Program Key

Conference Topics

2D 2D Materials Focus Topic
AC Actinides and Rare Earths Focus Topic
AS Applied Surface Science Division
BI Biomaterial Interfaces Division
BP Biomaterials Plenary Session
EL Spectroscopic Ellipsometry Focus Topic
EM Electronic Materials and Photonics Division
EW Exhibitor Technology Spotlight Workshops
HC Fundamental Discoveries in Heterogeneous Catalysis Focus Topic
HI Advanced Ion Microscopy Focus Topic
MI Magnetic Interfaces and Nanostructures Division
MN MEMS and NEMS Group
MS Manufacturing Science and Technology Group
NS Nanometer-scale Science and Technology Division
PB Plasma Processing for Biomedical Applications Focus Topic
PLS Plenary Session
PS Plasma Science and Technology Division
SA Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic
SE Advanced Surface Engineering Division
SP Scanning Probe Microscopy Focus Topic
SS Surface Science Division
SU Sustainability Focus Topic
TF Thin Films Division
TM Tandem MS Focus Topic
TR Tribology Focus Topic
VT Vacuum Technology Division

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with all 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-MoM9 (Surface Science, Monday morning, 11:00 am).

Program Overview

Room /Time	10	11	12	13	14	15
SuA						
MoM	SP+AS+NS+SS-MoM: New Imaging and Spectroscopy Methodologies		BI-MoM: Engineering a Paradigm Shift in Control of Microbes and Fouling	AS+BI+MI-MoM: Practical Surface Analysis: Getting the Most Out of Your	EM+MI+TF-MoM: Growth, Electronic, and Magnetic Properties of Heusler	2D+EM+MI+MN-MoM: Properties of 2D Materials including Electronic,
MoA	SP+2D+AS+NS+SS-MoA: Probing Electronic and Transport Properties	MI+BI+EM+SA-MoA: Role of Chirality in Spin Transport and Magnetism	PB+BI+PS-MoA: Plasma Agriculture & Processing of Biomaterials	AS+BI-MoA: Practical Surface Analysis: Complex, Organic and Bio-systems	EM-MoA: Novel Materials and Devices for Electronics	2D+MI-MoA: Novel 2D Materials
MoPL						
TuM	SP+AS+MI+NS+SS-TuM: Probing Chemical Reactions at the Nanoscale	MI+2D+AC+SA+SS-TuM: Novel Magnetic Order at Interfaces	PB+BI+PS-TuM: Plasma Medicine	AS+MI+SS-TuM: Quantitative Surface Analysis: Effective Quantitation	EM+NS-TuM: Nanostructures and Nanometer Films for Electronic and	2D+AS+SA+SP-TuM: 2D Materials Characterization including Microscopy
TuL						
TuA	SP+AS+MI+NS+SS-TuA: Probe-Sample Interactions	MI+2D+AC+NS-TuA: Spin-Orbit Phenomena at Surfaces and	BI+AS+MI+SA-TuA: Bio from 2D to 3D: Challenges in Fabrication and	AS+TF-TuA: Problem Solving Using Surface Analysis in the Industrial Laboratory	EM+SS-TuA: Surface and Interface Challenges in Semiconductor	2D-TuA: Growth of 2D Materials
TuP						
WeM	SP+SS+TF-WeM: Probing and Manipulating Nanoscale Structure	MI+SA-WeM: Controlling Magnetism in Oxides and Multiferroics	BI+NS-WeM: Biomaterials and Nanomaterials Fabrication & In	AS+BI+MI+NS+SA+SS-WeM: Beyond Traditional Surface Analysis: Pushing the	EM-WeM: Charge Transport in Disordered Materials	2D+EM+SS+TF-WeM: 2D Materials Growth and Fabrication
WeA	TR+AS+HI+NS+SS-WeA: Molecular Origins of Friction	SE+2D+NS+SS+TF-WeA: Nanostructured Thin Films and Coatings	BI+AS-WeA: In Honor of Dave Castner's 65th Birthday: Multitechnique Bio-	AS+2D+NS+SA-WeA: 2D, 3D and nD Imaging of Surfaces, Buried Interfaces and	EM+2D+MI+MN-WeA: Materials and Devices for Quantum Information	2D-WeA: Properties and Characterization of 2D Materials
ThM	TR+AC+TF+VT-ThM: Lubricant, Coatings, and Biotribology	SE+PS+SS-ThM: Plasma-assisted Surface Modification and Deposition	BI+AS+SA-ThM: Characterisation of Biological and Biomaterial Surfaces	AS+BI+SA+SS-ThM: Spectroscopy of the Changing Surface	EM+MI+NS+SP+SS-ThM: Photonics, Optoelectronics, and Light Manipulation	2D+MI-ThM: Novel Quantum Phenomena in 2D Materials
ThA			BI+AS-ThA: Biomolecules and Biophysics at Interfaces	AS+SS-ThA: Advances in Instrumentation and Data Analysis	EM+NS-ThA: Wide and Ultra-wide Band Gap Materials for Electronic Devices:	2D+AS+SS-ThA: Dopants, Defects, and Interfaces in 2D Materials
ThP						
FrM				AS+MS-FrM: Unlocking the Sample History: Forensics and Failure		2D+MI+NS+SS+TF-FrM: Nanostructures including Heterostructures and

Program Overview

Room /Time	16	18	19	20	21
SuA					
MoM				TF+EM-MoM: ALD for Energy Conversion, Storage, and Electrochemical	PS+AS+SE-MoM: Atmospheric Pressure Plasmas
MoA			NS+HC+SS-MoA: Oxides in Nanotechnology	TF-MoA: Emerging Applications for ALD	
MoPL					
TuM			NS+EM+MI+SS-TuM: Nanoscale Electronics and Magnetism	TF-TuM: Advanced CVD and ALD Processing, ALD Manufacturing and Spatial-ALD	
TuL					
TuA	2D+BI+MN+SS-TuA: Surface Chemistry, Functionalization, Bio and Sensor Applications		NS+EM+MN+PS+SS-TuA: Nano-Photonics, Plasmonics and Mechanics	TF-TuA: ALD Precursors and Surface Reactions	
TuP					
WeM	MN+2D-WeM: 2D NEMS		NS+SS+SU-WeM: Nanotechnology for Renewable Energy	TF-WeM: Thin Film for Photovoltaics	TF+EM+MI-WeM: Thin Films for Microelectronics
WeA	2D+EM+MN+NS-WeA: 2D Device Physics and Applications		NS+MN+MS+SS-WeA: Nanopatterning, Nanofabrication and 3D Nanomanufacturing	VT-WeA: The History and Future of Materials, Surfaces and Interfaces (ALL INVITED SESSION)	
ThM			NS+AS+EM+MI+SP+SS-ThM: Nanoscale Imaging and Characterization	TF+SE-ThM: Control, Characterization, and Modeling of Thin Films I	TF-ThM: Area-selective Deposition and Infiltration Growth Methods
ThA		MS-ThA: Working with Government Labs and User Facilities	NS+SP+SS-ThA: Advances in Scanning Probe Microscopy	TF+MI-ThA: Control, Characterization, and Modeling of Thin Films II	TF+MI+NS-ThA: ALD and Nanostructures
ThP					
FrM				TF-FrM: Self-assembled Monolayers and Organic/Inorganic Interface Engineering	

Program Overview

Room /Time	22	23	24	25	5 & 6
SuA	BP-SuA: Plenary - Engineering a Paradigm Shift in Control of Microbes and Fouling: In				
MoM	AC+MI+SA+SU-MoM: Magnetism, Complexity, and Superconductivity in the Actinides and Rare	PS+AS-MoM: Plasma Processing of Challenging Materials	MN+BI+NS-MoM: Feature Session: Large Scale Integration of Nanosensors	SS+AS+MI-MoM: Organic/Inorganic Surfaces and Interfaces	TM+AS-MoM: New Instrumentation Featuring Tandem MS
MoA	AC+AS+SA+SU-MoA: Chemistry and Physics of the Actinides and Rare Earths	PS+AS+SS-MoA: Plasma Surface Interactions	MN+EM+NS-MoA: Nano Optomechanical Systems/Multiscale Nanomanufacturing	SS+AS+HC-MoA: Surface Science for Energy and the Environment	TM-MoA: Applications in Mass Spectrometry Imaging using Tandem MS
MoPL					
TuM	AC+AS+SA-TuM: Nuclear Power, Forensics, and Other Applications	PS-TuM: Advanced FEOL/Gate Etching	MN+BI+EM+SS+TR-TuM: Microelectromechanics: Relays to RF/Surfaces in Micro- and Nano-	SS+HC-TuM: Controlling Mechanisms of Surface Chemical Reactions	SU+AC+MI+MS-TuM: Critical Materials and Energy Sustainability
TuL					
TuA	AC+MI+SA+SU-TuA: Actinide and Rare Earth Theory			HC+SS-TuA: Advances in Theoretical Models and Simulations of Heterogeneously	SU+2D+MS+NS-TuA: Membranes, Thin Films, and Sensors
TuP					
WeM	PS+NS+SS-WeM: Plasma Processing for Nanomaterials & Nanoparticles	PS-WeM: Advanced BEOL/Interconnect Etching	HC+NS+SS-WeM: Nanoscale Surface Structures in Heterogeneously-	SS-WeM: Deposition and Growth at Surfaces	SU+AS+EM+MS-WeM: Piezoelectrics, Thermoelectrics, and Superconductors
WeA	PS+SS+TF-WeA: Plasma Deposition	PS-WeA: Modeling of Plasmas	HC+SA+SS-WeA: Bridging Gaps in Heterogeneously-Catalyzed Reactions	SS+HC+NS-WeA: Dynamical Processes at Surfaces	MS+AS-WeA: Advanced Surface, Interface, and Structural Characterization for High
ThM	PS-ThM: Plasma Sources	PS+NS+SS+TF-ThM: Atomic Layer Etching I	HC+SA+SS-ThM: Mechanisms and Reaction Pathways in Heterogeneously	SS+EM+HC+MI-ThM: Oxides: Structures and Reactions	MS-ThM: Additive and Other Novel Manufacturing Techniques
ThA	PS+VT-ThA: Plasma Diagnostics, Sensors and Control	PS+TF-ThA: Plasma Enhanced ALD	HC+SS-ThA: Combined Experimental and Theoretical Explorations of the Dynamics of	SS+AS+EM-ThA: Semiconductor Surfaces	
ThP					
FrM		PS+NS+SS+TF-FrM: Atomic Layer Etching II	SS+HC-FrM: Recent Advances in the Chemistry and Physics of Interfaces		

Program Overview

Room /Time	7 & 8	9	Ballroom B	Central Hall	West Hall
SuA					
MoM	VT+MN-MoM: Progress with Measurement in Vacuum	EL+AS+EM+TF-MoM: Application of SE for the Characterization of Thin Films and Nanostructures			
MoA	VT-MoA: Material Outgassing, Adsorption/Desorption and XHV	EL+AS+EM-MoA: Spectroscopic Ellipsometry: Novel Applications and			
MoPL			PLS-MoPL: Plenary Session		
TuM	VT-TuM: Large Vacuum Systems	SA+MI-TuM: Overcoming the Temporal and Spatial Limits of X-Ray Scattering Methods for In-Situ			EW-TuM: Exhibitor Technology Spotlight
TuL					EW-TuL: Exhibitor Technology Spotlight
TuA	VT+MN-TuA: Pumping	SA+AS+HC+SS-TuA: Frontiers of Photoelectron Spectroscopy: Surface &	PS+SS-TuA: The Science of Plasmas and Surfaces: Commemorating the Career of Harold Winters		EW-TuA: Exhibitor Technology Spotlight Session
TuP				Poster Sessions	
WeM	VT-WeM: Transfer and Ultraclean Systems, Particle Control, and History	SA+2D+AC+MI-WeM: Recent Advances of Diffracting/Scattering and Spectroscopic			EW-WeM: Exhibitor Technology Spotlight Session
WeA	HI-WeA: Emerging Ion Sources and Optics	SA+AS+HC+SS-WeA: In Situ and Operando Characterization of Interfacial Reactions in			
ThM	HI+BI+NS+TR-ThM: Advanced Ion Microscopy Applications	SA+AC+MI-ThM: Frontiers in Probing Properties and Dynamics of Nanostructures and			
ThA	HI+NS+TR-ThA: Novel Beam Induced Surface Analysis and Nano-Patterning	VT-ThA: Surface Science for Accelerators			
ThP				Poster Sessions	
FrM					

Special Events Sunday

Special Events Sunday

8:00 AM AVS Board of Directors' Executive Session/Florida Salon IV-Marriott (by invitation)
9:00 AM AVS Board of Directors' Meeting/Florida Salon IV-Marriott
3:00 PM JVST Associate Editors' Meeting/Meeting Room 10-Marriott (by invitation)
6:00 PM ASTM E-42 Business Meeting/Meeting Room 9-Marriott
6:00 PM Science Educators' Workshop Teachers' Reception/Meeting Room 2-Marriott (by invitation)
6:00 PM Vacuum Technology Division Executive Committee Meeting & Dinner/Meeting Room 4-Marriott (by invitation)
7:00 PM International Dignitaries & Chapter Chairs Reception/Il Terrazzo-Marriott (by invitation)
7:00 PM Short Course Executive Committee Meeting/Bayshore Boardroom-Marriott (by invitation)

Biomaterials Plenary Session
Room 22 - Session BP-SuA
Plenary - Engineering a Paradigm Shift in Control of Microbes and Fouling: In Honor of Michael Grunze's 70th Birthday
Moderator: Axel Rosenhahn, Ruhr-University Bochum

3:00pm	**INVITED: BP-SuA-1** Non-toxic Surfaces which Prevent Biofouling:Quo Vadis?, ***Michael Grunze,*** Karlsruhe Institute of Technology (KIT), Germany	
3:20pm	Invited talk continues.	
3:40pm	**INVITED: BP-SuA-3** Engineering Serendipity: High-throughput Discovery of Materials that Resist Bacterial Attachment, ***Morgan Alexander,*** The University of Nottingham, UK	
4:00pm	Invited talk continues.	
4:20pm	**INVITED: BP-SuA-5** Say 'No' to Biofouling: Slippery Coatings that Resist Adhesion of Biological Matter, ***Joanna Aizenberg,*** Harvard University	
4:40pm	Invited talk continues.	

Special Events Monday

Special Events Monday

7:00 AM Professional Leadership Committee Meeting & Breakfast/Café Waterside-Marriott (by invitation)
8:00 AM Science Educators' Workshop/Meeting Room 12-Marriott (by invitation)
10:20 AM AVS Member Center: Diversity & Inclusion Speed Networking--"Navigating a Career in Science and Engineering: Successes & Challenges"/18
12:05 PM BID Business Meeting/12
12:15 PM 2018 AVS Program Committee Meeting and Lunch/Meeting Room 7-Marriott (by invitation)
12:15 PM AVS Member Center: Professional Development-"Welcome to AVS Overview"/18
12:15 PM Recommended Practices Committee Meeting & Lunch/Florida Salon III-Marriott (by invitation)
1:00 PM Biointerphases Strategic Planning Meeting/Greco Boardroom-Marriott (by invitation)
3:40 PM AVS Member Center: Professional Development-Student/Young Scientist Meet and Greet with Plenary Lecturer, Paul S. Weiss/18
4:00 PM Publications Committee Meeting/Florida Salon III-Marriott (by invitation)
5:30 PM Plenary Lecture: Paul Weiss, Distinguished Professor of Chemistry & Biochemistry and of Materials Sci. & Eng., UCLA, "Precise Chemical, Physical, and Electronic Nanoscale Contacts"/Ballroom B
6:30 PM Biointerphases Reception/Offsite (by invitation)
6:30 PM Welcome Mixer/Riverwalk
7:00 PM ASSD Executive Committee Meeting & Dinner/Meeting Room 7-Marriott (by invitation)
7:30 PM MEMS/NEMS Executive Committee Meeting and Dinner/Florida Salon III-Marriott (by invitation)
7:30 PM Publications Committee Meeting & Dinner/Offsite (by invitation)
7:30 PM Thin Film Division/Harper Award TED-Talk Competition/20 (by invitation)

	2D Materials Focus Topic **Room 15 - Session 2D+EM+MI+MN-MoM** **Properties of 2D Materials including Electronic, Magnetic, Mechanical, Optical, and Thermal Properties** **Moderator:** Andrey Turchanin, Friedrich Schiller University Jena, Germany	**Actinides and Rare Earths Focus Topic** **Room 22 - Session AC+MI+SA+SU-MoM** **Magnetism, Complexity, and Superconductivity in the Actinides and Rare Earths** **Moderator:** Tomasz Durakiewicz, Los Alamos National Laboratory
8:20am	**2D+EM+MI+MN-MoM-1** Spontaneous Mechanical Buckling in Two-Dimensional Materials: A Power Source for Ambient Vibration Energy Harvesters, ***Paul Thibado***, *P Kumar, S Singh,* University of Arkansas	**INVITED: AC+MI+SA+SU-MoM-1** Magnetic and Transport Characteristics in the Uranium Intermetallic Compounds with the $HoCoGa_5$-type Structure, ***Yoshinori Haga***, Japan Atomic Energy Agency, Japan
8:40am	**2D+EM+MI+MN-MoM-2** Topological Toughening of Graphene and other 2D Materials, ***Bo Ni***, Brown university; *H Gao,* Brown University	Invited talk continues.
9:00am	**2D+EM+MI+MN-MoM-3** Ferroelectric Domain Control of Photoluminescence in Monolayer WSe_2 / PZT Hybrid Structures, ***Berry Jonker***, *C Li, K McCreary,* Naval Research Laboratory	**AC+MI+SA+SU-MoM-3** Magnetic Structures of Layered U_nRhIn_{3n+2} Materials, ***Attila Bartha***, *M Klicpera,* Charles University, Prague, Czech Republic; *P Čermák,* Forschungszentrum Juelich GmbH, Germany; *B Ouladdiaf,* Institut Laue Langevin, France; *P Javorský, J Custers,* Charles University, Prague, Czech Republic
9:20am	**2D+EM+MI+MN-MoM-4** Mechanical Instability-driven Architecturing of Atomically-thin Materials, ***SungWoo Nam***, University of Illinois at Urbana-Champaign	**AC+MI+SA+SU-MoM-4** U_3Si_2 – Physical Properties and Resistance to Hydrogen, ***Silvie Maskova***, Charles University, Prague, Czech Republic; *K Miliyanchuk,* Ivan Franko National University of Lviv, Lviv, Ukraine; *S Middleburgh,* Westinghouse Electric Sweden AB, Vasteras, Sweden; *L Havela,* Charles University, Prague, Czech Republic
9:40am	**INVITED: 2D+EM+MI+MN-MoM-5** Excitons and Exciton Complexes in Transition Metal Dichalcogenide Monolayers, ***Mark Hybertsen***, Brookhaven National Laboratory	**INVITED: AC+MI+SA+SU-MoM-5** Understanding Surface Chemistry of f-element Oxides using First-principle Methods, ***Ping Yang***, Los Alamos National Laboratory
10:00am	Invited talk continues.	Invited talk continues.
10:20am	**BREAK**	**BREAK**
10:40am		**INVITED: AC+MI+SA+SU-MoM-8** Inelastic X-ray Scattering Study of the Crystal Dynamics of Neptunium and Uranium Dioxide, ***Roberto Caciuffo***, European Commission, Joint Research Centre, Karlsruhe, Germany; *P Maldonado,* Uppsala University, Sweden; *L Paolasini,* European Synchrotron Radiation Facility, France; *P Oppeneer,* Uppsala University, Sweden; *T Forrest,* European Synchrotron Radiation Facility, France; *A Prodi,* Consiglio Nazionale delle Ricerche, Italy; *N Magnani,* European Commission, Joint Research Centre, Karlsruhe, Germany; *A Bosak,* European Synchrotron Radiation Facility, France; *G Lander,* European Commission, Joint Research Centre, Karlsruhe, Germany
11:00am	**2D+EM+MI+MN-MoM-9** Mechanical Properties of Polycrystalline and Defective Graphene, ***Joseph Gonzales***, *I Oleynik, J Willman,* University of South Florida; *R Perriot,* Los Alamos National Laboratory	Invited talk continues.
11:20am	**INVITED: 2D+EM+MI+MN-MoM-10** Properties of Single Layer Transition Metal Dichalcogenides Grown by Van der Waals Epitaxy, ***Matthias Batzill***, University of South Florida	**INVITED: AC+MI+SA+SU-MoM-10** Emergent Phenomena in 4f Heavy-Fermion Systems: from Bulk to Thin-Films, ***Priscila Rosa***, Los Alamos National Laboratory
11:40am	Invited talk continues.	Invited talk continues.

	Applied Surface Science Division **Room 13 - Session AS+BI+MI-MoM** **Practical Surface Analysis: Getting the Most Out of Your Analysis using Complementary Techniques** **Moderators:** Mark Engelhard, EMSL, Environmental Molecular Sciences Laboratory, Michaeleen Pacholski, The Dow Chemical Company	**Biomaterial Interfaces Division** **Room 12 - Session BI-MoM** **Engineering a Paradigm Shift in Control of Microbes and Fouling** **Moderators:** Joe Baio, Oregon State University, Daniel Barlow, Naval Research Laboratory
8:20am	**AS+BI+MI-MoM-1** Obtaining Complete Characterisation of Core-shell Nanoparticle Structure and Composition *via* the use of Complementary Techniques, ***David Cant***, *C Minelli,* National Physical Laboratory, UK*; K Sparnacci,* Università degli Studi del Piemonte Orientale, Italy*; W Unger,* Bundesanstalt für Materialforschung und -prüfung (BAM), Germany*; A Hermanns,* Bundesanstalt für Materialforschung und -prüfung (BAM)*; W Werner, H Kalbe,* TU Wien, Austria*; R Garcia-Diez, C Gollwitzer, M Krumrey,* Physikalisch-Technische Bundesanstalt, Germany*; A Shard,* National Physical Laboratory, UK	**BI-MoM-1** Characterization of Adult Barnacle Adhesion Upon Reattachment to Hydrophobic Surfaces, ***Manuel Figueroa***, *G Dickinson,* The College of New Jersey
8:40am		**BI-MoM-2** Constructing and Deconstructing the Barnacle Adhesive Interface, *C So, K Fears,* US Naval Research Laboratory*; H Ryou,* ASEE Research Fellow at US Naval Research Laboratory*; D Barlow, D Leary, J Wollmershauser, C Spillmann,* ***Kathryn Wahl,*** US Naval Research Laboratory
9:00am	**INVITED: AS+BI+MI-MoM-3** Correlative Microscopy based on Secondary Ion Mass Spectrometry for High-Resolution High-Sensitivity Nano-Analytics, ***Tom Wirtz***, *J Audinot, D Dowsett, S Eswara,* Luxembourg Institute of Science and Technology (LIST), Luxembourg	**BI-MoM-3** Live Confocal Microscopy of *Balanus Amphitrite* Reveals Anti-Fouling Strategy of a Marine Fouler, ***Kenan Fears,*** US Naval Research Laboratory*; B Orihuela, D Rittschof,* Duke University Marine Laboratory*; K Wahl,* US Naval Research Laboratory
9:20am	Invited talk continues.	**BI-MoM-4** Considering the Consequences of a Paradigm Shift in Biofouling Management, ***Daniel Rittschof***, *B Orihuela,* Duke University*; K Efimenko, J Genzer,* NC State University
9:40am	**AS+BI+MI-MoM-5** New Insights on Layered Polymer Systems, Polymer Networks and Polymerization in Defined Geometries by Combining Surface Analysis with Depth Profiling using ToF-SIMS and XPS as Analytical Tools, ***Sven Steinmüller,*** Institute for Applied Materials, Karlsruhe Institute of Technology, Germany*; A Llevot,* Institute of Organic Chemistry, Karlsruhe Institute of Technology, Germany*; D Moock,* Institute for Applied Materials, Karlsruhe Institute of Technology, Germany*; B Bitterer,* Institute of Organic Chemistry, Karlsruhe Institute of Technology, Germany*; F Cavalli,* Institute for Biological Interfaces, Karlsruhe Institute of Technology, Germany*; S Hurrle,* Institute for Chemical Technology and Polymer Chemistry, Karlsruhe Institute of Technology, Germany*; M Bruns,* Institute for Applied Materials, Karlsruhe Institute of Technology, Germany	**BI-MoM-5** Microbiological Fouling on Aircraft: Understanding the Mechanisms of Polyurethane Topcoat Deterioration by Fungal Isolates, ***Daniel Barlow***, *J Biffinger,* US Naval Research Laboratory*; C Hung,* Air Force Research Laboratory*; L Nadeau,* Air Force Institute of Technology*; A Crouch, T Zicht,* Air Force Research Laboratory*; J Russell, Jr.,* US Naval Research Laboratory*; W Crookes-Goodson,* Air Force Research Laboratory
10:00am	**AS+BI+MI-MoM-6** Combining Monoatomic- and Cluster Ion Sputtering in ToF-SIMS and XPS Depth Profiling of Organic-inorganic Multilayer Structures, ***Eric Langer***, *J Barnes, O Renault, T Maindron,* CEA-Leti, France*; L Houssiau,* University of Namur, Belgium	**BI-MoM-6** Dynamic Accumulation Assays under Laminar Flow Conditions to Probe Attachment of Marine Biofilm Formers, ***Kim Alexander Nolte***, *J Schwarze, A Rosenhahn,* Ruhr-University Bochum, Germany
10:20am	**BREAK**	**BREAK**
10:40am	**AS+BI+MI-MoM-8** Ultra High Surface Sensitivity – Elemental Analysis of the Outer Layer, ***Thomas Grehl***, *P Brüner, H Brongersma,* ION-TOF GmbH, Germany	**BI-MoM-8** Coatings with Amphiphilic Surfaces Via Self-Stratification for Marine Fouling-Release Applications, ***Dean Webster***, *T Galhenage, S Stafslien, L Vanderwal,* North Dakota State University
11:00am	**AS+BI+MI-MoM-9** Towards Predictive Understanding of Li-S Battery Materials through Multimodal Analysis, ***Vijayakumar Murugesan***, *K Han, M Nandasiri, V Shutthanandan,* Pacific Northwest National Laboratory*; S Thevuthasan,* Pacific Northwest National Laboratory, Qatar*; K Mueller,* Pacific Northwest National Laboratory	**BI-MoM-9** Zero-Energy Flux Recovery in Biofouled Liquid Gated Membranes, *J Overton,* ***Caitlin Howell,*** University of Maine
11:20am	**AS+BI+MI-MoM-10** Combined use of Back Side SIMS and FIB Sample Preparation, ***Mikhail Klimov,*** University of Central Florida	**INVITED: BI-MoM-10** Stimuli Responsive Polymers in Biofouling and Bioadhesion, ***Gabriel Lopez,*** University of New Mexico
11:40am	**AS+BI+MI-MoM-11** Phase Quantification of Mixed TiO_2 Powders by X-ray Photoemission Valence Band Analysis and Raman Spectroscopy, ***Paul Mack***, *T Nunney,* Thermo Fisher Scientific, UK*; R Palgrave,* University College London, United Kingdom of Great Britain and Northern Ireland	Invited talk continues.

	Spectroscopic Ellipsometry Focus Topic **Room 9 - Session EL+AS+EM+TF-MoM** **Application of SE for the Characterization of Thin Films and Nanostructures** **Moderator:** Tino Hofmann, University of North Carolina at Charlotte	**Electronic Materials and Photonics Division** **Room 14 - Session EM+MI+TF-MoM** **Growth, Electronic, and Magnetic Properties of Heusler Compounds** **Moderators:** Rehan Kapadia, University of Southern California, Seth King, University of Wisconsin - La Crosse
8:20am	**INVITED: EL+AS+EM+TF-MoM-1** Ultra-thin Plasmonic Metal Nitrides: Optical Properties and Applications, ***Alexandra Boltasseva,*** Purdue University	**EM+MI+TF-MoM-1** Semiconducting Half-Heusler Heterostructures Grown by Molecular Beam Epitaxy, ***Anthony Rice,*** *S Harrington, D Pennachio, M Pendharkar, C Palmstrøm,* University of California at Santa Barbara
8:40am	Invited talk continues.	**EM+MI+TF-MoM-2** Towards Topotronics: Combining Chemical Potential Tuning and Strain Engineering to Realize Surface Dominated Transport in Topological Heusler Thin Films, ***Shouvik Chatterjee,*** *J Logan, N Wilson, M Pendharkar, C Palmstrøm,* University of California at Santa Barbara
9:00am	**EL+AS+EM+TF-MoM-3** Magnetron Sputtering of TiN Coatings: Optical Monitoring of the Growth Process by Means of Spectroscopic Ellipsometry, ***Jiri Bulir,*** *J More Chevalier, L Fekete, J Remiasova, M Vondracek, M Novotny, J Lancok,* Institute of Physics ASCR, Czech Republic	**INVITED: EM+MI+TF-MoM-3** Topology, Magnetism, and Superconductivity in Ternary Half-Heusler Semimetals, ***Johnpierre Paglione,*** University of Maryland, College Park
9:20am	**EL+AS+EM+TF-MoM-4** Variable Temperatures Spectroscopic Ellipsometry Study of the Optical Properties of InAlN/GaN Grown on Sapphire, *Y Liang,* Guangxi University, China*; H Gu,* Huazhong University of Science and Technology, China*; J Xue,* Xidian University, China*;* ***Chuanwei Zhang,*** Huazhong University of Science and Technology, China*; Q Li,* Guangxi University, China*; Y Hao,* Xidian University, China*; S Liu,* Huazhong University of Science and Technology, China*; Q Yang, L Wan, Z Feng,* Guangxi University, China	Invited talk continues.
9:40am	**EL+AS+EM+TF-MoM-5** Optical Properties of $Cs_2AgIn_{(1-x)}Bi_xCl_6$ Double Perovskite Studied by Spectroscopic Ellipsometry, ***Honggang Gu,*** *S Li, B Song, J Tang, S Liu,* Huazhong University of Science and Technology, China	**EM+MI+TF-MoM-5** Electron Counting, Surface Reconstructions, and Electronic Structure of 18 Electron Half Heuslers, ***Jason Kawasaki,*** University of Wisconsin - Madison*; A Janotti,* University of Delaware*; C Palmstrøm,* University of California at Santa Barbara
10:00am	**EL+AS+EM+TF-MoM-6** Charge Carrier Dynamics of Aluminum-doped Zinc Oxide Deposited by Spatial Atomic Layer Deposition, ***Daniel Fullager,*** *G Boreman, T Hofmann,* University of North Carolina at Charlotte*; C Ellinger,* Eastman Kodak Company	**EM+MI+TF-MoM-6** Computational Investigation of Heusler Compoundss for Spintronic Applications, ***Jianhua Ma,*** University of Virginia*; W Butler,* University of Alabama
10:20am	**BREAK**	**BREAK**
10:40am	**INVITED: EL+AS+EM+TF-MoM-8** Broad Range Ellipsometry Shining Light onto Multiphase Plasmonic Nanoparticles Synthesis, Properties and Functionality, ***Maria Losurdo,*** CNR-NANOTEC, Italy	
11:00am	Invited talk continues.	**EM+MI+TF-MoM-9** Growth, Electronic, and Magnetic Properties of Half-Heusler $CoTi_{1-x}Fe_xSb$, ***Sean Harrington,*** *A Rice, T Brown-Heft, A McFadden, M Pendharkar,* University of California at Santa Barbara*; O Mercan, L Çolakerol Arslan,* Gebze Technical University, Turkey*; C Palmstrøm,* University of California at Santa Barbara
11:20am	**EL+AS+EM+TF-MoM-10** Use of Evolutionary Algorithms for Ellipsometry Model Development and Validation using Eureqa, ***Neil Murphy,*** Air Force Research Laboratory*; L Sun,* General Dynamics Information Technology*; J Jones,* Air Force Research Laboratory*; J Grant,* Azimuth Corporation	**EM+MI+TF-MoM-10** High Spin-Polarization and Perpendicular Magnetic Anisotropy in Single-Crystal Full-Heusler Co_2MnAl/Fe_2MnAl Superlattice, ***Tobias Brown-Heft,*** *A McFadden, J Logan,* University of California at Santa Barbara*; C Guillemard,* University of Lorraine, France*; P Le Fevre, F Bertran,* Synchrotron SOLEIL, France*; S Andrieu,* University of Lorraine, France*; C Palmstrøm,* University of California at Santa Barbara
11:40am	**EL+AS+EM+TF-MoM-11** Excitonic Effects on the Optical Properties of Thin ZnO Films on Different Substrates, ***Nuwanjula Samarasingha,*** *Z Yoder, S Zollner,* New Mexico State University*; D Pal, A Mathur, A Singh, R Singh, S Chattopadhyay,* Indian Institute of Technology Indore, India	**EM+MI+TF-MoM-11** Formation of the Epitaxial MgO/Full-Heusler Co_2MnSi Interface: Oxygen Migration and Elemental Segregation, ***Anthony McFadden,*** *T Brown-Heft, N Wilson, J Logan, C Palmstrøm,* University of California at Santa Barbara

	MEMS and NEMS Group **Room 24 - Session MN+BI+NS-MoM** **Feature Session: Large Scale Integration of Nanosensors** **Moderators:** Wayne Hiebert, University of Alberta and The National Institute for Nanotechnology, Robert Davis, Brigham Young University	**Plasma Science and Technology Division** **Room 21 - Session PS+AS+SE-MoM** **Atmospheric Pressure Plasmas** **Moderators:** Olivier Guaitella, Ecole Polytechnique - CNRS, France, Seiji Samukawa, Tohoku University, Japan
8:20am	**INVITED: MN+BI+NS-MoM-1** Large Scale Integration: A Not-so-simple Cure for Loneliness of Silicon Nanoresonators, ***Sébastien Hentz,*** Cea Leti, France	**PS+AS+SE-MoM-1** Study of Atmospheric-pressure kHz Multi-jet Plasma System, ***Vladimir Milosavljevic,*** *J Lalor, L Scally, P Cullen,* Dublin Institute of Technology, Ireland
8:40am	Invited talk continues.	**PS+AS+SE-MoM-2** Synthesis of Nitrates by Atmospheric Microplasma Over Water : Effect of the Experimental Parameters and Intermediate Species, ***Nicolas Maira,*** *C De Vos, F Reniers,* Université Libre de Bruxelles, Belgium
9:00am	**INVITED: MN+BI+NS-MoM-3** Nanomechanical Sensors (MSS, AMA) Toward IoT Olfactory Sensor System, ***Genki Yoshikawa,*** National Institute for Materials Science, Japan	**PS+AS+SE-MoM-3** Plasma Catalysis for CO_2 and CH_4 Conversion at Atmospheric Pressure, *A Ozkan, S Chorfi, L Brune, T Visart de Bocarmé,* ***François Reniers,*** Université Libre de Bruxelles, Belgium
9:20am	Invited talk continues.	**PS+AS+SE-MoM-4** Aluminium Surface Plasma Treatment at Atmosphere Pressure, ***Lucia Bonova,*** *I Shchelkanov, C Ahn, S Chaudhuri, D Ruzic,* University of Illinois at Urbana-Champaign
9:40am	**MN+BI+NS-MoM-5** Micro-Gas Chromatography Linked with Nano-optomechanical Systems for Breath Analysis, ***Khulud Almutairi,*** University of Alberta, Canada; *W Hiebert,* National Institute for Nanotechnology, Canada	**INVITED: PS+AS+SE-MoM-5** The Role of Bulk Liquid Transport Processes in the Plasma-Liquid Interfacial Chemistry, ***Selma Mededovic Thagard,*** *M Vasilev, D Bohl, P Conlon,* Clarkson University
10:00am	**MN+BI+NS-MoM-6** Micro Chladni Figures and Multimode Manipulation of Breast Cancer Cells in Liquid, ***Hao Jia,*** *H Tang,* Case Western Reserve University; *X Liu, H Liu,* Northwestern University; *P Feng,* Case Western Reserve University	Invited talk continues.
10:20am	**BREAK**	**BREAK**
10:40am	**INVITED: MN+BI+NS-MoM-8** Microfabrication and Assembly Processes for Integrating Microelectrode Arrays into Tissue-Engineered Scaffolds for Novel Nerve Interfaces, ***Jack Judy,*** *C Kuliasha, P Rustogi, S Natt, B Spearman, S Mohini, J Graham, E Atkinson, E Nunamaker, K Otto, C Schmidt,* University of Florida	**PS+AS+SE-MoM-8** Efficiency of Electrolytic Reduction of Aqueous Metal Salts to Metal Nanoparticles at a Plasma-Liquid Interface, *S Ghosh,* ***Ryan Hawtof,*** Case Western Reserve University; *P Rumbach, D Go,* University of Notre Dame; *R Akolkar, R Sankaran,* Case Western Reserve University
11:00am	Invited talk continues.	
11:20am	**INVITED: MN+BI+NS-MoM-10** Magnetically Actuated Synthetic Cilia for Microfluidics, ***Peter Hesketh,*** *S Hanasoge, M Ballard,* Georgia Institute of Technology; *M Erickson,* University of Georgia; *A Alexeev,* Georgia Institute of Technology	**INVITED: PS+AS+SE-MoM-10** Amorphous Indium Zinc Oxide (IZO) Semiconductor Films Grown by Atmospheric Plasma-Enhanced Spatial ALD for Application as High-Mobility Channel in Thin Film Transistors, *A Illiberi, I Katsouras, S Gazibegović, B Cobb, E Nekovic,* TNO-Holst Centre, Netherlands; *W van Boekel, C Frijters,* TNO-Solliance, Netherlands; *J Maas,* TNO-Holst Centre, Netherlands; ***Fred Roozeboom,*** TNO-Holst Centre & Eindhoven University of Technology, Netherlands; *Y Creyghton,* TNO-Solliance, Netherlands; *P Poodt,* TNO-Holst Centre, Netherlands; *G Gelinck,* TNO-Holst Centre & Eindhoven University of Technology, Netherlands
11:40am	Invited talk continues.	Invited talk continues.

	Plasma Science and Technology Division **Room 23 - Session PS+AS-MoM** **Plasma Processing of Challenging Materials** **Moderators:** Erik V. Johnson, LPICM, Ecole Polytechnique, France, Osamu Sakai, The University of Shiga Prefecture	**Scanning Probe Microscopy Focus Topic** **Room 10 - Session SP+AS+NS+SS-MoM** **New Imaging and Spectroscopy Methodologies** **Moderators:** Wonhee Ko, Oak Ridge National Laboratory, An-Ping Li, Oak Ridge National Laboratory
8:20am	**PS+AS-MoM-1** Control of Plasma Doping Conformality in FinFET Arrays, ***Mona Ebrish***, *O Gluschenkov,* IBM Research Division; *M Hopstaken,* IBM T.J. Watson Research Center; *F Torregrosa,* Ion Beam Services	**INVITED: SP+AS+NS+SS-MoM-1** Charge Transport through Nanostructures measured with a Multi-Tip STM, ***Bert Voigtländer***, Forschungszentrum Juelich, Germany
8:40am	**PS+AS-MoM-2** Study of Plasma-etching Parameter Impacts on Two-dimensional Electron Gas Degradation in AlGaN/GaN Heterostructures, ***Frédéric Le Roux***, *P Burtin, N Possémé, A Torres, S Barnola,* CEA-Leti, France	Invited talk continues.
9:00am	**INVITED: PS+AS-MoM-3** Spatiotemporal Non-uniformity of CVD Plasmas and Film Qualities, ***Masaharu Shiratani***, Kyushu University, Japan	**SP+AS+NS+SS-MoM-3** Robust High-Resolution Imaging and Quantitative Force Spectroscopy in Vacuum with Tuned-Oscillator Atomic Force Microscopy, ***Omur Dagdeviren***, *J Goetzen,* Yale University; *H Holscher,* Karlsruhe Institute of Technology (KIT), Germany; *E Altman, U Schwarz,* Yale University
9:20am	Invited talk continues.	**SP+AS+NS+SS-MoM-4** Electrical Transport Measurements with Atomically Precise Probes, ***Markus Maier***, *J Koeble, R Thiel, M Fenner, A Pirou, D Stahl, T Roth,* Scienta Omicron GmbH
9:40am	**PS+AS-MoM-5** Surface-driven CH_4 generation from CO_2 in Low-pressure Non-thermal Plasma, ***Kazunori Koga***, *S Toko, S Tanida, M Shiratani,* Kyushu University, Japan	**INVITED: SP+AS+NS+SS-MoM-5** Planar Two-probe Scanning Tunneling Spectroscopy Measurements at the Atomic Level, ***Marek Kolmer***, Jagiellonian University, Krakow, Poland
10:00am	**PS+AS-MoM-6** Plasma Modification of Carbon Fibres for Tough Carbon Fibre Composites, ***Sally McArthur***, *R Radjef, B Fox,* Swinburne University of Technology, Australia	Invited talk continues.
10:20am	**BREAK**	**BREAK**
10:40am	**INVITED: PS+AS-MoM-8** Damage Free Plasma Etching Processes of III-V Semiconductors for Microelectronic and Photonic Applications, ***Erwine Pargon***, *M Bizouerne, C Petit-Etienne, L Vallier, G Gay, M Fahed, K Rovayaz, M Fouchier, C Bellegarde, V Renaud, G Cunge, O Joubert,* CNRS-LTM, Université Grenoble Alpes, France; *E Martinez, N Rochat,* CEA-Leti, France	**SP+AS+NS+SS-MoM-8** An Ultrafast Scanning Probe Microscopy Technique for Imaging Polarization Switching in Ferroelectric Materials, ***Suhas Somnath***, *S Kalinin, S Jesse,* Oak Ridge National Laboratory
11:00am	Invited talk continues.	**SP+AS+NS+SS-MoM-9** Direct Probing of the Graphene-Electrolyte Double Layer Potential, ***Evgheni Strelcov***, NIST Center for Nanoscale Science and Technology / University of Maryland; *A Tselev,* University of Aveiro, Portugal; *H Guo, A Yulaev,* NIST Center for Nanoscale Science and Technology / University of Maryland; *I Vlassiouk,* Oak Ridge National Laboratory; *N Zhitenev, W McGehee, B Hoskins, J McClelland, A Kolmakov,* NIST Center for Nanoscale Science and Technology
11:20am	**PS+AS-MoM-10** Fabrication of Metal Nanoparticle-dispersed Nanocomposite Films by *In Situ* Plasma Reduction of Metal Cation-containing Polymer Films, *D Boris,* Naval Research Laboratory; ***Souvik Ghosh***, Case Western Reserve University; *S Hernandez,* Naval Research Laboratory; *C Zorman,* Case Western Reserve University; *S Walton,* Naval Research Laboratory; *M Sankaran,* Case Western Reserve University	**SP+AS+NS+SS-MoM-10** Quasiparticle Interference Mapping of ZrSiS, ***Michael Lodge***, University of Central Florida; *G Chang, B Singh,* National University of Singapore; *J Hellerstedt, M Edmonds,* Monash University, Australia; *D Kaczorowski,* Polish Academy of Sciences; *M Hosen, M Neupane,* University of Central Florida; *H Lin,* National University of Singapore, Singapore; *M Fuhrer,* Monash University, Australia; *B Weber,* Nanyang Technological University, Singapore; *M Ishigami,* University of Central Florida

	Surface Science Division **Room 25 - Session SS+AS+MI-MoM** **Organic/Inorganic Surfaces and Interfaces** **Moderators:** Liney Arnadottir, Oregon State University, Bruce Koel, Princeton University	**Thin Films Division** **Room 20 - Session TF+EM-MoM** **ALD for Energy Conversion, Storage, and Electrochemical Processes** **Moderator:** Mark Losego, Georgia Institute of Technology
8:20am	**INVITED: SS+AS+MI-MoM-1** The Use of EC-STM to Study the Nanoscale Structure and Behavior of Atomically Thin Ag Films on Au Surfaces, *J Phillips, H Morgan, L Jackson, G LeBlanc,* ***Erin Iski,*** University of Tulsa	**TF+EM-MoM-1** Synthesis and Characterization of All Solid-State SnO_xN_y/LiPON/Li Batteries, ***David Stewart****, A Pearse, K Gregorczyk, G Rubloff,* University of Maryland, College Park
8:40am	Invited talk continues.	**TF+EM-MoM-2** Molecular Layer Deposition for Applications in Lithium-Ion Batteries, *K Van de Kerckhove, F Mattelaer, J Dendooven,* ***Christophe Detavernier****,* Ghent University, Belgium
9:00am	**SS+AS+MI-MoM-3** Decomposition and Self-Assembly of Coronene on Pt(111), ***Chen Wang****,* University of California Irvine*; K Thurmer, N Bartelt,* Sandia National Laboratories	**TF+EM-MoM-3** Engineering Hybrid Thin Film Electrolytes for 3D Lithium-ion Battery Applications, ***Ryan Sheil****, J Lau,* University of California at Los Angeles*; P Moni,* MIT*; C Choi,* University of California at Los Angeles*; K Jungjohann,* Sandia National Laboratories*; J Yoo,* Los Alamos National Laboratory*; K Gleason,* MIT*; B Dunn, J Chang,* University of California at Los Angeles
9:20am	**SS+AS+MI-MoM-4** Understanding of Single-layer ZnS Supported on Au(111), ***Xingyi Deng****, D Sorescu, J Lee,* National Energy Technology Laboratory	**TF+EM-MoM-4** Carbon Encapsulated CNT Micropillars for Silicon Lithium Ion Battery Electrodes, ***Kevin Laughlin****, E Laughlin, R Fan, R Davis, R Vanfleet, J Harb,* Brigham Young University
9:40am	**SS+AS+MI-MoM-5** X-ray Microscopy and Spectroscopy Insights of Metal-Organics Contacts, ***Der-Hsin Wei****, K Lu, T Chuang, C Lu, Y Hsu,* National Synchrotron Radiation Research Center, Taiwan, Republic of China	**TF+EM-MoM-5** Porous Oxide Shell on the Supported Gold Nanoparticles Synthesized via Polymer-Templated Atomic Layer Deposition, ***Haoming Yan****, X Yu, Q Peng,* University of Alabama
10:00am	**SS+AS+MI-MoM-6** Anchoring of Carboxylic and Phosphonic Acids on Atomically Defined Oxide Surfaces: The Role of Protons, Hydroxyl Groups and Water, *M Schwarz, T Xu, S Mohr, C Schuschke,* ***Joerg Libuda****,* University Erlangen-Nuernberg, Germany	**TF+EM-MoM-6** Three-Dimensional Solid State Batteries Grown Via Atomic Layer Deposition, ***Alexander Pearse****, T Schmitt, D Stewart, E Sahadeo, K Gregorczyk,* University of Maryland, College Park*; K Gerasopoulos,* Johns Hopkins Applied Physics Lab*; G Rubloff,* University of Maryland, College Park
10:20am	**BREAK**	**BREAK**
10:40am	**SS+AS+MI-MoM-8** Thiolate *versus* Selenolate: Structure, Binding Strenght, Thermal Stability, and Charge Transfer Properties, *J Ossowski,* Jagiellonian University, Poland*; T Wächter,* Universität Heidelberg, Germany*; T Žaba,* Jagiellonian University, Poland*; L Silies, M Kind,* Universität Frankfurt, Germany*; A Noworolska,* Jagiellonian University, Poland*; F Blobner,* Technische Universität München, Germany*; D Gnatek, J Rysz,* Jagiellonian University, Poland*; M Bolte,* Universität Frankfurt, Germany*; P Feulner,* Technische Universität München, Germany*; A Terfort,* Universität Frankfurt, Germany*; M Zharnikov,* Universität Heidelberg, Germany*;* ***Piotr Cyganik****,* Jagiellonian University, Poland	**INVITED: TF+EM-MoM-8** Systematic Investigation of Geometric Effects in Porous Electrodes for Energy Conversion Reactions, ***Julien Bachmann****,* University of Erlangen, Germany
11:00am	**SS+AS+MI-MoM-9** Preserving Material Morphology by Gas-Phase Functionalization: Surface Modification of ZnO with Propiolic Acid, *F Gao,* University of Delaware*; S Aminane,* Université Pierre et Marie Curie, France*; S Bai,* ***Andrew Teplyakov****,* University of Delaware	Invited talk continues.
11:20am	**SS+AS+MI-MoM-10** Enhanced Long-range Magnetic Order by the Organic-Ferromagnetic Hybrid Interface, ***Yao-Jane Hsu****, M Lin,* National Synchrotron Radiation Research Center, Taiwan, Republic of China*; P Chen,* National Tsing-Hua University, Taiwan, Republic of China*; Y Lai,* National Synchrotron Radiation Research Center, Taiwan, Republic of China*; T Lam,* National Chiao-Tung University, Taiwan, Republic of China*; D Wei, H Lin, Y Chin,* National Synchrotron Radiation Research Center, Taiwan, Republic of China*; J Wang,* National Taiwan Normal University, Taiwan, Republic of China	**TF+EM-MoM-10** Development of a Reduction-resistant Oxide Electrode for Dynamic Random Access Memory Capacitor, ***CheolJin Cho****, M Noh, W Lee,* Korea Institute of Science and Technology, Republic of Korea*; C An,* Seoul National University, Republic of Korea*; C Kang,* Korea Institute of Science and Technology, Republic of Korea*; C Hwang,* Seoul National University, Republic of Korea*; S Kim,* Korea Institute of Science and Technology, Republic of Korea
11:40am	**SS+AS+MI-MoM-11** Interaction of Coronene with Mo-C_{60} Nanospheres: The Effects of Substrate Curvature on Molecular Adsorption, ***Nathaniel W. Kabat****, E Monazami, P Reinke,* University of Virginia	

