

# Program Key

## Conference Topics

<b>2D</b>	2D Materials Focus Topic
<b>AC</b>	Actinides and Rare Earths Focus Topic
<b>AS</b>	Applied Surface Science Division
<b>BI</b>	Biomaterial Interfaces Division
<b>BP</b>	Biomaterials Plenary Session
<b>EL</b>	Spectroscopic Ellipsometry Focus Topic
<b>EM</b>	Electronic Materials and Photonics Division
<b>EW</b>	Exhibitor Technology Spotlight Workshops
<b>HC</b>	Fundamental Discoveries in Heterogeneous Catalysis Focus Topic
<b>HI</b>	Advanced Ion Microscopy Focus Topic
<b>MI</b>	Magnetic Interfaces and Nanostructures Division
<b>MN</b>	MEMS and NEMS Group
<b>MS</b>	Manufacturing Science and Technology Group
<b>NS</b>	Nanometer-scale Science and Technology Division
<b>PB</b>	Plasma Processing for Biomedical Applications Focus Topic
<b>PLS</b>	Plenary Session
<b>PS</b>	Plasma Science and Technology Division
<b>SA</b>	Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic
<b>SE</b>	Advanced Surface Engineering Division
<b>SP</b>	Scanning Probe Microscopy Focus Topic
<b>SS</b>	Surface Science Division
<b>SU</b>	Sustainability Focus Topic
<b>TF</b>	Thin Films Division
<b>TM</b>	Tandem MS Focus Topic
<b>TR</b>	Tribology Focus Topic
<b>VT</b>	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. **SS1**, **SS2**), then a dash followed by the first two characters of the day of the week:

**Monday**, **Tuesday**, **Wednesday**, **Thursday**, **Friday**,  
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)

# Sunday Afternoon, October 29, 2017

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



# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Morning, October 30, 2017

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

# Monday Afternoon, October 30, 2017

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



# Monday Afternoon, October 30, 2017

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

# Monday Afternoon, October 30, 2017

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

<sup>1</sup> Falicov Student Award Finalist

<sup>2</sup> National Student Award Finalist

# Monday Afternoon, October 30, 2017

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

# Monday Afternoon, October 30, 2017

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

# Monday Afternoon, October 30, 2017

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

# Monday Afternoon, October 30, 2017

<b>Thin Films Division</b> <b>Room 20 - Session TF-MoA</b> <b>Emerging Applications for ALD</b> <b>Moderators:</b> Mark Losego, Georgia Institute of Technology, Virginia Wheeler, U.S. Naval Research Laboratory		<b>Tandem MS Focus Topic</b> <b>Room 5 &amp; 6 - Session TM-MoA</b> <b>Applications in Mass Spectrometry Imaging using Tandem MS</b> <b>Moderators:</b> Gregory L. Fisher, Physical Electronics, Alexander Pirkel, ION-TOF GmbH, Germany	
1:40pm	<b>TF-MoA-1</b> Probe the Reaction Chemistry during Atomic Layer Deposition onto $\text{CH}_3\text{NH}_3\text{PbI}_3$ , <b>Qing Peng</b> , X Yu, University of Alabama		
2:00pm	<b>TF-MoA-2</b> Digital Doping of ALD Nb:VO <sub>2</sub> Thin Films for Thermo-chromic Applications, <b>Alexander Kozen</b> , M Currie, B Downey, C Eddy, Jr., V Wheeler, U.S. Naval Research Laboratory		
2:20pm	<b>TF-MoA-3</b> Mechanisms in Organic and Hybrid Organic-Inorganic Molecular Layer Deposition, <b>David Bergsman</b> <sup>1,2</sup> , S Bent, Stanford University		
2:40pm	<b>TF-MoA-4</b> Inorganic Modification of Cellulosic Fibers for Enhanced Oil Sorption Capacity, <b>Andrew Short</b> , S Pamidi, Z Bloomberg, M Losego, Georgia Institute of Technology	<b>TM-MoA-4</b> Utilization of Complementary Multimodal Techniques for <i>in situ</i> Identification of Soybean Root Nodule Metabolites, S Stopka, The George Washington University; D Veličković, Pacific Northwest National Laboratory; B Agtuca, University of Missouri; D Koppelaar, L Paša-Tolić, Pacific Northwest National Laboratory; G Stacey, University of Missouri; A Vertes, The George Washington University; <b>Christopher R. Anderton</b> , Pacific Northwest National Laboratory	
3:00pm		<b>INVITED: TM-MoA-5</b> Coupling Front-end Electron Transfer Dissociation to Ultra-High Field FTICR-MS, <b>Chad Weisbrod</b> , D Smith, L Anderson, L He, A Marshall, C Hendrickson, The National High Magnetic Field Laboratory	
3:20pm	<b>TF-MoA-6</b> Atomic Layer Deposition of Nano-Coatings on Fabrics for Antibacterial Applications, <b>Renee Puvvada</b> , M Bellavia, T Sulchek, M Losego, Georgia Institute of Technology	Invited talk continues.	
3:40pm	<b>BREAK</b>	<b>BREAK</b>	
4:00pm	<b>INVITED: TF-MoA-8</b> ALD-based Functionalization of Biomaterials: Recent Developments and Future Challenges, <b>Christos Takoudis</b> , University of Illinois at Chicago		
4:20pm	Invited talk continues.		
4:40pm	<b>TF-MoA-10</b> Titanium Nitride ALD using Ultra-high Purity Hydrazine at Low Temperature, <b>Dan Alvarez</b> , J Spiegelman, R Holmes, S Allanson, RASIRC; A Kummel, S Wolf, M Kavrik, University of California, San Diego; K Andachi, RASIRC		
5:00pm	<b>TF-MoA-11</b> ALD Barriers for Protection of Electronic Devices in Biological Environment, <b>Ankit Singh</b> , K Adstedt, S Graham, Georgia Institute of Technology		

<sup>1</sup> National Student Award Finalist

<sup>2</sup> TFD James Harper Award Finalist

# Monday Afternoon, October 30, 2017

<b>Vacuum Technology Division</b> <b>Room 7 &amp; 8 - Session VT-MoA</b> <b>Material Outgassing, Adsorption/Desorption and XHV</b> <b>Moderators:</b> Giulia Lanza, SLAC National Accelerator Laboratory, Jacob Ricker, NIST		
1:40pm	<b>INVITED: VT-MoA-1</b> Weight of Water on the Solid Surface in Air and Vacuum, <i>Richard Green</i> , National Research Council of Canada, Canada	
2:00pm	Invited talk continues.	
2:20pm	<b>VT-MoA-3</b> Hydrogen Measurement using a Thermal Desorption Spectrometer, <i>JongYeon Lim</i> , Korea Research Institute of Standards and Science, Republic of Korea; <i>K Kim, H Oh, C Lim, Y Joh</i> , Infinity Vacuum Technology, Republic of Korea	
2:40pm	<b>VT-MoA-4</b> Automatic Flowmeter and Dynamic Expansion System for UHV/XHV Studies, <i>James Fedchak, J Scherschligt, D Barker, S Eckel</i> , NIST	
3:00pm	<b>INVITED: VT-MoA-5</b> Development of a New UHV/XHV Pressure Standard (Cold Atom Vacuum Standard), <i>Julia Scherschligt, J Fedchak, S Eckel, D Barker</i> , NIST	
3:20pm	Invited talk continues.	
3:40pm	<b>BREAK</b>	
4:00pm	<b>INVITED: VT-MoA-8</b> VTD Early Career Award Invited Talk: Modern Metrology Practice for Calibration and Reliability Testing of Vacuum Measurement Products, <i>Scott Heinbuch</i> <sup>1</sup> , MKS Instruments, Inc.	
4:20pm	Invited talk continues.	
4:40pm	<b>VT-MoA-10</b> Outgassing Rate Measurements of New Materials at NIST, <i>Makfir Seifa, J Fedchak, J Scherschligt, A Zeeshan</i> , NIST	
5:00pm	<b>VT-MoA-11</b> Scaling up an Ion Implant Process Chamber Cryopumping for 450mm Wafer Processing, <i>Steve Borichevsky</i> , Applied Materials, Varian Semiconductor Equipment	

<sup>1</sup> VTD Early Career Award

# Monday Afternoon, October 30, 2017

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

5:30pm	<b>INVITED: PLS-MoPL-1</b> Precise Chemical, Physical, and Electronic Nanoscale Contacts, <i>Paul Weiss</i> , 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/II 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/II 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

