,* University Grenoble Alpes, CNRS,LTM, France*; G. Jacopin,* University Grenoble Alpes, CNRS, Institut Néel, France*; E. Pargon,* University Grenoble Alpes, CNRS, LTM, France	
5:00pm	**PS2-WeA-12** Development of a New Underlayer to Improve the Adhesion of Photoresist for EUV, ***Wafae Halim**,* KU Leuven and Imec, Belgium*; P. Bezard,* Imec, Belgium*; S. De Gendt,* KU Leuven and Imec, Belgium	
5:15pm		

	Room 114	
8:00am	**EM+2D+AP+QS+TF-ThM-1** Electronic and Photonic Integrated Devices Enabled by Local III-V on Si Heteroepitaxy, *M. Scherrer,* IBM Research GmbH, Zurich Research Laboratory, Switzerland*; K. Moselund,* Paul Scherrer Institute, Switzerland*;* ***Heinz Schmid****,* IBM Research GmbH, Zurich Research Laboratory, Switzerland	**Electronic Materials and Photonics** **Session EM+2D+AP+QS+TF-ThM** **Epitaxy: Advances in Materials Integration and Devices** **Moderators:** **Somil Rathi**, Arizona State Universityo
8:15am	**EM+2D+AP+QS+TF-ThM-2** In situ Graphene Barriers for Remote Epitaxy of SiC*,* ***Daniel Pennachio****, J. Hajzus, R. Myers-Ward,* US Naval Research Laboratory	
8:30am	**EM+2D+AP+QS+TF-ThM-3** Basal Plane Dislocation Mitigation via Annealing and Growth Interrupts*,* ***Rachael Myers-Ward****, N. Mahadik, D. Scheiman, J. Hajzus, S. White, D. Pennachio,* Naval Research Laboratory	
8:45am	**EM+2D+AP+QS+TF-ThM-4** Shadow Mask Molecular Beam Epitaxy*, S. Mukherjee, R. Sitaram, X. Wang,* University of Delaware*;* ***Stephanie Law****,* Pennsylvania State University	
9:00am	**EM+2D+AP+QS+TF-ThM-5** Impact of Excess Ga on Electronic Properties in Plasma-assisted MBE-grown β-Ga_2O_3*,* ***Thaddeus Asel****, B. Noesges, J. Li, Y. Kim, A. Neal, S. Mou,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA	
9:15am	**EM+2D+AP+QS+TF-ThM-6** Advancing Single-Crystalline Oxide Membrane Growth via Molecular Beam Epitaxy*,* ***Shivasheesh Varshney****, S. Choo,* University of Minnesota*; M. Ramis,* Institute of Materials Science of Barcelona (ICMAB-CSIC), Spain*; L. Thompson, J. Shah, Z. Yang, J. Wen, S. J. Koester, K. Mkhoyan, A. S. McLeod,* University of Minnesota*; M. Coll,* Institute of Materials Science of Barcelona (ICMAB-CSIC), Spain*; B. Jalan,* University of Minnesota	
9:30am	**FLASH SESSION: EM+2D+AP+QS+TF-ThM-7** ***Thithi Lay****,* Josai University, Japan*;* ***Stefan Schröder****,* Kiel University, Germany*;* ***Sonam Yadav****,* New Mexico State University	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
10:15am		
10:30am		
10:45am		

Thursday Morning, November 7, 2024

	Room 115	
8:00am 8:15am	**INVITED: TF1+AP-ThM-1** AVS Medard W. Welch Award Talk: The Surface Chemistry of the Atomic Layer Deposition of Metal Thin Films, ***Francisco Zaera***[1], University of California - Riverside	**Thin Films** **Session TF1+AP-ThM** **Thin Films: Fundamentals of ALD** **Moderators:** **Matthias Young**, University of Missouri, **Sarah Atanasov**, Intel
8:30am	**TF1+AP-ThM-3** Effects of ALD Chemistry on Process Windows, Thin Film Composition and Modification of the Underlying Substrate Surface, ***Jay V.. Swarup***, *J. Engstrom*, Cornell University	
8:45am	**TF1+AP-ThM-4** Atomic Layer Deposition Chemistry – Trimethylaluminum on SiO_2 and Cu from a Surface Science Perspective, ***Leonhard Winter***, *F. Zaera,* University of California, Riverside	
9:00am	**TF1+AP-ThM-5** Spatial Atomic Layer Deposition: Transport-Reaction Modeling and Experimental Validation of Film Geometry, ***Daniel Penley***, *N. Dasgupta,* University of Michigan, Ann Arbor	
9:15am	**TF1+AP-ThM-6** Deposition Efficiency Modeling according to Precursor Flow Rate in ALD Process with Fixed Chamber Pressure, ***Dongho Shin***, Samsung Electronics, Republic of Korea	
9:30am	**TF1+AP-ThM-7** Time-Resolved Heat Generation of ALD MgO Surface Reactions, ***Ashley Bielinski***, *J. Xu,* Argonne National Laboratory; *S. Htun,* Northwestern University; *S. Hruszkewycz, C. Liu, A. Martinson,* Argonne National Laboratory	
9:45am	**TF1+AP-ThM-8** In situ Stress Measurements During Tungsten Atomic Layer Deposition, ***Ryan B. Vanfleet***, *S. George,* University of Colorado at Boulder	
10:00am 10:15am 10:30am 10:45am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am 11:15am	**INVITED: TF2+EM-ThM-13** Inherently Selective Thermal Atomic Layer Deposition of Copper Metal Thin Films, ***Charles Winter***, Wayne State University	**Thin Films** **Session TF2+EM-ThM** **Thin Films for Microelectronics I: BEOL** **Moderators:** **Sarah Atanasov**, Intel, **Matthias Young**, University of Missouri
11:30am	**TF2+EM-ThM-15** Effect of Hydrogen Annealing on Grain Growth of Tungsten Films, ***Seunghyun Park***, School of Advanced Materials Science & Engineering, Sungkyunkwan University, Republic of Korea; *S. Kim,* Department of Semiconductor and Display Engineering, Sungkyunkwan University, Republic of Korea; *C. Park, H. Kim,* School of Advanced Materials Science & Engineering, Sungkyunkwan University, Republic of Korea	
11:45am	**TF2+EM-ThM-16** Textured Growth of Zinc Sulfide on Back-End-of-the-Line (BEOL) Compatible Substrates, ***Claire Wu***, University of Southern California; *M. Surendran,* Lawrence Berkeley National Laboratory; *P. Tzeng, C. Wu, X. Bao,* TSMC, Taiwan; *J. Ravichandran,* University of Southern California	
12:00pm	**TF2+EM-ThM-17** Steep-Slope IGZO Transistor with an Ag/$Hf_{1-x}Zr_xO_2$ Atomic Threshold Switch, ***Junmo Park***, *D. Eom, H. Kim, Y. Kim, H. Kim,* Sungkyunkwan University, Republic of Korea	

[1] **Medard W. Welch Award Winner**

Thursday Morning, November 7, 2024

	Applied Surface Science **Room 117 - Session AS-ThM** **Machine Learning and Data Evaluation** **Moderators:** **Steve Consiglio**, Tokyo Electron, **Jeffrey Terry**, Illinois Institute of Technology	**Surface Science** **Room 120 - Session SS-ThM** **Celebration of Robert J. Madix and his Contributions to Surface Science (INVITED SESSION)** **Moderators: Dan Killelea**, Loyola University Chicago, **Jason Weaver**, University of Florida, **Liney Árnadóttir**, Oregon State University
8:00am	**AS-ThM-1** Redox XPS: Reliable and Automatic Peak Fitting of XPS Chemical States, ***Peter Cumpson,*** Sanispectra Ltd, UK; *D. Devadasan,* Thermo Fisher Scientific, UK; *R. Weatherup,* Oxford University, UK; *S. Gazzola,* University of Bath, U.K.; *T. Nunney,* Thermo Fisher Scientific, UK	
8:15am	**AS-ThM-2** Exploring the Benefits of Automated, Redox Reactions in XPS Analysis, ***Robin Simpson,*** *T. Nunney, P. Mack,* Thermo Fisher Scientific, UK	
8:30am	**AS-ThM-3** Fourier Denoising of X-ray Photoelectron Spectroscopy Data, ***Matthew Linford,*** *A. Lizarbe, K. Wright,* Brigham Young University; *J. Terry,* Illinois Institute of Technology; *D. Aspnes,* Brigham Young University	**INVITED: SS-ThM-3** Infrared Spectroscopy Studies of Surface Chemical Reactions on Single Atom Alloys, ***Michael Trenary,*** University of Illinois - Chicago
8:45am	**AS-ThM-4** Fourier Denoising of X-ray Photoelectron Spectroscopy Data. Applications to the carbon Auger D parameter, HAXPES, and EasyEXAFS, ***Alvaro Lizarbe,*** *K. Wright, G. Murray, G. Lewis,* Brigham Young University; *M. Isaacs,* Diamond Light Source, UK; *D. Morgan,* Cardiff University, UK; *D. Aspnes,* North Carolina State University; *M. Linford,* Brigham Young University	
9:00am	**INVITED: AS-ThM-5** ASSD Student Award Finalist Talk: Stitching, Stacking and Multilayering: Practical Evaluation of ToF-SIMS Data with Machine Learning, ***Sarah Bamford***[1], *W. Gardner, D. Winkler,* La Trobe University, Australia; *B. Muir,* CSIRO Materials Science and Engineering, Australia; *P. Pigram,* La Trobe University, Australia	**INVITED: SS-ThM-5** Vibrationally Hot Precursors as Reactants in the Dissociative Chemisorption of Methane on Ir(111) and Ir(110), ***Arthur Utz,*** Tufts University
9:15am		
9:30am	**AS-ThM-7** Applications of Machine Learning in TOF SIMS Data Analysis: Classification and Quantitation, ***Lev Gelb,*** *A. Walker,* University of Texas at Dallas	**INVITED: SS-ThM-7** Modeling of Reaction Mechanisms and Kinetics on Metal Surfaces and the Connection to Experimental Catalysis, ***Líney Árnadóttir,*** Oregon State University/PNNL
9:45am	**AS-ThM-8** AVS Dorothy M. and Earl S. Hoffman Award Awardee Talk/ASSD Student Award Finalist Talk: Advancements in Tracer Diffusion Modeling with ToF-SIMS Depth Profiling, ***Nicolas Molina***[1,2], *A. Dolocan, G. Rodin, F. Mangolini,* The University of Texas at Austin	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: AS-ThM-13** ASSD Peter Sherwood Award Talk: Hybrid SIMS: Evolution of a SIMS Instrument Combining Time-of-Flight and Orbital Trapping Mass Spectrometry, ***Alexander Pirkl***[3], ION-TOF GmbH, Germany	**INVITED: SS-ThM-13** Crossing the Great Divide Again: Bridging Atomic-Scale Mechanistic Insight from Single-Crystals to Functional Catalysts Using Transient Flow and Spectroscopy., *C. O'Connor,* Harvard University; *E. High,* Tufts University; *T. Kim,* Korea Institute of Energy Research, Republic of Korea; ***Christian Reece,*** Harvard University
11:15am		
11:30am	**AS-ThM-15** Multiplexing Analysis Using Microarray Plate for Fast Analysis by ToF-SIMS, ***Tanguy Terlier,*** *C. Gramajo,* Rice University	**INVITED: SS-ThM-15** Recent Games in the Surface Chemistry Stadium; Bob helped Build It, and They Came, ***Charles Sykes,*** Tufts University
11:45am	**AS-ThM-16** Exploring the Power of TOF-SIMS by Coupling Collision-Induced Dissociation with Surface-Induced Dissociation for Structural Analysis, ***Jacob Schmidt,*** *G. Fisher,* Physical Electronics USA	
12:00pm	**AS-ThM-17** Dealing with Reproducibility and Replication Challenges in Surface Analysis: Sample Provenance Information, Parameter Reporting, and Cultural Issues, ***Donald Baer,*** Pacific Northwest National Laboratory	

[1] **ASSD Student Award Finalist**
[2] **AVS National Student Awardee**
[3] **ASSD Peter Sherwood Award**

Thursday Morning, November 7, 2024

	Chemical Analysis and Imaging of Interfaces **Room 121 - Session CA-ThM** **In Situ and Operando Analysis of Energy and Environmental Interfaces I** **Moderators:** **Sefik Suzer**, Bilkent University, Turkey, **Xiao-Ying Yu**, Oak Ridge National Laboratory, USA	**2D Materials** **Room 122 - Session 2D-ThM** **2D Materials: Defects, Dopants, Edges, Functionalization, and Intercalation** **Moderators: Young Hee Lee**, Sungkyunkwan University, Korea (Democratic People's Republic of)
8:00am	**INVITED: CA-ThM-1** Rationally Engineering Interfaces to Improve Performances of Li Metal Batteries, ***Bin Li,*** Oak Ridge National Laboratory, USA	**2D-ThM-1** Electronic and Magnetic Properties of Intrinsic Defects in TiS_2, *P. Keeney,* university of North Florida*; A. Evans, T. Pekarek, J. Haraldsen,* ***Paula Mariel Coelho,*** University of North Florida
8:15am		**2D-ThM-2** DFT-Based Investigation of Formation Energies and Properties of 2D TiS_2 with Various Defects, ***Patrick Keeney,*** *P. Coelho, J. Haraldsen,* University of North Florida
8:30am	**CA-ThM-3** Dynamic Molecular Investigation of the Solid-Electrolyte Interphase of an Anode-Free Lithium Metal Battery Using in situ Liquid SIMS and Cryo-TEM, ***Zihua Zhu****, Y. Xu, P. Gao, C. Wang,* Pacific Northwest National Laboratory	**2D-ThM-3** Role of Chalcogen Vacancies and Hydrogen in Bulk and Monolayer Transition-Metal Dichalcogenides, ***Shoaib Khalid,*** Princeton University Plasma Physics Lab*; A. Janotti,* University of Delaware*; B. Medasani,* Princeton University Plasma Physics Lab
8:45am	**CA-ThM-4** Understanding the Surface and Bulk Transitions of Functional Inorganic Materials for Energy Applications, ***Ajay Karakoti,*** Pacific Northwest National Laboratory*; K. Thangaraj,* Washington State University, US*; T. Bathena,* Oregon State University*; V. Shutthanandan,* Pacific Northwest National Laboratory*; S. Lee, K. Ramasamy, V. Murugesan,* Pacific Northwest National Lab	**2D-ThM-4** Defect-engineered High-gain WS_2 Photodetector after 10 MeV Proton Irradiations, ***Joonyup Bae****, D. Lee, S. Kwak, J. Kim, W. Lee,* Seoul National University, Republic of Korea
9:00am	**CA-ThM-5** In situ Imaging and Spectroscopy of Boehmite Particles in Liquid, ***Xiao-Ying Yu,*** Oak Ridge National Laboratory	**2D-ThM-5** Doping Transition Metal Dichalcogenides by Low Energy Ion Irradiation, *W. Blades,* Juniata College*; F. Bastani, E. Truhart, K. Burns,* ***Petra Reinke,*** University of Virginia
9:15am	**CA-ThM-6** Square Wave Modulated Xps Enables Capturing Dynamics of Local-Electrical Potential Variations of Solid-Liquid Interfaces, *E. Kutbay,* Bilkent University, Ankara, Turkey*; P. Aydogan-Gokturk,* Koc University, Istanbul, Turkey*; S. Ergoktas, C. Kocabas,* Manchester University, UK*;* ***Sefik Suzer,*** Bilkent University, Chemsitry Department, 06800 Ankara, Turkey	**2D-ThM-6** Atomic-scale Manipulation of Two-dimensional Materials with Ion Beams: From Aberration-corrected STEM to Monochromated EELS, ***Kory Burns****, T. Alem, E. Truhart,* University of Virginia, USA*; C. Smyth,* Sandia National Laboratories, USA*; S. McDonnell,* University of Virginia, USA*; T. Ohta,* Sandia National Laboratories, USA*; J. Hachtel,* Oak Ridge National Laboratory, USA
9:30am	**CA-ThM-7** Infrared Spectro-Microscopy of Solid-Liquid Interfaces, ***Xiao Zhao****, M. Salmeron,* Lawrence Berkeley National Laboratory	**2D-ThM-7** MoSSe/MoSeS Janus Crystals: Nanoscale Defects and Composition Misconceptions Revealed Through Cross-Correlated AFM and TERS Imaging, ***Andrey Krayev,*** HORIBA Scientific*; T. Zhang,* MIT*; L. Hoang,* Stanford University*; N. Mao,* MIT*; A. Mannix, E. Pop,* Stanford University*; J. Kong,* MIT
9:45am	**CA-ThM-8** Scanning Photoelectron Spectro-Microscopy – Opportunities and Possibilities of Operando Micro-Imaging and Chemical Analysis, ***Zygmunt Milosz****, M. Amati, L. Gregoratti,* Elettra-Sincrotrone Trieste, Italy	**2D-ThM-8** Modulating Epitaxy and Film Domain Morphology of MBE-grown 2D Transition Metal Tellurides ($TMTe_x$) through Engineering the Deposition Sequence and Substrate Selection, ***Ossie Douglas****, D. Zamora Alviarez, M. Rafique, D. Wei, Z. Yin,* University of South Florida*; P. Snapp,* NASA Goddard Space Flight Center*; M. Wang,* University of South Florida
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:15am		
10:30am		
10:45am		
11:00am	**INVITED: CA-ThM-13** The Dynamics of Encapsulated Clusters Under the Microscope, ***Barbara A.J. Lechner,*** Technical University of Munich, Germany	
11:15am		**2D-ThM-14** Oxidation Stability of SnSe Under Atmospheric Conditions, ***Jonathan Chin****, B. Gardner, M. Frye,* Georgia Institute of Technology*; D. Liu,* Applied Materials*; S. Marini,* Cornell University*; J. Shallenberger,* The Pennsylvania State University*; M. McDowell,* Georgia Institute of Technology*; M. Hilse, S. Law,* The Pennsylvania State University*; L. Garten,* Georgia Institute of Technology
11:30am	**CA-ThM-15** Scanning Tunneling Microscopy for High Entropy Materials, ***TeYu Chien,*** University of Wyoming	**2D-ThM-15** Nucleation of Ald Grown Gate Dielectrics on WS_2 Using Low Temperature Oxygen Plasma Pretreatment, ***Robert K. Grubbs****, T. van Pelt, S. Nemeth, D. Cott, B. Groven, P. Morin, C. de la Rosa, G. Kar, J. Swerts,* IMEC Belgium
11:45am	**CA-ThM-16** *in-Situ* Observation of Chemical and Morphological Transformations by Multi-Modal X-Ray Characterization, ***Slavomir Nemsak,*** Lawrence Berkeley National Laboratory	**2D-ThM-16** Direct Synthesis of Few Layer Graphene on 3D Printed Metal Alloy Substrates for Medical Applications, ***Irma Kuljanishvili****, Y. Kim,* Saint Louis University, Department of Physics*; W. King,* Saint Louis University, School of Medicine*; A. Roe, Z. Wang,* Saint Louis University, Department of Physics
12:00pm	**CA-ThM-17** NO Adsorption on Pd(111): A Relationship between Coverage and Spectral Shift, ***Sayantani Sikder,*** Stony Brook University*; E. Fornero,* Universidad Nacional del Litoral (UNL), Argentina*; A. Boscoboinik,* Center for Functional Nanomaterials, BNL	

