

Program Key

Conference Topics

2D	2D Materials Focus Topic
AC	Actinides and Rare Earths Focus Topic
AM	Extending Additive Manufacturing to the Atomic Scale Focus Topic
AS	Applied Surface Science Division
BI	Biomaterial Interfaces Division
BP	Biomaterials Plenary Session
EL	Spectroscopic Ellipsometry Focus Topic
EM	Electronic Materials and Photonics Division
EW	Exhibitor Technology Spotlight Workshops
HC	Fundamental Discoveries in Heterogeneous Catalysis Focus Topic
HI	Advanced Ion Microscopy Focus Topic
IPF	Industrial Physics Forum
MI	Magnetic Interfaces and Nanostructures Division
MM	In-situ Microscopy, Spectroscopy, and Microfluidics Focus Topic
MN	MEMS and NEMS Group
MP	Materials and Processes for Quantum Computing Focus Topic
MS	Manufacturing Science and Technology Group
NS	Nanometer-scale Science and Technology Division
PB	Plasma Biology, Agriculture, and Environment Focus Topic
PC	Processing and Characterization of Air-Liquid, Solid-Liquid and Air-Solid Interfaces Focus Topic
PS	Plasma Science and Technology Division
RM	Reconfigurable Materials and Devices for Neuromorphic Computing Focus Topic
SA	Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic
SE	Advanced Surface Engineering Division
SS	Surface Science Division
TF	Thin Films Division
TR	Tribology Focus Topic
VT	Vacuum Technology Division

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with all acronyms (e.g. **AC+EM+SS**), then a number to indicate simultaneous sessions sponsored by the same topic(s) (e.g. **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 **Morning, Afternoon, Evening, Poster,**
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	101A	101B	102A	102B	103C
SuA		BP-SuA: AVS BIP & AIP IPF Forum Plenary Session			
MoM	EM+MP+PS-MoM: IoT Session: CMOS, Beyond the Roadmap and Over the Cliff	IPF+AS+BI+NS-MoM: Biofabrication: From Tissue to Organ	TF1-MoM: Precursors and Surface Reactions	NS+2D+AN+EM+MN+MP +PC+RM-MoM: IoT Session: Nanostructured Devices and Sensors	
MoA	EM+AM+NS+PS-MoA: Atomic Layer Processing: Selective-Area Patterning (Assembly/Deposition/Etch)	BI+AS+IPF+MN-MoA: Advanced Imaging and Structure Determination of Biomaterials Research	TF+EM+MI+PS-MoA: Thin Films for Advanced Memory Applications and Magnetics	NS+2D+AS+PC-MoA: SPM - New Imaging and Spectroscopy Methodologies	
TuM	TF-TuM: Emerging Applications for ALD	IPF+AS+BI+MN-TuM: Advanced Imaging and Structure Determination of Biomaterials	TF+AS-TuM: Special Session in Honor of Paul Holloway: Luminescent Materials Growth	NS+AN+EM+MN+MP+RM -TuM: Nanophotonics, Plasmonics, and Metamaterials	
TuB					MS-TuB: Working with Government Labs and other User Facilities
TuL					
TuA	EM+2D+AN+MI+MP+NS- TuA: Solar/Energy Harvesting and Quantum Materials and	BI+AS+IPF+NS-TuA: IoT Session: Biofabrication, Bioanalytics, Biosensors and Diagnostics	TF+SS-TuA: Organic/Inorganic Materials and Interfaces	NS+AM+MI+MN+SS+TR- TuA: SPM – Probing and Manipulating Nanoscale Structures	
TuAB					
TuP					
WeM	EM+AN+MI+SS-WeM: Surface and Interface Challenges in Electronics and Photonics	IPF+AS+BI+NS-WeM: IoT Session: Bioanalytics, Biosensors and Diagnostics	TF+EM+MI-WeM: Thin Film Processes for Electronics and Optics I	AM+NS+SS-WeM: Nanofabrication with Focused Electron Beams (9:00-10:00 am) / Atomic	
WeB					
WeL					
WeA	EM+2D+SS-WeA: Wide and Ultra-Wide Bandgap Materials for Electronic Devices Growth	BI-WeA: Microbes and Fouling at Surfaces	TF+EM+MI-WeA: Thin Film Processes for Electronics and Optics II	AM+MP+NS-WeA: Atomic Scale Manipulation with SPM	
ThM	EM+MI+MN+NS-ThM: Nanostructures for Electronic and Photonic Devices	BI-ThM: Biomolecules and Biophysics at Interfaces	TF+AS+EL+PS-ThM: In- situ Characterization and Modeling of Thin Film Processes	NS+AN+EM+MI+MN+MP +PS+RM-ThM: Nanopatterning and Nanofabrication	
ThA	EM+2D+NS+PS+RM+TF- ThA: IoT Session: Flexible Electronics & Flash Networking Session	BI-ThA: Biolubrication and Wear / Women in Bio-surface Science	SS+EM+PS+TF-ThA: Deposition, Etching and Growth at Surfaces	NS+2D+AS+MN+PC-ThA: SPM – Probing Electronic and Transport Properties	
ThP					
FrM		BI+AS+NS-FrM: Characterization of Biological and Biomaterial Surfaces		NS+AM+AS+MN+PC+PS+ SS+TR-FrM: SPM – Probing Chemical Reactions at the	

Program Overview

Room /Time	104A	104B	104C	201A	201B
SuA					
MoM	PS+AS+EM+SS-MoM: Plasma-Surface Interactions	TF2-MoM: IoT Session: Thin Film Processes for Energy Storage	PS+TF-MoM: Plasma Deposition and Plasma-Enhanced ALD	TR+AS+NS+SS-MoM: Tribology Focus Session	2D+EM+MI+NS+TF-MoM: 2D Materials Growth and Fabrication
MoA	PS+PB-MoA: Plasma and Polymers: 'The Legacy of Riccardo d'Agostino and Beyond'	TF-MoA: IoT Session: Thin Films for Photovoltaics		MI+2D+EM+NS-MoA: IoT Session: Symposium on new Magnetic Materials, Devices and Concepts for	2D+MI+NS-MoA: 2D Materials Characterization including Microscopy and
TuM	PS+EM+SE-TuM: Plasma Processing of Challenging Materials - I	TF+AM+EM+PS-TuM: Atomic Layer Processing: Area Selective Deposition	PS+PB-TuM: Plasma Medicine	HC+SS-TuM: Nanochemistry in Heterogeneous Catalysis	2D+EM+MI+NS-TuM: Properties of 2D Materials including Electronic, Magnetic
TuB					
TuL					
TuA	PS+EM+NS+SS-TuA: Plasma Processing of Challenging Materials - II	TF+PS-TuA: Atomic Layer Processing: Chemistry & Surface Reactions for Atomic Layer Processing	PS+PB+SE-TuA: Atmospheric Pressure Plasmas	HC+SS-TuA: A Tale of Two Scales: Catalytic Processes and Surface Science	2D+EM+MI+MN+NS-TuA: 2D Device Physics and Applications
TuAB					
TuP					
WeM	PS+EM-WeM: Advanced Patterning	PS+AS+EL+EM+SE-WeM: Current and Future Stars of the AVS Symposium I	PS+MN-WeM: IoT Session: Enabling IoT Era	HC+SS-WeM: Mechanisms and Reaction Pathways of Heterogeneous	2D+AM+EM+NS-WeM: Dopants, Defects, and Interfaces in 2D Materials
WeB					
WeL					
WeA	PB+BI+PC+PS-WeA: Plasma Agriculture & Environmental Applications	BI+AC+AS+HC+NS+SS+TF-WeA: Current and Future Stars of the AVS Symposium II	PS+EM-WeA: Advanced BEOL/Interconnect Etching	HC+SS-WeA: Theory and Dynamics of Heterogeneously Catalyzed Reactions	2D+MN+NS+SS-WeA: IoT Session: Surface Chemistry, Functionalization, Bio
ThM	PS-ThM: Plasma Sources	TF+PS-ThM: Deposition Processes for 3D and Extreme Geometries	PS+EM+TF-ThM: Atomic Layer Processing: Atomic Layer Etching	HC+SS-ThM: In-situ Analysis of Heterogeneously Catalyzed Reactions	2D+EM+MI+MN+NS+SS-ThM: Novel 2D Materials
ThA	PS-ThA: Plasma Diagnostics, Sensors and Controls	TF+AS+EL+EM+NS+PS+SS-ThA: IoT Session: Thin Films for Flexible Electronics and IoT	PS+EM+TF-ThA: Atomic Layer Processing: Integration of ALD and ALE	HC+SS-ThA: Bridging Gaps in Heterogeneously Catalyzed Reactions	2D+EM+MN+NS-ThA: Novel Quantum Phenomena in 2D Materials
ThP					
FrM	PS-FrM: Plasma Modeling				2D+EM+MN+NS-FrM: Nanostructures including Heterostructures and Patterning of 2D

Program Overview

Room /Time	202A	202B	202C	203A	203B
SuA					
MoM	EL+AS+EM-MoM: Application of SE for the Characterization of Thin Films and Nanostructures	MM+AS+NS+PC-MoM: Mechanical, Electrical, Thermal and Optical Systems for In-situ TEM	SE+NS+TF-MoM: Nanostructured Thin Films and Coatings	MP+EM+MN+NS-MoM: Systems and Devices for Quantum Computing I	VT-MoM: Vacuum Measurement
MoA	EL+EM-MoA: Spectroscopic Ellipsometry: Novel Applications and	MM+AS+NS+PC+SS-MoA: X-ray and Electron Spectromicroscopy in Liquids and Gases & Flash	SE-MoA: New Challenges and Opportunities in Surface Engineering	MP+AM+EM+NS-MoA: Systems and Devices for Quantum Computing II	VT-MoA: Pumping and Outgassing
TuM	PC+AS+BI+NS+PB+SS-TuM: Solid-Liquid and Gas-Liquid Interfacial Processes and	MS+MI+RM-TuM: IoT Session: Challenges of Neuromorphic Computing and	SE+PS-TuM: Plasma-assisted Surface Modification and Deposition Processes	MP+EM+NS-TuM: High Coherence Qubits for Quantum Computing	VT-TuM: Large Vacuum Systems and Accelerator Vacuum Technology
TuB					
TuL					
TuA	PC+AS+BI+EM+NS+PB+SS-TuA: Progress in Industrial Processes and Characterization of	MS+MN-TuA: IoT Session: Challenges of Sensor Manufacturing for the IoT	SE-TuA: Wear, Oxidation and Corrosion Protective Coatings	RM+EM+NS-TuA: IoT Session: Reconfigurable Materials and Devices for Neuromorphic	VT-TuA: IoT Session: Vacuum System Design and Automation & Flash Networking Session
TuAB					
TuP					
WeM	PC+AS+BI+EM+PB+SS-WeM: Novel Approaches and Challenges of Interfaces	MN+NS+PS-WeM: IoT Session: Multiscale Manufacturing: Enabling Materials and Processes	AC+MI+SA-WeM: Magnetism, Complexity, and Superconductivity in the Actinides and Rare	NS+2D+AN+MN+MP+SE-WeM: Micro, Nano and Opto Mechanics	VT-WeM: Vacuum Technology Developments
WeB					
WeL					
WeA	SA+AS+MI-WeA: Hard X-Ray Photoemission for Probing Buried Interfaces	MN+2D+AN+NS-WeA: IoT Session: MEMS for IoT: Chemical and Biological Sensing	AC+AS+SA-WeA: Chemistry and Physics of the Actinides and Rare Earths	NS+MN+PC+SS-WeA: IoT Session: Bio at the Nanoscale	HI-WeA: Novel Beam Induced Material Engineering & Nano-Patterning
ThM	SA+MI-ThM: Ultra-fast Dynamics for Magnetic and Quantum Systems	MN+2D+AN+MP+NS-ThM: Optomechanics and 2D NEMS	AC+AS+SA-ThM: Nuclear Power, Forensics, and Other Applications	MI+2D-ThM: Magnetism at the Nanoscale	HI+AS-ThM: Advanced Ion Microscopy & Surface Analysis
ThA	SA+AS+HC+SS-ThA: IoT Session: Multi-modal Characterization of Energy Materials &	MN+2D+AN+NS-ThA: Nonlinear and Thermal Resonators	AC-ThA: Early Career Scientists	MI+BI-ThA: Interdisciplinary Magnetism	HI-ThA: Emerging Ion Sources, Optics, and Applications
ThP					
FrM			AC+MI+SA-FrM: Actinide and Rare Earth Theory and Related Measurements	MI+EM-FrM: Magnetism and Spin-Orbit Coupling at Surfaces, Interfaces and Thin Films	