	Tandem MS Focus Topic **Room 5 & 6 - Session TM+AS-MoM** **New Instrumentation Featuring Tandem MS** **Moderators:** Chris Anderton, Pacific Northwest National Laboratory, Daniel Graham, University of Washington	**Vacuum Technology Division** **Room 7 & 8 - Session VT+MN-MoM** **Progress with Measurement in Vacuum** **Moderators:** Martin Wüest, INFICON Ltd., Liechtenstein, Steve Borichevsky, Applied Materials,Varian Semiconductor Equipment
8:20am	**INVITED: TM+AS-MoM-1** *In Situ* MS/MS Analysis on Biological Samples using Imaging Secondary Ion Mass Spectrometry (SIMS), ***Hua Tian,*** Pennsylvania State University	**VT+MN-MoM-1** New Vacuum Standard by Ultra-Precise Refractive Index Measurement, ***Jay Hendricks,*** *J Ricker, J Stone, P Egan, G Scace, K Douglass, D Olson, G Strouse,* NIST
8:40am	Invited talk continues.	**VT+MN-MoM-2** Construction and Testing of the NIST Variable Length Optical Cavity Pressure Standard, ***Jacob Ricker,*** *J Hendricks, G Scace, P Egan, J Stone,* NIST
9:00am	**TM+AS-MoM-3** Molecular Depth Profiling with a New Hybrid SIMS Instrument for Improved Molecular Identification using Tandem MS, ***Alexander Pirkl,*** *R Moellers, H Arlinghaus, J Zakel, D Rading, E Niehuis,* ION-TOF GmbH, Germany	**INVITED: VT+MN-MoM-3** Fast-Switching Dual Fabry-Perot Cavity-based Optical Refractometry – A Powerful Technique for Drift-Free Assessment of Gas Refractivity and Density, ***Ove Axner,*** *I Silander, T Hausmaninger,* Umeå University, Sweden*; M Zelan,* RISE Research Institutes of Sweden, Sweden
9:20am	**TM+AS-MoM-4** Spatially-resolved Tandem Mass Spectrometry Increases Molecular Confidence in a Multimodal Mass Spectrometry Imaging Investigation of a Tripartite Plant-fungus-cyanobacteria Interaction, ***Dušan Veličković,*** Pacific Northwest National Laboratory*; A Carrell,* Duke University*; R Chu,* Pacific Northwest National Laboratory*; D Pelletier,* Oak Ridge National Laboratory*; L Paša-Tolić,* Pacific Northwest National Laboratory*; D Weston,* Oak Ridge National Laboratory*; C Anderton,* Pacific Northwest National Laboratory	Invited talk continues.
9:40am	**TM+AS-MoM-5** The Biosynthesis of Protective Metabolites in Amazonian *Sextonia rubra* Revealed by 100 nm-Scale TOF-SIMS Tandem MS Imaging, ***Gregory L. Fisher,*** Physical Electronics*; T Fu, D Touboul,* Institut de Chimie des Substances Naturelles, CNRS, France*; S Della-Negra,* Institut de Physique Nucléaire, CNRS, France*; E Houël, N Amusant, C Duplais,* Cirad, UMR EcoFoG, AgroParisTech, CNRS, INRA, France*; A Brunelle,* Institut de Chimie des Substances Naturelles, CNRS, France	**VT+MN-MoM-5** Cold Cathode Gauge Improvements Extend Performance into UHV Pressure Range, ***Timothy Swinney,*** *G Brucker,* MKS Instruments, Inc., Pressure and Vacuum Measurement Group
10:00am		**VT+MN-MoM-6** Sapphire MEMS based Capacitance Diaphragm Vacuum Gauge for 0-0.1Torr Operating at 200 °C, ***Takuya Ishihara,*** Azbil Corporation, Japan*; M Sekine, M Soeda, M Nagata,* Azbil Corporation
10:20am	**BREAK**	**BREAK**
10:40am	**INVITED: TM+AS-MoM-8** Metabolite Annotation for Ultra-HR Imaging Mass Spectrometry: MS1 and Beyond, ***Theodore Alexandrov,*** European Molecular Biology Laboratory, Germany	**INVITED: VT+MN-MoM-8** ROSINA/Rosetta: Exploring the Origin of our Solar System with Mass Spectrometry in Space, ***Kathrin Altwegg,*** University of Bern, Switzerland
11:00am	Invited talk continues.	Invited talk continues.
11:20am	**TM+AS-MoM-10** Multivariate Analysis of combined ToF-SIMS and Orbitrap-SIMS data, ***Henrik Arlinghaus,*** *M Keenan, A Pirkl, R Moellers, E Niehuis,* ION-TOF GmbH, Germany	**VT+MN-MoM-10** Stabilization of Emission Current from Cold Field Emitters by Reducing Pressure to 10^{-10} Pa, ***Keigo Kasuya,*** *T Ohshima, S Katagiri, T Kawasaki,* Hitachi, Ltd., Japan
11:40am		**VT+MN-MoM-11** Measurement and Prediction of Quadrupole Mass Spectrometer Sensitivities, ***Robert Ellefson,*** REVac Consulting

Monday Afternoon, October 30, 2017

	2D Materials Focus Topic Room 15 - Session 2D+MI-MoA Novel 2D Materials **Moderator:** Kathleen McCreary, Naval Research Laboratory	Actinides and Rare Earths Focus Topic Room 22 - Session AC+AS+SA+SU-MoA Chemistry and Physics of the Actinides and Rare Earths **Moderator:** David Shuh, Lawrence Berkeley National Laboratory
1:40pm		**AC+AS+SA+SU-MoA-1** Oxidation and Crystal Field Effects in Uranium, ***James G. Tobin***, University of Wisconsin-Oshkosh; *S Yu,* Lawrence Livermore National Laboratory; *C Booth,* Lawrence Berkeley National Laboratory; *T Tyliszczak,* Lawrence Berkeley Lab, University of California, Berkeley; *D Shuh,* Lawrence Berkeley National Laboratory; *G van der Laan,* Diamond Light Source, UK; *D Sokaras, D Nordlund, T Weng,* Stanford Synchrotron Radiation Lightsource; *P Bagus,* University of North Texas
2:00pm	**2D+MI-MoA-2** Computational Characterization of 2D Perovskite Oxides Nanosheets, ***Yanfu Lu***, *S Sinnott,* Pennsylvnia State University	**AC+AS+SA+SU-MoA-2** Electron Spectroscopy Studies of U and U-Mo Hydrides, ***Ladislav Havela***, *M Paukov, M Dopita, L Horak, M Divis, I Turek,* Charles University, Prague, Czech Republic; *T Gouder, A Seibert, F Huber,* European Commission, Joint Research Centre, Karlsruhe, Germany; *D Legut,* VSB - Technical University of Ostrava, Czech Republic
2:20pm	**INVITED: 2D+MI-MoA-3** Electronic and Optoelectronic Physics in the van der Waals Heterojunctions, ***Philip Kim***, Harvard University	**INVITED: AC+AS+SA+SU-MoA-3** Comparative Structural Studies of Tetravalent f ions in Solids and in Aqueous Solutions, ***Lynda Soderholm***, Argonne National Laboratory
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm	**2D+MI-MoA-5** Discovery of over 1000 New Two-dimensional Materials, 487 One-dimensional Molecular Wires and 98 Naturally Occurring Heterostructures, ***Gowoon Cheon***, *K Duerloo, A Sendek, C Porter, Y Chen, E Reed,* Stanford University	
3:20pm		
3:40pm	**BREAK**	**BREAK**
4:00pm	**2D+MI-MoA-8** Anisotropic 2D Palladium Diselenide with High Mobility for Air-stable Electronics, ***Akinola Oyedele***, University of Tennessee; *L Liang, A Puretzky, S Yang, A Strasser, C Rouleau, B Sumpter, D Geohegan,* Oak Ridge National Laboratory; *K Xiao,* Center for Nanophase Materials Sciences, Oak Ridge National Laboratory	**INVITED: AC+AS+SA+SU-MoA-8** Interfacial Dynamics in Radiation Environments and Materials: An Energy Frontier Research Center, ***Sue Clark***, Pacific Northwest National Laboratory
4:20pm	**2D+MI-MoA-9** Hexagonal Boron-Carbon-Nitrogen – A Two-dimensional Direct Band Gap Semiconductor, ***Axel Enders***, University of Bayreuth, Germany; *S Beniwal,* University of Nebraska - Lincoln; *J Hooper,* Jagiellonian University, Poland; *D Miller,* SUNY Buffalo; *P Costa,* University of Nebraska - Lincoln; *S Liu,* Boston College; *C Sykes,* Tufts University; *E Zurek,* SUNY Buffalo	Invited talk continues.
4:40pm		**AC+AS+SA+SU-MoA-10** Real Structure of Nanocrystalline Uranium based Hydrides Studied By the X-ray Scattering Methods, ***Milan Dopita***, *L Havela, L Horak, M Paukov,* Charles University, Prague, Czech Republic; *Z Matej,* MAX-IV, Lund, Sweden

	Applied Surface Science Division **Room 13 - Session AS+BI-MoA** **Practical Surface Analysis: Complex, Organic and Bio-systems** **Moderators:** Scott Lea, Pacific Northwest National Laboratory, Paulina Rakowska, National Physical Laboratory, UK	**Spectroscopic Ellipsometry Focus Topic** **Room 9 - Session EL+AS+EM-MoA** **Spectroscopic Ellipsometry: Novel Applications and Theoretical Approaches** **Moderator:** Maria Losurdo, University Bari
1:40pm		**EL+AS+EM-MoA-1** Temperature Dependent Mueller Matrix Measurements of Magnetised Ni near the Curie Temperature, ***Farzin Abadizaman***, *S Zollner,* New Mexico State University
2:00pm	**AS+BI-MoA-2** Environmental Charge Compensation - Near Ambient Pressure XPS as a Tool for Surface Chemical Analysis of Iinsulators without Charging Effects, ***Paul Dietrich***, *A Thissen,* SPECS Surface Nano Analysis GmbH, Germany; *S Bahr,* Enviro Analytical Instruments GmbH, Germany	**EL+AS+EM-MoA-2** Ellipsometry Based Observation of Material Ordering Process in Holography, ***Hao Jiang***, *H Peng, Y Liao, S Liu,* Huazhong University of Science and Technology, China
2:20pm	**AS+BI-MoA-3** Does Time Play a Role in Glyoxal and Hydrogen Peroxide Photochemical Aging?, ***Fei Zhang***, *X Yu, X Sui,* Pacific Northwest National Laboratory; *J Chen,* Fudan University; *Z Zhu, X Yu,* Pacific Northwest National Laboratory	**INVITED: EL+AS+EM-MoA-3** Coherence in Polarimetry and Ellipsometry: Synthesizing Mueller Matrices in an Ellipsometer, ***Oriol Arteaga***, Departament de Física Aplicada, Universitat de Barcelona, Spain
2:40pm	**AS+BI-MoA-4** Study of Drug Uptake and Action on Metabolic Processes at the Single-Cell Level using the 3D OrbiSIMS, ***Ian S. Gilmore***, *M Passarelli, M Lorenz,* National Physical Laboratory, UK; *C Newman, P Marshall, A West,* GlaxoSmithKline, UK; *P Rakowska, R Havelund, C Dollery,* National Physical Laboratory, UK	Invited talk continues.
3:00pm	**AS+BI-MoA-5** TOF-SIMS Cluster Beam Depth Profiling and 3D Imaging of Oral Drug Delivery Films, ***Greg Gillen***, *S Muramoto, J Staymates, E Robinson,* NIST	**EL+AS+EM-MoA-5** Femtosecond Spectroscopic Ellipsometry on Optoelectronic Materials and Photonic Structures, ***Mateusz Rebarz***, *S Espinoza,* ELI Beamlines - Czech Academy of Science, Czech Republic; *S Richter, O Herrfurth, R Schmidt-Grund,* Universität Leipzig, Germany; *J Andreasson,* Chalmers University of Technology, Sweden; *S Zollner,* New Mexico State University
3:20pm	**AS+BI-MoA-6** Characterisation of Bioelectronic Material Surfaces using Surface Spectroscopies, ***Sarah Coultas***, Kratos Analytical Limited, UK; *W Boxford,* Kratos Analytical Ltd, UK; *C Blomfield,* Kratos Analytical Limited, UK; *M Firlak, J Hardy,* Lancaster University, UK	**EL+AS+EM-MoA-6** Temperature Dependence of the Dielectric Function and Interband Critical Points of Bulk Germanium, ***Carola Emminger***, *N Samarasingha, F Abadizaman, N Fernando, S Zollner,* New Mexico State University
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: AS+BI-MoA-8** High-resolution SIMS Imaging of Subcellular Structures, ***Mary Kraft***, *A Yeager,* University of Illinois at Urbana-Champaign; *P Weber,* Lawrence Livermore National Laboratory	**EL+AS+EM-MoA-8** VUV Magneto-Optical Transient Ellipsometer, ***Shirly Espinoza***, *J Andreasson,* Institute of Physics ASCR, Czech Republic
4:20pm	Invited talk continues.	**EL+AS+EM-MoA-9** Infrared Ellipsometric Spectroscopy of $Hg_{1-x}Cd_xTe$ Bulk Samples, ***Yanqing Gao***, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, China
4:40pm	**AS+BI-MoA-10** EnviroESCA – Routine Surface Chemical Analysis under Environmental Conditions For Biological Samples, ***Andreas Thissen***, *P Dietrich,* SPECS Surface Nano Analysis GmbH, Germany; *S Bahr,* Enviro Analytical Instruments GmbH, Germany; *M Kjaervik, W Unger,* Bundesanstalt für Materialforschung und -prüfung (BAM), Germany	**EL+AS+EM-MoA-10** Infrared Ellipsometry Study of the Photo-generated Charge Carriers at the (001) and (110) Surfaces of $SrTiO_3$ Crystals and the Interface of Corresponding $LaAlO_3/SrTiO_3$ Heterostructures, ***Meghdad Yazdi-Rizi***, *P Marsik, B Mallett,* University of Fribourg, Switzerland; *K Sen, A Cerreta,* University of Fribourg; *A Dubroka,* Masaryk University; *M Scigaj, F Sánchez, G Herranz,* Institut de Ciència de Materials de Barcelona; *C Bernhard,* University of Fribourg, Switzerland

Monday Afternoon, October 30, 2017

	Electronic Materials and Photonics Division Room 14 - Session EM-MoA Novel Materials and Devices for Electronics **Moderators:** Shalini Gupta, Northrop Grumman ES, Rehan Kapadia, University of Southern California	Magnetic Interfaces and Nanostructures Division Room 11 - Session MI+BI+EM+SA-MoA Role of Chirality in Spin Transport and Magnetism **Moderators:** Greg Szulczewski, The University of Alabama, Hendrik Ohldag, SLAC National Accelerator Laboratory
1:40pm	**INVITED: EM-MoA-1** 2D Materials for Advanced Devices: Integration Challenges and Opportunities, ***Robert M. Wallace***, University of Texas at Dallas	**INVITED: MI+BI+EM+SA-MoA-1** Spin Transport and Polarization in Chiral Molecules: Theory and Possible Applications, ***Karen Michaeli***, Weizmann Institute of Science, Israel
2:00pm	Invited talk continues.	Invited talk continues.
2:20pm		**MI+BI+EM+SA-MoA-3** Enantio-sensitive Charge Transfer in Adsorbed Chiral Molecules Probed with X Ray Circular Dichroism, *F Luque,* Universidad Autónoma de Madrid, Spain; *I Kowalik,* Polish Academy of Sciences, Poland; *M Niño,* IMDEA-Nanoscience, Spain; *D Arvanitis,* Uppsala University, Sweden; ***Juan José de Miguel***, Universidad Autónoma de Madrid, Spain
2:40pm		**MI+BI+EM+SA-MoA-4** Evolving of Soliton Phase in Exfoliated 2D $Cr_{1/3}NbS_2$ Nanolayers, *S Tang,* Oak Ridge National Laboratory and Central South University, China, PR China; *J Yi, R Fishman, S Okamoto, Q Zou,* Oak Ridge National Laboratory; *D Mandrus,* University of Tennessee; ***Zheng Gai***, Oak Ridge National Laboratory
3:00pm	**EM-MoA-5** Enhancement-mode AlGaN/GaN HEMTs Enabled by ALD ZrO2 Gate Dielectrics, ***Charles Eddy, Jr.***, *V Wheeler,* U.S. Naval Research Laboratory; *D Shahin,* University of Maryland; *T Anderson, M Tadjer, A Koehler, K Hobart,* U.S. Naval Research Laboratory; *A Christou,* University of Maryland; *F Kub,* U.S. Naval Research Laboratory	**MI+BI+EM+SA-MoA-5** Tailoring the Chirality of Domain Walls via Interface Modification, ***Arantzazu Mascaraque***, *S Ruiz-Gomez, M Gonzalez Barrio, L Perez,* Universidad Complutense de Madrid, Spain; *G Chen, A Schmid,* Lawrence Berkeley National Laboratory; *E Michel,* Universidad Autonoma de Madrid, Spain
3:20pm	**EM-MoA-6** Interface Engineering with Al_2O_3-HfO_2 Nanolaminate Gate oxides on Silicon Germanium, ***Mahmut Kavrik***, University of California at San Diego; *K Tang,* Stanford University; *E Thomson, J Cheng, A Kummel,* University of California at San Diego	**MI+BI+EM+SA-MoA-6** Spin Transport in an Electron Conducting Polymer, ***Greg Szulczewski***, *T Sutch, M Lockart, H Chen, P Rupar, M Bowman,* The University of Alabama
3:40pm	**BREAK**	**BREAK**
4:00pm	**EM-MoA-8** Encapsulation of AlGaN/GaN High Electron Mobility Transistor based Hydrogen Sensor for Humid Ambient Sensing Application, *S Jung, H Kim,* Dankook University; *K Baik,* Hongik University; *F Ren, S Pearton,* University of Florida; ***Soohwan Jang***, Dankook University	**INVITED: MI+BI+EM+SA-MoA-8** Utilizing the Chiral induced Spin Selectivity Effect to Achieve Simple Spintronics Devices, ***Yossi Paltiel***, The Hebrew University of Jerusalem, Israel
4:20pm	**EM-MoA-9** Work Function Measurements of Metal Gate - TiAlC by Ultraviolet Photoelectron Spectroscopy, ***Yibin Zhang***, *H Wang, D Shao, Y Liang,* GlobalFoundries Inc	Invited talk continues.
4:40pm	**INVITED: EM-MoA-10** Nitride Based Avalanche Photodiode Detector Structures for Nuclear Detection Applications, ***Vincent Woods***, *L Hubbard, L Campbell,* Pacific Northwest National Laboratory; *N Dietz,* Georgia State University; *Z Sitar,* North Carolina State University	**MI+BI+EM+SA-MoA-10** Magnetic Nano Platelets based Spin Memory Device Operating at Ambient Temperatures, ***Guy Koplovitz***, The Hebrew University of Jerusalem; *Y Paltiel,* The Hebrew University of Jerusalem, Israel
5:00pm	Invited talk continues.	**MI+BI+EM+SA-MoA-11** Magnetization Switching in Ferromagnets by Adsorbed Chiral Molecules without Current or External Magnetic Field, ***Oren Ben Dor***[12], The Hebrew University of Jerusalem, Israel

[1] **Falicov Student Award Finalist**

[2] **National Student Award Finalist**

	MEMS and NEMS Group **Room 24 - Session MN+EM+NS-MoA** **Nano Optomechanical Systems/Multiscale Nanomanufacturing** **Moderators:** Robert Ilic, National Institute of Standards and Technology (NIST), Meredith Metzler, University of Pennsylvania	**Nanometer-scale Science and Technology Division** **Room 19 - Session NS+HC+SS-MoA** **Oxides in Nanotechnology** **Moderator:** Nancy Burnham, Worcester Polytechnic Institute
1:40pm	**INVITED: MN+EM+NS-MoA-1** GHz Integrated Acousto-Optics, ***Mo Li***, University of Minnesota	
2:00pm	Invited talk continues.	**NS+HC+SS-MoA-2** Epitaxial Growth and Characterization of WO3 and $WO_{3-\delta}$ Thin Films, ***Yingge Du***, *Z Yang, Z Zhu, C Wang,* Pacific Northwest National Laboratory
2:20pm	**INVITED: MN+EM+NS-MoA-3** Coupling Piezoelectric MEMS to Cavity Optomechanics, ***Kartik Srinivasan***, NIST	**INVITED: NS+HC+SS-MoA-3** Oxide Surfaces: Structure, Adsorption, Growth, ***Ulrike Diebold***, TU Wien, Austria
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm	**MN+EM+NS-MoA-5** Collective Nano-optomechanics for Sensing Applications, ***Eduardo Gil Santos***, *W Hease,* Universite Paris Diderot, France; *A Lemaitre,* Centre de Nanosciences et Nanotechnologies, France; *M Labousse, C Ciuti, G Leo, I Favero,* Universite Paris Diderot, France	**NS+HC+SS-MoA-5** Imaging and Sensor Applications of infiltrated Zinc Oxide, ***Leonidas Ocola***, Argonne National Laboratory; *V Sampathkumar,* University of Chicago; *N Kasthuri, R Winarski,* Argonne National Laboratory; *Y Wang, J Chen,* University of Wisconsin - Milwaukee
3:20pm	**MN+EM+NS-MoA-6** Microporous Nanophotonic Mechanical Cantilevers for Mass Sensing, ***Anandram Venkatasubramanian***, *V Sauer, J Westwood-Bachman,* University of Alberta and The National Institute for Nanotechnology, Canada; *K Cui, S Roy, M Xia,* National Institute for Nanotechnology, National Research Council, Canada; *D Wishart,* University of Alberta, Canada; *W Hiebert,* University of Alberta and The National Institute for Nanotechnology, Canada	**NS+HC+SS-MoA-6** Plasma Modified Gas Sensors: Bridging the Gap Between Tin Oxide Nanomaterials and Paper-Based Devices, ***Kimberly Hiyoto***, *E Fisher,* Colorado State University
3:40pm	**BREAK**	**BREAK**
4:00pm	**MN+EM+NS-MoA-8** Tunable Resistivity in Inkjet Printed Circuit by Plasma Reduction of Particle-free, Stabilizer-free Ink, *Y Sui, S Ghosh, C Miller, M Sankaran,* ***Christian Zorman***, Case Western Reserve University	**NS+HC+SS-MoA-8** Understanding the Initial Stages of Oxidation in Nickel-Chromium Alloys, *P Reinke,* ***William H. Blades***, *G Ramalingam,* University of Virginia
4:20pm	**MN+EM+NS-MoA-9** Cold Forming of Shallow Spherical Micro Caps by Nano Imprinting, ***Asaf Asher***, *E Benjamin, L Medina, S Lulinsky,* Tel Aviv University, Israel; *R Gilat,* Ariel University, Israel; *S Krylov,* Tel Aviv University, Israel	**NS+HC+SS-MoA-9** Evaluation of Titanium Doped β-Ga_2O_3 Thin Films in Extreme Environment for Application in Oxygen Sensors, ***Sandeep Manandhar***, *A Battu, C Ramana,* University of Texas at El Paso
4:40pm	**INVITED: MN+EM+NS-MoA-10** Plate Mechanical Metamaterials: The Thinnest Plates You Can Pick Up by Hand, ***Igor Bargatin***, University of Pennsylvania	**NS+HC+SS-MoA-10** Characterization of Infiltrated ZnO in PS-b-PMMA Nanostructures, ***Paris Blaisdell-Pijuan***, University of Chicago; *L Ocola,* Argonne National Laboratory
5:00pm	Invited talk continues.	

	Plasma Processing for Biomedical Applications Focus Topic **Room 12 - Session PB+BI+PS-MoA** **Plasma Agriculture & Processing of Biomaterials** **Moderator:** Kristian Wende, INP Greifswald	**Plasma Science and Technology Division** **Room 23 - Session PS+AS+SS-MoA** **Plasma Surface Interactions** **Moderators:** Michael Gordon, University of California at Santa Barbara, Ying Zhang, Applied Materials, Inc.
1:40pm	**INVITED: PB+BI+PS-MoA-1** Control for Plant Disease and Development by Atmospheric Pressure Plasma, ***Gyungsoon Park,*** Kwangwoon University, Republic of Korea	**PS+AS+SS-MoA-1** Exploring the Gas-Surface Interface in NxOy Plasma Surface Modification of Zeolite Materials for Environmental Applications, ***Angela Hanna***[1], *E Fisher,* Colorado State University
2:00pm	Invited talk continues.	**PS+AS+SS-MoA-2** Effects of Ion induced Damages on Etching Characteristics of ITO Thin Films, ***Hu Li,*** *K Karahashi,* Osaka University, Japan*; M Fukasawa, A Hirata, K Nagahata, T Tatsumi,* Sony Semiconductor Solutions Corporation, Japan*; S Hamaguchi,* Osaka University, Japan
2:20pm	**PB+BI+PS-MoA-3** Biomass Pyrolysis Using Low Temperature Plasma*, Y Gao, N Uner, J Meyer, M Foston,* ***Elijah Thimsen,*** Washington University in St. Louis	**PS+AS+SS-MoA-3** Nitriding Process for Next-generation Semiconductor Devices by VHF (162 MHz) Plasma Source, ***YouJin Ji,*** *K Kim, K Kim, G Yeom,* Sungkyunkwan University, Republic of Korea
2:40pm	**PB+BI+PS-MoA-4** Growth of Plasma-Treated Corn Seeds under Realistic Conditions, ***Chisung Ahn,*** *I Shchelkanov,* University of Illinois at Urbana-Champaign*; J Gill,* AgReliant Genetics, LLC*; D Ruzic,* University of Illinois at Urbana-Champaign	**PS+AS+SS-MoA-4** Defect Generation in Graphene Films by Low-Pressure Inductively Coupled Argon Plasmas Treatments*, X Glad, P Vinchon, S Boivin, G Robert-Bigras,* ***Luc Stafford,*** Université de Montréal, Canada
3:00pm	**PB+BI+PS-MoA-5** Advanced Control of Plasma Medical Devices, ***David Graves,*** University of California, Berkeley*; A Mesbah, D Gidon,* University of California at Berkeley	**PS+AS+SS-MoA-5** The Role of Plasma Species and Sample Composition on Dense Amorphous Carbon Layer Formation and Polymer Etching Behavior, ***Adam Pranda,*** *S Gutierrez-Razo, Z Tomova, J Fourkas, G Oehrlein,* University of Maryland, College Park
3:20pm	**PB+BI+PS-MoA-6** Fingerprinting Different Plasma Sources for Biomedical Applications, ***Katharina Stapelmann,*** North Carolina State University*; K Wende,* INP Greifswald, Germany*; B Offerhaus,* Ruhr University Bochum, Germany*; C Verlackt,* University of Antwerp, Belgium*; C Klinkhammer, F Kogelheide, M Havenith,* Ruhr University Bochum, Germany*; A Bogaerts,* University of Antwerp, Belgium*; P Awakowicz, J Lackmann,* Ruhr University Bochum, Germany	**PS+AS+SS-MoA-6** Control of Ion Energy Distributions on Insulating Surfaces, ***Tyler List,*** *T Ma, V Donnelly, D Economou,* University of Houston
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: PB+BI+PS-MoA-8** Exploring Plasma Coatings Comprising Vertical Chemical Gradients and Multilayers for Biomedical Applications, ***Dirk Hegemann,*** *M Vandenbossche, M Heuberger,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**PS+AS+SS-MoA-8** Ultra-high Si_3N_4 to SiO_2 Selective Etching by Fluorocarbon Based Remote Plasma, ***Chen Li,*** University of Maryland, College Park*; T Hofmann, K Edinger,* Carl Zeiss SMT GmbH*; G Oehrlein,* University of Maryland, College Park
4:20pm	Invited talk continues.	**PS+AS+SS-MoA-9** Effect of Temporal Variation of Discharge on Photon-induced Interface Defects in Pulse-modulated Inductively Coupled Plasma, ***Yasufumi Miyoshi,*** *M Fukasawa, K Nagahata,* Sony Semiconductor Solutions Corporation, Japan*; K Ishikawa, M Sekine, M Hori,* Nagoya University, Japan*; T Tatsumi,* Sony Semiconductor Solutions Corporation, Japan
4:40pm		**INVITED: PS+AS+SS-MoA-10** Surface Mechanisms on Dielectric Surfaces Exposed to Low Pressure Glow Discharge and Atmospheric Pressure Plasma Jets, ***Olivier Guaitella,*** *A Morillo-Candas,* Ecole Polytechnique - CNRS, France*; A Sobota,* Eindhoven University of Technology, The Netherlands*; E Slikboer, D Marinov,* Ecole Polytechnique - CNRS, France*; B Klarenaar, R Engeln,* Eindhoven University of Technology, The Netherlands*; V Guerra,* Instituto Superior Tecnico, Lisbon, Portugal
5:00pm		Invited talk continues.

[1] **Coburn & Winters Student Award Finalist**

	Scanning Probe Microscopy Focus Topic **Room 10 - Session SP+2D+AS+NS+SS-MoA** **Probing Electronic and Transport Properties** **Moderators:** Phillip First, Georgia Institute of Technology, Chuanxu Ma, Oak Ridge National Laboratory	**Surface Science Division** **Room 25 - Session SS+AS+HC-MoA** **Surface Science for Energy and the Environment** **Moderators:** Steven Bernasek, Yale-National University of Singapore, Bruce Koel, Princeton University
1:40pm	**INVITED: SP+2D+AS+NS+SS-MoA-1** Probing Atomic and Electronic Structures of 2D Electronic Materials and their Heterostructures, ***Chih-Kang Shih,*** University of Texas at Dallas	
2:00pm	Invited talk continues.	
2:20pm	**SP+2D+AS+NS+SS-MoA-3** SP-STM Study of Antiferromagnetic CuMnAs Thin Film, ***Giang Nguyen,*** Oak Ridge National Laboratory*; P Wadley, R Campion, K Edmonds,* University of Nottingham, UK*; F Maccherozzi, S Dhesi,* 3Diamond Light Source, UK*; T Jungwirth,* University of Nottingham, UK*; A Li,* Oak Ridge National Laboratory	**INVITED: SS+AS+HC-MoA-3** Photochemistry of CO, Acetone and O_2 on Reduced Rutile TiO_2(110), ***Greg Kimmel,*** *N Petrik, M Henderson,* Pacific Northwest National Laboratory
2:40pm	**SP+2D+AS+NS+SS-MoA-4** Probing Spin-Dependent Chemical Potential in Topological Insulator by Spin-Polarized Four-Probe Scanning Tunneling Microscopy, ***Wonhee Ko****, S Hus,* Oak Ridge National Laboratory*; Y Chen,* Purdue University*; A Li,* Oak Ridge National Laboratory	Invited talk continues.
3:00pm	**INVITED: SP+2D+AS+NS+SS-MoA-5** Spin-charge Transport Phenomena on the Atomic Scale Studied by Multi-probe STM, ***Christoph Tegenkamp,*** Leibniz Universität Hannover, Germany	**SS+AS+HC-MoA-5** The Role of Band Alignment in Ketone Photooxidation on TiO_2(110), ***Amanda Muraca,*** Stony Brook University*; M White,* Brookhaven National Lab and Stony Brook University
3:20pm	Invited talk continues.	**SS+AS+HC-MoA-6** Storing Gases in Nanoporous Metal organic Frameworks Materials with a Surface Barrier Layer, ***Kui Tan,*** the University of Texas at Dallas*; S Jensen, S Zuluaga,* Wake Forest University*; E Fuentes, E Mattson, J Veyan,* University of Texas at Dallas*; H Wang, J Li,* Rutgers University*; T Thonhauser,* Wake Forest University*; Y Chabal,* University of Texas at Dallas
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: SP+2D+AS+NS+SS-MoA-8** Site-specific Superconducting Atomic Contacts Studied by Scanning Tunneling Microscopy, ***Yukio Hasegawa,*** The Institute for Solid State Physics, The University of Tokyo, Japan	**SS+AS+HC-MoA-8** Active Species and Structures of Modified Oxide Catalysts for the Oxygen Evolution Reaction (OER), *Z Chen,* Princeton University*; L Cai,* Xi'an Jiaotong University, China*; **Bruce Koel,*** Princeton University
4:20pm	Invited talk continues.	
4:40pm	**SP+2D+AS+NS+SS-MoA-10** The Difference between Electron and Hole Dopant of Magnetic Element to the Superconductivity in $BaFe_2As_2$, ***Qiang Zou****, L Li, A Sefat, D Parker, Z Gai,* Oak Ridge National Laboratory	**SS+AS+HC-MoA-10** Cactus Based-Mucilage as an Alternative Natural Dispersant for Oil Spill Applications, ***Fei Guo****, D Steebins, S Thomas, R Toomey, N Alcantar,* University of South Florida
5:00pm	**SP+2D+AS+NS+SS-MoA-11** Rapid Measurement of I-V Curves in Scanning Probe Microscopy via Bayesian Inference, *S Somnath, K Law, R Archibald, S Kalinin, S Jesse,* ***Rama Vasudevan,*** Oak Ridge National Laboratory	**SS+AS+HC-MoA-11** The Effect of Humidity on Chemical Interactions at Hybrid Interfaces: An In Situ Investigation of Polymer/Metal Oxide Bonds, ***Sven Pletincx,*** Vrije Universiteit Brussel, Belgium*; L Trotochaud,* Lawrence Berkeley National Laboratory*; L Fockaert,* TU Delft, Netherlands*; A Head, O Karslıoğlu,* Lawrence Berkeley National Laboratory*; A Mol,* TU Delft, Netherlands*; H Bluhm,* Lawrence Berkeley National Laboratory*; H Terryn, T Hauffman,* Vrije Universiteit Brussel, Belgium

	Thin Films Division **Room 20 - Session TF-MoA** **Emerging Applications for ALD** **Moderators:** Mark Losego, Georgia Institute of Technology, Virginia Wheeler, U.S. Naval Research Laboratory	**Tandem MS Focus Topic** **Room 5 & 6 - Session TM-MoA** **Applications in Mass Spectrometry Imaging using Tandem MS** **Moderators:** Gregory L. Fisher, Physical Electronics, Alexander Pirkl, ION-TOF GmbH, Germany
1:40pm	**TF-MoA-1** Probe the Reaction Chemistry during Atomic Layer Deposition onto $CH_3NH_3PbI_3$, ***Qing Peng***, *X Yu,* University of Alabama	
2:00pm	**TF-MoA-2** Digital Doping of ALD Nb:VO_2 Thin Films for Thermochromic Applications, ***Alexander Kozen***, *M Currie, B Downey, C Eddy, Jr., V Wheeler,* U.S. Naval Research Laboratory	
2:20pm	**TF-MoA-3** Mechanisms in Organic and Hybrid Organic-Inorganic Molecular Layer Deposition, ***David Bergsman***[12], *S Bent,* Stanford University	
2:40pm	**TF-MoA-4** Inorganic Modification of Cellulosic Fibers for Enhanced Oil Sorption Capacity, ***Andrew Short***, *S Pamidi, Z Bloomberg, M Losego,* Georgia Institute of Technology	**TM-MoA-4** Utilization of Complementary Multimodal Techniques for *in situ* Identification of Soybean Root Nodule Metabolites, *S Stopka,* The George Washington University; *D Veličković,* Pacific Northwest National Laboratory; *B Agtuca,* University of Missouri; *D Koppenaal, L Paša-Tolić,* Pacific Northwest National Laboratory; *G Stacey,* University of Missouri; *A Vertes,* The George Washington University; ***Christopher R. Anderton***, Pacific Northwest National Laboratory
3:00pm		**INVITED: TM-MoA-5** Coupling Front-end Electron Transfer Dissociation to Ultra-High Field FTICR-MS, ***Chad Weisbrod***, *D Smith, L Anderson, L He, A Marshall, C Hendrickson,* The National High Magnetic Field Laboratory
3:20pm	**TF-MoA-6** Atomic Layer Deposition of Nano-Coatings on Fabrics for Antibacterial Applications, ***Renee Puvvada***, *M Bellavia, T Sulchek, M Losego,* Georgia Institute of Technology	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: TF-MoA-8** ALD-based Functionalization of Biomaterials: Recent Developments and Future Challenges, ***Christos Takoudis***, University of Illinois at Chicago	
4:20pm	Invited talk continues.	
4:40pm	**TF-MoA-10** Titanium Nitride ALD using Ultra-high Purity Hydrazine at Low Temperature, ***Dan Alvarez***, *J Spiegelman, R Holmes, S Allanson,* RASIRC; *A Kummel, S Wolf, M Kavrik,* University of California, San Diego; *K Andachi,* RASIRC	
5:00pm	**TF-MoA-11** ALD Barriers for Protection of Electronic Devices in Biological Environment, ***Ankit Singh***, *K Adstedt, S Graham,* Georgia Institute of Technology	

[1] **National Student Award Finalist**
[2] **TFD James Harper Award Finalist**

Vacuum Technology Division
Room 7 & 8 - Session VT-MoA
Material Outgassing, Adsorption/Desorption and XHV
Moderators: Giulia Lanza, SLAC National Accelerator Laboratory, Jacob Ricker, NIST

1:40pm	**INVITED: VT-MoA-1** Weight of Water on the Solid Surface in Air and Vacuum, ***Richard Green***, National Research Council of Canada, Canada	
2:00pm	Invited talk continues.	
2:20pm	**VT-MoA-3** Hydrogen Measurement using a Thermal Desorption Spectrometer, ***JongYeon Lim***, Korea Research Institute of Standards and Science, Republic of Korea; *K Kim, H Oh, C Lim, Y Joh,* Infinity Vacuum Technology, Republic of Korea	
2:40pm	**VT-MoA-4** Automatic Flowmeter and Dynamic Expansion System for UHV/XHV Studies, ***James Fedchak***, *J Scherschligt, D Barker, S Eckel,* NIST	
3:00pm	**INVITED: VT-MoA-5** Development of a New UHV/XHV Pressure Standard (Cold Atom Vacuum Standard), ***Julia Scherschligt***, *J Fedchak, S Eckel, D Barker,* NIST	
3:20pm	Invited talk continues.	
3:40pm	**BREAK**	
4:00pm	**INVITED: VT-MoA-8** VTD Early Career Award Invited Talk: Modern Metrology Practice for Calibration and Reliability Testing of Vacuum Measurement Products, ***Scott Heinbuch***[1], MKS Instruments, Inc.	
4:20pm	Invited talk continues.	
4:40pm	**VT-MoA-10** Outgassing Rate Measurements of New Materials at NIST, ***Makfir Sefa***, *J Fedchak, J Scherschligt, A Zeeshan,* NIST	
5:00pm	**VT-MoA-11** Scaling up an Ion Implant Process Chamber Cryopumping for 450mm Wafer Processing, ***Steve Borichevsky***, Applied Materials, Varian Semiconductor Equipment	

[1] **VTD Early Career Award**

Plenary Session
Room Ballroom B - Session PLS-MoPL
Plenary Session

5:30pm	**INVITED: PLS-MoPL-1** Precise Chemical, Physical, and Electronic Nanoscale Contacts, ***Paul Weiss,*** University of California at Los Angeles	
5:50pm	Invited talk continues.	
6:10pm	Invited talk continues.	

Special Events Tuesday

Special Events Tuesday

7:00 AM AVS Member Center: Diversity & Inclusion-"Science of Team Science" Breakfast/18
7:30 AM Awards Committee Meeting and Lunch/31-32 (by invitation)
8:00 AM Science Educators' Workshop/Meeting Room 12-Marriott (by invitation)
10:00 AM AVS Member Center: eSpectra: Surface Science/18
12:30 PM AVS Member Center: Professional Development-Job Information Forum and Lunch/18
12:30 PM Chapters, Divisions, and Groups Meeting and Lunch/Meeting Room 11-Marriott (by invitation)
12:30 PM MSTG Technical Group Executive Committee Meeting and Lunch/Il Terrazzo Boardroom-Marriott (by invitation)
3:40 PM AVS Member Center: Professional Development-Speed Networking for Young Professionals/18
6:05 PM MIND Business Meeting/11
6:05 PM SSD Business Meeting/25
6:05 PM VTD Business Meeting/7 & 8
6:25 PM EMPD Business Meeting/14
6:25 PM NSTD Business Meeting/19
6:25 PM PSTD Business Meeting & 2017 Plasma Prize Award Announcement/23
6:25 PM TFD Business Meeting/20
6:30 PM Tuesday Poster Session & Refreshments/Central Hall
6:45 PM AVS Member Center: Professional Development-EMPD Forum: "Careers at LAM Research"/18
7:00 PM MIND Executive Committee Meeting and Dinner/Meeting Room 2-Marriott (by invitation)
7:00 PM NSTD Executive Committee Meeting and Dinner/Meeting Room 1-Marriott (by invitation)
7:00 PM SSD Executive Committee Meeting and Dinner/Meeting Room 4-Marriott (by invitation)
7:30 PM ASSD Business Meeting/Florida Salon VI-Marriott
7:30 PM PSTD Executive Committee Meeting and Dinner/Florida Salons I-II-Marriott (by invitation)
7:30 PM TFD Executive Committee Meeting and Dinner/Il Terrazzo-Marriott (by invitation)
7:45 PM BID Executive Committee Meeting and Dinner/Meeting Room 3-Marriott (by invitation)
7:45 PM EMPD Executive Committee Meeting and Dinner/Florida Salon V-Marriott (by invitation)
8:00 PM ASTM E-42 and Applied Surface Science Joint Workshop: "Frontiers of Surface Science"/Florida Salon VI-Marriott
8:00 PM ASTM E-42/ASSD Joint Workshop, "Frontiers of Surface Analysis"/Florida Salon VI-Marriott

	2D Materials Focus Topic **Room 15 - Session 2D+AS+SA+SP-TuM** **2D Materials Characterization including Microscopy and Spectroscopy** **Moderator:** Sara Barja, Materials Physics Center, San Sebastián, Spain	**Actinides and Rare Earths Focus Topic** **Room 22 - Session AC+AS+SA-TuM** **Nuclear Power, Forensics, and Other Applications** **Moderator:** James G. Tobin, University of Wisconsin-Oshkosh
8:00am	**2D+AS+SA+SP-TuM-1** Electronic Structure of Oxygen-Intercalated Graphene on Iridium Interface, ***Yi Lin***, *Y Li,* Columbia University; *J Sadowski,* Brookhaven National Laboratory; *J Dadap, W Jin, R Osgood,* Columbia University; *M Hybertsen,* Brookhaven National Laboratory	**INVITED: AC+AS+SA-TuM-1** Design of Synergistic Protein-ligand Systems for f-element Coordination, where Separation, Decontamination and Nuclear Medicine Meet, ***Rebecca Abergel***, Lawrence Berkeley National Laboratory
8:20am	**2D+AS+SA+SP-TuM-2** Graphene Moiré Pattern Ultra-High Resolution Atomic Force Microscopy, ***Gerald Pascual***, *B Kim, K Lee,* Park Systems Inc.	Invited talk continues.
8:40am	**INVITED: 2D+AS+SA+SP-TuM-3** Surface and Interface Properties of 2D MoS_2 and WS_2 Materials, ***Chia-Seng Chang***, Institute of Physics, Academia Sinica, Taiwan, Republic of China, Taiwan; *Y Lee,* National Tsing-Hua University, Taiwan, Republic of China	**AC+AS+SA-TuM-3** Image Processing And Particle Analysis Of Fission-Truck-Analysis In Nuclear Forensic, ***Itzhak Halevy***, Department of Physics, NRCN, Israel; *U Admon,* (Retiree), IAEC-NRCN, Department of Materials, Beer-Sheva Israel, Israel; *E Chinea-Cano,* Office of Safeguards Analytical Services (SGAS), International Atomic Energy Agency (IAEA), Austria; *A Weiss,* Faculty of Engineering, Bar-Ilan University, Israel; *N Dzigal,* Office of Safeguards Analytical Services (SGAS), Austria; *E Boblil,* Department of Physics, IAEC-NRCN, Israel
9:00am	Invited talk continues.	**AC+AS+SA-TuM-4** Application of Linear Least Squares to the Analysis of AES Depth Profiles of Plutonium Oxides, ***Scott Donald***, *A Nelson,* Lawrence Livermore National Laboratory
9:20am	**2D+AS+SA+SP-TuM-5** Spectroscopic Investigation of Plasma-Fluorinated Monolayer Graphene and Application for Gas Sensing, ***Hui Zhang***, Shanghai Institute of Microsystem And Information Technology, China; *J Guo,* Lawrence Berkeley National Laboratory; *X Sun,* Soochow University	**INVITED: AC+AS+SA-TuM-5** Physical and Chemical Characterization of Solid Pu and Np Sources after Multi-year Exposure to Environmental Conditions, ***Brian Powell***, Clemson University
9:40am	**2D+AS+SA+SP-TuM-6** Photoemission Electron Microscopy as a New Tool to Study the Electronic Properties of 2D Crystals on Silicon Oxide, ***Taisuke Ohta***, *M Berg,* Sandia National Laboratories, Center for Integrated Nanotechnologies; *C Chan,* Sandia National Laboratories; *K Keyshar,* Rice University; *G Gupta,* University of Louisville; *P Ajayan,* Rice University; *A Mohite,* Los Alamos National Laboratory	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**2D+AS+SA+SP-TuM-10** STM and STS Study of MoS_2/WS_2 Heterostructures Grown by Chemical Vapor Deposition, ***Fan Zhang***, Virginia Polytechnic Institute and State University; *Z Lu,* Tsinghua University, PR China; *H Zheng, K Park,* Virginia Polytechnic Institute and State University; *L Jiao,* Tsinghua University, PR China; *C Tao,* Virginia Polytechnic Institute and State University	**AC+AS+SA-TuM-10** Synchrotron Radiation Investigation of f-element Extraction from a Carboxylic Acid Functionalized Porous Aromatic Framework, ***David Shuh***, Lawrence Berkeley National Laboratory; *S Demir, N Brune,* University of California Berkeley, LBNL; *J Van Humbeck, J Mason,* University of California Berkeley; *T Plakhova,* Lomonsov Moscow State University, Russia; *S Wang,* University of California Berkeley, LBNL; *G Tian, S Minasian, T Tysliszczak,* Lawrence Berkeley National Laboratory; *T Yaita, T Kobayashi,* Japan Atomic Energy Agency; *S Kalmykov,* Lomonsov Moscow State University, Russia; *H Shiwaku,* Japan Atomic Energy Agency; *J Long,* University of California Berkeley
11:20am	**2D+AS+SA+SP-TuM-11** Determine the Band Alignment of 2D Semiconductor Heterostructures by Photoelectron Spectromicriscopy, *L Chang,* National Synchrotron Radiation Research Center, Taiwan, Republic of China; *Y Wang, Y Ku,* National Tsing Hua University, Republic of China; *Y Kuo, H Shiu,* ***Chia-Hao Chen***, National Synchrotron Radiation Research Center, Taiwan, Republic of China	**AC+AS+SA-TuM-11** The Effect of Al_2O_3 Encapsulation Using Atomic Layer Deposition on the Photoluminescent, Water and Thermostability Properties of $SrAl_2O_4$ Based Phosphors, ***Erkul Karacaoglu***, *E Özturk,* Karamanoglu Mehmetbey University, Turkey; *M Uyaner,* Selcuk University, Turkey

Tuesday Morning, October 31, 2017

	Applied Surface Science Division **Room 13 - Session AS+MI+SS-TuM** **Quantitative Surface Analysis: Effective Quantitation Strategies** **Moderators:** Kateryna Artyushkova, The University of New Mexico, Gregory L. Fisher, Physical Electronics	**Electronic Materials and Photonics Division** **Room 14 - Session EM+NS-TuM** **Nanostructures and Nanometer Films for Electronic and Photonic Devices** **Moderators:** Jessica Hilton, RHK Technology, Joseph Tischler, U.S. Naval Research Laboratory
8:00am	**AS+MI+SS-TuM-1** Effective Attenuation Lengths for Different Quantitative Applications of XPS, *A Jablonski,* Institute of Physical Chemistry, Warsaw, Poland; ***Cedric Powell,*** NIST	**INVITED: EM+NS-TuM-1** Spin Properties in Semiconductor Colloidal Quantum Dots, ***Efrat Lifshitz,*** Russell Berrie Nanotechnology Institute, Solid State Institute, Israel
8:20am	**AS+MI+SS-TuM-2** Plumbing the Depths using the XPS Inelastic Background, ***Alexander Shard,*** *S Spencer,* National Physical Laboratory, UK	Invited talk continues.
8:40am	**INVITED: AS+MI+SS-TuM-3** Quantitative Organic Depth Profiling and 3D Imaging using Secondary Ion Mass Spectrometry, ***Rasmus Havelund,*** National Physical Laboratory, UK	
9:00am	Invited talk continues.	**EM+NS-TuM-4** A Platform for Growth of Crystalline Thin-Film Compound Semiconductors on Oxides, Metals, and 2-D Materials, ***Rehan Kapadia,*** *D Sarkar, W Wang,* University of Southern California
9:20am	**AS+MI+SS-TuM-5** Coupling Effects on the Intensity and Background of the Cr 3*p* Photoemission Spectrum around the Cr 2*s* Threshold, ***Alberto Herrera-Gomez,*** CINVESTAV-Unidad Queretaro, Mexico; *D Cabrera-German,* Universidad de Sonora, Mexico; *F Aguirre-Tostado,* CIMAV-Monterrey; *A Dutoi,* University of the Pacific; *M Vazquez-Lepe,* Universidad de Guadalajara; *P Pianetta,* Stanford University; *D Nordlund,* Stanford Synchrotron Radiation Lightsource; *O Cortazar-Martínez,* CINVESTAV-Unidad Queretaro, Mexico; *L Gomez-Muñoz,* Cinvestav-Unidad Queretaro, Mexico; *J Torrea-Ochoa,* CINVESTAV-Unidad Queretaro	
9:40am	**AS+MI+SS-TuM-6** Using Main Peak Intensities for XPS Quantitation: Strengths, Weaknesses, Issues, ***B. Vincent Crist,*** XPS International LLC; *C Brundle,* C. R. Brundle and Associates	**EM+NS-TuM-6** Nanometer Thick Diffused Metal Oxide Light Sensing Film Structures, ***Fred Cadieu,*** Queens College of CUNY and Graduate Center of CUNY; *J Monaco,* Queens College of CUNY; *L Mourokh,* Queens College of CUNY and Graduate Center of CUNY
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**AS+MI+SS-TuM-10** XPS Spin-Orbit Splitting; Multiplet Splitting; Shake-up Losses: Implications for Determining Covalent Interactions and for Quantitative Analysis, ***C. Richard Brundle,*** C.R Brundle & Associates; *P Bagus,* University of North Texas	**INVITED: EM+NS-TuM-10** Integration of Metallic Nanoparticles in Sensing and Memory Devices for Resistance Modulation and Enhanced Switching, ***Dimitris Tsoukalas,*** National Technical University of Athens, Greece
11:20am	**AS+MI+SS-TuM-11** The Cu *2p* Photoemission Spectra from Mixed Oxidation States, ***Jorge-Alejandro Torres-Ochoa,*** CINVESTAV-Unidad Queretaro, Mexico; *D Cabrera-German,* Universidad de Sonora, Mexico; *M Bravo-Sanchez,* Instituto Potosino de Investigación Científica y Tecnológica A.C, Mexico; *A Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico	Invited talk continues.
11:40am	**AS+MI+SS-TuM-12** Quantifying Valence Band Offsets at Metal\(Hf,Zr)O_2 Interfaces for Ferroelectric Devices, ***Michael Brumbach,*** *S Smith, M Henry, J Dickerson, D Robinson Brown, J Ihlefeld,* Sandia National Laboratories	**EM+NS-TuM-12** Thin-film Metallic Glass: An Effective Diffusion Barrier for Microelectronic Packaging, CIGS Solar Cell and Thermoelectric Modules, *C Yu,* National Taiwan University of Science and Technology, Taiwan, Republic of China; *H Wu,* National Sun Yat-sen University, Taiwan, Republic of China; ***Jinn Chu,*** National Taiwan University of Science and Technology, Taiwan, Republic of China
12:00pm	**AS+MI+SS-TuM-13** Quantitative Peak-Fitting Analysis of the Photoemission Spectra of Metallic Zinc and Zinc Oxide Films, ***Dagoberto Cabrera-German,*** Universidad de Sonora, Mexico; *G Molar-Velazquez, G Gómez-Sosa,* CINVESTAV-Unidad Queretaro, Mexico; *W De la Cruz,* Universidad Nacional Autónoma de México; *A Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico	**EM+NS-TuM-13** Ultra-Fast Silicon Photodiodes Achieve High Efficiency via the Integration of Light-trapping Micro-/nanoholes, ***Hilal Cansizoglu,*** *Y Gao, K Polat, S Ghandiparsi, C Bartolo Perez, A Kaya, H Mamtaz, A Mayet,* University of California, Davis; *E Ponizovskaya Devine,* W&WSens Devices, Inc.; *T Yamada,* University of California, Santa Cruz; *A Elrefaie, S Wang,* W&WSens Devices, Inc.; *S Islam,* University of California, Davis