Thursday Morning, November 7, 2024

	Actinides and Rare Earths **Room 123 - Session AC+MI-ThM - Superconductivity, Electron Correlation, Magnetism and Complex Behavior** **Moderators: Tomasz Durakiewicz**, Idaho National Laboratory, **Ladislav Havela**, Charles University, Czech Republic, **David Shuh**, Lawrence Berkeley National Laboratory, **James G. Tobin**, University of Wisconsin-Oshkosh	**Plasma Science and Technology** **Room 124 - Session PS-ThM** **Plasma Sources, Diagnostics and Control I** **Moderators:** **John Arnold**, IBM Research Division, Albany, NY, **Michael Gordon**, University of California at Santa Barbara
8:00am	**INVITED: AC+MI-ThM-1** Electronic Structures of f-Electron Superconductors, ***Shin-ichi Fujimori,*** Japan Atomic Energy Agency, Japan	**PS-ThM-1** Radio-frequency Hollow Cathode Discharge: Modeling and Experimental Diagnostics, *K. Bera,* Applied Materials, Inc.*; H. Luo,* Applied Materials, Inc., Canada*; X. Shi,* Applied Materials, Inc.*; I. Korolov,* Ruhr Universität Bochum, Germany*;* ***Abhishek Verma****, S. Rauf,* Applied Materials, Inc.*; J. Guttmann, J. Schulze,* Ruhr Universität Bochum, Germany
8:15am		**PS-ThM-2** Advancing In situ Transmission Electron Microscopy to Study Plasma-Nanomaterials Interactions, ***Jae Hyun Nam,*** University of Minnesota, USA*; D. Alsem,* Hummingbird Scientific*; P. Bruggeman,* Univ. of Minnesota, USA
8:30am	**INVITED: AC+MI-ThM-3** RIXS Study of the 5f Configuration in UTe_2: Low-Energy Excitations, Te2 Chains and U Dimers, *D. Christovam, M. Sundermann, A. Marino,* Max Planck Inst. for Chemical Physics of Solids, Germany*; H. Gretarsson,* PETRA III, Deutsches Elektronen-Synchrotron DESY, Germany*; B. Keimer,* Max Planck Inst. for Solid State Research, Germany*; A. Gloskovskii,* PETRA III, Deutsches Elektronen-Synchrotron DESY, Germany*; M. Haverkort,*Heidelberg University, Germany*; I. Elfimov,* Univ. of British Columbia, Canada*; E. Bauer, P. Rosa,* Los Alamos National Lab*; A. Severing,* Inst. of Physics II, Univ. of Cologne, Germany*;* ***Liu Hao Tjeng,*** Max Planck Institute for Chemical Physics of Solids, Germany	**INVITED: PS-ThM-3** Sensing and Control of Radio-Frequency Driven Plasmas, ***Timo Gans,*** Dublin City University, Ireland
9:00am	**INVITED: AC+MI-ThM-5** Incommensurate Antiferromagnetism in UTe_2 Under Pressure, ***William Knafo,*** LNCMI, CNRS, France	**PS-ThM-5** Dorothy M. and Earl S. Hoffman Scholarship Awardee Talk: Time Resolved Diagnostics of HiPIMS Discharges With Positive Cathode Reversal, ***Zachary Jeckell***[1], Univ. of Illinois at Urbana Champaign*; T. Choi, N. Connolly,* Univ. of Illinois Urbana-Champaign*; S. Das,* Univ. of Illinois at Urbana Champaign, India*; M. Hossain,* Univ. of Illinois Urbana-Champaign, Bangladesh*; D. Kapelyan, N. Vishnoi, R. Pickering,* Univ. of Illinois at Urbana Champaign*; D. Qerimi,* Univ. of Illinois Urbana-Champaign*; D. Ruzic,* Univ. of Illinois at Urbana-Champaign
9:15am		**PS-ThM-6** Understanding Plasma Surface Dynamics Through Time Resolved Ion Energy Analysis for Deposition/Etch Processes, ***Angus McCarter,*** Impedans Ltd., Ireland*; A. Verma,* Impedans Ltd., India
9:30am	**INVITED: AC+MI-ThM-7** New Spectroscopic Insights into Correlation Effects and Covalency of U 5*f* Electrons in Uranium Intermetallic Compounds, *A. Marino, M. Sundermann, D. Christovam,* Max-Planck Inst for Chem Physics of Solids, Germany*; H. Gretarsson,* DESY/PETRA-III, Germany*; B. Keimer,* Max-Planck Ins for Solid State Res, Germany*; A. Gloskovskii,* DESY/PETRA-III, Germany*; J. Kunes,* Masaryk Univ., Czechia*; A. Hariki,* Osaka Metropolitan Univ., Osaka, Japan*; L. Tjeng,* Max-Planck Inst. for Chem Physics of Solids, Germany*;* ***Andrea Severing,*** Inst. of Physics II, Univ. of Cologne, Germany	**PS-ThM-7** The Plasma Dynamics of Dual Frequency Capacitively Coupled Argon Discharge using Tailored Voltage Waveforms, ***Syed M Zulqarnain****, A. Lietz,* North Carolina State University*; J. Prager, T. Ziemba, J. Perry, P. Melnik,* EHT Semi
9:45am		**PS-ThM-8** A Real-Time 2-D Gas Temperature Monitoring Sensor Based on Molecular Emission Spectroscopy, *D Patel,* University of Illinois at Urbana-Champaign*; D. Jacobson,* Lyten*;* ***Dren Qerimi,*** University of Illinois at Urbana-Champaign*; M. Stowell,* Lyten*; D. Ruzic,* University of Illinois at Urbana-Champaign
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**AC+MI-ThM-13** Isotropic Fingerprinting in Nuclear Forensics: Leveraging Aerogel and LEXAN® SSNTD for Enhanced Analysis *R. Babayew,* ***Itzhak Halevy,*** *N. Elgad, Y. Yehuda-Zada,* Ben Gurion Uni., Israel*; J. Lorincik,* Research Centre Řež, Czech Republic, Israel*; M. Last, I. Orion, G. Katarivas-Levy,* Ben Gurion Uni., Israel*; A. Weiss,* Faculty of Engineering, Bar Ilan University, Israel	**PS-ThM-13** Fiber PROES: Phase-Resolved Optical Emission Spectroscopy by Time-Correlated Photon Counting Through Optical Fibers, ***Florian Beckfeld,*** *I. Korolov,* Ruhr University Bochum, Germany*; M. Höfner,* SENTECH Instruments GmbH, Germany*; J. Schulze,* Ruhr University Bochum, Germany
11:15am	**AC+MI-ThM-14** Unusual orders in the heavy-fermion superconductor $CeRh_2As_2$, ***Gertrud Zwicknagl,*** TU Braunschweig, Germany	**PS-ThM-14** Atomic Hydrogen Density, Electron Density and Ion Flux Energy Distribution of an Ar/H2 Remote CCP Plasma Source for Atomic Scale Processing, *M. van Gurp,* ***Thomas van den Biggelaar****, J. Wubs, A. Salden, H. Knoops, E. Kessels,* Eindhoven University of Technology, Netherlands
11:30am	**AC+MI-ThM-15** Thermoelectric Properties of Strongly Correlated Compounds $NpPd_3$ and $PuPd_3$, ***Krzysztof Gofryk,*** Idaho National Laboratory*; J. Griveau,* 3DG Joint Research Centre, Germany*; K. McEwen,* Univ. College London, UK*; W. Nellis,* Harvard Univ.*; J. Smith,* Los Alamos National Lab	**PS-ThM-15** Spatially Resolved Measurement of Fluorine Radical Density Using Reactive Radical Probes, ***Jeremy Mettler,*** University of Illinois at Urbana-Champaign*; T. Tohara,* Tokyo Electron*; D. Qerimi, D. Ruzic,* University of Illinois at Urbana-Champaign
11:45am		**PS-ThM-16** The Applicability of a Microwave Resonant Probe to the Plasma Processing of Silicon Oxide, *D. White, G. Hassall,* ***James Ellis,*** Oxford Instruments Plasma Technology, UK
12:00pm		**PS-ThM-17** Terahertz Absorption Spectroscopy for Measuring Atomic Oxygen Densities: A Comparison with ps-TALIF and CRDS, ***Jente Wubs****, U. Macherius, A. Nave,* Leibniz Institute for Plasma Science and Technology (INP), Germany*; L. Invernizzi, K. Gazeli, G. Lombardi,* Laboratoire des Sciences des Procédés et des Matériaux (LSPM), CNRS, France*; X. Lü, L. Schrottke,* Paul-Drude-Institut für Festkörperelektronik Leibniz-Institut im Forschungsverbund Berlin, Germany*; K. Weltmann, J. van Helden,* Leibniz Institute for Plasma Science and Technology (INP), Germany

[1] **AVS National Student Awardee**

	Room 115	
2:15pm		**Thin Films** **Session TF+EM-ThA** **Thin Films for Microelectronics II: Ferroelectrics, Dielectrics, and Semiconductors** **Moderators:** **Elton Graugnard**, Boise State University, **Christophe Vallee**, University at Albany
2:30pm		
2:45pm	**TF+EM-ThA-3** Effect of Annealing Temperature on the Electrical Characteristics of $Hf_{0.5}Zr_{0.5}O_2$/InGaZnO Ferroelectric Field-Effect Transistor, ***Deokjoon Eom***, *H. Kim, W. Lee, J. Lee, C. Park, J. Park, H. Lee, Y. Kim, H. Kim,* Sungkyunkwan University (SKKU), Republic of Korea	
3:00pm	**TF+EM-ThA-4** Polarization Switching in Metal-Organic MBE-Grown Metal-Ferroelectric-Metal Heterostructures, ***Anusha Kamath Manjeshwar***[1], *Z. Yang,* University of Minnesota*; A. Rao, G. Rojas,* University of Minnesota, USA*; J. Wen,* University of Minnesota*; C. Liao, S. Koester, R. James, B. Jalan,* University of Minnesota, USA	
3:15pm	**TF+EM-ThA-5** Integration of Barium Titanate onto high-Al content AlGaN, ***Peter Dickens***, *A. Allerman, C. Harris, B. Klein,* Sandia National Laboratories	
3:30pm	**TF+EM-ThA-6** Understanding the Crystallization of $BaTiO_3$ Thin Films Prepared by Atomic Layer Deposition, ***Jiayi Chen,*** Georgia Institute of Technology, USA, China*; A. Khan, M. Losego,* Georgia Institute of Technology, USA	
3:45pm	**TF+EM-ThA-7** Thermal and Plasma ALD BN for Low-k Applications, ***Pegah Bagheri***, *M. Konh, R. Pearlstein, X. Lei, H. Chandra,* EMD Electronics, USA	
4:00pm	**TF+EM-ThA-8** Quantum Chemical Analysis for Effects of Carbon and/or Nitrogen Bond-Types on Dielectric Constant and Leakage Current in Low-K Dielectric SiOCN Film, ***Hu Li***, *J. Zhao, P. Ventzek,* Tokyo Electron America, Inc.	
4:15pm	**TF+EM-ThA-9** Electrical Measurement of in-situ Boron-Doped Epitaxial $Si_{1-x}Ge_x$ Films with Crystalline Defects, ***Hyung Chul Shin***, *D. Eom,* Sungkyunkwan University (SKKU), Republic of Korea*; D. Yoon,* Yonsei University, Republic of Korea*; K. Kim, H. Yoo,* Samsung Electronics Co., Republic of Korea*; D. Ko,* Yonsei University, Republic of Korea*; H. Kim,* Sungkyunkwan University (SKKU), Republic of Korea	

[1] **TFD James Harper Award Finalist**

	Room 116	
2:15pm	**INVITED: EL1-ThA-1** Mueller Matrix Ellipsometry for Optical Metasurfaces, ***Morten Kildemo,*** Department of Physics; NTNU;Norway	**Spectroscopic Ellipsometry** **Session EL1-ThA** **Fundamental Ellipsometry Applications** **Moderators:** **Tino Hofmann**, University of North Carolina at Charlotte, **Megan Stokey**, Milwaukee School of Engineering
2:30pm		
2:45pm		
3:00pm	**EL1-ThA-4** In-Situ Optical Investigation of Electrochemically Controlled Surfaces and Thin Films, ***Christoph Cobet,*** *L. Rosillo Orozco,* Johannes Kepler University, Austria*; S. Vazquez-Miranda,* ELI Beamlines Facility, Czechia*; K. Hingerl,* Johannes Kepler University, Austria	
3:15pm	**EL1-ThA-5** Thz Electron Paramagnetic Resonance Generalized Spectroscopic Ellipsometry, Bloch Equations and Superconvergence Rules in the Frequency-Dependent Magnetic Susceptibility, ***Mathias Schubert,*** University of Nebraska-Lincoln, USA*; V. Rindert, V. Darakchieva,* Lund University, Sweden	
3:30pm	**INVITED: EL2-ThA-6** Dirty Ellipsometry: Finding Success with Nonideal Samples and Nonideal Data in a Nonideal World, ***Maxwell Junda,*** *A. Green, X. Li,* Covalent Metrology	**Spectroscopic Ellipsometry** **Session EL2-ThA** **Evolving Methodology and Analytical Methods of Ellipsometry** **Moderators: Nikolas Podraza**, University of Toledo, **Mathias Schubert**, University of Nebraska - Lincoln
3:45pm		
4:00pm	**EL2-ThA-8** Numerical Ellipsometry: AI for Real-Time, in situ Process Control for Absorbing Films Growing on Unknown Transparent Substrates, ***Frank Urban,*** *D. Barton,* Florida International University	
4:15pm	**EL2-ThA-9** Gaining Insight Into InAs Plasma Treatments and Passivation via *in situ* Spectroscopic Ellipsometry, ***John Murphy,*** *G. Jeringan, J. Nolde,* Naval Research Laboratory	

Thursday Afternoon, November 7, 2024

	Applied Surface Science **Room 117 - Session AS-ThA** **Complementary Methods and Industrial Challenges** **Moderators:** **Vincent Smentkowski**, GE Research Center, **Suntharampillai Thevuthasan**, PNNL	**Surface Science** **Room 120 - Session SS-ThA** **Celebration of Robert J Madix and his Contributions to Surface Science & Reception** **Moderators: Liney Árnadóttir**, Oregon State University, **Dan Killelea**, Loyola University Chicago
2:15pm	**AS-ThA-1** ASSD Student Award Finalist Talk: Elucidating the Interaction Forces between Surface Nanobubbles and Nanoparticles, ***Daniela Miano***[1], *P. Bilotto,* CEST GmbH, Italy; *M. Valtiner,* TU Wien, Austria	**INVITED: SS-ThA-1** Thermodynamics and Kinetics of Elementary Reaction Steps on Late Transition Metal Catalysts: A Tribute to R. J. Madix, ***Charles T. Campbell,*** University of Washington
2:30pm	**AS-ThA-2** A Correlative Microscopy Platform for In-Situ AFM-SEM-EDS, ***Kerim T. Arat,*** *W. Neils, S. Spagna,* Quantum Design Inc.	
2:45pm	**AS-ThA-3** Multitechnique Analysis of Ultrathin Films for the Photocatalytic Production of Sustainable Aviation Fuels, ***Mark Isaacs,*** University College London, UK; *L. Durndell,* University of Plymouth, UK; *C. Parlett,* University of Manchester, UK; *C. Drivas,* Cardiff University, UK	**INVITED: SS-ThA-3** Alkane Activation and Oxidation on Solid Surfaces, ***Jason Weaver,*** University of Florida
3:00pm	**AS-ThA-4** Analysis of Cu-Ag and Ni-Pt High Throughput Survey Results, ***Kyle Dorman,*** *N. Bianco, R. Kothari, M. Kalaswad, C. Sobzcak, S. Desai, J. Custer, S. Addamane, M. Jain, A. Hinojos, F. DelRio, B. Boyce, R. Dingreville, D. Adams,* Sandia National Labs	
3:15pm	**AS-ThA-5** Characterization of Functional Surface Modifications in Medical Devices, ***Andrew Francis,*** *A. Rafati, A. Belu,* Medtronic, Inc.	
3:30pm	**AS-ThA-6** XPS Study of ZrN as a Barrier to Silver Migration in TRISO Fuels, ***Jeff Terry,*** Illinois Institute of Technology	
3:45pm	**AS-ThA-7** Surface Properties of Actinide Dioxide and Their Effect on Reactivity, ***Enrique Batista,*** *G. Wang, P. Yang,* Los Alamos National Laboratory	
4:00pm	**AS-ThA-8** High-Efficient Bifacial Ge-incorporated Sb_2Se_3 Photovoltaic Devices Enabled with Cu_2O Back Buffer, ***Sanghyun Lee,*** *K. Price,* University of Kentucky	
4:15pm		