Program Overview

Room /Time	203C	204	Hall A	Hall B
SuA				
MoM	SS+HC+MI-MoM: Dynamical Processes at Surfaces	AS-MoM: Quantitative Surface Analysis		
MoA	SS+HC-MoA: Theory and Modeling of Surfaces and Reactions	AS-MoA: Multitechnique Applications-When More techniques are Better than One		
TuM	SS+HC+NS+PS-TuM: Controlling Mechanisms of Surface Chemical Reactions	AS+BI-TuM: Applied Surface Science: From Electrochemistry to Cell Imaging, a Celebration of the Career of Nicholas		
TuB			EW-TuB: Exhibitor Technology Spotlight Session I	
TuL			EW-TuL: Exhibitor Technology Spotlight Session II	
TuA	SS+HC+MI-TuA: Oxides/Chalcogenides: Structures and Reactions	AS-TuA: The Impact of Modeling (Ion, Electron) and Data Analysis on Applied Surface Science, a Celebration of the Career of		
TuAB			EW-TuAB: Exhibitor Technology Spotlight Session III	
TuP				Poster Sessions
WeM	SS+HC-WeM: Catalytic Alloys: Understanding Heterogeneity	AS+NS+SA-WeM: Beyond Traditional Surface Analysis		
WeB			EW-WeB: Exhibitor Technology Spotlight Session IV	
WeL			EW-WeL: Exhibitor Technology Spotlight Session V	
WeA	SS+AS+EM-WeA: Semiconducting Surfaces	AS+SE-WeA: Industrial and Practical Applications of Surface Analysis		
ThM	SS+EM+NS-ThM: Defects in and Functionalization of 2D Materials	AS+SE-ThM: Applied Surface Analysis of Novel, Complex or Challenging Materials		
ThA	SS+AS+BI+MI+NS-ThA: Organic/Inorganic Surfaces, Interfaces and Nanostructures	AS+NS-ThA: Profiling, Imaging and Other Multidimensional Pursuits		
ThP				Poster Sessions
FrM	SS+AS+HC-FrM: Near/Ambient Pressure and Bridging Gaps between Surface Science and Catalytic			

Special Events Sunday

Special Events Sunday

- 7:30 AM QSA 17 "Data Reproducibility"/101A
- 8:00 AM AVS Board of Directors' Executive Session (CLOSED SESSION)/Seaview AB-Hyatt Regency (by invitation)
- 9:00 AM AVS Board of Directors' Meeting/Seaview AB-Hyatt Regency
- 3:00 PM JVST Associate Editors' Meeting/Harbor-Hyatt Regency (by invitation)
- 5:30 PM ASTM E-42 Business Meeting/Regency D-Hyatt Regency
- 6:00 PM Science Educators' Workshop Teachers' Reception/Seaview Rotunda-Hyatt Regency (by invitation)
- 6:00 PM Vacuum Technology Division Executive Committee Meeting & Dinner/Shoreline A-Hyatt Regency (by invitation)
- 6:30 PM Applied Surface Science Division Memorial Reception/Regency EF-Hyatt Regency
- 7:00 PM International Dignitaries & Chapter Chairs Reception/Tides Restaurant-Hyatt Regency (by invitation)
- 7:00 PM Short Course Executive Committee Meeting/Shoreline B-Hyatt Regency (by invitation)

Sunday Afternoon, October 21, 2018

Biomaterials Plenary Session
Room 101B - Session BP-SuA
AVS BIP & AIP IPF Forum Plenary Session
Moderator: Joe Baio, Oregon State University

3:00pm	INVITED: BP-SuA-1 Integrating Single Molecule Devices with Conventional Microfabrication using DNA Origami, <i>Paul Rothemund</i> , California Institute of Technology	
3:20pm	Invited talk continues.	
3:40pm	INVITED: BP-SuA-3 High Resolution Cryo-EM Structures of Macromolecular Complexes, <i>Wah Chiu</i> , Stanford University	
4:00pm	Invited talk continues.	

Special Events Monday

Special Events Monday

- 7:00 AM Professional Leadership Committee Meeting & Breakfast/Tides Restaurant-Hyatt Regency (by invitation)
- 8:00 AM Science Educators' Workshop/Seaview-Hyatt Regency (by invitation)
- 10:20 AM AVS Member Center: Demo Hour--AVS Events & Activities/AVS 65 Mobile App/103C
- 12:05 PM MIND Business Meeting/201A
- 12:15 PM 2019 AVS Program Committee Meeting and Lunch/Regency A-Hyatt Regency (by invitation)
- 12:15 PM AVS Member Center: Professional Development-"Welcome to AVS Overview & Lunch*"/103C
- 12:15 PM Recommended Practices Committee Meeting & Lunch/Pacific-Hyatt Regency (by invitation)
- 3:00 PM AVS Member Center: Professional Development--"Speed Networking for Young Professionals"/103C
- 4:00 PM Publications Committee Meeting/Shoreline A-Hyatt Regency (by invitation)
- 4:45 PM VTD Business Meeting/203B
- 5:00 PM Plenary Lecture: Kim Chaffin, Distinguished Scientist & Bakken Fellow in Strategic and Scientific Operations, Medtronic, plc,"The Internet of Things: Shaping the Future of the Medical Device Industry"/Grand Ballroom
- 6:15 PM AVS Symposium Plenary Panel/Grand Ballroom
- 7:00 PM ASSD Executive Committee Meeting & Dinner/Pacific-Hyatt Regency (by invitation)
- 7:00 PM Welcome Mixer/Hall B
- 7:30 PM Thin Film Division/Harper Award TED-Talk Competition/102A
- 7:45 PM MIND Executive Committee Meeting and Dinner/Shoreline A-Hyatt Regency (by invitation)
- 7:45 PM Publications Committee Meeting & Dinner/Offsite (by invitation)

Monday Morning, October 22, 2018

2D Materials Focus Topic Room 201B - Session 2D+EM+MI+NS+TF-MoM 2D Materials Growth and Fabrication Moderator: Jing Xia, University of California Irvine		Applied Surface Science Division Room 204 - Session AS-MoM Quantitative Surface Analysis Moderators: Kateryna Artyushkova, The University of New Mexico, Tim Nunney, Thermo Fisher Scientific, UK	
8:20am	2D+EM+MI+NS+TF-MoM-1 Wafer Scale Epitaxial Growth of Monolayer and Few-Layer WS ₂ by Gas Source Chemical Vapor Deposition, <i>Mikhail Chubarov, T Choudhury, J Redwing</i> , The Pennsylvania State University	INVITED: AS-MoM-1 A Fistful of Data: The Good, the Bad and the Ugly of Quantitative Surface Analysis, <i>Alexander Shard</i> , National Physical Laboratory, UK	
8:40am	2D+EM+MI+NS+TF-MoM-2 Wafer Scale Deposition of Monolayer Transition Metal Dichalcogenides, <i>Kortney Almeida, M Wurch, G Stecklein, L Bartels</i> , University of California, Riverside	Invited talk continues.	
9:00am	INVITED: 2D+EM+MI+NS+TF-MoM-3 Crystal Growth of 2D Materials: From Model Systems to Integrated Manufacturing, <i>Stephan Hofmann</i> , University of Cambridge, UK	AS-MoM-3 XPS and the Reproducibility Crisis, <i>Donald Baer, M Engelhard</i> , Pacific Northwest National Laboratory	
9:20am	Invited talk continues.	AS-MoM-4 Rapid Calculation Method of the Voigt Function for Use in the Analysis of Photoelectron Spectroscopic Data, <i>Peter Sherwood</i> , University of Washington	
9:40am	2D+EM+MI+NS+TF-MoM-5 Understanding the Edge-Controlled Growth and Etching in Two-Dimensional Materials, <i>Kai Xiao, X Li, X Sang</i> , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; <i>W Zhao, J Dong</i> , Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS), Ulsan,44919, South Korea; <i>A Purektyz</i> , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; <i>C Rouleau</i> , Center for Functional Nanomaterials Brookhaven National Laboratory; <i>F Ding</i> , Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS), Ulsan,44919, South Korea; <i>R Unocic, D Geohegan</i> , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory	AS-MoM-5 Statistical Analysis and Peak Fitting of X-ray Photoelectron Spectroscopy Data. Good Practices and Procedures for Working up this Information., <i>Matthew Richard Linford, V Jain</i> , Brigham Young University	
10:00am	2D+EM+MI+NS+TF-MoM-6 Synthesis and Characterization of 1T, 1T', and 2H MoTe ₂ Thin Films, <i>Thomas Empante</i> , University of California, Riverside; <i>Y Zhou</i> , Stanford University; <i>S Naghibi Alvillar</i> , El Camino College; <i>E Reed</i> , Stanford University; <i>L Bartels</i> , University of California, Riverside	AS-MoM-6 Modeling the Shirley Background, <i>Alberto Herrera-Gomez, D Mulato-Gomez</i> , Cinvestav-Unidad Queretaro, Mexico; <i>A Dutoi</i> , University of the Pacific	
10:20am	BREAK	BREAK	
10:40am	INVITED: 2D+EM+MI+NS+TF-MoM-8 2D Anisotropic Semiconductors: Competing Phases by Alloys Engineering, <i>Sefaattin Tongay</i> , Arizona State University	AS-MoM-8 XPS Spectra and Bonding In Ionic Transition Metal Compounds, <i>C. Richard Brundle</i> , C. R. Brundle and Associates; <i>P Bagus</i> , University of North Texas	
11:00am	Invited talk continues.	AS-MoM-9 Combinatorial Group XPS Analysis of Novel Material Systems, <i>Sarah Coultas</i> , Kratos Analytical Ltd, UK; <i>J Counsell</i> , Kratos Analytical Limited, UK; <i>C Moffitt</i> , Kratos Analytical Inc.; <i>C Blomfield, A Roberts</i> , Kratos Analytical Limited, UK	
11:20am	2D+EM+MI+NS+TF-MoM-10 Low-Defect, High-Uniformity Transfer-Free Graphene on SiO ₂ by Thermal Chemical Vapor Deposition, <i>Leslie Chan, D Tsai, Z Wang, C Carraro, R Maboudian</i> , University of California, Berkeley	AS-MoM-10 Towards Spatially Resolved Quantification of Gold Nanoparticles Embedded in an Organic Matrix using Secondary Ion Mass Spectrometry, <i>Shin Muramoto, J Bennett</i> , National Institute of Standards and Technology (NIST)	
11:40am	2D+EM+MI+NS+TF-MoM-11 Barrier Based Approach to Modify Vapor Phase Concentrations for High Quality MoS ₂ Growth, <i>Dongzhi Chi, S Wong</i> , Institute of Materials Research and Engineering, Agency for Science Technology and Research, Singapore	AS-MoM-11 Correction-Free Analysis of SIMS Data at High Mass Resolution in the Presence of Detector Saturation, <i>Lev Gelb, A Walker</i> , University of Texas at Dallas	