# Tuesday Morning, October 31, 2017

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

# Tuesday Morning, October 31, 2017

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

# Tuesday Morning, October 31, 2017

<b>Exhibitor Technology Spotlight Workshops</b> <b>Room West Hall - Session EW-TuM</b> <b>Exhibitor Technology Spotlight</b> <b>Moderator:</b> Chris Moffitt, Kratos Analytical Limited, UK		<b>Magnetic Interfaces and Nanostructures Division</b> <b>Room 11 - Session MI+2D+AC+SA+SS-TuM</b> <b>Novel Magnetic Order at Interfaces</b> <b>Moderators:</b> Axel Enders, University of Nebraska-Lincoln, Valeria Lauter, Oak Ridge National Laboratory	
8:00am			
8:20am		<b>MI+2D+AC+SA+SS-TuM-2</b> Transition from Spatial to Magnetic Confinement in Graphene Quantum Dots, <i>Fereshte Ghahari, D Walkup, C Gutierrez</i> , NIST; Maryland NanoCenter UMD; <i>J Rodriguez-Nieva</i> , Harvard University; <i>K Watanabe, T Taniguchi</i> , National Institute for Materials Science, Japan; <i>L Levitov</i> , MIT; <i>N Zhitenev, J Stroscio</i> , NIST	
8:40am		<b>INVITED: MI+2D+AC+SA+SS-TuM-3</b> Chiral and Proximity Induced Magnetism in Magnetic Multilayers and 2D Heterostructures, <i>Hyunsoo Yang</i> , National University of Singapore, Singapore	
9:00am		Invited talk continues.	
9:20am		<b>MI+2D+AC+SA+SS-TuM-5</b> Surface Magnetism Induced by Interstitial Defects in PbO, <i>Elvis Arguelles</i> , Osaka University, Japan; <i>S Amino</i> , A.L.M.T. Corp, Japan; <i>H Nakanishi, S Aspera, H Kasai</i> , National Institute of Technology, Akashi College, Japan; <i>W Dino</i> , Osaka University, Japan	
9:40am		<b>MI+2D+AC+SA+SS-TuM-6</b> XMCD Quest for Magnetic Proximity Effect in Ferromagnetic Insulator/Non-Magnetic Metal Interfaces, <i>Andrei Rogalev, F Wilhelm</i> , European Synchrotron Radiation Facility, France	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>EW-TuM-8</b> Development of a Novel Single Cold Cathode Ionization Gauge with Operation from High Vacuum to Atmosphere using Advanced Manufacturing Techniques, <i>Dave Kelly, G Brucker</i> , MKS Instruments, Inc., Pressure and Vacuum Measurement Group	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>EW-TuM-9</b> New Developments from Thermo Fisher Scientific, <i>Timothy Nunney, P Mack, C Deeks, A Bushell</i> , Thermo Fisher Scientific, UK	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am			
11:20am			
11:40am		<b>MI+2D+AC+SA+SS-TuM-12</b> Depth-Dependent Measurement of Atomic Valence and Magnetization in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Magnetic Thin Films, <i>Mikel Holcomb, R Trappen, S Kumari, N Mottaghi, S Yousefi Sarraf, C Huang, G Cabrera</i> , West Virginia University	
12:00pm		<b>MI+2D+AC+SA+SS-TuM-13</b> Coherent Magnetization Rotation of FeGa/NiFe Multilayers via Strain-Inducing Electric Field, <i>Colin Rementer</i> , University of California at Los Angeles; <i>M Jamer</i> , NIST; <i>A Barra</i> , University of California at Los Angeles; <i>J Borchers, A Grutter, B Kirby</i> , NIST; <i>G Carman, J Chang</i> , University of California at Los Angeles	

# Tuesday Morning, October 31, 2017

<b>MEMS and NEMS Group</b> <b>Room 24 - Session MN+BI+EM+SS+TR-TuM</b> <b>Microelectromechanics: Relays to RF/Surfaces in Micro- and Nano- Systems</b> <b>Moderators:</b> Sushma Kotru, University of Alabama, Roya Maboudian, University of California at Berkeley		<b>Nanometer-scale Science and Technology Division</b> <b>Room 19 - Session NS+EM+MI+SS-TuM</b> <b>Nanoscale Electronics and Magnetism</b> <b>Moderators:</b> Keith Brown, Boston University, Aubrey Hanbicki, Naval Research Laboratory	
8:00am	<b>INVITED: MN+BI+EM+SS+TR-TuM-1</b> The Industrialization of MEMS through Materials Innovations, <i>Chris Keimel</i> , Menlo Micro	<b>INVITED: NS+EM+MI+SS-TuM-1</b> Nanometrology and Nanocharacterization in Nanoelectronics, <i>Alain C. Diebold</i> , SUNY Polytechnic Institute	
8:20am	Invited talk continues.	Invited talk continues.	
8:40am	<b>INVITED: MN+BI+EM+SS+TR-TuM-3</b> Electron-Phonon Waltz: Acoustoelectrics in MEMS, <i>Dana Weinstein</i> , Purdue University		
9:00am	Invited talk continues.	<b>NS+EM+MI+SS-TuM-4</b> Measurement of Resistance Induced by a Single Potassium Atom on Chiral-Angle Known Nanotubes: Understanding the Impact of a Model Scatterer for Nanoscale Sensors, <i>Masahiro Ishigami</i> , University of Central Florida; <i>R Tsuchikawa</i> , University of Utah; <i>D Heligman</i> , Ohio State University; <i>B Blue</i> , University of Central Florida; <i>Z Zhang</i> , Columbia University; <i>A Ahmadi</i> , <i>E Mucciolo</i> , University of Central Florida; <i>J Hone</i> , Columbia University	
9:20am	<b>MN+BI+EM+SS+TR-TuM-5</b> Autonomous Oscillations of a MEMS Resonator, <i>David Czaplewski</i> , Center for Nanoscale Materials, Argonne National Laboratory; <i>C Chen</i> , <i>D Lopez</i> , Argonne National Laboratory; <i>D Zanette</i> , Centro Atomico Bariloche and Instituto Balseiro; <i>S Shaw</i> , Florida Institute of Technology	<b>INVITED: NS+EM+MI+SS-TuM-5</b> Atomic Electronics for Quantum Computing, <i>Michelle Simmons</i> , University of New South Wales, Australia	
9:40am	<b>MN+BI+EM+SS+TR-TuM-6</b> Metallic Glass for MEMS Microphone Device, <i>MaiPhuong Nguyen</i> , WPI-Advanced Institute for Materials Research (WPI-AIMR)/ Micro System Integration Center ( $\mu$ SIC), Tohoku University, Japan; <i>J Froemel</i> , WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Japan; <i>S Tanaka</i> , Graduate School of Engineering/ Micro System Integration Center ( $\mu$ SIC), Tohoku University, Japan	Invited talk continues.	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am	<b>INVITED: MN+BI+EM+SS+TR-TuM-10</b> Role of Surfaces in Assembly of Ceria Nanostructures, <i>Sudipta Seal</i> , University of Central Florida	<b>NS+EM+MI+SS-TuM-10</b> Electronically Abrupt Borophene/organic Lateral Heterostructures, <i>Xiaolong Liu</i> <sup>1,2</sup> , <i>Z Wei</i> , <i>I Balla</i> , <i>A Mannix</i> , Northwestern University; <i>N Guisinger</i> , Argonne National Laboratory; <i>E Luijten</i> , <i>M Hersam</i> , Northwestern University	
11:20am	Invited talk continues.	<b>NS+EM+MI+SS-TuM-11</b> Mechanical Characterization of Heat Dissipation in a Current-driven Ferromagnetic Resonance System, <i>S Cho</i> , <i>M Jo</i> , <i>S Park</i> , <i>J Lee</i> , <i>C Yang</i> , <i>S Kang</i> , Seoul National University; <i>Yun Daniel Park</i> , Seoul National University, Republic of Korea	
11:40am	<b>MN+BI+EM+SS+TR-TuM-12</b> Optimization and Nano-characterization of Electrostrictive Response of Gd-doped Ceria Actuators, <i>Sidney Cohen</i> , <i>E Mishuk</i> , <i>E Makagon</i> , <i>E Wachtel</i> , <i>K Rechav</i> , <i>R Popovitz-Biro</i> , <i>I Lubomirsky</i> , Weizmann Institute of Science, Israel	<b>INVITED: NS+EM+MI+SS-TuM-12</b> The Exciting Physics of Spin Chains Coupled to a Metallic Substrate, <i>Roland Wiesendanger</i> , University of Hamburg, Germany	
12:00pm	<b>MN+BI+EM+SS+TR-TuM-13</b> Sustainable Thermoregeneration of Plastrons on Superhydrophobic Surfaces, <i>Tomer Simovich</i> , Ruhr-University Bochum, Germany; <i>J Arnott</i> , The University of Melbourne, Australia; <i>A Rosenhahn</i> , Ruhr-University Bochum, Germany; <i>R Lamb</i> , Canadian Light Source, Canada	Invited talk continues.	