[1] **ASSD Student Award Finalist**

	Chemical Analysis and Imaging of Interfaces **Room 121 - Session CA-ThA** **In Situ and Operando Analysis of Energy and Environmental Interfaces II** **Moderators:** **Ashley Head**, Brookhaven National Laboratory, **Andrei Kolmakov**, National Institute of Standards and Technology (NIST)	**2D Materials** **Room 122 - Session 2D+EM+QS-ThA** **2D Materials: Applications** **Moderators:** **Matthias Batzill**, University of South Florida, **Fei Yao**, University at Buffalo
2:15pm	**INVITED: CA-ThA-1** Understanding the Molecular Rearrangement at Interface by Atomic Modeling, ***Difan Zhang***, *D. Heldebrant,* Pacific Northwest National Laboratory*; V. Glezakou, R. Rousseau,* Oak Ridge National Laboratory	
2:30pm		
2:45pm		**2D+EM+QS-ThA-3** New Graphene Oxide-based Nanozymes for Cancer Theranostics*, A. Foti, S. Sciacca, G. Tranchida, S. Petralia, R. Fiorenza, S. Scirè, L. D'Urso, C. Bonaccorso, A. Fraix,* University of Catania, Catania, Italy*; A. De Bonis,* University of Basilicata, Italy*;* ***Cristina Satriano****,* University of Catania, Catania, Italy
3:00pm	**CA-ThA-5** Advances in Electron Microscopy for Imaging Surfaces, ***Saumya Mukherjee****, S. Böttcher,* SPECS Surface Nano Analysis GmbH, Germany*; K. Kunze,* SPECS Surface Nano Analysis GmbH, Germany, Gibraltar*; O. Schaff,* SPECS Surface Nano Analysis GmbH, Germany	**2D+EM+QS-ThA-4** Engineering Novel Hybrid Membranes for Battery Separators from Sustainable Sources, ***Suvash Ghimire****, P. Makkar, M. Islam, K. Mukhopadhyay,* University of Central Florida
3:15pm	**CA-ThA-5** The NanoMi Open-source Electron Microscope: Electronics Builds and SEM/STEM Image Generation, ***Darren Homeniuk****,* National Research Council, Canada*; M. Kamal,* University of Alberta Edmonton, Canada*; M. Malac, M. Schreiber, M. Salomons,* National Research Council of Canada*; S. Ruttiman,* National Research Council, Canada*; X. Wang,* University of Alberta, Canada*; K. Kwan,* National Research Council of Canada*; O. Adkin-Kaya, J. Calzada,* University of Alberta, Canada*; P. Price, M. Cloutier, M. Hayashida,* National Research Council of Canada*; R. Egerton,* University of Alberta, Canada*; K. Harada,* RIKEN, Japan*; Y. Takahashi,* Hitachi, Ltd., Japan	**2D+EM+QS-ThA-5** Unveiling Composition-Structure Relationships for the Discovery of Novel High-Entropy 2D Materials Using the Mixed Enthalpy-Entropy Descriptor*,* ***Dibyendu Dey****,* University of Central Florida*; O. Ogunbiyi,* University of Missouri*; B. Ball,* University of Central Florida*; L. Liang, M. Zachman,* Oak Ridge National Laboratory*; Y. Yang,* University of Missouri*; L. Yu,* University of Central Florida
3:30pm	**INVITED: CA-ThA-6** Advancing Carbon Dioxide Removal Technologies with Microscopic Insights Gained Using in-Situ and Operando Transmission Electron Microscopy*,* ***Wei-Chang David Yang****,* National Institute of Standards and Technology (NIST)	**2D+EM+QS-ThA-6** Antenna-Coupled Magic-Angle-Twist-Graphene Josephson Junction Millimeter Wave Detector*,* ***David Castro****,* University of Central Florida
3:45pm		
4:00pm	**CA-ThA-8** In situ Photoelectron and Infrared Spectroscopic Studies of Materials Under Various Plasmas, ***Ashley Head****,* Brookhaven National Laboratory*; T. Hu,* Brookhaven National Laboratory and State University of New York at Stony Brook*; A. Boscoboinik, D. Stacchiola,* Brookhaven National Laboratory	
4:15pm	**CA-ThA-9** Chemical and Morphological Stability of Diamond Device Interfaces Under Operando Plasma-XPS, ***J. Trey Diulus****,* NIST-Gaithersburg*; A. Head, J. Boscoboinik,* Center for Functional Nanomaterials, BNL*; A. Kolmakov,* NIST-Gaithersburg	

Thursday Afternoon, November 7, 2024

	Actinides and Rare Earths **Room 123 - Session AC+MI-ThA** **Forensics, Disposal and Pu** **Moderators: Itzhak Halevy**, Ben Gurion Uni. Be'er Sheva, Israel, **Alison Pugmire**, LANL, **Paul Roussel**, AWE, UK	**Plasma Science and Technology** **Room 124 - Session PS-ThA** **Plasma Sources. Diagnostics and Control II** **Moderators:** **David Boris**, U.S. Naval Research Laboratory, **Necip Uner**, Middle East Technical University, Turkey
2:15pm	**INVITED: AC+MI-ThA-1** A New Approach for Nuclear Forensics Investigations of Uranium Dioxide : Application of Laboratory Based Photoelectron Spectroscopy with Hard and Soft X-ray Sources, ***Stuart Dunn**, P. Roussel,* AWE, UK*; A. Wood, B. Spencer, R. Harrison,* University of Manchester, UK*; P. Kaye, M. Higginson,* AWE, UK*; W. Flavell,* University of Manchester, UK	**PS-ThA-1** Si Etch Characteristics in an Ultra-Low Electron Temperature CF_4 Plasma, *C. Chung, **Junyoung Park**, N. Kim, J. Choi, U. Jung, J. Jung, M. Kim,* Hanyang University, Korea
2:30pm		**PS-ThA-2** Temporal Evolution of Plasma Parameters and Electron Energy Distribution in a Pulsed-Modulated Capacitively Coupled Plasma, ***Satadal Das**,* University of Illinois at Urbana-Champaign*; D. Ruzic,* University of Illinois at Urbana Champaign
2:45pm	**INVITED: AC+MI-ThA-3** Making Use of X-ray Emission Signatures in the Scanning Electron Microscope to understand f-Element Speciation and Phase, ***Mark Croce**,* Los Alamos National Laboratory	**PS-ThA-3** Probing Microwave-Driven Plasmas: Investigating Ar Metastable Densities in Ar/N_2 Mixtures via LIF Technique, ***Nafisa Tabassum**, C. Dechant,* North Carolina State University*; A. Zafar,* Appled Materials*; D. Peterson, T. Chen,* Applied Materials*; S. Shannon,* North Carolina State University
3:00pm		**PS-ThA-4** Diagnostics of Plasma Parameters and Surface Impedance by Measuring AC Probe Current at Harmonic Frequencies, ***Junki Morozumi**, K. Eriguchi, K. Urabe,* Kyoto University, Japan
3:15pm	**AC+MI-ThA-5** Automated Particle Analysis of Actinide-Bearing Nuclear Wastes, ***Edgar Buck**,* Pacific Northwest National Laboratory	**PS-ThA-5** Plasma Diagnostics with a Transparent(ITO) Probe Based on the Floating Harmonic Method, *C. Chung, **Beom-Jun Seo**, H. Nahm, D. Kim,* Hanyang University, Korea
3:30pm	**AC+MI-ThA-6** Development of X-Ray Spectromicroscopy Techniques for Nuclear Safeguards and Nuclear Forensics, ***David Shuh**, A. Ditter, N. Cicchetti, O. Gunther,* LBNL*; J. Brackbill,* UC Berkeley/LBNL*; R. Lim, A. Baker, S. Donald, B. Chung,* LLNL*; R. Coles,* BNL*; A. Duffin, J. Ward, M. Miller,* PNNL	**PS-ThA-6** Time-Resolved Ion and Neutral Energy Distribution Function Study of High-Power Impulse Magnetron Sputtering with Positive Cathode Reversal using a Linear Magnetron , ***Tag Choi**, Z. Jeckell, S. Pickholtz, J. Miles, D. Qerimi, D. Ruzic,* University of Illinois at Urbana-Champaign
3:45pm	**AC+MI-ThA-7** Site-Specific and Spatially Resolved Morphological and Chemical Analysis of Plutonium and Uranium Materials, ***Brandon Chung**, A. Baker, S. Donald, T. Li, R. Lim, U. Mehta, D. Rosas, D. Servando-Williams, N. Cicchetti,* Lawrence Livermore National Laboratory*; A. Ditter, O. Gunther, D. Shuh,* Lawrence Berkeley National Laboratory	**PS-ThA-7** A Plasma Diagnostic Based Approach to Enabling Low Run-In for Sputter Deposited MoS_2 Solid Lubricants, ***Steven Larson**, A. Ming, T. Babuska, M. Dugger, F. DelRio, M. Rodriguez, R. Kolasinski, J. Curry,* Sandia National Laboratories
4:00pm	**AC+MI-ThA-8** An Entropic Approach to Estimating Orbital Occupancies in Plutonium, ***Miles Beaux**,* Los Alamos National Laboratory	**PS-ThA-8** Investigations of Focus Ring Electrodes in Inductively Coupled Plasma, ***Tugba Piskin**,* LAM Research*; S. Nam, H. Lee,* Samsung Electronics Co., Inc., Korea (Democratic People's Republic of)*; M. Kushner,* University of Michigan, Ann Arbor
4:15pm	**AC+MI-ThA-9** The Problem with the Second Derivative Method in EELS*, ***JG Tobin**,* University of Wisconsin-Oshkosh	**FLASH SESSION: PS-ThA-9** ***James Prager**,* EHT Semi ***Timothy Ziemba**,* EHT Semi

2D Materials
Room Central Hall - Session 2D-ThP
2D Materials Poster Session
4:30 – 8:00 pm

2D-ThP-2 Topotactical Reaction of $NiTe_2$ Films with Excess Ni, ***Nirosha Rajapakse,*** *M. Batzill, K. Lasek,* University of South Florida

2D-ThP-3 Compositional Phase Control of $Mote_{2-X}$ via Growth Temperature, Post-Growth Annealing, and Post-Growth Metal Incorporation, ***Onyedikachi Alanwoko,*** *M. Batzill,* University of South Florida

2D-ThP-4 Influence of Fluorination and Oxygenation Sources on the Thermal Atomic Layer Etching of MoS_2, ***Jacob Tenorio,*** Boise State University

2D-ThP-5 SCTD Through Ultraviolet Ozone Treatment for 2D Semiconductor Based Field Effect Transistors, *J. Park,* ***Juwon Lee,*** Sungkyunkwan University (SKKU), Republic of Korea

2D-ThP-6 Plasma Assisted Etching of MoS_2: An Ab-Initio Molecular Dynamics(AIMD) Study, ***Shoaib Khalid,*** *Y. Barsukov, S. Ethier, I. Kaganovich,* Princeton University Plasma Physics Lab

2D-ThP-7 The Relationship between the Adhesion Strength and the Anodization Time for the Formation of Titanium Oxide Nanotubes on Ti-6Al-4V , ***ITZEL PAMELA TORRES AVILA,*** *M. VARGAS LÓPEZ, A. CHINO ULLOA, J. CASTREJÓN FLORES,* Unidad Profesional Interdisciplinaria de Biotecnología, Mexico

2D-ThP-8 Characteristics of Composites of Expanded Graphite and Silver Nanoparticles Prepared by Thermal Decomposition, ***Won Gyu Lee,*** Kangwon National University, Republic of Korea

2D-ThP-9 Momentum Dependent Charge Density Wave Gap in an Antiferromagnetic Metal, ***Nathan Valadez,*** University of Central Florida; *S. Regmi,* Idaho National Laboratory; *I. Bin Elius, A. Pradhan Sakhya, D. Jeff, M. Sprague, M. Islam Mondal, D. Jarret, A. Agosto,* University of Central Florida; *T. Romanova,* Polish Academy of Sciences, Poland; *J. Chu,* University of Washington; *S. Khondaker,* University of Central Florida; *A. Ptok, D. Kaczorowski,* Polish Academy of Sciences, Poland; *M. Neupane,* University of Central Florida

2D-ThP-10 Investigating the Electronic Structure of Bilayer Graphene/RuCl3 Heterostructure, ***Aalok Tiwari,*** *S. Sasmal, I. Kao,* Carnegie Mellon University, USA; *C. Jozwiak, E. Rotenberg,* Advanced Light Source, Lawrence Berkeley National Laboratory; *A. Bostwick,* advanced light Source, Lawrence Berkeley National Laboratory; *S. Singh, J. Katoch,* Carnegie Mellon University, USA

2D-ThP-11 2D Materials for Energy-Efficient Nanoelectronics, *F. Yao,* ***Huamin Li,*** University at Buffalo - SUNY

2D-ThP-12 Unique Nanowire and 2D Material Device Fabrication by Nanofrazor Technology, ***Nicholas Hendricks,*** *F. Yang, E. Clerc, J. Chaaban, E. Çağin,* Heidelberg Instruments Nano AG, Switzerland

2D-ThP-13 Engineering Surface Termination of Ti2C3Tx MXene for Enhanced Soft Actuator Performance, *D. Silva Quinones,* ***Haozhe Wang,*** Duke University

2D-ThP-14 Graphene-Based Hybrid Nanoparticle for the Chemotherapy Treatment of Prostate Cancer, ***Diego La Mendola,*** *L. Chiaverini, R. Di Leo, C. Giorgieri,* University of Pisa, Italy; *C. Satriano,* University of Catania, Italy; *T. Marzo,* University of Pisa, Italy

2D-ThP-15 Investigating the Interaction between MXene and Silane through High-Resolution X-ray Photoelectron Spectroscopy (XPS), ***Mohamed Nejib Hedhili,*** *M. Ali, S. Barman, D. Alsulaiman, H. Alshareef,* KAUST, Saudi Arabia

2D-ThP-17 Study of Electronic and Optical Properties of TMD Heterostructures Grown by CVD, ***Elycia Wright,*** Clark Atlanta University; *K. Johnson,* Morehouse College; *S. Coye, M. Senevirathna, M. Williams,* Clark Atlanta University

2D-ThP-18 Synthesis, Fabrication and Mechanical Testing of Freestanding Few-Layer Draphene/Boron Nitride/Polymer Heterostacks Investigated Using Local and Non-Local Measurement Techniques, ***Yoosuk Kim,*** *M. Lespasio,* Saint Louis University, Department of Physics; *E. Missale,* University of Trento, Department of Civil, Environmental and Mechanical Engineering, Italy; *B. Aziz,* Saint Louis University, Department of Physics; *G. Speranza,* University of Trento, Department of Industrial Engineering,, Italy; *R. Divan, D. Gosztola,* Argonne National Laboratory, Center for Nanoscale Materials; *C. Lei,* University of Scranton, Department of Physics and Engineering; *M. Pantano,* University of Trento, Department of Civil, Environmental and Mechanical Engineering, Italy; *I. Kuljanishvili,* Saint Louis University, Department of Physics

Actinides and Rare Earths
Room Central Hall - Session AC-ThP
Actinides and Rare Earths Poster Session
4:30 – 8:00 pm

AC-ThP-2 Nuclear Forensics, Fission Track Analysis , Star Segmentation and Classification Using Deep Learning, *N. Elgad,* ***R. Babayew, Y. Yehuda-Zada,*** Ben Gurion Uni., Israel; *J. Lorincik,* Research Centre Řež, Czechia; *M. Last, I. Orion, G. Katarivas-Levy,* Ben Gurion Uni., Israel; *A. Weiss,* Bar Ilan University, Israel; ***Itzhak Halevy,*** Ben Gurion Uni., Israel

AC-ThP-3 Tracking the Impact of Varied Oxygen Partial Pressure during PLD Growth on the Magnetic Response of Metastable Orthoferrite $LuFeO_3$, ***Washat Ware,*** *M. Frye, M. Mourigal, L. Garten,* Georgia Institute of Technology, USA

AC-ThP-4 Electronic Structure of a Nodal Line Semimetal Candidate, ***Iftakhar Bin Elius,*** University of Central Florida; *S. Regmi,* Idaho National Laboratory; *A. Sakhya,* University of Central Florida; *V. Buturlim,* Idaho National Laboratory; *M. Sprague, M. Mondal, N. Valadez,* University of Central Florida; *T. Romanova,* Polish Academy of Sciences, Poland; *A. Kumay,* University of Central Florida; *A. Ptok,* Polish Academy of Sciences, Poland; *K. Gofryk,* Idaho National Laboratory; *D. Kaczorowski,* polish academy of Sciences, Poland; *M. Neupane,* University of Central Florida

AC-ThP-5 Grain Boundary and Heterointerface Structures and Defects in Pu Oxides: Classical Molecular Statics Study to Inform Further Ab Initio Investigation, ***Larissa Woryk,*** *R. Atta-Fynn, A. Kohnert, S. Hernandez,* Los Alamos National Laboratory

AC-ThP-6 Exploring the Combined Influence of Alpha Irradiation, Dissolved Hydrogen, and Palladium Addition on UO2 Corrosion Using a Microfluidic Electrochemical Cell, ***Jennifer Yao,*** *J. Heo, B. McNamara, E. Ilton, E. Buck,* PNNL

Advanced Surface Engineering
Room Central Hall - Session SE-ThP
Advanced Surface Engineering Poster Session
4:30 – 8:00 pm

SE-ThP-1 High-Temperature Oxidation Resistance of Sputtered (Al,Cr,Nb,Ta,Ti,Si)N Coatings, ***Andreas Kretschmer,*** TU Wien, Austria; *P. Mayrhofer,* TU Wien, Institute of Materials Science and Technology, Austria

SE-ThP-2 ASED Rising Star Talk: The Influence of Deposition Parameters on the Structure and Properties of TiZrNbTaMo High Entropy Alloy Films Fabricated by High Power Impulse Magnetron Sputtering, ***Chia-Lin Li[1],*** Center for Plasma and Thin Film Technologies, Ming Chi University of Technology; *S. Hou,* Department of Materials Science and Engineering, National Tsing Hua University; *B. Lou,* Chemistry Division, Center for General Education, Chang Gung University; *J. Lee,* Department of Materials Engineering, Ming Chi University of Technology; *P. Chen,* Department of Materials Science and Engineering, National Tsing Hua University, Taiwan

SE-ThP-5 Magnetron Sputtering Deposition of Metallic-Based Nanostructured Coatings for Nuclear Energy Applications, ***Maria Sole Galli De Magistris,*** *D. Vavassori, V. Russo, D. Dellasega,* Politecnico di Milano, Italy; *M. Gentile, F. Garcia Ferré,* newcleo Srl, Italy; *M. Passoni,* Politecnico di Milano, Italy

SE-ThP-6 UV-Vis-NIR Optical Analysis to Understand the Electrical Properties of Nitrogen-Incorporated Tetrahedral Amorphous Carbon Thin Films, ***Nina Baule,*** Fraunhofer USA Center Midwest; *D. Tsu,* The Mackinac Technology Company; *L. Haubold,* Fraunhofer USA Center Midwest; *T. Schuelke,* Fraunhofer USA

SE-ThP-7 A Critical Issue in Coatings Nanoindentation: Validity of the 10% Bückle's Rule of Thumb, ***Esteban Broitman,*** SKF Research and Technology Development, Netherlands

SE-ThP-8 Optimizing Laser Surface Melting Parameters to Enhance Corrosion Resistance of AA5083 Aluminum Alloy, ***Md Sojib Hossain,*** University of Virginia, USA, Bangladesh; *W. P. Moffat,* University of Virginia, USA; *J. Skelton,* University of Virginia, USA, United States Virgin Islands; *J. Fitz-Gerald,* University of Virginia, USA

[1] **AVS Rising Star**

AI/ML for Scientific Discovery
Room Central Hall - Session AIML-ThP
AI/ML for Scientific Discovery Poster Session
4:30 – 8:00 pm