Monday Morning, October 22, 2018

	Spectroscopic Ellipsometry Focus Topic Room 202A - Session EL+AS+EM-MoM Application of SE for the Characterization of Thin Films and Nanostructures Moderators: Alain C. Diebold, SUNY College of Nanoscale Science and Engineering, Mathias Schubert, University of Nebraska - Lincoln	Electronic Materials and Photonics Division Room 101A - Session EM+MP+PS-MoM IoT Session: CMOS, Beyond the Roadmap and Over the Cliff Moderators: Sean King, Intel Corporation, Wilman Tsai, TSMC
8:20am	INVITED: EL+AS+EM-MoM-1 Stealth Technology-based Terahertz Frequency-domain Ellipsometry, <i>Vanya Darakchieva</i> , Linköping University, Sweden	EM+MP+PS-MoM-1 Aluminum Gettering Gate for Improving Defect Density in SiGe MOSCAP Devices, <i>Emily Thomson</i> , <i>M Kavrik</i> , <i>A Kummel</i> , University of California at San Diego
8:40am	Invited talk continues.	EM+MP+PS-MoM-2 Direct Growth of Single Crystal Compound Semiconductor Materials on Diverse Substrates for Beyond the Roadmap Multifunctional Integrated Circuits, <i>Debarghya Sarkar</i> , <i>R Kapadia</i> , University of Southern California
9:00am	EL+AS+EM-MoM-3 Spectroscopic Ellipsometry and Finite Element Modeling based Optical Characterization of Highly Coherent Au-Si Slanted Columnar Periodic Nanostructures, <i>Ufuk Kilic</i> , University of Nebraska-Lincoln; <i>A Mock</i> , Linköping University, Sweden; <i>R Feder</i> , Fraunhofer IMWS, Germany; <i>D Sekora</i> , <i>M Hilfiker</i> , <i>R Korlacki</i> , <i>E Schubert</i> , <i>C Argyropoulos</i> , <i>M Schubert</i> , University of Nebraska-Lincoln	INVITED: EM+MP+PS-MoM-3 Going Beyond Traditional CMOS, <i>Inge Asselberghs</i> , <i>I Radu</i> , IMEC, Belgium
9:20am	EL+AS+EM-MoM-4 Temperature Dependent Dielectric Function and Critical Point Comparison of bulk Ge and α -Sn on InSb, <i>Rigo Carrasco</i> , <i>C Emminger</i> , <i>N Samarasingha</i> , <i>F Abadizaman</i> , <i>S Zollner</i> , New Mexico State University	Invited talk continues.
9:40am	EL+AS+EM-MoM-5 Elastomer Thin Films and Conducting Nanostructures for Soft Electronics and Dielectric Elastomer Transducers, <i>Bert Müller</i> , <i>B Osmani</i> , <i>T Töpfer</i> , University of Basel, Switzerland	EM+MP+PS-MoM-5 Suppression of Electronic Defects at HfO ₂ -SiGe Interface with Selective Surface Oxidation Using Ozone, <i>Mahmut Sami Kavrik</i> , University of California at San Diego; <i>V Hou</i> , TSMC, Taiwan, Republic of China; <i>E Thomson</i> , University of California at San Diego; <i>K Tang</i> , Stanford University; <i>Y Taur</i> , University of California at San Diego; <i>P McIntyre</i> , Stanford University; <i>A Kummel</i> , University of California at San Diego
10:00am	EL+AS+EM-MoM-6 Spectroscopic Ellipsometry Investigation of Temperature Effects in Heated Self-organized 2D Arrays of Au Nanoparticles, <i>Michele Magnozzi</i> , <i>M Ferrera</i> , <i>M Canepa</i> , Università di Genova, Italy; <i>F Bisio</i> , CNR-SPIN, Italy	EM+MP+PS-MoM-6 Surface Free Energy and Interfacial Strain in HfO ₂ and H ₂ O Ferroelectric Formation, <i>Andrew Kummel</i> , <i>E Chagarov</i> , <i>M Kavrik</i> , University of California at San Diego; <i>M Katz</i> , <i>N Sanford</i> , <i>A Davydov</i> , National Institute of Standards and Technology (NIST); <i>M Lee</i> , National Taiwan University
10:20am	BREAK	BREAK
10:40am	EL+AS+EM-MoM-8 Spectroscopic Ellipsometry of 2D WSe ₂ Films, <i>Baokun Song</i> , <i>H Gu</i> , <i>M Fang</i> , Huazhong University of Science & Technology, China; <i>Y Hong</i> , <i>W Ren</i> , Shenyang National Laboratory for Materials Science Institute of Metal Research Chinese Academy of Sciences, China; <i>X Chen</i> , <i>S Liu</i> , Huazhong University of Science & Technology, China	INVITED: EM+MP+PS-MoM-8 The Role of Selective Processes in the Atomic Scale Era, <i>Robert Clark</i> , <i>J Smith</i> , <i>K Yu</i> , <i>K Tapily</i> , <i>G Pattanaik</i> , <i>S Consiglio</i> , <i>T Hakamata</i> , <i>C Wajda</i> , <i>A Raley</i> , <i>G Leusink</i> , TEL Technology Center, America, LLC
11:00am	EL+AS+EM-MoM-9 Thermal Evolution Process of MaPbI ₃ Film Based on Spectroscopic Ellipsometry, <i>X Wang</i> , University of Science and Technology of China, China; <i>X Shan</i> , <i>H Siddique</i> , <i>Rucheng Dai</i> , <i>Z Wang</i> , University of Science and Technology of China; <i>Z Ding</i> , <i>Z Zhang</i> , University of Science and Technology of China, China	Invited talk continues.
11:20am	EL+AS+EM-MoM-10 a-Si as a Protective Layer to Block the Oxidization of Al mirrors, <i>Yhoshua Wug</i> , University of California at Los Angeles; <i>D Allred</i> , <i>S Turley</i> , Brigham Young University	EM+MP+PS-MoM-10 Selective Patterning of Silicon/Germanium Surfaces and Nanostructures via Surface Initiated Polymerization, <i>Amar Mohabir</i> , <i>T Weiss</i> , <i>G Tutuncuoglu</i> , <i>E Vogel</i> , <i>M Filler</i> , Georgia Institute of Technology
11:40am	EL+AS+EM-MoM-11 Terahertz to Mid-infrared Dielectric Response of Poly-methacrylates for Stereolithographic Single Layer Assembly, <i>D Fullager</i> , <i>Serang Park</i> , <i>Y Li</i> , <i>J Reese</i> , University of North Carolina at Charlotte; <i>E Sharma</i> , <i>S Lee</i> , Harris Corporation; <i>S Schöche</i> , <i>C Herzinger</i> , J.A. Woollam Co. Inc; <i>G Boreman</i> , <i>T Hofmann</i> , University of North Carolina at Charlotte	EM+MP+PS-MoM-11 Chemically Selective Imaging of Sequential Infiltration Synthesis with nm-scale Spatial Resolution, <i>D Nowak</i> , <i>Tom Albrecht</i> , Molecular Vista

Monday Morning, October 22, 2018

<p>Industrial Physics Forum Room 101B - Session IPF+AS+BI+NS-MoM Biofabrication: From Tissue to Organ Moderators: Jason Bardi, American Institute of Physics, Jim Hollenhorst, Agilent Technologies</p>		<p>In-situ Microscopy, Spectroscopy, and Microfluidics Focus Topic Room 202B - Session MM+AS+NS+PC-MoM Mechanical, Electrical, Thermal and Optical Systems for In situ TEM (9:00-10:100 am)/Beam Induced Effects and Processing in Liquid/Gas Cells for TEM/SEM (10:40-11:40 am) Moderators: Suneel Kodambaka, University of California Los Angeles, Olga Ovchinnikova, Oak Ridge National Laboratory</p>	
8:20am	<p>INVITED: IPF+AS+BI+NS-MoM-1 Strategic Thinking on the Architecture and Design of Scaffolds for Regenerative Medicine, <i>Buddy D. Ratner</i>, University of Washington, Seattle</p>		
8:40am	Invited talk continues.		
9:00am	<p>INVITED: IPF+AS+BI+NS-MoM-3 Sequential Bottom-up Assembly of Synthetic Cells, <i>Joachim Spatz</i>, Max Planck Institute for Medical Research, Germany</p>	<p>INVITED: MM+AS+NS+PC-MoM-3 Cantilever Substrates for Quantitative Growth Experiments in the Environmental Transmission Electron Microscope, <i>Frances Ross</i>, IBM T. J. Watson Research Center, MIT</p>	
9:20am	Invited talk continues.	Invited talk continues.	
9:40am	<p>INVITED: IPF+AS+BI+NS-MoM-5 Activation of Inkjet Printed Cells Enhances Microvasculature Formation in Host Tissues, <i>Thomas Boland, B Oropeza, L Solis</i>, University of Texas at El Paso; <i>M Yanez</i>, University of South Carolina</p>	<p>MM+AS+NS+PC-MoM-5 In Situ Laser Heating and Excitation in the Transmission Electron Microscope: Recrystallization, Grain Growth, Phase Separation and Dewetting in $Ag_{0.5}Ni_{0.5}$ Thin Films, <i>Philip D. Rack</i>, University of Tennessee Knoxville; <i>Y Wu</i>, University of Notre Dame; <i>C Liu</i>, University of Tennessee Knoxville; <i>T Moore, G Magel</i>, Waviks Inc.; <i>D Garfinkel</i>, University of Tennessee Knoxville; <i>J Camden</i>, University of Notre Dame; <i>M Stanford, G Duscher</i>, University of Tennessee Knoxville</p>	
10:00am	Invited talk continues.	<p>MM+AS+NS+PC-MoM-6 In situ Transmission Electron Microscopy Study of the Mechanical and Electrical Properties of Single III-V Semiconductor Nanowires, <i>Lunjie Zeng</i>, Chalmers University of Technology, Gothenburg, Sweden; <i>C Gammer</i>, Austrian Academy of Sciences, Austria; <i>B Ozdol</i>, Lawrence Berkeley National Laboratory; <i>T Nordqvist, P Krogstrup</i>, University of Copenhagen, Denmark; <i>A Minor</i>, Lawrence Berkeley National Laboratory; <i>W Jäger, E Olsson</i>, Chalmers University of Technology, Gothenburg, Sweden</p>	
10:20am	BREAK	BREAK	
10:40am	<p>INVITED: IPF+AS+BI+NS-MoM-8 Challenges in Organ-specific Vascular Engineering and Tissue Assembly, <i>Ying Zheng</i>, University of Washington</p>	<p>INVITED: MM+AS+NS+PC-MoM-8 Radiolytic Synthesis of Nanostructured Materials using <i>In situ</i> Liquid Cell Microscopy, <i>Raymond Unocic, X Sang, A Belianinov, O Ovchinnikova, K More, S Jesse</i>, Oak Ridge National Laboratory</p>	
11:00am	Invited talk continues.	Invited talk continues.	
11:20am	<p>INVITED: IPF+AS+BI+NS-MoM-10 Bioprinting for Translational Applications: <i>The Quest for Whole Organ Fabrication</i>, <i>James J. Yoo</i>, Wake Forest School of Medicine</p>	<p>MM+AS+NS+PC-MoM-10 Electron Beam Induced Cross-Linking in Liquid Hydrogels, <i>Tanya Gupta, A Kolmakov</i>, National Institute of Standards and Technology (NIST)</p>	
11:40am	Invited talk continues.	<p>MM+AS+NS+PC-MoM-11 Nanoscale Chemical Reactor Based on Localized Surface Plasmon Energy in Environmental Transmission Electron Microscope, <i>Canhui Wang¹</i>, <i>W Yang</i>, UMD/NIST; <i>R Sharma</i>, National Institute of Standards and Technology</p>	

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Materials and Processes for Quantum Computing Focus Topic Room 203A - Session MP+EM+MN+NS-MoM Systems and Devices for Quantum Computing I Moderator: Vivekananda Adiga, IBM, T.J. Watson Research Center		Nanometer-scale Science and Technology Division Room 102B - Session NS+2D+AN+EM+MN+MP+PC+RM-MoM IoT Session: Nanostructured Devices and Sensors Moderators: David Czaplewski, Argonne National Laboratory, Liya Yu, NIST Center for Nanoscale Science and Technology	
8:20am		INVITED: NS+2D+AN+EM+MN+MP+PC+RM-MoM-1 Integrating Nanodiamonds with Augmented Artificial Intelligence and Digital Health to Optimize Combination Therapy, <i>Dean Ho</i> , UCLA	
8:40am		Invited talk continues.	
9:00am	INVITED: MP+EM+MN+NS-MoM-3 Quantum Supremacy: Checking a Quantum Computer with a Classical Supercomputer, <i>John Martinis</i> , Google Inc	NS+2D+AN+EM+MN+MP+PC+RM-MoM-3 Morphology-Controlled Large-Scale Tin Oxide Nanostructures for Highly Sensitive Room Temperature Gas Sensor, <i>Amrit Sharma</i> , Norfolk State University	
9:20am	Invited talk continues.	NS+2D+AN+EM+MN+MP+PC+RM-MoM-4 Improving the Localized Surface Plasmonic Resonance Sensing Properties by Composite Metal/Dielectric Mixtures, <i>Steven Larson¹</i> , <i>Y Zhao</i> , University of Georgia	
9:40am	MP+EM+MN+NS-MoM-5 Active Protection of a Superconducting Qubit against Josephson Amplifier Backaction, <i>Baleegh Abdo</i> , <i>N Bronn</i> , <i>O Jinka</i> , <i>S Olivadese</i> , <i>A Corcoles</i> , <i>M Brink</i> , IBM T. J. Watson Research Center; <i>R Lake</i> , <i>D Pappas</i> , National Institute of Standards and Technology; <i>J Chow</i> , IBM T. J. Watson Research Center	NS+2D+AN+EM+MN+MP+PC+RM-MoM-5 Improving the Selectivity of Tin (IV) Oxide Paper Based Gas Sensors with Plasma Surface Modification, <i>Kimberly Hiyoto</i> , <i>E Fisher</i> , Colorado State University	
10:00am	MP+EM+MN+NS-MoM-6 Nonlinear Light-matter Interaction: From Superconducting Qubits to Spins in Diamond, <i>Eyal Buks</i> , Israel Institute of Technology, Israel	NS+2D+AN+EM+MN+MP+PC+RM-MoM-6 TiN@Si ₃ N ₄ Core-shell Heterostructures as Nanoantennas for Photocatalytic Reforming of Methanol, <i>Alejandro Alvarez Barragan</i> , <i>L Mangolini</i> , University of California, Riverside	
10:20am	BREAK	BREAK	
10:40am	MP+EM+MN+NS-MoM-8 Variations in Surface Dipole-Moment Density with Coverage for C/Au(110) – (2 × 1) and Electroplated Au Ion-trap Electrodes, <i>Dustin Hite</i> , <i>K McKay</i> , National Institute of Standards and Technology (NIST); <i>H Jooya</i> , ITAMP, Harvard-Smithsonian Center for Astrophysics; <i>E Kim</i> , University of Nevada, Las Vegas; <i>P Weck</i> , Sandia National Laboratories; <i>H Sadeghpour</i> , ITAMP, Harvard-Smithsonian Center for Astrophysics; <i>D Pappas</i> , National Institute of Standards and Technology (NIST)	INVITED: NS+2D+AN+EM+MN+MP+PC+RM-MoM-8 Nanostructured Sensor and Device Applications of Infiltrated Zinc Oxide, <i>Leonidas Ocola</i> , Argonne National Laboratory; <i>Y Wang</i> , <i>J Chen</i> , University of Wisconsin-Milwaukee; <i>P Blaisdell-Pijuan</i> , California State University-Fullerton; <i>R Divan</i> , Argonne National Laboratory	
11:00am	MP+EM+MN+NS-MoM-9 A Compact Cryogenic Setup for Quantum Computing with Trapped Atomic Ions, <i>Ismail Inlek</i> , <i>R Spivey</i> , <i>G Vrijsen</i> , <i>Z Jia</i> , <i>J Kim</i> , Duke University	Invited talk continues.	
11:20am	INVITED: MP+EM+MN+NS-MoM-10 Advances in Trapped Ion Quantum Computing, <i>Jungsang Kim</i> , Duke University	NS+2D+AN+EM+MN+MP+PC+RM-MoM-10 Templates for the Investigation of Size-Selected Nanocluster Networks, <i>Patrick Edwards</i> , <i>V Kresin</i> , University of Southern California	
11:40am	Invited talk continues.	NS+2D+AN+EM+MN+MP+PC+RM-MoM-11 High Performance Detection for X-ray and g -ray with MAPbX ₃ Perovskite Single Crystals, <i>X Wang</i> , <i>Z Zhu</i> , <i>Q Li</i> , <i>J Wu</i> , <i>X Zhang</i> , <i>B Wang</i> , <i>Wei Lei</i> , Southeast University	