<sup>1</sup> National Student Award Finalist

<sup>2</sup> NSTD Student Award Finalist

# Tuesday Morning, October 31, 2017

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

# Tuesday Morning, October 31, 2017

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

# Tuesday Morning, October 31, 2017

<b>Surface Science Division</b> <b>Room 25 - Session SS+HC-TuM</b> <b>Controlling Mechanisms of Surface Chemical Reactions</b> <b>Moderators:</b> Daniel Killelea, Loyola University Chicago, Andrew Tepyakov, University of Delaware		<b>Sustainability Focus Topic</b> <b>Room 5 &amp; 6 - Session SU+AC+MI+MS-TuM</b> <b>Critical Materials and Energy Sustainability</b> <b>Moderators:</b> Erik B. Svedberg, The National Academies, Robert Lad, University of Maine	
8:00am	<b>SS+HC-TuM-1</b> Multifunctional Adsorption on Ge(100)-2x1 Surface: The Role of Interadsorbate Interactions, <i>Tania Sandoval</i> <sup>1,2</sup> , <i>S Bent</i> , Stanford University	<b>INVITED: SU+AC+MI+MS-TuM-1</b> How Critical Materials Affect Emerging Technologies, <i>Alexander King</i> , The Ames Laboratory  Invited talk continues.	
8:20am	<b>SS+HC-TuM-2</b> Steering the Chemical Reactions on Surfaces Toward Targeted Products, <i>Q Fan</i> , <i>T Wang</i> , <i>Junfa Zhu</i> , University of Science and Technology of China, China		
8:40am	<b>INVITED: SS+HC-TuM-3</b> Spectroscopic Characterization of Reaction Pathways over a Pd-Cu(111) Single-Atom Alloy, <i>C Kruppe</i> , <i>Michael Trenary</i> , University of Illinois at Chicago		
9:00am	Invited talk continues.		
9:20am	<b>SS+HC-TuM-5</b> Reactivity of Pt and Rh Adatoms, Dimers, and Small Clusters on Fe <sub>3</sub> O <sub>4</sub> (001), <i>Jan Hulva</i> <sup>1</sup> , TU Wien, Austria; <i>M Meier</i> , University of Vienna, Austria; <i>M Setvin</i> , <i>Z Jakob</i> , <i>R Bliem</i> , <i>M Schmid</i> , <i>U Dieblod</i> , TU Wien, Austria; <i>C Franchini</i> , University of Vienna, Austria; <i>G Parkinson</i> , TU Wien, Austria	<b>SU+AC+MI+MS-TuM-5</b> The Role of Oxidation and Charging Rates on Li Electrochemical Deposition in Solid State Batteries, <i>Alexander Yulaev</i> , University of Maryland; <i>V Oleshko</i> , NIST; <i>P Haney</i> , NIST Center for Nanoscale Science and Technology; <i>A Talin</i> , Sandia National Laboratories; <i>M Leite</i> , University of Maryland; <i>A Kolmakov</i> , NIST Center for Nanoscale Science and Technology	
9:40am	<b>SS+HC-TuM-6</b> An AP-XPS Study to Investigate the Reaction Mechanism of the Oxidation of CO on Pt/TiO <sub>2</sub> Nanoparticles: A Step Towards Closing both the Pressure and the Materials Gap, <i>Randima Galhenage</i> , <i>J Bruce</i> , <i>D Ferrah</i> , University of California Irvine; <i>I Waluyo</i> , <i>A Hunt</i> , Brookhaven National Laboratory; <i>J Hemminger</i> , University of California Irvine	<b>SU+AC+MI+MS-TuM-6</b> Unique Super-Ionicity Achieved on the Nanoscale with Applications in Next-Generation Lithium Ion Batteries, <i>Progna Banerjee</i> , <i>D Dumett Torres</i> , <i>P Jain</i> , University of Illinois at Urbana-Champaign	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am	<b>SS+HC-TuM-10</b> Oxygen Reduction Reaction of Graphite Decorated by the Pyridinic-Nitrogen Contained Molecules with High Density, <i>Riku Shibuya</i> , <i>T Kondo</i> , University of Tsukuba, Japan; <i>J Nakamura</i> , University of Tsukuba, Japan	<b>INVITED: SU+AC+MI+MS-TuM-10</b> Electric Cell Potential Driving Changes in Perovskite Surface Termination and Enabling Catalysis, <i>Monika Backhaus</i> , Corning; <i>L Gregoratti</i> , <i>M Amati</i> , Elettra-Sincrotrone Trieste, Italy  Invited talk continues.	
11:20am	<b>SS+HC-TuM-11</b> Spectroscopic and Computational Studies of Room-Temperature Decomposition of a Chemical Warfare Agent Simulant on Copper Oxide, <i>Lena Trotochaud</i> , Lawrence Berkeley National Laboratory; <i>R Tsyshkevsky</i> , <i>S Holdren</i> , University of Maryland, College Park; <i>K Fears</i> , U.S. Naval Research Laboratory; <i>A Head</i> , Lawrence Berkeley National Laboratory; <i>Y Yu</i> , University of Maryland, College Park; <i>O Karlioglu</i> , Lawrence Berkeley National Laboratory; <i>S Pletincx</i> , Vrije Universiteit Brussel, Belgium; <i>B Eichhorn</i> , University of Maryland, College Park; <i>J Owruisky</i> , <i>J Long</i> , U.S. Naval Research Laboratory; <i>M Zachariah</i> , <i>M Kuklja</i> , University of Maryland, College Park; <i>H Bluhm</i> , Lawrence Berkeley National Laboratory		
11:40am	<b>SS+HC-TuM-12</b> Atomic View of Acid Zeolite Chemistry: Surface Chemistry Studies on 2D Silicate Materials, <i>Jin-Hao Jhang</i> , <i>G Hutchings</i> , <i>C Zhou</i> , <i>U Schwarz</i> , <i>E Altman</i> , Yale University	<b>SU+AC+MI+MS-TuM-12</b> Possibilities of Hydrogen Energy Utilization in Kazakhstan: Preparation of TiCrMn Hydrogen Storage Alloys and Investigation of Their Absorption Properties, <i>Saule Zholdaykova</i> , <i>H Uchida</i> , <i>Y Matsumura</i> , Tokai University, Japan	
12:00pm	<b>SS+HC-TuM-13</b> Establishing Rules for Oriented SURMOF Growth Beyond Template Effects, <i>X Yu</i> , University of Frankfurt, Germany; <i>J Zhuang</i> , Guizhou Normal University, P.R. China; <i>Andreas Terfort</i> , University of Frankfurt, Germany		

<sup>1</sup> Morton S. Traum Award Finalist

<sup>2</sup> National Student Award Finalist



# Tuesday Morning, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

<sup>1</sup> Medard W. Welch Award Winner



# Tuesday Afternoon, October 31, 2017

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

# Tuesday Afternoon, October 31, 2017

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

<sup>1</sup> John A. Thornton Memorial Award Winner

# Tuesday Evening Poster Sessions, October 31, 2017

## 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

## 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 Mooritz, 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 Diez, 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*, University of New Mexico

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

## 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

## 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<sup>1</sup>, S Burkett*, The University of Alabama

**MN-TuP-2** Understanding the Influence of Space Charge Region on Electrical Behavior of (Pb<sub>0.95</sub>La<sub>0.05</sub>)(Zr<sub>0.54</sub>Ti<sub>0.46</sub>)O<sub>3</sub> Thin Film Capacitors Designed using Top Electrodes of Different Various Work Functions, *Vaishali Batra<sup>2</sup>, 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<sub>0.125</sub>Al<sub>0.875</sub>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 Campani, 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