Tuesday Morning, October 31, 2017

	Exhibitor Technology Spotlight Workshops **Room West Hall - Session EW-TuM** **Exhibitor Technology Spotlight** **Moderator:** Chris Moffitt, Kratos Analytical Limited, UK	**Magnetic Interfaces and Nanostructures Division** **Room 11 - Session MI+2D+AC+SA+SS-TuM** **Novel Magnetic Order at Interfaces** **Moderators:** Axel Enders, University of Nebraska-Lincoln, Valeria Lauter, Oak Ridge National Laboratory
8:00am		
8:20am		**MI+2D+AC+SA+SS-TuM-2** Transition from Spatial to Magnetic Confinement in Graphene Quantum Dots, ***Fereshte Ghahari,*** *D Walkup, C Gutierrez,* NIST; Maryland NanoCenter UMD*; J Rodiguez-Nieva,* Harvard University*; K Watanbe, T Taniguchi,* National Institute for Materials Science, Japan*; L Levitov,* MIT*; N Zhitenev, J Stroscio,* NIST
8:40am		**INVITED: MI+2D+AC+SA+SS-TuM-3** Chiral and Proximity Induced Magnetism in Magnetic Multilayers and 2D Heterostructures, ***Hyunsoo Yang,*** National University of Singapore, Singapore
9:00am		Invited talk continues.
9:20am		**MI+2D+AC+SA+SS-TuM-5** Surface Magnetism Induced by Interstitial Defects in PbO, ***Elvis Arguelles,*** Osaka University, Japan*; S Amino,* A.L.M.T. Corp, Japan*; H Nakanishi, S Aspera, H Kasai,* National Institute of Technology, Akashi College, Japan*; W Dino,* Osaka University, Japan
9:40am		**MI+2D+AC+SA+SS-TuM-6** XMCD Quest for Magnetic Proximity Effect in Ferromagnetic Insulator/Non-Magnetic Metal Interfaces, ***Andrei Rogalev,*** *F Wilhelm,* European Synchrotron Radiation Facility, France
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**EW-TuM-8** Development of a Novel Single Cold Cathode Ionization Gauge with Operation from High Vacuum to Atmosphere using Advanced Manufacturing Techniques, ***Dave Kelly,*** *G Brucker,* MKS Instruments, Inc., Pressure and Vacuum Measurement Group	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**EW-TuM-9** New Developments from Thermo Fisher Scientific, ***Timothy Nunney,*** *P Mack, C Deeks, A Bushell,* Thermo Fisher Scientific, UK	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		
11:20am		
11:40am		**MI+2D+AC+SA+SS-TuM-12** Depth-Dependent Measurement of Atomic Valence and Magnetization in $La_{0.7}Sr_{0.3}MnO_3$ Magnetic Thin Films, ***Mikel Holcomb,*** *R Trappen, S Kumari, N Mottaghi, S Yousefi Sarraf, C Huang, G Cabrera,* West Virginia University
12:00pm		**MI+2D+AC+SA+SS-TuM-13** Coherent Magnetization Rotation of FeGa/NiFe Multilayers via Strain-Inducing Electric Field, ***Colin Rementer,*** University of California at Los Angeles*; M Jamer,* NIST*; A Barra,* University of California at Los Angeles*; J Borchers, A Grutter, B Kirby,* NIST*; G Carman, J Chang,* University of California at Los Angeles

Tuesday Morning, October 31, 2017

	MEMS and NEMS Group **Room 24 - Session MN+BI+EM+SS+TR-TuM** **Microelectromechanics: Relays to RF/Surfaces in Micro- and Nano- Systems** **Moderators:** Sushma Kotru, University of Alabama, Roya Maboudian, University of California at Berkeley	**Nanometer-scale Science and Technology Division** **Room 19 - Session NS+EM+MI+SS-TuM** **Nanoscale Electronics and Magnetism** **Moderators:** Keith Brown, Boston University, Aubrey Hanbicki, Naval Research Laboratory
8:00am	**INVITED: MN+BI+EM+SS+TR-TuM-1** The Industrialization of MEMS through Materials Innovations, ***Chris Keimel,*** Menlo Micro	**INVITED: NS+EM+MI+SS-TuM-1** Nanometrology and Nanocharacterization in Nanoelectronics, ***Alain C. Diebold,*** SUNY Polytechnic Institute
8:20am	Invited talk continues.	Invited talk continues.
8:40am	**INVITED: MN+BI+EM+SS+TR-TuM-3** Electron-Phonon Waltz: Acoustoelectrics in MEMS, ***Dana Weinstein,*** Purdue University	
9:00am	Invited talk continues.	**NS+EM+MI+SS-TuM-4** Measurement of Resistance Induced by a Single Potassium Atom on Chiral-Angle Known Nanotubes: Understanding the Impact of a Model Scatterer for Nanoscale Sensors, ***Masahiro Ishigami,*** University of Central Florida; *R Tsuchikawa,* University of Utah; *D Heligman,* Ohio State University; *B Blue,* University of Central Florida; *Z Zhang,* Columbia University; *A Ahmadi, E Mucciolo,* University of Central Florida; *J Hone,* Columbia University
9:20am	**MN+BI+EM+SS+TR-TuM-5** Autonomous Oscillations of a MEMS Resonator, ***David Czaplewski,*** Center for Nanoscale Materials, Argonne National Laboratory; *C Chen, D Lopez,* Argonne National Laboratory; *D Zanette,* Centro Atomico Bariloche and Instituto Balseiro; *S Shaw,* Florida Institute of Technology	**INVITED: NS+EM+MI+SS-TuM-5** Atomic Electronics for Quantum Computing, ***Michelle Simmons,*** University of New South Wales, Australia
9:40am	**MN+BI+EM+SS+TR-TuM-6** Metallic Glass for MEMS Microphone Device, ***MaiPhuong Nguyen,*** WPI-Advanced Institute for Materials Research (WPI-AIMR)/ Micro System Integration Center (μSIC), Tohoku University, Japan; *J Froemel,* WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Japan; *S Tanaka,* Graduate School of Engineering/ Micro System Integration Center (μSIC), Tohoku University, Japan	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: MN+BI+EM+SS+TR-TuM-10** Role of Surfaces in Assembly of Ceria Nanostructures, ***Sudipta Seal,*** University of Central Florida	**NS+EM+MI+SS-TuM-10** Electronically Abrupt Borophene/organic Lateral Heterostructures, ***Xiaolong Liu[12],*** *Z Wei, I Balla, A Mannix,* Northwestern University; *N Guisinger,* Argonne National Laboratory; *E Luijten, M Hersam,* Northwestern University
11:20am	Invited talk continues.	**NS+EM+MI+SS-TuM-11** Mechanical Characterization of Heat Dissipation in a Current-driven Ferromagnetic Resonance System, *S Cho, M Jo, S Park, J Lee, C Yang, S Kang,* Seoul National University; ***Yun Daniel Park,*** Seoul National University, Republic of Korea
11:40am	**MN+BI+EM+SS+TR-TuM-12** Optimization and Nano-characterization of Electrostrictive Response of Gd-doped Ceria Actuators, ***Sidney Cohen,*** *E Mishuk, E Makagon, E Wachtel, K Rechav, R Popovitz-Biro, I Lubomirsky,* Weizmann Institute of Science, Israel	**INVITED: NS+EM+MI+SS-TuM-12** The Exciting Physics of Spin Chains Coupled to a Metallic Substrate, ***Roland Wiesendanger,*** University of Hamburg, Germany
12:00pm	**MN+BI+EM+SS+TR-TuM-13** Sustainable Thermoregeneration of Plastrons on Superhydrophobic Surfaces, ***Tomer Simovich,*** Ruhr-University Bochum, Germany; *J Arnott,* The University of Melbourne, Australia; *A Rosenhahn,* Ruhr-University Bochum, Germany; *R Lamb,* Canadian Light Source, Canada	Invited talk continues.

[1] **National Student Award Finalist**
[2] **NSTD Student Award Finalist**

Tuesday Morning, October 31, 2017

	Plasma Processing for Biomedical Applications Focus Topic **Room 12 - Session PB+BI+PS-TuM** **Plasma Medicine** **Moderator:** Katharina Stapelmann, Ruhr-University Bochum, Germany	**Plasma Science and Technology Division** **Room 23 - Session PS-TuM** **Advanced FEOL/Gate Etching** **Moderators:** Kazunori Koga, Kyushu University, Japan, Erwine Pargon, CNRS-LTM, Université Grenoble Alpes, France
8:00am	**INVITED: PB+BI+PS-TuM-1** Spatial Distribution of Biological Effects Induced by Plasma Reactive Species, ***Sylwia Ptasinska***, University of Notre Dame	**PS-TuM-1** Highly Selective Silicon Dry Chemical Etch Technique for 7nm FinFET Technology and Beyond, *Z Bi,* ***Thamarai Devarajan****, L Young, B Miao, S Devries, N Loubet, C Yeung, J Zhang, A Greene, H Zhou, M Wang, J Strane,* IBM Semiconductor Technology Research*; Y Yao,* IBM*; D Canaperi, C Surisetty,* IBM Semiconductor Technology Research
8:20am	Invited talk continues.	**PS-TuM-2** Anisotropic and Selective Isotropic Etching of Si / SiGe Multilayers in Surface Wave Plasmas, ***Nick Joy****, S Voronin, P Biolsi,* TEL Technology Center, America, LLC*; A Ranjan,* Tokyo Electron Miyagi Limited, Japan
8:40am	**PB+BI+PS-TuM-3** Mechanisms of Cell Death in Prostate Epithelial Cells after Treatment with Low Temperature Plasma, *J Packer, A Hirst, F Frame,* ***Deborah O'Connell****, N Maitland,* University of York, UK	**PS-TuM-3** Control of Anisotropic Simultaneous SiGe-Si Etching for Dual Channel Fin Applications, ***Yohei Ishii****, M Walker, R Scott-McCabe, A Yu,* Hitachi High Technologies America, Inc.*; K Okuma,* Hitachi High-Technologies Corp., Japan*; K Maeda, J Sebastian, J Manos,* Hitachi High Technologies America, Inc.
9:00am	**PB+BI+PS-TuM-4** Selective Antitumor Effect of the Plasma-Activated Medium Produced by Atmospheric Pressure Plasma with High Plasma Density, ***Yohei Takahashi****, Y Taki,* Nikon Corporation, Japan*; K Takeda,* Meijo University, Japan*; H Hashizume, H Tanaka, M Hori,* Nagoya University, Japan	**PS-TuM-4** Etch Rate and Profile Tailoring of Si and SiO_2 through Laser-Stimulated Thermal Desorption, ***Jason Peck****, D Ruzic,* University of Illinois at Urbana-Champaign
9:20am	**PB+BI+PS-TuM-5** Multiplex Coherent Anti-Stokes Raman Scattering (CARS) Observations of HeLa Cells Cultured in Non-equilibrium Atmospheric Pressure-Plasma-Activated Medium (PAM), ***Kenji Ishikawa****, R Furuta,* Nagoya University, Japan*; K Takeda, T Ohta, M Ito,* Meijo University, Japan*; H Hashizume, H Tanaka, H Kondo, M Sekine, M Hori,* Nagoya University, Japan	**INVITED: PS-TuM-5** Prediction and Control of Fluctuation of Etching Properties by Simulation Technology, ***Nobuyuki Kuboi****, M Fukasawa, T Tatsumi,* Sony Semiconductor Solutions Corporation, Japan
9:40am	**PB+BI+PS-TuM-6** Plasma Medicine - From Bench to Bedside, ***Kai Masur****, T von Woedtke, K Weltmann,* Leibniz Institute for Plasma Research and Technology, Germany	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: PB+BI+PS-TuM-10** Plasma Medicine, RONS, Tissue and Cell Models, ***Rob Short****,* University of Lancaster, UK, United Kingdom of Great Britain and Northern Ireland*; E Szili,* University of South Australia, Australia	
11:20am	Invited talk continues.	**PS-TuM-11** Underlayer Impact on Line Width Roughness in Extreme Ultraviolet Lithography and Etch, ***Indira Seshadri****, A DeSilva, Y Mignot, W Xu, L Meli, J Guo, S Sieg, J Arnold, N Felix,* IBM Research Division
11:40am	**PB+BI+PS-TuM-12** Non-thermal Plasmas in Biomedical Applications–Beyond the Long Lived Species, ***Kristian Wende****, J Volzke,* INP Greifswald, Germany*; J Lackmann,* Ruhr University Bochum, Germany*; H Jablonowski, S Bekeschus,* INP Greifswald, Germany*; K Stapelmann,* Ruhr-University Bochum, Germany*; S Hasse,* INP Greifswald, Germany*; P Bruggeman,* University of Minnesota*; K Weltmann,* INP Greifswald, Germany	**INVITED: PS-TuM-12** Patterning Challenges and Perspective Solutions for 5nm and Beyond, ***Ying Zhang****,* Applied Materials, Inc.
12:00pm	**PB+BI+PS-TuM-13** Effects of Oxygen or Water in Plasma Jet Environment and Feed Gas on DNA Damage, ***Ek Adhikari****, V Samara, S Ptasinska,* University of Notre Dame	Invited talk continues.

	Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic **Room 9 - Session SA+MI-TuM** **Overcoming the Temporal and Spatial Limits of X-Ray Scattering Methods for In-Situ Analysis** **Moderators:** Olivier Renault, CEA-University Grenoble Alps, France, Zahid Hussain, ALS-LBNL, Maya Kiskinova, Elettra-Sincrotrone Trieste, Italy	**Scanning Probe Microscopy Focus Topic** **Room 10 - Session SP+AS+MI+NS+SS-TuM** **Probing Chemical Reactions at the Nanoscale** **Moderators:** Tae-Hwan Kim, Pohang University of Science and Technology, Giang Nguyen, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
8:00am		**SP+AS+MI+NS+SS-TuM-1** Single Molecule Junction: Chemical Optimization of Charge Transport through Single Benzene Derivatives, ***Parisa Yasini***, *S Afsari, P Pikma, E Borguet,* Temple University
8:20am	**SA+MI-TuM-2** SA Highlight Talk: Diffraction Limited Storage Rings and Free Electron Lasers --- Why do we need both?, ***Wolfgang Eberhardt***, DESY-CFEL, Germany	
8:40am	**INVITED: SA+MI-TuM-3** Understanding Solar Cells Structure and Functioning via GISAXS and GIWAXS, ***Peter Müller-Buschbaum***, Technische Universität München, Germany	**SP+AS+MI+NS+SS-TuM-3** How is Armchair Graphene Nanoribbon Oxidized?, ***Chuanxu Ma***, *A Puretzky, A Baddorf,* Oak Ridge National Laboratory; *Z Xiao, W Lu,* North Carolina State University; *K Hong,* Oak Ridge National Laboratory; *J Bernholc,* North Carolina State University; *A Li,* Oak Ridge National Laboratory
9:00am	Invited talk continues.	**SP+AS+MI+NS+SS-TuM-4** Molecular Chessboard Assemblies Sorted by Site-Specific Interactions of Out-of-Plane d-Orbitals with a Semi-metal Template, *T Jung,* Paul Scherrer Institut (PSI), Switzerland; *A Wäckerlin, S Fatayer, T Nijs, S Nowakowska, S Mousavi, O Popova,* ***Aisha Ahsan***, University of Basel, Switzerland; *C Wäckerlin,* Paul Scherrer Institut (PSI), Switzerland
9:20am		
9:40am	**SA+MI-TuM-6** In situ Characterization of the Structure Formation in Printed Organic Thin Films for Photovoltaic Applications, ***Stephan Pröller***, TU Munich, Germany; *F Liu,* Shanghai Jiao Tong University, PR China; *C Zhu,* Lawrence Berkeley National Laboratory (LBNL); *D Moseguí González,* TU Munich, Germany; *C Wang, E Schaible, T Russell, A Hexemer,* Lawrence Berkeley National Laboratory (LBNL); *P Müller-Buschbaum,* Technische Universität München, Germany; *E Herzig,* University Bayreuth, Germany	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: SA+MI-TuM-10** Ultrafast X-ray Scattering Studies of Light-induced Processes in 2D Materials, *A Lindenberg,* ***Edbert Sie***, Stanford University	
11:20am	Invited talk continues.	**SP+AS+MI+NS+SS-TuM-11** Nanoscale Chemical Analysis with Photo-induced Force Microscopy, ***Sung Park***, Molecular Vista, Inc.
11:40am	**SA+MI-TuM-12** Monitoring the Non-Metal to Metal Transition and Ultrafast Charge Carrier Dynamics of Supported Clusters by Femtosecond XUV Photoemission Spectroscopy, ***Mihai Vaida***, University of Central Florida; *B Marsh, B Lamoureux, S Leone,* University of California at Berkeley	**INVITED: SP+AS+MI+NS+SS-TuM-12** STM Studies of the Molecule-2D Heterointerface, ***Andrew Wee***, National University of Singapore, Singapore; *Y Huang,* Institute of Materials Research & Engineering, Singapore; *Y Zheng, Z Song,* National University of Singapore, Singapore; *S Quek,* Department of Physics, National University of Singapore, Singapore
12:00pm	**SA+MI-TuM-13** Direct Observation of TiO_2 Exciton Recombination, ***Geoff Thornton***, Universty College London, UK; *Y Zhang, D Payne, C Pang,* University College London, UK; *C Cacho, R Chapman, E Springate,* STFC Rutherford Appleton Laboratory, UK	Invited talk continues.

Tuesday Morning, October 31, 2017

	Surface Science Division **Room 25 - Session SS+HC-TuM** **Controlling Mechanisms of Surface Chemical Reactions** **Moderators:** Daniel Killelea, Loyola University Chicago, Andrew Teplyakov, University of Delaware	**Sustainability Focus Topic** **Room 5 & 6 - Session SU+AC+MI+MS-TuM** **Critical Materials and Energy Sustainability** **Moderators:** Erik B. Svedberg, The National Academies, Robert Lad, University of Maine
8:00am	**SS+HC-TuM-1** Multifunctional Adsorption on Ge(100)-2x1 Surface: The Role of Interadsorbate Interactions, ***Tania Sandoval*[12]**, *S Bent,* Stanford University	**INVITED: SU+AC+MI+MS-TuM-1** How Critical Materials Affect Emerging Technologies, ***Alexander King***, The Ames Laboratory
8:20am	**SS+HC-TuM-2** Steering the Chemical Reactions on Surfaces Toward Targeted Products, *Q Fan, T Wang,* ***Junfa Zhu***, University of Science and Technology of China, China	Invited talk continues.
8:40am	**INVITED: SS+HC-TuM-3** Spectroscopic Characterization of Reaction Pathways over a Pd-Cu(111) Single-Atom Alloy, *C Kruppe,* ***Michael Trenary***, University of Illinois at Chicago	
9:00am	Invited talk continues.	
9:20am	**SS+HC-TuM-5** Reactivity of Pt and Rh Adatoms, Dimers, and Small Clusters on Fe_3O_4 (001), ***Jan Hulva*[1]**, TU Wien, Austria; *M Meier,* University of Vienna, Austria; *M Setvin, Z Jakub, R Bliem, M Schmid, U Dieblod,* TU Wien, Austria; *C Franchini,* University of Vienna, Austria; *G Parkinson,* TU Wien, Austria	**SU+AC+MI+MS-TuM-5** The Role of Oxidation and Charging Rates on Li Electrochemical Deposition in Solid State Batteries, ***Alexander Yulaev***, University of Maryland; *V Oleshko,* NIST; *P Haney,* NIST Center for Nanoscale Science and Technology; *A Talin,* Sandia National Laboratories; *M Leite,* University of Maryland; *A Kolmakov,* NIST Center for Nanoscale Science and Technology
9:40am	**SS+HC-TuM-6** An AP-XPS Study to Investigate the Reaction Mechanism of the Oxidation of CO on Pt/TiO_2 Nanoparticles: A Step Towards Closing both the Pressure and the Materials Gap, ***Randima Galhenage***, *J Bruce, D Ferrah,* University of California Irvine; *I Waluyo, A Hunt,* Brookhaven National Laboratory; *J Hemminger,* University of California Irvine	**SU+AC+MI+MS-TuM-6** Unique Super-Ionicity Achieved on the Nanoscale with Applications in Next-Generation Lithium Ion Batteries, ***Progna Banerjee***, *D Dumett Torres, P Jain,* University of Illinois at Urbana-Champaign
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**SS+HC-TuM-10** Oxygen Reduction Reaction of Graphite Decorated by the Pyridinic-Nitrogen Contained Molecules with High Density, ***Riku Shibuya***, *T Kondo,* University of Tsukuba, Japan; *J Nakamura,* University of Tsukuba, Japam	**INVITED: SU+AC+MI+MS-TuM-10** Electric Cell Potential Driving Changes in Perovskite Surface Termination and Enabling Catalysis, ***Monika Backhaus***, Corning; *L Gregoratti, M Amati,* Elettra-Sincrotrone Trieste, Italy
11:20am	**SS+HC-TuM-11** Spectroscopic and Computational Studies of Room-Temperature Decomposition of a Chemical Warfare Agent Simulant on Copper Oxide, ***Lena Trotochaud***, Lawrence Berkeley National Laboratory; *R Tsyshevsky, S Holdren,* University of Maryland, College Park; *K Fears,* U.S. Naval Research Laboratory; *A Head,* Lawrence Berkeley National Laboratory; *Y Yu,* University of Maryland, College Park; *O Karslioglu,* Lawrence Berkeley National Laboratory; *S Pletincx,* Vrije Universiteit Brussel, Belgium; *B Eichhorn,* University of Maryland, College Park; *J Owrutsky, J Long,* U.S. Naval Research Laboratory; *M Zachariah, M Kuklja,* University of Maryland, College Park; *H Bluhm,* Lawrence Berkeley National Laboratory	Invited talk continues.
11:40am	**SS+HC-TuM-12** Atomic View of Acid Zeolite Chemistry: Surface Chemistry Studies on 2D Silicate Materials, ***Jin-Hao Jhang***, *G Hutchings, C Zhou, U Schwarz, E Altman,* Yale University	**SU+AC+MI+MS-TuM-12** Possibilities of Hydrogen Energy Utilization in Kazakhstan: Preparation of TiCrMn Hydrogen Storage Alloys and Investigation of Their Absorption Properties, ***Saule Zholdayakova***, *H Uchida, Y Matsumura,* Tokai University, Japan
12:00pm	**SS+HC-TuM-13** Establishing Rules for Oriented SURMOF Growth Beyond Template Effects, *X Yu,* University of Frankfurt, Germany; *J Zhuang,* Guizhou Normal University, P.R. China; ***Andreas Terfort***, University of Frankfurt, Germany	

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

[2] **National Student Award Finalist**

	Thin Films Division **Room 20 - Session TF-TuM** **Advanced CVD and ALD Processing, ALD Manufacturing and Spatial-ALD** **Moderators:** Halil Akyildiz, Uludag University, Turkey, Paul Poodt, Holst Centre / TNO	**Vacuum Technology Division** **Room 7 & 8 - Session VT-TuM** **Large Vacuum Systems** **Moderators:** Jason Carter, Argonne National Laboratory, Gerardo Brucker, MKS Instruments, Inc., Pressure and Vacuum Measurement Group
8:00am	**TF-TuM-1** Aluminum-Doped Zinc Oxide via Spatial ALD: Process Impact on Film Morphology, Electrical Conductivity and Stability, *S Nelson,* ***Lee Tutt,*** *C Ellinger,* Eastman Kodak Company	**INVITED: VT-TuM-1** The Role of Vacuum Technology in Discovering the Gravitational Waves from Merging Black Holes, *R Weiss,* ***Michael Zucker,*** LIGO Project Caltech and MIT
8:20am	**TF-TuM-2** Fast Pulsing of Precursor and Reactant to Merge ALD and CVD Processes: Example of Thick Al_2O_3 Deposition, ***Fabien Piallat,*** *L Bonnet, J Vitiello,* KOBUS, France	Invited talk continues.
8:40am	**TF-TuM-3** Employing Atmospheric Pressure Micro-Plasma Printer for ALD of TiO_2 Thin Films, ***Morteza Aghaee,*** Eindhoven University of Technology, The Netherlands, Netherlands; *J Verheijen,* Eindhoven University of Technology, The Netherlands; *A Stevens,* InnoPhysics B.V., The Netherlands; *E Kessels,* Eindhoven University of Technology, The Netherlands, Netherlands; *M Creatore,* Eindhoven University of Technology, The Netherlands	**VT-TuM-3** Vacuum System Engineering for Cornell Brookhaven ERL Test Accelerator, ***Yulin Li,*** *D Burke, B Johnson,* Cornell Laboratory for Accelerator-Based Sciences and Education
9:00am	**TF-TuM-4** Large-Area Atmospheric Pressure Spatial ALD, *C Frijters, F van den Bruele, F Grob,* ***Paul Poodt,*** Holst Centre / TNO, Netherlands	**VT-TuM-4** Vacuum System for CHESS-U Upgrade at CESR, ***Xianghong Liu,*** *S Barret, D Burke, J Conway, A Holic, Y Li, A Lyndaker,* Cornell Laboratory for Accelerator-Based Sciences and Education
9:20am	**INVITED: TF-TuM-5** High Speed ALD of Multifunctional ALD Ultrabarriers for Flexible OLED Encapsulation, ***Jacques Kools,*** Encapsulix, France	**VT-TuM-5** Newly Designed Alumina Ceramics Beam Pipe with Large Aperture for RCS in J-PARC, ***Junichiro Kamiya,*** *M Kinsho,* Japan Atomic Energy Agency; *K Abe,* HIPSD, Japan
9:40am	Invited talk continues.	**VT-TuM-6** Vacuum Performance of Taiwan Photon Source Storage Ring, ***Hsin-Pai Hsueh,*** *G Hsiung, J Chen,* National Synchrotron Radiation Research Center, Taiwan, Republic of China
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**TF-TuM-10** Simulation of Atomic Layer Deposition, ***Paul Moroz,*** TEL Technology Center, America, LLC; *D Moroz,* Harvard University	**VT-TuM-10** The Vacuum System Design of a New FEL Test Facility (CLARA) at STFC Daresbury Laboratory, ***Keith Middleman,*** STFC, UK, United Kingdom of Great Britain and Northern Ireland
11:20am	**TF-TuM-11** Boron Nitride Film Growth at Room Temperature Using Electron Enhanced Atomic Layer Deposition (EE-ALD), ***Jaclyn Sprenger,*** *H Sun, A Cavanagh, S George,* University of Colorado Boulder	**VT-TuM-11** EBL2: Realization and Qualification of an EUV Exposure System, ***Michel van Putten,*** *N Koster, A Deutz, B Nijland, P Kerkhof, P Muilwijk, B Oostdijck, J Westerhout, C Hollemans, E te Sligte, W Mulckhuyse, F Molkenboer, A Hoogstrate, P van der Walle, H Diesveld, A Abutan,* TNO, Netherlands
11:40am	**TF-TuM-12** CVD of sp^2-BN on Si(111) Substrates, ***Laurent Souqui,*** *H Pedersen, H Högberg,* Linköping University, Sweden	**VT-TuM-12** Construction and Commissioning of Tri Alpha Energy C2W machine, ***Alan Van Drie,*** Tri Alpha Energy
12:00pm	**TF-TuM-13** Microcontroller-based Sequential Deposition Control Systems using Behavior Tree Algorithms: ALD for the "App Generation", ***Brandon Piercy,*** *J Crane, M Losego,* Georgia Institute of Technology	

Exhibitor Technology Spotlight Workshops
Room West Hall - Session EW-TuL
Exhibitor Technology Spotlight
Moderator: Chris Moffitt, Kratos Analytical Limited, UK

12:20pm		
12:40pm	**EW-TuL-2** Design and Application of a New Laboratory-Based Scanning XPS/HAXPES Instrument*, R Inoue, H Yamazui, K Watanabe,* ULVAC-PHI, Japan*; S Bryan,* ***John Newman****, J Mann,* Physical Electronics	
1:00pm	**EW-TuL-3** Application of X-ray Photoelectron Spectroscopy for the Characterisation of Biomaterials*, C Moffitt,* Kratos Analytical Ltd*; D Surman,* Kratos Analytical Limited*; S Coultas,* ***Jonathan Counsell****,* Kratos Analytical Limited, UK	
1:20pm	**EW-TuL-4** Advanced Photoelectron Spectroscopies Setup As a Key for Current Research*,* ***Lukasz Walczak****,* PREVAC, Poland	
1:40pm	**EW-TuL-5** Advanced Ion Beam Techniques for Thin Films and Structuring*,* ***Marcel Demmler****,* AARD	
2:00pm	**EW-TuL-6** From Surface Spectrometry to 3D Analysis - Latest Trends and Instrumentation for TOF-SIMS*,* ***Nathan Havercroft****,* ION-TOF USA*; R Moellers, A Pirkl,* ION-TOF GmbH, Germany	

	2D Materials Focus Topic **Room 16 - Session 2D+BI+MN+SS-TuA** **Surface Chemistry, Functionalization, Bio and Sensor Applications** **Moderator:** Matthias Batzill, University of South Florida	**2D Materials Focus Topic** **Room 15 - Session 2D-TuA** **Growth of 2D Materials** **Moderator:** Taisuke Ohta, Sandia National Laboratories
2:20pm	**2D+BI+MN+SS-TuA-1** Preserving Chemically Modified Graphene from Thermal and Chemical Loss of Functionality, ***Keith Whitener****, W Lee,* Naval Research Laboratory*; R Stine,* NOVA Research*; J Robinson, D Kidwell, C Tamanaha, P Sheehan,* Naval Research Laboratory	**2D-TuA-1** A New Approach to the Synthesis of High-quality Graphene on Silicon Carbide, ***Piotr Ciochoń****, J Kołodziej,* Institute of Physics, Jagiellonian University, Poland
2:40pm	**2D+BI+MN+SS-TuA-2** Chemical Vapor Sensing with 1T/2H Phase Engineered MoX_2 Films, ***Adam Friedman****, A Hanbicki, K Perkins, G Jernigan, J Culbertson, P Campbell,* Naval Research Laboratory	**2D-TuA-2** Cation-Eutectic Transition via Sublattice Melting in $CuInP_2S_6/In_{4/3}P_2S_6$ van der Waals Layered Crystals, *M Susner,* Air Force Research Laboratory*; M Chyasnavichyus, Q He, B Conner, D Cullen, P Ganesh, D Shin, J McMurray, A Borisevich, M McGuire,* Oak Ridge National Laboratory*; Y Ren,* Argonne National Laboratory*;* ***Petro Maksymovych****,* Oak Ridge National Laboratory
3:00pm	**INVITED: 2D+BI+MN+SS-TuA-3** Nanopores in 2D Materials, ***Aleksandra Radenovic****,* Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland	**2D-TuA-3** Direct, Real-Time Observation of Layer-by-Layer Growth of a 2D Semiconductor using *In Situ* X-ray Synchrotron Radiation*, H Bullen, R Nahm, S Vishwanath, G Xing,* ***James Engstrom****,* Cornell University
3:20pm	Invited talk continues.	**2D-TuA-4** Crystallization Kinetics of Photonically Annealed 2D Materials, *N Glavin, R Vila, R Kim, R Rao, M McConney, B Maruyama, L Bissell,* Air Force Research Laboratory*; R Rai,* Air Force Research Laboratory; University of Dayton*;* ***Christopher Muratore****,* University of Dayton
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**2D+BI+MN+SS-TuA-7** Spectroscopic Observation of Oxygen Dissociation on Nitrogen-Doped Graphene*,* ***Mattia Scardamaglia****,* University of Mons, Belgium*; T Susi,* University of Vienna, Austria*; C Struzzi,* Unviersity of Mons, Belgium*; R Snyders,* University of Mons, Belgium*; G Di Santo, L Petaccia,* Elettra-Sincrotrone Trieste, Italy*; C Bittencourt,* University of Mons, Belgium	**2D-TuA-7** Intercalation Then Ordering of Oxygen Leading to Isolation Then Etching of Monolayer *h*-BN on Copper*, C Ma, J Park,* Oak Ridge National Laboratory*; L Liu,* University of Tennessee*; Y Kim, M Yoon,* ***Arthur Baddorf****,* Oak Ridge National Laboratory*; G Gu,* University of Tennessee*; A Li,* Oak Ridge National Laboratory
4:40pm	**2D+BI+MN+SS-TuA-8** Back to Black: Can Molecular Networks Preserve the Surface of Black Phosphorus?*,* ***Vladimir Korolkov****,* The University of Nottingham, UK*; I Timokhin, R Haubrichs,* CristalTech Sàrl, Switzerland*; S Yang, M Schröder,* University of Manchester, UK*; P Beton,* The University of Nottingham, UK	**2D-TuA-8** Polished Nickel Substrates for Large-area Multilayer Graphene Films, ***Stefan Lehnardt****, J Rowley, K Larsen,* Brigham Young University*; J Abbott,* Moxtek*; R Vanfleet, R Davis,* Brigham Young University
5:00pm	**INVITED: 2D+BI+MN+SS-TuA-9** Defect-mediated Properties of Single-layer $MoSe_2$*,* ***Sara Barja****,* Materials Physics Center, San Sebastián, Spain*; S Wickenburg, Z Liu, Y Zhang,* Molecular Foundry, Lawrence Berkeley Lab*; A Pulkin,* Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*; S Refaely-Abramson, B Schuler,* Molecular Foundry, Lawrence Berkeley Lab*; H Ryu,* Lawrence Berkeley National Laboratory*; D Qiu,* University of California at Berkeley*; M M. Ugeda,* CIC nanoGUNE, Spain*; Z Shen,* Stanford Institute of Materials and Energy Sciences*; S Mo, M Salmeron,* Lawrence Berkeley National Laboratory*; M Crommie,* University of California at Berkeley*; D Ogletree,* Molecular Foundry, Lawrence Berkeley Lab*; O Yazyev,* Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*; J Neaton, A Weber-Bargioni,* Molecular Foundry, Lawrence Berkeley Lab	**2D-TuA-9** Heterostructures of Carbon Nanomembranes and Graphene as a Platform for Electrochemical Sensing*, D Kaiser, A Winter, C Neumann,* Friedrich Schiller University Jena, Germany*; A Centeno, A Zurutuza,* Graphenea, Spain*; T Weimann,* Physikalisch-Technische Bundesanstalt, Germany*;* ***Andrey Turchanin****,* Friedrich Schiller University Jena, Germany
5:20pm	Invited talk continues.	**2D-TuA-10** Nucleation of 2D WS_2 by Plasma Enhanced Atomic Layer Deposition from WF_6, H_2 Plasma and H_2S – Impact on Grain Size and Charge Transport*,* ***Benjamin Groven****, A Nalin Mehta,* University of Leuven, Belgium*; Q Smets, T Schram, H Bender, W Vandervorst, I Radu, M Caymax, M Heyns, A Delabie,* IMEC, Belgium
5:40pm	**2D+BI+MN+SS-TuA-11** Scalable Flexible Graphene Gate TMD Biosensors*,* ***RamSurya Gona****, C Naylor, C Johnson,* University of Pennsylvania	**2D-TuA-11** *Surface* Intercalation of Two Disparate Metals in Graphite: Copper and Dysprosium*,* ***Ann Lii-Rosales***[1]*, P Thiel,* Iowa State University and Ames Laboratory
6:00pm	**2D+BI+MN+SS-TuA-12** Development and Validation of Polarized Models for Peptide-Graphene Interactions*,* ***Amanda Garley****,* University of Colorado Boulder*; N Saikia,* Michigan Technological University*; R Berry,* Air Force Research Laboratory*; H Heinz,* University of Colorado Boulder	

[1] **NSTD Student Award Finalist**

	Actinides and Rare Earths Focus Topic **Room 22 - Session AC+MI+SA+SU-TuA** **Actinide and Rare Earth Theory** **Moderator:** Ladislav Havela, Charles University, Czech Republic	**Applied Surface Science Division** **Room 13 - Session AS+TF-TuA** **Problem Solving Using Surface Analysis in the Industrial Laboratory** **Moderators:** Jeffrey Fenton, Medtronic, Inc., Paul Vlasak, The Dow Chemical Company
2:20pm	**INVITED: AC+MI+SA+SU-TuA-1** Magnetic Susceptibility, Magnetic Resonance, and Bonding in Actinide Complexes: Ab-initio Calculations, ***Jochen Autschbach,*** University of Buffalo, SUNY	**AS+TF-TuA-1** TOF-SIMS MS/MS for Industrial Problem Solving, *G Fisher, D Carr,* Physical Electronics*; T Miyayama, S Iida,* ULVAC-PHI, Japan*;* ***Scott Bryan,*** Physical Electronics
2:40pm	Invited talk continues.	**AS+TF-TuA-2** *In Situ* Molecular Imaging of Switchable Ionic Liquids, ***Juan Yao,*** *D Lao, X Yu, S Nune, D Heldebrant, Z Zhu, X Yu,* Pacific Northwest National Laboratory
3:00pm	**INVITED: AC+MI+SA+SU-TuA-3** Combining DMRG with Standard Relativistic Multireference Methods to Probe the Properties of Strongly Correlated Systems: Plutonium Oxides, ***Valérie Vallet,*** *S Kervazo,* CNRS / University of Lille, France*; F Réal,* University of Lille, France*; A Severo Pereira Gomes,* CNRS / University of Lille, France*; F Virot,* IRSN, France	**INVITED: AS+TF-TuA-3** Employing a Surface and Bulk Analytical Approach for the Synthesis and Characterization of Ophthalmic Biomaterials, ***Daniel Hook,*** *A Hoteling, W Nichols, I Nuñez, K Wygladacz,* Bausch + Lomb, Inc.
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm		**AS+TF-TuA-7** Surface Properties and Interfacial Bonding of Anodic Aluminium Oxides and Organic Resins, ***Shoshan Abrahami,*** *T Hauffman,* Vrije Universiteit Brussel (VUB), Belgium*; J De KoK,* Fokker Aerostructures BV, Papendrecht, The Netherlands*; V Gudla, R Ambat,* Technical University of Denmark (DTU), Denmark*; A Mol,* TU Delft, Netherlands*; H Terryn,* Vrije Universiteit Brussel, Belgium
4:40pm		**AS+TF-TuA-8** Practical Considerations of Different Ion Sources for Industrial Applications: The Good, the Bad, and the Indifferent, ***William Stickle,*** *C Young, M Johnson,* HP Inc.*; B Schmidt,* Physical Electronics USA
5:00pm	**AC+MI+SA+SU-TuA-9** The Thermal Expansion of UC and UO_2 from First Principles Calculations - The Importance of Correlations Effects and Spin-orbit Coupling, ***Dominik Legut,*** IT4Innovations Center, VSB - Technical University of Ostrava, Czech Republic*; U Wdowik,* Pedagogical University, Poland*; P Piekarz,* Polish Academy of Sciences, Poland*; G Jaglo,* Pedagogical University, Poland*; L Havela,* Charles University, Prague, Czech Republic	**INVITED: AS+TF-TuA-9** Surface Analysis in an Industrial Setting: Non-ideal Real World Samples, ***Vincent Smentkowski,*** General Electric Global Research Center
5:20pm		Invited talk continues.
5:40pm		**AS+TF-TuA-11** C 1s Peak of Adventitious Carbon Aligns to the Vacuum Level: Dire Consequences for Material's Bonding Assignment by Photoelectron Spectroscopy, ***Grzegorz Greczynski,*** *L Hultman,* Linköping University, Sweden
6:00pm		**AS+TF-TuA-12** Band Energy Alignment Studies at Heterojunction by X-ray Photoelectron Spectroscopy (XPS), ***Jisheng Pan,*** Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research), Singapore

	Biomaterial Interfaces Division **Room 12 - Session BI+AS+MI+SA-TuA** **Bio from 2D to 3D: Challenges in Fabrication and Characterization & Flash Presentations** **Moderators:** Lara Gamble, University of Washington, Anna Belu, Medtronic, Inc.	**Electronic Materials and Photonics Division** **Room 14 - Session EM+SS-TuA** **Surface and Interface Challenges in Semiconductor Materials and Devices** **Moderator:** Anthony Muscat, University of Arizona
2:20pm	**INVITED: BI+AS+MI+SA-TuA-1** Cell-instructive Polymer Matrices for Therapies and Tissue Models, ***Carsten Werner,*** Leibniz Institute of Polymer Research Dresden and TU Dresden, Deutschland	**EM+SS-TuA-1** Selective Atomic Layer Deposition of $MoSi_x$ -on Si (001) in Preference to Silicon Nitride and Silicon Oxide, ***JongYoun Choi,*** *C Ahles,* University of California, San Diego*; R Hung, N Kim,* Applied Materials, Inc.*; A Kummel,* University of California, San Diego
2:40pm	Invited talk continues.	
3:00pm	**BI+AS+MI+SA-TuA-3** Plant Virus Particles for 2D and 3D Architectures on Surfaces*, V Rink,* University of Kaiserslautern, Germany*; M Braun,* RLP Agroscience GmbH, Germany*; M Ani,* University of Kaiserslautern, Germany*; K Boonrood,* RLP Agroscience GmbH, Germany*; C Müller-Renno,* University of Kaiserslautern, Germany*; G Krczal-Gehring,* RLP Agroscience GmbH, Germany*;* ***Christiane Ziegler,*** University of Kaiserslautern, Germany	**INVITED: EM+SS-TuA-3** Interface and Border Traps, their Passivation and the Reliability of Alumina Dielectric / Indium Gallium Arsenide Gate Stacks, ***Paul McIntyre,*** Stanford University
3:20pm	**BI+AS+MI+SA-TuA-4** Designing Thermo-responsive Nanocomposites that Provides Multiple Defense Mechanisms against Fouling, ***Ya Liu,*** University of Pittsburgh*; C Zhang, S Kolle, J Aizenberg,* Harvard University*; A Balazs,* University of Pittsburgh	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: BI+AS+MI+SA-TuA-7** 3D Ink-jet Printing for Tissue Engineering, ***Thomas Boland,*** The University of Texas at El Paso	**EM+SS-TuA-7** Controlling GaAs and Si Oxide Surface Energies, ***Karen L Kavanagh,*** Simon Fraser University, Canada*; N Herbots, A Brimhall, R Van Haren, Y Pershad, S Suhartono, E Landeros, R Culbertson,* Arizona State University*; R Islam,* Cactus Materials
4:40pm	Invited talk continues.	**EM+SS-TuA-8** *In Situ* Si_3N_4 Surface Layer on GaN-on-Si Heterostructure for High Power Operation, ***Chien-Fong Lo****, O Laboutin, X Gao, C Kao, H Marchand, W Johnson, R Pelzel,* IQE
5:00pm	**BI+AS+MI+SA-TuA-9** Digging for Answers: Challenges in ToF-SIMS Tissue Depth Profiling, ***Daniel Graham,*** University of Washington, Seattle*; T Angerer,* University of Washington, Seattle, Sweden*; L Gamble,* University of Washington, Seattle	**EM+SS-TuA-9** In-Vacuo Studies of Surface Structure and Surface Chemistry During Plasma-Assisted Atomic Layer Epitaxial Growth of InN Thin Films on GaN Substrates, ***Samantha Rosenberg,*** ASEE (residing at NRL)*; D Pennachio,* University California Santa Barbara*; V Anderson,* ASEE (residing at NRL)*; N Nepal,* U.S. Naval Research Laboratory*; C Wagenbach,* Boston University*; A Kozen,* ASEE (residing at NRL)*; Z Robinson,* SUNY Brockport*; J Logan, S Choi,* University California Santa Barbara*; J Hite,* US Naval Research Laboratory*; K Ludwig,* Boston University*; C Palmstrøm,* University California Santa Barbara*; C Eddy, Jr.,* U.S. Naval Research Laboratory
5:20pm	**BI+AS+MI+SA-TuA-10** Cryo-SIMS – Metrology of Biological Sample Preparation Methods for Preservation of Cell Ultrastructure and Chemistry, ***Paulina Rakowska****, J Vorng, I Gilmore,* National Physical Laboratory, UK	**EM+SS-TuA-10** Aqueous Ammonium Sulfide Treatments on SiGe Surfaces, ***Stacy Heslop****, L Peckler, A Muscat,* University of Arizona
5:40pm	**BI+AS+MI+SA-TuA-11** Towards Cryogenic 3D Nano-XRF Imaging of Biological Samples, ***Axel Rosenhahn****, S Stuhr, C Rumancev, T Senkbeil, T Gorniak, A von Gundlach, J Reinhardt,* Ruhr-University Bochum, Germany*; Y Yang, P Cloetens,* ESRF, France*; M Grunze,* Karlsruhe Institute of Technology (KIT), Germany*; J Garrevoet, G Falkenberg, W Schröder,* DESY, Germany	
6:00pm		**EM+SS-TuA-12** The Structural Stability and Phase Transition of $MoTe_2$ Activated by Thermal Annealing, ***Hui Zhu****, Q Wang, C Zhang, R Addou, K Cho, M Kim, R Wallace,* University of Texas at Dallas

	Exhibitor Technology Spotlight Workshops **Room West Hall - Session EW-TuA** **Exhibitor Technology Spotlight Session** **Moderator:** Chris Moffitt, Kratos Analytical Limited, UK	**Fundamental Discoveries in Heterogeneous Catalysis Focus Topic** **Room 25 - Session HC+SS-TuA** **Advances in Theoretical Models and Simulations of Heterogeneously Catalyzed Reactions** **Moderator:** Xiaofeng Feng, University of Central Florida
2:20pm		**INVITED: HC+SS-TuA-1** Hindered Translator/Rotor Models for Calculating the Entropy of Adsorbed Species for Improved Micro Kinetic Models Based on Density Functional Theory Calculations, ***Liney Arnadottir***, *L Sprowl,* Oregon State University*; C Campbell,* University of Washington
2:40pm		Invited talk continues.
3:00pm		**HC+SS-TuA-3** CO_2 Dynamics as a Product of Formate Decomposition on Cu(111), ***Fahdzi Muttaqien***, *H Oshima, Y Hamamoto, K Inagaki, I Hamada, Y Morikawa,* Osaka University, Japan
3:20pm		
3:40pm	**BREAK**	**BREAK**
4:00pm	**EW-TuA-6** eSpectra: Surface Science, ***Jessica Hoy,*** AIPP/AVS	**BREAK**
4:20pm		**INVITED: HC+SS-TuA-7** Reaction Mechanisms and Nature of Active Sites on Alloy Catalysts: Combining First-principles, Microkinetic Modeling, and Reaction Kinetics Experiments, ***Manos Mavrikakis,*** University of Wisconsin - Madison
4:40pm		Invited talk continues.
5:00pm		**HC+SS-TuA-9** CO_2 Hydrogenation on Defect-Laden Hexagonal Boron Nitride, ***Tao Jiang,*** *T Rawal, D Le, R Blair, T Rahman,* University of Central Florida
5:20pm		**HC+SS-TuA-10** Interaction of Atomic Oxygen with Ag(111) and Ag(110) Surfaces: Oxygen Adsorption and Kinetics at Surface versus Subsurface, ***Sara Isbill,*** *S Roy,* University of Tennessee
5:40pm		**HC+SS-TuA-11** Electronic Structure and Catalytic Properties of Au/h-BN Composite System, ***Takat Rawal,*** *T Jiang, D Le,* University of Central Florida*; P Dowben,* University of Nebraska - Lincoln*; T Rahman,* University of Central Florida