AIML-ThP-1 High-Throughput Ab Initio Screening of MAB Phases: Phase Stability and Mechanical Property Relationships, ***Nikola Koutna,*** TU Wien, Austria; *L. Hultman,* Linköping Univ., IFM, Thin Film Physics Div., Sweden; *P. Mayrhofer,* TU Wien, Austria; *D. Sangiovanni,* Linköping Univ., IFM, Thin Film Physics Div., Sweden

AIML-ThP-2 Leak Detection Algorithm Through 2D Image Transformation of Multi-Wavelength Data from SPOES and Application of CNN, ***Youngjun Yuk,*** *k. Kim, H. Kim,* Tech University of Korea, Korea (Democratic People's Republic of)

AIML-ThP-4 Neo: An Artificial Intelligence-Based Framework to Address Reproducibility Challenges in Materials Characterization , ***Min Long,*** *M. Lau,* Boise State University; *A. Burleigh, J. Terry,* Illinois Institute of Technology

Applied Surface Science
Room Central Hall - Session AS-ThP
Applied Surface Science Poster Session
4:30pm

AS-ThP-1 Advances in the Chemical Composition Quantification of Surface and Volume Using HAXPES Data, ***Dulce-Maria Guzman-Bucio,*** CINVESTAV-Unidad Queretaro, Mexico; *J. Huerta-Ruelas,* CICATA Queretaro, Mexico; *O. Cortazar-Martinez,* CINVESTAV-Unidad Queretaro, Mexico; *D. Cabrera-German,* Universidad de Sonora, Mexico; *J. Torres-Ochoa,* Universidad Politecnica de Juventino Rosas, Mexico; *A. Carmona-Carmona,* CINVESTAV-Unidad Queretaro, Mexico; *O. Ceballos-Sanchez,* Universidad de Guadalajara, Mexico; *W. Limestall, Z. Lee, M. Warren, J. Terry,* Illinois Institute of Technology; *A. Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico

AS-ThP-2 Basic Aspects of the Asymmetry of Lineshapes in Photoemission Spectra Caused by a Cascade of Excitations of Fermi-Level Electrons, *A. Dutoi,* University of the Pacific; ***Alberto Herrera-Gomez,*** Cinvestav, Mexico; *D. Guzman-Bucio,* CINVESTAV-Unidad Queretaro, Mexico

AS-ThP-3 XPS Study of the Initial Oxidation of Iron for Ultrathin and Thick Films, ***Orlando Cortazar-Martinez,*** *J. Torres Ochoa, J. Fabian-Jacobi, J. Raboño Borbolla, A. Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico

AS-ThP-4 Rapid Assessment of Detector Linearity and Deadtime Correction for XPS Instruments, ***Benjamen Reed,*** *A. Shard,* National Physical Laboratory, UK

AS-ThP-5 ASSD Student Award Finalist Talk: Dry and Wet Etching of Single-Crystal AlN, ***Hsiao-Hsuan Wan***[1], *C. Chiang, J. Li,* University of Florida; *N. Al-Mamun, A. Haque,* Penn State University; *F. Ren, S. Pearton,* University of Florida

AS-ThP-7 Probing the Adhesive / Substrate Interface Using Back Side Sims Profiling Facilitated by Releasable Thin Metal Films, ***Paul Vlasak,*** *S. Altum, T. Fielitz, J. Beebe,* Dow Chemical Company

AS-ThP-8 Probing the Effects of Surface Chemistry on Quality Factor and Coherence Times of Superconducting Radio Frequency Cavities and Qubits, ***Adam Clairmont,*** *J. Lee, A. Murthy,* FermiLab

AS-ThP-9 Electronic Structure in a Transition Metal Dipnictide $TaAs_2$, *S. Regmi,* Idaho National Laboratory; ***Arun Kumar Kumay,*** *M. Neupane,* University of Central florida

AS-ThP-11 Analysis of High-k Metal Stacks by Hard X-Ray Photoelectron Spectroscopy Under Bias, ***Anja Vanleenhove,*** *T. Conard,* IMEC Belgium; *D. Desta, H. Boyen,* Hasselt University, Belgium

AS-ThP-13 Update on Using Different Instruments on the Same Sample and Getting Similar Results, ***Lyndi Strange,*** *D. Baer, M. Engelhard, V. Shutthanandan,* Pacific Northwest National Lab; *A. Shard,* National Physical Laboratory, U.K.

AS-ThP-14 ToF-SIMS Characterization of Mechanocatalytically-Formed Carbonaceous Films on Nanocrystalline $Pt_{0.9}Au_{0.1}$ Alloy: Insights into Chemistry, Structure, and Friction Behavior, ***Nicolas Molina,*** *C. Edwards,* The University of Texas at Austin; *T. Babuska, J. Curry, F. DelRio,* Sandia National Laboratories; *J. Killgore,* National Institute of Standards and Technology, Boulder; *H. Lien,* The University of Texas at Austin; *M. Dugger,* Sandia National Laboratories; *F. Mangolini,* The University of Texas at Austin

AS-ThP-15 Quantification of Surface and Subsurface Structures of Complex Thin Films with LEIS, XPS and Sputter Depth Profile Simulations, *M. Valtiner,* ***Camil Bocaniciu,*** *J. Pichler, A. Celebi,* TU Wien, Austria

AS-ThP-16 Multimodal Characterization of Copper Hydroxy Chloride for Advanced Thermochemical Energy Storage Applications, ***Kavin Chakravarthy Thangaraj,*** *X. Zhang,* Washington State University, US; *V. Prabhakaran, V. Murugesan, A. Karakoti,* Pacific Northwest National Laboratory

AS-ThP-17 Observation of Multiple Flat Bands and Van-Hove Singularities in a Distorted Kagome System $NdTi_3Bi_4$, ***Mazharul Islam Mondal,*** *A. Sakhya, M. Sprague,* University of Central Florida; *B. Ortiz,* Oak Ridge National Laboratory, USA; *M. Matzelle,* Northeastern University, US; *N. Valadez, I. Bin Elius,* University of Central Florida; *B. Ghosh, A. Bansil,* Northeastern University, US; *M. Neupane,* University of Central Florida

AS-ThP-18 Quantitative Analysis for Chromium Oxidation, ***Milton Vazquez-Lepe,*** University of Guadalajara, Mexico; *A. Herrera-Gomez, O. Cortazar,* CINVESTAV-Queretaro, Mexico; *S. Aguirre,* CIMAV-Monterrey, Mexico; *C. Weiland,* Brookhaven National Laboratory

AS-ThP-19 Temperature Dependency of Doping Silicon with Phosphorus Using Ultra-Thin Films of P-Containing Minerals, ***Roman Konoplev-Esgenburg,*** *P. Thissen,* KIT, Germany

AS-ThP-20 Coincident XPS, Raman and SEM Analysis of Additive Manufacturing Devices, ***Mark Isaacs,*** University College London, UK; *D. Morgan,* Cardiff University, UK; *A. Leung, K. Kim, S. Bhagavath,* University College London, UK

AS-ThP-21 Investigation into the Blackening of Lead-Glazed Ceramic Objects, ***Alexandra DiCarlo,*** *A. Walker,* University of Texas at Dallas

AS-ThP-22 A Computational Approach to Model Radical Formation in Low Temperature Plasma Generated from Pentane and Acrylic Acid as Precursors, ***Mackenzie Jackson,*** *K. Closser, M. Hawker,* California State University, Fresno

AS-ThP-23 Improving Field Emission Device Performance by Optimizing the Emitter Shape, Dimension, and Space Distribution Based on Finite Element Analysis, ***Jaden Lu,*** *O. Lu,* Hamilton High School

AS-ThP-24 Metallic 3D-Printing Materials Analysed by Secondary Ion Mass Spectrometry, *A. Akhmetova, D. Breitenstein,* Tascon GmbH, Germany; *M. Glauche,* implantcast GmbH, Germany; *M. Kluge,* Fraunhofer Research Institution for Additive Manufacturing (IAPT), Germany; *E. Tallarek,* ***Reinhard Kersting,*** *B. Hagenhoff,* Tascon GmbH, Germany

AS-ThP-25 Advanced Automated Workflows and Elemental Identification for Non-Expert XPS Analysis, ***Jonathan Counsell,*** *L. Soomary,* Kratos Analytical Limited, UK; *C. Moffitt,* Kratos Analytical Inc., UK; *K. Macak,* Kratos Analytical Limited, UK, Slovakia; *K. Good,* Kratos Analytical Limited, UK

AS-ThP-26 Online Accurate Intensity Calibration for X-ray Photoelectron Spectroscopy Instruments, ***Alexander Shard,*** *B. Reed, S. Spencer, D. Sundaram, T. Fielder, C. Lambie, D. Melling,* National Physical Laboratory, UK

AS-ThP-27 Sublime cryo-XPS, ***David Surman,*** Kratos Analytical Inc; *J. Counsell,* Kratos Analytical Limited, UK

Atomic Scale Processing Mini-Symposium
Room Central Hall - Session AP-ThP
Atomic Scale Processing Mini-Symposium Poster Session
4:30pm

AP-ThP-1 Surface Bromination as a Way to Prepare an Atomic-Layer Resist: A Path Towards Area-Selective Deposition, ***John R. Mason,*** *A. Teplyakov,* University of Delaware

AP-ThP-2 Thermal Atomic Layer Etching Process for 2D van der Waals Material $CrPS_4$, ***Marissa Pina,*** *M. Whalen, J. Xiao, A. Teplyakov,* University of Delaware

AP-ThP-3 Conversion of TiO_2 ALD Precursor Selectivity via Amination of Chlorinated Silicon with Primary Amines, ***Tyler Parke,*** *J. Mason, A. Teplyakov,* University of Delaware

AP-ThP-4 Atomic Layer Deposition of Ruthenium and Ruthenium Oxide Thin Films for Electrochemical Water Splitting, ***Swapnil Nalawade,*** *D. Kumar, S. Aravamudhan,* North Carolina A&T State University

AP-ThP-5 Fabrication of p-n Junction Photodiodes using Low-Temperature ALD grown ZnO and NiO films on Si substrates, *H. Jiang, T. Cu, S. Bin Hafiz, H. Saleh, F. Bayansal, I. Sifat, A. Agrios,* ***Necmi BIYIKLI,*** University of Connecticut

[1] **ASSD Student Award Finalist**

AP-ThP-6 Design of Gas Flow Field for a Microchannel Flow ALD Processing Chamber, ***Kyung-Hoon Yoo,*** Korea Institute of Industrial Technology, Republic of Korea*; G. Song,* KUMYOUNG ENG Inc., Republic of Korea*; C. Kim,* TNG Co., Republic of Korea*; J. Hwang, H. Lee, S. Lee, J. Woo,* Korea Institute of Industrial Technology, Republic of Korea*; K. Lee,* Samasung Display, Republic of Korea

Biomaterial Interfaces
Room Central Hall - Session BI-ThP
Biomaterial Interfaces Poster Session
4:30 – 8:00 pm

BI-ThP-1 Optimizing Regenerative Cell Infiltration in Vascular Grafts: Enhanced Strategies to Engineer Pore Microstructures During Fabrication, ***Aurora Battistella,*** University of Colorado at Boulder

BI-ThP-2 Mass-Manufactured Surface Textures Enable Low-Cost Large-Volume Water Analyte Detection and Location Tracking, ***Liza White****, C. Howell,* University of Maine

BI-ThP-3 Low Fouling Amphiphilic Zwitterionic Carboxybetaine/Perfluoropolyether Methacrylate Polymer Coatings, ***Onur Özcan****, F. Koschitzki, R. Wanka, M. Krisam, A. Rosenhahn,* Ruhr University Bochum, Germany

BI-ThP-4 Pore Size Impact on Oil-Release and Fouling Resistance of Macroporous Oil-Infused PDMS Systems, ***Regina Kopecz****, S. Böer, Z. Tiris, A. Rosenhahn,* Ruhr University Bochum, Germany

BI-ThP-5 Advancing Catheter Care: Liquid-Infused Catheters as a Novel Approach to Combat CAUTIs, ***Zachary Applebee****, C. Howell,* University of Maine

BI-ThP-6 Developing an Effective Coating Process for Nanoscale Cellulose Fibrils on Biodegradable Substrates, ***Sandro Zier****, D. Bousfield, C. Howell,* University of Maine

BI-ThP-7 The Surface Enhancement of Electro-Spun Polycaprolactone (PCL) Using Room Temperature Atomic Layer Deposition of Magnesium Oxide for Use as a Novel Resorbable Membrane for Dental and Corneal Surgery, ***Harshdeep Bhatia,*** University of Illinois - Chicago*; F. Esmaeilabadi,* Northern Illinois University*; C. Sukotjo, C. Takoudis,* University of Illinois - Chicago*; S. Vahabzadeh,* Northern Illinois University

BI-ThP-8 Label-Free High-Resolution Molecular Imaging of Sex Steroid Hormones in Zebrafish by Water Cluster Secondary Ion Mass Spectrometry (Cluster SIMS), *N. Sano,* Unit B6, Millbrook Cl Chandler's Ford, UK*; E. Lau, J. von Gerichten,* University of Surrey, UK*;* ***Kate McHardy****, P. Blenkinsopp,* Ionoptika, Ltd., UK*; M. Al Sid Cheikh, M. Bailey,* University of Surrey, UK

BI-ThP-9 Fouling Inhibition by Replenishable Plastrons on Microstructured, Superhydrophobic Carbon-Silicone Composite Coatings, ***Louisa Vogler****, E. Manderfeld, A. Rosenhahn,* Ruhr University Bochum, Germany

BI-ThP-10 iCVD Polymer Thin Film Bio-Interface-Performance Based on Functional Groups and Aerohydrogels, ***Torge Hartig****, J. Paulsen, W. Reichstein, M. Hauck,* Kiel University, Germany*; M. Taale,* Universität Heidelberg, Germany*; T. Strunskus,* Kiel University, Germany*; C. Selhuber-Unkel,* Universität Heidelberg, Germany*; A. Amin,* National Research Centre, Giza, Egypt*; R. Adelung,* Kiel University, Germany*; B. Freedman,* Harvard University*; F. Schütt, F. Faupel, S. Schröder,* Kiel University, Germany

BI-ThP-11 Bacterial Co-Culture Methods to Enhance Growth Rates in Mycelial Biomaterials, ***Lindsay Pierce****, M. Tajvidi, C. Howell,* University of Maine

BI-ThP-12 Vascularization to Enhance Growth Rates in Mycelial Biomaterials, ***Anna Folley****, M. Tajv, C. Howell,* University of Maine

BI-ThP-13 Self-Assembled Multifunctional Thin Films with Cerium Dioxide Nanoparticles, ***Daniela Topasna****, A. Psczulkoski, M. Albertson, S. Harris,* Virginia Military Institute

BI-ThP-14 Electroanalytical Investigation of Preferred Crystal Growth of Piezoelectric Gamma Glycine Biocrystals from Solution-Organic Film Interfaces, ***Bijay Dhungana****, C. Neal,* University of Central Florida*; X. Wang,* University of Wisconsin-Madison*; S. Seal,* University of Central Florida

BI-ThP-15 Towards a Biomimetic Approach to Transition Metal Sensing in Water, ***William Maza****, K. Fears,* US Naval Research Laboratory

BI-ThP-16 Optical Tweezers for Electrochemically Manipulated Force Measurements, *J. Appenroth, I. Peters, M. Valtiner,* ***Laura Mears****,* Vienna University of Technology, Austria

Chemical Analysis and Imaging of Interfaces
Room Central Hall - Session CA-ThP
Chemical Analysis and Imaging of Interfaces Poster Session
4:30 – 8:00 pm

CA-ThP-1 Multimodal in-Situ Characterization of Fe Anode for Aqueous Battery, ***Xiao Zhao,*** Lawrence Berkeley National Laboratory*; E. Carlson, A. Burgos, W. Chueh,* Stanford University

CA-ThP-2 Off-axis EELS Bandgap Measurements at Complex Oxide Interfaces, ***Kory Burns,*** University of Virginia, USA*; J. Hachtel, J. Poplawsky,* Oak Ridge National Laboratory, USA

CA-ThP-3 ToF-SIMS Analysis of Biofilms after Overlayer Removal by fs-Laser Ablation, ***Gabriel Parker****, A. Karaginnakis, R. Shavandi,* University of Illinois - Chicago*; X. Yu,* ORNL*; L. Hanley,* University of Illinois - Chicago

CA-ThP-4 Breakdown Failure Analysis of Diamond Lateral Schottky Barrier Diode Device Using EBIC-Based Metrology, ***Andrei Kolmakov****,* NIST-Gaithersburg*; Z. Han, J. Lee,* UIUC*; K. Cheung, E. Strelcov, O. Ridzel, J. Villarrubia, G. Holland,* NIST-Gaithersburg*; C. Bayram,* UIUC

CA-ThP-5 Oxide Layer Characterization of Superconducting Two-layer Tin Films: Al/Nb and Al/Nb-Ti-N on Silicon, *G. Bhandari, V. Dewasurendra, F. Akinrinola, J. Metzger, A. Sheppard,* West Virginia University, USA*; T. Stevenson, E. Barrentine, L. Hess,* NASA Goddard Space Flight Center*; M. Johnson,* ***Micky Holcomb****,* West Virginia University, USA

CA-ThP-6 Deep Probing of Buried Layers with HAXPES - Chemical Analysis with Bias Applied Operando Setup for Electronic Devices, ***Marcus Lundwall****, T. Sloboda,* Scienta Omicron, Sweden*; D. Beaton,* Scienta Omicron*; M. Machida,* Scienta Omicron, Japan

CA-ThP-7 Stability and Dielectric Strength of Model Metal/Al_2O_3/Diamond Interfaces Under Harsh Environments, ***J. Trey Diulus****, A. Biacchi, E. Bittle, A. Kolmakov,* NIST-Gaithersburg

CA-ThP-9 Differential Ion Movement is Captured by XPS under Voltage-Bias through a Multi-Layered-Graphene Electrode in contact with a Mixed Ionic Liquid Medium, *E. Kutbay,* Bilkent University, Chemistry Department, 06800 Ankara, Turkey*; F. Krebs, O. Hoefft, F. Endres,* Clausthal University of Technology, Germany*;* ***Sefik Suzer****,* Bilkent University, Chemistry Department, 06800 Ankara, Turkey

CA-ThP-10 ToF-SIMS Analysis of Two-Dimensional Metal Carbide Catalysts, ***Tobias Misicko****,* Oak Ridge National Laboratory, Louisiana Tech University*; G. Parker,* Oak Ridge National Laboratory*; Y. Xiao,* Louisiana Tech University*; X. Yu,* Oak Ridge National Laboratory, USA

CA-ThP-11 Surface Chemistry and Film Growth at Complex Air/Solution/Iron Interfaces, ***Kathryn Perrine****,* Michigan Technological University