## 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<sub>4</sub>F<sub>8</sub> and Energetic Ar<sup>+</sup> Plasma Beams, *S Kaler, Q Lou, V Donnelly, Demetre Economou*, University of Houston

<sup>1</sup> MEMS/NEMS Best Paper Award Finalist

<sup>2</sup> MEMS/NEMS Best Paper Award Finalist

# Tuesday Evening Poster Sessions, October 31, 2017

**PS-TuP-9** Si, SiO<sub>2</sub>, and Si<sub>3</sub>N<sub>4</sub> Etching Characteristics of Silicon Halide Ions (SiF<sub>x</sub><sup>+</sup>, SiCl<sub>x</sub><sup>+</sup>, and SiBr<sub>x</sub><sup>+</sup>), **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 Ratio 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<sub>2</sub>, O<sub>2</sub>, and NF<sub>3</sub> 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<sub>2</sub> 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 Vacuo* Auger Electron Spectroscopy, **Christopher Muratore**, m-Nanotech Ltd., University of Dayton; *A Korenyi-Both*, TribologyX 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, 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 Liljeborg, 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 Tepyakov*, University of Delaware

**SS-TuP-6** Structural Growth and Oxidation of TbO<sub>x</sub> 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

# Tuesday Evening Poster Sessions, October 31, 2017

**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 Hydrogen Denitrogenation 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*<sup>1</sup>, *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 (YF<sub>3</sub>) 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 Omalayo*, Lawrence Berkeley National Lab

# 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

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

# Wednesday Morning, November 1, 2017

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



# Wednesday Morning, November 1, 2017

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

# Wednesday Morning, November 1, 2017

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

<sup>1</sup> Falicov Student Award Finalist

<sup>2</sup> MEMS/NEMS Best Paper Award Finalist

# Wednesday Morning, November 1, 2017

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

# Wednesday Morning, November 1, 2017

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

# Wednesday Morning, November 1, 2017

<b>Scanning Probe Microscopy Focus Topic</b> <b>Room 10 - Session SP+SS+TF-WeM</b> <b>Probing and Manipulating Nanoscale Structure</b> <b>Moderators:</b> Zheng Gai, Oak Ridge National Laboratory, Qiang Zou, Oak Ridge National Laboratory		<b>Surface Science Division</b> <b>Room 25 - Session SS-WeM</b> <b>Deposition and Growth at Surfaces</b> <b>Moderators:</b> Kathryn Perrine, Michigan Technological University, Arthur Utz, Tufts University	
8:00am	<b>INVITED: SP+SS+TF-WeM-1</b> STM-Based Nanofabrication and Integrating Nanostructures with Clean Semiconductor Surfaces, <i>Joseph Lyding</i> , University of Illinois at Urbana-Champaign	<b>INVITED: SS-WeM-1</b> Metal Growth on and under Graphene: Morphology, Intercalation and Magnetization, <i>Michael Tringides</i> , Iowa State University and Ames Laboratory	
8:20am	Invited talk continues.	Invited talk continues.	
8:40am	<b>SP+SS+TF-WeM-3</b> Calcium Mediates Adhesion in Reservoir Fluids, <i>S Eichmann</i> , Aramco Research Center - Boston; <i>Nancy Burnham</i> , Worcester Polytechnic Institute	<b>SS-WeM-3</b> Nonequilibrium Growth of an Ordered ZnTPP Overlayer on a Ag(100), <i>Robert Bartynski</i> , Rutgers, the State University of New Jersey; <i>P Kim</i> , <i>S Rangan</i> , Rutgers University; <i>C Ruggieri</i> , Rutgers, the State University of New Jersey; <i>D Lu</i> , CFN, Brookhaven National Laboratory; <i>S Whitelam</i> , The Molecular Foundry, LBNL	
9:00am	<b>SP+SS+TF-WeM-4</b> Nanoscopy of Muscovite Mica, <i>Sampath Gamage</i> , <i>M Howard</i> , <i>A Fali</i> , Georgia State University; <i>K Bolotin</i> , Free University of Berlin, Germany; <i>Y Abate</i> , Georgia State University	<b>SS-WeM-4</b> Growth and Motion of Liquid Alloy Droplets of Au on Ge(110), <i>B Stenger</i> , <i>A Dorsett</i> , <i>J Miller</i> , <i>E Russell</i> , <i>C Gabris</i> , <i>Shirley Chiang</i> , University of California Davis	
9:20am		<b>SS-WeM-5</b> Photodeposition of Pt Clusters on HOPG Supported TiO <sub>2</sub> Nanoparticles: Development of a Nanomaterial Model Catalyst System, <i>Jared Bruce</i> , <i>A Babore</i> , <i>R Galhenage</i> , <i>J Hemminger</i> , University of California Irvine	
9:40am		<b>SS-WeM-6</b> In Vacuo Low-energy Ions Scattering Studies of ZrO <sub>2</sub> Growth by Magnetron Sputtering, <i>Marko Sturm</i> , <i>R Coloma Ribera</i> , <i>R van de Kruijs</i> , <i>A Yakshin</i> , <i>F Bijkerk</i> , MESA+ Institute for Nanotechnology, University of Twente, Netherlands	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am	<b>INVITED: SP+SS+TF-WeM-10</b> Investigation of Energy Transfer and Conversion at a Single Molecule with an STM, <i>Yusoo Kim</i> , RIKEN, Japan	<b>SS-WeM-10</b> Dihydro-tetraazapentcene Growth on Alumina Thin Films and Sapphire: from the Submonolayer to nm Thick Films, <i>Anthony Thomas</i> , <i>T Léoni</i> , <i>A Ranguis</i> , <i>L Masson</i> , <i>O Siri</i> , Aix-Marseille University, France; <i>B Kaufmann</i> , <i>A Matkovic</i> , <i>M Kratzer</i> , <i>C Teichert</i> , Montanuniversität Leoben, Austria; <i>C Becker</i> , Aix-Marseille University, France	
11:20am	Invited talk continues.	<b>SS-WeM-11</b> Zintl Template Formation and Function during Atomic Layer Deposition Growth of Crystalline Perovskites on Ge (001), <i>Shen Hu</i> , <i>A Posadas</i> , <i>A Demkov</i> , <i>J Ekerdt</i> , The University of Texas at Austin	
11:40am		<b>SS-WeM-12</b> Role of the Surface Charge Density in the Surface Relaxation: The Case of Au(111), <i>M Valbuena</i> , Universidad Autonoma de Madrid; <i>C Quiros</i> , Universidad de Oviedo; <i>E Salagre</i> , Universidad Autónoma de Madrid; <i>A Oliva</i> , <i>M Plaza</i> , <i>J Martinez-Blanco</i> , <i>P Segovia</i> , Universidad Autonoma de Madrid; <i>Enrique G. Michel</i> , Universidad Autonoma de Madrid, Spain	
12:00pm		<b>SS-WeM-13</b> Modeling Physical Vapor Deposition of Energetic Materials, <i>Koroush Shirvan</i> , MIT; <i>E Forrest</i> , Sandia National Laboratories	