	Magnetic Interfaces and Nanostructures Division **Room 11 - Session MI+2D+AC+NS-TuA** **Spin-Orbit Phenomena at Surfaces and Interfaces** **Moderators:** Markus Donath, Muenster University, Germany, Axel Hoffmann, Argonne National Laboratory	**Nanometer-scale Science and Technology Division** **Room 19 - Session NS+EM+MN+PS+SS-TuA** **Nano-Photonics, Plasmonics and Mechanics** **Moderators:** Joshua Ballard, Zyvex Labs, Christian Zorman, Case Western Reserve University
2:20pm	**INVITED: MI+2D+AC+NS-TuA-1** Coherent Control over Spin-polarized Dirac Surface State in Topological Insulators, ***Kenta Kuroda,*** The Institute for Solid State Physics, The University of Tokyo, Japan	**NS+EM+MN+PS+SS-TuA-1** Nonlinear Interactions of Coupled MEMS Cantilevers, ***Christopher Wallin,*** National Institute of Standards and Technology, Center for Nanoscale Science and Technology; *R De Alba, D Westly,* NIST/CNST; *S Grutzik,* Sandia National Laboratories; *A Zehnder, R Rand,* Cornell University; *V Aksyuk,* NIST/CNST; *S Krylov,* Tel Aviv University, Israel; *B Ilic,* NIST/CNST
2:40pm	Invited talk continues.	**NS+EM+MN+PS+SS-TuA-2** Silicon Carbonitride Nanoresonator Arrays for Proteomic Analysis, *W Zheng,* University of Alberta, Canada; *R Du,* University of Alberta and The National Institute for Nanotechnology; *Y Cao,* University of Alberta and The National Institute for Nanotechnology, Canada; *M Mohammad, S Dew,* University of Alberta, Canada; *M McDermott,* University of Alberta and The National Institute for Nanotechnology; ***Stephane Evoy,*** University of Alberta, Canada
3:00pm	**MI+2D+AC+NS-TuA-3** Enhancement of Voltage-Controlled Magnetic Anisotropy Through Metallic Insertion at the CoFeB|MgO Interface, ***Kevin Fitzell,*** *X Li, T Karaba, A Buditama, G Yu, K Wong,* University of California at Los Angeles (UCLA); *D Wu,* UCLA; Fudan University, Republic of China; *N Altieri, C Grezes,* UCLA; *N Kioussis,* CSU, Northridge; *S Tolbert,* UCLA; *Z Zhang,* Fudan University, Republic of China; *J Chang, P Amiri, K Wang,* UCLA	**INVITED: NS+EM+MN+PS+SS-TuA-3** Cavity Optomechanical Coupling in Chip-Scale Plasmonic and Photonic Transducers for Nanoscale Measurements and Optical Signal Control, ***Vladimir A. Aksyuk,*** *S An,* NIST Center for Nanoscale Science and Technology; *B Dennis,* Rutgers University and NIST CNST; *T Michels, B Roxworthy, J Zou,* NIST Center for Nanoscale Science and Technology
3:20pm	**MI+2D+AC+NS-TuA-4** THz Radiation Generated from Interfacial Rashba Spin-orbit Coupling, *M Jungfleisch, Q Zhang,* Argonne National Laboratory; *W Zhang,* Oakland University; *J Pearson, H Wen,* ***Axel Hoffmann,*** Argonne National Laboratory	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: MI+2D+AC+NS-TuA-7** Spin-orbit Coupled d-electron Surface States of Delafossite Oxides, ***Phil King,*** University of St Andrews, UK	**NS+EM+MN+PS+SS-TuA-7** An Active Plasmomechanical System for Optical Modulation and Mechanical Lasing, ***Brian Roxworthy,*** *V Aksyuk,* NIST
4:40pm	Invited talk continues.	**NS+EM+MN+PS+SS-TuA-8** Plasmon-enhanced Photo-catalysis Using Collapsible Nano-fingers, ***Yunxiang Wang,*** *B Song, W Wu, S Cronin,* University of Southern California
5:00pm	**MI+2D+AC+NS-TuA-9** Understanding the Interfacial Interaction and Isotope Effects in Organic Spin Valve Structures, ***Alexandra Steffen,*** *N Herath, J Keum, H Zhang, K Hong, J Jakowski, J Huang, J Browning, C Rouleau, I Ivanov, V Lauter,* Oak Ridge National Laboratory	
5:20pm	**MI+2D+AC+NS-TuA-10** Dispersion and Spin Structure of Conduction Bands of Single-layer TMDC's on Au(111), ***Philipp Eickholt***[1], *M Holtmann,* Westfälische Wilhelms-Universität Münster, Germany; *C Sanders, M Dendzik, M Bianchi, P Hofmann,* Aarhus University, Denmark; *M Donath,* Westfälische Wilhelms-Universität Münster, Germany	
5:40pm	**MI+2D+AC+NS-TuA-11** Unraveling the Spin Structure of Unoccupied States in Bi_2Se_3, ***Markus Donath,*** *C Datzer, A Zumbülte,* Westfälische Wilhelms-Universität Münster, Germany; *J Braun,* LMU München, Germany; *T Förster, A Schmidt,* Westfälische Wilhelms-Universität Münster, Germany; *J Mi, B Iversen, P Hofmann,* Aarhus University, Denmark; *J Minár,* University of Pilzen, Czech Republic; *H Ebert,* LMU München, Germany; *P Krüger, M Rohlfing,* Westfälische Wilhelms-Universität Münster, Germany	**NS+EM+MN+PS+SS-TuA-11** Ultra-High Resolution Photonics-based Thermometry, ***Nikolai Klimov,*** *T Herman, K Douglass, M Chojnacky, Z Ahmed,* National Institute of Standards and Technology
6:00pm		**NS+EM+MN+PS+SS-TuA-12** Size-Controlled Synthesis of Gold Nanostars and their Excellent SERS and Fluorescence Quenching Properties, ***Waqqar Ahmed,*** *H Khan, M Khalid,* COMSATS Institute of Information Technology Islamabad, Pakistan

[1] **Falicov Student Award Finalist**

	Plasma Science and Technology Division **Room Ballroom B - Session PS+SS-TuA** **The Science of Plasmas and Surfaces: Commemorating the Career of Harold Winters (ALL INVITED SESSION)** **Moderators:** Sumit Agarwal, Colorado School of Mines, Selma Mededovic, Clarkson University	**Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic** **Room 9 - Session SA+AS+HC+SS-TuA** **Frontiers of Photoelectron Spectroscopy: Surface & Interface Processes with Variable Depth Probe, High Spatial or Temporal Resolution** **Moderators:** Geoff Thornton, University College London, Carla Bittencourt, University of Mons, Belgium
2:20pm	**PS+SS-TuA-1** History and Legacy of the Coburn and Winters Paper, ***R.Mohan Sankaran,*** Case Western Reserve University*; R van de Sanden,* FOM Institute DIFFER, Netherlands	**INVITED: SA+AS+HC+SS-TuA-1** AVS 2017 Medard W. Welch Award Lecture: Ionic Liquid Surface Science, ***Hans-Peter Steinrück***[1]*,* University Erlangen-Nuernberg, Germany
2:40pm	**PS+SS-TuA-2** The Reaction of Fluorine Atoms with Silicon: Controversies 38 Years in the Making, ***Vincent M. Donnelly,*** University of Houston	Invited talk continues.
3:00pm	**PS+SS-TuA-3** The Long Quest to Understand Etch Mechanisms and Surface Science: The Legacy of Harold Winters and its Impact on Semiconductor Industry, ***Sebastian Engelmann****, N Fuller,* IBM Research Division, T.J. Watson Research Center	**SA+AS+HC+SS-TuA-3** *In Situ* Characterization of Semiconductor Nanowire Devices by Nano-Focus X-ray Photoemission Microscopy and Spectroscopy, *S McKibbin,* ***Andrea Troian****, S Yngman,* Lund University, Sweden*; H Sezen, M Amati, L Gregoratti,* Elettra-Sincrotrone Trieste, Italy*; A Mikkelsen, R Timm,* Lund University, Sweden
3:20pm	**PS+SS-TuA-4** Surface Science Aspects of (Plasma) ALD reactions*, V Vandalon, R van de Sanden,* ***Erwin Kessels,*** Eindhoven University of Technology, The Netherlands, Netherlands	**SA+AS+HC+SS-TuA-4** Introducing Ionic-Current Detection for X-ray Absorption Spectroscopy in Liquid Cells, ***Daniela Schoen****,* Helmholtz-Zentrum Berlin, Germany
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**PS+SS-TuA-7** Harold Winters and Plasma-Surface Interactions, ***David Graves,*** University of California at Berkeley	
4:40pm	**PS+SS-TuA-8** Illuminating the Black Box: Plasma-Surface Interactions at the Atomic Scale, ***Jane Chang,*** UCLA	
5:00pm	**PS+SS-TuA-9** Controlling Low Temperature Plasma Surface Interactions for Atomic Layer Etching of Electronic Materials And Atmospheric Pressure Plasma-Treatments of Model Polymers and Biomolecules, ***Gottlieb S. Oehrlein,*** University of Maryland, College Park	**SA+AS+HC+SS-TuA-9** Non-destructive Depth Profiling of $LaAlO_3/SrTiO_3$ Interfaces, ***Conan Weiland****,* NIST*; A Rumaiz,* National Synchrotron Light Source II, Brookhaven National Laboratory*; G Sterbinsky,* Advanced Photon Source, Argonne National Laboratory*; J Woicik,* NIST
5:20pm	**PS+SS-TuA-10** H-induced Defect Kinetics in a-Si:H: Obtaining Kinetic Parameters from Temperature-Dependent Data*, F Peeters,* DIFFER, Netherlands*; J Zheng,* Peking University, China*; I Aarts,* ASML*; A Pipino,* ONR*; E Kessels,* Eindhoven University of Technology, Netherlands*;* ***Richard van de Sanden****,* DIFFER, Netherlands	**SA+AS+HC+SS-TuA-10** Hard X-ray Photoelectron Spectroscopy Study of the Resistive Switching in Te-based Conductive Bridging Random Access Memories, ***Munique Kazar Mendes****, E Martinez, O Renault, R Gassilloud, M Bernard, M Veillerot,* CEA/LETI-University Grenoble Alpes, France*; J Ablett,* Synchrotron SOLEIL, France*; N Barrett,* SPEC, CEA Saclay - University Paris-Saclay, France
5:40pm	**PS+SS-TuA-11** Translating Fundamental Science to Technology Development in Plasma Assisted Materials Processing: Contributions by Harold Winters and Their Impact on Modeling, ***Mark Kushner****, C Huard, S Lanham, S Huang, P Tian,* University of Michigan	**SA+AS+HC+SS-TuA-11** Correlation of the Magnetic and Magnetotransport Properties, Electronic and Atomic Structure of Strongly Correlated Complex-oxide Thin Films with the Oxygen Vacancies and Films Thickness, ***German Rafael Castro****,* Spanish CRG BM25 Beamline at the ESRF, France*; J Rubio Zuazo,* SpLine Spanish CRG BM25 Beamline at the ESRF, France
6:00pm	**PS+SS-TuA-12** Extending the Legacy of Harold Winters: Probing the Energetics and Plasma-Surface Interface of Halogenated Plasmas, ***Ellen Fisher,*** Colorado State University	**SA+AS+HC+SS-TuA-12** Synchrotron–Based X-ray Spectroscopy Studies of Inorganic-Organic Hybrid Halide Perovskite Materials Surfaces and Properties, ***Deidra Hodges****, S Shahriar, A Mishra, V Castaneda, V Vidal, M Martinez, N Garcia, J Munoz, J Lopez,* University of Texas at El Paso

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

Tuesday Afternoon, October 31, 2017

	Scanning Probe Microscopy Focus Topic **Room 10 - Session SP+AS+MI+NS+SS-TuA** **Probe-Sample Interactions** **Moderator:** Carl Ventrice, Jr., SUNY Polytechnic Institute	**Sustainability Focus Topic** **Room 5 & 6 - Session SU+2D+MS+NS-TuA** **Membranes, Thin Films, and Sensors** **Moderators:** Keith Brown, Boston University, Roya Maboudian, University of California at Berkeley
2:20pm	**SP+AS+MI+NS+SS-TuA-1** Atomic Manipulation of Atomic Oxygen on Graphene, *H Kim, T Ahn, T Youn, D Lee,* ***Tae-Hwan Kim,*** Pohang University of Science and Technology, Republic of Korea	**INVITED: SU+2D+MS+NS-TuA-1** Protecting Food and Water Quality: Considerations for Materials Innovation, ***Susan Duncan,*** Virginia Polytechnic Institute and State University
2:40pm	**SP+AS+MI+NS+SS-TuA-2** Revealing Distance-Dependence of Chemical Interactions and Image Contrast Reversal in Noncontact Atomic Force Microscopy: A Case Study on Highly Oriented Pyrolytic Graphite, *O Dagdeviren*[1], *J Goetzen, E Altman,* ***UdoD. Schwarz,*** Yale University	Invited talk continues.
3:00pm	**INVITED: SP+AS+MI+NS+SS-TuA-3** Absence of a Band Gap at Metal-Monolayer MoS_2 Interface, ***Abhay Pasupathy,*** Columbia University	**INVITED: SU+2D+MS+NS-TuA-3** Real-time Detection of Water Contaminants Using a Graphene-based Field-Effect Transistor Sensing Platform, ***Junhong Chen,*** University of Wisconsin - Milwaukee
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**SP+AS+MI+NS+SS-TuA-7** Imaging of MOS Interface Trap Distribution using Local Deep Level Transient Spectroscopy Based on Scanning Nonlinear Dielectric Microscopy, *N Chinone,* ***Yasuo Cho,*** Tohoku University, Japan	
4:40pm	**SP+AS+MI+NS+SS-TuA-8** Quantum State Readout of Individual Quantum Dots by Electrostatic Force Detection, ***Yoichi Miyahara,*** *A Roy-Gobeil, P Grutter,* McGill University, Canada	
5:00pm	**SP+AS+MI+NS+SS-TuA-9** Cryogenic Near-field Imaging and Spectroscopy at the 10-Nanometer-scale, ***Max Eisele,*** *A Huber,* neaspec GmbH	**INVITED: SU+2D+MS+NS-TuA-9** Nanocellulose Thin Films and Nanocellulose Aerogels, ***Kenneth Carter,*** University of Massachusetts - Amherst*; A Chang, K Martin, Y Li,* University of Massachusetts – Amherst
5:20pm	**SP+AS+MI+NS+SS-TuA-10** Atomic Scale Proximity Effect at a Molecular Superconductor-Metal Boundary, ***KyawZin Latt,*** *S Khan,* Ohio University*; A Ngo,* Argonne National Laboratory*; H Chang,* Ohio University*; A Hassanien,* J. Stefan Inst., Slovenia*; L Curtiss,* Argonne National Laboratory*; S Hla,* Ohio University and Argonne National Laboratory	Invited talk continues.
5:40pm	**SP+AS+MI+NS+SS-TuA-11** Breaking the Time Barrier in Scanning Probe Force Microscopy: Fast Free Force Reconstruction (F^3R) for Non-contact SPM, *L Collins,* ***Stephen Jesse,*** *S Kalinin,* Oak Ridge National Laboratory	**SU+2D+MS+NS-TuA-11** Fabrication and Characterization of Thermal Treated Si/Si+Ge Thin Films For Energy Harvesting, *S Budak, Z Xiao,* ***Michael Howard,*** *B Rodgers, M Alim,* Alabama A&M University
6:00pm	**SP+AS+MI+NS+SS-TuA-12** Ultrafast G Mode-Kelvin Probe Force Microscopy and its application to probing ionic transport mechanisms in perovskite solar cells., ***Liam Collins,*** *S Jesse, S Kalinin,* Oak Ridge National Laboratory	**SU+2D+MS+NS-TuA-12** Thermoelectric Properties of Bi_2Te_3/Sb_2Te_3 Thin Films Annealed at Different Temperatures, *S Budak, Z Xiao, M Howard,* ***Breonna Rodgers,*** *M Alim,* Alabama A&M University

[1] **NSTD Student Award Finalist**

Tuesday Afternoon, October 31, 2017

	Thin Films Division Room 20 - Session TF-TuA ALD Precursors and Surface Reactions **Moderators:** Qing Peng, University of Alabama, Riikka Puurunen, Aalto University, Finland	Vacuum Technology Division Room 7 & 8 - Session VT+MN-TuA Pumping **Moderators:** Tamirisa Apparao, SHI Cryogenics Group, Julia Scherschligt, NIST
2:20pm	**TF-TuA-1** Accelerated Searching of Potential Precursors for Silicon Carbide-atomic Layer Deposition from Ab-initio Machine Learning Methods, ***Zhigang Mei***, *S Bhattacharya, A Yacout,* Argonne National Laboratory	**INVITED: VT+MN-TuA-1** Silicon-micromachined Turbomolecular Pump, ***Wei Yang***, PD Sciences LLC
2:40pm	**TF-TuA-2** Surface Chemistry of Ru Atomic Layer Deposition Precursors, *X Qin,* ***Francisco Zaera***, University of California	Invited talk continues.
3:00pm	**TF-TuA-3** Mechanistic Aspects of ALD Ru Thin Film Growth based on Ru(DMBD)$(CO)_3$ and H_2O using Downstream Quadrupole Mass Spectrometry, ***Zhengning Gao***, Washington University in St. Louis; *R Kanjolia,* EMD Performance Materials; *P Banerjee,* Washington University in St. Louis	**INVITED: VT+MN-TuA-3** A Rigorous Approach to Effluent Gas Management for the Vacuum Processing Industry, ***Paul Dozoretz***, MKS Instruments, Inc.
3:20pm	**TF-TuA-4** Nucleation of Al_2O_3 Atomic Layer Deposition with Water or H_2O_2, ***Adam Hinckley***, *A Muscat,* University of Arizona	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**TF-TuA-7** Direct Measurements of Half-Cycle Reaction Heats during Atomic Layer Deposition Provide Mechanistic Insights, ***Charles T. Campbell***, *J Lownsbury,* University of Washington; *I Kim, A Martinson,* Argonne National Laboratory	**VT+MN-TuA-7** Compatibility of NEG Pumps with Particle-sensitive Applications: A Review of Recent Experimental Evidences, *P Manini, E Maccallini,* ***Marco Urbano***, *M Mura, T Porcelli, F Siviero,* SAES Getters, Italy
4:40pm	**TF-TuA-8** Cyclic Silane Precursors in Atomic and Molecular Layer Deposition, ***Nicholas Strandwitz***, *L Ju,* Lehigh University	**VT+MN-TuA-8** NEG Coated Chambers for XHV, ***Marcy Stutzman***, *P Adderley, M Poelker,* Thomas Jefferson National Accelerator Facility
5:00pm	**INVITED: TF-TuA-9** Area Selective Atomic Layer Deposition Via Precursor Selective Adsorption: Theory, Strategy, and Applications in Catalysis, ***Rong Chen***, Huazhong University of Science and Technology, PR China, China	**VT+MN-TuA-9** Ion Pump Noble Gas Stability Mechanism of Titanium Cathode Material, ***Anthony Wynohrad***, Gamma Vacuum
5:20pm	Invited talk continues.	**VT+MN-TuA-10** Ricor's MicroStar/Nanostar Compact Water Vapor Cryopump: Applications and Model Overview, ***Rodney Harris***, Ricor-USA, Inc.; *I Nachman, T Tauber, M Kootzenko, B Barak, E Aminov, D Gover,* RICOR Cryogenic & Vacuum Systems, Israel
5:40pm	**INVITED: TF-TuA-11** AVS 2017 John A Thornton Memorial Award and Lecture: Atomic Layer Deposition: Highlights from the Last 25 Years, ***Steven George***[1], University of Colorado at Boulder	
6:00pm	Invited talk continues.	

[1] **John A. Thornton Memorial Award Winner**

Actinides and Rare Earths Focus Topic
Room Central Hall - Session AC-TuP
Actinide and Rare Earth Poster Session
6:30pm

AC-TuP-2 Sputter-Deposited Layers for Solid Phase Microextraction, ***Tuhin Roychowdhury***, *D Patel, M Linford,* Brigham Young University

AC-TuP-3 Mechanical Behavior Improvement of Coated Epoxy Resins Exposed To Environmental Effects, ***Dorina Mihut***, *A Afshar, S Hill,* Mercer University; *G Negrea,* Technical University Cluj Napoca, Romania; *R Alyamani, A Aldhubaie,* Mercer University

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Biomaterial Interfaces Division
Room Central Hall - Session BI-TuP
Biomaterial Interfaces Poster Session with Flash presentations
6:30pm

BI-TuP-1 Optimizing Micropost Arrays to Break Up Biofilms, ***James Waters***, *A Balazs,* University of Pittsburgh

BI-TuP-2 Dynamic Field Testing of Fouling Release Coatings by a Rotating Disk System, ***Julian Koc***, *K Nolte,* Ruhr-University Bochum, Germany; *A Stephens,* Florida Institute of Technology; *M Schultz,* United States Naval Academy; *G Swain, K Hunsucker,* Florida Institute of Technology; *A Rosenhahn,* Ruhr-University Bochum, Germany

BI-TuP-3 Bioinspired Vascularized Polymers for Controlled Drug Delivery, ***Kayla Marquis***, *A Webber, C Howell,* University of Maine

BI-TuP-4 Measuring the Mechanical Properties of Hydrophobic Anti-Fouling Surfaces, ***Samantha Zanetti***, *S Moorzitz, G Dickinson, M Figueroa,* The College of New Jersey

BI-TuP-5 *In Vitro* Degradation Performance and Increased Biological Response of a Surface Modified Mg-Al-Zn Alloy, ***Michael Melia***, *D Florian, J Scully, J Fitz-Gerald,* University of Virginia

BI-TuP-6 Interactions between Single Molecules and Surfaces, *C Klinger,* TU Bergakademie Freiberg, Germany; ***Laila Moreno-Ostertag***, MPI for Iron Research, Germany; *C Weber, P Schiller, M Valtiner,* TU Bergakademie Freiberg, Germany

BI-TuP-7 Proton Transfers Involved in Melanin Biosynthesis: Binding of Cysteine to Dopaquinone Investigated by Density Functional Theory based Calculation, ***Ryo Kishida***, Osaka University, Japan

BI-TuP-10 Interferometry: A New Way to Study Corrosion at Confined Interfaces, ***Claudia Merola***, *H Cheng,* Max Planck Institute for Iron Research, Germany; *M Valtiner,* University of Freiberg, Germany

BI-TuP-11 Stimuli-responsive Thin Films made from the Mucilage of *Opuntia Ficus-indica* Cactus, ***Zeinab Veisi***, University of South Florida; *M Cardenas, A Cardenas-Valencia,* SRI International; *R Toomey, N Alcantar,* University of South Florida

BI-TuP-13 Effect of Topography on Retinal Stem Cell Viability and Regrowth, ***Aleksandr Filippov***, *Y Tian, Y Xie,* SUNY Polytechnic Institute

BI-TuP-14 DNA Interactions with Elastin like Polypeptide Coacervates, ***Telmo Díez***, *P Nguyen, N Carroll, J Satterfield, G Lopez,* University of New Mexico

BI-TuP-15 Bovine Aortical Endothelial Cell Encapsulation with Elastin-like polypeptides (ELP) and bis(sulfosuccinimidyl)suberate (BS3)., ***Phuong Anh Nguyen***, *T Diez Perez, H Canavan,* University of New Mexico; *N Carroll,* Universiity of New Mexico

BI-TuP-16 Direct Electron Beam Imaging of Proteinaceous Fibrils, *M Thieu,* KRISS, Republic of Korea; *T Ha,* KRIBB; ***SangJung Ahn***, KRISS, Korea, Republic of Korea

BI-TuP-17 Textured TNZT Foams for Bone Implant Applications, ***Elizabeth Blackert***, *S Murguia, M Kramer, M Young, S Aouadi,* University of North Texas

BI-TuP-18 Synthesis and Immobilization of Silver Nanoparticles in Natural Hydrogels by Directed Liquid-plasma Nanosynthesis, ***Camilo Jaramillo***, *A Shetty, A Civantos, S Arias, J Devorkin,* University of Illinois at Urbana-Champaign; *S Chang,* Nanjing University of Aeronautics and Astronautics, China; *J Allain,* University of Illinois at Urbana-Champaign

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Spectroscopic Ellipsometry Focus Topic
Room Central Hall - Session EL-TuP
Spectroscopic Ellipsometry Poster Session
6:30pm

EL-TuP-1 Ultra High-speed Spectroscopic Ellipsometry and its Applications, ***Gai Chin***, ULVAC, Japan

EL-TuP-2 Comparing and Evaluating the Calculation Results of Measurement Uncertainty for Various Types of Rotating-element Spectroscopic Ellipsometers, ***YongJai Cho***, *W Chegal, H Cho,* Korea Research Institute of Standards and Science, Republic of Korea

EL-TuP-3 Ellipsometry Analysis of a Germanium-on-insulator Wafer, ***Rigo Carrasco***, *N Samarasingha Archichchege,* New Mexico State University; *B Nguyen,* Soitec, France; *S Zollner,* New Mexico State University

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MEMS and NEMS Group
Room Central Hall - Session MN-TuP
MEMS/NEMS Poster Session
6:30pm

MN-TuP-1 Method for Patterning Crystal Colloidal Masks Using Poly (Acrylic Acid), ***Connor Smith***[1], *S Burkett,* The University of Alabama

MN-TuP-2 Understanding the Influence of Space Charge Region on Electrical Behavior of ($Pb_{0.95}La_{0.05}$)($Zr_{0.54}Ti_{0.46}$)O_3 Thin Film Capacitors Designed using Top Electrodes of Different Various Work Functions, ***Vaishali Batra***[2], *S Kotru, G Cabot II, V Harshan,* The University of Alabama

MN-TuP-3 Tribology and Locomotion of Untethered Scratch Drive Actuators with Applications to MEMS Microrobotics, ***Ratul Majumdar***, University of Illinois at Chicago; *L Stan, R Divan,* Argonne National Laboratory; *I Paprotny,* University of Illinois at Chicago

MN-TuP-5 Effect of Seeding Material on $Sc_{0.125}Al_{0.875}N$ c-axis Orientation, ***Erica Douglas***, *M Henry, T Young, B Griffin,* Sandia National Laboratories

MN-TuP-8 MEMS-Based, High-Resolution Nanocalorimeter for Characterizing Phase Transitions in Samples in the Sub-Microgram Range, ***Zhu Diao***, Stockholm University / Halmstad University, Sweden; *D Campanini, A Rydh,* Stockholm University, Sweden

MN-TuP-9 PLD covering the Innovation Chain to Accelerate the Commercial Uptake of Novel Thin Film Materials, ***Matthijn Dekkers***, *A Janssens,* Solmates, Netherlands

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Plasma Science and Technology Division
Room Central Hall - Session PS-TuP
Plasma Science and Technology Poster Session
6:30pm

PS-TuP-1 Particle Kinetic Simulation of Low-temperature Low-pressure HiPIMS Plasma, *N Lauer,* ***Natale Ianno***, University of Nebraska-Lincoln

PS-TuP-2 QDB: the Quantemol Database of Plasma Processes, *C Hill, S Rahimi, D Brown,* ***Anna Dzarasova***, *J Hamilton, S Zand-Lashani,* Quantemol LTD, UK; *J Tennyson,* University College London, UK

PS-TuP-3 Self-neutralized Ion Beam by Pulsed Plasma with Synchronous Afterglow Bias, ***Ya-Ming Chen***, *R Sawadichai, V Donnelly, D Economou,* University of Houston

PS-TuP-4 Gold Nanoparticle Catalyst for Plasma Nitridation of Thin Films, ***Takeshi Kitajima***, *Y Kariya, T Nakano,* National Defense Academy of Japan, Japan

PS-TuP-5 Development of Microwave Resonant Probes for Measurement of Plasma Density, ***Bo-Jr Chen***, *Y Wu, J Chiou, K Leou,* National Tsing Hua University, Taiwan, Republic of China

PS-TuP-7 Molecular Dynamics Simulation of Ni Self-sputtering and Modeling of Interatomic Potential Functions, ***Nicolas Mauchamp***, *M Isobe, S Hamaguchi,* Osaka University, Japan

PS-TuP-8 Atomic Layer Etching of Silicon Dioxide Using Alternating C_4F_8 and Energetic Ar^+ Plasma Beams, *S Kaler, Q Lou, V Donnelly,* ***Demetre Economou***, University of Houston

[1] **MEMS/NEMS Best Paper Award Finalist**
[2] **MEMS/NEMS Best Paper Award Finalist**

PS-TuP-9 Si, SiO_2, and Si_3N_4 Etching Characteristics of Silicon Halide Ions (SiF_x^+, $SiCl_x^+$, and $SiBr_x^+$), ***Kazuhiro Karahashi***, *T Ito, H Li, Y Muraki,* Osaka University, Japan*; M Matsukuma,* Tokyo Electron Limited, Japan*; S Hamaguchi,* Osaka University, Japan

PS-TuP-10 The Interactions of Atmospheric Pressure Plasma Jets with Surfaces: *In Situ* Measurements of Local Excitations in Thin Films, ***Eric Gillman***, Naval Research Laboratory*; B Foley, J Tomko,* University of Virginia*; D Boris, S Hernández,* Naval Research Laboratory*; A Giri,* University of Virginia*; T Petrova, G Petrov,* Naval Research Laboratory*; P Hopkins,* University of Virginia*; S Walton,* Naval Research Laboratory

PS-TuP-11 Modeling of a Plasma Discharge in an ICP Plasma Source for a Strip Tool, ***Vladimir Nagorny***, Mattson Technology, Inc.*; V Olshansky,* Kharkiv Institute of Physics and Technology, Ukraine*; S Ma,* Mattson Technology, Inc.

PS-TuP-12 Characterization of Ion Lasers with Paschen Curves, ***Steven Flores***, San Jose State University and Coherent Inc.*; C Fields,* Coherent Inc.

PS-TuP-13 Plasma Simulation of Capacitively Coupled Plasma for High Aspect Ration Contact Process of Semiconductor, ***Hyowon Bae***, Samsung Electronics Co. Ltd.*; J Kim,* Pusan National University, Republic of Korea*; M Lin,* Hanyang University, Republic of Korea*; J Um, S Han, T Kang,* Samsung Electronics Co. Ltd.*; H Lee,* Pusan National University, Republic of Korea

PS-TuP-14 N_2, O_2, and NF_3 Dissociation in a Low Frequency, High Density Plasma Source, ***Hanyang Li***, *Y Zhou, V Donnelly,* University of Houston*; K Wenzel, J Chiu, J Lamontagne, X Chen,* MKS Instruments, Inc.

PS-TuP-16 Improvement of Adhesion Strength between Copper and Composite Materials using Plasma Press Method, ***DooSan Kim***, *W Lee, J Park, M Mun, K Kim, K Kim, Y Ji, J Oh, G Yeom,* Sungkyunkwan University, Republic of Korea

PS-TuP-17 Experimental and Simulation Study on Hydrogen Atom Kinetics in Low-pressure Capacitively Coupled Plasmas, *S Nunomura, H Katayama,* ***Isao Yoshida***, National Institute of Advanced Industrial Science and Technology (AIST), Japan

PS-TuP-18 Effect of Superimposed Multi-frequency on Plasma Characteristics of an Inductively Coupled Plasma Source, ***Kyung Chae Yang***, *H Lee, S Kim, D Sung, M Mun, G Yeom,* Sungkyunkwan University, Republic of Korea

PS-TuP-19 Numerical Simulation of Capacitively Coupled Radio Frequency Plasma Discharges - Effect of Hollow Cathode Structure, ***Hsin-Chang Chang***, *C Chen, P Luo, K Leou,* National Tsing Hua University, Taiwan, Republic of China

PS-TuP-20 Photocatalytic Effects of Ag-TiO_2 Nanotubes Fabricated by BCP Lithography, *G Yeom,* ***Dain Sung***, *J Oh, K Yang, D Kim,* Sungkyunkwan University, Republic of Korea

PS-TuP-21 Prediction of Particle Generation by Machine Learning in Plasma Etching Tools, ***Yoshito Kamaji***, Hitachi High-Technologies Corp., Japan*; M Sumiya, A Kagoshima,* Hitachi High-Technologies Corp.*; M Izawa,* Hitachi High-Technologies Corp., Japan

PS-TuP-22 Investigation of Wear-Resistance Enhancement of Plasma-functionalized Carbon-nanotube Composite Polyurethane Film, ***Daisuke Ogawa***, *H Uchida, K Nakamura,* Chubu University, Japan

PS-TuP-23 Dynamics of Power-Modulated Chlorine Plasmas, ***Tianyu Ma***, *T List, P Arora, Y Zhou, V Donnelly,* University of Houston*; S Nam,* Samsung Electronics, Republic of Korea

PS-TuP-25 Investigation of Electromagnetic Effects in Very High Frequency Linear Plasma Source, ***Xiaopu Li***, *K Bera, J Kenney, S Rauf, K Collins,* Applied Materials, Inc.

PS-TuP-26 Modeling of High-Density Magnetically Enhanced Inductive Plasmas Generated by Symmetrical Solenoid Coils, ***Bocong Zheng***, *M Shrestha, Q Fan,* Michigan State University

PS-TuP-27 Plasma Modeling in the OpenFOAM Framework, *A Verma,* ***Venkattraman Ayyaswamy***, University of California Merced

PS-TuP-29 The Role of Charge Exchange Collisions in Selective Etching of Si, ***Sergey Voronin***, *P Biolsi,* TEL Technology Center, America, LLC*; A Ranjan,* Tokyo Electron Miyagi Limited, Japan

PS-TuP-30 Development of an Aluminum Nitriding Process using Electrostatic Plasma Mass Spectroscopy and Energy Analysis and In Vacuuo Auger Electron Spectroscopy, ***Christopher Muratore***, m-Nanotech Ltd., University of Dayton*; A Korenyi-Both,* Tribologix Inc.

PS-TuP-31 A New Transformer Model for Solenoidal ICP Discharge Expandable to Low Density Plasma, ***Jang-Jae Lee***, *S Kim, K Kim, Y Lee, S You,* Chungnam National University, Republic of Korea

PS-TuP-32 Development of a Novel VI Sensor for RF Power Measurement, ***Kwang-Ki Kim***, *S You,* Chungnam National University, Republic of Korea

PS-TuP-33 Transmission Line Model of Cutoff Probe, ***Si-Jun Kim***, *J Lee, K Kim, Y Lee,* Chungnam National University, Republic of Korea*; D Kim,* Korea Institute of Machinery and Materials, Republic of Korea*; J Kim,* Korea Institute of Standards and Science, Republic of Korea*; S You,* Chungnam National University, Republic of Korea

PS-TuP-34 Fault Detection in Radio-frequency Plasma Processing using Voltage-current (VI) Probes and Statistical Models, ***Thomas Gilmore***, Impedans Ltd, Ireland

PS-TuP-35 Finding Adequate Global Model of Non-Maxwellian Distribution based on PIC Simulation, ***Young-Seok Lee***, *S Kim, J Lee, S You,* Chungnam National University, Republic of Korea

Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic
Room Central Hall - Session SA-TuP
Synchrotron and FEL-Based Analysis Poster Session
6:30pm

SA-TuP-2 Inelastic Background Analysis using a Reference on Technologically Relevant Samples: Determination of Input Parameters, ***Charlotte Zborowski***, *O Renault,* CEA/LETI-University Grenoble Alpes, France*; A Torres,* CEA/LETI-University Grenoble Alpes, Francee, France*; Y Yamashita,* NIMS, Japan*; G Grenet,* Inl, Ecl, France*; S Tougaard,* SDU, Denmark

SA-TuP-3 Hard X-ray Photoelectron Spectroscopy in the Home Laboratory: A Commercially Available System, ***Susanna Eriksson***, *P Palmgren, M Patt, M Heiss, P Baumann, P Zeigermann, T Wiell, K Backlund, C Liljenberg, M Lundqvist,* Scienta Omicron

SA-TuP-4 Vacuum System of the ESS Cold Linac, Update on Design and Status, ***Fabio Ravelli***, *S Scolari, M Ferreira,* European Spallation Source ERIC, Sweden

Scanning Probe Microscopy Focus Topic
Room Central Hall - Session SP-TuP
Scanning Probe Microscopy Poster Session
6:30pm

SP-TuP-1 Pycroscopy – A Community-Driven Software Package for Analyzing Microscopy Data, *S Somnath,* ***Chris Smith***, *S Jesse, R Vasudevan, N Laanait,* Oak Ridge National Laboratory

Surface Science Division
Room Central Hall - Session SS-TuP
Surface Science Poster Session
6:30pm

SS-TuP-1 Self-assembly of Organic Thin Films on Metal Surfaces, ***David Wisman***, Indiana University, Department of Chemistry and NSWC Crane*; C Tempas, T Morris,* Indiana University*; S Kim, D Lee,* Seoul National University*; S Tait,* Indiana University Department of Chemistry

SS-TuP-2 Periodic Modulation of Graphene by a 2D-FeO/Ir(111) Moiré Interlayer, ***Yujing Ma***, *M Batzill,* University of South Florida

SS-TuP-3 CO Oxidation on Single and Multiple Layer PdO(101) Structures Grown on Pd(100), ***Vikram Mehar***, *C Wu,* University of Florida, Gainesville*; M Shipilin, E Lundgren,* Lund University, Sweden*; H Gronbeck,* Chalmers University of Technology, Sweden*; A Ashtagiri,* The Ohio State University*; J Weaver,* University of Florida, Gainesville

SS-TuP-4 Evaluation of Dynamic Wettability on 2D Inverse Opal Structure, ***Naoya Yoshida***, *T Genma, K Fukasawa, T Okura,* Kogakuin University, Japan

SS-TuP-5 Direct Attachment and *In Situ* Metalation of 29,31-H Phthalocyanine on Chlorine-terminated Si(111) Surface, ***Chuan He***, *A Teplyakov,* University of Delaware

SS-TuP-6 Structural Growth and Oxidation of TbO_x Thin Films on Pt(111), ***Christopher Lee***, *V Mehar,* University of Florida*; S Keil, V Zielasek, M Bäumer,* University of Bremen, Germany*; J Weaver,* University of Florida

SS-TuP-7 Surface Spectroscopy and Thermal Desorption Studies of Sulfur-Doped Tungsten Oxide, ***Anthony Babore***, *J Langford, J Hemminger,* University of California Irvine

SS-TuP-8 Preparation and Characterization of Metal-doped Calcium Phosphate, ***Yuki Iwai***, *N Yoshida, T Okura,* Kogakuin University, Japan

SS-TuP-9 Multiscale Investigation of Catalytic Activity of Ultra-Thin Molybdenum Nitride for Hydrogendenitrogenation Process, *W Kaden,* ***Asim Khaniya***, University of Central Florida

SS-TuP-11 Infrared Analysis of Competitive Surface Adsorption in Superconformal Chemical Vapor Deposition, ***Zhejun Zhang***, University of Illinois at Urbana-Champaign, US; *E Mohimi, T Talukdar, G Girolami, J Abelson,* University of Illinois at Urbana-Champaign

SS-TuP-15 Universal Calibration of Computationally Predicted N 1s Binding Energies for Interpretation of XPS Experimental Measurements, ***Jing Zhao***[1], *A Teplyakov,* University of Delaware

SS-TuP-18 Vibrational Spectroscopy of Hydrogen Sulfide Adsorbed on Metallic W (100) and Oxygen Adsorbed W (100), ***Joel Langford***, *A Babore, J Hemminger,* University of California Irvine

SS-TuP-19 Lubricity of Gold Nanocrystals on Graphene Measured using Quartz Crystal Microbalance, *M Lodge,* University of Central Florida; *C Tang,* University of California Merced; ***Brandon Blue***, University of Central Florida; *W Hubbard,* University of California at Los Angeles; *A Martini,* University of California Merced; *B Dawson, M Ishigami,* University of Central Florida

SS-TuP-20 Controllable Synthesis of Ru/Pt Core Shell Nanoparticles with Bi-functional Interfaces towards PROX Reactions, ***Yun Lang***, *J Yang,* Huazhong University of Science and Technology, PR China; *K Cao,* Huazhong University of Science and Technology, PR China, China; *M Gong,* Huazhong University of Science and Technology, PR China; *B Shan, R Chen,* Huazhong University of Science and Technology, PR China, China

SS-TuP-21 Corrosion Resistance of Yttrium Trifluoride (YF3) and Yttrium Oxyfluoride (YOF) used in Plasma Process Chamber, ***Yoshinobu Shiba***, *A Teramoto, T Goto,* Tohoku university, Japan; *Y Kishi,* Nippon Yttrium Co., Ltd, Japan; *Y Shirai, S Sugawa,* Tohoku university, Japan

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Vacuum Technology Division
Room Central Hall - Session VT-TuP
Vacuum Technology Poster (and Student Poster Competition)

Moderators: James Fedchak, National Institute of Standards and Technology, Yevgeniy Lushtak, SAES Getters USA

6:30pm

VT-TuP-1 Ion-Cathode Bombardment in a DC Deuterium Glow Discharge for High-Density Deuterium Cluster Formation in Metals, ***Erik Ziehm***, *G Miley,* University of Illinois at Urbana-Champaign

VT-TuP-2 Low-cost Device Fabrication and Vacuum Packaging for Energy Efficient Field Emission Lighting, ***Sushma Shrinivasan***, *C Hunt,* University of California - Davis

VT-TuP-3 High Precision Measurement Of Tube Conductance From Pressure Decay Curve, ***Tim Verbovšek***, *B Šetina Batič, J Šetina,* Institute of Metals and Technology, Slovenia

VT-TuP-4 Using a High Vacuum Equipment Trainer (HVET) System for Hands-on Learning, ***Del Smith***, *N Louwagie,* Normandale Community College

VT-TuP-5 Advanced Metal Sealing Solutions for Critical Industry Applications, ***Ryan McCall***, Technetics Group

VT-TuP-6 Development of the Residual Gas Analysis for Large Air Tight Packages, ***Yusuke Nishikawa***, Advanced Technology R&D Center Mitsubishi Electric Corp., Japan; *M Kinugawa,* Advanced Technology R&D Center Mitsubishi Electric Corp.

VT-TuP-7 ARIEL RIB Transport line Vacuum System, ***Geoffrey Hodgson***, TRIUMF, Canada

VT-TuP-8 Operational Regime of 2 million L/s Cryobox Pump on Tri Alpha Energy's C2W Machine, ***Ernesto Barraza-Valdez***, *A Van Drie,* Tri Alpha Energy, Inc.

VT-TuP-9 NEG Coating of 6mm ID Copper Beam Pipes, ***Sol Omolayo***, Lawrence Berkeley National Lab

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

Special Events Wednesday

Special Events Wednesday

6:15 AM AVS 37th Annual 5 km Run (Register at the 5 km Booth before Wednesday)/Offsite
8:00 AM ASED Business Meeting/Grand Salon E-Marriott
8:15 AM ASED Executive Committee Meeting & Lunch/Grand Salon E-Marriott (by invitation)
10:00 AM AVS Member Center: Advocacy & Outreach-"How to Interact with your Congressional Representative," with Bob Boege, ASTRA CEO/18
12:20 PM NSTD Graduate Student and Postdoc Award Competitions/19
12:20 PM PSTD Coburn and Winters Adjudication Session (Closed Session)/23 (by invitation)
12:30 PM AVS Member Center: Professional Development: Federal Funding Town Hall and Lunch/18
12:30 PM PacSurf Committee Meeting & Lunch/Meeting Room 4-Marriott (by invitation)
4:30 PM Exhibitors & Manufacturers' Reception (Invitation Only)/West Hall (by invitation)
6:30 PM AVS Awards Ceremony & Reception/Ballroom B

Wednesday Morning, November 1, 2017

	2D Materials Focus Topic **Room 15 - Session 2D+EM+SS+TF-WeM** **2D Materials Growth and Fabrication** **Moderator:** Aleksandra Radenovic, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland	**Applied Surface Science Division** **Room 13 - Session AS+BI+MI+NS+SA+SS-WeM** **Beyond Traditional Surface Analysis: Pushing the Limits** **Moderators:** Svitlana Pylypenko, Colorado School of Mines, Paul Vlasak, The Dow Chemical Company
8:00am	**2D+EM+SS+TF-WeM-1** Chemical Bath Deposition of Phase Selective MoS_2 on Templated Surfaces, ***Jenny Hedlund***, *A Walker,* University of Texas at Dallas	**AS+BI+MI+NS+SA+SS-WeM-1** Photolysis of Pyruvic Acid in Aqueous Solution as a Source of Aqueous Secondary Organic Aerosol, ***Yao Fu***, *X Yu, F Zhang, Z Zhu,* Pacific Northwest National Laboratory; *J Chen,* Fudan University; *X Yu,* Pacific Northwest National Laboratory
8:20am	**2D+EM+SS+TF-WeM-2** Atomic Layer and Metalorganic Chemical Vapor Deposition of MoS_2 and WS_2 from bis(tert-butylimido)-bis(dialkylamido) Compounds, ***Berc Kalanyan***, *J Maslar, W Kimes, B Sperling,* NIST; *R Kanjolia,* EMD Performance Materials	**AS+BI+MI+NS+SA+SS-WeM-2** XPS Depth Profiling of $SrTiO_3$ and HfO_2 with Small Argon Clusters, ***Christopher Deeks***, Thermo Fisher Scientific, UK; *M Baker,* University of Surrey, UK; *P Mack,* Thermo Fisher Scientific, UK
8:40am	**INVITED: 2D+EM+SS+TF-WeM-3** Epitaxial Growth of Atomically Thin Transition Metal Dichalcogenides and their Electronic Structures, ***Sung-Kwan Mo***, Lawrence Berkeley National Laboratory	**INVITED: AS+BI+MI+NS+SA+SS-WeM-3** Surface Analysis of Intact Biomolecules: the Bigger They Are the Harder They Fly, ***Nina Ogrinc Potocnik***, *R Heeren,* Maastricht University, The Netherlands
9:00am	Invited talk continues.	Invited talk continues.
9:20am	**2D+EM+SS+TF-WeM-5** Terminations and Treatments of Silicon Carbide Surfaces to Promote Epitaxial Hexagonal Boron Nitride Deposition by Chemical Beam Epitaxy, ***Daniel Pennachio***, *N Wilson, A McFadden, T Brown-Heft,* University of California at Santa Barbara; *K Daniels, R Myers-Ward, D Gaskill, C Eddy, Jr.,* U.S. Naval Research Laboratory; *C Palmstrøm,* University of California at Santa Barbara	**AS+BI+MI+NS+SA+SS-WeM-5** Hydrogen/Deuterium Exchange Using Vapor Phase D_2O to Enhance SIMS Characterizations, ***Paul Vlasak***, The Dow Chemical Company
9:40am	**2D+EM+SS+TF-WeM-6** Photo-Chemical Modification of Monolayer Transition Metal Dichalcogenides, ***Tariq Afaneh***, *P Sahoo, H Gutierrez,* University of South Florida	**AS+BI+MI+NS+SA+SS-WeM-6** Fragmentation and Backscattering of Large Ar_n^+ Clusters as a Probe of Polymer Glass Transition, *C Poleunis,* Université Catholique de Louvain, Belgium; *V Cristaudo,* Université Catholique de Louvain, Belguim; ***Arnaud Delcorte***, Université Catholique de Louvain, Belgium
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**2D+EM+SS+TF-WeM-10** Bottom-up synthesis of Graphene Nanomembranes with Tunable Porosity, ***Christof Neumann***, Friedrich Schiller University Jena, Germany; *M Füser,* Goethe University Frankfurt, Germany; *M Mohn,* Ulm University, Germany; *D Kaiser,* Friedrich Schiller University Jena, Germany; *A Gölzhäuser,* Bielefeld University, Germany; *U Kaiser,* Ulm University, Germany; *A Terfort,* Goethe University Frankfurt, Germany; *A Turchanin,* Friedrich Schiller University Jena, Germany	**INVITED: AS+BI+MI+NS+SA+SS-WeM-10** Evolution of the Bi Cluster LMIS as a Universal Source for High Performance SIMS Analysis, ***Felix Kollmer***[1], ION-TOF GmbH, Germany
11:20am	**2D+EM+SS+TF-WeM-11** Cu Single Crystal Substrates for Growth of CVD Graphene, ***Tyler Mowll***, University at Albany, SUNY; *Z Robinson,* SUNY Brockport; *C Ventrice, Jr.,* SUNY Polytechnic Institute	Invited talk continues.
11:40am	**INVITED: 2D+EM+SS+TF-WeM-12** Paper and Circuits, only Atoms Thick, ***Jiwoong Park***, University of Chicago	**AS+BI+MI+NS+SA+SS-WeM-12** Evaluating the Benefits of Cs Cluster Analysis in ToF-SIMS and Cs/Xe Co-sputtering for Depth Profiling Layered Thin Films, ***James Ohlhausen***, *P Vianco, M Brumbach, R Chow,* Sandia National Laboratories
12:00pm	Invited talk continues.	**AS+BI+MI+NS+SA+SS-WeM-13** Real-Time Monitoring Electrochemical Reaction Intermediates using *In Situ* Time-of-Flight Secondary Ion Mass Spectrometry, ***Jun-Gang Wang***, East China University of Science and Technology; Pacific Northwest National Laboratory (PNNL), China; *Y Zhang, X Yu, Z Zhu,* PNNL