CHIPS Act Mini-Symposium
Room Central Hall - Session CPS-ThP
CHIPS Act Mini-Symposium Poster Session
4:30 – 8:00 pm

CPS-ThP-1 Expanding the AVS Science Educators Workshop to Historically Underserved Communities to Support Needs of the CHIPS in Science Act, ***Timothy Gessert****,* Chair - AVS Education Committee

Electronic Materials and Photonics
Room Central Hall - Session EM-ThP
Electronic Materials and Photonics Poster Session
4:30 – 8:00 pm

EM-ThP-1 Optimizing Amorphous Indium Gallium Zinc Oxide Thin Film for Application in Photoactive Layers, ***Anvar Tukhtaev****, J. Lee, J. Berdied, S. Kim,* Chungbuk National University, Republic of Korea

EM-ThP-2 Improvement of Al Undercut Defect in sub 20 Nm DRAM, ***DONG-SIK PARK****, b. Choi,* Sungkyunkwan University (SKKU), Republic of Korea

EM-ThP-3 Enhancing Electro-Physical Properties of DRAM Through Control of Silicon Diffusion in Titanium Nitride Based Barrier Layer, ***Jina Kim****, Y. Kim,* Sungkyunkwan University, Korea

EM-ThP-4 Integrating Molecular Photoswitch Memory with Nanoscale Optoelectronics, ***Nelia Zaiats****, T. Kjellberg Jensen,* Lund University, Sweden

EM-ThP-5 Charge Trapping in a-Si_3N_4: Hydrogen as Savior and Saboteur, ***Lukas Hückmann****, J. Cottom, J. Meyer,* Leiden University, The Netherlands

EM-ThP-6 Graded CdSexTe1-X /CdTe Thin-Film Solar Cells: In-Situ Dopant Profiling During Light Soaking, ***Sanghyun Lee,*** University of Kentucky; *K. Price,* Morehead State University

EM-ThP-7 Optimization of NiO Doping, Thickness, and Extension in Kv-Class NiO/Ga2O3 Vertical Rectifiers, ***Chao-Ching Chiang,*** *J. Li, H. Wan, F. Ren, S. Pearton,* University of Florida

EM-ThP-9 Low-Power, Highly Responsive Phototransistor Array Utilizing Plasma-Engineered Amorphous Metal Oxide Semiconductors, ***Uisik Jeong,*** *H. Rho,* Sungkyunkwan University, Korea; *S. Kim,* Sungkyunkwan University (SKKU), Republic of Korea

EM-ThP-10 SOH Bake Time Optimization for SOH Void Reduction in Semiconductor Manufacturing, ***Jaehyeon Jeon,*** *B. Choi,* Sungkyunkwan University (SKKU), Republic of Korea

EM-ThP-11 Synthesis of Lead free $KNbO_3$ Piezoelectric Film on $LiNbO_3$ Single Crystal by Hydrothermal Method, ***Thithi Lay,*** *A. Hagiwara, R. Arai,* Josai University, Japan

EM-ThP-12 Thin Film Electrets Fabricated by Initiated Chemical Vapor Deposition (iCVD), ***Stefan Schröder,*** *T. Hartig, L. Schwäke, T. Strunskus, F. Faupel,* Kiel University, Germany

EM-ThP-15 Revisiting Materials from the B-C-N Family for Interconnect Dielectric Applications, ***Michelle Paquette,*** *R. Bale, F. Berber Halmen, G. Bhattarai, S. Daneshmehr, S. Dhungana, M. Stoll,* University of Missouri-Kansas City

EM-ThP-16 Photoluminescence Measurements of Te-Doped Gasb from 10 K to 300 K Using FTIR Spectroscopy, *S. Yadav,* ***Sonam Yadav,*** *C. A. Armenta, J. R. Love,* New Mexico State University; *P. C. Grant,* University of Arkansas; *S. Zollner,* New Mexico State University

EM-ThP-18 Breaking Boundaries in Battery Efficiency: Siloxane Binders for High Mass Loaded LFP Cathodes, ***Asuman Celik-Kucuk,*** *T. Abe,* Kyoto University, Japan

Light Sources Enabled Science Mini-Symposium
Room Central Hall - Session LS-ThP
Light Sources Enabled Science Mini-Symposium Poster Session
4:30 – 8:00 pm

LS-ThP-1 Near-Ambient Pressure XPS/Nexafs at Diamond Light Source, ***Georg Held,*** Harwell Science Campus, UK

Magnetic Interfaces and Nanostructures
Room Central Hall - Session MI-ThP
Magnetic Interfaces and Nanostructures Poster Session
4:30 – 8:00 pm

MI-ThP-1 Molecular Beam Epitaxy of Antiferromagnetic Kagome Alloy CrSn on LaAlO3 (111), ***Tyler Erickson,*** Ohio University; *S. Upadhyay,* Oak Ridge National Laboratory, USA; *H. Hall, A. Shrestha, A. Abbas,* Ohio University; *S. Rajasabai,* Vellore Institute of Technology, India; *D. Ingram, S. Kaya,* Ohio University; *U. Kumar,* Vellore Institute of Technology, India; *A. Smith,* Ohio University; *D. Russell, F. Yang,* Ohio State University

MI-ThP-3 Interactions of Extended Magnetic Defects in Semimetallic Systems, ***Samuel Tkacik,*** *E. Thareja, J. Gayles,* University of South Florida

MI-ThP-4 Growth and Spectroscopy of Altermagnetic MnTe, ***Marco Dittmar,*** *H. Haberkamm, P. Kagerer, M. Ünzelmann, F. Reinert,* University of Würzburg, Germany

Manufacturing Science and Technology
Room Central Hall - Session MS-ThP
Manufacturing Science and Technology Poster Session
4:30 – 8:00 pm

MS-ThP-1 Novel Inspection Technology for Detecting Via Open Using Parallel E-beam Scanning and Graphic Design System, ***Chihoon Lee,*** SSIT (Samsung Institute of Technology), Republic of Korea

MS-ThP-2 EES2: Advancing Microelectronics and Computing Energy Efficiency Through a Co-Design Approach, ***I-Hsi Daniel Lu,*** Energetics

MEMS and NEMS
Room Central Hall - Session MN-ThP
MEMS and NEMS Poster Session
4:30 – 8:00 pm

MN-ThP-1 Fundamental-mode Surface Acoustic Wave Magnetoacoustic Nonreciprocal Low-loss RF Isolator for Efficient Control of NV− Centers, ***Bin Luo,*** Northeastern University, US; *A. WINKLER, H. SCHMIDT,* SAWLab Saxony, Germany; *B. DAVAJI, N. Sun,* Northeastern University, US

MN-ThP-2 3D Carbon Nanotube Collimators Grown on a Transparent Substrate for Diffuse Spectroscopy, ***Bridget Kemper,*** *W. Parker,* Brigham Young University; *T. Westover,* Tula Health; *R. Vanfleet, R. Davis,* Brigham Young University

MN-ThP-3 Pressure Controlled Brazing to Form Microscale Metal Fluidic Interfaces, ***David Hayes,*** *J. Grow, H. Davis, B. Jensen, N. Crane, R. Vanfleet, R. Davis,* Brigham Young University

MN-ThP-4 Concurrent Mitigation of Packaging Stress and Support Loss in Microacoustic Resonators, ***Maliha Sultana,*** *T. Hasan, J. Vivas Gomez, K. Chan, H. Mansoorzare, R. Abdolvand,* University of Central Florida

Nanoscale Science and Technology
Room Central Hall - Session NS-ThP
Nanoscale Science and Technology Poster Session
4:30 – 8:00 pm

NS-ThP-1 Characterization of MOS Capacitors on 4H Silicon Carbide Substrate Submitted to Beta Ionizing Radiation, *E. Magalhaes,* Center for Semiconductor Components and Nanotechnology - CCNano, Brazil; *R. Reigota Cesar,* ***José Alexandre Diniz,*** Center for Semiconductor Components and Nanotechnology - CCSNano, Brazil

NS-ThP-2 Multidimensional Contact Potential Difference Measurements at the Nanoscale in Inorganic Oxides, *B. Guner,* ***Omur E. Dagdeviren,*** École de technologie supérieure, University of Quebec, Canada

NS-ThP-3 Distributed Injection into a 1D Ballistic Channel, ***Bert Voigtländer,*** *K. Moors,* Forschungszentrum Juelich GmbH, Germany; *C. Wagner,* Forschungszentrum Jülich GmbH, Germany; *H. Soltner, F. Lüpke, S. Tautz,* Forschungszentrum Juelich GmbH, Germany

NS-ThP-4 Atomic Force Microscope Customization for Multidimensional Measurements, ***Bugrahan Guner,*** *O. Dagdeviren,* École de technologie supérieure, University of Quebec, Canada

NS-ThP-5 Improving Leakage Current from a Super Clean STI Technology of DRAM, ***Hyojin Park,*** *B. Choi,* Sungkyunkwan University, Korea

NS-ThP-6 Surface Assembly of Tetraphenylporphyrin Mediated by Reaction with Tin Tetrachloride Pentahydrate Investigated with Atomic Force Microscopy, ***Quynh Do,*** *J. Garno,* Louisiana State University

NS-ThP-7 Probing Isotopic Effects on Hyperbolic Phonon Polaritons in MoO_3 with Nanoscale IR Imaging, ***Jeremy Schultz,*** *S. Krylyuk,* National Institute of Standards and Technology (NIST); *J. Schwartz,* University of Maryland, College Park; *A. Davydov, A. Centrone,* National Institute of Standards and Technology (NIST)

NS-ThP-9 Effect of Thermal Annealing on Electrical Property of Platinum Nanowires Deposited by Focused Electron Beam Induced Deposition, ***Rajendra Rai,*** *U. Dhakal, B. D.C., Y. Miyahara,* Texas State University

NS-ThP-10 Enhancing Ferroelectricity and Controlling Defects in Aluminum Nitride Thin Films through Ion Bombardment, ***Bogdan Dryzhakov,*** Oak Ridge National Laboratory; *K. Kelley,* Oak Ridge Natinal Laboratory

NS-ThP-11 Delamination of Epitaxially-Grown Single-Crystalline GeTe Films for Flexible Phase Change Memory, ***Seohui Lee,*** *C. Yoo,* University of Central Florida; *H. Shin,* University of Central Florida, Dong-A University, Republic of Korea; *S. Han, Y. Jung,* University of Central Florida

NS-ThP-12 The Incorporation of Nanohelical Metamaterial Into 1D Photonic Topological Insulator System: A Route to the Generation of Strong Chiral Response, ***Sema Guvenc Kilic,*** University of Nebraska-Lincoln; *U. Kilic,* University of Nebraska - Lincoln; *M. Schubert, E. Schubert,* University of Nebraska-Lincoln; *C. Argyropoulos,* Penn State University

NS-ThP-14 $Ge(CH_2I)_4$ on Si(100): Matching the Molecule to the Surface and the Science, ***Brandon Blue,*** *R. Addou, D. Allis, J. Barton, N. Culum, M. Drew, T. Enright, A. Hill, T. Huff, O. MacLean, T. McCallum, M. Morin, M. Moses, R. Plumadore, M. Taucer, D. Therien, D. Vobornik,* CBN Nano Technologies Inc., Canada

NS-ThP-15 Percolation Electronic Transport in 2D Nanowire Networks Containing Void Type Defects, ***Andrew Qiu***, *D. Kumar Gorle, S. Alzahrani, A. Ural,* University of Florida

NS-ThP-16 Frequency Shift and Damping Noises of Mechanical Resonator with Quality Factor Modified by Optomechanical Force, ***Md Mahamudul Hasan***, *N. Bingamon, B. D.C., Y. Miyahara,* Texas State University

NS-ThP-17 Chemical Synthesis of Metal Nitride Nanoparticles for Electrocatalysis, ***Rihana Burciaga***, Clark Atlanta University

Plasma Science and Technology
Room Central Hall - Session PS-ThP
Plasma Science and Technology Poster Session
4:30 – 8:00 pm

PS-ThP-1 Atmospheric Pressure Plasma Pencil as a Sterilization Source, ***Abdul Majid***, University of Gujrat, Pakistan*; N. Rehman,* COMSATS, Pakistan

PS-ThP-2 Effect of In-Situ Heat Treatments on PVDF Film Characteristics Deposited by Using Atmospheric Pressure Plasma Synthesis, *H. Tae,* School of Electronic and Electrical Engineering, College of IT Engineering, Kyungpook National University, Republic of Korea*;* ***Eun Young Jung***, The Institute of Electronic Technology, College of IT Engineering, Kyungpook National University, Republic of Korea*; H. Suleiman,* School of Electronic and Electrical Engineering,College of IT Engineering, Kyungpook National University, Republic of Korea*; C. Park,* Electrical Engineering, Milligan University, USA

PS-ThP-3 Uniformity Monitoring of Photoresist Etching using Multi-Channel Endpoint Detection in Inductively Coupled Plasma, ***Sanghee Han***, Sungkyunkwan University (SKKU), Republic of Korea*; J. Kim,* Sungkyunkwan University, Republic of Korea*; H. Chae,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-4 Effect of Mask Pattern on the Tribological Properties of Pattern Plasma Nitrided AISI H13 Tool Steel, ***Junji Miyamoto***, *R. Tsuboi,* Daido University, Japan

PS-ThP-5 Effect of Methane Gas on Mechanical Properties of AISI H13 Tool Steel in Open-Air Type Super-Rapid Atmospheric-Pressure Plasma Jet Nitrocarburizing Process, ***Naoyuki Takahashi***, *J. Miyamoto,* Daido university, Japan

PS-ThP-6 High-Voltage Custom Waveform Bias for Ion Energy Distribution Control, ***James Prager***, *T. Ziemba, P. Melnik, J. Perry, C. Bowman,* EHT Semi

PS-ThP-7 High-Voltage Bipolar Tailored Waveforms with Droop Compensation for Ion Energy Control, ***Timothy Ziemba***, *J. Prager, P. Melnik, J. Perry, C. Bowman,* EHT Semi

PS-ThP-8 Electron-Assisted Etching of Poly-Si and SiO_2 in Ans Inductively Coupled CF_4 Plasma, ***Jiwon Jung***, *C. Chung,* hanyang university, Republic of Korea

PS-ThP-9 Laser-Induced Fluorescence Transitions Relevant for the Microelectronics Industry, *V.S.S.K. Kondeti,* ***S. Yatom, I. Romadanov, Yevgeny Raitses,*** Princeton Plasma Physics Laboratory*; L. Dorf, A. Khomenko,* Applied Materials Inc.

PS-ThP-10 A Dry Process of Iodine Chemistry for Euv Sensitizer/Underlayer, ***Phong Nguyen***, *N. Stafford,* Air Liquide

PS-ThP-11 2D Particle-in-Cell Modeling of an Inductively Coupled Plasma for the Semiconductor Industry, ***Willca Villafana***, Princeton University Plasma Physics Lab*; D. Sydorenko,* University of Alberta Edmonton, Canada*; I. Kaganovich,* Princeton University Plasma Physics Lab

PS-ThP-12 On the Compensation Method of the Attenuation of the Light Intensities in Fluorocarbon Plasmas, *C. Chung,* hanyang University, Republic of Korea*;* ***Hyeon ho Nahm***, Hanyang University, Republic of Korea*; J. Lee,* hanyang University, Republic of Korea

PS-ThP-13 GaN and NiO Metal-Semiconductor-Metal Photodetectors Fabricated via Hollow-Cathode Plasma-Assisted Atomic Layer Deposition, *S. Allaby, H. Mousa, M. Silverman, H. Saleh, S. Choe, L. Antoine, J. Goosen,* ***Fatih Bayansal***, *I. Sifat, A. Agrios, N. Biyikli,* University of Connecticut

PS-ThP-14 Dual Capability PEALD/PAALE Reactor Design, *B. Kuyel*, ***Alex Alphonse***, *J. Alex,* NANO-MASTER, Inc.

PS-ThP-16 SF_6- and CF-based Plasmas Interaction with Si and SiO_2 at Room and Cryogenic Temperature: Insights from Molecular Dynamics Simulation, *J. ROMERO CEDILLO, G. CUNGE,* ***Emilie DESPIAU-PUJO***, LTM, CNRS/Universite Grenoble Alpes, France

PS-ThP-17 Ion Energy Distributions in a Kaufman-type Ion Beam Source Operated with Ar and O_2, ***Raymond Smith***, Department of Electrical and Computer Engineering, University of Nebraska-Lincoln*; E. Rohkamm, P. Birtel, D. Kalanov, F. Frost,* Leibniz Institute of Surface Engineering (IOM), Germany*; U. Kilic, E. Schubert,* Department of Electrical and Computer Engineering, University of Nebraska-Lincoln

PS-ThP-18 Unraveling the Dynamics of Platinum Plasma-Enhanced Atomic Layer Deposition: Real-time Monitoring, Nonlinear Growth, and ALD Recipe Optimization using in-Situ Spectroscopic Ellipsometry, ***Yousra Traouli***, University of Nebraska-Lincoln, USA*; U. Kilic,* University of Nebraska - Lincoln*; E. Schubert, M. Schubert,* University of Nebraska-Lincoln, USA

PS-ThP-19 Spatiotemporal Analysis of Electron Heating in Single Frequency and Pulsed-Rf Capacitively Coupled Plasma Using a Parallelized Particle-in-Cell Simulation, *H. Lee, S.J. Hwang,* ***Junhee Mun,*** Pusan National University, Republic of Korea

PS-ThP-20 Understanding Olefin Selectivity in Light Hydrocarbon DBD Plasmas, ***Ibukunoluwa Akintola***, *J. Yang, J. Hicks, D. Go,* University of Notre Dame

PS-ThP-21 Role of CO in Ar/C4F6/O2 Plasma for Selective Etching of Silicon Oxide over Silicon Nitride, ***Hakseung Lee***, Sungkyunkwan University (SKKU), Republic of Korea*; C. Lee, J. Park, K. Moon,* Samsung Electronics Co., Republic of Korea*; H. Chae,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-22 Photoresist Ashing at Room Temperature using a Large Area Atmospheric Pressure Plasma, ***Branden Bodner***, University of Illinois at Urbana-Champaign

PS-ThP-23 Fault Detection of Plasma Processes using Optical Emission Spectroscopy Signals and Recurrent Neural Network with Autoencoder, ***Jaehyeon Kim***, *E. Park, H. Chae,* Sungkyunkwan University (SKKU), Republic of Korea

Quantum Science and Technology Mini-Symposium
Room Central Hall - Session QS-ThP
Quantum Science and Technology Mini-Symposium Poster Session
4:30 – 8:00 pm

QS-ThP-1 Characterization of Planar Ta Damascene Resonators for Quantum Information Science Applications, ***Drew Rebar***, *F. Ponce, B. VanDevender, M. Warner, J. Macy,* PNNL*; T. Nanayakkara, C. Zhou, M. Liu,* Brookhaven National Laboratory*; S. Papa Rao,* NY CREATES*; E. Bhatia,* SUNY POLY, Albany

QS-ThP-2 DNA-Enabled Precise Arrangement of Colloidal Quantum Dots and Rods on Device Substrates, ***Xin Luo***, *C. Chen, M. Bathe,* MIT

QS-ThP-3 ManQala - a Quantum Game with Implications for Quantum State Engineering, ***Thomas A. Searles***, University of Illinois - Chicago

QS-ThP-4 Correlating the Electronic Structure with the Emergence of Magnetism in $PdcCo_2$, ***Jessica McChesney***, Argonne National Laboratory

QS-ThP-5 How Can Quantum-Based Sensors Be Used for "Nist on a Chip" Sustainability Solutions?, ***Jay Hendricks***, NIST-Gaithersburg*; B. Goldstein,* NIST

QS-ThP-6 Advancing Quantum Materials Growth and Characterization with Cluster Systems, ***Yashwanth Balaji***, *M. Surendran, A. Gashi, A. Kemelbay, S. Aloni, A. Schwartzberg,* Lawrence Berkeley National Laboratory

QS-ThP-7 Superconducting Nitrides for Next-Generation Quantum Information Processing, ***Mythili Surendran***, *Y. Balaji, A. Kemelbay, A. Gashi, A. Schwartzberg, S. Aloni,* Lawrence Berkeley National Laboratory

Spectroscopic Ellipsometry
Room Central Hall - Session EL-ThP
Spectroscopic Ellipsometry Poster Session
4:30pm

EL-ThP-1 Training Neural Networks with Simulated Spectroscopic Ellipsometry Data for Cadmium Telluride Photovoltaic Applications, ***Alexander Bordovalos***, *B. Ramanujam, A. Shan, N. Podraza,* University of Toledo

EL-ThP-2 Numerical Ellipsometry: Artificial Intelligence for rapid analysis of Indium Tin Oxide films on Silicon, ***Frank Urban***, *D. Barton,* Florida International University

EL-ThP-3 Accurate Determination of Critical-Point Parameters in Spectra, *L. Le,* Vietnam Academy of Science and Technology, Viet Nam*; Y. Kim,* Kyung Hee University, Republic of Korea*;* ***David Aspnes***, North Carolina State University

EL-ThP-4 Optical Analysis of Ferroelectric PLZT Films Using Spectroscopic Ellipsometry, *S. Kotru,* ***Sneha Kothapally,*** The University of Alabama*; J. Hilfiker,* J. A. Woollam Co., Inc.