# Wednesday Morning, November 1, 2017

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

# Wednesday Morning, November 1, 2017

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

# Wednesday Afternoon, November 1, 2017

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



# Wednesday Afternoon, November 1, 2017

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

# Wednesday Afternoon, November 1, 2017

<b>Electronic Materials and Photonics Division</b> <b>Room 14 - Session EM+2D+MI+MN-WeA</b> <b>Materials and Devices for Quantum Information Processing</b> <b>Moderators:</b> Rachael Myers-Ward, U.S. Naval Research Laboratory, Steven Vitale, MIT Lincoln Laboratory		<b>Fundamental Discoveries in Heterogeneous Catalysis</b> <b>Focus Topic</b> <b>Room 24 - Session HC+SA+SS-WeA</b> <b>Bridging Gaps in Heterogeneously-Catalyzed Reactions</b> <b>Moderator:</b> Yu Lei, University of Alabama in Huntsville	
2:20pm	<b>INVITED: EM+2D+MI+MN-WeA-1</b> Controlling the Valley Degree of Freedom in 2D Transition Metal Dichalcogenides, <b>Tony Heinz</b> , Stanford University / SLAC National Accelerator Laboratory	<b>HC+SA+SS-WeA-1</b> Oxygen Reduction Reaction Activity for Pt/Co/Pt(111) and Pt/Co-N/Pt(111) Model Catalyst Surfaces Fabricated by Arc-plasma Depositions, <b>S Kaneko</b> , <b>R Myochi</b> , <b>S Takahashi</b> , <b>N Todoroki</b> , <b>Toshimasa Wadayama</b> , Graduate School of Environmental Studies, Tohoku University, Japan; <b>T Tanabe</b> , Graduate School of Engineering, Tohoku University, Japan	
2:40pm	Invited talk continues.	<b>HC+SA+SS-WeA-2</b> The Mechanism of Oxygen Induced p(2x3) Reconstruction on Mo(112), <b>Teng Ma</b> , Shenyang Agricultural University, PR China	
3:00pm	<b>INVITED: EM+2D+MI+MN-WeA-3</b> VOI-based Valleytronics in Graphene, <b>Yu-Shu Wu</b> , National Tsing-Hua University, Taiwan, Republic of China	<b>INVITED: HC+SA+SS-WeA-3</b> Gas-Liquid Scattering Studies of Atmospheric Reactions at the Surfaces of Sea-Spray Mimics, <b>M Shalowski</b> , <b>J Gord</b> , University of Wisconsin - Madison; <b>S Staudt</b> , University of Wisconsin-Madison; <b>S Quinn</b> , <b>T Bertram</b> , University of Wisconsin - Madison; <b>Gilbert Nathanson</b> , University of Wisconsin-Madison	
3:20pm	Invited talk continues.	Invited talk continues.	
3:40pm	<b>BREAK</b>	<b>BREAK</b>	
4:00pm	<b>BREAK</b>	<b>BREAK</b>	
4:20pm	<b>INVITED: EM+2D+MI+MN-WeA-7</b> Creating Quantum Technologies with Spins in Semiconductors, <b>B Zhou</b> , <b>David Awschalom</b> , University of Chicago	<b>HC+SA+SS-WeA-7</b> In-situ Investigation of Methane Activation on MO <sub>x</sub> /CeO <sub>2</sub> (111) Surfaces {M=Co, Ni and Cu} using Ambient-Pressure XPS, <b>J Rodriguez</b> , <b>Zongyuan Liu</b> , Brookhaven National Laboratory	
4:40pm	Invited talk continues.	<b>HC+SA+SS-WeA-8</b> Ambient Pressure XPS Study of Catalytic Conversion of Carbon Dioxide by CuO <sub>x</sub> Nanoparticles Photodeposited on TiO <sub>2</sub> Nanoparticles, <b>Djawhar Ferrah</b> , <b>R Galhenage</b> , <b>J Bruce</b> , <b>A Babore</b> , <b>J Hemminger</b> , University California, Irvine	
5:00pm	<b>EM+2D+MI+MN-WeA-9</b> Diamond as an Electronic Material: Opportunities and Challenges, <b>Steven Vitale</b> , <b>J Varghese</b> , <b>M Marchant</b> , <b>T Wade</b> , <b>M Geis</b> , <b>T Fedynshyn</b> , <b>D Lennon</b> , <b>M Hollis</b> , MIT Lincoln Laboratory	<b>HC+SA+SS-WeA-9</b> Atomic-Scale Characterization of Pt/Ag Surface Alloys, <b>Dipna Patel</b> , <b>E Sykes</b> , Tufts University	
5:20pm	<b>EM+2D+MI+MN-WeA-10</b> Studies on Influence of Processing on Optical Characteristics of Electron Irradiated 4H-SiC Nanostructures, <b>Shojan Pavunny</b> , ASEE Research Fellow at U.S. Naval Research Laboratory; <b>H Banks</b> , NRC Research Fellow at U.S. Naval Research Laboratory; <b>P Klein</b> , U.S. Naval Research Laboratory; <b>K Daniels</b> , NRC Research Fellow at U.S. Naval Research Laboratory; <b>M DeJarld</b> , ASEE Research Fellow at U.S. Naval Research Laboratory; <b>E Glaser</b> , <b>S Carter</b> , <b>R Myers-Ward</b> , <b>D Gaskill</b> , U.S. Naval Research Laboratory	<b>HC+SA+SS-WeA-10</b> Structural Consequences of High Oxygen Coverages on Rh(111), <b>Rachael Farber</b> <sup>1,2</sup> , <b>M Turano</b> , <b>D Killelea</b> , Loyola University Chicago	
5:40pm	<b>INVITED: EM+2D+MI+MN-WeA-11</b> Ab Initio Simulations of Point Defects in Solids Acting as Quantum Bits, <b>Adam Gali</b> , Wigner Research Centre for Physics, Hungarian Academy of Sciences, Hungary	<b>INVITED: HC+SA+SS-WeA-11</b> Reactivity and Electronic Properties of Supported Metal Oxide and Sulfide Clusters, <b>Michael White</b> , Brookhaven National Laboratory; <b>X Meng</b> , <b>K Goodman</b> , Stonybrook University; <b>P Liu</b> , Brookhaven National Laboratory	
6:00pm	Invited talk continues.	Invited talk continues.	