[1] **ASSD Peter Sherwood Award**

Wednesday Morning, November 1, 2017

	Biomaterial Interfaces Division **Room 12 - Session BI+NS-WeM** **Biomaterials and Nanomaterials Fabrication & In Honor of Dave Castner's 65th Birthday: Multitechnique Bio-Surface Characterization I** **Moderator:** Caitlin Howell, University of Maine	**Electronic Materials and Photonics Division** **Room 14 - Session EM-WeM** **Charge Transport in Disordered Materials** **Moderator:** Michelle Paquette, University of Missouri-Kansas City
8:00am	**BI+NS-WeM-1** Plasma-Enhanced Chemical Vapor Deposition of an Antibacterial Coating from an Essential Oil-Derived Precursor, ***Michelle Mann***, *E Fisher,* Colorado State University	**INVITED: EM-WeM-1** Electrons and Phonons in Amorphous Semiconductors, ***David Drabold***, *K Prasai,* Ohio University; *P Biswas,* University of Southern MIssissippi
8:20am	**BI+NS-WeM-2** Transition Metal Nanoparticles and Quantum Dots with Tunable Electronic Properties by Bacterial Precipitation: Synthesis and Applications, *K Marusak, Y Feng, E Ngaboyamahina, Y Cao, J Glass, L You,* ***Stefan Zauscher***, Duke University	Invited talk continues.
8:40am	**INVITED: BI+NS-WeM-3** Plasma Surface Modification of 2D and 3D Constructs: Creating and Evaluating New Materials for Biomedical Applications, ***Ellen Fisher***, Colorado State University	**EM-WeM-3** Percolation Resistivity in Nanostructured Transparent Conductor Networks Consisting of Curvy Nanowires, ***Junying Li***, *C Ying, J Hicks, A Ural,* University of Florida
9:00am	Invited talk continues.	**EM-WeM-4** Surface Chemical Control of Charge Transport and Infrared Plasmonic Response in Nanocrystal Thin Films, ***Dmitriy Boyuk***, *W Hu, M Filler,* Georgia Institute of Technology
9:20am	**INVITED: BI+NS-WeM-5** The Ins and Outs of Functionalized Natural Materials for Applications in Drug Delivery and Separations, ***Norma Alcantar***, *R Toomey, Z Veisi,* University of South Florida; *A Cardenas-Valencia, M Cardenas,* SRI International; *R Falahat,* Moffitt Cancer Center; *T Peng, F Guo,* University of South Florida	**EM-WeM-5** Study of Cation Exchange and Transport in Crystalline Solids Through Density Functional Theory Calculations, ***Daniel Dumett Torres***, University of Illinois at Urbana-Champaign
9:40am	Invited talk continues.	**EM-WeM-6** Probing Charge Transport in Amorphous Hydrogenated Boron Carbide, ***Gyanendra Bhattarai***, *S Dhungana, R Thapa, T Nguyen, A Caruso, M Paquette,* University of Missouri-Kansas City
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**BI+NS-WeM-10** Combinatorial Material Chemistry-Topography Screening: The ChemoTopo Chip, ***Britta Koch***[1], University of Nottingham, UK; *A Vasilevich, N Beijer, J de Boer,* Maastricht University, The Netherlands; *M Alexander,* The University of Nottingham, UK	**EM-WeM-10** On the Abnormality in Mobility of ZnO Thin Film Transistors Based on Sol-Gel Deposited Channel Layers, ***Vahid Mirkhani***, *K Yapabandara, S Wang, M Khanal, S Uprety,* Auburn University; *M Sk,* Qatar University, Qatar; *A Ahyi, M Hamilton, M Park,* Auburn University
11:20am	**BI+NS-WeM-11** Combining Surface Analytical and Computational Techniques to Investigate Orientation Effects of Immobilized Proteins, ***Elisa Harrison***, *G Interlandi, D Castner,* University of Washington, Seattle	**EM-WeM-11** Electrical Characterization and Localized Density of States Extraction of Thin-Film Transistors Based on Sol-Gel Derived ZnO Channel Layers with Different Annealing Temperatures, ***Shiqiang Wang***, *R Cheng, M Hamilton, V Mirkhani, K Yapabandara, S Uprety, A Ahyi, M Park,* Auburn University; *M Sk,* Qatar University, Qatar
11:40am	**BI+NS-WeM-12** Characterizing the Tumor Microenvironment and Tumor Progression, ***Blake Bluestein***, University of Washington; *F Morrish, D Hockenbery,* Fred Hutchinson Cancer Research Center; *L Gamble,* University of Washington	**EM-WeM-12** Real-space Characterizations of Photo-generated Carriers in P3HT-based Nanostructures using Kelvin Probe Force Microscopy, ***Eunah Kim***, *S Kwon,* Ewha Womans University, Republic of Korea; *D Kim,* Ewha Womans University, Republic of Korea, Republic of Korea; *H Park,* Korea Advanced Nano Fab Center, Republic of Korea; *J Kim,* Incheon National University, Republic of Korea; *D Kim,* Ewha Womans University, Republic of Korea
12:00pm	**BI+NS-WeM-13** Observing the Molecular Mechanisms of Insect Adhesion by Sum Frequency Generation Spectroscopy, *J Fowler,* Oregon State University; *S Gorb,* Kiel University, Germany; *T Weidner,* Aarhus University, Denmark; ***Joe Baio***, Oregon State University	**EM-WeM-13** Electrically Detected Magnetic Resonance Study of the Relationship Between Silicon Nitride Stoichiometries and Defect Structure and Energy Levels, ***Ryan Waskiewicz***, Pennsylvania State University; *M Mutch,* Micron Technology; *P Lenahan,* Pennsylvania State University; *S King,* Intel Corporation

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

Wednesday Morning, November 1, 2017

	Exhibitor Technology Spotlight Workshops **Room West Hall - Session EW-WeM** **Exhibitor Technology Spotlight Session** **Moderator:** Chris Moffitt, Kratos Analytical Limited, UK	**Fundamental Discoveries in Heterogeneous Catalysis Focus Topic** **Room 24 - Session HC+NS+SS-WeM** **Nanoscale Surface Structures in Heterogeneously-Catalyzed Reactions** **Moderator:** Erin Iski, University of Tulsa
8:00am		**HC+NS+SS-WeM-1** The Role of Nanoparticle Edges in Water Dissociation and Oxidation/reduction Reactions in Layered Cobalt Oxides Supported on Au(111) and Pt(111), ***Jakob Fester,*** *J Lauritsen,* Aarhus University, Denmark*; M Garcia-Melchor,* Trinity College Dublin*; A Walton,* University of Manchester, UK*; M Bajdich,* Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory*; A Vojvodic,* University of Pennsylvania*; Z Sun, J Rodríguez-Fernández,* Aarhus University, Denmark
8:20am		**HC+NS+SS-WeM-2** Analysis of Bulk and Surface Properties of Catalytically-Active Nickel Carbide/Nitride Nanostructures using X-ray Techniques*,* ***Samuel Gage****, K Fong, C Ngo, S Shulda,* Colorado School of Mines*; C Tassone, D Nordlund,* SLAC National Accelerator Laboratory*; R Richards, S Pylypenko,* Colorado School of Mines
8:40am		
9:00am		**HC+NS+SS-WeM-4** Grain-Boundary-Supported Active Sites for Electrochemical Catalysis*,* ***Xiaofeng Feng****,* University of Central Florida
9:20am		**INVITED: HC+NS+SS-WeM-5** Molecule-Surface Interaction on TiO_2 and MoS_2*,* ***Zhenrong Zhang****,* Baylor University
9:40am		Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**EW-WeM-8** State-of-the-art Pump Technologies for Clean High and Ultra-high Vacuum*, M Audi,* Agilent Technologies, Italy*;* ***Jim Ramsden****,* Agilent Technologies	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	Talk continues.	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		**INVITED: HC+NS+SS-WeM-10** Enantioselectivity: The Quintessential Structure Sensitive Surface Chemistry, ***Andrew Gellman****, P Kondratyuk, A Rienicker, M Payne,* Carnegie Mellon University
11:20am		Invited talk continues.
11:40am		**HC+NS+SS-WeM-12** Understanding the Growth and Chemical Activity of Pt-Re Clusters on HOPG and Titania Surfaces*,* ***Donna Chen****, T Maddumapatabandi, A Brandt, G Seuser,* University of South Carolina
12:00pm		**HC+NS+SS-WeM-13** *Single Atom Alloys* for Efficient and Cost-effective Catalysis*,* ***E. Charles Sykes****,* Tufts University

Wednesday Morning, November 1, 2017

	Magnetic Interfaces and Nanostructures Division Room 11 - Session MI+SA-WeM Controlling Magnetism in Oxides and Multiferroics and Chirality in Spin Transport and Magnetism (cont.) **Moderator:** Valeria Lauter, Oak Ridge National Laboratory	MEMS and NEMS Group Room 16 - Session MN+2D-WeM 2D NEMS **Moderators:** Zenghui Wang, Case Western Reserve University, Zhu Diao, Halmstad University/Stockholm University
8:00am		**MN+2D-WeM-1** Micro-patterned Graphene Temperature Sensors on Different Substrates, *B Davaji,* Marquette University, Cornell University*; H Cho,* Dongguk University*;* ***Jong-Kwon Lee,*** National Nanofab Center in Korea*; T Kang,* Dongguk University*; C Lee,* Marquette University
8:20am	**INVITED: MI+SA-WeM-2** Integrated Magnetics and Multiferroics for Compact and Power Efficient Sensing, Power, RF, Microwave and mm-Wave Tunable Electronics, ***Nian Sun,*** Northeastern University	**MN+2D-WeM-2** Characterizing the Resonant Behavior and Quality Factors of 3C-SiC Diaphragms Using Frequency Analysis and the Ring-Down Technique, ***Yongkun Sui,*** *H Chong, K Shara, C Zorman,* Case Western Reserve University
8:40am	Invited talk continues.	**MN+2D-WeM-3** Ion Radiation Effects in Silicon Carbide (SiC) Crystal Probed by Multimode Diaphragm Resonators, ***Hailong Chen,*** *V Pashaei,* Case Western Reserve University*; W Liao, C Arutt,* Vanderbilt University*; H Jia,* Case Western Reserve University*; M McCurdy,* Vanderbilt University*; C Zorman,* Case Western Reserve University*; R Reed, R Schrimpf, M Alles,* Vanderbilt University*; P Feng,* Case Western Reserve University
9:00am		**MN+2D-WeM-4** High-Aspect Ratio, Multi-Electrode, Carbon Nanotube Array, ***Berg Dodson,*** *G Chen, R Vanfleet, R Davis,* Brigham Young University
9:20am	**MI+SA-WeM-5** Controlling Spin Selectivity in Photoinduced Charge Transfer through Patterned DNA Microarrays, ***John Abendroth***[1]*, N Nakatsuka, M Ye, D Stemer,* University of California at Los Angeles*; D Kim, E Fullerton,* University of California at San Diego*; A Andrews, P Weiss,* University of California at Los Angeles	
9:40am	**MI+SA-WeM-6** Anomaly in Electric Transport Behaviour of Fe_3O_4 Thin Films, ***Murtaza Bohra,*** Mahindra Ecole Centrale, India	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: MI+SA-WeM-10** Intrinsic Interfacial Phenomena and Spin Structure in Nano and Heterostructures, ***Carlos Vaz,*** Paul Scherrer Institut, Switzerland	**MN+2D-WeM-10** Interferometric Motion Detection in Atomic Layer 2D Nanoelectromechanical Systems (NEMS), ***Zenghui Wang,*** University of Electronic Science and Technology of China, China*; P Feng,* Case Western Reserve University
11:20am	Invited talk continues.	**MN+2D-WeM-11** NEMS on Flexible Substrates for Strain Engineering in Sensing Applications, ***Swapnil More,*** Indian Institute of Science, India
11:40am	**MI+SA-WeM-12** Enantiomer-dependent Spin Orientation in Photoelectron Transmission through Heptahelicene Molecules, ***Matthias Kettner,*** *D Nürenberg,* University of Münster, Germany*; J Seibel,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*; H Zacharias,* University of Münster, Germany*; K Ernst,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**MN+2D-WeM-12** Parametric Amplification in MoS2 Drum Resonator, ***Parmeshwar Prasad***[2]*, N Arora, A Naik,* Indian Institute of Science, India
12:00pm	**MI+SA-WeM-13** Spin-selective Electron Transmission through Self-Assembled Layers of PNA, ***Paul Möllers,*** *M Kettner, D Nürenberg,* Westfälische Wilhelms-Universität Münster, Germany*; F Tassinari, T Markus,* Weizmann Institute of Science, Israel*; C Achim,* Carnegie Mellon University*; R Naaman,* Weizmann Institute of Science, Israel*; H Zacharias,* Westfälische Wilhelms-Universität Münster, Germany	**MN+2D-WeM-13** Anisotropic Thermal Conductivity of Suspended Black Phosphorous Probed by Opto-thermomechanical Resonance Spectromicroscopy, ***Arnob Islam***[2]*, P Feng,* Case Western Reserve University

[1] **Falicov Student Award Finalist**

[2] **MEMS/NEMS Best Paper Award Finalist**

Wednesday Morning, November 1, 2017

	Nanometer-scale Science and Technology Division Room 19 - Session NS+SS+SU-WeM Nanotechnology for Renewable Energy **Moderator:** Robert Ilic, National Institute of Standards and Technology (NIST)	Plasma Science and Technology Division Room 22 - Session PS+NS+SS-WeM Plasma Processing for Nanomaterials & Nanoparticles **Moderators:** Hisataka Hayashi, Toshiba, Japan, Kazunori Koga, Kyushu University, Japan
8:00am		**INVITED: PS+NS+SS-WeM-1** Plasma Catalysis: a Powerful Blend of the Four States of Matter, ***Kostya (Ken) Ostrikov***, Queensland University of Technology and CSIRO, Australia
8:20am		Invited talk continues.
8:40am	**INVITED: NS+SS+SU-WeM-3** Can "Photovoltaic" Halide Perovskites ($MAPbI_3$ & $MAPbBr_3$) be Ferroelectric?, ***David Cahen***, Weizmann Institute of Science, Israel	**PS+NS+SS-WeM-3** Vaporization of Nanoparticles in Low Temperature Plasmas, ***Necip Berker Uner***, *E Thimsen,* Washington University in St. Louis
9:00am	Invited talk continues.	**PS+NS+SS-WeM-4** Nanowires, Trusses and Pillars Produced by Assembly of Plasma Generated Nanoparticles, ***Ulf Helmersson***, *S Ekeroth, S Askari, R Boyd, N Brenning,* Linköping University, Sweden
9:20am	**INVITED: NS+SS+SU-WeM-5** NSTD-Recognition Award Talk: Mixed-Dimensional Nanomaterial Heterostructures for Electronic and Energy Applications, ***Mark Hersam***, Northwestern University	**INVITED: PS+NS+SS-WeM-5** Non-Equilibrium Plasmas for Nanoparticle Synthesis: from Semiconductors to Metals, ***Rebecca Anthony***, Michigan State University
9:40am	Invited talk continues.	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**NS+SS+SU-WeM-10** Magnetron Sputtered Nanostructured TiO_2 Thin Films for Dye Sensitized Solar Cells Applications, ***Pierre-Antoine Cormier***, *J Dervaux,* ChIPS, University of Mons, Belgium; *Y Pellegrin, F Odobel,* CEISAM, University of Nantes, France; *R Snyders,* ChIPS, University of Mons, Belgium	**PS+NS+SS-WeM-10** Photochemical Insulator-Metal Transition in Plasma-Synthesized ZnO Nanocrystal Networks, ***Benjamin Greenberg***, *Z Robinson, K Reich,* University of Minnesota; *C Gorynski,* University of Duisburg-Essen, Germany; *B Voigt,* University of Minnesota; *G Nelson,* Creighton University; *L Francis, B Shklovskii, E Aydil, U Kortshagen,* University of Minnesota
11:20am	**NS+SS+SU-WeM-11** Spectroscopic Evolution of Halide Perovskite Growth on Graphene Oxide Surfaces for Photovoltaics, ***Muge Acik***, Argonne National Laboratory; *G Lee,* Ulsan National Institute of Science and Technology, Korea; *R Rosenberg,* Argonne National Laboratory	**PS+NS+SS-WeM-11** Elucidating Energetic Trends in Hydrocarbon Plasma Systems for Plasma-Assisted Catalysis, ***Tara Van Surksum***, *E Fisher,* Colorado State University
11:40am	**NS+SS+SU-WeM-12** 2D Material Laminates for Ultra-fast and Selective Molecular-scale Separation, ***Saeed Moghaddam***, University of Florida	**PS+NS+SS-WeM-12** Synthesis of Metal Nanoparticle Electrocatalysts for Fuel Cell Applications by Atmospheric-Pressure Plasma Reduction, ***Joffrey Baneton***[1], Université Libre de Bruxelles, Belgium; *Y Busby,* Université de Namur, Belgium; *W Debouge,* Université Libre de Bruxelles, Belgium; *G Caldarella,* Université de Liège, Belgium; *J Pireaux,* Université de Namur, Belgium; *V Debaille,* Université Libre de Bruxelles, Belgium; *N Job,* Université de Liège, Belgium; *M Gordon,* University of California at Santa Barbara; *R Sankaran,* Case Western Reserve University; *F Reniers,* Université Libre de Bruxelles, Belgium
12:00pm		**PS+NS+SS-WeM-13** Microplasma Spray Deposition of Metal Oxide Nanostructures for Energy Applications, ***Katherine Mackie***, *M Gordon,* University of California at Santa Barbara

[1] **Coburn & Winters Student Award Finalist**

	Plasma Science and Technology Division **Room 23 - Session PS-WeM** **Advanced BEOL/Interconnect Etching** **Moderators:** Fred Roozeboom, TNO-Holst Centre & Eindhoven University of Technology, The Netherlands, GeunYoung Yeom, Sungkyunkwan University, Republic of Korea	**Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic** **Room 9 - Session SA+2D+AC+MI-WeM** **Recent Advances of Diffracting/Scattering and Spectroscopic Methods for Correlated and 2D Materials** **Moderators:** Hans-Peter Steinrück, University Erlangen-Nuernberg, Germany, Kristina Edström, Uppsala University, Sweden
8:00am	**PS-WeM-1** Plasma Etch Considerations for EUV Quad-layer Patterning Stacks, ***Angélique Raley,*** TEL Technology Center, America, LLC; *J Shearer, I Seshadri, A De Silva, J Arnold, N Felix,* IBM Research Division, Albany, NY; *H Cottle, A Metz,* TEL Technology Center, America, LLC	**INVITED: SA+2D+AC+MI-WeM-1** Studies of Surfaces and Catalysis in real time with X-ray Free Electron Laser, ***Anders Nilsson,*** Stockholm University, Sweden
8:20am	**PS-WeM-2** Direct Metal Etch Evaluation for Advanced Interconnect, ***Sara Paolillo,*** *F Lazzarino, N Rassoul, D Wan, D Piumi, Z Tokei,* IMEC	Invited talk continues.
8:40am	**INVITED: PS-WeM-3** Evolution of Dielectric Etchers, ***Hiromasa Mochiki,*** Tokyo Electron Miyagi Limited, Japan	**INVITED: SA+2D+AC+MI-WeM-3** New Generation RIXS of 3*d*-TM Oxides, ***Giacomo Ghiringhelli,*** Politechnico Milano, Italy
9:00am	Invited talk continues.	Invited talk continues.
9:20am	**PS-WeM-5** Etch Residue Formation and Growth on Patterned Porous Dielectrics: Angle-resolved XPS and Infrared Characterization, ***QuocToan Le,*** *E Kesters, F Holsteyns,* IMEC, Belgium	**INVITED: SA+2D+AC+MI-WeM-5** Resonant Inelastic X-ray Scattering on Low-Dimensional Correlated Transition Metal Oxides and Oxide Heterostructures, ***Thorsten Schmitt,*** Paul Scherrer Institut, Switzerland
9:40am	**PS-WeM-6** Etch Challenges Associated with Sub-36nm Pitch BEOL EUV Patterning, ***Jeffrey Shearer,*** IBM Research Division; *A Raley,* TEL Technology Center, America, LLC; *A De Silva, L Meli, I Seshadri, R Bonam, N Saulnier, B Briggs,* IBM Research Division; *T Oh,* Samsung Electronics Co. Ltd.; *A Metz,* TEL Technology Center, America, LLC; *J Arnold,* IBM Research Division	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**PS-WeM-10** ALD-SiO2 Chamfer-Less-Flow for Dual Damascene Integration, ***Xinghua Sun,*** *T Yamamura, A Metz, P Biolsi,* TEL Technology Center, America, LLC; *H Nagai, R Asako,* Tokyo Electron Limited PCDC, Japan	**INVITED: SA+2D+AC+MI-WeM-10** Doping of Graphene Exploited with Spectromicroscopy, ***Carla Bittencourt,*** University of Mons, Belgium
11:20am	**PS-WeM-11** Tone Reversal Technology Development Targeting Below 5nm Technology Node Applications, ***Stefan Decoster,*** *F Lazzarino, X Piao, N Rassoul,* IMEC, Belgium; *Y Fourprier,* TEL Technology Center, America, LLC; *D Piumi,* IMEC, Belgium	Invited talk continues.
11:40am	**PS-WeM-12** Towards the Elimination of Ultra-Low *k* Ash Damage Using an *In Situ*- Plasma Polymerized Film during Etch, ***Katie Lutker,*** TEL Technology Center, America, LLC	**INVITED: SA+2D+AC+MI-WeM-12** Multi-modal and Multi-dimensional Synchrotron Investigation of Functional Materials, ***Karen Chen-Wiegart,*** Stony Brook University/Brookhaven National Laboratory
12:00pm	**PS-WeM-13** Direct Metal Nanowire Patterning Using Ion Beam Etch, ***Shreya Kundu,*** IMEC, Belgium; *S Dutta,* KU Leuven, IMEC, Belgium; *A Gupta, G Jamieson, D Piumi, J Boemmels, C Wilson, Z Tokei, C Adelmann,* IMEC, Belgium	Invited talk continues.

Wednesday Morning, November 1, 2017

	Scanning Probe Microscopy Focus Topic **Room 10 - Session SP+SS+TF-WeM** **Probing and Manipulating Nanoscale Structure** **Moderators:** Zheng Gai, Oak Ridge National Laboratory, Qiang Zou, Oak Ridge National Laboratory	**Surface Science Division** **Room 25 - Session SS-WeM** **Deposition and Growth at Surfaces** **Moderators:** Kathryn Perrine, Michigan Technological University, Arthur Utz, Tufts University
8:00am	**INVITED: SP+SS+TF-WeM-1** STM-Based Nanofabrication and Integrating Nanostructures with Clean Semiconductor Surfaces, ***Joseph Lyding,*** University of Illinois at Urbana-Champaign	**INVITED: SS-WeM-1** Metal Growth on and under Graphene: Morphology, Intercalation and Magnetization, ***Michael Tringides,*** Iowa State University and Ames Laboratory
8:20am	Invited talk continues.	Invited talk continues.
8:40am	**SP+SS+TF-WeM-3** Calcium Mediates Adhesion in Reservoir Fluids, *S Eichmann,* Aramco Research Center - Boston; ***Nancy Burnham,*** Worcester Polytechnic Institute	**SS-WeM-3** Nonequilibrium Growth of an Ordered ZnTPP Overlayer on a Ag(100), ***Robert Bartynski,*** Rutgers, the State University of New Jersey; *P Kim, S Rangan,* Rutgers University; *C Ruggieri,* Rutgers, the State University of New Jersey; *D Lu,* CFN, Brookhaven National Laboratory; *S Whitelam,* The Molecular Foundry, LBNL
9:00am	**SP+SS+TF-WeM-4** Nanoscopy of Muscovite Mica, ***Sampath Gamage,*** *M Howard, A Fali,* Georgia State University; *K Bolotin,* Free University of Berlin, Germany; *Y Abate,* Georgia State University	**SS-WeM-4** Growth and Motion of Liquid Alloy Droplets of Au on Ge(110), *B Stenger, A Dorsett, J Miller, E Russell, C Gabris,* ***Shirley Chiang,*** University of California Davis
9:20am		**SS-WeM-5** Photodeposition of Pt Clusters on HOPG Supported TiO_2 Nanoparticles: Development of a Nanomaterial Model Catalyst System, ***Jared Bruce,*** *A Babore, R Galhenage, J Hemminger,* University of California Irvine
9:40am		**SS-WeM-6** In Vacuo Low-energy Ions Scattering Studies of ZrO_2 Growth by Magnetron Sputtering, ***Marko Sturm,*** *R Coloma Ribera, R van de Kruijs, A Yakshin, F Bijkerk,* MESA+ Institute for Nanotechnology, University of Twente, Netherlands
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: SP+SS+TF-WeM-10** Investigation of Energy Transfer and Conversion at a Single Molecule with an STM, ***Yousoo Kim,*** RIKEN, Japan	**SS-WeM-10** Dihydrotetraazapentcene Growth on Alumina Thin Films and Sapphire: from the Submonolayer to nm Thick Films, ***Anthony Thomas,*** *T Léoni, A Ranguis, L Masson, O Siri,* Aix-Marseille University, France; *B Kaufmann, A Matkovic, M Kratzer, C Teichert,* Montanuniversität Leoben, Austria; *C Becker,* Aix-Marseille University, France
11:20am	Invited talk continues.	**SS-WeM-11** Zintl Template Formation and Function during Atomic Layer Deposition Growth of Crystalline Perovskites on Ge (001), ***Shen Hu,*** *A Posadas, A Demkov, J Ekerdt,* The University of Texas at Austin
11:40am		**SS-WeM-12** Role of the Surface Charge Density in the Surface Relaxation: The Case of Au(111), *M Valbuena,* Universidad Autonoma de Madrid; *C Quiros,* Universidad de Oviedo; *E Salagre,* Universidad Autónoma de Madrid; *A Oliva, M Plaza, J Martinez-Blanco, P Segovia,* Universidad Autonoma de Madrid; ***Enrique G. Michel,*** Universidad Autonoma de Madrid, Spain
12:00pm		**SS-WeM-13** Modeling Physical Vapor Deposition of Energetic Materials, ***Koroush Shirvan,*** MIT; *E Forrest,* Sandia National Laboratories

Wednesday Morning, November 1, 2017

	Sustainability Focus Topic **Room 5 & 6 - Session SU+AS+EM+MS-WeM** **Piezoelectrics, Thermoelectrics, and Superconductors** **Moderators:** George Nolas, University of South Florida, Kimberly Cook-Chennault, Rutgers University	**Thin Films Division** **Room 21 - Session TF+EM+MI-WeM** **Thin Films for Microelectronics** **Moderators:** Erwin Kessels, Eindhoven University of Technology, the Netherlands, Adrie Mackus, Eindhoven University, Netherlands
8:00am		**TF+EM+MI-WeM-1** Electrode Modulated Electric Field Capacitance Nonlinearity in ALD Al_2O_3 and HfO_2 Metal-Insulator-Metal Capacitors, *D Austin, K Holden,* ***John Conley, Jr.,*** Oregon State University
8:20am	**SU+AS+EM+MS-WeM-2** Investigation into Novel p-type Thermoelectric Materials, ***Dean Hobbis,*** *K Wei, G Nolas,* University of South Florida	**TF+EM+MI-WeM-2** Difference of the Hysteresis in Capacitance-voltage Characteristics of ALD-Al_2O_3 MIS Capacitors on Si and GaN Substrate, ***Masaya Saito,*** *T Suwa, A Teramoto,* Tohoku University, Japan*; T Narita,* Toyota Central R&D Labs. Inc., Japan*; T Kachi,* Nagoya University, Japan*; R Kuroda, S Sugawa,* Tohoku University, Japan
8:40am	**INVITED: SU+AS+EM+MS-WeM-3** Thermoelectrics for Sustainable Energy Harvesting, ***Mary Anne White,*** Dalhousie University, Canada	**TF+EM+MI-WeM-3** Monolithic Integration of C-type Erbium Oxide on GaN(0001) by Atomic Layer Deposition, ***Pei-Yu Chen,*** *A Posadas,* The University of Texas at Austin*; S Kwon, Q Wang, M Kim,* The University of Texas at Dallas*; A Demkov, J Ekerdt,* The University of Texas at Austin
9:00am	Invited talk continues.	**TF+EM+MI-WeM-4** High-Performance p-Type Thin Film Transistors Using Atomic-Layer-Deposited SnO Films, *S Kim, I Baek, J Pyeon,* Korea Institute of Science and Technology, Republic of Korea*; T Chung, J Han,* Korea Research Institute of Chemical Technology, Republic of Korea*;* ***SeongKeun Kim,*** Korea Institute of Science and Technology, Republic of Korea
9:20am	**INVITED: SU+AS+EM+MS-WeM-5** Toward a Greener World: The (Re)search for Lead-Free Piezoelectrics, ***Xiaoli Tan,*** Iowa State University	**INVITED: TF+EM+MI-WeM-5** Recent Progresses of Atomic Layer Deposited Oxide Semiconductors for Emerging Display Applications, ***Jin-Seong Park,*** *J Sheng, J Lee,* Hanyang University, Republic of Korea
9:40am	Invited talk continues.	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		**TF+EM+MI-WeM-10** Silicon Nitride Thin Films Grown by Hollow Cathode Plasma-Enhanced ALD using a Novel Chlorosilane Precursor, ***Xin Meng,*** *H Kim, A Lucero, J Lee, Y Byun, J Kim,* University of Texas at Dallas*; B Hwang, X Zhou, M Telgenhoff, J Young,* Dow Chemical
11:20am	**SU+AS+EM+MS-WeM-11** Thermal Annealing Effects on the Thermoelectric Properties of Si/Si+Sb Thin Films, ***Satilmis Budak,*** *Z Xiao, M Curley, M Howard, B Rodgers, M Alim,* Alabama A&M University	**TF+EM+MI-WeM-11** Removal of Charge Centers in Hafnia Films by Remote Plasma Nitruration, ***Orlando Cortazar-Martínez,*** *J Torres-Ochoa, C Gomez-Muñoz, A De Luna-Bugallo, A Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico
11:40am	**INVITED: SU+AS+EM+MS-WeM-12** Critical Current by Design, ***George Crabtree,*** *U Welp,* Argonne National Laboratory*; K Kihlstrom,* University of Illinois at Chicago*; A Koshelev,* Argonne National Laboratory*; A Glatz,* Northern Illinois University*; I Sadovskyy, W Kwok,* Argonne National Laboratory	**TF+EM+MI-WeM-12** Seam-free Bottom-up Filling of Trenches with HfO_2 using Low Temperature CVD, ***Tushar Talukdar,*** *W Wang, E Mohimi, G Girolami, J Abelson,* University of Illinois at Urbana-Champaign
12:00pm	Invited talk continues.	**TF+EM+MI-WeM-13** Low-κ Organosilicon Thin Films Deposited by iCVD for Electrical Insulation of Through Silicon Vias, ***Mélanie Lagrange,*** *C Ratin, M Van-Straaten, C Ribière, T Mourier, V Jousseaume,* CEA-Leti, France

Wednesday Morning, November 1, 2017

	Thin Films Division **Room 20 - Session TF-WeM** **Thin Film for Photovoltaics** **Moderators:** Mariadriana Creatore, Eindhoven University of Technology, The Netherlands, Virginia Wheeler, U.S. Naval Research Laboratory	**Vacuum Technology Division** **Room 7 & 8 - Session VT-WeM** **Transfer and Ultraclean Systems, Particle Control, and History** **Moderators:** Jason Alfrey, Vacuum Technology, Inc., Marcy Stutzman, Jefferson Lab
8:00am	**INVITED: TF-WeM-1** Stable Perovskite Solar Cells by 2D/3D Interface Engineering, ***Mohammad Khaja Nazeeruddin***, *G Grancini, C Roldán-Carmona, I Zimmermann, Y Lee,* Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland	**INVITED: VT-WeM-1** Applications and Challenges of UHV- and Cryo Transfer of Samples Between Independent Analytical Systems, ***Urs Maier***, *S Köster, D von Gunten,* Ferrovac GmbH, Switzerland; *S Yoshizawa, T Uchihashi,* National Institute for Materials Science, Japan; *S Rauschenbach,* Max-Planck-Institute for Solid State Research, Germany
8:20am	Invited talk continues.	Invited talk continues.
8:40am	**TF-WeM-3** Single-step, Atmospheric CVD of Methylammonium Bismuth Iodide Perovskite Thin Films, *X Chen,* Washington University in St. Louis; *Y Myung,* Sejong University, Republic of Korea; *A Thind, Z Gao, B Yin, B Sadtler, R Mishra,* ***Parag Banerjee***, Washington University in St. Louis	**VT-WeM-3** Ultra-clean Sample Transportation in an EUV Exposure System, ***Freek Molkenboer***, *N Koster, A Deutz, B Nijland, P Kerkhof, P Muilwijk, B Oostdijck, J Westerhout, C Hollemans, W Mulckhuyse, M van Putten, P van der Wall, A Hoogstrate, H Diesveld, A Abutan,* TNO, Netherlands
9:00am	**TF-WeM-4** Atomic Layer Deposition of TiO_2 Charge Recombination Blocking Layer and SnO_2 Electron Transport Layer for Perovskite Solar Cells, *Y Kuang,* Eindhoven University of Technology, Netherlands; *V Zardetto,* Solliance Solar Research, Netherlands; *R van Gils,* Eindhoven University of Technology, Netherlands; *F di Giacomo,* Solliance Solar Research, Netherlands; *G Lucarelli,* University of Rome Tor Vergata, Italy; *W Kessels,* Eindhoven University of Technology, Netherlands; *T Brown,* University of Rome Tor Vergata, Italy; ***Mariadriana Creatore***, Eindhoven University of Technology, Netherlands, The Netherlands	**VT-WeM-4** Oxidation and Contamination Monitoring Methods for Air Sensitive Materials Transfer: From Glove Box to UHV Surface Analysis, ***Hugo Celio***, *K Ohlinger,* University of Texas at Austin
9:20am	**TF-WeM-5** The Reaction Between Pyridine and $CH_3NH_3PbI_3$ Surface-Confined Reaction or Bulk Transformation?, ***XiaoZhou Yu***, University of Alabama; *H Yan, Q Peng,* University of alabama	**INVITED: VT-WeM-5** Particle Contamination Control in the Accelerator Vacuum Systems of the European XFEL, ***Lutz Lilje***, *S Lederer,* DESY, Germany
9:40am	**TF-WeM-6** GaN-stabilized Ta_3N_5 Thin Film as a Photoanode for Solar Water Splitting, ***Taro Yamada***, *Y Sasaki,* The University of Tokyo, Japan; *S Suzuki,* Shinshu University, Japan; *M Zhong,* The University of Tokyo, Japan; *K Teshima,* Shinshu University, Japan; *K Domen,* The University of Tokyo, Japan	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		**INVITED: VT-WeM-10** Development, Solution of Design Issues, Final Design and Performance of an Electrostatic Triode Getter-Ion Pump, 1967-1973, ***Paul Arnold***, MKS Instruments, Inc.
11:20am	**TF-WeM-11** A Viable Magnetron Sputtering Process for Thin Film CdTe Solar Cells, ***John Walls***, *F Bittau, R Greenhalgh, A Abbas, S Yilmaz,* Loughborough University, UK	Invited talk continues.
11:40am	**TF-WeM-12** Hybrid Single Layer Organic Solar Cell Based on Polyvinyl Alcohol and Zinc Oxide Nanoparticles, ***Monas Shahzad***, Forman Christian College (A Chartered University), Pakistan	**VT-WeM-12** The Modern View of the Vacuum, ***H. Frederick Dylla***, American Institute of Physics
12:00pm	**TF-WeM-13** Phase Stability and Cation Site Distribution during Thermal Annealing of CZTS Nanoparticle-Coatings, ***Stephen Exarhos***, *E Palmes, R Xu, L Mangolini,* University of California, Riverside	**VT-WeM-13** History of Very Thick Film and Bulk Sample Group IIIB, IVB, VB and Rare Earth Materials for Various Vacuum Applications, ***James L. Provo***, J.l. Provo Consulting

Wednesday Afternoon, November 1, 2017

	2D Materials Focus Topic Room 16 - Session 2D+EM+MN+NS-WeA 2D Device Physics and Applications **Moderator:** Humberto Gutierrez, University of South Florida	2D Materials Focus Topic Room 15 - Session 2D-WeA Properties and Characterization of 2D Materials **Moderator:** Tien-Ming Chuang, Academia Sinica, Taiwan
2:20pm	**2D+EM+MN+NS-WeA-1** Capacitance-voltage Characteristics of Graphene-gate MOS Devices: The Effect of Graphene Quantum Capacitance, ***Ruixue Lian***, *A Ural,* University of Florida	**2D-WeA-1** Multi-scale Mechanics of Graphene Oxide, ***Changhong Cao***, *M Daly, C Singh, Y Sun, T Filleter,* University of Toronto, Canada
2:40pm	**2D+EM+MN+NS-WeA-2** *in-situ* Electrical Characterization of Surface Functionalization and Gate Dielectric Deposition Processes on 2D Transition Metal Dichalcogenides Transistors, ***Antonio T. Lucero***, *J Lee, L Cheng, H Kim, S Kim, J Kim,* University of Texas at Dallas	**2D-WeA-2** Modification of Density of States in Iron Chloride Intercalated Epitaxial Graphene with Electric Bias, *K McAllister, A Sharma,* Clark Atlanta University; *K Shepperd, E Conrad,* Georgia Institute of Technology; ***Michael Williams***, Clark Atlanta University
3:00pm	**2D+EM+MN+NS-WeA-3** High-K Gate oxide by Low Temperature ALD Technique for 2D Materials and Inert Metal Surfaces, ***Il Jo Kwak***, University of California at San Diego; *J Park,* University of California at San Diego, Republic of Korea; *S Fathipour, A Seabaugh,* University of Notre Dame; *C Pang, Z Chen,* Purdue University; *A Kummel,* University of California at San Diego	**2D-WeA-3** Anisotropic MoS_2 Nanosheets Grown on Self-Organized Nanopatterned Substrates, *F Buatier de Mongeot,* ***Carlo Mennucci***, Università di Genova, Italy; *C Martella, E Cinquanta, A Lamperti,* IMM-CNR, Agrate Brianza (MB), Italy; *E Cappelluti,* Istituto dei Sistemi Complessi (ISC)-CNR U.O.S. Sapienza Roma, Italy; *A Molle,* IMM-CNR, Agrate Brianza (MB), Italy
3:20pm	**2D+EM+MN+NS-WeA-4** Exploration and Comparison of Optoelectronic Properties of MoS_2 Monolayers with Multilayer Flakes and $Mo_xW_{1-x}S_2$ Ternary Compounds, ***Sourav Garg***, *J Waters, A Mollah, S Kim, P Kung,* University of Alabama	**2D-WeA-4** The Potential for Fast van der Waals Computations for Layered Materials using a Lifshitz Model, ***Yao Zhou***, *L Pellouchoud, E Reed,* Stanford University
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm		**2D-WeA-7** Tip Enhanced Optical Spectroscopy: A Unique Tool to Address Nanoscale Heterogeneity in 2D Materials, ***Andrey Krayev***, AIST-NT Inc.; *M Chaigneau,* Horiba Scientific, France; *V Zhizhimontov, A Robinson,* AIST-NT Inc
4:40pm	**2D+EM+MN+NS-WeA-8** Dielectric Properties of Carbon Nanomembranes prepared from aromatic Self-Assembled Monolayers investigated by Impedance Spectroscopy, ***Paul Penner***, *E Marschewski, X Zhang,* Bielefeld University, Germany; *T Weimann, P Hinze,* Physikalisch-Technische Bundesanstalt, Germany; *A Beyer, A Gölzhäuser,* Bielefeld University, Germany	**2D-WeA-8** Lithium-Free Covalent Chemical Functionalization of Two-Dimensional Molybdenum Disulfide, *X Chu, A Yousaf, D Li, A Tang, A Debnath, D Ma, A Green,* Arizona State University; *E Santos,* Queen's University Belfast, UK; ***Qing Hua Wang***, Arizona State University
5:00pm	**INVITED: 2D+EM+MN+NS-WeA-9** 2D Crystals for Next-Generation Ultra Energy-Efficient Electronics, ***Kaustav Banerjee***, University of California at Santa Barbara	**2D-WeA-9** Spatially Resolved Modification of Graphene's Band Structure by Surface Oxygen Atoms, *C Harthcock, A Jahanbekam, Y Zhang,* ***David Y. Lee***, Washington State University
5:20pm	Invited talk continues.	**2D-WeA-10** Enabling Atmospheric Pressure Photoelectron Imaging and Spectroscopy using Graphene, *H Guo,* National Institute of Standards and Technology; *E Strelcov,* NIST Center for Nanoscale Science and Technology / University of Maryland; *A Yulaev,* University of Maryland; ***Ivan Vlassiuok***, Oak Ridge National Laboratory; *A Kolmakov,* NIST Center for Nanoscale Science and Technology
5:40pm		**2D-WeA-11** Direct Write Mask Free Fabrication of Semiconductor 2D Architectures on Different Substrates using Aqueous Inks, ***Irma Kuljanishvili***, *D Alameri, R Dong,* Saint Louis University; *L Ocola,* Argonne National Laboratory
6:00pm		**2D-WeA-12** Band Gap Tuning of MBE Grown WSe_2 via Solution Treatment of Ammonium Sulfide $(NH_4)_2S$ and Ozone (O_3), ***Jun Hong Park***, Institute for Basic Science (IBS), Ewha Womans University, Republic of Korea; *I Kwak,* University of California at San Diego; *A Rai, S Banerjee,* University of Texas at Austin; *A Kummel,* University of California at San Diego

	Applied Surface Science Division **Room 13 - Session AS+2D+NS+SA-WeA** **2D, 3D and nD Imaging of Surfaces, Buried Interfaces and Nanostructures** **Moderators:** Michael Brumbach, Sandia National Laboratories, Kathryn Lloyd, DuPont	**Biomaterial Interfaces Division** **Room 12 - Session BI+AS-WeA** **In Honor of Dave Castner's 65th Birthday: Multitechnique Bio-Surface Characterization II** **Moderators:** Lara Gamble, University of Washington, Daniel Graham, University of Washington
2:20pm	**AS+2D+NS+SA-WeA-1** Laser-SNMS Imaging of Organic and Biological Systems in Two and Three Dimensions., ***Bonnie June Tyler,*** *A Pelster, M Heeger, H Arlinghaus,* Universität Münster, Germany	**INVITED: BI+AS-WeA-1** Contributions Advancing Surface Technologies: NEXAFS, ESCA, Rhodium (and More), ***Buddy D. Ratner,*** University of Washington, Seattle
2:40pm	**AS+2D+NS+SA-WeA-2** Distribution of Surfactants and Polymer in a Coating using GCIB-SIMS, ***Michaeleen Pacholski,*** *Z Qu, W Ouyang,* The Dow Chemical Company	Invited talk continues.
3:00pm	**INVITED: AS+2D+NS+SA-WeA-3** Correlation of Morphological and Hyperspectral Characterization Techniques for Nanoelectronic and Energy Applications, ***Jean-Paul Barnes,*** *A Priebe, G Goret, I Mouton, A Grenier, G Audoit, P Bleuet, Y Mazel, E Nolot,* Univ. Grenoble Alpes, CEA, LETI, France*; S Legendre, A Tempez,* Horiba France S.a.s., France*; R Estivill, M Juhel,* STMicroelectronics, France*; S Duguay, F Vurpillot, D Blavette,* Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, France	**BI+AS-WeA-3** Characterization of Bio-Molecules with GCIB-SIMS equipped with MS/MS Spectrometer, ***Jiro Matsuo,*** *T Seki, T Aoki,* Kyoto University, SENTA, JST, Japan
3:20pm	Invited talk continues.	**BI+AS-WeA-4** Linking Nanosilver (AgNP) Toxicity to the Physicochemical Properties of the Particles which can Change as a Function of Experimental and Biological Conditions, ***Donald Baer,*** Pacific Northwest National Laboratory*; J Brown,* University of Colorado at Denver*; A Porter,* Imperial College London, UK*; B Thrall,* Pacific Northwest National Laboratory*; T Tetley,* Imperial College London, UK, United Kingdom of Great Britain and Northern Ireland*; L Van Winkle,* University of California at Davis*; T Xia,* University of California at Los Angeles
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: AS+2D+NS+SA-WeA-7** Insights into Corrosion and Radiation Damage Processes Through 2D and 3D Imaging at the Nanoscale, ***Karen Kruska,*** *D Schreiber, D Edwards, Z Zhai, M Olszta, I Arslan, M Conroy, C Wang, R Kurtz, S Bruemmer,* Pacific Northwest National Laboratory	**BI+AS-WeA-7** Protein Imaging from the Subcellular Level to the Single Protein Level, ***DaeWon Moon,*** DGIST, Republic of Korea
4:40pm	Invited talk continues.	**BI+AS-WeA-8** Integrating Biological and Surface Chemical Characterisation to Probe Bacterial and Lipid Vessicle Interactions at Surfaces, ***Sally McArthur,*** Swinburne University of Technology and CSIRO, Australia*; M Abrigo, H Askew, K Jarvis,* Swinburne University of Technology, Australia
5:00pm	**AS+2D+NS+SA-WeA-9** XPS Spectroscopic Imaging of 2D-Materials, ***Olivier Renault,*** CEA-Leti, France*; H Kim,* EPFL, France*; D Ferrah,* UCl, France*; N Fairley,* Casa Software, France*; M Gay,* CEA-Leti, France*; M Frégnaux,* UVSQ, France*; A Kis,* EPFL, France	**INVITED: BI+AS-WeA-9** A Physical Chemist and a Chemical Engineer Walk into a Bar… Reflections on Surface and Interface Analysis, ***Matthew Wagner,*** The Procter & Gamble Company
5:20pm	**AS+2D+NS+SA-WeA-10** Carboxylic Acid Headgroups – Towards a New Standard in SAMs, ***Anna Krzykawska,*** Jagiellonian Univeristy, Poland*; J Ossowski, T Żaba, P Cyganik,* Jagiellonian University, Poland	Invited talk continues.
5:40pm	**AS+2D+NS+SA-WeA-11** 2-D and 3-D Characterization of Functionalized Nanostructured Carbons, ***Chilan Ngo,*** *D Diercks, M Strand, M Dzara, J Hagen, S Pylypenko,* Colorado School of Mines	**BI+AS-WeA-11** Investigating the Cytotoxicity of Commercially Available Poly(*N*-isopropyl Acrylamide)-coated Surfaces, *L Stapleton, M Cooperstein, P Nguyen,* ***Heather Canavan,*** University of New Mexico
6:00pm	**AS+2D+NS+SA-WeA-12** Characterization of Natural Photonic Crystals in Glitterwing (*Chalcopteryx rutilans*) Dragonfly Wings using 3D TOF-SIMS, ***Ashley Ellsworth,*** *D Carr, G Fisher,* Physical Electronics*; W Valeriano, R de Andrade, J Vasco, E da Silva, Â Machado, P Guimarães, W Rodrigues,* Universidade Federal de Minas Gerais, Brazil	**BI+AS-WeA-12** Development of Surface Analysis Methods for Characterizing Immobilized Proteins, ***David Castner,*** University of Washington

	Electronic Materials and Photonics Division **Room 14 - Session EM+2D+MI+MN-WeA** **Materials and Devices for Quantum Information Processing** **Moderators:** Rachael Myers-Ward, U.S. Naval Research Laboratory, Steven Vitale, MIT Lincoln Laboratory	**Fundamental Discoveries in Heterogeneous Catalysis Focus Topic** **Room 24 - Session HC+SA+SS-WeA** **Bridging Gaps in Heterogeneously-Catalyzed Reactions** **Moderator:** Yu Lei, University of Alabama in Huntsville
2:20pm	**INVITED: EM+2D+MI+MN-WeA-1** Controlling the Valley Degree of Freedom in 2D Transition Metal Dichalcogenides, ***Tony Heinz,*** Stanford University / SLAC National Accelerator Laboratory	**HC+SA+SS-WeA-1** Oxygen Reduction Reaction Activity for Pt/Co/Pt(111) and Pt/Co-N/Pt(111) Model Catalyst Surfaces Fabricated by Arc-plasma Depositions, *S Kaneko, R Myochi, S Takahashi, N Todoroki,* ***Toshimasa Wadayama,*** Graduate School of Environmental Studies, Tohoku University, Japan; *T Tanabe,* Graduate School of Engineering, Tohoku University, Japan
2:40pm	Invited talk continues.	**HC+SA+SS-WeA-2** The Mechanism of Oxygen Induced p(2×3) Reconstruction on Mo(112), ***Teng Ma,*** Shenyang Agricultural University, PR China
3:00pm	**INVITED: EM+2D+MI+MN-WeA-3** VOI-based Valleytronics in Graphene, ***Yu-Shu Wu,*** National Tsing-Hua University, Taiwan, Republic of China	**INVITED: HC+SA+SS-WeA-3** Gas-Liquid Scattering Studies of Atmospheric Reactions at the Surfaces of Sea-Spray Mimics, *M Shaloski, J Gord,* University of Wisconsin - Madison; *S Staudt,* University of Wisconsin-Madison; *S Quinn, T Bertram,* University of Wisconsin - Madison; ***Gilbert Nathanson,*** University of Wisconsin-Madison
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: EM+2D+MI+MN-WeA-7** Creating Quantum Technologies with Spins in Semiconductors, *B Zhou,* ***David Awschalom,*** University of Chicago	**HC+SA+SS-WeA-7** In-situ Investigation of Methane Activation on MO_x/CeO_2 (111) Surfaces {M=Co, Ni and Cu} using Ambient-Pressure XPS, *J Rodriguez,* ***Zongyuan Liu,*** Brookhaven National Laboratory
4:40pm	Invited talk continues.	**HC+SA+SS-WeA-8** Ambient Pressure XPS Study of Catalytic Conversion of Carbon Dioxide by CuO_x Nanoparticles Photodeposited on TiO_2 Nanoparticles, ***Djawhar Ferrah,*** *R Galhenage, J Bruce, A Babore, J Hemminger,* University California, Irvine
5:00pm	**EM+2D+MI+MN-WeA-9** Diamond as an Electronic Material: Opportunities and Challenges, ***Steven Vitale,*** *J Varghese, M Marchant, T Wade, M Geis, T Fedynyshyn, D Lennon, M Hollis,* MIT Lincoln Laboratory	**HC+SA+SS-WeA-9** Atomic-Scale Characterization of Pt/Ag Surface Alloys, ***Dipna Patel,*** *E Sykes,* Tufts University
5:20pm	**EM+2D+MI+MN-WeA-10** Studies on Influence of Processing on Optical Characteristics of Electron Irradiated 4H-SiC Nanostructures, ***Shojan Pavunny,*** ASEE Research Fellow at U.S. Naval Research Laboratory; *H Banks,* NRC Research Fellow at U.S. Naval Research Laboratory; *P Klein,* U.S. Naval Research Laboratory; *K Daniels,* NRC Research Fellow at U.S. Naval Research Laboratory; *M DeJarld,* ASEE Research Fellow at U.S. Naval Research Laboratory; *E Glaser, S Carter, R Myers-Ward, D Gaskill,* U.S. Naval Research Laboratory	**HC+SA+SS-WeA-10** Structural Consequences of High Oxygen Coverages on Rh(111), ***Rachael Farber[12],*** *M Turano, D Killelea,* Loyola University Chicago
5:40pm	**INVITED: EM+2D+MI+MN-WeA-11** Ab Initio Simulations of Point Defects in Solids Acting as Quantum Bits, ***Adam Gali,*** Wigner Research Centre for Physics, Hungarian Academy of Sciences, Hungary	**INVITED: HC+SA+SS-WeA-11** Reactivity and Electronic Properties of Supported Metal Oxide and Sulfide Clusters, ***Michael White,*** Brookhaven National Laboratory; *X Meng, K Goodman,* Stonybrook University; *P Liu,* Brookhaven National Laboratory
6:00pm	Invited talk continues.	Invited talk continues.