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	Plasma Science and Technology Division Room 104A - Session PS+AS+EM+SS-MoM Plasma-Surface Interactions Moderators: Yohei Ishii, Hitachi High Technologies America Inc., Erik V. Johnson, LPICM, Ecole Polytechnique, France	Plasma Science and Technology Division Room 104C - Session PS+TF-MoM Plasma Deposition and Plasma-Enhanced ALD Moderators: Kazunori Koga, Kyushu University, Japan, Erwine Pargon, CNRS-LTM, Université Grenoble Alpes, France
8:20am	PS+AS+EM+SS-MoM-1 Atomic-scale Numerical Simulation of a Nanometer-Scale Hole Etching of SiO ₂ with a Carbon Mask, Charisse Marie Cagomoc , <i>M Isobe, S Hamaguchi</i> , Osaka University, Japan	PS+TF-MoM-1 ZrO ₂ Deposition using a 2.45 GHz Atmospheric Pressure Plasma Torch, Dhruval Patel , <i>L Bonova, C Ahn, D Krogstad, D Ruzic</i> , University of Illinois at Urbana-Champaign; <i>S Chaudhuri</i> , University of Illinois at Chicago
8:40am	PS+AS+EM+SS-MoM-2 SF ₆ /O ₂ Plasma Nanotexturing of Silicon: Decoupling How Ion Flux and Ion Energy Matter, Guillaume Fischer ¹ , Institut Photovoltaïque d'Ile-de-France (IPVF), France; <i>E DRAHI, S FILONOVICH</i> , Total SA Renewables, France; <i>E Johnson</i> , LPICM, CNRS, Ecole polytechnique, Université Paris-Saclay, France	PS+TF-MoM-2 Ion Energy Characteristics during Plasma-Enhanced Atomic Layer Deposition and their Role in Tailoring Material Properties, Tahsin Faraz ² , Eindhoven University of Technology, The Netherlands, Netherlands; <i>K Arts</i> , Eindhoven University of Technology, The Netherlands; <i>S Karwal, M Creatore</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>H Knoops</i> , Oxford Instruments, The Netherlands; <i>E Kessels</i> , Eindhoven University of Technology, The Netherlands, Netherlands
9:00am	PS+AS+EM+SS-MoM-3 Corrosion Resistance to F and Cl plasma of Yttrium Oxyfluoride (YOF) formed by Sintering, Akinobu Teramoto , <i>Y Shiba, T Goto</i> , Tohoku University, Japan; <i>Y Kishi</i> , Nippon Yttrium Co., Ltd, Japan; <i>S Sugawa</i> , Tohoku University, Japan	INVITED: PS+TF-MoM-3 Plasma Deposition of Functional, Nanostructured Coatings on Materials and Nanomaterials Derived from the Wood Biomass, Luc Stafford , Université de Montréal, Canada
9:20am	PS+AS+EM+SS-MoM-4 Decay of Hydrogen in NF ₃ /Ar and O ₂ /Ar Cleaning Process by Optical Emission Spectroscopy, Hanyang Li , <i>Y Zhou, V Donnelly</i> , University of Houston; <i>J Chiu, X Chen</i> , MKS	Invited talk continues.
9:40am	INVITED: PS+AS+EM+SS-MoM-5 Plasma-surface Interactions in the Strongly Coupled Regime, Thomas Morgan , DIFFER, Netherlands	PS+TF-MoM-5 Mechanisms of Halogenated Silane Decomposition on an N-rich Surface during Atomic Layer Deposition of Silicon Nitride, Gregory Hartmann , University of Texas at Austin; <i>P Ventzek</i> , Tokyo Electron America, Inc.; <i>K Ishibashi, T Iwao</i> , Tokyo Electron Technology Solutions Ltd., Japan; <i>G Hwang</i> , University of Texas at Austin
10:00am	Invited talk continues.	PS+TF-MoM-6 Characterization of Inductively Coupled Plasma Source for Plasma Enhanced Atomic Layer Deposition, Premkumar Panneerchelvam , <i>A Agarwal</i> , KLA-Tencor; <i>D Boris, S Walton</i> , Naval Research Laboratory
10:20am	BREAK	BREAK
10:40am	PS+AS+EM+SS-MoM-8 Tailoring the Surface Properties of Porous Zeolite Constructs using Plasma Processing, Angela Hanna ² , <i>E Fisher</i> , Colorado State University	PS+TF-MoM-8 Structural, Optical, and Electrical Properties of Plasma-Enhanced Atomic Layer Deposited ZnO: Influence of Substrate Temperature, Julian Pilz , <i>A Perrotta, A Coclite</i> , Graz University of Technology, Austria
11:00am	PS+AS+EM+SS-MoM-9 Generation Kinetics of Plasma-induced Electronic Defects in Semiconductor Materials, Shota Nunomura , <i>I Sakata, K Matsubara</i> , National Institute of Advanced Industrial Science and Technology (AIST), Japan	PS+TF-MoM-9 Critical Effect of the Presence and Position of Double Bonds in the Atmospheric Plasma Synthesis of Organic Coatings, Jérémy Mertens ¹ , <i>J Baneton, A Ozkan, F Reniers</i> , Université Libre de Bruxelles, Belgium
11:20am	PS+AS+EM+SS-MoM-10 Evolution of Photoresist Layer Structure and Surface Morphology under Fluorocarbon-Based Plasma Exposure, Adam Pranda , <i>S Gutierrez Razo, J Fourkas, G Oehrlein</i> , University of Maryland, College Park	PS+TF-MoM-10 Capacitively Coupled DC/RF Discharges for PEALD Process of Titanium Dioxide Films, Shinya Iwashita , <i>A Suzuki, T Shindo, T Kikuchi, T Matsudo, Y Morita, T Moriya</i> , Tokyo Electron Technology Solutions Ltd., Japan; <i>A Uedono</i> , University of Tsukuba, Japan
11:40am	PS+AS+EM+SS-MoM-11 Fundamental Studies of Plasma Species with Organic Materials of Varying Hydrogen and Oxygen Composition by Computational and Experimental Approaches, Yusuke Fukunaga , Nagoya University, Japan; <i>P Ventzek, B Lane</i> , Tokyo Electron America, Inc.; <i>A Ranjan</i> , TEL Technology Center America, LLC; <i>M Sekine, T Tsutsumi, H Kondo, K Ishikawa</i> , Plasma Nanotechnology Research Center, Japan; <i>R Upadhyay</i> , Esgee Technologies; <i>L L. Raja</i> , The University of Texas at Austin; <i>G Hartmann</i> , McKetta Department of Chemical Engineering, The University of Texas at Austin; <i>G S. Hwang</i> , The University of Texas at Austin; <i>M Hori</i> , Institute of innovation for future society, Japan	PS+TF-MoM-11 The effects of Varying Plasma Conditions on Plasma Enhanced Atomic Layer Epitaxy, <i>D Boris, V Wheeler</i> , U.S. Naval Research Laboratory; <i>V Anderson</i> , Kennesaw State University; <i>N Nepal</i> , U.S. Naval Research Laboratory; <i>S Rosenberg, A Kozen</i> , ASEE Postdoctoral Fellow; <i>S Walton, Charles Eddy</i> , U.S. Naval Research Laboratory

¹ Coburn & Winters Student Award Finalist

² National Student Award Finalist

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Advanced Surface Engineering Division Room 202C - Session SE+NS+TF-MoM Nanostructured Thin Films and Coatings Moderators: Jianliang Lin, Southwest Research Institute, Matjaz Panjan, Jozef Stefan Institute, Slovenia		Surface Science Division Room 203C - Session SS+HC+MI-MoM Dynamical Processes at Surfaces Moderator: Gareth Parkinson, TU Wien	
8:20am	SE+NS+TF-MoM-1 The Role of Mechanical and Chemical Bonding Mechanisms in Adhesion of Nanoporous Anodic Aluminium Oxides (AAO), <i>Shoshan Abrahami</i> , Vrije Universiteit Brussel (VUB), Belgium; <i>V Gudla</i> , Technical University of Denmark; <i>K Marcoen</i> , Vrije Universiteit Brussel, Belgium; <i>J de Kok</i> , Fokker Aerostructures; <i>T Hauffman</i> , Vrije Universiteit Brussel, Belgium; <i>R Ambat</i> , Technical University of Denmark; <i>A Mol</i> , Technical University Delft, Netherlands; <i>H Terryn</i> , Vrije Universiteit Brussel, Belgium	INVITED: SS+HC+MI-MoM-1 Light Induced Single-Molecule Dynamics at Surfaces, <i>Wilson Ho</i> , University of California, Irvine	
8:40am	SE+NS+TF-MoM-2 Tuning Surface States of Nanocrystalline ZnO Films by Atomic Layer Deposited TiO _x , <i>C Yi</i> , <i>Ich Tran</i> , <i>M Law</i> , University of California, Irvine	Invited talk continues.	
9:00am	SE+NS+TF-MoM-3 Two-dimensional Hexagonal Boron Nitride (hBN) Layer Promoted Growth of Highly-oriented, Trigonal-structured Ta ₂ C(0001) Thin Films via Ultra-high Vacuum Sputter-deposition on Al ₂ O ₃ (0001), <i>Koichi Tanaka</i> , <i>P Arias</i> , <i>M Liao</i> , <i>Y Wang</i> , <i>H Zaid</i> , <i>A Aleman</i> , <i>M Goorsky</i> , <i>S Kodambaka</i> , University of California, Los Angeles	SS+HC+MI-MoM-3 Probing the Effects of Surface Structure on the Dissociative Chemisorption of Methane, <i>Eric High¹</i> , <i>D Tinney</i> , <i>A Utz</i> , Tufts University	
9:20am	SE+NS+TF-MoM-4 Nitride High Entropy Alloy Thin Films Deposited by Magnetron Sputtering and Cathodic Arc on Polymer Substrates: Structure and Electro-Mechanical Properties, <i>Ao Xia</i> , Montanuniversität Leoben, Austria; <i>R Dedoncker</i> , Ghent University, Belgium; <i>M Cordill</i> , Erich Schmid Institute of Materials Science, Austria; <i>D Depla</i> , Ghent University, Belgium; <i>R Franz</i> , Montanuniversität Leoben, Austria	SS+HC+MI-MoM-4 Adsorption and Diffusion of NH ₃ on Anatase-TiO ₂ (101), <i>Kræn Christoffer Adamsen</i> , <i>S Koust</i> , <i>E Kolsbjerg</i> , <i>B Hammer</i> , <i>S Wendt</i> , <i>J Lauritsen</i> , Aarhus University, Denmark	
9:40am	SE+NS+TF-MoM-5 Isomeric Phase Composition and Mechanical Properties of NbN Nanocomposite Coatings Deposited by Modulated Pulsed Power Magnetron Sputtering. <i>Y.G. Li</i> , <i>H Yuan</i> , <i>Z Jiang</i> , <i>N Pan</i> , <i>M Lei</i> , Dalian University of Technology, China	SS+HC+MI-MoM-5 Non-equilibrium Growth of Metastable Clusters as a Means of Controlling Supramolecular Structure., <i>Ryan Brown</i> , Clarkson University; <i>A Kandel</i> , University of Notre Dame	
10:00am	SE+NS+TF-MoM-6 Ab initio Guided Development of Ternary Borides: A Case Study of Ti-B-N, Ti-Zr-B, Ti-W-B, Ta-W-B, and V-W-B Systems, <i>V Moraes</i> , <i>R Hahn</i> , <i>M Bartosik</i> , <i>H Riedl</i> , TU Wien, Austria; <i>H Euchner</i> , Ulm University, Austria; <i>D Holec</i> , Montanuniversität Leoben, Austria; <i>Paul Heinz Mayrhofer</i> , TU Wien, Austria	SS+HC+MI-MoM-6 Ultrafast Dynamics of Reaction Pathways on Metal Surfaces, <i>Jerry LaRue</i> , Chapman University	
10:20am	BREAK	BREAK	
10:40am	INVITED: SE+NS+TF-MoM-8 Toughness Enhancement in Hard Ceramic Films by Alloy Design, <i>Hanna Kindlund</i> , Department of Mechanical and Aerospace Engineering, University of California Los Angeles (UCLA)	INVITED: SS+HC+MI-MoM-8 Designer Solids via Multi-Heteroepitaxy: Layer-by-Layer Deposition of Molecular Frameworks on Solid Substrates, <i>Christof Wöll</i> , Karlsruhe Institute of Technology, Germany	
11:00am	Invited talk continues.	Invited talk continues.	
11:20am	SE+NS+TF-MoM-10 From Ab-Initio Design to Synthesis of Multifunctional Coatings with Enhanced Hardness and Toughness, <i>D Edström</i> , <i>D Sangiovanni</i> , <i>L Hultman</i> , Linköping University, Sweden; <i>I Petrov</i> , <i>J Greene</i> , University of Illinois at Urbana Champaign; <i>Valeriu Chirita</i> , Linköping University, Sweden	SS+HC+MI-MoM-10 Isotope Enrichment via Non-Equilibrium Differential Condensation and Reflection using Supersonic Beam Gas-Surface Scattering, <i>Jacob Graham</i> , <i>A McMillan</i> , <i>K Nihill</i> , <i>S Sibener</i> , University of Chicago	
11:40am	SE+NS+TF-MoM-11 Mechanical Properties of V _{0.5} Mo _{0.5} N _{1-x} O _x Thin Films, <i>Daniel Edström</i> , <i>D Sangiovanni</i> , Linköping University, Sweden; <i>L Landälv</i> , Linköping University, Sandvik Coromant AB, Sweden; <i>L Hultman</i> , Linköping University, Sweden; <i>I Petrov</i> , <i>J Greene</i> , University of Illinois at Urbana Champaign, Linköping University, Sweden; <i>P Eklund</i> , <i>V Chirita</i> , Linköping University, Sweden	SS+HC+MI-MoM-11 Structural Reorganization of Sequentially Adsorbed Two-component Self-assembled Monolayers after Soft Ultraviolet Irradiation, <i>C Gerber</i> , <i>Rebecca Quardokus</i> , University of Connecticut	