<sup>1</sup> Morton S. Traum Award Finalist

<sup>2</sup> National Student Award Finalist

# Wednesday Afternoon, November 1, 2017

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

# Wednesday Afternoon, November 1, 2017

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

<sup>1</sup> NSTD Student Award Finalist

<sup>2</sup> Coburn & Winters Student Award Finalist

# Wednesday Afternoon, November 1, 2017

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

# Wednesday Afternoon, November 1, 2017

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

# Wednesday Afternoon, November 1, 2017

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

# 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

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

<sup>1</sup> NSTD Postdoc Finalist

<sup>2</sup> ASSD Student Award Finalist

# Thursday Morning, November 2, 2017

<b>Biomaterial Interfaces Division</b> <b>Room 12 - Session BI+AS+SA-ThM</b> <b>Characterisation of Biological and Biomaterial Surfaces</b> <b>Moderators:</b> Daniel Graham, University of Washington, Tobias Weidner, Aarhus University, Denmark		<b>Electronic Materials and Photonics Division</b> <b>Room 14 - Session EM+MI+NS+SP+SS-ThM</b> <b>Photonics, Optoelectronics, and Light Manipulation</b> <b>Moderators:</b> Yohannes Abate, Georgia State University, Nikolaus Dietz, Georgia State University	
8:00am	<b>BI+AS+SA-ThM-1</b> Lipid Involvement in the Regenerative Processes of <i>Dugesia dorotocephala</i> - A GCIB ToF-SIMS Imaging Study, <i>Tina Angerer, M Taylor, D Graham, L Gamble</i> , University of Washington	<b>INVITED: EM+MI+NS+SP+SS-ThM-1</b> Evolutionary Design of Multi-functional Optical Metasurfaces, <i>Teri Odom</i> , Northwestern University	
8:20am	<b>BI+AS+SA-ThM-2</b> Can ToF-SIMS Imaging Explain Biology?, <i>Lara Gamble, D Graham</i> , University of Washington	Invited talk continues.	
8:40am	<b>INVITED: BI+AS+SA-ThM-3</b> Applications of XPS for Novel Biomaterial Systems, <i>Jonathan Counsell, S Coultas, C Blomfield</i> , Kratos Analytical Limited, UK; <i>C Moffitt</i> , Kratos Analytical; <i>S Hutton</i> , Kratos Analytical Limited, UK, United Kingdom of Great Britain and Northern Ireland	<b>INVITED: EM+MI+NS+SP+SS-ThM-3</b> Dielectric Freeform Metasurfaces for Optical Sensing, <i>Arka Majumdar</i> , University of Washington, Seattle	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	<b>BI+AS+SA-ThM-5</b> Surface Characterization of Polymer Scaffolds: Understanding Surface Modification and Biological Interactions, <i>Michael Taylor</i> , University of Washington; <i>M Hawker, M Mann</i> , Colorado State University; <i>G Hammer</i> , University of Washington; <i>E Fisher</i> , Colorado State University; <i>D Graham, L Gamble</i> , University of Washington	<b>EM+MI+NS+SP+SS-ThM-5</b> Moth eye-based, graded index surface treatments to control reflection and light extraction, <i>L Chan, C Pynn, P Shapturenka, R Ley, S Denbaars, D Morse, Michael Gordon</i> , University of California at Santa Barbara	
9:40am	<b>BI+AS+SA-ThM-6</b> Seawater Bacteria on Technical Surfaces: Lateral and Vertical Adhesion Forces and Nanomechanical Properties, <i>N Davoudi, K Huttenlochner</i> , University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany; <i>C Schlegel, M Huster</i> , University of Kaiserslautern, Institute of Bioprocess Engineering, Germany; <i>Christine Müller-Renno</i> , University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany; <i>R Ulber</i> , University of Kaiserslautern, Institute of Bioprocess Engineering, Germany; <i>C Ziegler</i> , University of Kaiserslautern, Department of Physics and Research Center Optimas, Germany, Germany	<b>EM+MI+NS+SP+SS-ThM-6</b> Infrared Surface Plasmon-influenced Interfacial Chemistry of Semiconductor Nanocrystals, <i>W Hu, Michael Filler</i> , Georgia Institute of Technology	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am	<b>INVITED: BI+AS+SA-ThM-10</b> AVS 2017 Peter Mark Memorial Award Lecture: A Combined Experimental-Simulation Approach for Unraveling Hydrophobic Interactions at the Molecular Scale, <i>P Stock</i> , MPI for Iron Research, Germany; <i>J Monroe</i> , UC Santa Barbara; <i>T Utzig</i> , MPI for Iron Research, Germany; <i>D Smith, S Shell</i> , UC Santa Barbara; <i>Markus Valtiner</i> <sup>1</sup> , TU Bergakademie Freiberg, Germany	<b>EM+MI+NS+SP+SS-ThM-10</b> Dynamically Tunable Polarization Response in a Si/Au Metamaterial, <i>Nicole Pfiester</i> , Tufts University; <i>C Shemelya</i> , Technische Universität Kaiserslautern, Germany; <i>D DeMeo, E Carlson, T Vandervelde</i> , Tufts University	
11:20am	Invited talk continues.	<b>EM+MI+NS+SP+SS-ThM-11</b> Imaging Stress Induced Lateral Quantum Barrier Manipulation of Indium Gallium Arsenide Quantum Wells, using Micro-Photoluminescence Spectroscopy, <i>Brian Rummel, M Rimada, S Addamane, G Balakrishnan</i> , University of New Mexico; <i>T Sinno</i> , University of Pennsylvania; <i>S Han</i> , University of New Mexico	
11:40am	<b>BI+AS+SA-ThM-12</b> Quantitative Characterization of Bacterial Cells in Solution and on Surfaces, <i>C Sousa, K Jankowska, L Parga Basanta, I Pinto, Dmitri Petrovykh</i> , International Iberian Nanotechnology Laboratory, Portugal	<b>EM+MI+NS+SP+SS-ThM-12</b> Silicon-Based Infrared Photodetectors Enabled by Hot Electrons, <i>Seok-Jun Han, S Han, S Han</i> , University of New Mexico	
12:00pm	<b>BI+AS+SA-ThM-13</b> <i>In Situ</i> Multimodal Imaging of Microbial Communities, <i>Xiao-Ying Yu</i> , Pacific Northwest National Laboratory	<b>EM+MI+NS+SP+SS-ThM-13</b> Low Temperature Wafer Bonding of LTG-GaAs to Si <sub>3</sub> N <sub>4</sub> for Terahertz Photoconductive Switch Application, <i>X Fu</i> , Illinois Institute of Technology and Argonne National Laboratory; <i>M Haji-Sheikh, G Westberg, S Ross</i> , Northern Illinois University; <i>E Landahl</i> , DePaul University; <i>K Attenkofer</i> , Brookhaven National Laboratory; <i>Thomas Wong</i> , Illinois Institute of Technology	

<sup>1</sup> Peter Mark Memorial Award Winner

# Thursday Morning, November 2, 2017

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

# Thursday Morning, November 2, 2017

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

# Thursday Morning, November 2, 2017

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

# Thursday Morning, November 2, 2017

<b>Novel Trends in Synchrotron and FEL-Based Analysis</b> <b>Focus Topic</b> <b>Room 9 - Session SA+AC+MI-ThM</b> <b>Frontiers in Probing Properties and Dynamics of Nanostructures and Correlation Spectroscopy</b> <b>Moderators:</b> Jan Vogel, Institut Néel, CNRS/UGA, Grenoble, France, Christian Gutt, University of Siegen, Germany		<b>Advanced Surface Engineering Division</b> <b>Room 11 - Session SE+PS+SS-ThM</b> <b>Plasma-assisted Surface Modification and Deposition Processes</b> <b>Moderators:</b> Jolanta Klemberg-Sapieha, Ecole Polytechnique de Montreal, Canada, Suneel Kodambaka, University of California Los Angeles	
8:00am	<b>INVITED: SA+AC+MI-ThM-1</b> X-rays Revealing Exotic Properties of Magnetoelectric Multiferroics and Related Materials, <i>Elke Arenholz</i> , Lawrence Berkeley National Laboratory	<b>INVITED: SE+PS+SS-ThM-1</b> Key Features of Reactive High Power Impulse Magnetron Sputtering, <i>Daniel Lundin</i> , CNRS/Paris-Sud University, France	
8:20am	Invited talk continues.	Invited talk continues.	
8:40am	<b>INVITED: SA+AC+MI-ThM-3</b> X-ray Reflectivity Investigations of Ultrafast Dynamics in Magnetic Multilayer Structures, <i>Christian Gutt, T Sant, D Ksenzov, U Pietsch</i> , University of Siegen, Germany; <i>J Luening</i> , Sorbonne University; <i>F Capotondi, E Pedersoli, M Manfreda, M Kiskinova</i> , Elettra-Sincrotrone Trieste, Italy; <i>M Klauel, H Zabel</i> , University of Mainz	<b>SE+PS+SS-ThM-3</b> Depositions of Al <sub>2</sub> O <sub>3</sub> Coatings by HiPIMS via Closed-loop Control using a Plasma Emission Monitoring Sensor, <i>Jianliang Lin, R Wei, K Coulter</i> , Southwest Research Institute; <i>F Papa</i> , Gencoa Ltd.	
9:00am	Invited talk continues.	<b>SE+PS+SS-ThM-4</b> The Influence of Spokes on Spatial and Energy Distributions of Ions in Magnetron Sputtering Discharges, <i>Matjaz Panjan</i> , Jozef Stefan Institute, Slovenia; <i>K Tanaka, R Franz, A Anders</i> , Lawrence Berkeley National Laboratory	
9:20am	<b>SA+AC+MI-ThM-5</b> Spray Deposition of Water-processed Active Layers of Hybrid Solar Cells Investigated with In situ X-ray Scattering Methods, <i>Volker Körstgens, F Buschek, M Würle</i> , Technische Universität München, Germany; <i>W Ohm</i> , DESY, Germany; <i>H Iglev</i> , Technische Universität München, Germany; <i>S Roth</i> , DESY, Germany; <i>R Kienberger, P Müller-Buschbaum</i> , Technische Universität München, Germany	<b>SE+PS+SS-ThM-5</b> Silicon Nitride Deposition for Organic Electronics by VHF (162MHz)- PECVD, <i>G Yeom, KiHyun Kim, K Kim, Y Ji, J Oh</i> , Sungkyunkwan University, Republic of Korea	
9:40am	<b>SA+AC+MI-ThM-6</b> New Instrumentation for Spin-integrated and Spin-resolved Momentum Microscopy – METIS and KREIOS, <i>Thomas Schulmeyer, M Wietstruk, A Thissen</i> , SPECS Surface Nano Analysis GmbH, Germany; <i>G Schoenhense</i> , Johannes Gutenberg-Universität, Germany; <i>A Oelsner</i> , Surface Concept GmbH, Germany; <i>C Tusche</i> , Max Planck Institute for Microstructure Physics, Germany	<b>SE+PS+SS-ThM-6</b> Printed Circuit Board Assembly- an Ensemble of Different Surface Energy Components and their Surface Modification, <i>Shailendra Vikram Singh, S Woollard, G Aresta, A Brooks, G Hennighan</i> , R&D Semblant Limited	
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	
11:00am	<b>INVITED: SA+AC+MI-ThM-10</b> X-ray Photon Correlation Spectroscopy Studies of Soft Matter and Biomaterials, <i>Laurence B. Lurio</i> , Northern Illinois University, Unites states	<b>INVITED: SE+PS+SS-ThM-10</b> Plasma Surface Engineering of Biomaterials, <i>Paul K. Chu</i> , City University of Hong Kong, Hong Kong	
11:20am	Invited talk continues.	Invited talk continues.	
11:40am	<b>INVITED: SA+AC+MI-ThM-12</b> Forefront Applications of XPCS, <i>Anders Madsen</i> , European XFEL GmbH, Germany		
12:00pm	Invited talk continues.	<b>SE+PS+SS-ThM-13</b> Tuning the Properties of Plasma Polymer Varying the Substrate Temperature: a Step Toward the Fabrication of Micro/nano Pattern, <i>Damien Thiry</i> , University of Mons, Belgium; <i>N Vinx, F Aparicio</i> , University of Mons; <i>T Godfroid, S Deprez</i> , Materia Nova; <i>R Snyders</i> , University of Mons, Belgium	