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

[2] **National Student Award Finalist**

	Advanced Ion Microscopy Focus Topic **Room 7 & 8 - Session HI-WeA** **Emerging Ion Sources and Optics** **Moderator:** John A. Notte, Carl Zeiss Microscopy	**Manufacturing Science and Technology Group** **Room 5 & 6 - Session MS+AS-WeA** **Advanced Surface, Interface, and Structural Characterization for High Volume Manufacturing** **Moderator:** Alain C. Diebold, SUNY College of Nanoscale Science and Engineering
2:20pm	**INVITED: HI-WeA-1** COLDFIB – The New FIB Source from Laser Cooled Atoms, *E Verzeroli,* ***Anne Delobbe****, M Viteau,* Orsay Physics, France*; D Comparat,* CNRS Lac Orsay, France*; A Houel, M Reveillard,* Orsay Physics, France	**INVITED: MS+AS-WeA-1** The Cornell High Energy Synchrotron Source Upgrade: Current and Future Capabilities for Thin-film Research, ***Arthur Woll****,* Cornell University
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm	**HI-WeA-3** FIB Platform Employing a Low-Temperature Ion Source, ***Adam Steele****, A Schwarzkopf,* zeroK NanoTech*; J McClelland,* National Institute of Standards and Technology*; B Knuffman,* zeroK NanoTech	**INVITED: MS+AS-WeA-3** Using Synchrotron XRD Techniques to Impact Microelectronics Manufacturing Technologies, ***Jean Jordan-Sweet****, C Lavoie,* IBM T.J. Watson Research Center*; A Carr,* IBM Research, Albany, NY*; N Breil,* IBM SRDC, East Fishkill; now with Applied Materials Inc.*; M Frank,* IBM T.J. Watson Research Center
3:20pm	**HI-WeA-4** Focused Cs Ion Beam Nanomachining and Material Interaction Characterization for Semiconductor Applications, ***Richard Livengood****, R Hallstein, S Tan,* Intel Corporation, USA*; Y Greenzweig, Y Drezner, A Raveh,* Intel Corporation, Israel*; A Steele, B Knuffman, A Schwarzkopf,* zeroK NanoTech, USA	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: HI-WeA-7** Spectroscopy in the Focused Ion Beam, ***Robert Hull****,* Rensselaer Polytechnic Institute*; H Parvaneh,* Global Foundries	**INVITED: MS+AS-WeA-7** Development of Ultra-thin ALD Grown high-k Dielectrics and Interconnect Diffusion Barrier Layers aided by Advanced X-ray Structural Analysis for sub 10nm Nodes, ***Steven Consiglio****, K Tapily, R Clark, C Wajda, K Yu, T Hakamata, G Leusink,* TEL Technology Center, America, LLC*; S Dey, A Diebold,* Colleges of Nanoscale Science and Engineering, SUNY Polytechnic Institute
4:40pm	Invited talk continues.	Invited talk continues.
5:00pm	**HI-WeA-9** Spark-discharge Coupled Laser Multicharged Ion Implantation and Deposition System, ***Md Haider Shaim****, M Rahman, O Balki, H Elsayed-Ali,* Old Dominion University	**MS+AS-WeA-9** Stress Control of rf Sputter Deposition of Piezoelectric $Sc_{0.12}Al_{0.88}N$, ***Michael Henry****, R Timon, T Young, E Douglas, B Griffin,* Sandia National Laboratories

Wednesday Afternoon, November 1, 2017

	Nanometer-scale Science and Technology Division Room 19 - Session NS+MN+MS+SS-WeA Nanopatterning, Nanofabrication and 3D Nanomanufacturing **Moderator:** Brian Borovsky, St. Olaf College	Plasma Science and Technology Division Room 22 - Session PS+SS+TF-WeA Plasma Deposition **Moderators:** Jeffrey Shearer, IBM Research Division, Albany, NY, Thorsten Lill, Lam Research Corporation
2:20pm	**NS+MN+MS+SS-WeA-1** Site-controlled Si Nanodot Formation for a RT-SET via Ion Beam Mixing and Phase Separation, ***Xiaomo Xu***[1], *G Hlawacek, D Wolf, T Prüfer, R Hübner, L Bischoff,* Helmholtz Zentrum Dresden-Rossendorf, Germany; *M Perego,* Institute for Microelectronics and Microsystems (IMM-CNR), France; *A Gharbi,* Laboratoire d'électronique des technologies de l'information (CEA-Leti), France; *H Engelmann, S Facsko, K Heinig, J von Borany,* Helmholtz Zentrum Dresden-Rossendorf, Germany	**PS+SS+TF-WeA-1** Correlation Between Ion Energies in CCRF Discharges and Film Characteristics of Titanium Oxides Fabricated via Plasma Enhanced Atomic Layer Deposition, ***Shinya Iwashita***, *T Moriya, T Kikuchi, N Noro, T Hasegawa,* Tokyo Electron Limited, Japan; *A Uedono,* University of Tsukuba, Japan
2:40pm	**NS+MN+MS+SS-WeA-2** Scanning Tunneling Microscope Fabrication of Atomically Precise Devices, ***Richard Silver***, NIST; *X Wang,* University of Maryland, College Park; *P Namboodiri, J Wyrick, S Schmucker, M Stewart, R Murray, J Hagmann, C Richter,* NIST	**PS+SS+TF-WeA-2** Functionalized Titanium-Nitride Surfaces Formed by Femtosecond-Laser Processing, ***David Ruzic***, *S Hammouti, B Holybee,* University of Illinois at Urbana-Champaign; *B Jurczyk,* Starfire Industries
3:00pm	**NS+MN+MS+SS-WeA-3** Contacting Buried Atomic-Precision Devices in Si using Kelvin Probe and Optical Microscopy, ***Jonathan Wyrick***, *P Namboodiri, X Wang, R Murray, J Hagmann, K Li, S Schmucker, M Stewart, C Richter, R Silver,* NIST	**PS+SS+TF-WeA-3** Controlling the Thin Film Properties of Silica Synthesised by Atmospheric Pressure-Plasma Enhanced CVD, ***Fiona Elam***, *A Meshkova,* FOM institute DIFFER, Netherlands; *B van der Velden-Schuermans, S Starostin,* FUJIFILM Manufacturing Europe B.V.; *R van de Sanden,* FOM Institute DIFFER, Netherlands; *H de Vries,* FOM institute DIFFER, Netherlands
3:20pm	**NS+MN+MS+SS-WeA-4** Quantifying Liquid Transport and Patterning using Atomic Force Microscopy, *N Farmakidis,* ***Keith Brown***, Boston University	**PS+SS+TF-WeA-4** Plasma Information Based Virtual Metrology for Nitride Thickness in Multi-Layer Plasma-Enhanced Chemical Vapor Deposition, ***Hyun-Joon Roh***[2], *S Ryu, Y Jang, N Kim, Y Jin, G Kim,* Seoul National University, Republic of Korea
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: NS+MN+MS+SS-WeA-7** Positioning and Manipulating Single Dopant Atoms Inside Silicon, ***Andrew Lupini***, *B Hudak, J Song,* Oak Ridge National Laboratory; *H Sims,* Vanderbilt University; *C Troparevsky,* Oak Ridge National Laboratory; *S Pantelides,* Vanderbilt University; *P Snijders,* Oak Ridge National Laboratory	**INVITED: PS+SS+TF-WeA-7** Sidewall Effects in the Modulation of Deposition Rate Profiles of a Capacitively Coupled Plasma Reactor, ***Hojun Kim***, Samsung Electronics Co. Ltd., Republic of Korea
4:40pm	Invited talk continues.	Invited talk continues.
5:00pm	**NS+MN+MS+SS-WeA-9** Characterization of Butyl Tin Photoresists for Nanoscale Patterning, *J Diulus, R Frederick,* Oregon State University; *M Li,* Rutgers University; *D Hutchison, M Olsen, I Lyubinetsky, L Árnadóttir,* Oregon State University; *E Garfunkel,* Rutgers University; *M Nyman,* Oregon State University; *H Ogasawara,* SLAC National Accelerator Laboratory; ***Gregory Herman***, Oregon State University	
5:20pm	**NS+MN+MS+SS-WeA-10** Impact of Polymer Templated Annealing on Gold Nanowires, ***Tyler Westover***, *R Davis, B Uptrey, J Harb, A Woolley, S Noyce,* Brigham Young University	**PS+SS+TF-WeA-10** Linear Magnetron Magnetic Field Optimization for HiPIMS Industrialization, ***Ian Haehnlein***, *J McLain, B Wu, I Schelkanov,* University of Illinois at Urbana-Champaign; *B Jurczyk,* Starfire Industries; *D Ruzic,* University of Illinois at Urbana-Champaign
5:40pm	**NS+MN+MS+SS-WeA-11** Dynamic Growth of Nanopores on Graphene via Helium Ion Microscope, *S Kim,* ***Anton Ievlev***, *M Burch, I Vlassiouk, A Belianinov, S Kalinin, S Jesse, O Ovchinnikova,* Oak Ridge National Laboratory	**PS+SS+TF-WeA-11** Investigating the Effect of the Substrate at Short Deposition Times for Plasma Polymerised Films, ***Karyn Jarvis***, *N Reynolds,* Swinburne University of Technology, Australia; *L Hyde,* Melbourne Centre for Nanofabrication, Australia; *S McArthur,* Swinburne University of Technology and CSIRO, Australia

[1] **NSTD Student Award Finalist**

[2] **Coburn & Winters Student Award Finalist**

	Plasma Science and Technology Division **Room 23 - Session PS-WeA** **Modeling of Plasmas** **Moderators:** Kostya (Ken) Ostrikov, Queensland University of Technology and CSIRO, Richard van de Sanden, Eindhoven University of Technology	**Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic** **Room 9 - Session SA+AS+HC+SS-WeA** **In Situ and Operando Characterization of Interfacial Reactions in Energy & Electronic Devices** **Moderators:** Karen Chen-Wiegart, Stony Brook University/Brookhaven National Laboratory, Elke Arenholz, Lawrence Berkeley National Laboratory
2:20pm	**PS-WeA-1** TSV Etch Plasma Modelling from Chamber to Feature , ***Sebastian Mohr,*** Quantemol LTD*; S Rahimi, A Dzarasova,* Quantemol LTD, UK	**INVITED: SA+AS+HC+SS-WeA-1** Probing Solid-Gas and Solid-Liquid Interface Using APXPS, ***Zhi Liu,*** ShanghaiTech University, PR China, China*; J Cai, Q Liu,* ShanghaiTech University, PR China*; Y Han,* Chinese Academy of Sciences, PR China*; J Liu,* ShanghaiTech University, PR China*; M Mao, H Zhang,* Chinese Academy of Sciences, PR China*; Y Li,* ShanghaiTech University, PR China
2:40pm	**PS-WeA-2** Global Model based Framework for Prediction of Ion Energy Distributions Under Pulsed RF-bias Conditions in Plasma Etching Processes, ***Shogo Sakurai,*** ET Center, Samsung R&D Institute Japan, Japan*; S Lim,* Samsung Electronics, Korea*; R Sakuma, S Nakamura, H Kubotera, K Ishikawa,* Samsung R&D Institute Japan*; K Lee,* Samsung Electronics	Invited talk continues.
3:00pm	**INVITED: PS-WeA-3** Understanding Particle-Surface Interactions and Their Importance in Plasma Processing: a Plasma Modelling Perspective, ***Andrew Gibson****, S Schroeter, D O'Connell, T Gans,* University of York, UK*; M Kushner,* University of Michigan*; J Booth,* LPP-CNRS, Ecole Polytechnique, France	**SA+AS+HC+SS-WeA-3** Graphene Capped Static and Fluidic Systems for In-Liquid Atmospheric Pressure XPS/AES/SEM and PEEM Studies of Electrochemical Interfaces, ***Hongxuan Guo****, E Strelcov, A Yulaev,* NIST, Center for Nanoscale Science and Technology*; S Nemšák, D Mueller, C Schneider,* Peter Grünberg Institute and Institute for Advanced Simulation, Germany*; A Kolmakov,* NIST, Center for Nanoscale Science and Technology
3:20pm	Invited talk continues.	**SA+AS+HC+SS-WeA-4** A 3D Printed Liquid Cell for Soft X-ray Absorption Spectroscopy, ***Tom Regier****, T Boyko, J Dynes,* Canadian Light Source, Inc., Canada*; Z Arthur,* Canadian Light Source, Inc.*; M Banis,* University of Western Ontario, Canada
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**PS-WeA-7** Investigation of Pulsed Ar/O_2/CF_4 Capacitively Coupled Plasmas, ***Wei Tian****, S Rauf, K Collins,* Applied Materials, Inc.	**INVITED: SA+AS+HC+SS-WeA-7** In Operando Quantification of Valence Changes in Memristive Devices, *R Dittmann,* ***Christoph Baeumer,*** Peter Gruenberg Institute, Forschungszentrum Juelich GmbH, Juelich, Germany*; D Cooper,* Université Grenoble Alpes & CEA, LETI, Minatec Campus, Grenoble, France*; C Schmitz, S Menzel, C Schneider, R Waser,* Peter Gruenberg Institute, Forschungszentrum Juelich GmbH, Juelich, Germany
4:40pm	**PS-WeA-8** Modeling of Silicon Etching using Bosch Process: Effects of Oxygen Addition on the Plasma and Surface Properties, ***Guillaume Le Dain****,* STMicroelectronics / CNRS-IMN, France*; A Rhallabi,* Cnrs - Imn, France*; S Elidrissi,* University of Nantes*; C Cardinaud, A Girard,* Cnrs - Imn, France*; F Roqueta, M Boufnichel,* STMicroelectronics, France	Invited talk continues.
5:00pm	**PS-WeA-9** A Mixed Mode Parameter/Physical Driven Particle-in-cell (PIC) Code for Capturing Transient Response and Evolution Behavior of Laboratory Plasma, ***Noel Lauer****, N Ianno,* University of Nebraska-Lincoln	**INVITED: SA+AS+HC+SS-WeA-9** Magnetic Skyrmions in Ultrathin Magnetic Films and Nanostructures, ***Jan Vogel,*** Institut Néel, CNRS/UGA, Grenoble, France*; O Boulle, R Juge,* SPINTEC, CNRS/CEA/UGA, Grenoble, France*; D Chaves, S Pizzini,* Institut Néel, CNRS/UGA, Grenoble, France*; S Je, G Gaudin,* SPINTEC, CNRS/CEA/UGA, Grenoble, France*; T Mentes, A Locatelli,* Elettra-Sincrotrone Trieste, Italy*; M Foerster, L Aballe,* ALBA Synchrotron Light Facility, Spain
5:20pm	**PS-WeA-10** Investigating Mode Transitions in Pulsed Inductively Coupled Plasmas, ***Steven Lanham****, M Kushner,* University of Michigan	Invited talk continues.
5:40pm	**INVITED: PS-WeA-11** Science of Plasma-Surface Interaction for Modern Semiconductor Process Technologies, ***Satoshi Hamaguchi***[1]*, K Karahashi,* Osaka University, Japan	**SA+AS+HC+SS-WeA-11** O_2 Pressure Dependence of SiO_2/Si Interfacial Oxidation Rate Studied by Real-time Photoelectron Spectroscopy, ***Shuichi Ogawa,*** Tohoku University, Japan*; A Yoshigoe,* JAEA, Japan*; S Ishidzuka,* National Institute for of Technology, Akita College, Japan*; Y Takakuwa,* Tohoku University, Japan
6:00pm	Invited talk continues.	**SA+AS+HC+SS-WeA-12** Highly Time-resolved Insights into the Sputter Deposition of Metal Electrodes on Polymer Thin Films for Organic Electronics, ***Franziska Löhrer****, V Körstgens,* Technische Universität München, Germany*; M Schwartzkopf,* Deutsches Elektronensynchrotron DESY, Germany*; A Hinz, O Polonskyi, T Strunskus, F Faupel,* Christian-Albrechts-Universität zu Kiel, Germany*; S Roth,* Deutsches Elektronensynchrotron DESY, Germany*; P Müller-Buschbaum,* Technische Universität München, Germany

[1] **PSTD Plasma Prize Winner**

	Advanced Surface Engineering Division **Room 11 - Session SE+2D+NS+SS+TF-WeA** **Nanostructured Thin Films and Coatings** **Moderators:** Jianliang Lin, Southwest Research Institute, Matjaz Panjan, Jozef Stefan Institute, Slovenia	**Surface Science Division** **Room 25 - Session SS+HC+NS-WeA** **Dynamical Processes at Surfaces** **Moderators:** Ashleigh Baber, James Madison University, Kathryn Perrine, Michigan Technological University
2:20pm	**INVITED: SE+2D+NS+SS+TF-WeA-1** Plasma Process Development and Optimized Synthesis of TiB_2 Coatings from DC Magnetron Sputtering, High Power Impulse Magnetron Sputtering, and DC Vacuum Arc, ***Johanna Rosen,*** Linköping University, Sweden	
2:40pm	Invited talk continues.	
3:00pm	**SE+2D+NS+SS+TF-WeA-3** Multi-technique Approach for Studying Co-sputtered M-Si-O Thin Films, ***Lirong Sun,*** General Dynamics Information Technology*; N Murphy,* Air Force Research Laboratory*; J Grant,* Azimuth Corporation	**INVITED: SS+HC+NS-WeA-3** Quantum Molecular Machines, ***Saw-Wai Hla,*** Ohio University and Argonne National Laboratory
3:20pm	**SE+2D+NS+SS+TF-WeA-4** Ultra-high Vacuum Magnetron Sputter-deposition of $Zr/Al_2O_3(0001)$: Effect of Substrate Temperature on Zr Thin Film Microstructure and Thermal Stability of $Zr\text{-}Al_2O_3$ Interfaces, *K Tanaka, J Fankhauser,* University of California at Los Angeles*; M Sato,* Nagoya University, Japan*; D Yu, A Aleman, A Ebnonnasir, C Li,* University of California at Los Angeles*; M Kobashi,* Nagoya University, Japan*; M Goorsky,* ***Suneel Kodambaka,*** University of California at Los Angeles	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**SE+2D+NS+SS+TF-WeA-7** Structural, Mechanical, Optical Properties of Molybdenum Incorporated $\beta\text{-}Ga_2O_3$ Nanocrystalline Films for Extreme Environment Applications, ***Anil Battu,*** *S Manandhar, C Ramana,* University of Texas at El Paso	**SS+HC+NS-WeA-7** Collective, Multi-atom Diffusion in Epitaxially Grown Metallic Films, ***Matt Hershberger,*** *M Hupalo, P Thiel,* Iowa State University Ames Laboratory –USDOE*; M Man, M Altman,* Hong Kong University of Science and Technology, Hong Kong*; C Mullet, S Chiang,* University of California-Davis*; M Tringides,* Iowa State University Ames Laboratory –USDOE
4:40pm	**SE+2D+NS+SS+TF-WeA-8** Investigating Mass Transport and other Events underlying Rapid, Propagating Formation Reactions in Pt/Al Multilayer Films, ***David Adams,*** *M Abere, C Sobczak, D Kittell, C Yarrington, C Saltonstall, T Beechem,* Sandia National Laboratories	**SS+HC+NS-WeA-8** Quantitative Molecular Beam Study for CO_2 Hydrogenation on Cu (111) and Cu(100) Surfaces, ***Jiamei Quan,*** *T Kondo, T Kozarashi, T Mogi,* University of Tsukuba, Japan*; J Nakamura,* University of Tsukuba, Japan, Japam
5:00pm	**INVITED: SE+2D+NS+SS+TF-WeA-9** Adaptive Ceramic Coatings for Extreme Environments, ***Samir Aouadi,*** University of North Texas*; C Muratore,* University of Dayton*; A Voevodin,* University of North Texas	**INVITED: SS+HC+NS-WeA-9** A New Approach for Controlling the Rotational Orientation of a Molecule and Studying the Stereodynamics of a Molecule-Surface Collision, ***Gil Alexandrowicz,*** Technion – Israel Institute of Technology, Israel
5:20pm	Invited talk continues.	Invited talk continues.
5:40pm	**SE+2D+NS+SS+TF-WeA-11** Ultralow Wear of Stable Nanocrystalline Metals, ***Nicolas Argibay,*** *T Furnish, T Babuska, C O'Brien, J Curry, B Nation, A Kustas, P Lu, M Chandross, D Adams, M Rodriguez, M Dugger, B Boyce, B Clark,* Sandia National Laboratories	**SS+HC+NS-WeA-11** Surface Temperature Effects in CH_4 Dissociation on Flat and Stepped Nickel Single Crystals, ***Eric High,*** *E Dombrowski, A Utz,* Tufts University
6:00pm	**SE+2D+NS+SS+TF-WeA-12** From Ab-Initio Design to Synthesis of Multifunctional Coatings with Enhanced Hardness and Toughness, ***Daniel Edström,*** *D Sangiovanni, L Hultman, I Petrov, J Greene, V Chirita,* Linköping University, University of Illinois at Urbana-Champaign	**SS+HC+NS-WeA-12** Experimental and Theoretical Study of Rotationally Inelastic Diffraction of $H_2(D_2)$ from Methyl-Terminated Si(111), ***Kevin Nihill***[1]*, Z Hund,* University of Chicago*; A Muzas, C Diaz, M del Cueto,* Universidad Autónoma de Madrid, Spain*; T Frankcombe,* University of New South Wales, Australia*; N Plymale, N Lewis,* California Institute of Technology*; F Martin,* Universidad Autónoma de Madrid, Spain*; S Sibener,* University of Chicago

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

	Tribology Focus Topic **Room 10 - Session TR+AS+HI+NS+SS-WeA** **Molecular Origins of Friction** **Moderators:** J. David Schall, Oakland University, Paul Sheehan, U.S. Naval Research Laboratory	**Vacuum Technology Division** **Room 20 - Session VT-WeA** **The History and Future of Materials, Surfaces and Interfaces (ALL INVITED SESSION)** **Moderators:** Gregory Exharos, Pacific Northwest National Laboratory, Amy Walker, University of Texas at Dallas
2:20pm	**TR+AS+HI+NS+SS-WeA-1** On the Stochastic Nature of Bonding in Contact: Simulations of Indentation and Sliding of DLC Tips on Diamond Surfaces, ***J. David Schall,*** Oakland University; *R Bernal,* University of Texas at Dallas; *Z Miline,* University of Pennsylvania; *P Chen, P Tsai, Y Jeng,* National Chung Cheng University, Taiwan, Republic of China; *K Turner, R Carpick,* University of Pennsylvania; *J Harrison,* United States Naval Academy	**INVITED: VT-WeA-1** The 14-billion Year History of the Universe Leading to Modern Materials Science, ***Joe Greene,*** University of Illinois
2:40pm	**TR+AS+HI+NS+SS-WeA-2** New Insights about the Fundamental Mechanisms of Friction of MoS_2, ***John Curry,*** Lehigh University; *M Wilson, T Babuska, M Chandross,* Sandia National Laboratories; *H Luftman, N Strandwitz, B Krick,* Lehigh University; *N Argibay,* Sandia National Laboratories	Invited talk continues.
3:00pm	**INVITED: TR+AS+HI+NS+SS-WeA-3** The Influence of Environmental Exposure and the Substrate on the Lubricating Properties of Two-Dimensional Materials, *P Gong,* University of Calgary, Canada; *Z Ye,* Miami University; *L Yuan,* ***Philip Egberts,*** University of Calgary, Canada	Invited talk continues.
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BREAK**	**BREAK**
4:20pm	**INVITED: TR+AS+HI+NS+SS-WeA-7** Fundamental Understanding of Interfacial Adhesion and Tribochemistry by Ab Initio Calculations, ***M.Clelia Righi,*** University of Modena and Reggio Emilia, Italy	**VT-WeA-7** Controlling Microorganisms with Bio-inspired Materials, ***Caitlin Howell,*** University of Maine
4:40pm	Invited talk continues.	**VT-WeA-8** Comparison of Oxygen Adsorption and Absorption on Rhodium, Silver, and Stepped Platinum Surfaces, ***Daniel Killelea,*** *R Farber, M Turano,* Loyola University Chicago; *E Iski,* University of Tulsa; *L Juurlink,* Leiden Institute of Chemistry, The Netherlands, Netherlands; *J Derouin,* Loyola University Chicago
5:00pm	**TR+AS+HI+NS+SS-WeA-9** Friction Between 2D Solids during Lattice Directed Sliding, ***Paul Sheehan,*** US Naval Research Laboratory; *C Lieber,* Harvard University	**VT-WeA-9** Single Asperity Contact and Sliding, ***Ashlie Martini,*** University of California Merced
5:20pm		**VT-WeA-10** Structure of Sub-nm Oxides Synthesized by Atomic Layer Deposition: From Isolated Cations to the Emergence of Crystallinity, ***Angel Yanguas-Gil,*** Argonne National Laboratory
5:40pm	**TR+AS+HI+NS+SS-WeA-11** Single Molecule Force Measurement: Mechanic and Symmetry Dependent Lateral Force, ***Yuan Zhang,*** Argonne National Laboratory; *S Khadka,* Ohio University; *B Narayanan, A Ngo,* Argonne National Laboratory; *Y Li,* Ohio University; *B Fisher, L Curtiss, S Sankaranarayanan, S Hla,* Argonne National Laboratory	**VT-WeA-11** The Power of Atomic Layer Deposition – Moving Beyond Amorphous Films, ***Virginia Wheeler,*** *A Kozen, B Downey, M Currie, N Nepal,* U.S. Naval Research Laboratory; *L Nyakiti,* Texas A&M University; *D Meyer, D Boris, S Walton, C Eddy, Jr.,* U.S. Naval Research Laboratory
6:00pm		**VT-WeA-12** The Cathodic Arc Plasma from Multi-Element Cathodes, ***Robert Franz,*** Montanuniversität Leoben, Austria

Special Events Thursday

Special Events Thursday

10:00 AM	AVS Member Center: Advocacy & Outreach-Frontiers of Materials Research: A Decadal Survey/18
12:20 PM	Exhibit Finale & Refreshments/West Hall
12:20 PM	PSTD Coburn and Winters Award Ceremony/23
12:20 PM	Surface Science Division Mort Traum Awards Ceremony/25
12:30 PM	2018 Program Committee Chairs' Meeting & Lunch/Grand Salons A-B-Marriott (by invitation)
12:30 PM	AVS Business Meeting/5 & 6
12:30 PM	AVS Member Center: Professional Development-Lunch with the Editors: AVS Writer's Workshop/18
2:20 PM	AVS Member Center: Professional Development-Working with National Labs and User Facilities/18
3:30 PM	History Committee Meeting/Meeting Room 3-Marriott (by invitation)
6:30 PM	2017/2018 Program Committee Reception and Dinner/Grand Salons C-D-Marriott (by invitation)
6:30 PM	Thursday Poster Session & Refreshments/Central Hall
7:00 PM	SSS Editorial Board Dinner/Meeting Room 2-Marriott (by invitation)

Thursday Morning, November 2, 2017

	2D Materials Focus Topic **Room 15 - Session 2D+MI-ThM** **Novel Quantum Phenomena in 2D Materials** **Moderator:** Kai Xiao, Oak Ridge National Laboratory	**Applied Surface Science Division** **Room 13 - Session AS+BI+SA+SS-ThM** **Spectroscopy of the Changing Surface** **Moderators:** Timothy Nunney, Thermo Fisher Scientific, UK, Tony Ohlhausen, Sandia National Laboratory
8:00am	**2D+MI-ThM-1** Quantum Plasmonics with 2D Materials, ***Dmitri Voronine***, University of South Florida	**INVITED: AS+BI+SA+SS-ThM-1** In Situ Investigation of the Dynamic Transformations of Model Catalyst Surfaces using Ambient Pressure XPS, ***Iradwikanari Waluyo***, Brookhaven National Laboratory
8:20am	**2D+MI-ThM-2** Investigation and Manipulation of One-Dimensional Charge Density Waves in MoS_2, ***Wouter Jolie***, *C Murray, J Hall,* Institute of Physics II, University of Cologne, Germany; *F Portner,* Institute for Theoretical Physics, University of Cologne, Germany; *B Pielić,* Center of Excellence for Advanced Materials and Sensing Devices, Institute of Physics, Zagreb, Croatia; *N Atodiresei,* Peter Grünberg Institute and Institute for Advanced Simulation, Forschungszentrum Jülich, Germany; *M Kralj,* Center of Excellence for Advanced Materials and Sensing Devices, Institute of Physics, Zagreb, Croatia; *A Rosch,* Institute for Theoretical Physics, University of Cologne, Germany; *C Busse,* Institut für Materialphysik, Westfälische Wilhelms-Universität Münster, Germany; *T Michely,* Institute of Physics II, University of Cologne, Germany	Invited talk continues.
8:40am	**2D+MI-ThM-3** Configuring Electronic States in an Atomically Precise Array of Quantum Boxes, ***Seyedeh Fatemeh Mousavi***, *S Nowakowska, A Wäckerlin,* University of Basel, Switzerland; *I Piquero-Zulaica,* Materials Physics Center, San Sebastián, Spain; *J Nowakowski,* Paul Scherrer Institut (PSI), Switzerland; *S Kawai,* University of Basel, Switzerland; *C Wäckerlin,* Paul Scherrer Institut (PSI), Switzerland; *M Matena, T Nijs, S Fatayer, O Popova, A Ahsan, T Ivas, E Meyer,* University of Basel, Switzerland; *M Stöhr,* University of Groningen, Netherlands; *J Ortega,* Materials Physics Center, San Sebastián, Spain; *J Björk,* Linköping University, Sweden; *L Gade,* Universität Heidelberg, Germany; *J Lobo-Checa,* Universidad de Zaragoza, Spain; *T Jung,* Paul Scherrer Institut (PSI), Switzerland	**AS+BI+SA+SS-ThM-3** Observation of Oxygen Binding on PGM-free Electrocatalysts by Ambient Pressure XPS and XAS, ***Kateryna Artyushkova***, University of New Mexico; *M Dzara, S Pylypenko,* Colorado School of Mines; *P Atanassov,* University of New Mexico
9:00am	**2D+MI-ThM-4** A Quantum Berry Phase Switch in Circular Graphene Resonators, ***Daniel Walkup***[1], *F Ghahari, C Gutierrez,* NIST/CNST; *J Rodriquez-Nieva,* Harvard University; *Y Zhao, J Wyrick, F Natterer, W Cullen,* NIST/CNST; *K Watanabe, T Tanaguchi,* National Institute for Materials Science, Japan; *L Levitov,* MIT; *N Zhitenev, J Stroscio,* NIST/CNST	**AS+BI+SA+SS-ThM-4** In situ Monitoring of Electrochemically Generated Carbene by XPS, ***Pinar Aydogan Gokturk***[2], *S Donmez, Y Turkmen, B Ulgut, S Suzer,* Bilkent University, Turkey
9:20am	**INVITED: 2D+MI-ThM-5** Nanostructured Graphene: A Platform for Fundamental Physics and Applications, ***Antti-Pekka Jauho***, Technical University of Denmark, Denmark	**AS+BI+SA+SS-ThM-5** The Influence of Water on the Ionic Liquid-Vapor Interface, ***John Newberg***, University of Delaware; *M Shiflett,* University of Kansas; *A Broderick, Y Khalifa,* University of Delaware
9:40am	Invited talk continues.	**AS+BI+SA+SS-ThM-6** Ambient Pressure XPS Studies of Model N-C and Fe-N-C Catalysts Under Oxygen Environment, ***Michael Dzara***, Colorado School of Mines; *K Artyushkova,* University of New Mexico; *C Ngo, M Strand, J Hagen, S Pylypenko,* Colorado School of Mines
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**2D+MI-ThM-10** Anomalous Kondo Resonance Mediated by Graphene Nanoribbons, ***Yang Li***, Ohio University and Argonne National Laboratory; *A Ngo,* Argonne National Laboratory; *K Latt,* Ohio University; *B Fisher,* Argonne National Laboratory; *S Hla,* Argonne National Laboratory and Ohio University	**AS+BI+SA+SS-ThM-10** Real-time Photoelectron Spectroscopy Observation of Oxidation and Reduction Kinetics of Ni(111) Surface, ***Ryo Taga***, *S Ogawa, Y Takakuwa,* Tohoku University, Japan
11:20am	**2D+MI-ThM-11** Valley Photoluminescence Polarization in Monolayer WSe_2, ***Aubrey Hanbicki***, *M Currie,* Naval Research Laboratory; *G Kioseoglou,* University of Crete; *A Friedman, B Jonker,* Naval Research Laboratory	**AS+BI+SA+SS-ThM-11** Comparison of Initial Oxidation Kinetics between p- and n-type Si(001) Surfaces Studied by Real-time Photoelectron Spectroscopy, ***Yuki Sekihata***, *S Ogawa,* Tohoku University, Japan; *A Yoshigoe,* JAEA, Japan; *R Taga,* Tohoku University, Japan; *S Ishidzuka,* National Institute of Technology, Akita College, Japan; *Y Takakuwa,* Tohoku University, Japan
11:40am	**INVITED: 2D+MI-ThM-12** Imaging Superconducting Topological Surface States in Non-centrosymmetric $PbTaSe_2$, ***Tien-Ming Chuang***, Academia Sinica, Taiwan, Republic of China	**AS+BI+SA+SS-ThM-12** Co-Pyrphyrin on $Cu_2O(111)$ and $TiO_2(110)$: Properties and Stability under Near Operando Conditions, ***Zbynek Novotny***, *W Zabka, M Hotz, D Leuenberger,* University of Zurich, Switzerland; *L Artiglia, F Orlando, M Ammann,* Paul Scherrer Institut (PSI), Switzerland; *J Osterwalder,* University of Zürich, Switzerland
12:00pm	Invited talk continues.	

[1] **NSTD Postdoc Finalist**

[2] **ASSD Student Award Finalist**

Thursday Morning, November 2, 2017

	Biomaterial Interfaces Division **Room 12 - Session BI+AS+SA-ThM** **Characterisation of Biological and Biomaterial Surfaces** **Moderators:** Daniel Graham, University of Washington, Tobias Weidner, Aarhus University, Denmark	**Electronic Materials and Photonics Division** **Room 14 - Session EM+MI+NS+SP+SS-ThM** **Photonics, Optoelectronics, and Light Manipulation** **Moderators:** Yohannes Abate, Georgia State University, Nikolaus Dietz, Georgia State University
8:00am	**BI+AS+SA-ThM-1** Lipid Involvement in the Regenerative Processes of *Dugesia dorotocephala* - A GCIB ToF-SIMS Imaging Study, ***Tina Angerrer,*** *M Taylor, D Graham, L Gamble,* University of Washington	**INVITED: EM+MI+NS+SP+SS-ThM-1** Evolutionary Design of Multi-functional Optical Metasurfaces, ***Teri Odom,*** Northwestern University
8:20am	**BI+AS+SA-ThM-2** Can ToF-SIMS Imaging Explain Biology?, ***Lara Gamble,*** *D Graham,* University of Washington	Invited talk continues.
8:40am	**INVITED: BI+AS+SA-ThM-3** Applications of XPS for Novel Biomaterial Systems, ***Jonathan Counsell,*** *S Coultas, C Blomfield,* Kratos Analytical Limited, UK; *C Moffitt,* Kratos Analytical; *S Hutton,* Kratos Analytical Limited, UK, United Kingdom of Great Britain and Northern Ireland	**INVITED: EM+MI+NS+SP+SS-ThM-3** Dielectric Freeform Metasurfaces for Optical Sensing, ***Arka Majumdar,*** University of Washington, Seattle
9:00am	Invited talk continues.	Invited talk continues.
9:20am	**BI+AS+SA-ThM-5** Surface Characterization of Polymer Scaffolds: Understanding Surface Modification and Biological Interactions, ***Michael Taylor,*** University of Washington; *M Hawker, M Mann,* Colorado State University; *G Hammer,* University of Washington; *E Fisher,* Colorado State University; *D Graham, L Gamble,* University of Washington	**EM+MI+NS+SP+SS-ThM-5** Moth eye-based, graded index surface treatments to control reflection and light extraction, *L Chan, C Pynn, P Shapturenka, R Ley, S Denbaars, D Morse,* ***Michael Gordon,*** University of California at Santa Barbara
9:40am	**BI+AS+SA-ThM-6** Seawater Bacteria on Technical Surfaces: Lateral and Vertical Adhesion Forces and Nanomechanical Properties, *N Davoudi, K Huttenlochner,* University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany; *C Schlegel, M Huster,* University of Kaiserslautern, Institute of Bioprocess Engineering, Germany; ***Christine Müller-Renno,*** University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany; *R Ulber,* University of Kaiserslautern, Institute of Bioprocess Engineering, Germany; *C Ziegler,* University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany, Germany	**EM+MI+NS+SP+SS-ThM-6** Infrared Surface Plasmon-influenced Interfacial Chemistry of Semiconductor Nanocrystals, *W Hu,* ***Michael Filler,*** Georgia Institute of Technology
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: BI+AS+SA-ThM-10** AVS 2017 Peter Mark Memorial Award Lecture: A Combined Experimental–Simulation Approach for Unraveling Hydrophobic Interactions at the Molecular Scale, *P Stock,* MPI for Iron Research, Germany; *J Monroe,* UC Santa Barbara; *T Utzig,* MPI for Iron Research, Germany; *D Smith, S Shell,* UC Santa Barbara; ***Markus Valtiner***[1], TU Bergakademie Freiberg, Germany	**EM+MI+NS+SP+SS-ThM-10** Dynamically Tunable Polarization Response in a Si/Au Metamaterial, ***Nicole Pfiester,*** Tufts University; *C Shemelya,* Technische Universität Kaiserslautern, Germany; *D DeMeo, E Carlson, T Vandervelde,* Tufts University
11:20am	Invited talk continues.	**EM+MI+NS+SP+SS-ThM-11** Imaging Stress Induced Lateral Quantum Barrier Manipulation of Indium Gallium Arsenide Quantum Wells, using Micro-Photoluminescence Spectroscopy, ***Brian Rummel,*** *M Rimada, S Addamane, G Balakrishnan,* University of New Mexico; *T Sinno,* University of Pennsylvania; *S Han,* University of New Mexico
11:40am	**BI+AS+SA-ThM-12** Quantitative Characterization of Bacterial Cells in Solution and on Surfaces, *C Sousa, K Jankowska, L Parga Basanta, I Pinto,* ***Dmitri Petrovykh,*** International Iberian Nanotechnology Laboratory, Portugal	**EM+MI+NS+SP+SS-ThM-12** Silicon-Based Infrared Photodetectors Enabled by Hot Electrons, ***Seok-Jun Han,*** *S Han, S Han,* University of New Mexico
12:00pm	**BI+AS+SA-ThM-13** *In Situ* Multimodal Imaging of Microbial Communities, ***Xiao-Ying Yu,*** Pacific Northwest National Laboratory	**EM+MI+NS+SP+SS-ThM-13** Low Temperature Wafer Bonding of LTG-GaAs to Si3N4for Terahertz Photoconductive Switch Application, *X Fu,* Illinois Institute of Technology and Argonne National Laboratory; *M Haji-Sheikh, G Westberg, S Ross,* Northern Illinois University; *E Landahl,* DePaul University; *K Attenkofer,* Brookhaven National Laboratory; ***Thomas Wong,*** Illinois Institute of Technology

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

Thursday Morning, November 2, 2017

	Fundamental Discoveries in Heterogeneous Catalysis Focus Topic **Room 24 - Session HC+SA+SS-ThM** **Mechanisms and Reaction Pathways in Heterogeneously Catalyzed Reactions** **Moderator:** David Payne, Imperial College London	**Advanced Ion Microscopy Focus Topic** **Room 7 & 8 - Session HI+BI+NS+TR-ThM** **Advanced Ion Microscopy Applications** **Moderators:** Armin Golzhauser, Bielefeld University, Germany, Olga Ovchinikova, Oak Ridge National Laboratory
8:00am	**HC+SA+SS-ThM-1** Effects of Phosphorus and Alkyl Substituents on C-H, C-C, and C-O Bond Rupture within Carboxylic Acids on Ru(0001), ***SiWei A. Chang,*** *D Flaherty,* University of Illinois at Urbana-Champaign	**INVITED: HI+BI+NS+TR-ThM-1** Scanning Helium Atom Microscopy: Imaging with a Deft Touch, ***Paul Dastoor,*** University of Newcastle, Australia
8:20am	**HC+SA+SS-ThM-2** Monitoring Cu(111) Restructuring under Elevated CO Pressures via Polarization Dependent Infrared Spectroscopy, ***Christopher Kruppe,*** *M Trenary,* University of Illinois at Chicago	Invited talk continues.
8:40am	**INVITED: HC+SA+SS-ThM-3** Thermal and Plasma Heterogeneous Catalysis Compared: CO_2 and Hydrocarbon Dry Reforming, *Q Huang, D Zhang,* Center of Interface Dynamics for Sustainability, Chengdu, PR China, China; *E Schuler, M Ronda Lloret, G Rothenberg, N Shiju,* van 't Hoff Institute for Molecular Sciences, Amsterdam, The Netherlands, Netherlands; ***Aart Kleyn,*** Center of Interface Dynamics for Sustainability, PR China, China	**HI+BI+NS+TR-ThM-3** Biofilm Structure of Geobacter Sulfurreducens by Helium Ion Microscopy, ***Alex Belianinov,*** *M Halsted, M Burch, S Kim, S Retterer,* Oak Ridge National Laboratory
9:00am	Invited talk continues.	**HI+BI+NS+TR-ThM-4** Channeling via Transmission He Ion Microscopy, ***Christoph Herrmann,*** Simon Fraser University, Canada; *S Scott, M Lagally,* University of Wisconsin-Madison; *K Kavanagh,* Simon Fraser University, Canada
9:20am	**HC+SA+SS-ThM-5** Imaging the Molecular Origins of Symmetry Breaking on Well-defined Surfaces, ***Amanda Larson,*** *R Hannagan, E Sykes,* Tufts University	**HI+BI+NS+TR-ThM-5** Rapid Imaging of Nano-Porous Catalyst Particles Via Helium Ion Microscopy, *M Burch, A Ievlev,* ***Holland Hysmith,*** Oak Ridge National Laboratory; *K Mahady, P Rack,* University of Tennessee; *L Luo,* ExxonMobil Chemical Company; *A Belianinov,* Oak Ridge National Laboratory; *S Yakovlev,* ExxonMobil Chemical Company; *O Ovchinikova,* Oak Ridge National Laboratory
9:40am		**HI+BI+NS+TR-ThM-6** Ion Beam Induced Current Measurements of Solar Cells with Helium Ion Microscopy, *A Belianinov, S Kim,* ***Ryan Cannon,*** *M Burch, S Jesse, O Ovchinnikova,* Oak Ridge National Laboratory
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: HC+SA+SS-ThM-10** A Surface Science Approach for New Heterogeneous Catalyst, ***Ib Chorkendorff,*** Technical University of Denmark, Denmark	**HI+BI+NS+TR-ThM-10** Writing Magnetic Domains with a Helium Ion Microscope, ***Daniel Emmrich,*** Bielefeld University, Germany; *A Gaul, D Holzinger, A Ehresmann,* University of Kassel, Germany; *F Karimian, M Klug, J McCord,* Kiel University, Germany; *A Beyer, A Gölzhäuser,* Bielefeld University, Germany
11:20am	Invited talk continues.	**HI+BI+NS+TR-ThM-11** Characterisation of Nanomaterials on the Helium Ion Microscope using Correlative Secondary Electron and Mass Filtered Secondary Ion Imaging, *J Audinot, D Dowsett, F Vollnhals, T Wirtz,* Luxembourg Institute of Science and Technology (LIST), Luxembourg; ***John A. Notte,*** Carl Zeiss Microscopy, LLC
11:40am	**HC+SA+SS-ThM-12** Chemisorption and Oxidation of H_2 on $IrO_2(110)$, ***Tao Li,*** *Z Liang,* University of Florida, Gainesville; *M Kim, A Asthagiri,* The Ohio State University; *J Weaver,* University of Florida, Gainesville	

Thursday Morning, November 2, 2017

	Manufacturing Science and Technology Group **Room 5 & 6 - Session MS-ThM** **Additive and Other Novel Manufacturing Techniques** **Moderator:** Vincent Smentkowski, GE Global Research Center	**Nanometer-scale Science and Technology Division** **Room 19 - Session NS+AS+EM+MI+SP+SS-ThM** **Nanoscale Imaging and Characterization** **Moderators:** Stephane Evoy, University of Alberta, Indira Seshadri, IBM Research Division, Albany, NY
8:00am	**INVITED: MS-ThM-1** Thermal Spray for Additive Manufacturing, *A Agarwal,* ***Cheng Zhang,*** Florida International University	**NS+AS+EM+MI+SP+SS-ThM-1** Characterizing Optoelectronically-Active Molecules via STM Imaging and Advanced Raman Spectroscopy Techniques, *J Schultz, P Whiteman, Z Porach,* ***Nan Jiang,*** University of Illinois at Chicago
8:20am	Invited talk continues.	**NS+AS+EM+MI+SP+SS-ThM-2** BCC to FCC Phase Transition of Pd_xCu_{1-x} at Nanoscale, ***Xiaoxiao Yu,*** Carnegie Mellon University; *A Gellman,* Carnegie Mellon University, W.E. Scott Institute for Energy Innovation
8:40am	**MS-ThM-3** Eliminating Excess Flow during Active Brazing through Surface Preparation with ALD, ***Ronald Goeke****, C Walker, P Sarobol, P Vianco,* Sandia National Laboratories	**INVITED: NS+AS+EM+MI+SP+SS-ThM-3** Hybrid Environmental Transmission Electron Microscope: An Integrated Platform for In situ Imaging and Spectroscopies, ***Renu Sharma,*** NIST
9:00am	**MS-ThM-4** Analysis of Textile Surface Characteristics for Direct Write Printing of Ink-based Textile Electronics, ***Jesse Jur****, R Bhakta, H Shahariar, H Soewardiman,* North Carolina State University	Invited talk continues.
9:20am	**MS-ThM-5** Three-Dimensional Silicon Mesostructures for Bioelectric Interfaces, ***Yuanwen Jiang***[1], *B Tian,* The University of Chicago	**NS+AS+EM+MI+SP+SS-ThM-5** Critical Dimension Metrology by Localization Optical Microscopy, *C Copeland, C McGray, J Geist, J Liddle, B Ilic,* ***Samuel Stavis,*** NIST
9:40am	**MS-ThM-6** Microplasma Sputtering for 3D Printing of Metallic Microstructures, ***Yosef Kornbluth,*** Massachusetts Institute of Technology; *R Matthews, L Parameswaran, L Racz,* MIT Lincoln Laboratory; *L Velásquez-García,* Massachusetts Institute of Technology	**NS+AS+EM+MI+SP+SS-ThM-6** Tunable Emission from Nanophotonic Structures in a Modified SEM: Characterizing Smith Purcell Radiation Generation from the VUV to the Near IR, ***Steven Kooi****, I Kaminer, A Massuda, M Soljačić, C Roques-Carmes,* MIT
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		**INVITED: NS+AS+EM+MI+SP+SS-ThM-10** Ultrafast Optical Response of Graphene/LaAlO3/SrTiO3 Heterostructure, *L Chen, E Sutton, J Li, M Huang, J Hsu, B D'Urso,* University of Pittsburgh; *J Lee, H Lee, C Eom,* University of Wisconsin-Madison; *P Irvin,* ***Jeremy Levy,*** University of Pittsburgh
11:20am		Invited talk continues.
11:40am		**NS+AS+EM+MI+SP+SS-ThM-12** Single-Molecules Fluorescence Spectroscopy and Lifetime with Simultaneous Super-resolution Imaging for Materials Science Applications, ***James Marr,*** CNST/NIST and University of Maryland; *M Davanço,* CNST/NIST; *S Stranick,* NIST; *R Ilic, A Liddle,* CNST/NIST
12:00pm		**NS+AS+EM+MI+SP+SS-ThM-13** Atomic Scale Surface Effects of Controlled Crystal Structure in III-V Semiconductor Nanowires: Preferential Surface Alloying and Local Electronic Properties., *J Knutsson, M Hjort,* Lund University, Sweden; *P Kratzer,* University Duisburg-Essen, Germany; *J Webb, S Lehmann, K Thelander,* Lund University, Sweden; *C Palmstrom,* UCSB; *R Timm,* ***Anders Mikkelsen,*** Lund University, Sweden

[1] **National Student Award Finalist**

	Plasma Science and Technology Division **Room 23 - Session PS+NS+SS+TF-ThM** **Atomic Layer Etching I** **Moderators:** Andrew Gibson, University of York, UK, Saravanapriyan Sriraman, Lam Research Corp	**Plasma Science and Technology Division** **Room 22 - Session PS-ThM** **Plasma Sources** **Moderators:** Rebecca Anthony, Michigan State University, David Ruzic, University of Illinois at Urbana Champaign
8:00am	**PS+NS+SS+TF-ThM-1** Strategies to Control the Etch per Cycle During Atomic Layer Etching of SiO_2 and SiN_x, ***Ryan Gasvoda***, Colorado School of Mines; *S Wang, E Hudson,* Lam Research Corporation; *S Agarwal,* Colorado School of Mines	**PS-ThM-1** New Plasma Source Generating High Radical Flux With Low Ion and Photon Flux, *Y Pilloux,* ***David Lishan***, *M Segers,* Plasma-Therm LLC
8:20am	**PS+NS+SS+TF-ThM-2** Enabling Atomic Layer Etching of Magnetic and Noble Metal Alloys, ***Nicholas Altieri***[1], *E Chen,* University of California, Los Angeles; *J Chen,* Lam Research Corporation; *J Chang,* University of California, Los Angeles	**PS-ThM-2** Towards Plug-and-Play Tailored Voltage Waveform Plasma Sources: Progress in Matching and Calibration, ***Erik V. Johnson***, LPICM, Ecole Polytechnique, France; *K Yamaki,* LPP-CNRS; *J Booth,* LPP-CNRS, Ecole Polytechnique, France
8:40am	**INVITED: PS+NS+SS+TF-ThM-3** Directional Atomic Layer Etching: First Principles, Modelling and Applications, ***Thorsten Lill***, *K Kanarik, I Berry, S Tan, Y Pan, V Vahedi, R Gottscho,* Lam Research Corporation	**PS-ThM-3** Selective Radical Production in Remote Plasma Sources, ***Shuo Huang***, University of Michigan; *V Volynets, S Lee, S Nam, S Lu,* Samsung Electronics Co. Ltd., Republic of Korea; *M Kushner,* University of Michigan
9:00am	Invited talk continues.	**PS-ThM-4** On Electron Heating in Magnetron Sputtering Discharges, ***Jon Tomas Gudmundsson***, University of Iceland, Iceland; *D Lundin,* Université Paris-Sud, France; *M Raadu,* KTH-Royal Institute of Technology, Sweden; *T Minea,* Université Paris-Sud, France; *N Brenning,* KTH-Royal Institute of Technology, Sweden
9:20am	**PS+NS+SS+TF-ThM-5** Thermal Atomic Layer Etching of VO_2 Using Sequential Exposures of SF_4 and Either $Sn(acac)_2$ or BCl_3, ***Jonas Gertsch***, *V Bright, S George,* University of Colorado Boulder	**INVITED: PS-ThM-5** High-Density Plasma Generation in Low-Pressure Metamaterial Space, ***Osamu Sakai***, The University of Shiga Prefecture, Japan
9:40am	**PS+NS+SS+TF-ThM-6** Atomic Layer Etching of MoS_2 for Nanodevices, ***KiSeok Kim***, *K Kim, Y Ji, G Yeom,* Sungkyunkwan University, Republic of Korea	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: PS+NS+SS+TF-ThM-10** Ge Atomic Layer Etching for High Performance FinFET, *W Mizubayashi,* AIST, Japan; *S Noda,* Tohoku University, Japan; *Y Ishikawa, T Nishi,* AIST, Japan; *A Kikuchi,* Tohoku University, Japan; *H Ota,* AIST, Japan; *P Su, Y Li,* National Chiao Tung University, Taiwan; *S Samukawa,* Tohoku University, AIST, Japan; ***Kazuhiko Endo***, AIST, Japan	**PS-ThM-10** Optical Emission Spectroscopy of a Spark-coupled Laser Aluminum Plasma for Multicharged Ion Generation, ***Md Mahmudur Rahman***, *O Balki, M Shaim, H Ali,* Old Dominion University
11:20am	Invited talk continues.	
11:40am	**PS+NS+SS+TF-ThM-12** Numerical Simulations of Atomic-Layer Etching (ALE) for SiO_2 and SiN, ***Yuki Okada***, Osaka University, Japan; *R Sugano,* Hitachi, Ltd., Japan; *M Isobe, T Ito, H Li, K Karahashi, S Hamaguchi,* Osaka University, Japan	**INVITED: PS-ThM-12** Effect of Secondary Electrons on the Ionization Dynamics and Control of Ion Properties in Electronegative Capacitive Discharges, ***Aranka Derzsi***, Wigner Research Centre for Physics, Hungarian Academy of Sciences, Hungary
12:00pm	**PS+NS+SS+TF-ThM-13** Organometallic Etching Chemistry for Thermal Atomic Level Etching of Lanthanum Oxide, ***Yoshihide Yamaguchi***, *K Shinoda,* Hitachi, Japan; *Y Kouzuma, S Sakai, M Izawa,* Hitachi High-Technologies Corp., Japan	Invited talk continues.