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Thin Films Division Room 102A - Session TF1-MoM Precursors and Surface Reactions Moderators: Cathleen Crudden, Queen's University, Canada, Markku Leskela, University of Helsinki, Finland		Thin Films Division Room 104B - Session TF2-MoM IoT Session: Thin Film Processes for Energy Storage Moderators: Virginia Wheeler, U.S. Naval Research Laboratory, Paul Poodt, Holst Centre / TNO	
8:20am	TF1-MoM-1 Monitoring the Transient Surface Species during TiO ₂ Atomic Layer Deposition using Surface-Enhanced Raman Spectroscopy, Ryan Hackler¹ , G Kang, G Schatz, P Stair, R Van Duyn, Northwestern University	INVITED: TF2-MoM-1 Thin Films for Next Generation Batteries, Brecht Put , Imec, Belgium; S Hollevoet , N Labyedh , KULeuven & Imec, Belgium; M Debuquoy , Imec, Belgium; E Kessels , M Creatore , Eindhoven University of Technology, The Netherlands, Netherlands; P Vereecken , KULeuven & Imec, Belgium	
8:40am	TF1-MoM-2 Theoretical Study on the Effect of Precursor Ligand in Atomic Layer Deposition of Al ₂ O ₃ on SiO ₂ , Tania Sandoval , Universidad Técnica Federico Santa María; T Liu , Stanford University; R Tonner , Philipps-Universität Marburg; S Bent , Stanford University	Invited talk continues.	
9:00am	TF1-MoM-3 Relevance of Dimeric and Tetrameric Structures to the Surface Chemistry of Metal Amidinate Atomic Layer Deposition Precursors, Bo Chen , Y Yao , Q Ma , F Zaera , University of California, Riverside; Y Duan , A Teplyakov , University of Delaware; J Coyle , S Barry , Carleton University	TF2-MoM-3 Radical Enhanced Atomic Layer Deposition of Cobalt Oxide Based Electrodes for 3D Lithium-ion Battery Applications, Ryan Sheil , J Lau , B Dunn , J Chang , University of California at Los Angeles	
9:20am	TF1-MoM-4 Low Temperature Dielectric ALD with the use of Hydrogen Peroxide: Comparison of Growth and Film Characteristics for Anhydrous H ₂ O ₂ , H ₂ O ₂ /H ₂ O Mixtures and H ₂ O, Daniel Alvarez , K Andachi , J Spiegelman , RASIRC	TF2-MoM-4 Fast-charging 3D Battery Electrodes with High-Capacity Materials Using Large Area Atmospheric Pressure Spatial ALD, Lucas Haverkate , S Unnikrishnan , D Hermes , Holst Centre / TNO, The Netherlands; F Roozeboom , Eindhoven University of Technology, The Netherlands, Netherlands; F Zorro , F Grob , E Balder , Holst Centre / TNO, The Netherlands; P Poodt , Holst Centre / TNO and SALDtech B.V., Netherlands; M Tulodziecki , Holst Centre / TNO, The Netherlands	
9:40am	INVITED: TF1-MoM-5 Putting More Chemistry into CVD. Precursors, Superconformality, and Selectivity, Gregory Girolami , J Abelson , University of Illinois at Urbana-Champaign	INVITED: TF2-MoM-5 Thin Film Technology - Opening New Frontiers for Solid State Batteries, Gary Rubloff , K Gregorczyk , University of Maryland, College Park; A Pearse , Control Electron; S Lee , University of Maryland, College Park; A Talin , Sandia National Laboratories, Livermore	
10:00am	Invited talk continues.	Invited talk continues.	
10:20am	BREAK	BREAK	
10:40am	TF1-MoM-8 Insight into the "Residual Methyls" during ALD of Al ₂ O ₃ from TMA/H ₂ O using <i>in situ</i> RAIRS, Brent Sperling , B Kalanyan , J Maslar , National Institute of Standards and Technology (NIST)	INVITED: TF2-MoM-8 Atomic Layer Deposition: A Scalable Process for Enabling the Next Generation of High Performance Materials, Arrelaine Dameron , Forge Nano	
11:00am	TF1-MoM-9 Low Temperature Atomic Layer Deposition of Silicon Nitride using Hexachlorodisilane and Ultra-High Purity Hydrazine, Aswin Kondusamy , A Lucero , S Hwang , X Meng , H Kim , University of Texas at Dallas; D Alvarez Jr. , J Spiegelman , RASIRC; J Kim , University of Texas at Dallas	Invited talk continues.	
11:20am	TF1-MoM-10 Investigating Low-Temperature Atomic Layer Deposition of Nickel Oxide using Ni(¹⁸ O ₂ DAD) ₂ and Ozone, Konner Holden , J Conley, Jr. , Oregon State University; C Dezelah , EMD Performance Materials	TF2-MoM-10 A Facile CVD Route for the Large-scale Fabrication of Silicon-graphite Core-shell Composites, Giorgio Nava , J Schwan , L Mangolini , University of California, Riverside	

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Tribology Focus Topic Room 201A - Session TR+AS+NS+SS-MoM Tribology Focus Session Moderator: Filippo Mangolini, University of Leeds, UK		Vacuum Technology Division Room 203B - Session VT-MoM Vacuum Measurement Moderators: Marcy Stutzman, Jefferson Lab, Alan Van Drie, TAE Technologies	
8:20am	INVITED: TR+AS+NS+SS-MoM-1 Structural Superlubricity: History, Breakthroughs, and Challenges, <i>Mehmet Z. Baykara</i> , University of California, Merced	INVITED: VT-MoM-1 Pharmaceutical Freeze-Drying and Vacuum-Drying: Challenges and Opportunities, <i>Evgenyi Shalaev</i> , Allergan	
8:40am	Invited talk continues.	Invited talk continues.	
9:00am	INVITED: TR+AS+NS+SS-MoM-3 An Examination of the Nature of Bonding during Indentation and Sliding using MD and in-situ Nanoindentation, <i>Judith Harrison</i> , United States Naval Academy	VT-MoM-3 Fixed Length Optical Cavities for Primary Traceability to the Pascal, <i>Jay Hendricks, J Ricker, K Douglass</i> , National Institute of Standards and Technology; <i>G Brucker, E Fuchs, D Ocepek, P Sullivan, S Venkatesan</i> , MKS Instruments, Inc., Pressure and Vacuum Measurement Group	
9:20am	Invited talk continues.	VT-MoM-4 Fundamental Quantum-based Vacuum Metrology at NIST, <i>Julia Scherschligt</i> , National Institute of Standards and Technology	
9:40am	INVITED: TR+AS+NS+SS-MoM-5 The Chemistry of Friction, Wear, and Tribofilm Growth on 2D Materials, <i>Jonathan Felts</i> , Texas A&M University	VT-MoM-5 Moving the FLOC to the Telecom, <i>Kevin Douglass, J Ricker</i> , National Institute of Standards and Technology; <i>J Hendricks</i> , National Institute of Standards and Technology (NIST)	
10:00am	Invited talk continues.	VT-MoM-6 Transient Method of Permeability Measurements for Microporous Media, <i>M Johansson</i> , Aix Marseille University, France; <i>M Wuest</i> , INFICON, Liechtenstein; <i>P Perrier, Irina Graur Martin</i> , Aix Marseille University, France	
10:20am	BREAK	BREAK	
10:40am	INVITED: TR+AS+NS+SS-MoM-8 Nanomechanics of Soft, Hierarchical Polymer- and Biological-Networks, <i>Prathima Nalam</i> , University at Buffalo - SUNY	INVITED: VT-MoM-8 Beamline Technology and Current Modeling Capabilities for Ion Implantation, <i>Svetlana Radovanov</i> , Applied Materials, Varian Semiconductor Equipment	
11:00am	Invited talk continues.	Invited talk continues.	
11:20am	INVITED: TR+AS+NS+SS-MoM-10 Mechanisms for Controlling Friction and New Approaches for Achieving Superlubricity Regime in 2D Materials, <i>Diana Berman</i> , University of North Texas; <i>A Erdemir, A Sumant</i> , Argonne National Laboratory	VT-MoM-10 Design of a New Thermal Vacuum Chamber for Space instrument Calibration, <i>Freek Molkenboer, R Jansen, R Veraar, G Otter, W van Werkhoven, N Koster, F Driessen</i> , TNO, Netherlands	
11:40am	Invited talk continues.	VT-MoM-11 Pressure Measurements from Combining Non-evaporable Getter Pumps and a Novel Extreme High Vacuum Cryopump, <i>Marcy Stutzman</i> , Thomas Jefferson National Accelerator Facility; <i>A Segovia Miranda</i> , Universidad Aut'onomo de Zacatecas; <i>P Adderley, M Poelker</i> , Thomas Jefferson National Accelerator Facility	

Monday Afternoon, October 22, 2018

	<p>2D Materials Focus Topic Room 201B - Session 2D+MI+NS-MoA 2D Materials Characterization including Microscopy and Spectroscopy Moderators: Stephan Hofmann, University of Cambridge, UK, Richard Vanfleet, Brigham Young University</p>	<p>Applied Surface Science Division Room 204 - Session AS-MoA Multitechnique Applications-When More techniques are Better than One Moderator: Karen Gaskell, University of Maryland, College Park</p>
1:20pm	<p>INVITED: 2D+MI+NS-MoA-1 Observing the Mechanisms of Graphene Growth during Chemical Vapor Deposition: Routes to Controlling Layer Number and Domain Size, Robert Weatherup, University of Manchester, UK</p>	<p>AS-MoA-1 Overcoming Obstacles in Surface and Interface Characterization of All Solid-State Lithium Battery Materials, Natalie Seitzman, Colorado School of Mines; <i>H Guthrey, D Sulas, S Johnston</i>, National Renewable Energy Laboratory; <i>J Nelson Weker</i>, SLAC National Accelerator Laboratory; <i>H Platt</i>, Solid Power, Inc.; <i>M Al-Jassim</i>, National Renewable Energy Laboratory; <i>S Pylypenko</i>, Colorado School of Mines</p>
1:40pm	<p>Invited talk continues.</p>	<p>AS-MoA-2 <i>In-situ</i> Complementary XPS and Raman Analysis of Technologically Important Materials, Paul Mack, Thermo Fisher Scientific, UK</p>
2:00pm	<p>2D+MI+NS-MoA-3 Band Alignment of 2-D Materials by Internal Photoemission, <i>Q Zhang, S Zhang</i>, Theiss Research & National Institute of Standards and Technology; <i>B Sperling, Nhan Nguyen</i>, National Institute of Standards and Technology</p>	<p>INVITED: AS-MoA-3 Integration of Laboratory Experiments. Spectroscopy, and Microscopy to Investigate the Reactivity of Metals in Mine Wastes, José Cerrato, University of New Mexico</p>
2:20pm	<p>2D+MI+NS-MoA-4 Visible to mid-IR Nanoscale Characterization of 2D Materials via Photo-induced Force Microscopy, Padraic O'Reilly, D Nowak, S Park, Molecular Vista</p>	<p>Invited talk continues.</p>
2:40pm	<p>INVITED: 2D+MI+NS-MoA-5 Polymorphic Structures and Diversified Properties of Low-dimensional Materials Investigated by In situ Electron Microscopy, Kazu Suenaga, National Institute of Advanced Industrial Science and Technology (AIST), Japan</p>	<p>AS-MoA-5 Degradation Methodology of Reinforced Concrete in South Asia analyzed using Surface Analysis and other Techniques, Nirmalya Karar, CSIR-National Physical Laboratory, India; <i>S Singh</i>, CSIR-CBRI Roorkee India, India</p>
3:00pm	<p>Invited talk continues.</p>	<p>AS-MoA-6 Surface Phase, Morphology, and Charge Distribution Transitions on Vacuum and Ambient Annealed Perovskites: A Case Study on SrTiO₃(100), Omur Dagdeviren¹, <i>G Simon, K Zou, C Ahn, F Walker, E Altman, U Schwarz</i>, Yale University</p>
3:20pm	<p>BREAK</p>	<p>BREAK</p>
3:40pm	<p>INVITED: 2D+MI+NS-MoA-8 Probing Interlayer Interaction in van der Waals Materials by Low-energy Electron Microscopy (LEEM), Johannes Jobst, D Geelen, Leiden University, Netherlands; <i>R Tromp</i>, IBM, T.J. Watson Research Center; <i>S van der Molen</i>, Huygens-Kamerlingh Onnes Laboratory, Netherlands</p>	<p>AS-MoA-8 In-situ Characterisation of Graphene using combined XPS and Raman Spectroscopy: Removal of Polymer Residue by Ar Gas Cluster Ion Beams, Barry Brennan, National Physical Laboratory, UK; <i>P Mack</i>, Thermo Fisher Scientific, UK; <i>A Centeno, A Zurutuza</i>, Graphenea, Spain; <i>A Pollard</i>, National Physical Laboratory, UK</p>
4:00pm	<p>Invited talk continues.</p>	<p>AS-MoA-9 Topography-corrected TOF-SIMS Chemical Imaging of Chip Interconnect Surfaces, Conor Thomas, B Singh, R Wang, IBM Systems Division</p>
4:20pm	<p>2D+MI+NS-MoA-10 Fast Full Wafer Analysis for Graphene and 2D-materials by Imaging Ellipsometry, Sebastian Funke, Accurion GmbH, Germany; <i>P Braueniger-Weimer, S Hofmann</i>, University of Cambridge, UK; <i>P Thiesen</i>, Accurion GmbH, Germany</p>	<p>AS-MoA-10 Combining the Benefits of GCIB-ToF-SIMS, MALDI-FTICR-MS and LC-MS/MS for Location specific Lipid Identification in Planarian Flatworm Tissue Sections, Tina Angerer, University of Washington; <i>D Velickovic, C Nicora, C Anderton</i>, Pacific Northwest National Laboratory; <i>D Graham, L Gamble</i>, University of Washington</p>