EL-ThP-6 Spectrally Resolved Absorption Based Kuhn's Dissymmetry Factor from Mueller Matrix Polarimetry, ***Ufuk Kilic,*** University of Nebraska-Lincoln*; A. Ruder, M. Hilfiker,* Onto Innovation*; S. Wimer,* University of Nebraska Lincoln*; E. Schubert, M. Schubert,* University of Nebraska-Lincoln

EL-ThP-7 The Optical Constants of Calcium Fluoride from 0.03 – 9 eV, ***Jaden R. Love****, C. Armenta,* New Mexico State University*; M. Stokey, M. Schubert,* University of Nebraska - Lincoln*; S. Zollner,* New Mexico State University

EL-ThP-8 Metrology of Ultrathin Iron Catalyst Films by Spectroscopic Ellipsometry, ***Nicholas Allen****, R. Vanfleet, M. Linford, D. Allred, R. Davis,* Brigham Young University

EL-ThP-9 IR Ellipsometry on Thermally Oxidized Germanium (100), *D. Ortega,* ***Danissa Ortega****, A. Moses, C. Armenta, J. Love, S. Yadav, S. Zollner,* New Mexico State University

Surface Science
Room Central Hall - Session SS-ThP
Surface Science Poster Session
4:30 – 8:00 pm

SS-ThP-2 Near Ambient Pressure XPS Indicates that the Relevant State of Silver under Ethylene Epoxidation Conditions is Mostly Metallic, ***Elizabeth E. Happel,*** Tufts University*; P. Christopher,* University of California at Santa Barbara*; M. Montemore,* Tulane University*; E. Sykes,* Tufts University

SS-ThP-3 Surface Chemistry of Zirconium Borohydride on Zirconium Diboride (0001), *M. Trenary,* ***Ayoyele Ologun,*** University of Illinois - Chicago

SS-ThP-4 Selective Hydrogenation of 1,3-butadiene on a Pd/Cu (111) Single-Atom-Alloy, ***Mohammad Rahat Hossain****, M. Trenary,* University of Illinois at Chicago

SS-ThP-5 The Influence of Substrate Roughness and Long-Range Molecular Order on 3-Mercaptopropionic Acid Displacement by 1-Decanethiol, ***Lindsey Penland****, H. Hetti Arachchige, N. Dissanayake, R. Farber,* University of Kansas

SS-ThP-6 Visualizing on-surface Intramolecular C-C Coupling Reaction Using Scanning Tunneling Microscopy and Tip-Enhanced Raman Spectroscopy, ***Soumyajit Rajak****, N. Jiang,* University of Illinois, Chicago

SS-ThP-7 Click Chemistry on Functionalized Silicon Surfaces: UHV- and Solution-Based Strategies, *T. Glaser,* Justus Liebig University Giessen, Germany*; J. Meinecke,* Philipps University Marburg, Germany*; C. Länger, L. Freund,* Justus Liebig University Giessen, Germany*; U. Koert,* Philipps University Marburg, Germany*;* ***Michael Dürr,*** Justus Liebig University Giessen, Germany

SS-ThP-8 Adsorption of Fluorinated β-Diketones on a Surface of Zno Nanopowder: Dependence of Adsorbates on the Chemical Structure, ***Sanuthmi Dunuwila****, A. Teplyakov,* University of Delaware

SS-ThP-9 In-situ X-Ray Absorption Spectroscopy (XAS) study of CeO2-based Catalysts for CO_2 Hydrogenation, ***Irene Barba-Nieto,*** Brookhaven National Laboratory, Spain*; J. Rodriguez,* Brookhaven National Laboratory

SS-ThP-10 Insights from the Atomic Scale: Cobalt Sulfide Sheets on Au(111) and Initial Oxidation of Pt(111), *D. Boden, M. Prabhu, M. Rost, I. Groot,* ***Jörg Meyer,*** Leiden University, Netherlands

SS-ThP-11 Hard X-Ray Photoelectron Spectroscopy Reveals Fe Segregation in NiFe Electrodes During Oxygen Evolution Reaction, ***Filippo Longo,*** Chemical Energy Carriers and Vehicle Systems Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; P. Lloreda Jurado, J. Gil-Rostra, A. González-Elipe, F. Yubero,* Nanotechnology on Surfaces and Plasma, Institute of Materials Science of Seville (CSIC-US), Seville, Spain*; A. Borgschulte,* Chemical Energy Carriers and Vehicle Systems Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

SS-ThP-12 Surface Modification of Titanium Dioxide Nanomaterials via Functionalization with Triol Compounds, ***Asishana Onivefu,*** *A. Teplyakov,* University of Delaware

SS-ThP-13 Model Studies of Single-Atom Alloy (SAA) Catalysts, *F. Zaera,* ***Ravi Ranjan,*** University of California - Riverside

SS-ThP-14 Enhancing Gas-Evolving Electrocatalysis by Tuning the Wetting Properties of Catalyst Microenvironment, ***Kaige Shi****, X. Feng,* University of Central Florida

SS-ThP-15 Advanced Evaluation of Sub-nm Surface Roughness using Electron Diffraction, ***Rivaldo Marsel Tumbelaka****, K. Hattori,* Nara Institute of Science and Technology, Japan

SS-ThP-16 Post-Synthesis Characterization of PtNi Nanowires for Enhanced Durability and Efficiency, ***Cesar Saucedo****, J. Mann, S. Zaccarine,* Physical Electronics USA

SS-ThP-17 Temperature Dependence of Surface-Catalyzed Ullmann Coupling via Activation of Highly Labile C-I, ***Chamath Siribaddana****, N. Jiang,* University of Illinois Chicago

SS-ThP-18 Accurate SIMS Characterization of Indium Implant in Silicon, ***Xuefeng Lin****, S. York, N. Kaushik,* Micron Technology

SS-ThP-19 Monitoring the Dynamics of Carbon-Carbon Bond Formation in Solid-Gas Heterogeneous Photoinduced Reactions, ***Aakash Gupta****, K. Blackman, A. Rodriguez,* Department of Physics, University of Central Florida*; M. Vaida,* Department of Physics and Renewable Energy and Chemical Transformations Cluster, University of Central Florida

SS-ThP-20 Transient Kinetics Study of CO Adsorption and Dissociation on a Ru (001) Surface Crystal, ***Eliseo Perez Gomez,*** Stony Brook University*; A. Boscoboinik,* Center for Functional Nanomaterials, BNL*; S. Sikder,* Stony Brook University

SS-ThP-21 Bimetallic Pt-Sn and Ni-Cu Catalysts for Dehydrogenation Reactions Designed for Hydrogen Storage and Transportation, ***Mengxiong Qiao****, F. Li,* University of South Carolina*; A. Ahsen,* Gebze Technical University, Turkey*; D. Chen,* University of South Carolina

SS-ThP-22 Coverage-Dependent Adsorption and Reactivity of Formic Acid on Fe_3O_4(001), ***Jose Ortiz-Garcia,*** Pacific Northwest National Laboratory*; M. Sharp,* Washington State University*; Z. Novotny, B. Kay, Z. Dohnalek,* Pacific Northwest National Laboratory

SS-ThP-23 Using Single-Layered COFs to Stabilize Single-Atom Catalysts on Model Surfaces, ***Yufei Bai****, D. Wisman, S. Tait,* Indiana University Bloomington

SS-ThP-24 N-doped Graphene Synthesis through N2+ Irradiation, ***Buddhika Alupothe Gedara****, P. Evans, Z. Dohnalek, Z. Novotny,* Pacific Northwest National Laboratory

SS-ThP-25 Coverage Dependent Interaction of N-Methylaniline with Pt (111) Surface, ***Bushra Ashraf****, D. Austin,* University of Central Florida*; N. Brinkmann, K. Al Shamery,* Carl von Ossietzky University Oldenburg, Germany*; T. Rahman,* University of Central Florida

SS-ThP-26 Effect of an Electric Field on the Co Adsorption on Pt, ***Steven Arias,*** *D. Stacchiola, J. Boscoboinik,* Brookhaven National Laboratory

SS-ThP-27 Generating Defects in Semiconductor Monolayers on Metal Surface, ***Sayantan Mahapatra****, J. Guest,* Argonne National Laboratory, USA

SS-ThP-28 Characterization of Oxygen on Rh-Based Model Catalysts, ***Maxwell Gillum****, A. Gonzalez, E. Serna-Sanchez, A. Kerr, S. Danahey, D. Killelea,* Loyola University Chicago

SS-ThP-32 Weakly and Strongly Adsorbed H_2O Layers on Hydroxylated SiO_2 Surfaces: Dependence on H_2O Pressure at Various Temperatures, ***Samantha Rau****, R. Hirsch, M. Junige,* University of Colorado Boulder*; A. Rotondaro, H. Paddubrouskaya, K. Abel,* Tokyo Electron America, Inc.*; S. George,* University of Colorado Boulder

SS-ThP-34 Insight into the Synergistic Effect of the Oxide–Metal Interface on Hot Electron Excitation, ***Si Woo Lee****,* Inha University, Republic of Korea

SS-ThP-35 Ab Initio Studies on Solid-Liquid Interfaces via Machine-Learned Force Fields, *A. Kretschmer,* ***Markus Valtiner,*** Christian Doppler Laboratory for Surface and Interface Engineering, Austria

SS-ThP-36 A Highly Integrated Correlative Microscopy Platform for In-Situ AFM-SEM-EDS, ***Kerim T. Arat****, W. Neils,* Quantum Design Inc.*; S. Spagna,* Quantum Design International

SS-ThP-37 In-Situ Characterization of Au Capping on Superconducting Nb(100), ***Van Do****, H. Lew-kiedrowska,* University of Chicago*; C. Kelly,* National Cheng Kung University (NCKU), Taiwan*; S. Willson, S. Sibener,* University of Chicago

SS-ThP-38 Characterization of Oxidized Rhodium Surface Structures, ***Elizabeth Serna-Sanchez****, D. Killelea,* Loyola University Chicago

SS-ThP-39 Investigation of Carbon Monoxide (CO) Oxidation on Rh(111) with Reflectance Absorbance Infrared Spectroscopy (RAIRS) and Temperature Program Desorption (TPD), ***Alexis Gonzalez****, D. Killelea,* Loyola University Chicago

Thin Films
Room Central Hall - Session TF-ThP
Thin Films Poster Session
4:30 – 8:00 pm

TF-ThP-1 Enhancing The Performance of Amorphous IGZO Thin-Film Transistors Via Oxygen Plasma Treatment, ***Jae-Yun Lee***, *A. Tukhtaev, J. Berdied, X. Wang, H. Zhao, S. Kim,* Chungbuk National University, Republic of Korea

TF-ThP-2 Surface Analysis of Nanolayers by LEIS, SIMS and XPS, *B. Hagenhoff,* Tascon GmbH, Germany; *J. Tröger,* University of Münster, Germany; ***Elke Tallarek***, *D. Heller-Krippendorf,* Tascon GmbH, Germany

TF-ThP-3 Role of Solvent Treatment on the Structure and Thermoelectric Properties of oCVD PEDOT Films, ***Ramsay Nuwayhid***, *T. Novak, B. Jugdersuren, X. Liu, J. Long, D. Rolison,* U.S. Naval Research Laboratory

TF-ThP-4 Development of Low-K/ High-K Multilayers for Power Capacitors, ***Julie Chaussard***, *H. Houmsi, C. Guérin, A. Lefèvre,* CEA-Leti, France; *P. Gonon,* LTM-CNRS, France; *V. Jousseaume,* CEA-Leti, France

TF-ThP-5 The Electrical, Sensory and Photocatalytic Properties of Graphene Oxide and Polyimide Implanted by Low and Medium Energy Gold Ions, ***Josef Novák***, Nuclear Physics Institute of the CAS, Czechia

TF-ThP-7 Highly Improved Photocurrent Density and Power Conversion Efficiency of Perovskite Solar Cell by Inclined Plasma-Polymerized-Fluorocarbon Sputtering Process, ***Sang-Jin Lee***, Chungbuk National University, Republic of Korea; *M. Kim,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

TF-ThP-8 The Effects of Ultraviolet Irradiation and Mechanical Stress on Polymer-Like Hydrogenated Amorphous Carbon Thin Films, *T. Poché, R. Chowdhury, Y. Tesfamariam,* ***Seonhee Jang***, University of Louisiana at Lafayette

TF-ThP-9 Adoption of UV-Di for Fabricating Electrically Enhanced Amorphous In-Ga-Zn-O Thin-Film Transistors at Low Temperatures, ***Giyoong Chung***, *Y. Kim,* Sungkyunkwan University, Korea

TF-ThP-10 Influence of Multi-Energy Ion Implantation of Cu and Ag Ions on the Electrical Properties of Graphene and Cyclic Olefin Copolymer Thin Films, ***Eva Štěpanovská***, *J. Novák,* Nuclear Physics Institute of the Czech Academy of Sciences, Czechia; *P. Malinský,* Nuclear Physics Institute of the Czech Academy of Science, Czechia; *V. Mazánek,* University of Chemistry and Technology, Czechia; *M. Kormunda, L. Vrtoch,* J. E. Purkyne University, Czechia; *A. Macková,* Nuclear Physics Institute of the Czech Academy of Sciences, Czechia

TF-ThP-13 Poly(P-Phenylenediamine) by oMLD for Amine Functionalization of Polydioxanone for Biomedical Applications, ***Nazifa Z. Khan***, *N. Paranamana, X. Liu, M. Young,* University of Missouri-Columbia

TF-ThP-14 Tuning the Crystallinity of TiO_2 Coatings Synthesized by an Atmospheric Pressure Dielectric Barrier Discharge, ***Nicolas Fosseur***, Chemistry of Surfaces, Interfaces and Nanomaterials (ChemSIN), Faculty of Sciences & 4MAT, Engineering faculty, Université Libre de Bruxelles, Brussels, Belgium; *S. Godet,* 4MAT, Engineering faculty, Université Libre de Bruxelles, Brussels, Belgium; *F. Reniers,* Chemistry of Surfaces, Interfaces and Nanomaterials (ChemSIN), Faculty of Sciences, Université Libre de Bruxelles, Brussels, Belgium

TF-ThP-15 Simultaneous Nanopatterning of SiO_2 and Ru via Area-Selective Atomic Layer Deposition, ***Chi Thang Nguyen***, *A. Yanguas-Gil, J. W. Elam,* Argonne National Laboratory, USA

TF-ThP-17 Direct Growth of Molybdenum Disulfide from Metal Contacts via Atomic Layer Deposition, ***John Hues***, *E. Graugnard,* Boise State University

TF-ThP-18 Unlocking the Potential of Porphyrin-Based Covalent Organic Frameworks Through Vapor-Phase Synthesis of Thin Films: Process Optimization, ***Mohammad Arham Khan***, *V. Medic, S. Gnani Peer Mohamed, M. Bavarian, S. Nejati,* University of Nebraska Lincoln

TF-ThP-19 The Stability of Lif-Capped Fluorinated Aluminum Films When Irradiated with Electrons, ***Devin Lewis***, *D. Allred, R. Vanfleet,* Brigham Young University

TF-ThP-20 Achieving a Low-Voltage Operation Indium Gallium Zinc Oxide Thin Film Transistor Through Optimized Crystallinity ZrO_2 Gate Insulator, ***Hanseok Jeong***, *S. Yoo,* Kyunghee University, Republic of Korea; *M. Choe, I. Baek,* Inha University, Republic of Korea; *W. Jeon,* Kyunghee University, Republic of Korea

TF-ThP-21 Suppressing the Interfacial Layer Formation between Metal Electrode and Insulator by Employing Molybdenum Dioxide Electrode, ***Jaehyeon Yun***, *S. Kim, C. Hwang, W. Jeon,* Kyung Hee University, Republic of Korea

TF-ThP-22 Controlling the Electrical Properties of ZrO_2 Dielectric Films by Employing Sc_2O_3, ***Nam Jihun***, *L. Seungwoo, C. Yoona, J. Jonghwan,* Kyunghee University, Republic of Korea; *O. Hansol,* SK trichem, Republic of Korea; *K. Hanbyul, P. Yongjoo,* SK Trichem, Republic of Korea; *J. Woojin,* Kyunghee University, Republic of Korea