# Thursday Morning, November 2, 2017

<b>Surface Science Division</b> <b>Room 25 - Session SS+EM+HC+MI-ThM</b> <b>Oxides: Structures and Reactions</b> <b>Moderators:</b> Valeria Lauter, Oak Ridge National Laboratory, Charles Sykes, Tufts University		<b>Thin Films Division</b> <b>Room 20 - Session TF+SE-ThM</b> <b>Control, Characterization, and Modeling of Thin Films I</b> <b>Moderators:</b> Hilal Cansizoglu, University of California, Davis, Tansel Karabacak, University of Arkansas at Little Rock	
8:00am	<b>SS+EM+HC+MI-ThM-1</b> Influence of Iron Doping on Cobalt Oxide Bilayers on Au(111): Toward a Model of Synergistic Catalytic Effect in Oxygen Evolution Reaction, <i>Jonathan Rodriguez-Fernandez, Z Sun, J Fester, J Lauritsen</i> , Aarhus University, Denmark		<b>TF+SE-ThM-1</b> <i>In Situ</i> Synchrotron Characterization Techniques Enabled Nanostructured Materials using ALD, <i>Yu Lei</i> , University of Alabama in Huntsville
8:20am	<b>SS+EM+HC+MI-ThM-2</b> An Ordered Mixed Oxide Monolayer formed by Iron Segregation on Rutile-TiO <sub>2</sub> (011), <i>Sandamali Halpegamage</i> , University of South Florida; <i>L Bignardi, P Lacovig</i> , Elettra-Sincrotrone Trieste, Italy; <i>A Kramer</i> , University of South Florida; <i>Z Wen, X Gong</i> , East China University of Science and Technology, PR China; <i>S Lizzit</i> , Elettra-Sincrotrone Trieste, Italy; <i>M Batzill</i> , University of South Florida		<b>TF+SE-ThM-2</b> Probing the Atomic Scale Structure of Polar Oxide Interfaces, <i>Sanaaz Koohfar, D Kumah</i> , North Carolina State University
8:40am	<b>INVITED: SS+EM+HC+MI-ThM-3</b> Growth and Chemistry of rutile IrO <sub>2</sub> Surfaces, <i>Jason Weaver, Z Liang, T Li, R Rai</i> , University of Florida, Gainesville; <i>M Kim, A Asthagiri</i> , The Ohio State University		<b>TF+SE-ThM-3</b> CVD Chemistry of Trimethylboron - Gas Phase Reactions and Surface Poisoning Effects, <i>Henrik Pedersen, L Souqui, M Imam</i> , Linköping University, Sweden; <i>R Tonner</i> , Philipps Universität Marburg; <i>H Högberg</i> , Linköping University, Sweden
9:00am	Invited talk continues.		
9:20am	<b>SS+EM+HC+MI-ThM-5</b> Formation and Manipulation of Water Clusters on Bilayer ZnO Surface, <i>Junseok Lee, D Sorescu, X Deng</i> , National Energy Technology Laboratory		<b>INVITED: TF+SE-ThM-5</b> <i>In Situ</i> Synchrotron-based Characterization of Noble Metal ALD Processes, <i>J Dendooven, Eduardo Solano, R Ramachandran, M Minjauw</i> , Ghent University, Belgium; <i>A Coati</i> , Synchrotron SOLEIL, France; <i>D Hermida-Merino</i> , ESRF, France; <i>C Detavernier</i> , Ghent University, Belgium
9:40am	<b>SS+EM+HC+MI-ThM-6</b> Formation of Metastable Water Chains on Anatase TiO <sub>2</sub> (101), <i>Arjun Dahal, Z Dohnálek</i> , Pacific Northwest National Laboratory		Invited talk continues.
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>		<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>		<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>		<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
11:00am	<b>SS+EM+HC+MI-ThM-10</b> The Structure of Fe <sub>2</sub> O <sub>3</sub> (012) and its Reactivity to Water, <i>Gareth Parkinson, F Kraushofer, Z Jakub, M Bichler, J Hulva, M Schmid, U Diebold, P Blaha</i> , TU Wien, Austria		<b>TF+SE-ThM-10</b> <i>In-situ</i> FTIR Study of the Atomic Layer Deposition of Scandium Oxide Films using Bis(methylcyclopentadienyl)3,5-dimethylpyrazolatoscandium with Ozone and with Water, <i>Rezwanur Rahman, J Klesko, A Dangerfield</i> , University of Texas at Dallas; <i>J Lehn, C Dezelah, R Kanjolia</i> , EMD Performance Materials; <i>Y Chabal</i> , University of Texas at Dallas
11:20am	<b>SS+EM+HC+MI-ThM-11</b> Interaction of Water with anatase TiO <sub>2</sub> (001)-1x4, <i>Igor Beinik, K Adamsen, S Koust, J Lauritsen, S Wendt</i> , Aarhus University, Denmark		<b>TF+SE-ThM-11</b> Ultra Fast Compositional Depth Profile Analysis for Microelectronics Applications, <i>Agnès Tempez</i> , Horiba France S.a.s., France; <i>Y Maze, J Barnes, E Nolot</i> , CEA/LETI-University Grenoble Alpes, France; <i>S Legendre</i> , Horiba France S.a.s., France; <i>M Chausseau</i> , HORIBA Instruments Incorporated
11:40am			<b>TF+SE-ThM-12</b> Surface Termination of Fe <sub>3</sub> O <sub>4</sub> (111) Films Studied by CO Adsorption, <i>Francesca Mirabella, E Zaki, F Ivars, S Shaikhutdinov, H Freund</i> , Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany; <i>X Li, J Paier, J Sauer</i> , Humboldt Universität zu Berlin, Germany