Monday Afternoon, October 22, 2018

	Biomaterial Interfaces Division Room 101B - Session BI+AS+IPF+MN-MoA Advanced Imaging and Structure Determination of Biomaterials Research Moderators: Dan Graham, University of Washington, Axel Rosenhahn, Ruhr-University Bochum	Spectroscopic Ellipsometry Focus Topic Room 202A - Session EL+EM-MoA Spectroscopic Ellipsometry: Novel Applications and Theoretical Approaches Moderators: Vanya DarakchievaStefan Zollner, New Mexico State University,
1:20pm	INVITED: BI+AS+IPF+MN-MoA-1 NMR Relaxometry as a Medical Diagnostic, <i>Michael J. Cima</i> , Massachusetts Institute of Technology	INVITED: EL+EM-MoA-1 The Physics of Low Symmetry Metal Oxides with Special Attention to Phonons, Plasmons and Excitons and their Potential for Uses in Power Electronics and Quantum Technologies, <i>Mathias Schubert</i> , University of Nebraska - Lincoln, Linköping University, Sweden, Leibniz Institute for Polymer Research, Dresden, Germany; <i>A Mock, R Korlacki, S Knight</i> , University of Nebraska - Lincoln; <i>V Darakchieva</i> , Linköping University, Sweden; <i>B Monemar</i> , Linköping University, Sweden, Tokyo University of Agriculture and Tech., Japan; <i>H Murakami, Y Kumagai</i> , Tokyo University of Agriculture and Technology, Japan; <i>K Goto</i> , Tokyo University of Agriculture and Technology, Tamura Corporation, Japan; <i>M Higashiwaki</i> , National Institute of Information and Communications Technology, Japan
1:40pm	Invited talk continues.	Invited talk continues.
2:00pm	BI+AS+IPF+MN-MoA-3 Direct Observation of Cell Signaling Proteins Interacting with a Model Cell Membrane by Sum Frequency Generation Vibrational Spectroscopy, <i>T Golbek</i> , Oregon State University; <i>T Weidner</i> , Aarhus University, Denmark; <i>C Johnson, Joe Baio</i> , Oregon State University	EL+EM-MoA-3 Mueller Matrix Spectroscopic Ellipsometry Based Scatterometry of Nanowire Gate-All-Around (GAA) Transistor Structures, <i>M Korde, Alain C. Diebold</i> , SUNY Polytechnic Institute
2:20pm	BI+AS+IPF+MN-MoA-4 Vibrational Sum-frequency Scattering Spectroscopy for the Characterization of Protein Fiber Structures and their Surface Interactions in Biological Environments, <i>Patrik K. Johansson, D Castner</i> , University of Washington	EL+EM-MoA-4 Anomaly in the Optical Constants of Ni near the Curie Temperature, <i>Farzin Abadizaman, S Zollner</i> , New Mexico State University
2:40pm	BI+AS+IPF+MN-MoA-5 How Proteins Grow Calcium Carbonates – The Mechanism of Vaterite Bioprecipitation Studied at the Molecular Level by Sum Frequency Generation Spectroscopy, <i>H Lu</i> , Max Planck Institute for Polymer Research, Germany; <i>S Roeters</i> , Aarhus University, Denmark; <i>H Lutz, M Hood, A Schäfer</i> , Max Planck Institute for Polymer Research, Germany; <i>R Muñoz-Espí</i> , Universidad de Valencia, Spain; <i>M Bonn</i> , Max Planck Institute for Polymer Research, Germany; <i>Tobias Weidner</i> , Aarhus University, Denmark	EL+EM-MoA-5 Phonon Confinement and Excitonic Absorption in the Optical Properties of ZnO Films, <i>Nuwanjula Samarasingha, S Zollner</i> , New Mexico State University; <i>D Pal, A Mathur, A Singh, R Singh, S Chattopadhyay</i> , Indian Institute of Technology Indore, India
3:00pm	BI+AS+IPF+MN-MoA-6 ToF-SIMS Imaging of Chemical Modifications in Topographically Challenging Materials, <i>Michael Taylor, D Graham, L Gamble</i> , University of Washington	EL+EM-MoA-6 High Aspect Ratio Etch Tilt Detection with Full 4x4 Mueller Matrix Spectroscopic Ellipsometry and Its Application to 3DNAND Channel Hole Etch Process and Chamber Monitoring, <i>Peilin Ong</i> , Micron Semiconductor Asia Pte. Ltd., Singapore; <i>S Ng</i> , Nanometrics Incorporated; <i>G Chu</i> , Micron Semiconductor Asia Pte. Ltd., Singapore; <i>P Murphy</i> , Nanometrics Incorporated; <i>L Liang, W Fu</i> , Micron Semiconductor Asia Pte. Ltd., Singapore; <i>Y Wen</i> , Nanometrics Incorporated, Nanometrics Incorporated; <i>L Ho</i> , Micron Semiconductor Asia Pte. Ltd., Singapore
3:20pm	BREAK	BREAK
3:40pm	BI+AS+IPF+MN-MoA-8 Imaging Plant and Plant Growth-Promoting Bacteria Interactions Using Time-of-Flight Secondary Ion Mass Spectrometry, <i>Xiao-Ying Yu, R Komorek, Z Zhu, C Jansson</i> , Pacific Northwest National Laboratory	EL+EM-MoA-8 Ultra-High-Speed Spectroscopic Ellipsometry and its Applications, <i>Gai Chin</i> , ULVAC Inc., Japan
4:00pm	BI+AS+IPF+MN-MoA-9 Imaging of Cells and Tissues with Helium Ion Microscopy, <i>J Notte, D Wei, Chuong Huynh</i> , Carl Zeiss Microscopy, LLC	EL+EM-MoA-9 Use of Ellipsometry to Monitor Implant Damage in Methane Plasma Implant, <i>Nicholas Bateman</i> , Varian Semiconductor Equipment, Applied Materials
4:20pm	BI+AS+IPF+MN-MoA-10 Quantitative Analysis of Electrolytes in Microliter-size Blood Drops Congealed via HemaDrop™ using Ion Beam Analysis and SIMNRA, <i>Harshini Thinakaran, S Narayan, J Day, N Herbots, F Ark, B Wilkens, M Mangus, R Culbertson</i> , Arizona State University	EL+EM-MoA-10 Study of the Thickness-dependent Optical Constants of Metallic Thin Films based on Ellipsometry and Reflectivity, <i>Jiamin Liu, H Jiang, S Liu</i> , Huazhong University of Science and Technology, China

Monday Afternoon, October 22, 2018

Electronic Materials and Photonics Division Room 101A - Session EM+AM+NS+PS-MoA Atomic Layer Processing: Selective-Area Patterning (Assembly/Deposition/Etching) Moderators: Michael Filler, Georgia Institute of Technology, Jessica Hilton, RHK Technology		Magnetic Interfaces and Nanostructures Division Room 201A - Session MI+2D+EM+NS-MoA IoT Session: Symposium on new Magnetic Materials, Devices and Concepts for the Information Society Moderator: Hendrik Ohldag, SLAC National Accelerator Laboratory	
1:20pm	EM+AM+NS+PS-MoA-1 Area-Selective Deposition of Crystalline Perovskites, <i>E Lin, Brennan Coffey, Z Zhang, P Chen, B Edmondson, J Ekerdt</i> , University of Texas at Austin	INVITED: MI+2D+EM+NS-MoA-1 "ZOOMING in on Data Storage and the Superb HDD", <i>Roger Wood</i> , Western Digital	
1:40pm	EM+AM+NS+PS-MoA-2 A Dry NF ₃ /NH ₃ Plasma Clean for Removing Si Native Oxide and Leaving a Smooth Si Surface, <i>Christopher Ahles, J Choi</i> , University of California, San Diego; <i>A Kummel</i> , University of California at San Diego	Invited talk continues.	
2:00pm	INVITED: EM+AM+NS+PS-MoA-3 Probing Strategies for Selective Deposition that Exploit Competitive Interactions, <i>James Engstrom</i> , Cornell University	INVITED: MI+2D+EM+NS-MoA-3 Physics and Applications of Spin-transfer Torques, <i>Andrew Kent</i> , New York University	
2:20pm	Invited talk continues.	Invited talk continues.	
2:40pm	EM+AM+NS+PS-MoA-5 The Interconnect Resistivity Bottleneck, <i>Daniel Gall, T Zhou, E Milosevic</i> , Rensselaer Polytechnic Institute; <i>P Zheng</i> , Micron Technology	INVITED: MI+2D+EM+NS-MoA-5 Hybrid Magnetic Heterostructures, <i>Ivan K. Schuller, A Basaran</i> , University of California, San Diego; <i>J de la Venta</i> , Colorado State University; <i>J Ramirez</i> , Universidad de los Andes, Colombia; <i>T Saerbeck</i> , Institute Laue-Langevin, France; <i>I Valmianski</i> , University of California, San Diego; <i>X Batlle</i> , University of Barcelona, Spain	
3:00pm	EM+AM+NS+PS-MoA-6 Sub 0.3 micrometer Copper Patterns Etched with a Plasma-Based Process and Pattern Dependent Electromigration Failure Mechanism, <i>Yue Kuo</i> , Texas A&M University	Invited talk continues.	
3:20pm	BREAK	BREAK	
3:40pm	INVITED: EM+AM+NS+PS-MoA-8 The Effect of Metal Diffusion on Contacts to Semiconducting Chalcogenides: Examples for 2D and 3D Materials, <i>Suzanne E. Mohny, K Cooley, M Abraham, A Domask, H Simchi, L Kerstetter, C Lawrence, T Walter</i> , The Pennsylvania State University	INVITED: MI+2D+EM+NS-MoA-8 Organismic Materials and Intelligence, <i>Shriram Ramanathan</i> , Purdue University	
4:00pm	Invited talk continues.	Invited talk continues.	
4:20pm	EM+AM+NS+PS-MoA-10 TiN _x and TaN _x Films via Low-T Thermal ALD using Anhydrous N ₂ H ₄ , <i>Steven Wolf, M Breeden, M Kavrik</i> , University of California at San Diego; <i>D Alvarez, J Spiegelman</i> , RASIRC; <i>M Naik</i> , Applied Materials; <i>A Kummel</i> , University of California at San Diego		