TF-ThP-23 Influence of Different Oxygen Sources on the Optical Properties of HfO_2 Films Grown by Atomic Layer Deposition, *B. Xherahi,* Community College of Philadelphia, Philadelphia, PA 19130,USA; *S. Azadi, D. Barth,* ***Lucas Barreto***, Singh Center for Nanotechnology, University of Pennsylvania, Philadelphia, PA 19104, USA

TF-ThP-24 ZnSe as Window Layer for n-CdTe Solar Cells, ***Wei Wang***, *V. Palekis, M. Zahangir, S. Elahi, C. Ferekides,* USF Tampa

TF-ThP-25 Understanding the Surface Chemistry of Tin Halide Perovskite Thin Films, ***Mirko Prato***, *A. Treglia, I. Poli, A. Petrozza,* Istituto Italiano di Tecnologia, Italy

TF-ThP-26 SiO_2 Films Obtained by PECVD Technique for Applications in Photonic Chips based on LiN_bO_3 Thin Films, ***Melissa Mederos Vidal***, Center for Semiconductor Components and Nanotechnology (CCNano-Unicamp), Brazil; *R. Reigota César, F. Hummel Cioldin,* Center for Semiconductor Components and Nanotechnology (CCSNano-Unicamp), Brazil; *R. Cotrin Teixeira,* Assembly, Packaging and System Integration Division Renato Archer Center for Information Technology (CTI, Brazil; *F. Silva Barbosa,* Instituto de Física Gleb Wataghin (IFGW), State University of Campinas (Unicamp), Brazil; *J. Diniz,* Center for Semiconductor Components and Nanotechnology (CCSNano-Unicamp), Brazil

TF-ThP-27 Dipole Engineering at the HfO_2/Ni Electrode Interface Using a NiO_x Interfacial Layer, ***Hansub Yoon***, *K. Lee, T. Lee, C. Hwang,* Seoul National University, South Korea

TF-ThP-28 Improvement of Bias Temperature Instability in HfO2 Gate Insulator Film Through UV Treatment and Oxygen Annealing, ***Taemin Park***, Seoul National University, South Korea

TF-ThP-29 Enhancement of Ferroelectric Properties of $Hf_{0.5}Zr_{0.5}O_2$ Thin Films through the Electrode Stacking Methods, ***JoongChan Shin***, *H. Park, S. Shin, S. Lee, J. Song, K. Kim, S. Ryoo, C. Hwang,* Seoul National University, South Korea

TF-ThP-30 Bias Stress Instability of InGaZnO Thin Film Transistors for Stackable 1capacitor-1transistor Dynamic Random Access Memory, ***Hyobin Park***, Seoul National University, Republic of Korea

TF-ThP-31 Growth of $BaTiO_3$ Thin Films Grown by Atomic Layer Deposition using $Ba(^iPr_3Cp)_2$ and $Ti(Me_5Cp)(OMe)_3$ Precursor on Ru Substrate, ***Chansoo Kwak***, Seoul National University, South Korea

Undergraduate Poster Session
Room Central Hall - Session UN-ThP
Undergraduate Poster Session 4:30 – 8:00 pm

UN-ThP-1 Using Fourier Smoothing to Calculate D-Parameter for Carbonaceous Samples, ***Kristopher Wright***, *M. Linford,* Brigham Young University

UN-ThP-2 Calcium Lanthanum Sulfide - An Investigation Via X-Ray Photoelectron Spectroscopy, *B. Butkus,* ***Taylor Cook***, *A. Kostogiannes, A. Cooper, A. Howe, R. Gaume, K. Richardson, P. Banerjee,* University of Central Florida

UN-ThP-3 Avoiding Common Errors in X-ray Photoelectron Spectroscopy Data Collection and Analysis, ***Braxton Kulbacki***, *J. Pinder,* Brigham Young University; *G. Major,* Texas Instruments; *M. Linford,* Brigham Young University

UN-ThP-4 Deposition of Cobalt-Doped Zinc Oxide Nanocrystals via Successive Ionic Layer Adsorption and Reaction, ***Luis Tomar***, *K. Ye, S. Xie,* University of Central Florida; *M. Chang, J. Baillie,* University of Washington; *T. Currie, F. Liu, T. Jurca,* University of Central Florida; *D. Gamelin,* University of Washington; *P. Banerjee,* University of Central Florida

UN-ThP-5 Assessing and Recommending Standards to Improve Reproducibility in Thin Film Analysis; a Multi-Faceted Approach, ***Jacob Crossman***, *M. Linford, J. Pinder,* Brigham Young University

UN-ThP-6 Enhancing the Selectivity of Acetaldehyde Formation Using a Copper-based Model Catalyst, ***Joseph Loiselet***, *A. Baber,* James Madison University

UN-ThP-7 Optimizing XPS Analysis with Maximum Entropy for Determination of the D Parameter, ***Garrett Lewis***, Brigham Young University

UN-ThP-8 Copper by X-Ray Photoelectron Spectroscopy (XPS) at Pass Energies from 10 – 200 eV, ***Annika Dean***, *S. Jafari, M. Linford,* Brigham Young University

UN-ThP-9 Structure of Benzyl Isothiocyanate Self-Assembled Monolayers on Au(111)/Mica Surfaces, ***Darya Moiny***, *L. Tackett, L. Penland, D. Ovchinnikov, R. Farber,* University of Kansas

UN-ThP-10 Computationally Enhanced Experimental Investigation of Reactivity of Isomeric Butanol on TiO_2/Au(111), ***Haley Frankovich***, *E. Euler, L. Garber, A. Galgano, K. Letchworth-Weaver, A. Baber,* James Madison University

UN-ThP-11 Pulsed Laser Deposition of Ruthenium Oxide Thin Films for Electrocatalytic Splitting of Water for Oxygen and Hydrogen Evolution Reactions, ***Anansi Coleman***, *D. Kumar,* North Carolina A&T State University

UN-ThP-12 Direct Printing of Oxide Nanoparticles Via Vapor Phase Microreactor Assisted Nanomaterial Deposition (V-MAND) and Its Application, ***Isaac Camp***, *V. V. Doddapaneni, M. Dodge, S. Pasebani, C. Chang,* Oregon State University

UN-ThP-13 Optimizing Plasma Conditions for the Modification of Silk Fibroin Using Small and Large Molecule Precursors, ***Bethany Yashkus***, *M. Corbett, J. Blechle,* Wilkes University

UN-ThP-14 Epitaxial Lift-Off of Barium Hexaferrite Membranes, ***Clara Jackson Jackson***, Clark Atlanta University; *E. Li, A. Park, D. Schlom,* Cornell University

UN-ThP-15 Exploring the Epoxidation of Isoprene on Copper-Based Catalysts, ***James Whitted***, James Madison University; *M. Corbett,* Wilkes University; *A. Baber,* James Madison University

UN-ThP-16 Characterizing Next-Generation SRF Materials for Accelerator Infrastructure, ***Helena Lew-Kiedrowska***, *V. Do, S. Willson,* University of Chicago; *C. Wang,* National Cheng Kung University, Taiwan; *L. Shpani, S. Seddon-Stettler, M. Liepe,* Cornell University; *S. Sibener,* University of Chicago

UN-ThP-17 Mitigating Hydrophobic Recovery of Oxygen Plasma-Treated PEEK, ***Nicholas Shows***, *M. Mowatt, M. Hawker,* California State University, Fresno

UN-ThP-19 Deconvoluting Information-Rich Ga(I) X-Ray Adsorption Near-Edge Spectroscopy Features from First Principles, ***Grace Miller***, Washington State University; *C. Huang,* University of California at Los Angeles; *S. Scott,* University of California Santa Barbara; *J. McEwen,* Washington State University

UN-ThP-20 Characterization and Oxidation of Curved Metal Surfaces, ***Allison Kerr***, *D. Killelea,* Loyola University Chicago

Vacuum Technology
Room Central Hall - Session VT-ThP
Vacuum Technology Poster Session 4:30 – 8:00 pm

VT-ThP-1 Surface Characterization and Vacuum Performance of AISI 1020 Low-Carbon Steel for High-Performance Vacuum Systems, ***Aiman Al-Allaq***, Old Dominion University; *M. Mamun, M. Poelker,* Thomas Jefferson National Accelerator Facility; *A. Elmustafa,* Old Dominion University

VT-ThP-3 Commissioning of the New NIST High-vacuum Calibration Standard, *E. Newsome, D. Barker, J. Fedchak,* ***Julia Scherschligt***, National Institute of Standards & Technology

VT-ThP-4 Developing an Extreme Environment Vacuum System for ITER's Ion Cyclotron Heating Antenna, *J.M. Clark*, ***Charles Smith III***, Oak Ridge National Laboratory

VT-ThP-5 Secondary Electron Yield Measurements of Vacuum Insulators, ***Minh Pham***, *R. Goeke,* Sandia National Laboratories

VT-ThP-6 An Enhanced, High-Vacuum System and Related Testing of Unique, Prototype Sensor Hardware for the ITER-DRGA Project, *C. Marcus, T. Biewer,* ORNL; *J. Brindley,* Gencoa, UK; *A. Jugan,* North Carolina State University; *C. Klepper,* ORNL; *P. McCarthy,* Gencoa, UK; ***Brendan Quinlan***, ORNL

VT-ThP-7 Quantum State Specific Collision Dynamics of Vibrationally Excited Nitric Oxide at Collision Energies Over Five Orders of Magnitude, ***Chatura Perera***, *A. Suits,* University of Missouri-Columbia; *H. Guo,* University of New Mexico

	Room 115	
8:15am 8:30am	**INVITED: TF1+EM-FrM-1** Interlayer Engineering of Heterostructure Thermal Boundary Resistance of Power Device Heat Spreader, ***Youhwan Jo,*** *T. Hwang, K. Cho,* University of Texas at Dallas	**Thin Films** **Session TF1+EM-FrM** **Thin Films for Microelectronics III: Wide Band Gap Materials** **Moderators:** **Mark Losego**, Georgia Institute of Technology, **Virginia Wheeler**, U.S. Naval Research Laboratory
8:45am	**TF1+EM-FrM-3** Characterization of Defects in AlN Using Deep Ultraviolet Photoluminescence, ***Virginia Wheeler,*** *N. Nepal, M. Hardy, A. Lang,* Naval Research Laboratory*; J. Hart,* Nova Research Inc*; B. Downey, D. Meyer,* Naval Research Laboratory	
9:00am	**TF1+EM-FrM-4** Ultrathin Tantalum Films for Silicon Carbide Schottky Barrier Diode, ***Renato Beraldo,*** *R. Reigota Cesar, J. Alexandre Diniz,* Center for Semiconductor Components and Nanotechnology - CCSNano, Brazil	
9:15am	**TF1+EM-FrM-5** Plasma Enhanced Atomic Layer Deposition of Hydrogen Free In_2O_3 Thin Films with High Charge Carrier Mobility, ***Sudipta Mondal,*** *I. Campbell, A. Bol,* University of Michigan, Ann Arbor	
9:30am	**TF1+EM-FrM-6** Epitaxial Integration of Transition-Metal Nitrides with Cubic Gallium Nitride, ***Zachery Cresswell,*** *N. Fessler, T. Garrett, K. Vallejo, B. May,* Idaho National Laboratory	
9:45am	**TF1+EM-FrM-7** Comparison of AlScN Thin Films Grown via Pulsed Laser Deposition and Sputtering, ***John Wellington-Johnson,*** Georgia Institute of Technology	
10:00am	**TF1+EM-FrM-8** Exploring the Impact of [Si-C] and [N=C] Bonds in SiCN Films by First Principles Calculation: A Study of Composition, Structure, and Properties, ***Tsung-Hsuan Yang,*** Tokyo Electron America, Inc.*; G. Hwang,* University of Texas at Austin*; P. Ventzek, J. Zhao,* Tokyo Electron America, Inc.	
10:15am	**BREAK**	
10:30am	**TF2-FrM-10** Variable-Angle, Spectroscopic Ellipsometry Studies of the Repeated Application of First Contact Polymers on Optical Surfaces, ***Joshua Vawdrey,*** Brigham Young University*; J. Hamilton,* University of Wisconsin, Platteville*; D. Allred,* Brigham Young University	**Thin Films** **Session TF2-FrM** **Thin Films: Characterization and Fundamentals** **Moderators:** **Mark Losego**, Georgia Institute of Technology, **Virginia Wheeler**, U.S. Naval Research Laboratory
10:45am	**TF2-FrM-11** EnviroMETROS – A Novel Surface and Multilayer Thin Film Analysis Tool, ***Paul Dietrich,*** *F. Mirabella, S. Boetcher, K. Kunze, O. Schaff, A. Thissen,* SPECS Surface Nano Analysis GmbH, Germany	
11:00am	**TF2-FrM-12** Passivation of Indium Phosphide Substrate Evaluated by Atomic Force Microscopy, ***Fabiano Borges,*** Federal Institute of Sao Paulo, Brazil*; C. Almeida,* PUC-Rio, LabSem, Brazil*; A. Silva,* Unicamp, CCS, Brazil*; O. Berenguel, C. Costa,* CNPEM, LNNano, Brazil*; G. Vieira,* IEAv, Brazil*; J. Diniz,* Unicamp, CCS, Brazil	
11:15am	**TF2-FrM-13** Adsorption of Aromatic Molecules on Metal Surfaces for Area-Selective Deposition: A Dft Study, ***Matías Picuntureo,*** Universidad Tecnica Federico Santa Maria, Chile*; I. Tezsevin, M. Merkx,* Eindhoven University of Technology, Netherlands*; S. Semproni, J. Chen, S. Clendenning,* Intel*; A. Mackus,* Eindhoven University of Technology, Netherlands*; T. Sandoval,* Universidad Tecnica Federico Santa Maria, Chile	
11:30am	**TF2-FrM-14** In Situ Synchrotron GISAXS Studies of the Roles of Reactive and Energetic Species in Plasma-Enhanced Atomic Layer Deposition of InN, ***Jeffrey Woodward,*** *D. Boris, M. Johnson, M. Meyer,* U.S. Naval Research Laboratory*; S. Rosenberg,* Lockheed Martin Space – Advanced Technology Center*; Z. Robinson,* SUNY Brockport*; S. Johnson,* Honeywell International*; N. Nepal,* U.S. Naval Research Laboratory*; K. Ludwig,* Boston University*; C. Eddy,* ONR Global*; S. Walton,* U.S. Naval Research Laboratory	
11:45am	**TF2-FrM-15** Thermal Atomic Layer Deposition of Low Resistivity Metallic Films for High Aspect-Ratio Via Seed, ***Dane Lindblad,*** Forge Nano*; I. Stateikina, M. Guilmain,* MiQro Innovation Collaborative Centre (C2MI), Canada*; S. Harris,* Forge Nano*; X. Gaudreau-Miron,* MiQro Innovation Collaborative Centre (C2MI), Canada*; A. Dameron, M. Weimer,* Forge Nano	

Friday Morning, November 8, 2024

	Spectroscopic Ellipsometry **Room 116 - Session EL-FrM** **Emerging Applications and Workforce Development** **Moderators:** **Ufuk Kilic**, University of Nebraska - Lincoln, **Stefan Zollner**, New Mexico State University	**Manufacturing Science and Technology** **Room 117 - Session MS-FrM** **Next Generation and Sustainable Micro-/Nano-Manufacturing** **Moderators: Erica Douglas**, Sandia National Laboratories, **Diane Hickey**, Department of Energy
8:15am	**INVITED: EL-FrM-1** Singular Propagation States of Electromagnetic Waves in Anisotropic Media, ***Chris Sturm,*** University Leipzig, Germany	**MS-FrM-1** DOE's Microelectronics Energy Efficiency Scaling for 2 Decades (EES2), ***Tina Kaarsberg,*** U.S. Department of Energy*; J. Elam,* Argonne National Lab*; S. Misra,* Sandia National Laboratory*; S. Shankar,* SLAC National Accelerator Laboratory
8:30am		**MS-FrM-2** An Energetically Low-Cost Future for Advanced Semiconductor Manufacturing, *J. Randall*, ***Joshua Ballard,*** Zyvex Labs
8:45am	**EL-FrM-3** Infrared-Active Phonon Modes in Variably Alloyed Bulk β-(AlXGa1-X)2O3 Determined by Mueller-Matrix Spectroscopic Ellipsometry, ***Preston Sorensen****, I. Green,* University of Nebraska - Lincoln*; M. Stokey,* Milwaukee School of Engineering*; A. Mauze, Y. Zhang,* University of California Santa Barbara*; J. Speck,* University of California at Santa Barbara*; V. Stanishev, V. Darakchieva,* Lund University, Sweden*; Z. Galazka,* ikz berlin, Germany*; M. Schubert,* University of Nebraska - Lincoln	**MS-FrM-3** Plasma Processing and the Semiconductor Supply Chain in an Era of Low GWP and/or PFAS-Free Gas Chemistries, ***Eric Joseph****,* IBM Research Division, T.J. Watson Research Center
9:00am	**EL-FrM-4** Predicting Perovskite Photovoltaics Performance from Spectroscopic Ellipsometry, ***Emily Amonette****, K. Dolia, Y. Yan, Z. Song, N. Podraza,* University of Toledo	**MS-FrM-4** Patterning and Etch Development of High Aspect Ratio 2.5D MIM Capacitor Structures, ***Quyang Lin****, P. Nolmans, D. Montero Alvarez, F. Lazzarino, G. Beyer, G. Van der Plas, E. Beyne,* IMEC Belgium
9:15am	**INVITED: EL-FrM-5** Vacuum and Extreme Ultraviolet Scatterometry for Critical Dimension Metrology, ***Thomas Germer****, B. Barnes, S. Moffitt, S. Grantham, M. Sohn, D. Sunday, E. Shirley,* National Institute of Standards and Technology (NIST)	**INVITED: MS-FrM-5** CMOS Design Pathways to Sustainable Compute Scaling, ***Azeez Bhavnagarwala,*** Metis Microsystems
9:30am		
9:45am	**EL-FrM-7** Immersion Ellipsometry of Ultrathin Films - Breaking the Correlation between Index of Refraction and Film Thickness, ***Samira Jafari****,* Brigham Young University*; B. Johs,* Film Sense*; M. Linford,* Brigham Young University	**MS-FrM-7** Semiconductor Technology Needs Vacuum - How Growth in the Semiconductor Industry and Sustainable Production Can Be Achieved, ***Kevin Mahler****, K. Bergner,* VACOM, Germany
10:00am	**EL-FrM-8** Temperature Dependence of the Long-Wavelength Lattice Vibrations of NiO (111) Using Infrared Spectroscopic Ellipsometry from 25 K to 500 K, ***Yoshitha Hettige****, J. Love, C. Armenta, A. Moses, J. Marquez, S. Zollner,* New Mexico State University	**MS-FrM-8** High Resolution Ion Beam Imaging, Nano-Scale Analytics and Nanofabrication with Light and Heavy Ions from a Single Ion Source, ***Peter Gnauck****, T. Richter, A. Ost,* Raith GmbH, Germany
10:15am	**BREAK**	**BREAK**
10:30am	**INVITED: EL-FrM-10** Far-Infrared Mueller Matrix Ellipsometry and Vortex Beam Spectroscopy Using Synchrotron Radiation, ***Andrei Sirenko,*** New Jersey Institute of Technology	**MS-FrM-10** Efficient 3D Printing: Investigating Wall Count as an Alternative to High Infill Density in PLA, PET-G, and PA-CF, ***Devyn Fidel****, M. Rabea,* California State Polytechnic University, Pomona
10:45am		**INVITED: MS-FrM-11** Sustainable Microelectronics in the Age of Ai, ***Emre Salman,*** Stony Brook University
11:00am	**EL-FrM-12** Infrared Dielectric Function of Thiazolothiazole Embedded Polymer Films Determined by Spectroscopic Ellipsometry, ***Nuren Shuchi****, T. Adams, D. Louisos, G. Boreman, M. Walter, T. Hofmann,* University of North Carolina at Charlotte	
11:15am	**EL-FrM-13** Non-Destructive Measurement Limitations of Cavity Etched Si/SiGe Layer Superlattice Structures Using MMSE Based OCD Metrology and X-Ray Fluorescence, ***Ezra Pasikatan****,* SUNY Albany CNSE*; A. Antonelli,* ONTO Innovation*; N. Keller,* Onto Innovation*; M. Kuhn,* Rigaku*; S. Murakami,* Rigaku, Japan*; A. Diebold,* SUNY Albany CNSE	
11:30am	**EL-FrM-14** Elevated Temperature Spectroscopic Ellipsometry Analysis of Bulk Single-Crystal In_2O_3, ***Sema Guvenc Kilic****, U. Kilic,* University of Nebraska-Lincoln*; M. Hilfiker,* Onto Innovation*; Z. Galazka,* Leibniz-Institute für Kristallzüchtung, Germany*; M. Schubert,* University of Nebraska-Lincoln	
11:45am	**EL-FrM-15** Modeling Many-body Effects in Ge Using Pump-probed Femtosecond Ellipsometry, ***Carlos Armenta****,* New Mexico State University*; M. Zahradník,* ELI ERIC, Czechia*; C. Emminger,* Leipzig University, Austria*; S. Espinoza,* ELI ERIC, Czechia*; M. Rebarz,* ERIC ELI, Poland*; S. Vazquez,* ELI ERIC, Mexico*; J. Andreasson,* ELI ERIC, Czechia*; S. Zollner,* New Mexico State University	