[1] **Coburn & Winters Student Award Finalist**

Thursday Morning, November 2, 2017

	Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic **Room 9 - Session SA+AC+MI-ThM** **Frontiers in Probing Properties and Dynamics of Nanostructures and Correlation Spectroscopy** **Moderators:** Jan Vogel, Institut Néel, CNRS/UGA, Grenoble, France, Christian Gutt, University of Siegen, Germany	**Advanced Surface Engineering Division** **Room 11 - Session SE+PS+SS-ThM** **Plasma-assisted Surface Modification and Deposition Processes** **Moderators:** Jolanta Klemberg-Sapieha, Ecole Polytechnique de Montreal, Canada, Suneel Kodambaka, University of California Los Angeles
8:00am	**INVITED: SA+AC+MI-ThM-1** X-rays Revealing Exotic Properties of Magnetoelectric Multiferroics and Related Materials, ***Elke Arenholz,*** Lawrence Berkeley National Laboratory	**INVITED: SE+PS+SS-ThM-1** Key Features of Reactive High Power Impulse Magnetron Sputtering, ***Daniel Lundin,*** CNRS/Paris-Sud University, France
8:20am	Invited talk continues.	Invited talk continues.
8:40am	**INVITED: SA+AC+MI-ThM-3** X-ray Reflectivity Investigations of Ultrafast Dynamics in Magnetic Multilayer Structures, ***Christian Gutt****, T Sant, D Ksenzov, U Pietsch,* University of Siegen, Germany*; J Luening,* Sorbonne University*; F Capotondi, E Pedersoli, M Manfredda, M Kiskinova,* Elettra-Sincrotrone Trieste, Italy*; M Klaeui, H Zabel,* University of Mainz	**SE+PS+SS-ThM-3** Depositions of Al_2O_3 Coatings by HiPIMS via Closed-loop Control using a Plasma Emission Monitoring Sensor, ***Jianliang Lin****, R Wei, K Coulter,* Southwest Research Institute*; F Papa,* Gencoa Ltd.
9:00am	Invited talk continues.	**SE+PS+SS-ThM-4** The Influence of Spokes on Spatial and Energy Distributions of Ions in Magnetron Sputtering Discharges, ***Matjaz Panjan,*** Jozef Stefan Institute, Slovenia*; K Tanaka, R Franz, A Anders,* Lawrence Berkeley National Laboratory
9:20am	**SA+AC+MI-ThM-5** Spray Deposition of Water-processed Active Layers of Hybrid Solar Cells Investigated with In situ X-ray Scattering Methods, ***Volker Körstgens****, F Buschek, M Wörle,* Technische Universität München, Germany*; W Ohm,* DESY, Germany*; H Iglev,* Technische Universität München, Germany*; S Roth,* DESY, Germany*; R Kienberger, P Müller-Buschbaum,* Technische Universität München, Germany	**SE+PS+SS-ThM-5** Silicon Nitride Deposition for Organic Electronics by VHF (162MHz)- PECVD, *G Yeom,* ***KiHyun Kim****, K Kim, Y Ji, J Oh,* Sungkyunkwan University, Republic of Korea
9:40am	**SA+AC+MI-ThM-6** New Instrumentation for Spin-integrated and Spin-resolved Momentum Microscopy – METIS and KREIOS, ***Thomas Schulmeyer****, M Wietstruk, A Thissen,* SPECS Surface Nano Analysis GmbH, Germany*; G Schoenhense,* Johannes Gutenberg-Universität, Germany*; A Oelsner,* Surface Concept GmbH, Germany*; C Tusche,* Max Planck Institute for Microstructure Physics, Germany	**SE+PS+SS-ThM-6** Printed Circuit Board Assembly- an Ensemble of Different Surface Energy Components and their Surface Modification, ***Shailendra Vikram Singh****, S Woollard, G Aresta, A Brooks, G Hennighan,* R&D Semblant Limited
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: SA+AC+MI-ThM-10** X-ray Photon Correlation Spectroscopy Studies of Soft Matter and Biomaterials, ***Laurence B. Lurio,*** Northern Illinois University, Unites states	**INVITED: SE+PS+SS-ThM-10** Plasma Surface Engineering of Biomaterials, ***Paul K. Chu,*** City University of Hong Kong, Hong Kong
11:20am	Invited talk continues.	Invited talk continues.
11:40am	**INVITED: SA+AC+MI-ThM-12** Forefront Applications of XPCS, ***Anders Madsen,*** European XFEL GmbH, Germany	
12:00pm	Invited talk continues.	**SE+PS+SS-ThM-13** Tuning the Properties of Plasma Polymer Varying the Substrate Temperature: a Step Toward the Fabrication of Micro/nano Pattern, ***Damien Thiry,*** University of Mons, Belgium*; N Vinx, F Aparicio,* University of Mons*; T Godfroid, S Deprez,* Materia Nova*; R Snyders,* University of Mons, Belgium

	Surface Science Division **Room 25 - Session SS+EM+HC+MI-ThM** **Oxides: Structures and Reactions** **Moderators:** Valeria Lauter, Oak Ridge National Laboratory, Charles Sykes, Tufts University	**Thin Films Division** **Room 20 - Session TF+SE-ThM** **Control, Characterization, and Modeling of Thin Films I** **Moderators:** Hilal Cansizoglu, University of California, Davis, Tansel Karabacak, University of Arkansas at Little Rock
8:00am	**SS+EM+HC+MI-ThM-1** Influence of Iron Doping on Cobalt Oxide Bilayers on Au(111): Toward a Model of Synergistic Catalytic Effect in Oxygen Evolution Reaction, ***Jonathan Rodriguez-Fernandez***, *Z Sun, J Fester, J Lauritsen,* Aarhus University, Denmark	**TF+SE-ThM-1** *In Situ* Synchrotron Characterization Techniques Enabled Nanostructured Materials using ALD, ***Yu Lei***, University of Alabama in Huntsville
8:20am	**SS+EM+HC+MI-ThM-2** An Ordered Mixed Oxide Monolayer formed by Iron Segregation on Rutile-TiO_2(011), ***Sandamali Halpegamage***, University of South Florida; *L Bignardi, P Lacovig,* Elettra-Sincrotrone Trieste, Italy; *A Kramer,* University of South Florida; *Z Wen, X Gong,* East China University of Science and Technology, PR China; *S Lizzit,* Elettra-Sincrotrone Trieste, Italy; *M Batzill,* University of South Florida	**TF+SE-ThM-2** Probing the Atomic Scale Structure of Polar Oxide Interfaces, ***Sanaaz Koohfar***, *D Kumah,* North Carolina State University
8:40am	**INVITED: SS+EM+HC+MI-ThM-3** Growth and Chemistry of rutile IrO_2 Surfaces, ***Jason Weaver***, *Z Liang, T Li, R Rai,* University of Florida, Gainesville; *M Kim, A Asthagiri,* The Ohio State University	**TF+SE-ThM-3** CVD Chemistry of Trimethylboron - Gas Phase Reactions and Surface Poisoning Effects, ***Henrik Pedersen***, *L Souqui, M Imam,* Linköping University, Sweden; *R Tonner,* Philipps Universität Marburg; *H Högberg,* Linköping University, Sweden
9:00am	Invited talk continues.	
9:20am	**SS+EM+HC+MI-ThM-5** Formation and Manipulation of Water Clusters on Bilayer ZnO Surface, ***Junseok Lee***, *D Sorescu, X Deng,* National Energy Technology Laboratory	**INVITED: TF+SE-ThM-5** *In Situ* Synchrotron-based Characterization of Noble Metal ALD Processes, *J Dendooven,* ***Eduardo Solano***, *R Ramachandran, M Minjauw,* Ghent University, Belgium; *A Coati,* Synchrotron SOLEIL, France; *D Hermida-Merino,* ESRF, France; *C Detavernier,* Ghent University, Belgium
9:40am	**SS+EM+HC+MI-ThM-6** Formation of Metastable Water Chains on Anatase TiO_2(101), ***Arjun Dahal***, *Z Dohnálek,* Pacific Northwest National Laboratory	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**SS+EM+HC+MI-ThM-10** The Structure of Fe_2O_3(012) and its Reactivity to Water, ***Gareth Parkinson***, *F Kraushofer, Z Jakub, M Bichler, J Hulva, M Schmid, U Diebold, P Blaha,* TU Wien, Austria	**TF+SE-ThM-10** *In-situ* FTIR Study of the Atomic Layer Deposition of Scandium Oxide Films using Bis(methylcyclopentadienyl)3,5-dimethylpyrazolatoscandium with Ozone and with Water, ***Rezwanur Rahman***, *J Klesko, A Dangerfield,* University of Texas at Dallas; *J Lehn, C Dezelah, R Kanjolia,* EMD Performance Materials; *Y Chabal,* University of Texas at Dallas
11:20am	**SS+EM+HC+MI-ThM-11** Interaction of Water with anatase TiO_2(001)-1x4, ***Igor Beinik***, *K Adamsen, S Koust, J Lauritsen, S Wendt,* Aarhus University, Denmark	**TF+SE-ThM-11** Ultra Fast Compositional Depth Profile Analysis for Microelectronics Applications, ***Agnès Tempez***, Horiba France S.a.s., France; *Y Mazel, J Barnes, E Nolot,* CEA/LETI-University Grenoble Alpes, France; *S Legendre,* Horiba France S.a.s., France; *M Chausseau,* HORIBA Instruments Incorporated
11:40am		**TF+SE-ThM-12** Surface Termination of Fe_3O_4(111) Films Studied by CO Adsorption, ***Francesca Mirabella***, *E Zaki, F Ivars, S Shaikhutdinov, H Freund,* Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany; *X Li, J Paier, J Sauer,* Humboldt Universität zu Berlin, Germany

Thursday Morning, November 2, 2017

	Thin Films Division **Room 21 - Session TF-ThM** **Area-selective Deposition and Infiltration Growth Methods** **Moderator:** James Fitz-Gerald, University of Virginia	**Tribology Focus Topic** **Room 10 - Session TR+AC+TF+VT-ThM** **Lubricant, Coatings, and Biotribology** **Moderator:** J. David Schall, Oakland University
8:00am	**INVITED: TF-ThM-1** Thin-Film Encapsulation Based on ALD Technology for Organic Light-Emitting Diodes, ***Tony Maindron,*** CEA-Leti, France	**INVITED: TR+AC+TF+VT-ThM-1** Superlubricity of Hard Compliant Carbon Coatings with Green Lubricants: Role of Surface Chemistry and Structural Changes, ***Maria-Isabel De Barros Bouchet,*** Ecole Centrale de Lyon - LTDS, France
8:20am	Invited talk continues.	Invited talk continues.
8:40am	**TF-ThM-3** Vapor Phase Infiltration: Unifying the Research Community Around Processing Science Fundamentals, ***Mark Losego,*** Georgia Institute of Technology	**TR+AC+TF+VT-ThM-3** Role of Deuterium and Hydrogen in the Physical Understanding of Nano-friction in a-C:H/D Thin Films, *F Echeverrigaray, S Sales de Mello, A Michels,* UCS, Brazil*; F Alvarez,* UNICAMP, Brazil*;* ***Carlos Figueroa,*** UCS, Brazil
9:00am	**TF-ThM-4** Vapor Phase Infiltration (VPI) of Polymers with Intrinsic Microporosity, ***Emily McGuinness,*** *F Zhang, R Lively, M Losego,* Georgia Institute of Technology	**TR+AC+TF+VT-ThM-4** Imaging X-Ray Absorption Spectroscopic Investigation of the Mechanisms Behind the Environmental Dependence of the Tribological Properties of Amorphous Carbon Surfaces, ***Filippo Mangolini,*** University of Leeds, UK*; M Koshigan,* Ecole Polytechnique Montréal, Canada*; M Van Benthem, J Ohlhausen,* Sandia National Laboratories*; B McClimon, J Hilbert,* University of Pennsylvania*; J Fontaine,* Ecole Centrale de Lyon, France*; R Carpick,* University of Pennsylvania
9:20am	**TF-ThM-5** Organic Solvent Resistance of Hybrid Organic-Inorganic Films Synthesized via Vapor Phase Infiltration, ***Collen Leng,*** *M Losego,* Georgia Institute of Technology	**INVITED: TR+AC+TF+VT-ThM-5** Structure Evolution in Tribological Interfaces Studied by Multilayer Model Alloys, ***Martin Dienwiebel,*** *E Cihan,* Karlsruhe Institute for Technology (KIT), Germany
9:40am	**TF-ThM-6** Surface Selective CVD of Metallic Thin Films Using Inhibitor Molecules, ***Elham Mohimi,*** University of Illinois at Urbana-Champaign*; Z Zhang,* University of Illinois at Urbana-Champaign, US*; S Liu, B Trinh,* University of Illinois at Urbana-Champaign*; J Mallek,* MIT Lincoln Laboratory*; G Girolami, J Abelson,* University of Illinois at Urbana-Champaign	Invited talk continues.
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:20am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
10:40am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**TF-ThM-10** Toward Area Selective Atomic Layer Deposition on Co, W and Ru Metal/Silicon Patterns, ***Dara Bobb-Semple,*** *S Bent,* Stanford University	**INVITED: TR+AC+TF+VT-ThM-10** Carbon, Carbon Everywhere, from Catalysts to Hip Implants, ***Laurence Marks,*** Northwestern University
11:20am	**TF-ThM-11** Area-selective ALD of Ru by Combining an ABC-type ALD Process and O_2 Plasma Etching, *S Chopra,* Eindhoven University of Technology, The Netherlands*; M Vos,* Eindhoven University of Technology, The Netherlands, Netherlands*; J Ekerdt,* The University of Texas at Austin*; E Kessels,* ***Adrie Mackus,*** Eindhoven University of Technology, The Netherlands, Netherlands	Invited talk continues.
11:40am	**TF-ThM-12** Enhancing the Inherent Area-selective ALD of TiO_2 using BCl_3, ***Seung Keun Song,*** *P Lemarie, G Parsons,* North Carolina State University	**INVITED: TR+AC+TF+VT-ThM-12** Tribology of Cellular Interfaces, ***Angela Pitenis,*** *J Urueña, S Hart, T Hormel, C O'Bryan, S Marshall, K Schulze, P Levings, T Angelini, W Sawyer,* University of Florida
12:00pm	**TF-ThM-13** Selective ALD by Intercalation of Etching Cycles in PEALD Process, ***Rémi Vallat,*** *R Gassilloud,* CEA/LETI-University Grenoble Alpes, France*; C Vallée,* Université Grenoble Alpes & CEA, LETI, Minatec Campus, Grenoble, France	Invited talk continues.

	2D Materials Focus Topic **Room 15 - Session 2D+AS+SS-ThA** **Dopants, Defects, and Interfaces in 2D Materials** **Moderator:** Aubrey Hanbicki, Naval Research Laboratory	**Applied Surface Science Division** **Room 13 - Session AS+SS-ThA** **Advances in Instrumentation and Data Analysis** **Moderators:** Thomas Grehl, ION-TOF GmbH, Germany, Bonnie June Tyler, Universität Münster
2:20pm	**2D+AS+SS-ThA-1** Electron Irradiation-induced Defects and Phase Transformations in Two-dimensional Inorganic Materials, ***Arkady Krasheninnikov,*** Helmholtz Zentrum Dresden-Rossendorf, Germany	**AS+SS-ThA-1** Submicron Spot Sampling Resolution in Thermal Desorption Atomic Force Microscopy - Mass Spectrometry Via Rapid Heating Functions, *S Somnath, S Jesse,* ***Gary Van Berkel,*** *S Kalinin, O Ovchinnikova,* Oak Ridge National Laboratory
2:40pm	**2D+AS+SS-ThA-2** Key Role of Rotated Domains in Oxygen Intercalation at Graphene on Ni(111), ***Luca Bignardi,*** *P Lacovig, M Dalmiglio,* Elettra-Sincrotrone Trieste, Italy; *F Orlando,* Paul Scherrer Institut (PSI), Switzerland; *A Ghafari,* Helmholtz-Zentrum Berlin, Germany; *L Petaccia,* Elettra-Sincrotrone Trieste, Italy; *A Baraldi,* University of Trieste, Italy; *R Larciprete,* Istituto dei Sistemi Complessi - CNR, Italy; *S Lizzit,* Elettra-Sincrotrone Trieste, Italy	
3:00pm	**INVITED: 2D+AS+SS-ThA-3** Atomic Structure of Defect and Dopants in 2D Semiconductor Monolayer MoS_2 and WS_2, ***Jamie Warner,*** University of Oxford, UK	**INVITED: AS+SS-ThA-3** Data Analysis in Thin Film Characterization: Learning More With Physical Models, ***Lev Gelb,*** *A Walker,* University of Texas at Dallas
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**2D+AS+SS-ThA-6** Interaction of an Energetic Ar Molecular Cluster Beam with Graphene, ***Songkil Kim,*** *A Ievlev, J Jakowski, I Vlassiouk, M Burch, C Brown, A Belianinov, B Sumpter, S Jesse, O Ovchinnikova,* Oak Ridge National Laboratory	**INVITED: AS+SS-ThA-6** Advanced Analysis of XPS and ToF-SIMS Data, ***Matthew Linford,*** *S Chatterjee, B Singh,* Brigham Young University; *N Gallagher,* Eigenvector Inc.; *M Engelhard,* EMSL, Pacific Northwest National Laboratory
4:20pm	**2D+AS+SS-ThA-7** Efficient and Low-Damage N-doping of Graphene by Nitrogen Late-Afterglow Plasma Treatment, ***Xavier Glad,*** *G Robert-Bigras, P Levesque, R Martel, L Stafford,* Université de Montréal, Canada	Invited talk continues.
4:40pm	**2D+AS+SS-ThA-8** Exploring the Electronic Signature of Disordered Monolayer MoS_2, ***Chinedu Ekuma,*** *D Gunlycke,* Naval Research Laboratory	**AS+SS-ThA-8** Using the Auger D-Parameter to Identify Polyatomic Molecular Species, ***Sabrina Tardio,*** *P Cumpson,* NEXUS, Newcastle University, UK, United Kingdom
5:00pm	**INVITED: 2D+AS+SS-ThA-9** Heterogeneity in 2D Materials: From Localized Defects, Isoelectronic Doping to Macroscopic Heterostructures, ***Kai Xiao,*** *X Li, M Mahjouri-Samani, M Lin, L Liang, A Oyedele,* Oak Ridge National Laboratory; *M Tian,* University of Tennessee; *A Puretzky, J Idrobe, M Yoon, B Sumpter,* Oak Ridge National Laboratory; *G Duscher,* University of Tennessee; *C Rouleau, D Geohegan,* Oak Ridge National Laboratory	**AS+SS-ThA-9** XPS Analysis of Multilayer HfO_2 Using Hard and Soft X-rays, ***Jennifer Mann,*** Physical Electronics; *R Inoue, H Yamazui, K Watanabe,* ULVAC-PHI, Japan; *J Newman,* Physical Electronics
5:20pm	Invited talk continues.	**AS+SS-ThA-10** Novel Systems Toward Ambient Pressure Photoemission Spectroscopy, ***Lukasz Walczak,*** PREVAC, Poland
5:40pm	**2D+AS+SS-ThA-11** Evidence of a One-dimensional Metal in Twin-grain Boundaries of $MoSe_2$, ***Horacio Coy Diaz,*** *M Batzill,* University of South Florida	**AS+SS-ThA-11** Fabrication and Characterization of Heusler-Based Fe-Mn-Ge Epitaxial Films, *B Clark, N Naghibolashrafi, S Gupta, J Jones, P LeClair, A Gupta,* ***Gary Mankey,*** University of Alabama

	Biomaterial Interfaces Division **Room 12 - Session BI+AS-ThA** **Biomolecules and Biophysics at Interfaces** **Moderators:** Stephanie Allen, The University of Nottingham, UK, Markus Valtiner, Max-Planck Institut für Eisenforschung GmbH	**Electronic Materials and Photonics Division** **Room 14 - Session EM+NS-ThA** **Wide and Ultra-wide Band Gap Materials for Electronic Devices: Growth, Modeling, and Properties** **Moderators:** Michael Filler, Georgia Institute of Technology, Rachael Myers-Ward, U.S. Naval Research Laboratory
2:20pm	**INVITED: BI+AS-ThA-1** Engineering and Imaging Excitons for Brain Imaging of Modulatory Neurotransmitters, *M Landry,* ***Abraham Beyene,*** University of California at Berkeley	**EM+NS-ThA-1** Synthesis of β-Ga2O3 Thin Films on SiC by Molecular Beam Epitaxy, ***Neeraj Nepal,*** *D Katzer, D Storm, M Hardy, B Downey, D Meyer,* U.S. Naval Research Laboratory
2:40pm	Invited talk continues.	**EM+NS-ThA-2** Growth and Characterization of α-, β-, and ε-Ga_2O_3 Epitaxial Layers, ***Lisa Porter,*** *Y Yao, L Lyle,* Carnegie Mellon University; *S Okur, G Tompa, T Salagaj, N Sbrockey,* Structured Materials Industries, Inc.
3:00pm	**BI+AS-ThA-3** Neurotrophin-like Peptides at the Interface with Gold Nanoparticles As New Nanoplatform for CNS Disorders, ***Cristina Satriano,*** *P Di Pietro, N Caporarello, C Anfuso, G Lupo,* University of Catania, Italy; *A Magrì,* National Council of Research (IBB-CNR), Italy; *D La Mendola,* University of Pisa, Italy; *E Rizzarelli,* University of Catania, Italy	**INVITED: EM+NS-ThA-3** Ultra-wide-bandgap Ga_2O_3 Material and Electronic Device Technologies, ***Masataka Higashiwaki,*** *M Wong,* National Institute of Information and Communications Technology, Japan; *K Konishi,* Tokyo University of Agriculture and Technology, Japan; *Y Nakata, T Kamimura,* National Institute of Information and Communications Technology, Japan; *K Sasaki, K Goto,* Tamura Corporation, Japan; *A Takeyama, T Makino, T Ohshima,* National Institutes for Quantum and Radiological Science and Technology, Japan; *H Murakami, Y Kumagai,* Tokyo University of Agriculture and Technology, Japan; *A Kuramata, S Yamakoshi,* Tamura Corporation, Japan
3:20pm		Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**BI+AS-ThA-6** Controlling and Probing the Orientation of Immobilized Protein G B1 on Gold Nanoparticles Using Time of Flight Secondary Ion Mass Spectrometry and X-ray Photoelectron Spectroscopy, ***Yung-Chen Wang,*** *D Castner,* University of Washington, Seattle	**EM+NS-ThA-6** Reactive Magnetron Sputtering of Titanium Nitride and Titanium Aluminum Nitride on Lithium Niobate for Electronic and Opto-Electronic Applications, ***Amber Reed,*** *H Smith, D Abeysinghe, P Shah, L Grazulis, M Hill, M McConney, B Howe, A Urbas,* Air Force Research Laboratory
4:20pm	**BI+AS-ThA-7** Angiogenin Peptides and Gold Nanoparticles for Modulated Angiogenesis Processes, *L Cucci, C Satriano, E Rizzarelli,* University of Catania, Italy; ***Diego La Mendola,*** University of Pisa, Italy	**EM+NS-ThA-7** Growth and Property Analysis of Doped GaN-GaAlN Heterostructures on Low- and High-temperature AlN/Sapphire Templates, ***Nikolaus Dietz,*** *B Cross, M Vernon,* Georgia State University; *R Collazo, R Kirste, S Mita, Z Sitar,* North Carolina State University
4:40pm		**INVITED: EM+NS-ThA-8** A Thermodynamic Supersaturation model for the Growth of AlGaN by MOCVD, ***Ramón Collazo,*** *S Washiyama, I Bryan,* North Carolina State University; *P Reddy, S Mita,* Adroit Materials Inc.; *Z Sitar,* North Carolina State University
5:00pm	**BI+AS-ThA-9** Exploiting Protein-Polyelectrolyte Interactions to Control and Tune Protein Immobilization at Interfaces. Applications in Biocatalysis and Separation Technology, *C Dupont-Gillain, A Bratek-Skicki,* ***Aurélien vander Straeten,*** UC Louvain, Belgium	Invited talk continues.
5:20pm	**BI+AS-ThA-10** Determination of Confined Molecular Structure by using X-ray-Surface Force Apparatus (XSFA) Study in Bio-interface Application, ***Hsiu-Wei Cheng,*** *M Valtiner,* Technical University Freiberg, Germany; *C Merola,* Max-Planck Institute for Iron Research, Germany; *K Schwenzfeier,* Technical University Freiberg, Germany; *M Mezger, H Weiss,* Max-Planck Institute for Polymer Research, Germany	**EM+NS-ThA-10** Anomalous Hall Effect in MOCVD-grown Gadolinium-doped Gallium Nitride, *V Saravade, P Patel, C Ferguson, K Yunghans, A Ghods, C Zhou,* ***Ian Ferguson,*** Missouri University of Science and Technology
5:40pm		**EM+NS-ThA-11** Valence and Conduction Band Offsets of Al_2O_3, $LaAl_2O_3$, AZO and ITO with Ga_2O_3, ***Patrick Carey IV,*** *F Ren, D Hays, B Gila, S Pearton,* University of Florida; *S Jang,* Dankook University, South Korea; *A Kuramata,* Tamura Corporation, Japan
6:00pm	**BI+AS-ThA-12** Direct Quantification of the Hydrophobic-to-Hydrophilic Transition of Interaction Forces, ***Laila Moreno Ostertag,*** *T Utzig, P Stock,* Max Planck Institute for Iron Research, Germany; *M Valtiner,* TU Bergakademie Freiberg, Germany	**EM+NS-ThA-12** *In Situ* Plasma Emission Spectroscopy of InN/GaN Heterostructures Grown by MEPA-MOCVD, ***Daniel Seidlitz,*** *B Cross, Y Abate,* Georgia State University; *A Hoffmann,* Technical University of Berlin, Germany; *N Dietz,* Georgia State University

	Fundamental Discoveries in Heterogeneous Catalysis Focus Topic **Room 24 - Session HC+SS-ThA** **Combined Experimental and Theoretical Explorations of the Dynamics of Heterogeneously Catalyzed Reactions** **Moderator:** L. Gabriela Avila-Bront, College of the Holy Cross	**Advanced Ion Microscopy Focus Topic** **Room 7 & 8 - Session HI+NS+TR-ThA** **Novel Beam Induced Surface Analysis and Nano-Patterning** **Moderators:** Anne Delobbe, Orsay Physics, Shinichi Ogawa, National Institute of Advanced Industrial Science and Technology (AIST)
2:20pm	**INVITED: HC+SS-ThA-1** Building the World's Greatest Microscope: Revealing the Atomic Scale Dynamics of Surface Chemistry, *A Wodtke,* Max Planck Institute for Biophysical Chemistry, Germany; *O Buenermann, H Jiang, Y Dorenkamp,* Institute for Physical Chemistry University of Goettingen, Germany; *A Kandratsenka, S Janke,* ***Daniel Auerbach,*** Max Planck Institute for Biophysical Chemistry, Germany	**INVITED: HI+NS+TR-ThA-1** Multimodal Chemical Imaging of Nanoscale Interfacial Phenomena on a Combined HIM-SIMS Platform, ***Olga Ovchinnikova,*** Oak Ridge National Laboratory
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm	**HC+SS-ThA-3** Calibrating Electronic Structure Calculations – A Joint Experimental-Theoretical Approach, ***Arthur Utz,*** *E Dombrowski, E High,* Tufts University	**HI+NS+TR-ThA-3** Characterizing Surface Immobilized Antibodies using ToF-SIMS and Multivariate Analysis, *N Welch,* CSIRO Manufacturing, Australia; *R Madiona,* La Trobe University, Australia; *J Scoble, B Muir,* CSIRO Manufacturing, Australia; ***Paul Pigram,*** La Trobe University, Australia
3:20pm	**HC+SS-ThA-4** CO_2, CO and H_2O on Copper Surfaces: A HPXPS Study Supported by DFT Calculations, *A Regoutz, G Kerherve, J Kahk, J Lischner,* ***David Payne,*** Imperial College London, UK	
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: HC+SS-ThA-6** Dissociative Adsorption of Methane on Transition Metal Surfaces and Supported Atoms from First Principles Calculations, ***Heriberto Fabio Busnengo,*** CONICET and Universidad Nacional de Rosario, Argentina	**INVITED: HI+NS+TR-ThA-6** Single-nanometer Functional Graphene Devices Patterned with Helium Ion Beam, ***Hiroshi Mizuta,*** *M Schmidt, T Kanzaki,* Japan Advanced Institute of Science and Technology (JAIST), Japan; *S Ogawa,* National Institute of Advanced Industrial Science and Technology (AIST), Japan; *M Muruganathan,* Japan Advanced Institute of Science and Technology (JAIST), Japan
4:20pm	Invited talk continues.	Invited talk continues.
4:40pm	**HC+SS-ThA-8** Methane Steam Reforming: Using External Electric Fields to Enhance the Catalytic Performance of Ni-based Catalysts, ***Fanglin Che,*** University of Toronto, Canada; *J Gray, S Ha, J McEwen,* Washington State University	
5:00pm	**HC+SS-ThA-9** Mullite Support Boosts Active Oxygen Atoms for Enhanced Platinum Sub-nanometer Clusters Catalysis, ***Xiao Liu,*** *J Cai, B Shan, R Chen,* Huazhong University of Science and Technology, China	**HI+NS+TR-ThA-9** Monte Carlo Simulation Study of Gas Assisted Focused Ion Beam Induced Etching, ***Kyle Mahady,*** *P Rack,* University of Tennessee; *S Tan,* Intel Corporation; *Y Greenzweig,* Intel Corporation, Israel; *R Livengood,* Intel Corporation; *A Raveh,* Intel Corporation, Israel
5:20pm	**HC+SS-ThA-10** Calorimetric Energies of Small Adsorbates on Ni(111) and NiO(111) Surfaces, with Comparison to Pt(111) to Explain Differences in Catalytic Activity between Ni vs Pt, ***Wei Zhao,*** *S Carey, Z Mao, S Morgan, C Campbell,* University of Washington	**HI+NS+TR-ThA-10** Direct Write of Complex 3-Dimensional Structures with Helium Ion Microscopy, ***Matthew Burch,*** *A Ievlev,* Oak Ridge National Laboratory; *M Stanford, B Lewis,* University of Tennessee; *X Sang, S Kim, J Fowlkes,* Oak Ridge National Laboratory; *P Rack,* University of Tennessee; *R Unocic, A Belianinov, O Ovchinikova,* Oak Ridge National Laboratory
5:40pm	**HC+SS-ThA-11** Defect Formation on MoS_2 via Methanol to Methoxy Conversion, ***Prescott Evans,*** *H Jeong, S Beniwal, P Dowben,* University of Nebraska - Lincoln; *D Le, T Rahman,* University of Central Florida	

	Manufacturing Science and Technology Group **Room 18 - Session MS-ThA** **Working with Government Labs and User Facilities** **Moderators:** Bridget Rogers, Vanderbilt University, Mikel Holcomb, West Virginia University	**Nanometer-scale Science and Technology Division** **Room 19 - Session NS+SP+SS-ThA** **Advances in Scanning Probe Microscopy** **Moderator:** Sergei Kalinin, Oak Ridge National Laboratory
2:20pm	**MS-ThA-1** Tackling Fundamental and Applied Problems Using EMSL Capabilities - Examples of Applying Surface and Interface Sensitive Tools to Biological Systems, *C Anderton, D Baer, M Engelhard,* ***Scott Lea,*** Pacific Northwest National Laboratory	**NS+SP+SS-ThA-1** Mapping Stress in Polycrystals with sub-10 nm Spatial Resolution, ***Celia Polop,*** Universidad Autónoma de Madrid, Spain*; E Vasco, A Perrino, R Garcia,* Instituto de Ciencia de Materiales de Madrid, CSIC, Spain
2:40pm	**MS-ThA-2** Opportunities for Users at the Center for Nanoscale Materials, ***Kathleen Carrado Gregar,*** Argonne National Laboratory	
3:00pm	**MS-ThA-3** The CNST NanoFab at NIST: *Nanofabrication for US Commerce, V Luciani,* ***Chen Zhang,*** National Institute of Standards and Technology, Center for Nanoscale Science and Technology	**NS+SP+SS-ThA-3** XTIP – A Dedicated Beamline for Synchrotron X-ray Scanning Tunneling Microscopy, *N Shirato, M Fisher, R Reininger, S Hla,* ***Volker Rose,*** Argonne National Laboratory
3:20pm	**MS-ThA-4** Research Opportunities at the Cornell NanoScale Science and Technology Facility, ***Michael Skvarla,*** Cornell NanoScale Science and Technology Facility	**NS+SP+SS-ThA-4** Kelvin Probe Force Microscopy for High-Resolution Imaging of Hydrogen in Steel Alloys, ***Joy McNamara,*** *P Korinko, M Morgan, A Duncan,* Savannah River National Laboratory
3:40pm	**BREAK**	**BREAK**
4:00pm	**MS-ThA-6** Shyne - Allowing Users to Leverage $800 Million in Nanotechnology Research, Education, Infrastructure & Facilities at Northwestern and the University of Chicago, ***Peter Duda,*** University of Chicago*; B Meyers,* Northwestern University	**INVITED: NS+SP+SS-ThA-6** Video-Rate Atomic Force Microscopy, ***Roger Proksch,*** Asylum Research
4:20pm	**MS-ThA-7** Science Opportunities with Soft X-Rays for Users at the Advanced Light Sources, ***Zahid Hussain,*** Advanced Light Source, Lawrence Berkeley National Laboratory	Invited talk continues.
4:40pm	**MS-ThA-8** Research Opportunities and How to Become a User at the Center for Functional Nanomaterials, ***Samuel Tenney,*** Brookhaven National Laboratory	**NS+SP+SS-ThA-8** Novel AFM Probes Enable Highly Sensitive Chemical and Thermal Characterisation at the Nano Scale, ***Georg Ramer,*** *J Chae, S An,* NIST Center for Nanoscale Science and Technology / University of Maryland*; V Aksyuk, A Centrone,* NIST Center for Nanoscale Science and Technology
5:00pm	**MS-ThA-9** Opportunities at the Center for Nanophase Materials Sciences, ***Arthur Baddorf,*** Oak Ridge National Laboratory	**NS+SP+SS-ThA-9** Photoinduced Thermal Desorption Coupled with Atmospheric Pressure Chemical Ionization Mass Spectrometry for Multimodal Imaging, ***Matthias Lorenz,*** *C Brown,* University of Tennessee*; R Proksch, M Viani, A Labuda,* Oxford Instruments*; S Jesse, O Ovchinnikova,* Oak Ridge National Laboratory
5:20pm	**MS-ThA-10** Research Opportunities at the National High Magnetic Field Laboratory, ***Eric Palm,*** National High Magnetic Field Laboratory	
5:40pm		**NS+SP+SS-ThA-11** Synchrotron X-ray Scanning Tunneling Microscopy Investigations of Magnetic and Electronic Properties of Nanoscale Metal-Clusters, ***Hao Chang,*** Ohio University and Argonne National Laboratory*; N Shirato, M Cummings,* Argonne National Laboratory*; H Kersell,* Ohio University and Argonne National Laboratory*; D Rosenmann, J Freeland, V Rose,* Argonne National Laboratory*; S Hla,* Ohio University and Argonne National Laboratory

	Plasma Science and Technology Division **Room 23 - Session PS+TF-ThA** **Plasma Enhanced ALD** **Moderators:** Steven George, University of Colorado at Boulder, Mingmei Wang, TEL Technology Center, America, LLC	**Plasma Science and Technology Division** **Room 22 - Session PS+VT-ThA** **Plasma Diagnostics, Sensors and Control** **Moderator:** Aranka Derzsi, Wigner Research Centre for Physics, Hungarian Academy of Sciences, Hungary
2:20pm	**PS+TF-ThA-1** Mechanical, Physical, and Electrical Properties of Plasma-Enhanced Atomic Layer Deposition of Vanadium Nitride using Tetrakis(Dimethylamido)Vanadium and Nitrogen Plasma, ***Mark Sowa,*** Ultratech, Inc.; *L Ju, N Strandwitz,* Lehigh University; *A Kozen,* US Naval Research Laboratory; *G Zeng, B Krick,* Lehigh University	**PS+VT-ThA-1** Quantitative Analysis of Composition and Temperature of Semiconductor Processing Plasmas via Terahertz Spectroscopy, ***Yaser Helal,*** *C Neese, F De Lucia,* The Ohio State University; *A Niabati, M Johnson, B Craver, P Stout, M Armacost,* Applied Materials, Inc.
2:40pm	**PS+TF-ThA-2** Optimizing Process Parameters for Plasma Assisted Atomic Layer Deposition, ***David Boris,*** *V Wheeler,* Naval Research Laboratory; *V Anderson,* ASEE (residing at NRL); *N Nepal,* Naval Research Laboratory; *S Rosenberg,* ASEE Postdoctoral Fellow; *A Kozen,* ASEE (residing at NRL); *J Hite, S Walton,* Naval Research Laboratory; *C Eddy, Jr.,* U.S. Naval Research Laboratory	**PS+VT-ThA-2** *In Situ* Measurement of Electron Emission Yields from Plasma-Exposed Surfaces, ***Mark Sobolewski,*** National Institute of Standards and Technology
3:00pm	**PS+TF-ThA-3** Tuning of Optical and Structural Properties of ZnO Deposited by Room Temperature-plasma Assisted Atomic Layer deposition, ***Alberto Perrotta,*** *J Pilz, A Coclite,* Graz University of Technology, Austria	**INVITED: PS+VT-ThA-3** Studying Dynamic and Structured Plasma Systems Utilizing Laser-Collision Induced Fluorescence, ***Edward Barnat,*** *A Fierro,* Sandia National Laboratories
3:20pm	**PS+TF-ThA-4** Influence of Plasma Power on the Si Solar Cell Passivation Properties of Al_2O_3 Thin Films deposited by Atomic Layer Deposition at 90 °C, *Z Zhu,* Beneq Oy, Finland; *P Sippola,* Aalto University, Finland; ***Emma Salmi,*** Beneq Oy, Finland	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**PS+TF-ThA-6** Optimizing MoO_3 Plasma-enhanced ALD Thin Films for use in Controllable 2D Material Synthesis, ***Brittney Burant,*** MIT Lincoln Laboratory	**PS+VT-ThA-6** Effect of Ion Inertia on Ion Energy Broadness on Biased Electrode in Dual Frequency Capacitively Coupled Argon Plasma, ***Yunchang Jang,*** *H Roh, N Kim, S Ryu, G Kim,* Seoul National University, Republic of Korea
4:20pm	**PS+TF-ThA-7** Plasma ALD of Fluorides: Process Characterization and *In Situ* Study of AlF_3 ALD, ***Harm Knoops,*** Oxford Instruments Plasma Technology, UK, Netherlands; *M Vos, E Kessels, A Mackus,* Eindhoven University of Technology, The Netherlands, Netherlands	**PS+VT-ThA-7** Collision Frequency Estimation using Microwave Hairpin Resonator Probes, *D Peterson,* ***Steven Shannon,*** North Carolina State University
4:40pm	**PS+TF-ThA-8** Ion Energy Control During Remote Plasma ALD for Tuning Material Properties of Transition Metal Nitrides, ***Tahsin Faraz,*** Eindhoven University of Technology, Netherlands; *H Knoops,* Oxford Instruments Plasma Technology, UK, Netherlands; *S Karwal, M Verheijen, C van Helvoirt,* Eindhoven University of Technology, Netherlands; *D Hausmann, J Henri,* Lam Research Corporation; *M Creatore,* Eindhoven University of Technology, Netherlands, The Netherlands; *E Kessels,* Eindhoven University of Technology, Netherlands	**INVITED: PS+VT-ThA-8** In-Situ Diagnostics of Processing Plasma and Semiconductor Films for High-Efficiency Silicon Hetero-Junction Solar Cells, ***Shota Nunomura,*** National Institute of Advanced Industrial Science and Technology (AIST), Japan
5:00pm	**PS+TF-ThA-9** Understanding the Challenges in Atomic Layer Deposition of SiN_x through Identification of the Surface Reaction Mechanisms, ***Rafaiel Ovanesyan***[1], Colorado School of Mines; *D Hausmann,* Lam Research Corporation; *S Agarwal,* Colorado School of Mines	Invited talk continues.
5:20pm	**PS+TF-ThA-10** First-Principles Understanding and Kinetic Monte Carlo Analysis of Reaction Mechanisms in Plasma Enhanced Atomic Layer Deposition of Silicon Nitride, *G Hartmann,* University of Texas at Austin; ***Peter Ventzek,*** *J Zhao,* Tokyo Electron America; *T Iwao, K Ishibashi,* Tokyo Electron Tohoku Limited; *G Hwang,* University of Texas at Austin	**PS+VT-ThA-10** Towards *In Situ* Microwave Imaging in Plasmas, *A Tselev,* University of Aveiro, Portugal; *J Fagan,* NIST; ***Andrei Kolmakov,*** CNST/NIST
5:40pm	**PS+TF-ThA-11** *High Quality Crystalline AlN Films Produced by PEALD with Microwave ECR Plasma below 200 ºC* , ***Jesse Kalliomäki,*** *V Kilpi, T Malinen,* Picosun Oy, Finland; *H Enami, N Mise,* Hitachi High-Technologies Corp., Japan; *H Hamamura, T Usui,* Hitachi R&D Group, Japan	**PS+VT-ThA-11** Probe System for Radical Species Characterization in Vacuum with Centimeter Spatial Resolution, ***Ivan Shchelkanov,*** *D Qerimi, A Hayes, J Wegner, D Ruzic,* University of Illinois at Urbana-Champaign
6:00pm		**PS+VT-ThA-12** Spatiotemporal Evolution of RF Magnetic Field and Plasma Current in a Very High Frequency Plasma Source, ***Jianping Zhao,*** *P Ventzek, B Lane, C Campbell,* Tokyo Electron America; *T Iwao, K Ishibashi,* Tokyo Electron Limited

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

	Surface Science Division **Room 25 - Session SS+AS+EM-ThA** **Semiconductor Surfaces** **Moderators:** James Ohlhausen, Sandia National Laboratories, Petra Reinke, University of Virginia	**Thin Films Division** **Room 21 - Session TF+MI+NS-ThA** **ALD and Nanostructures** **Moderators:** Christophe Vallee, LTM - MINATEC - CEA/LETI, France, Richard Vanfleet, Brigham Young University
2:20pm	**INVITED: SS+AS+EM-ThA-1** Visualizing the Nanoscale Electrostatics of Material Interfaces, ***Vincent LaBella***, SUNY Polytechnic Institute; *W Nolting,* University at Albany, SUNY	**INVITED: TF+MI+NS-ThA-1** Coating and Infilling 3D Geometries by Low-T CVD : HfB_2 throughout 0.5 mm Thick CNT Forests, ***John Abelson***, University of Illinois at Urbana-Champaign
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm		**TF+MI+NS-ThA-3** Varying Penetration Depths in ALD on High Aspect Ratio Carbon Nanotube Forests, ***David Kane***, *R Kane, R Vanfleet,* Brigham Young University
3:20pm	**SS+AS+EM-ThA-4** Reactions of Benzoquinone with Hydrogen Terminated Silicon Surfaces, ***Meixi Chen***, *J Hack, A Iyer, R Opila,* University of Delaware	**TF+MI+NS-ThA-4** NiOx Decorated Platinum Nanoparticles Via Atomic Layer Deposition for Enhanced Sintering Resistance, ***Jiaming Cai***, *K Cao,* Huazhong University of Science and Technology, PR China, China; *M Gong,* Huazhong University of Science and Technology, PR China; *B Shan, R Chen,* Huazhong University of Science and Technology, PR China, China
3:40pm	**BREAK**	**BREAK**
4:00pm	**SS+AS+EM-ThA-6** Uniform Reactivity and Bonding between Si(100) and GaAs(100) Wafers using Low Temperature (<180°C) Wet NanoBonding™ Optimized by Surface Energy Analysis, ***Nicole Herbots***, *R Islam,* Cactus Materials	**TF+MI+NS-ThA-6** Atomic Layer Deposition of HfO_2/Al_2O_3 Nanolaminates on Single-crystal GaN and Ga_2O_3: Investigation of Device Degradation in Power Semiconductor Devices, ***David Mandia***, *A Yanguas-Gil, J Libera, J Elam,* Argonne National Laboratory
4:20pm	**SS+AS+EM-ThA-7** Evaluation of Silicon Oxidation in Downstream Plasma Photoresist Strip with Reducing Chemistries, ***Tongchuan Gao***, *V Vaniapura,* Mattson Technology, Inc.	**TF+MI+NS-ThA-7** Atomic Layer Deposition Enabled Synthesis of Multiferroic Composite Nanostructures, ***Jeffrey Chang***[1], University of California at Los Angeles; *A Rosenberg,* Stanford University; *A Buditama,* University of California at Los Angeles; *E Jin, L Kornblum, C Ahn,* Yale University; *S Tolbert,* University of California at Los Angeles; *K Moler,* Stanford University; *J Chang,* University of California at Los Angeles
4:40pm	**SS+AS+EM-ThA-8** Surface-sensitive Measurement of Dielectric Screening via Atom and Electron Manipulations, ***Daejin Eom***, *E Seo, J Koo,* Korea Research Institute of Standards and Science, Republic of Korea	**INVITED: TF+MI+NS-ThA-8** Recent Developments in the Analysis of ALD/CVD Thin Film Conformality, ***Riikka Puurunen***, Aalto University, School of Chemical Engineering, Finland
5:00pm	**SS+AS+EM-ThA-9** The Effects of UV Irradiation, Stage Temperature, and Radical Flux on UV-Ozone Treatment using High-aspect-Ratio Cave Structures, ***Shogo Uehara***, *T Sugawara, P Wood,* SAMCO Inc.	Invited talk continues.
5:20pm	**SS+AS+EM-ThA-10** Density Functional Theory Study of the Effects of Surface Defects on the Interactions of Cl and α-Fe_2O_3 (0001) Surface, ***Qin Pang***, *H DorMohammadi, O Isgor, L Árnadóttir,* Oregon State University	**TF+MI+NS-ThA-10** Spatial Atomic Layer Deposition Reactor Design for Nano-laminates, *X Wang,* Huazhong University of Science and Technology, PR China; ***Yun Li***, Huazhong University of Science and Technology, PR China, China; *J Lin,* Huazhong University of Science and Technology, PR China; *J Cai, R Chen,* Huazhong University of Science and Technology, PR China, China