Monday Afternoon, October 22, 2018

	In-situ Microscopy, Spectroscopy, and Microfluidics Focus Topic Room 202B - Session MM+AS+NS+PC+SS-MoA X-ray and Electron Spectromicroscopy in Liquids and Gases & Flash Networking Session Moderator: Piran Kidambi, Vanderbilt University	Materials and Processes for Quantum Computing Focus Topic Room 203A - Session MP+AM+EM+NS-MoA Systems and Devices for Quantum Computing II Moderator: Josh Mutus, Google Inc
1:20pm	INVITED: MM+AS+NS+PC+SS-MoA-1 Bridging the Material and Pressure Gap in Synchrotron based Photoelectron in Situ/Operando Studies, <i>Luca Gregoratti, M Amati, P Zeller</i> , Elettra-Sincrotrone Trieste, Italy	INVITED: MP+AM+EM+NS-MoA-1 Quantum Engineering of Superconducting Qubits, <i>William Oliver</i> , MIT Lincoln Laboratory
1:40pm	Invited talk continues.	Invited talk continues.
2:00pm	MM+AS+NS+PC+SS-MoA-3 Transition Metal Complexes in Aqueous Solutions Characterized by Liquid Jet Ambient Pressure X – ray Photoelectron Spectroscopy, <i>Jared Bruce, J Hemminger</i> , University of California, Irvine	INVITED: MP+AM+EM+NS-MoA-3 The Quantum Socket: A Wiring Method for Superconducting Quantum Computing, <i>Matteo Mariani</i> , University of Waterloo, Canada
2:20pm	MM+AS+NS+PC+SS-MoA-4 Interfacial Electrochemistry in Liquids Probed with Photoemission Electron Microscopy, <i>S Nemsak</i> , Forschungszentrum Juelich GmbH, Germany; <i>E Strelcov</i> , NIST Center for Nanoscale Science and Technology; <i>Tomas Duchon</i> , Forschungszentrum Juelich GmbH, Germany; <i>H Guo</i> , National Institute of Standards and Technology; <i>J Hackl</i> , Forschungszentrum Juelich GmbH, Germany; <i>A Yualev</i> , NIST Center for Nanoscale Science and Technology; <i>I Vlasiouk</i> , Oak Ridge National Laboratory; <i>D Mueller, C Schneider</i> , Forschungszentrum Juelich GmbH, Germany; <i>A Kolmakov</i> , NIST Center for Nanoscale Science and Technology	Invited talk continues.
2:40pm		MP+AM+EM+NS-MoA-5 Pogo Pin Packaging for High Coherence Qubits, <i>Nicholas Bronn, V Adiga, S Olivadese, O Jinka</i> , IBM, T.J. Watson Research Center; <i>X Wu</i> , National Institute of Standards and Technology; <i>J Chow</i> , IBM, T.J. Watson Research Center; <i>D Pappas</i> , National Institute of Standards and Technology
3:00pm		MP+AM+EM+NS-MoA-6 50 Ohm Superconducting Kinetic Inductance Traveling-Wave Amplifier with flexible pump frequency for Four Wave Mixing and Three Wave Mixing, <i>Xian Wu, M Bal, J Long, H Ku, R Lake, D Pappas</i> , National Institute of Standards and Technology
3:20pm	BREAK	BREAK
3:40pm	INVITED: MM+AS+NS+PC+SS-MoA-8 Practical Liquid Cell Microscopy - Opportunities and Challenges, <i>Daan Hein Alsem, K Karki</i> , Hummingbird Scientific; <i>T Mefford, W Chueh</i> , Stanford University; <i>N Salmon</i> , Hummingbird Scientific	INVITED: MP+AM+EM+NS-MoA-8 Near Term Development of Short Depth Quantum Processors, <i>Jerry Chow</i> , IBM Research Division, T.J. Watson Research Center
4:00pm	Invited talk continues.	Invited talk continues.
4:20pm	MM+AS+NS+PC+SS-MoA-10 Observation of Electric Double Layer under Graphene by Scanning Electron Microscopy, <i>Hongxuan Guo, A Yulaev, E Strelcov</i> , National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; <i>A Tselev</i> , CICECO and Department of Physics, University of Aveiro, Portugal; <i>A Kolmakov</i> , National Institute of Standards and Technology	MP+AM+EM+NS-MoA-10 Frequency Crowding in Lattices of Transmon Qubits, <i>Sami Rosenblatt, J Hertzberg, J Chavez-Garcia, N Bronn, H Paik, M Sandberg, E Magesan, J Smolin, J Yau, V Adiga, M Brink, J Chow</i> , IBM, T.J. Watson Research Center

Monday Afternoon, October 22, 2018

Nanometer-scale Science and Technology Division Room 102B - Session NS+2D+AS+PC-MoA SPM - New Imaging and Spectroscopy Methodologies Moderators: Aubrey Hanbicki, U.S. Naval Research Laboratory, Sidney Cohen, Weizmann Institute of Science, Israel		Plasma Science and Technology Division Room 104A - Session PS+PB-MoA Plasma and Polymers: 'The Legacy of Riccardo d'Agostino and Beyond' Moderators: Ankur Agarwal, KLA-Tencor, Mohan Sankaran, Case Western Reserve University	
1:20pm	INVITED: NS+2D+AS+PC-MoA-1 A Connection Between Stability of STM Control System and Local Barrier Height: Implications on Imaging and Lithography, <i>S.O. Reza Moheimani</i> , University of Texas at Dallas		PS+PB-MoA-1 Foreword/introduction to the session: "Reflections on the Legacy of Riccardo d'Agostino", <i>P Favia</i> , University of Bari, Italy
1:40pm	Invited talk continues.		PS+PB-MoA-2 Atmospheric Pressure PE-CVD of Drug-containing Nanometric Capsules, <i>Pietro Favia, C Lo Porto, A Treglia</i> , University of Bari, Italy; <i>F Palumbo</i> , CNR Institute of Nanotechnology NANOTEC, Italy
2:00pm	NS+2D+AS+PC-MoA-3 Distinctive Microstructures in a Complex Polymer Evolve with Time and Composition, <i>X Yu</i> , Worcester Polytechnic Institute; <i>S Granados-Focil</i> , Clark University; <i>M Tao, Nancy Burnham</i> , Worcester Polytechnic Institute		PS+PB-MoA-3 Ultrathin Metal-Organic Covalent Networks by initiated Plasma Enhanced Chemical Vapor Deposition (iPECVD) for Gas Separation Membranes, <i>Karen Gleason, M Wang</i> , MIT; <i>N Boscher</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg; <i>M Creatore, A Perrotta</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>K Heinze</i> , Johannes Gutenberg-Universität, Mainz, Germany
2:20pm	NS+2D+AS+PC-MoA-4 Offering new Characterization Capabilities at the XTIP beamline by Combining Scanning Tunneling Microscopy with Synchrotron Radiation, <i>Volker Rose, H Chang, M Fisher, S Hla, N Shirato</i> , Argonne National Laboratory		PS+PB-MoA-4 Influence of Energetic Conditions on the Plasma Polymerization of Cyclopropylamine in Capacitively Coupled Discharges, <i>Lenka Zajickova, M Michlicek</i> , Masaryk University, Czech Republic; <i>S Hamaguchi</i> , Osaka University, Japan
2:40pm	INVITED: NS+2D+AS+PC-MoA-5 Scanning Probe Microscopy Based Spectroscopy Measurement for Nanoscale Chemical Identification, <i>Chanmin Su</i> , Bruker-Nano, Inc.		PS+PB-MoA-5 Electrochromic Investigation of PEDOT Film Deposited by Plasma Radicals Assisted Polymerization via CVD, <i>Bianca Rita Pistillo, G Lamblin, J Polesel-Maris, K Mengueli, D Ari, D Lenoble</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg
3:00pm	Invited talk continues.		PS+PB-MoA-6 Initial ZnO Crystallite Formation by Plasma Enhanced ALD, <i>Alberto Perrotta, J Pilz, A Coclite</i> , Graz University of Technology, Austria
3:20pm	BREAK		BREAK
3:40pm	NS+2D+AS+PC-MoA-8 Quantifying Tip-Sample Interactions in Vacuum Using Cantilever-based Sensors: An Analysis, <i>O Dagdeviren, C Zhou, E Altman, Udo D. Schwarz</i> , Yale University		PS+PB-MoA-8 On Fluorocarbons and Fish: Creating a Global Impact on Generations of Plasma Chemists, <i>Ellen Fisher</i> , Colorado State University
4:00pm	NS+2D+AS+PC-MoA-9 AFM + Nanoscale Vis-IR Spectroscopy via Photo-induced Force Microscopy, <i>Derek Nowak, T Albrecht, S Park</i> , Molecular Vista		PS+PB-MoA-9 DIRECT and Remote Surface Functionalization using Atmospheric Pressure Dielectric Barrier Discharges, <i>Francesco Fracassi</i> , University of Bari, Institute of Nanotechnology (NANOTEC), NRC, Italy, Italia; <i>F Fanelli</i> , Institute of Nanotechnology (NANOTEC), NRC, Italy, Italia; <i>V Armenise, A Uricchio, R d'Agostino</i> , University of Bari, Italy, Italia
4:20pm			PS+PB-MoA-10 Quest for Durable Low-index Optical Coatings: From Plasma Polymerized Fluorocarbons to Hybrid Organic-inorganic and Nanostructured Films, <i>L Martinu, Jolanta Klemberg-Sapieha, O Zabeida</i> , Ecole Polytechnique de Montreal, Canada

Monday Afternoon, October 22, 2018

Advanced Surface Engineering Division Room 202C - Session SE-MoA New Challenges and Opportunities in Surface Engineering Moderators: Robert Franz, Montanuniversität Leoben, Jianliang Lin, Southwest Research Institute		Surface Science Division Room 203C - Session SS+HC-MoA Theory and Modeling of Surfaces and Reactions Moderators: Liney Arnadottir, Oregon State University, Petra Reinke, University of Virginia	
1:20pm	INVITED: SE-MoA-1 From Passive to Active Optical Coatings - Challenges and Opportunities for Pulsed Plasma Deposition Processes, Ludvik Martinu , Ecole Polytechnique de Montreal, Canada	INVITED: SS+HC-MoA-1 Elucidating the Chemical Nature of Single-Site Catalysts from First Principles, A Hensley , Washington State University; A Therrien , Tufts University; R Zhang , Washington State University; A Schilling , Tufts University; K Groden , Washington State University; C Sykes , Tufts University; Jean-Sabin McEwen , Washington State University	
1:40pm	Invited talk continues.	Invited talk continues.	
2:00pm	SE-MoA-3 Anomalous Orientation-dependent Slip during Uniaxial Compression of TaC Crystals, M Chen , ETH Zurich, Switzerland; D Sangiovanni , Ruhr-University Bochum, Germany and Linköping University, Sweden; A Aleman , H Zaid , University of California at Los Angeles; J Wheeler , ETH Zurich, Switzerland; G Po , Suneel Kodambaka , University of California at Los Angeles	SS+HC-MoA-3 Unravelling the Complex Features in STM Images of O/Ag(110) System, Takat B. Rawal , University of Central Florida; M Smerieri , IMEM-CNR, UOS Genova, Italy; J Pal , University of Genova, Italy; S Hong , Brewton-Parker College; M Alatalo , University of Oulu, Finland; L Savio , L Vattuone , University of Genova, Italy; T Rahman , University of Central Florida; M Rocca , University of Genova, Italy	
2:20pm	SE-MoA-4 Selectable Phase Formation in Al-based Transition Metal Nitride Films by Controlling Al ⁺ Subplantation depth during HIPIMS Deposition, Grzegorz Greczynski , Linköping University, Sweden; S Mraz , M Hans , RWTH Aachen University; J Lu , L Hultman , Linköping University, Sweden; J Schneider , RWTH Aachen University, Germany	SS+HC-MoA-4 First Principles Investigations on CO ₂ Adsorption and Dissociation on Cu _{cluster} / Cu(111) Surfaces: Influence of Co-adsorbed CO Molecule, Allan Abraham Padama , University of the Philippines Los Baños, Philippines; H Nakanishi , H Kasai , National Institute of Technology, Akashi College, Japan; J Ocon , University of the Philippines Diliman, Philippines	
2:40pm	INVITED: SE-MoA-5 Metallic-Glass Nanotube Arrays: A Novel Device for Various Applications, Jinn P. Chu , J Chen , C Yu , National Taiwan University of Science and Technology, Taiwan, Republic of China	SS+HC-MoA-5 Step-Spacing Distributions Revisited: New Motivations from Curved Crystals and Other Systems, Theodore L. Einstein , University of Maryland, College Park	
3:00pm	Invited talk continues.	SS+HC-MoA-6 Small Molecule Activation Using Computational Catalysis and Machine Learning, Yousung Jung , Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea	
3:20pm	BREAK	BREAK	
3:40pm	SE-MoA-8 Biocompatibility and Antibacterial Behaviors of TaON(porous)/TaN-TaN-Ag-Ta Multi-layered Thin Films, Joe. H. Hsieh , Ming Chi University of Technology, Taiwan, Republic of China; C Li , National Yang Ming University, Taiwan, Republic of China; C Hsu , Ming Chi University of Technology, Taiwan, Republic of China	SS+HC-MoA-8 Elucidating Mechanisms of Alkanol Catalysis on SrTiO ₃ Perovskite Surfaces using Density Functional Theory, Robert Chapleski , S Roy , University of Tennessee Knoxville	
4:00pm	SE-MoA-9 Electrochemically Deposited Coating with Antibacterial Properties against the Spread of Health Care-associated Infections, Nicole Ciacotich , Technical University of Denmark, Denmark; J Rasmussen , Elplatek A/S, Denmark; K Kragh , University of Copenhagen, Denmark; P Møller , L Gram , Technical University of Denmark, Denmark		
4:20pm	SE-MoA-10 Tunable Self-Healing Thermal Barrier Coatings, S Joshi , J.J. Gu , Y Ho , B Wei , T Hung , Y Liu , N Dahotre , S Aouadi , University of North Texas		