# Thursday Morning, November 2, 2017

	<b>Thin Films Division</b> <b>Room 21 - Session TF-ThM</b> <b>Area-selective Deposition and Infiltration Growth Methods</b> <b>Moderator: James Fitz-Gerald, University of Virginia</b>	<b>Tribology Focus Topic</b> <b>Room 10 - Session TR+AC+TF+VT-ThM</b> <b>Lubricant, Coatings, and Biotribology</b> <b>Moderator: J. David Schall, Oakland University</b>
8:00am	<b>INVITED: TF-ThM-1</b> Thin-Film Encapsulation Based on ALD Technology for Organic Light-Emitting Diodes, <i>Tony Maindron</i> , CEA-Leti, France	<b>INVITED: TR+AC+TF+VT-ThM-1</b> Superlubricity of Hard Compliant Carbon Coatings with Green Lubricants: Role of Surface Chemistry and Structural Changes, <i>Maria-Isabel De Barros Bouchet</i> , Ecole Centrale de Lyon - LTDS, France
8:20am	Invited talk continues.	Invited talk continues.
8:40am	<b>TF-ThM-3</b> Vapor Phase Infiltration: Unifying the Research Community Around Processing Science Fundamentals, <i>Mark Losego</i> , Georgia Institute of Technology	<b>TR+AC+TF+VT-ThM-3</b> Role of Deuterium and Hydrogen in the Physical Understanding of Nano-friction in a-C:H/D Thin Films, <i>F Echeverrigaray, S Sales de Mello, A Michels</i> , UCS, Brazil; <i>F Alvarez</i> , UNICAMP, Brazil; <i>Carlos Figueroa</i> , UCS, Brazil
9:00am	<b>TF-ThM-4</b> Vapor Phase Infiltration (VPI) of Polymers with Intrinsic Microporosity, <i>Emily McGuinness, F Zhang, R Lively, M Losego</i> , Georgia Institute of Technology	<b>TR+AC+TF+VT-ThM-4</b> Imaging X-Ray Absorption Spectroscopic Investigation of the Mechanisms Behind the Environmental Dependence of the Tribological Properties of Amorphous Carbon Surfaces, <i>Filippo Mangolini</i> , University of Leeds, UK; <i>M Koshigan</i> , Ecole Polytechnique Montréal, Canada; <i>M Van Benthem, J Ohlhausen</i> , Sandia National Laboratories; <i>B McClimon, J Hilbert</i> , University of Pennsylvania; <i>J Fontaine</i> , Ecole Centrale de Lyon, France; <i>R Carpick</i> , University of Pennsylvania
9:20am	<b>TF-ThM-5</b> Organic Solvent Resistance of Hybrid Organic-Inorganic Films Synthesized via Vapor Phase Infiltration, <i>Collen Leng, M Losego</i> , Georgia Institute of Technology	<b>INVITED: TR+AC+TF+VT-ThM-5</b> Structure Evolution in Tribological Interfaces Studied by Multilayer Model Alloys, <i>Martin Dienwiebel, E Cihan</i> , Karlsruhe Institute for Technology (KIT), Germany
9:40am	<b>TF-ThM-6</b> Surface Selective CVD of Metallic Thin Films Using Inhibitor Molecules, <i>Elham Mohimi</i> , University of Illinois at Urbana-Champaign; <i>Z Zhang</i> , University of Illinois at Urbana-Champaign, US; <i>S Liu, B Trinh</i> , University of Illinois at Urbana-Champaign; <i>J Mallek</i> , MIT Lincoln Laboratory; <i>G Girolami, J Abelson</i> , University of Illinois at Urbana-Champaign	Invited talk continues.
10:00am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
10:20am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
10:40am	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>	<b>BREAK - Complimentary Coffee in Exhibit Hall</b>
11:00am	<b>TF-ThM-10</b> Toward Area Selective Atomic Layer Deposition on Co, W and Ru Metal/Silicon Patterns, <i>Dara Bobb-Semple, S Bent</i> , Stanford University	<b>INVITED: TR+AC+TF+VT-ThM-10</b> Carbon, Carbon Everywhere, from Catalysts to Hip Implants, <i>Laurence Marks</i> , Northwestern University
11:20am	<b>TF-ThM-11</b> Area-selective ALD of Ru by Combining an ABC-type ALD Process and O <sub>2</sub> Plasma Etching, <i>S Chopra</i> , Eindhoven University of Technology, The Netherlands; <i>M Vos</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>J Ekerdt</i> , The University of Texas at Austin; <i>E Kessels, Adrie Mackus</i> , Eindhoven University of Technology, The Netherlands, Netherlands	Invited talk continues.
11:40am	<b>TF-ThM-12</b> Enhancing the Inherent Area-selective ALD of TiO <sub>2</sub> using BC <sub>13</sub> , <i>Seung Keun Song, P Lemarie, G Parsons</i> , North Carolina State University	<b>INVITED: TR+AC+TF+VT-ThM-12</b> Tribology of Cellular Interfaces, <i>Angela Pitenis, J Urueña, S Hart, T Hormel, C O'Bryan, S Marshall, K Schulze, P Levings, T Angelini, W Sawyer</i> , University of Florida
12:00pm	<b>TF-ThM-13</b> Selective ALD by Intercalation of Etching Cycles in PEALD Process, <i>Rémi Vallat, R Gassilloud</i> , CEA/LETI-University Grenoble Alpes, France; <i>C Vallée</i> , Université Grenoble Alpes & CEA, LETI, Minatec Campus, Grenoble, France	Invited talk continues.



# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Afternoon, November 2, 2017

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

# Thursday Evening Poster Sessions, November 2, 2017

## 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub>, **Sadhu Kolekar**, M Batzill, University of South Florida

**2D-ThP-5** Growth and Characterization of MoTe<sub>2</sub> on GaTe by Molecular Beam Epitaxy, **Paula Mariel Coelho**, M Batzill, University of South Florida

**2D-ThP-7** Single Layer VSe<sub>2</sub>: 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<sub>2</sub> 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-MoS<sub>2</sub> 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 Radocca, 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<sub>2</sub>): 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<sup>+</sup> 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 Pambath 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 Pearce, 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 Götzhäuser, 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<sub>1-x</sub>Co<sub>x</sub>O / 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<sub>2</sub>O-Fe<sub>2</sub>O<sub>3</sub>-P<sub>2</sub>O<sub>5</sub>-SiO<sub>2</sub> Glass-Ceramics, **Yoshikazu Kaji**, N Yoshida, T Okura, Kagakuin University, Japan

**EM-ThP-7** Defect Doping ZnO Thin-Films with  $\gamma$  - 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<sub>2</sub> Films and HfO<sub>2</sub> 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 HfO<sub>2</sub> 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)  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> 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 Wao, University of California, Los Angeles; E Chang, National Chiao Tung University, Taiwan, Taiwan, Republic of China

**EM-ThP-26** The Photoelastic Coefficient P<sub>12</sub> of H<sup>+</sup> 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, **Elizabeth Phillip**, 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<sub>n</sub> Clusters Uniformly-Deposited on Al<sub>2</sub>O<sub>3</sub>/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 Thevthasan, 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<sub>2</sub>/C<sub>2</sub>F<sub>6</sub>/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

# Thursday Evening Poster Sessions, November 2, 2017

**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<sub>2</sub> 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*, GenSys GmbH; *C Roy, L Yu, R Kasica, C Wallin*, NIST; *D Czaplowski, 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<sub>2</sub> 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 and 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 Ilcan, 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 Ilcan*, 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<sub>3</sub>/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<sup>+</sup> 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<sub>2</sub>/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 Cyclopentadienyl Titanium Alkylamide and Ozone, *Seongyeon 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<sub>2</sub> Films on Flexible Plastic Substrates using TiO<sub>2</sub> 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

# Thursday Evening Poster Sessions, November 2, 2017

**TF-ThP-34** Optical and Microstructural Characterization of Epitaxial VO<sub>2</sub> on TiO<sub>2</sub> (001) and Niobium Doped TiO<sub>2</sub>, *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 Garcia*, Universidad de Guadalajara, Mexico

**TF-ThP-41** The Leakage Current Reduction in Atomic Layer Deposition Of Al<sub>2</sub>O<sub>3</sub>-Inserted SrTiO<sub>3</sub> 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 Treated 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

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

<sup>1</sup> ASSD Student Award Finalist

<sup>2</sup> NSTD Postdoc Finalist

<sup>3</sup> National Student Award Finalist

# Friday Morning, November 3, 2017

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

# Friday Morning, November 3, 2017

<b>Thin Films Division</b> <b>Room 20 - Session TF-FrM</b> <b>Self-assembled Monolayers and Organic/Inorganic Interface Engineering</b> <b>Moderator:</b> Adrienne Stiff-Roberts, Duke University	
8:20am	<b>TF-FrM-1</b> Kinetics of Swelling and Deswelling in Thermo-responsive Polymers Deposited by Initiated Chemical Vapor Deposition, <i>P Salzmann</i> , Graz University of Technology; <i>A Perrotta</i> , Eindhoven University of Technology, Netherlands; <i>AnnaMaria Coclite</i> , Graz University of Technology, Austria
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9:40am	<b>TF-FrM-5</b> the Curious Wetting Behavior of ALD Grown Al <sub>2</sub> O <sub>3</sub> Thin Film Surfaces, <i>Yi Li</i> , <i>B Piercy</i> , <i>M Losego</i> , Georgia Institute of Technology
10:00am	<b>TF-FrM-6</b> Controlled Thicknesses of Vapor Deposited Silane Films, <i>Brian Johnson</i> , <i>A Diwan</i> , <i>M Linford</i> , Brigham Young University
10:20am	<b>TF-FrM-7</b> Supramolecular Heterostructures formed by Sequential Epitaxial Deposition of Two-Dimensional Hydrogen-Bonded Arrays, <i>V Korolkov</i> , <i>M Baldoni</i> , The University of Nottingham, UK; <i>K Watanabe</i> , <i>T Taniguchi</i> , National Institute for Materials Science, Japan; <i>E Besley</i> , <i>Peter Beton</i> , The University of Nottingham, UK
10:40am	<b>TF-FrM-8</b> Functionalization and Stabilization of Ultrathin Alumina Films with Rhenium Photosensitizers, <i>Wolf-Dietrich Zabka</i> , <i>D Leuenberger</i> , Department of Physics, University of Zürich, Switzerland; <i>G Mette</i> , <i>C Monney</i> , <i>M Mosberger</i> , <i>B Probst-Rüd</i> , <i>R Alberto</i> , <i>J Osterwalder</i> , University of Zürich, Switzerland

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