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

Thursday Afternoon, November 2, 2017

	Thin Films Division Room 20 - Session TF+MI-ThA Control, Characterization, and Modeling of Thin Films II **Moderators:** Subhadra Gupta, University of Alabama, Angel Yanguas	Vacuum Technology Division Room 9 - Session VT-ThA Surface Science for Accelerators **Moderators:** Jay Hendricks, National Institute of Science and Technology, Alan Van Drie, Tri Alpha Energy, Inc.
2:20pm	**TF+MI-ThA-1** *In Situ* Monitoring of the Growth of Metallic, Nitride and Oxide Thin Films Prepared by Pulsed Laser Deposition, ***Michal Novotny***, *J Bulir, E Maresova,* Institute of Physics ASCR, Czech Republic*; P Fitl, J Vlcek,* University of Chemistry and Technology Prague, Czech Republic*; M Vondracek, L Fekete, J Lancok,* Institute of Physics ASCR, Czech Republic*; N Abdellaoui, A Pereira,* University of Lyon, Université Claude Bernard Lyon, France	**INVITED: VT-ThA-1** Adsorption/Desorption from Amorphous Carbon Coating at Cryogenic Temperatures, ***Anne-Laure Lamure***, *V Baglin, P Chiggiato, B Henrist,* CERN, Switzerland
2:40pm	**TF+MI-ThA-2** Perpendicular Magnetic Anisotropy in CoxPd100-x Alloys for Perpendicular Magnetic Tunnel Junctions and Bit Patterned Media, ***Subhadra Gupta***, *B Clark, A Owen,* University of Alabama	Invited talk continues.
3:00pm	**INVITED: TF+MI-ThA-3** Combining Dynamic Shadowing Growth and Colloidal Monolayer to Design Plasmonic Metamaterials, ***Yiping Zhao***, University of Georgia	**INVITED: VT-ThA-3** Heavy ion-induced Desorption and its Impact on Next Generation Accelerators, ***Markus Bender***, *H Kollmus,* GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany*; E Mahner,* CERN, Switzerland
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	**BREAK**	**BREAK**
4:00pm	**INVITED: TF+MI-ThA-6** Physical Vapor Deposition of Emerging Resistive Memories, *M Pakala,* ***Lin Xue***, Applied Materials, Inc.	**VT-ThA-6** Outgassing Behavior of Different Oxide Ceramic Materials, ***Katharina Battes***, *C Day, V Hauer,* Karlsruhe Institute of Technology (KIT), Germany
4:20pm	Invited talk continues.	
4:40pm	**TF+MI-ThA-8** Metal Oxide Nanostructure Growth by a Simple Hot Water Deposition (HWD) Method, ***Nawzat Saadi***, *T Karabacak,* University of Arkansas at Little Rock	**VT-ThA-8** APS-Upgrade Storage Ring Vacuum System Sector Mockup and Vacuum R&D Activities, ***Jason Carter***, Argonne National Laboratory
5:00pm	**TF+MI-ThA-9** Microsphere-Based Disordered Coatings for Effective Radiative Cooling, ***Sarun Atiganyanun***, *J Plumley, K Hsu,* University of New Mexico*; J Cytrynbaum,* Williams College*; T Peng,* Air Force Research Laboratory*; S Han, S Han,* University of New Mexico	**VT-ThA-9** Numerical Tools for Particle Accelerator Vacuum Systems, ***Giulia Lanza***, SLAC National Accelerator Laboratory
5:20pm	**INVITED: TF+MI-ThA-10** Sputter Beam Epitaxy: Innovation towards Spin Control in Intermetallic Thin Films, ***Adam Hauser***, The University of Alabama	**VT-ThA-10** Developing Particle Control Infrastructure for the ESS High Beta Project at STFC Daresbury Laboratory, ***Mark Pendleton***, STFC Daresbury Laboratory, UK
5:40pm	Invited talk continues.	**VT-ThA-11** Functional Coatings for Gauges and Components, *B Andreaus, C Strietzel,* ***Martin Wüest***, INFICON Ltd., Liechtenstein*; C Guerra-Nuñez, M Ruoho, I Utke, J Michler, X Mäder, M Polyakov,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland
6:00pm		**VT-ThA-12** 60 Years of Ion Pumps: From the Invention to the Latest Developments, ***Mauro Audi***, Agilent Technologies, Italy

2D Materials Focus Topic
Room Central Hall - Session 2D-ThP
2D Materials Poster Session
6:30pm

2D-ThP-1 In-situ Analysis of Electronic Structure of monolayer MoS_2 using Photoemission Spectroscopy and Kelvin probe, ***JaeGwan Chung***, *U Kim, D Yun, Y Kim, J Shin,* Samsung Electronics, Republic of Korea

2D-ThP-2 Reliable Passivation of Black Phosphorus by Thin Hybrid Coating, *S Gamage,* ***Alireza Fali***, *N Aghamiri,* Georgia State University; *L Yang, P Ye,* Purdue University; *Y Abate,* Georgia State University

2D-ThP-3 Temperature-dependent Photo-current Behaviors of CVD-grown MoS_2 layers, ***Soyeong Kwon***, *E Kim, Y Cho,* Ewha Womans University, Republic of Korea; *Y Kim, B Cho, D Kim,* Korea Institute of Materials Science; *D Kim,* Ewha Womans University, Republic of Korea

2D-ThP-4 Controlling Charge Density Wave Transition in Monolayer $TiSe_2$, ***Sadhu Kolekar***, *M Batzill,* University of South Florida

2D-ThP-5 Growth and Characterization of $MoTe_2$ on GaTe by Molecular Beam Epitaxy, ***Paula Mariel Coelho***, *M Batzill,* University of South Florida

2D-ThP-7 Single Layer VSe_2: A Ferromagnetic 2D Material, ***Manuel Bonilla***, *S Kolekar, H Coy Diaz, Y Ma, M Batzill,* University of South Florida

2D-ThP-8 Surface Functionalization of Few-layer MoS_2 for Atomic Layer Deposition using Gold Chloride Salts, ***Jaron Kropp***, UMBC; *T Gougousi,* University of Maryland, Baltimore County

2D-ThP-10 Alternative Pathway to Silicene Synthesis via Surface Relaxation of Hexagonal-$MoSi_2$ Crystallites, ***Cameron Volders***, *E Monazami, G Ramalingam, P Reinke,* University of Virginia

2D-ThP-11 CVD Grown 2D Metal Carbides using Folded Cu/Metal Foils, ***Kwonjae Yoo***, *I Kang, G Kim, M Hyun, Y Park,* National Nanofab Center (KAIST), Republic of Korea; *S Lee, C Hwang,* Korea Research Institute of Standards and Science, Republic of Korea

2D-ThP-12 Scanning Tunneling Microscopy and Spectroscopy of Wet Chemically Synthesized Porous Graphene Nanoribbons, ***Kaitlyn Parsons***, *A Radocea,* University of Illinois at Urbana-Champaign; *M Pour,* University of Nebraska - Lincoln; *T Sun, N Aluru,* University of Illinois at Urbana-Champaign; *A Sinitskii,* University of Nebraska - Lincoln; *J Lyding,* University of Illinois at Urbana-Champaign

2D-ThP-13 Surfactant-Exfoliated 2D Molybdenum Disulphide (2D-MoS_2): The Role of Surfactant upon the Hydrogen Evolution Reaction, ***Simon Hutton***, Kratos Analytical Limited, UK, United Kingdom of Great Britain and Northern Ireland; *S Rowley-Neale, C Banks,* Manchester Metropolitan University, UK, United Kingdom of Great Britain and Northern Ireland; *C Blomfield, S Coultas, A Roberts, J Counsell,* Kratos Analytical Limited, UK

2D-ThP-14 Low Damage Layer-controlled Thinning of Black Phosphorus by a Low Energy Ar^+ Ion Beam, ***Jinwoo Park***, *D Kim, W Lee, M Mun, K Kim, G Yeom,* Sungkyunkwan University, Republic of Korea

2D-ThP-15 Controlled Growth of Multilayered Hexagonal Boron Nitride on Ni-Cu Alloys, ***Karthik Sridhara***, Texas A&M University; *B Feigelson, J Hite,* US Naval Research Laboratory; *L Nyakiti,* Texas A&M University Galveston

2D-ThP-16 Metal Oxide-/Functionalized Graphene Oxide Composite as Highly Stable Lithium Ion Battery Anode with Enhanced Performance, ***SunSook Lee***, Korea Research Institute of Chemical Technology(KRICT), Republic of Korea; *S Ji, J Ju, S Kim, J Kim, S Choi,* Korea Research Institute of Chemical Technology(KRICT)

2D-ThP-18 Exploration of Hybrid 2DEG/Ferroelectric Heterostructure Fabrication Methodology, ***Stephan Young***, *E Moon, R Doucette, A Caruso,* University of Missouri - Kansas City

2D-ThP-20 Effect of Stacking Orientation and Sag on the Strength and Fracture of Graphene Oxide, ***Teng Cui***, *C Cao, S Parambath Mundayodan, Y Sun, T Filleter,* University of Toronto, Canada

2D-ThP-22 Single Atom Manipulation and Controllable Atom by Atom Assembly in 2D Materials via Scanning Transmission Electron Microscopy, ***Sergei Kalinin***, *O Dyck, S Kim, S Jesse,* Oak Ridge National Laboratory

Applied Surface Science Division
Room Central Hall - Session AS-ThP
Applied Surface Science Poster Session
6:30pm

AS-ThP-1 Depth Profiling Adventures in the Non-Semiconductor Chemical Industry, ***Kathryn Lloyd***, *J Marsh,* DuPont

AS-ThP-2 High-energy Cluster Ions - Minimising Depth Profiling Artifacts for Solid-state Electrolytes, *J Counsell,* Kratos Analytical Limited, UK; ***Chris Moffitt***, Kratos Analytical Ltd; *A Pearse,* University of Maryland, College Park; *C Blomfield, S Coultas,* Kratos Analytical Limited, UK; *G Rubloff,* University of Maryland, College Park

AS-ThP-3 The Internal Composition and Structure of Fish Scales Investigated by ESCA and SEM, ***Gerry Hammer***, *S Murcia, E Lavoie, L Gamble, D Arola, D Castner,* University of Washington

AS-ThP-4 Ambient Pressure X-ray Photoelectron Spectroscopy of the III-V Semiconductor/Water Interface, ***Pitambar Sapkota***, *S Ptasinska,* University of Notre Dame

AS-ThP-5 Spectroscopic and Structural Studies of Iron Gall Ink, ***Karen Gaskell***, *A Ponce,* University of Maryland, College Park; *L Brostoff,* Library of Congress; *S Gibbons, B Eichhorn, P Zavalij,* University of Maryland, College Park; *C Viragh,* The Catholic University of America; *S Alnemrat, J Hooper,* Naval Postgraduate School at Monterey

AS-ThP-7 Multicomponent Patterned Ultrathin Carbon Nanomembranes by Laser Ablation, ***Daniel Rhinow***, Max Planck Institute of Biophysics, Germany; *N Frese,* Bielefeld University, Germany; *J Scherr,* Goethe University Frankfurt, Germany; *A Beyer,* Bielefeld University, Germany; *A Terfort,* Goethe University Frankfurt, Germany; *A Gölzhäuser,* Bielefeld University, Germany; *N Hampp,* Philipps Universität Marburg, Germany

AS-ThP-8 Characterization of Laser-Treated Al-Alloy Surfaces, ***Harry Meyer***, *D Leonard, A Sabau,* Oak Ridge National Laboratory

AS-ThP-11 Space Weathering Effects on Ceres: Novel Application of Surface Analytical Techniques to Questions in Planetary Science, ***Gerard Rodriguez Lopez***, *C Dukes, C Bu,* University of Virginia; *L McFadden,* NASA Goddard; *J Li,* Planetary Science Institute; *O Ruesch,* NASA Goddard

AS-ThP-13 Combustion Soot-derived Carbon Nanostructures: Microscopic and Spectroscopic Investigations, ***Ich Tran***, *T Aoki,* University of California, Irvine; *J Beardslee, C Moffitt,* Kratos Analytical, Inc.

AS-ThP-14 Probing the Chemical-State of Zinc centers in unknown Environments: A Comparison of Conventional and Core-core-core Auger Parameter Analyses, ***William Kaden***, University of Central Florida

Electronic Materials and Photonics Division
Room Central Hall - Session EM-ThP
Electronic Materials and Photonics Poster Session
6:30pm

EM-ThP-3 Electrolyte-Insulator-Semiconductor (EIS) device with Different Integrated Reference Electrodes for pH Detecting, ***Rodrigo Reigota***, *J Diniz,* University of Campinas (UNICAMP), Brazil

EM-ThP-4 Optical and Magneto-optical Properties of $Zn_{1-x}Co_xO$ / ZnO Hollow Nanospheres, ***Da-Ren Liu***, *C Weng,* Instrument Technology Research Center, National Applied Research Laboratories

EM-ThP-5 Low-k Cryo-etching: Comparison of Four Different High Boiling Point Organic (HBPO), ***Romain Chanson***, IMEC, Belgium; *P Lefaucheux, R Dussart, T Tillocher,* GREMI, France; *P Shen, K Urabe, C Dussarat,* Air Liquide, Japan; *K Maekawa,* TEL Technology Center, America, LLC; *K Yatsuda,* Tokyo Electron Limited, Japan; *S Tahara,* Tokyo Electron Miyagi Limited, Japan; *J de Marneffe,* IMEC, Belgium

EM-ThP-6 Carrier Ion Exchange of Na_2O-Fe_2O_3-P_2O_5-SiO_2 Glass-Ceramics, ***Yoshikazu Kaji***, *N Yoshida, T Okura,* Kogakuin University, Japan

EM-ThP-7 Defect Doping ZnO Thin-Films with γ - Radiation, ***Seth King***, *K Slezak,* University of Wisconsin - La Crosse; *S Chamberlin,* Lawrence University; *S Lantvit,* University of Wisconsin - La Crosse

EM-ThP-8 Design and Synthesis of Precursors for Photoassisted Chemical Vapor Deposition, ***Christopher Brewer***, *O Hawkins,* University of Florida; *B Salazar, A Walker,* University of Texas at Dallas; *L McElwee-White,* University of Florida

EM-ThP-9 Electrical and Mechanical Improvements with a Non-Thermal Curing Process for Porous SiCOH using Combined Ultraviolet and Vacuum-Ultraviolet Radiation, ***Sang-heum Kim***, *J Blatz, W Li, H Zhang, D Pei, T Guo, X Zhou,* University of Wisconsin-Madison; *Y Lin, H Fung, C Chen,* National Synchrotron Radiation Research Center, Taiwan, Republic of China; *S King,* Intel Corporation; *Y Nishi,* Stanford University; *J Shohet,* University of Wisconsin-Madison

EM-ThP-10 The Effects of Cesium Ion Implantation on the Mechanical and Electrical Properties of Porous SiCOH Low-k Dielectrics, ***Weiyi Li***, *D Benjamin, J Chang,* University of Wisconsin - Madison; *Q Lin,* IBM Research Division, T.J. Watson Research Center; *S King,* Intel Corporation; *J Shohet,* University of Wisconsin - Madison

EM-ThP-11 The Effect of Proton Radiation on ALD HfO_2 Films and HfO_2 base RRAM, ***Panpan Xue***, University of Wisconsin-Madison; *Z Wang,* Stanford University; *T Chang,* University of Wisconsin-Madison; *Y Nishi,* Stanford University; *J Shohet,* University of Wisconsin-Madison

EM-ThP-12 Measurement of the Depth of Plasma Damage caused by VUV Photons and Oxygen Radicals using X-ray Reflectivity, ***Ha Nguyen***, *F Choudhury,* University of Wisconsin-Madison; *C Lee,* National Tsing Hua University, Taiwan, Republic of China; *Y Lin, H Fung, C Chen,* National Synchrotron Radiation Research Center, Taiwan, Republic of China; *J Blatz, D Benjamin, W Li, J Shohet,* University of Wisconsin-Madison

EM-ThP-13 Oxygen Radical Transmission through and Damage to Freestanding Single and Multilayer Dielectric Films, ***Faraz Choudhury***, *G Sabat, M Sussman,* University of Wisconsin-Madison; *Y Nishi,* Stanford University; *J Shohet,* University of Wisconsin-Madison

EM-ThP-15 Effect of Proton Irradiation on Device Characteristics of Bottom Gate ZnO Thin Film Transistors with Sol-Gel Derived Channel Layers, ***Kosala Yapabandara***, *V Mirkhani, S Wang, M Khanal, S Uprety,* Auburn University; *M Sk,* Qatar University, Qatar; *A Ahyi, T Isaacs-Smith, M Hamilton, M Park,* Auburn University

EM-ThP-16 Characterization of the Buried MgO/Al Interfaces in Multilayer Heterostructures used as Photocathodes with Hard X-ray Photoelectron Spectroscopy, ***Jeff Terry***, Illinois Institute of Technology

EM-ThP-17 Gamma-Ray Irradiation Effects on HfO2 RRAM Studied via EDMR, ***Duane McCrory***, *P Lenahan,* Penn State University; *D Nminibapiel, D Veksler, J Ryan, J Campbell,* National Institute of Standards and Technology

EM-ThP-19 Defect Dependent Luminescence Dead Layers in CdS and CdSe, ***Richard Rosenberg***, Argonne National Laboratory

EM-ThP-20 High Breakdown Voltage (-201) β-Ga_2O_3 Schottky Rectifiers, ***Jiancheng Yang***, *S Ahn, F Ren, S Pearton,* University of Florida

EM-ThP-21 Inelastic Electron Tunneling Spectroscopy and Electron Conduction Mechanisms of Porphyrin Molecular Junctions, ***Teresa Esposito***, *P Dinolfo, V Meunier, K Lewis,* Rensselaer Polytechnic Institute

EM-ThP-22 Welding of Metal Nanowire Networks Using Eddy Current Method, ***JiSoo Oh***, *D Sung, D Kim, K Kim, G Yeom,* Sungkyunkwan University, Republic of Korea

EM-ThP-23 Deep Ultraviolet Light Source with Carbon Nanotube based Electron Beam Pumping, ***KyuChang Park***, *S Yoo,* Kyung Hee University, Republic of Korea

EM-ThP-24 An Unexpected Trend between Metal Work Function and Contact Resistance to Germanium Telluride, ***Kayla Cooley***, *H Simchi, H Aldosari, J O'Neil, S Yu, A Molina, S Mohney,* The Pennsylvania State University

EM-ThP-25 RF Loss Improvement of GaN-HEMTs Grown on Silicon by Reduction of The Inversion Channel at Si Interface, ***TienTung Luong***, *Y Chen, J You, S Chang, Y Ho, Y Lin,* National Chiao Tung University, Taiwan, Taiwan, Republic of China; *J Woo,* University of California, Los Angeles; *E Chang,* National Chiao Tung University, Taiwan, Taiwan, Republic of China

EM-ThP-26 The Photoelastic Coefficient P_{12} of H^+ Implanted GaAs as a Function of Defect Density, ***Andrey Baydin***, *H Krzyzanowska, R Gatamov, N Tolk,* Vanderbilt University

EM-ThP-27 Manipulation of Elliptical Polarization and Modulation of Optical Activity using Terahertz Stereo-metamaterial Reflectors, ***Elizabath Philip***, *S Pal, S Stephens, P Kung, S Kim,* The University of Alabama

Fundamental Discoveries in Heterogeneous Catalysis Focus Topic
Room Central Hall - Session HC-ThP
Fundamental Discoveries in Heterogeneous Catalysis Poster Session
6:30pm

HC-ThP-2 Auger Electron Spectroscopy Analysis of Fresh and Aged Alumina Supported Ag Catalysts, ***Dennis Paul***, *J Newman,* Physical Electronics; *W Suchanek,* Scientific Design Company, Inc.

HC-ThP-3 CO Adsorption on Size-selected Pt_n Clusters Uniformly-Deposited on Al_2O_3/NiAl(110), ***Yoshihide Watanabe***, *A Beniya,* Toyota Central R&D Labs. Inc., Japan

HC-ThP-4 Unexpected Formation of Catalytically Active Palladium Nanoparticles on Silica Surface in Organic Solvents, ***Megan Bornstein***, *A Quast, R Park, J Shumaker-Parry, I Zharov,* University of Utah

HC-ThP-5 Copper Activated Conversion of Ethanol to Higher Alcohols over Hydrotalcite Derived MgAl Mixed Oxides, ***Karthikeyan K. Ramasamy***, *M Guo, M Gray, S Subramaniam,* Pacific Northwest National Laboratory; *A Karakoti,* Ahmedabad University, India; *V Murugesan, V Shutthanandan,* Pacific Northwest National Laboratory; *S Thevuthasan,* Pacific Northwest National Laboratory, Qatar

HC-ThP-6 Methane Dissociation on Ni(111) at High Surface Temperatures: The Observed role of Surface and Subsurface C on Reactivity, ***Eric Dombrowski***, *E High, A Utz,* Tufts University

Advanced Ion Microscopy Focus Topic
Room Central Hall - Session HI-ThP
Advances in Ion Microscopy Poster Session
6:30pm

HI-ThP-1 Sub-10 nm Width High Aspect Ratio Trench Patterning of Gold Film using Helium Ion Microscope, ***Etsuo Maeda***, The University of Tokyo, Japan; *T Iijima,* National Institute of Advanced Industrial Science and Technology (AIST), Japan; *R Kometani,* The University of Tokyo, Japan; *S Migita, S Ogawa,* National Institute of Advanced Industrial Science and Technology (AIST), Japan

HI-ThP-2 Optimized *ex situ* Lift Out of FIB Prepared Specimens, ***Lucille Giannuzzi***, EXpressLO LLC

Manufacturing Science and Technology Group
Room Central Hall - Session MS-ThP
Topics in Manufacturing Science and Technology
6:30pm

MS-ThP-1 Influence of Strain Rate on Deformation Behaviour of an AX52 Alloy Prepared by ECAP, ***Kristyna Halmesova***, Comtes Fht, Czech Republic; *Z Trojanova,* Charles University, Prague, Czech Republic; *J Dzugan,* Comtes Fht, Czech Republic; *P Minarik,* Charles University, Prague, Czech Republic

MS-ThP-4 Material Characterization of Tungsten Dispenser Cathodes, ***Briana Fees***, San Jose State University and Coherent Inc

Nanometer-scale Science and Technology Division
Room Central Hall - Session NS-ThP
Nanometer-scale Science and Technology Poster Session
6:30pm

NS-ThP-1 Co-deposition of Nanoparticle – Diamond-Like Carbon Composite Thin Films, ***Ajai Iyer***, *J Etula, N Wester, J Koskinen,* Aalto University, School of Chemical Engineering, Finland

NS-ThP-2 Atmospheric Pressure Plasma Functionalization of Diamond Particles, ***Gary McGuire***, *O Shenderova, N Nunn,* Adamas Nanotechnologies, Inc.

NS-ThP-3 Nanometer-scale Etch Characteristics of TiN Thin Films using Inductively Coupled Plasma of $Cl_2/C_2F_6/Ar$, ***JaeSang Choi***, *J Lee, D Cho, C Chung,* Inha university, Republic of Korea

NS-ThP-4 Etch Characteristics of Magnetic Tunnel Junction Stacks using Pulse-modulated RF Source Plasma, ***JaeYong Lee***, *J Choi, D Cho, C Chung,* Inha University, Republic of Korea

NS-ThP-5 Dry Etching of Nanometer-scale Patterned CoFeB Thin Films under Pulse Modulated Plasma, ***DooHyeon Cho***, *J Choi, J Lee, C Chung,* Inha University, Republic of Korea

NS-ThP-6 The Formation of Stable GeO_2 Oxide using the High Pressure Oxidation, ***Juhyun Bae***, *I Chung,* Sungkyunkwan University, Republic of Korea

NS-ThP-8 Controlling Kondo Resonances of Magnetic Molecules on Au(111) by Binding of Metal Atoms, ***MinHui Chang***, Korea University, Republic of Korea; *Y Chang,* Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; *H Kim, S Lee,* Korea University, Republic of Korea; *Y Kim,* Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; *S Kahng,* Korea University, Republic of Korea

NS-ThP-9 Nanolithography Toolbox: Design Solutions for Nanoscale Devices, ***Roberto De Alba***, *K Balram, D Westly, M Davanco, K Grutter, Q Li,* NIST; *T Michels,* GenISys GmbH; *C Ray, L Yu, R Kasica, C Wallin,* NIST; *D Czaplewski, L Ocola,* Argonne National Laboratory; *S Krylov,* Tel Aviv University, Israel; *P Neuzil,* Brno University of Technology, Czech Republic; *K Srinivasan, S Stavis, V Aksyuk, A Liddle, R Ilic,* NIST

NS-ThP-10 Visualizing Silicide Formation via Interface Electrostatics with BEEM, ***Westly Nolting***, SUNY Polytechnic Institute; *C Durcan,* SUNY College of Nanoscale Science and Engineering; *V LaBella,* SUNY Polytechnic Institute

NS-ThP-11 Dimensionality Effects in $FeGe_2$ Nanowires: Enhanced Anisotropic Magnetization and Anomalous Electrical Transport, ***Ivan Kravchenko***, Oak Ridge National Laboratory; *S Tang,* Central South University, PR China; *T Ward, Q Zou,* Oak Ridge National Laboratory; *J Yi,* University of Tennessee; *C Ma,* Oak Ridge National Laboratory, China; *M Chi, G Cao, A Li, D Mandrus, Z Gai,* Oak Ridge National Laboratory

NS-ThP-12 A High Coherence Package for Quantum Circuits Containing Topologically Isolated Qubits, ***Vivekananda Adiga***, *N Bronn, S Olivadese,* IBM Research Division, T.J. Watson Research Center; *X Wu, D Pappas,* NIST Boulder; *J Chow,* IBM Research Division, T.J. Watson Research Center

NS-ThP-16 Few-Wall Carbon Nanotube Coils, ***Dekel Nakar***, *R Popovitz-Biro, K Rechav, E Joselevich,* Weizmann Institute of Science, Israel

Advanced Surface Engineering Division
Room Central Hall - Session SE-ThP
Advanced Surface Engineering Poster Session
6:30pm

SE-ThP-1 Surface Passivation of Energetic Particles Via Atomic Layer Deposition, ***Kai Qu***, Huazhong University of Science an Technology, PR China; *C Duan,* Huazhong University of Science and Technology, PR China, China; *P Zhu,* Huazhong University of Science and Technology, PR China; *J Cai, R Chen,* Huazhong University of Science and Technology, PR China, China

Thin Films Division
Room Central Hall - Session TF-ThP
Thin Films Poster Session
6:30pm

TF-ThP-1 Hydrogen Bond Mediated Supramolecular Self-Assembly To Direct Thin Film Morphology For Organic Electronic Applications, ***Daken Starkenburg***, University of Florida

TF-ThP-5 Indium Doped ZnO Nanopowders Synthesized by MW-HTS and their Physical Characterization, ***Mujdat Caglar***, Anadolu University, Turkey; *K Gorgun,* Eskisehir Osmangazi University, Turkey; *S Aksoy,* Sinop University, Turkey; *S Ilican, Y Caglar,* Anadolu University, Turkey

TF-ThP-6 Effect of Erbium on the Structural and Morphological Properties of ZnO Films by MW-CBD and its Application in Heterojunction, ***Yasemin Caglar***, Anadolu University, Turkey; *K Gorgun,* Eskisehir Osmangazi University, Turkey; *S Aksoy,* Sinop University, Turkey; *M Caglar, S Ilican,* Anadolu University, Turkey

TF-ThP-7 Influence of Fluorine Incorporation on Structural and Optical Properties of ZnS Films, ***Tulay Hurma***, Anadolu University, Turkey, Anadolu university

TF-ThP-8 WO_3/Ag Electrochromic Multilayer Film by RF Magnetron Sputtering, ***Chao-Te Lee***, *P Chiu, D Chiang, W Chen,* Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, Republic of China; *J Xie, C Jaing,* Department of Optoelectronic System Engineering, Minghsin University of Science and Technology

TF-ThP-9 Crystalline Quality and Surface Roughness Optimization of Hetero-Epitaxial Titanium Nitride on Sapphire, ***Hadley Smith***, University of Dayton; *A Reed,* Air Force Research Laboratory; *S Elhamri,* University of Dayton; *B Howe, L Grazulis, M Hill,* Air Force Research Laboratory

TF-ThP-11 Water Repellency or Hydrophilicity of the PTFE Irradiated by an Ar^+Ion Beam, ***Yuki Yamashita***, *I Takano,* Kogakuin University, Japan

TF-ThP-12 Optical Chemical Sensors for the Detection of Taggants in Explosives, ***Sarka Havlova***, *P Fitl, M Vrnata, E Maresova, J Vlcek, D Tomecek, J Herbst,* University of Chemistry and Technology Prague, Czech Republic

TF-ThP-13 The Effect of e-gun Deposition Process Variables on the Film Characteristics of the Chromium Oxide, ***Po-Kai Chiu***, National Applied Research Laboratories, Taiwan, Republic of China; *Y Liao, H Tasi,* National Tsing Hua University, Taiwan, Republic of China; *D Chiang,* National Applied Research Laboratories, Taiwan, Republic of China

TF-ThP-14 Fabrication of High-period-number Resonant Transition Radiation Emitters for Generation of Femto-second Hard X-rays, ***Polly Wang***, National Tsing-Hua University, Taiwan, Republic of China; *C Lee,* National Applied Research Laboratories, Taiwan, Republic of China; *A Lee,* National Synchrotron Radiation Research Center, Taiwan, Republic of China; *K Leou,* National Tsing-Hua University, Taiwan, Republic of China; *W Lau,* National Synchrotron Radiation Research Center, Taiwan, Republic of China

TF-ThP-16 Materials and Methods for Bottom-Up Semiconductor Device Manufacturing by Selective Surface Modification, ***Reuben Chacko***, *J Lowes, J Dai, S Brown, D Sweat,* Brewer Science, Inc.

TF-ThP-17 Effects of the Electric Field Application for the Photocatalytic Property of TiO_2/Nithin Films, ***Taishi Segawa***, *I Takano,* Kogakuin University, Japan

TF-ThP-18 Investigations of Temperature and Humidity Sensors Constructed by Oxide Thin Films, ***Takahisa Kawaguchi***, *I Takano,* Kogakuin University, Japan

TF-ThP-19 Analysis of Surface Species and Film Structure of Thin Films from Atomic Layer Deposition using Surface-Enhanced Raman Spectroscopy, ***Ryan Hackler***, *P Stair, R Van Duyne,* Northwestern University

TF-ThP-20 Carbon Thin Films Prepared by the Ion Assistance the Mass Spectrometric Analysis Type, ***Kenji Iwasaki***, *I Takano,* Kogakuin University, Japan

TF-ThP-21 Supramolecular Heterostructures - Engineering Organic Layered Materials with Tuneable Fluorescent Properties, *V Korolkov,* The University of Nottingham, UK; *K Watanabe, T Taniguchi,* National Institute for Materials Science, Japan; ***Nicholas Besley***, *P Beton,* The University of Nottingham, UK

TF-ThP-22 Predicting Feature Size of AZ 9260 Positive Photoresist Processed by Two-photon Lithography, ***Shelby Maddox***, *M Zou,* University of Arkansas

TF-ThP-24 ALD of Titanium Oxide using Cyclopetadienyl Titanium Alkylamide and Ozone, ***Seongyoon Kim***, *J Kim, T Mayangsari, J Park,* Sejong University, Republic of Korea; *J Park,* Hansol Chemical Co., Ltd., Republic of Korea; *W Lee,* Sejong University, Republic of Korea

TF-ThP-25 Characteristics of Ge-Sb-Te Film Prepared by Atomic Layer Deposition and Tellurization of Ge-Sb Film, ***Yewon Kim***, *S Kim, J Gu, J Park,* Sejong University, Republic of Korea; *W Koh,* UP Chemical Co., Ltd., Republic of Korea; *W Lee,* Sejong University, Republic of Korea

TF-ThP-26 Molecular Layer Deposition of Boron Carbide from Carboranes, ***Michelle Paquette***, *L Dorsett, S Malik, T Nguyen, D Bailey, K Rimpson,* University of Missouri-Kansas City; *J Bielefeld, S King,* Intel Corporation

TF-ThP-27 Comparative Study of the Optical and Structural Properties of Single and Stacked SRO Thin Films Obtained by RF Sputtering, ***Karim Monfil Leyva***, *A Salazar Valdez,* Benemérita Universidad Autónoma de Puebla, Mexico; *A Morales Sánchez, F Morales Morales,* CIMAV-Monterrey, Mexico; *J Luna López,* Benemérita Universidad Autónoma de Puebla, Mexico; *A Muñoz Zurita,* Universidad Politécnica Metropolitana de Puebla, Mexico

TF-ThP-28 Dependence of the Corrosion Behavior of Transition Metal Nitride Films on the Sputtering Power Mode, ***Yuri Chipatecua***, CINVESTAV-Unidad Queretaro, Mexico; *O Tengstrand,* Linköping University, Sweden; *J Olaya-Florez,* Universidad Nacional de Colombia, Colombia; *G Greczynski,* Linköping University, Sweden; *I Petrov, J Greene,* University of Illinois at Urbana-Champaign; *A Herrera-Gomez,* CINVESTAV-Unidad Queretaro, Mexico

TF-ThP-29 Laser Microstructuring of Gas Sensing Thin Films, ***Premysl Fitl***, *J Vlcek, D Tomecek, E Maresova, S Havlova,* University of Chemistry and Technology Prague, Czech Republic; *M Novotny, J Lancok,* Institute of Physics ASCR, Czech Republic; *M Vrnata,* University of Chemistry and Technology Prague, Czech Republic

TF-ThP-32 Low Temperature Growth of VO_2 Films on Flexible Plastic Substrates using TiO2 Buffer Layer, ***DaeHo Jung***, *H So, J Ahn, S Hwang, H Lee,* Kyung Hee University, Republic of Korea

TF-ThP-33 Single Junction GaAs Thin Film Solar Cells on Flexible Metal Tapes for Low Cost Photovoltaics, ***Devendra Khatiwada***, *P Dutta, M Rathi, S Sun, Y Yao, Y Gao, Y Li, S Pouladi, J Ryou, V Selvamanickam,* University of Houston

TF-ThP-34 Optical and Microstructural Characterization of Epitaxial VO2 on TiO2 (001) and Niobium Doped TiO2, ***Jason Creeden,*** *I Novikova, R Lukaszew,* The College of William and Mary

TF-ThP-35 Characterizing the Field of Atomic Layer Deposition: Authors, Topics, and Collaborations, ***Elsa Alvaro,*** Northwestern University*; A Yanguas-Gil,* Argonne National Laboratory

TF-ThP-37 Nano-laminates Encapsulation Films Fabricated via Spatially Separated Atomic Layer Deposition for High Stable Flexible OLED Electronics, *Y Li,* ***Yuanyuan Liu,*** *K Cao,* Huazhong University of Science and Technology, China*; H Hsu, J Huang,* Wuhan China Star Optoelectronics Technology Co., Ltd (CSOT), China*; R Chen,* Huazhong University of Science and Technology, PR China, China

TF-ThP-38 Conductive Collagen: A Novel Material for Green, Transient Implantable Electronics, ***ArghyaKamal Bishal,*** *C Sukotjo, C Takoudis,* University of Illinois at Chicago

TF-ThP-39 Alkali Halide Assisted Atomic Layer Etching of Metal Oxides, *J Hennessy,* ***April Jewell,*** *S Nikzad,* Jet Propulsion Laboratory

TF-ThP-40 Tribocorrosion Behavior of Ti-6Al-4V Alloy Coated with TaN/Ta Layers in Two Simulated Body Fluids, ***Jessica Estefania González Sevilla,*** *M Flores, R Rosas, E García,* Universidad de Guadalajara, Mexico

TF-ThP-41 The Leakage Current Reduction in Atomic Layer Deposition Of Al_2o_3-Inserted $Srtio_3$ Films for Metal-Insulator-Metal Capacitors, ***Sang Hyeon Kim,*** Seoul National University, Republic of Korea*; C An,* Seoul National University, Korea, Republic of Korea*; D Kwon, C Hwang,* Seoul National University, Republic of Korea

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Tribology Focus Topic
Room Central Hall - Session TR-ThP
Tribology Poster Session
6:30pm

TR-ThP-1 Tribocorrosion Behaviour of Ti6Al4V Alloy Trated By Laser Shock Processing, ***Roman Angel Rosas Meza,*** *G Gómez Rosas, M Flores Martínez,* Universidad de Guadalajara, Mexico*; C Rubio González,* Centro de Ingeniería y Desarrollo Industrial, Mexico*; J González Sevilla,* Universidad de Guadalajara, Mexico

Friday Morning, November 3, 2017

	2D Materials Focus Topic **Room 15 - Session 2D+MI+NS+SS+TF-FrM** **Nanostructures including Heterostructures and Patterning of 2D Materials** **Moderators:** Huamin Li, University of Buffalo, SUNY, Arkady Krasheninnikov, Helmholtz Zentrum Dresden-Rossendorf, Germany	**Applied Surface Science Division** **Room 13 - Session AS+MS-FrM** **Unlocking the Sample History: Forensics and Failure Analysis** **Moderators:** Karen Gaskell, University of Maryland, College Park, Matthew Linford, Brigham Young University
8:20am	**INVITED: 2D+MI+NS+SS+TF-FrM-1** Electro-optics with 2D Semiconductors and Heterostructures, ***Goki Eda***, National University of Singapore, Singapore	**INVITED: AS+MS-FrM-1** *In Situ* Diagnostics of the Coupled Mechanical and Electrochemical Degradation of High Capacity Electrode Materials in Lithium Ion Batteries, ***Xingcheng Xiao***, General Motors R&D Center
8:40am	Invited talk continues.	Invited talk continues.
9:00am	**2D+MI+NS+SS+TF-FrM-3** Understanding Variations in Circularly Polarized Photoluminescence in Monolayer Transition Metal Dichalcogenides, ***Kathleen McCreary***, *M Currie, A Hanbicki, B Jonker,* Naval Research Laboratory	**AS+MS-FrM-3** A Novel Approach to Characterizing the Silicon Anode Electrolyte Interface in Lithium Ion Batteries, ***Caleb Stetson***, Colorado School of Mines, National Renewable Energy Laboratory; *C Jiang, S Harvey, K Wood, G Teeter, C Ban, M Al-Jassim,* National Renewable Energy Laboratory; *S Pylypenko,* Colorado School of Mines
9:20am	**2D+MI+NS+SS+TF-FrM-4** Multi-Junction Lateral 2D Heterostructures of Transition Metal Dichalcogenides, ***Prasana Sahoo***, University of South Florida; *S Memaran,* Florida State University; *Y Xin,* National High Magnetic Field Laboratory; *L Balicas,* Florida State University; *H Gutierrez,* University of South Florida	**AS+MS-FrM-4** In situ Liquid SIMS Investigation of Ion Solvation in Electrolytes for Lithium Ion Batteries, ***Zihua Zhu***, *Y Zhang, Z Xu, M Su, C Wang, X Yu,* Pacific Northwest National Laboratory; *J Wang,* Pacific Northwest National Laboratory, China
9:40am	**INVITED: 2D+MI+NS+SS+TF-FrM-5** Novel Electronic, Optoelectronic, and Topological Properties of 2D Materials and Their Heterostructures, ***Xiaofeng Qian***, Texas A&M University	**AS+MS-FrM-5** Determining Bulk and Interface Chemical Damage Regimes in XPS Depth Profiling using Cluster Ion Beams, ***Benjamin Schmidt***, *J Newman, J Moulder, J Mann,* Physical Electronics
10:00am	Invited talk continues.	**AS+MS-FrM-6** In Situ Studies on Radiation Resistance of Nanoporous Metals, ***Jin Li***[1], Texas A&M University; *C Fan,* Purdue University; *Y Chen,* Los Alamos National Laboratory; *X Zhang,* Purdue University
10:20am	**2D+MI+NS+SS+TF-FrM-7** Imaging Nanoscale Heterogeneity at the Two-dimensional Semiconductor-Metal Heterointerface by Correlated Scanning Probe Microscopy, ***Deep Jariwala***[2], California Institute of Technology; *A Krayev, E Robinson,* AIST-NT Inc.; *M Sherrott,* California Institute of Technology; *M Terrones,* Pennsylvania State University; *H Atwater,* California Institute of Technology	**INVITED: AS+MS-FrM-7** Surface Analysis in the World of Fine Art, ***Thomas Beebe, Jr.***, *Z Voras, C Goodwin, K deGhetaldi, B Baade, J Mass,* University of Delaware
10:40am	**2D+MI+NS+SS+TF-FrM-8** Two-dimensional Circuitry Achieved by Defect Engineering of Transition Metal Dichalcogenides, ***Michael G. Stanford***[3], *P Pudasaini,* The University of Tennessee Knoxville; *A Hoffman,* The University of Tennessee Knoxville, usa; *P Rack,* The University of Tennessee Knoxville	Invited talk continues.
11:00am	**2D+MI+NS+SS+TF-FrM-9** Scanning Tunneling Microscopy and Spectroscopy Studies of Atomically Precise Graphene Nanoribbons on Semiconducting Surfaces, ***Ximeng Liu***, *A Radocea, T Sun,* Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign; *M Pour,* Nebraska Center for Materials and Nanoscience, University of Nebraska - Lincoln; *N Aluru,* Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign; *A Sinitskii,* Nebraska Center for Materials and Nanoscience, University of Nebraska - Lincoln; *J Lyding,* Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign	**AS+MS-FrM-9** Surface Characterization of Acrylic Artists' Paints After Wet Cleaning with Water-in-Oil Microemulsions., ***Michael Clark***, *M Keefe,* The Dow Chemical Company; *T Learner,* The Getty Conservation Institute; *B Ormsby,* Tate, UK; *A Phenix,* The Getty Conservation Institute; *E Willneff,* University of Leeds, UK
11:20am	**2D+MI+NS+SS+TF-FrM-10** Perfectly Perforated Monolayer WSe_2, ***Kirby Smithe***, *C Bailey,* Stanford University; *A Krayev,* AIST-NT Inc.; *E Pop,* Stanford University	**AS+MS-FrM-10** Surface and Depth Profiling of Soft Organic Thin Films. X-Ray Photoelectron Spectroscopy Study, ***Tatyana Bendikov***, Weizmann Institute of Science, Israel; *S Hutton,* Kratos Analytical Ltd, United Kingdom of Great Britain and Northern Ireland; *R Balgley, G de Ruiter, M Lahav, M Van der Boom,* Weizmann Institute of Science, Israel

[1] **ASSD Student Award Finalist**
[2] **NSTD Postdoc Finalist**
[3] **National Student Award Finalist**

Friday Morning, November 3, 2017

	Plasma Science and Technology Division Room 23 - Session PS+NS+SS+TF-FrM Atomic Layer Etching II **Moderator:** Edward Barnat, Sandia National Laboratories	Surface Science Division Room 24 - Session SS+HC-FrM Recent Advances in the Chemistry and Physics of Interfaces **Moderators:** Robert Bartynski, Rutgers University, Wei Zhao, University of Washington
8:20am	**PS+NS+SS+TF-FrM-1** Quasi-Atomic Layer Etching of Silicon Nitride with Independent Control of Directionality and Selectivity, ***Sonam Sherpa***, *P Ventzek,* Tokyo Electron Limited*; A Ranjan,* Tokyo Electron Limited, Japan	
8:40am	**PS+NS+SS+TF-FrM-2** WO_3 and W Thermal Atomic Layer Etching Using "Conversion-Fluorination" and "Oxidation-Conversion-Fluorination" Etching Mechanisms, ***Nicholas Johnson***, *S George,* University of Colorado at Boulder	**SS+HC-FrM-2** Enantiospecific Chemistry of Aspartic acid on Copper Surfaces, ***Soham Dutta***, Carnegie Mellon University*; A Gellman,* Carnegie Mellon University, W.E. Scott Institute for Energy Innovation
9:00am	**INVITED: PS+NS+SS+TF-FrM-3** Solving the Grand Challenges of Plasma Etch with Concurrent Engineering, ***Mingmei Wang***, TEL Technology Center, America, LLC*; P Ventzek,* Tokyo Electron Limited*; A Ranjan,* Tokyo Electron Limited, Japan	**SS+HC-FrM-3** Anchoring Carbon Nanotubes to Solid Supports via Direct Attachment Through the Cage, ***Mackenzie Williams***[1], *F Gao,* University of Delaware*; I Ben Dhiab,* Université Pierre et Marie Curie*; A Teplyakov,* University of Delaware
9:20am	Invited talk continues.	**SS+HC-FrM-4** Studying Trends in Aromatic Adsorption on Fe{110} using Density Functional Theory Calculations, ***Bianca Provost***, University of Cambridge, UK*; M Ho, T Hughes,* Schlumberger Gould Research, UK*; J Goodman, S Jenkins,* University of Cambridge, UK
9:40am	**PS+NS+SS+TF-FrM-5** Effect of Non-Uniform Polymer Deposition on the Atomic Layer Etching of 3D Features in SiO_2, ***Chad Huard***, University of Michigan*; Y Zhang, S Sriraman, A Paterson,* Lam Research Corporation*; M Kushner,* University of Michigan	**SS+HC-FrM-5** Surface Heterogeneity and Inhomogeneous Broadening of Vibrational Line Profiles, *S Taj, D Baird, A Rosu-Finsen,* ***Martin McCoustra***, Heriot-Watt University, UK
10:00am	**PS+NS+SS+TF-FrM-6** Etching with Low Te Plasmas, ***Scott Walton***, *D Boris, S Hernández,* Naval Research Laboratory*; S Rosenberg,* ASEE Postdoctoral Fellow, NRL*; H Miyazoe, A Jagtiani, S Engelmann, E Joseph,* IBM T.J. Watson Research Center	
10:20am	**PS+NS+SS+TF-FrM-7** Thermal Atomic Layer Etching of Titanium Nitride Using Sequential, Self-Limiting Oxidation and Fluorination Reactions, ***Younghee Lee***, *S George,* University of Colorado at Boulder	**SS+HC-FrM-7** Ab-Initio Study of Low Index Surface Planes of γ-Al2O3 and their Interface with Pt, ***Kofi Oware Sarfo***, *A Clauser, Z McClure, M Santala,* Oregon State University*; L Árnadóttir,* Oregon State University
10:40am	**PS+NS+SS+TF-FrM-8** Atomistic Simulations of H_2 Plasma Modification of SiN Thin-Films for Advanced Etch Processes, ***Vahagn Martirosyan***, *E Despiau-Pujo, O Joubert,* LTM, Univ. Grenoble Alpes, CEA-LETI, France	
11:00am	**PS+NS+SS+TF-FrM-9** Defectless Nanostructure Patterning of Germanium Using Neutral Beam Etching for Ge FinFET Devices, ***Shuichi Noda***, Tohoku University, Japan*; W Mizubayashi, K Endo,* AIST, Japan*; S Samukawa,* Tohoku Univeversity, AIST, Japan	**SS+HC-FrM-9** Ambient STM Study of Sequentially Adsorbed Octanethiol and Biphenylthiol Monolayers on Au(111), ***Gaby Avila-Bront***, College of the Holy Cross
11:20am	**PS+NS+SS+TF-FrM-10** Thermally-Driven Atomic Layer Etching of Metallic Tungsten Films Using O_2 and WF_6, ***Wenyi Xie***, *P Lemaire, G Parsons,* North Carolina State University	**SS+HC-FrM-10** Molecule Assembly Structure and Tilt Geometry Evaluation of 5,6,7-Trithiapentacene-13-one (TTPO) / Pentacene-Quinone on Au(111) with NC-AFM, *A Larson,* University of New Hampshire*; P Zahl,* Brookhaven National Laboratory*;* ***Karsten Pohl***, University of New Hampshire

[1] **National Student Award Finalist**

Thin Films Division
Room 20 - Session TF-FrM
Self-assembled Monolayers and Organic/Inorganic Interface Engineering
Moderator: Adrienne Stiff-Roberts, Duke University

8:20am	**TF-FrM-1** Kinetics of Swelling and Deswelling in Thermoresponsive Polymers Deposited by Initiated Chemical Vapor Deposition*, P Salzmann,* Graz University of Technology*; A Perrotta,* Eindhoven University of Technology, Netherlands*; **AnnaMaria Coclite**,* Graz University of Technology, Austria	
8:40am		
9:00am		
9:20am		
9:40am	**TF-FrM-5** the Curious Wetting Behavior of ALD Grown Al_2O_3 Thin Film Surfaces*, **Yi Li**, B Piercy, M Losego,* Georgia Institute of Technology	
10:00am	**TF-FrM-6** Controlled Thicknesses of Vapor Deposited Silane Films*, **Brian Johnson**, A Diwan, M Linford,* Brigham Young University	
10:20am	**TF-FrM-7** Supramolecular Heterostructures formed by Sequential Epitaxial Deposition of Two-Dimensional Hydrogen-Bonded Arrays*, V Korolkov, M Baldoni,* The University of Nottingham, UK*; K Watanabe, T Taniguchi,* National Institute for Materials Science, Japan*; E Besley, **Peter Beton**,* The University of Nottingham, UK	
10:40am	**TF-FrM-8** Functionalization and Stabilization of Ultrathin Alumina Films with Rhenium Photosensitizers*, **Wolf-Dietrich Zabka**, D Leuenberger,* Department of Physics, University of Zürich, Switzerland*; G Mette, C Monney, M Mosberger, B Probst-Rüd, R Alberto, J Osterwalder,* University of Zürich, Switzerland	

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