Friday Morning, November 8, 2024

	Surface Science **Room 120 - Session SS+AMS+AS+CA+LS-FrM** **Advanced Surface Characterization Techniques & Mort Traum Presentation** **Moderator:** **Charles Sykes**, Tufts University	**Chemical Analysis and Imaging of Interfaces** **Room 121 - Session CA-FrM** **Materials, Interfaces and Metrologies for Electronics** **Moderators: Alex Belianinov**, Sandia National Laboratory, **Andrei Kolmakov**, National Institute of Standards and Technology (NIST)
8:15am	**INVITED: SS+AMS+AS+CA+LS-FrM-1** Infrared Spectroscopy as a Surface Science Technique, ***Michael Trenary***, University of Illinois - Chicago	**INVITED: CA-FrM-1** Surface Transfer - Modulation Doping at the Diamond-Dielectric Interface, *A. Deshmukh, Y. Yang, F. Koeck, R. Nemanich,* ***Kevin Hatch,*** Arizona State University
8:30am		
8:45am	**SS+AMS+AS+CA+LS-FrM-3** Modeling Pipeline Surface Chemistry: Reaction of Monochloramine on Iron Surfaces, ***Kathryn Perrine***, *S. Pandey, O. Agbelusi,* Michigan Technological University	**CA-FrM-3** Probing the Nanoscale: The Synergy of XPS and LEIS Analyses, ***Joshua W. Pinder***, *J. Crossman,* Brigham Young University; *S. Prusa, T. Sikola,* Brno Institute of Technology, Czechia; *M. Linford,* Brigham Young University
9:00am	**SS+AMS+AS+CA+LS-FrM-4** Development of Tip-Enhanced Raman Spectroscopy for Solid-Liquid Interfaces, ***Naihao Chiang***, University of Houston	**CA-FrM-4** Capacitively and Electrically Detected Magnetic Resonance in 4H SiC MOSFET, ***Artur Solodovnyk***, *P. Lenahan,* The Pennsylvania State University
9:15am	**SS+AMS+AS+CA+LS-FrM-5** Ion Based Pump-Probe: Probing the Dynamics Following an Ion Impact, ***Lars Breuer***, *L. Kalkhoff, A. Meyer, N. Junker, L. Lasnik,* Universität Duisburg-Essen, Germany; *Y. Yao, A. Schleife,* University of Illinois at Urbana Champaign; *K. Sokolowski-Tinten, A. Wucher, M. Schleberger,* Universität Duisburg-Essen, Germany	**CA-FrM-5** Photoluminescence Mapping of Gallium Oxide Surfaces and Epilayers, ***Matthew McCluskey***, Washington State University
9:30am	**SS+AMS+AS+CA+LS-FrM-6** How Hot Plasmonic Heating Can Be: Phase Transition and Melting of P25 TiO_2 from Plasmonic Heating of Au Nanoparticles, *W. Lu, R. Kayastha, B. Birmingham, B. Zechmann,* ***Zhenrong Zhang***, Baylor University	**INVITED: CA-FrM-6** Focused Ion Beam Low Energy Implantation , *M. Titze, C. Smyth,* Sandia National Laboratory; *J. Poplawsky,* Oak Ridge National Laboratory; *B. Doyle, E. Bielejec,* ***Alex Belianinov***, Sandia National Laboratory
9:45am	**SS+AMS+AS+CA+LS-FrM-7** Kinetics and Dynamics of Recombinative Desorption of Oxygen from Silver and Rhodium Surfaces, ***Dan Killelea***, Loyola University Chicago	
10:00am	**SS+AMS+AS+CA+LS-FrM-8** Mort Traum Award Announcement,	**CA-FrM-8** NIST Nanocalorimetry for In-Plasma Process Metrology Relevant to Semiconductor Fabrication, ***Andrei Kolmakov***, *J. Diulus, F. Yi, D. LaVan,* NIST-Gaithersburg
10:15am	**BREAK**	
10:30am	**SS+AMS+AS+CA+LS-FrM-10** Unveiling Surface Mysteries with XPS Lab from Scienta Omicron, *T. Sloboda,* Scienta Omicron, Sweden; *P. Amann,* Scienta Omicron, Germany; *B. Gerace, F. Henn,* ***Andrew Yost***, *X. Zhang,* Scienta Omicron; *M. Lundwall,* Scienta Omicron, Sweden	
10:45am	**SS+AMS+AS+CA+LS-FrM-11** Investigation of Stannane (SnH_4) Decomposition and Sticking Coefficient on Varied Metal Surfaces in EUV Lithography Environments, ***Emily Greene***, *N. Barlett, D. Qerimi, D. Ruzic,* University of Illinois at Urbana-Champaign	
11:00am	**SS+AMS+AS+CA+LS-FrM-12** First Principles Methods for Predicting Surface Reaction Mechanisms for Chemical Functionalization of Semiconductor Surfaces, ***Roberto Longo***, *S. Sridhar, P. Ventzek,* Tokyo Electron America Inc.,	
11:15am	**SS+AMS+AS+CA+LS-FrM-13** A Model Interstellar Medium Reactivity Study: Low Energy Electron Induced Chemistry of $CH_3OH@H_2O$, ***Ahmad Nawaz***, *M. Asscher,* The Hebrew University of Jerusalem, Israel	

Friday Morning, November 8, 2024

	2D Materials **Room 122 - Session 2D+EM+MN+TF-FrM** **2D NEMS and Strain Engineering** **Moderator:** **Matthias Batzill**, University of South Florida	**Actinides and Rare Earths** **Room 123 - Session AC+MI-FrM** **Actinide and Rare Earth Chemistry and Physics** **Moderators:** **Edgar Buck**, PNNL, **Krzysztof Gofryk**, Idaho National Laboratory, **Gertrud Zwicknagl**, Technical University Brauschweig, Germany
8:15am		**INVITED: AC+MI-FrM-1** Structure, Stability, and Chemistry of Actinide Nanoparticles, ***Ping Yang***, *G. Wang, E. Batista,* Los Alamos National Laboratory
8:30am		
8:45am	**2D+EM+MN+TF-FrM-3** Longitudinal Sound Speed Determination in 2D Semiconducting Crystal of GaS by Broadband Time-Domain Brillouin Scattering, ***Watheq Al-Basheer***, King Fahd University of Petroleum & Minerals, Saudi Arabia; *C. Viernes, R. Zheng, S. Netzke, K. Pichugin, G. Sciaini,* University of Waterloo, Canada	**INVITED: AC+MI-FrM-3** The Use of Ligand Modified Electrodes as Electrocatalysts for Actinide Redox Chemistry, ***Christopher Dares***, Florida International University; *T. Grimes,* Idaho National Laboratory; *J. McLachlan,* University of California at Berkeley; *X. Hou,* University of Utah; *A. Ruiz Reyes,* Florida International University
9:00am	**2D+EM+MN+TF-FrM-4** Laser-Induced Strain Tuning in Monolayer Graphene Nanomechanical Resonators, ***Muhammad Ashar Naveed***, *S. Pandit, Y. Wang,* University of Nebraska - Lincoln	
9:15am	**2D+EM+MN+TF-FrM-5** Developing 2D Snse for Piezoelectric Applications, *J. Chin, M. Frye, B. Gardner,* Georgia Institute of Technology; *D. Liu,* Penn State University; *M. Hilse,* Pennsylvania State University; *I. Graham,* Georgia Institute of Technology; *J. Shallenberger, K. Wang, M. Wang, Y. Shin, N. Nayir, A. can Duin, S. Law,* Pennsylvania State University; ***Lauren Garten***, Georgia Institute of Technology	**INVITED: AC+MI-FrM-5** Observation of Flat Bands in Rare-Earth Based Kagome Metals, ***Madhab Neupane***, University of Central Florida
9:30am	**2D+EM+MN+TF-FrM-6** Two-Dimensional (2D) $FePS_3$ Nanoelectromechanical Resonators with Local-Gate Electrostatic Tuning, ***Yunong Wang***, *S. Yousuf, X. Zhang, P. Feng,* University of Florida	
9:45am	**2D+EM+MN+TF-FrM-7** Tunable Phononic Frequency Combs in Atomically Thin Resonators, ***S M Enamul Hoque Yousuf***, *T. Kaisar,* University of Florida; *J. Lee,* University of Central Florida; *S. Shaw,* Florida Institute of Technology; *P. Feng,* University of Florida	**AC+MI-FrM-7** Kinetics and Mechanism of Plutonium Oxycarbide Formation, ***Paul Roussel***, AWE plc, UK
10:00am		**AC+MI-FrM-8** Layered *f*-Metal Zintl Phases - $EuZn_2P_2$ and UCu_2P_2, ***LADISLAV HAVELA***, Charles University, Czech Republic; *V. Buturlim,* Idaho National Laboratory; *O. Koloskova,* Charles University, Prague, Czechia; *D. Legut, J. Prchal,* Charles University, Czech Republic; *J. Kolorenc, J. Kastil, M. Misek,* Institute of Physics CAS, Prague, Czechia
10:15am		**BREAK**
10:30am		**AC+MI-FrM-10** Experimental Electronic Structure Measurements of Actinide-Containing Samples Using Scanning Tunneling Spectroscopy, ***Benjamin Heiner***, *M. Beaux,* Los Alamos National Laboratory
10:45am		**AC+MI-FrM-11** Unconventional Superconductivity in UBe_{13} - Investigation via Variation of Impurity Level - and Comparison to the Conventional Superconductor $LuBe_{13}$, ***Greg stewart***, *J. Kim,* University of Florida
11:00am		**AC+MI-FrM-12** Strong Magnetoelastic Interactions in HoSb Probed by High-Resolution Dilatometry and X-Ray Diffraction, ***Volodymyr Buturlim***, Glenn T. Seaborg Institute, Idaho National Laboratory; *N. Poudel,* Idaho National Laboratory; *D. Kaczorowski,* Polish Academy of Sciences, Poland; *M. Jaime,* Physikalisch Technische Bundesanstalt, Germany; *Z. Islam,* Argonne National Laboratory; *K. Gofryk,* Center for Quantum Actinide Science and Technology, Idaho National Laboratory
11:15am		**AC+MI-FrM-13** Electronic Structure in a Rare-Earth-Based Intermetallic System $TbNi_3Ga_9$, ***Sabin Regmi***, *V. Buturlim,* Idaho National Laboratory; *B. Rai,* Savannah River National Laboratory; *T. Durakiewicz, K. Gofryk,* Idaho National Laboratory
11:30am		**AC+MI-FrM-14** Catalytic Activities of Defected Actinide Dioxide AnO_2 Surface: A First Principles Study, ***Shukai Yao***, *G. Wang, E. Batista, P. Yang,* Los Alamos National Laboratory
11:45am		**AC+MI-FrM-15** Thin Film Synthesis of Rare Earth and Actinide Nitrides Using Molecular Beam Epitaxy, ***Keivn Vallejo***, *B. May, Z. Cresswell, V. Buturlim, S. Regmi, K. Gofryk,* Idaho National Laboratory

Room 124

Plasma Science and Technology
Session PS+TF-FrM
Plasma Processes for Coatings and Thin Films
Moderators:
François Reniers, Université Libre de Bruxelles, Belgium,
Scott Walton, Naval Research Laboratory

8:15am	**PS+TF-FrM-1** Interaction of Polycrystalline Aluminum Oxide and Sapphire Surfaces with Halogen-Containing Plasmas and Gases, ***Takuya Ishihara***, *H. Tochigi,* Azbil corporation, Japan; *H. Kang,* Osaka University, Japan, Republic of Korea; *T. Ito, K. Karahashi, S. Hamaguchi,* Osaka University, Japan
8:30am	**PS+TF-FrM-2** Development of Corrosion-Resistant, Low-ICR aC and TiN Coatings Using HIPIMS for Bipolar Plate Manufacturing for Hydrogen Fuel Cells, ***Nicholas Connolly***, University of Illinois at Urbana-Champaign; *Z. Jeckell,* University of Illinois Urbana-Champaign; *R. Paul, M. Hysick,* Starfire Industries; *M. Hossain, B. Jurczyk, D. Ruzic,* University of Illinois Urbana-Champaign
8:45am	**PS+TF-FrM-3** Evolution of Graphene Nanoflake Size and Morphology in Atmospheric Pressure Microwave Plasma, ***Parker Hays***, *D. Patel, D. Qerimi,* University of Illinois at Urbana-Champaign; *M. Stowell,* LytEn; *D. Ruzic,* University of Illinois at Urbana-Champaign
9:00am	**PS+TF-FrM-4** Gentle Processing of Graphene and Diamond in a Low Temperature Magnetized Plasma, ***Yevgeny Raitses***, Princeton Plasma Physics Laboratory; *F. Zhao,* Fermi Lab; *C. Pederson, K. Fu,* University of Washington; *A. Dogariu,* Princeton University
9:15am	**PS+TF-FrM-5** A Plasma-Based Anodization Process for the Production of AlF_3 Layers, ***Scott Walton***, *J. Murphy,* US Naval Research Laboratory; *L. Rodriguez de Marcos, J. Del Hoyo, M. Quijada,* NASA; *V. Wheeler, M. Sales, M. Meyer, D. Boris,* US Naval Research Laboratory
9:30am	**PS+TF-FrM-6** One-Step Synthesis of Spatially Differentiated Crystalline Vanadium Oxide Coatings Using Atmospheric Pressure Dielectric Barrier Discharge, ***Marie Brabant***, *A. Demaude, D. Petitjean, F. Reniers,* Université libre de Bruxelles, Belgium
9:45am	**PS+TF-FrM-7** Biofilm Decontamination in an Endoscope-Like Setup Using a Cold Atmospheric Plasma, ***Juliette Zveny***, Université libre de Bruxelles, Belgium; *F. Reniers, A. Remy,* Université Libre de Bruxelles, Belgium; *T. Serra,* université libre de Bruxelles, Belgium; *A. Bourgeois,* Erasme Hospital, Belgium; *A. Nonclercq, D. Lakhloufi, A. Botteaux,* université libre de Bruxelles, Belgium; *A. Delchambre,* Université Libre de Bruxelles, Belgium; *J. Deviere,* Erasme Hospital, Belgium
10:00am	**PS+TF-FrM-8** Nonthermal Plasma Jet Integrated Aerosol-Based 3D Printing with Machine Learning Optimization, ***Jinyu Yang***, *Y. Du, K. Song, Q. Jiang, Y. Zhang, D. Go,* University of Notre Dame
10:15am	**BREAK**
10:30am	**PS+TF-FrM-10** Fluorine Plasma Assisted Remediation of Single Crystal Diamond Surfaces, ***Michael Mathews***, National Research Council Postdoctoral Fellow at U.S. Naval Research Laboratory; *J. Levine-Miles, B. Pate,* US Naval Research Laboratory
10:45am	**PS+TF-FrM-11** Noncapillary Liquid Surface Waves Generated by Self-organized Plasma Patterns, *O. Dubrovski,* University of Notre Dame, Israel; *J. Yang,* University of Notre Dame, China; *F. Veloso,* Pontificia Universidad Católica de Chile, Instituto de Física, Chile; *H. Chang, D. Go,* ***Paul Rumbach***, University of Notre Dame
11:00am	**PS+TF-FrM-12** Dielectric Barrier Discharge Configurations for Effective Biofilm Decontamination in PTFE Tubes, ***Antoine Remy***, *J. Zveny, T. Serra, D. Lakhloufi, J. Devière, A. Botteaux, A. Delchambre, F. Reniers, N. Antoine,* Université libre de Bruxelles, Belgium
11:15am	**PS+TF-FrM-13** Plasma Nanocoatings for Surface Passivation of Silver Nanowires, ***Qingsong Yu***, *Y. Liao, G. Zhao, Y. Ling, Z. Yan,* University of Missouri-Columbia

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