Monday Afternoon, October 22, 2018

Thin Films Division Room 102A - Session TF+EM+MI+PS-MoA Thin Films for Advanced Memory Applications and Magnetics Moderator: Robert Grubbs, Sandia National Laboratories		Thin Films Division Room 104B - Session TF-MoA IoT Session: Thin Films for Photovoltaics Moderators: Matthew Richard Linford, Brigham Young University, Mark Losego, Georgia Institute of Technology	
1:20pm		INVITED: TF-MoA-1 Atomic Layer Deposition for Organic and Perovskite Solar Cells, <i>Thomas Riedl</i> , University of Wuppertal, Germany	
1:40pm	TF+EM+MI+PS-MoA-2 ---Multiferroic Integration of Undoped Ferroelectric HfO ₂ and Ferrimagnetic CoFe ₂ O ₄ Thin films by Radical-Enhanced Atomic Layer Deposition, <i>J Chang, Adrian Acosta, J Chang</i> , University of California at Los Angeles	Invited talk continues.	
2:00pm	TF+EM+MI+PS-MoA-3 Growth and Characterization of BeO Thin Films Grown by Atomic Layer Deposition using H ₂ O and O ₃ as Oxygen Sources, <i>Lee Woo Chul, C Cheol Jin</i> , Center for Electronic Materials, Korea Institute of Science and Technology, Korea; <i>K Sangtae</i> , Center for Electronic Materials, Korea Institute of Science and Technology, Korea; <i>L Eric S., Y Jung Hwan</i> , Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS), South Korea; <i>H Cheol Seong</i> , Department of Materials Science and Engineering, and Inter-University Semiconductor Research Center, College of Engineering, Seoul National University, South Korea; <i>B Christopher W.</i> , Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS), South Korea; <i>K Seong Keun</i> , Center for Electronic Materials, Korea Institute of Science and Technology, Korea	TF-MoA-3 Insights into ALD Al ₂ O ₃ Growth on Hybrid Organic-Inorganic Perovskite, <i>Dibyashree Koushik</i> ¹ , Eindhoven University of Technology, The Netherlands, Netherlands; <i>L Hazendank</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>V Zardetto</i> , TNO-Solliance, The Netherlands, Netherlands; <i>W Kessels</i> , Eindhoven University of Technology, The Netherlands; <i>M Creatore</i> , Eindhoven University of Technology, The Netherlands, Netherlands	
2:20pm	TF+EM+MI+PS-MoA-4 Atomic Layer Deposition of Magnetic Films and Patterned Features with Tunable Magnetic Properties, <i>Z Zhang, John Ekerdt</i> , University of Texas at Austin	TF-MoA-4 Single Junction GaAs Thin Film Solar Cells on Flexible Metal Tapes for Low Cost Photovoltaics, <i>Devendra Khatiwada</i> ¹ , <i>M Rathi, P Dutta, S Sun, Y Yao, Y Gao, Y Li, S Pouladi, J Ryou, V Selvamanickam</i> , University of Houston	
2:40pm	INVITED: TF+EM+MI+PS-MoA-5 Tuning of the Magnetic and Electronic Properties of Epitaxial Heusler Compound Heterostructures, <i>Christopher Palmström</i> , University of California, Santa Barbara	TF-MoA-5 New Insights into the Microstructure and Composition of New Generation CdSeTe/CdTe/MZO Photovoltaic Devices, <i>T Fiducia, A Abbas</i> , Loughborough University, UK; <i>K Li, C Grovenor</i> , University of Oxford, UK; <i>A Munshi, K Barth, W Sampath</i> , Colorado State University; <i>John Walls</i> , Loughborough University, UK	
3:00pm	Invited talk continues.	TF-MoA-6 Schottky Barrier Metal-Insulator-Silicon Photovoltaics: Influence of Fixed Charge and Dipoles in Atomic Layer Deposited Alumina, <i>Nicholas Strandwitz</i> , Lehigh University	
3:20pm	BREAK	BREAK	
3:40pm	TF+EM+MI+PS-MoA-8 Stabilization of Ferroelectric Phase of Hf _{0.5} Zr _{0.5} O ₂ on NbN at 4 K, <i>Michael David Henry, S Smith, R Lewis</i> , Sandia National Laboratories; <i>J Ihlefeld</i> , University of Virginia	TF-MoA-8 Sulfur Vacancies as the Origin of <i>n</i> -type Doping in Pyrite FeS ₂ Single Crystals, <i>B Voigt, W Moore, J Walter, D Ray, M Manno</i> , University of Minnesota; <i>J Jeremiason</i> , Gustavus Adolphus College; <i>L Gagliardi, Eray Aydil, C Leighton</i> , University of Minnesota	
4:00pm	TF+EM+MI+PS-MoA-9 Atomic Layer Deposition of Co/Pt Multilayer films for Perpendicular Magnetic Anisotropy, <i>Devika Choudhury, A Mane, C Phatak, A Petford Long, J Elam</i> , Argonne National Laboratory	TF-MoA-9 Strong Effect of Reaction Temperature on the Nucleation of Atomic Layer Deposition of Al ₂ O ₃ on Methylamine Lead Perovskite, <i>Xiaozhou Yu, H Yan, Q Peng</i> , University of Alabama	
4:20pm		TF-MoA-10 Synthesis of Gas Barrier Coatings for Hybrid Halide Perovskites by Atomic Layer Deposition, <i>X Yu, H Yan, Qing Peng</i> , University of Alabama	

Monday Afternoon, October 22, 2018

Vacuum Technology Division Room 203B - Session VT-MoA Pumping and Outgassing Moderators: James Fedchak, National Institute of Standards and Technology, Giulia Lanza, SLAC National Accelerator Laboratory		
1:20pm	INVITED: VT-MoA-1 Gas Adsorption and Desorption Properties of 3D Printed Objects, Matt Hartings , American University; <i>J Scherschligt, J Fedchak, Z Ahmed</i> , National Institute of Standards and Technology	
1:40pm	Invited talk continues.	
2:00pm	VT-MoA-3 Outgassing, Desorption, and Gas Uptake of 3D-Printed Materials, James Fedchak , NIST; <i>J Scherschligt, Z Ahmed</i> , National Institute of Standards and Technology; <i>M Hartings</i> , American University	
2:20pm	VT-MoA-4 Performance Prediction Approaches for Liquid Ring Vacuum Pumps with Mercury as Working Fluid, Santiago Ochoa Guaman , <i>T Giegerich</i> , Karlsruhe Institute of Technology, Germany; <i>C Dahlke</i> , HERMETIC-Pumpen GmbH, Germany; <i>C Day</i> , Karlsruhe Institut of Technology (KIT), Germany	
2:40pm	VT-MoA-5 Particle Emission from Ion Pumps: Optimized Shielding without Severe Conductance Limitation, Mauro Audi , <i>C Paolini</i> , Agilent Technologies, Italy; <i>P Manassero</i> , Agilent Technologies	
3:00pm	VT-MoA-6 Extension of the Range of Primary Vacuum Calibration Methods with the Use of Non-evaporable Getters, Sefer Avdiaj , University of Prishtina, Albania	
3:20pm	BREAK	
3:40pm	INVITED: VT-MoA-8 VTD Early Career Award Invited Talk: The Development of the Spacecraft Atmosphere Monitor, Steven Schowalter¹ , Jet Propulsion Laboratory	
4:00pm	Invited talk continues.	
4:20pm	VT-MoA-10 Surface Modification to Reduce Species Retention and Outgassing Rate from Vacuum Components, Quirinius Grindstaff , <i>J Peak, C Miracle</i> , CNS, LLC	

¹ VTD Early Career Award

Special Events Tuesday

Special Events Tuesday

- 7:30 AM Awards Committee Meeting and Lunch/Pacific-Hyatt Regency (by invitation)
8:00 AM Science Educators' Workshop/Seaview-Hyatt Regency (by invitation)
9:00 AM AVS Member Center: eSpectra: Surface Science/103C
10:00 AM AVS Member Center: Professional Development--Working with National Labs and Other User Facilities/103C
10:00 AM Session Coffee Break/Hall A
11:40 AM Federal Funding Town Hall/202C
12:20 PM Exhibit Hall Lunch/Hall A
12:30 PM AVS Member Center: Professional Development--Job Information Forum and Lunch/103C
12:30 PM Chapters, Divisions, and Groups Meeting and Lunch/Regency D-Hyatt Regency (by invitation)
12:30 PM MSTG Technical Group Executive Committee Meeting and Lunch/Tides Restaurant-Hyatt Regency (by invitation)
3:40 PM Biointerphases Reception/Shoreline A-Hyatt Regency (by invitation)
3:40 PM Session Refreshment Break/Hall A
4:00 PM AVS Member Center: Professional Development--SCCAVS/NCCA VS Members Hospitality Hour/103C (by invitation)
6:05 PM BID Business Meeting/101B
6:25 PM EMPD Business Meeting/101A
6:25 PM NSTD Business Meeting/102B
6:25 PM PSTD Business Meeting & 2018 Plasma Prize Award Announcement/104A
6:25 PM SSD Business Meeting/203C
6:25 PM TFD Business Meeting/102A
6:30 PM Tuesday Poster Session & Refreshments/Hall B
6:45 PM AVS Member Center: Professional Development--EMPD Forum: "Careers at LAM Research"/103C
7:00 PM MEMS/NEMS Executive Committee Meeting and Dinner/Regency F-Hyatt Regency (by invitation)
7:00 PM NSTD Executive Committee Meeting and Dinner/Seaview A-Hyatt Regency (by invitation)
7:00 PM SSD Executive Committee Meeting and Dinner/Regency C-Hyatt Regency (by invitation)
7:30 PM ASSD Business Meeting/Regency DE-Hyatt Regency
7:30 PM PSTD Executive Committee Meeting and Dinner/Seaview C-Hyatt Regency (by invitation)
7:30 PM TFD Executive Committee Meeting and Dinner/Seaview B-Hyatt Regency (by invitation)
7:45 PM BID Executive Committee Meeting and Dinner/Pacific-Hyatt Regency (by invitation)
7:45 PM EMPD Executive Committee Meeting and Dinner/Regency B-Hyatt Regency (by invitation)
8:00 PM ASTM E-42 and Applied Surface Science Joint Workshop: "A Tribute to the Careers of Barbara Garrison and Nicholas Winograd"/Regency DE-Hyatt Regency

Tuesday Morning, October 23, 2018

<p>2D Materials Focus Topic Room 201B - Session 2D+EM+MI+NS-TuM Properties of 2D Materials including Electronic, Magnetic, Mechanical, Optical, and Thermal Properties Moderator: Johannes Jobst, Leiden University</p>		<p>Applied Surface Science Division Room 204 - Session AS+BI-TuM Applied Surface Science: From Electrochemistry to Cell Imaging, a Celebration of the Career of Nicholas Winograd Moderators: Arnaud Delcorte, Université Catholique de Louvain, Belgium, Michaeleen Pacholski, The Dow Chemical Company</p>
8:00am	<p>2D+EM+MI+NS-TuM-1 Effect of Lattice Stacking Orientation and Local Thickness Variation on the Mechanical Behavior of Few Layer Graphene Oxide, <i>Teng Cui, S Mukherjee, C Cao, P Sudeep, J Tam</i>, University of Toronto, Canada; <i>P Ajayan</i>, Rice University; <i>C Singh, Y Sun, T Filleter</i>, University of Toronto, Canada</p>	<p>INVITED: AS+BI-TuM-1 Surface Analysis and Beyond, Using Ion Beams and Lasers, <i>Nicholas Lockyer, J Vickerman</i>, University of Manchester, UK</p>
8:20am	<p>2D+EM+MI+NS-TuM-2 Out-of-Plane Mechanical Properties of 2D Hybrid Organic-Inorganic Perovskites by Nanoindentation, <i>Qing Tu, I Spanopoulos, S Hao, C Wolverton, M Kanatzidis, G Shekawat, V Dravid</i>, Northwestern University</p>	
8:40am	<p>2D+EM+MI+NS-TuM-3 Mechanical Properties of Many-layer CVD Graphene, <i>Kyle Larsen, S Lehnardt, J Rowley, B Anderson, R Vanfleet, R Davis</i>, Brigham Young University</p>	<p>AS+BI-TuM-3 A High Resolution Tandem MS Imaging Method to Probe the Composition of Organelles in Single Cells, <i>Gregory L. Fisher</i>, Physical Electronics; <i>C Chini</i>, University of Illinois at Urbana-Champaign; <i>B Johnson, M Tamkun</i>, Colorado State University; <i>M Kraft</i>, University of Illinois at Urbana-Champaign</p>
9:00am	<p>2D+EM+MI+NS-TuM-4 Electronic Structure and Magneto-transport Properties of Nanostructured Graphene on SiC(001), <i>Victor Aristov</i>, DESY Hamburg, Germany; <i>H Wu</i>, BIT, Beijing, China; <i>O Molodtsova</i>, DESY Hamburg, Germany; <i>A Chaika</i>, ISSP RAS, Russia</p>	<p>AS+BI-TuM-4 SIMS and MALDI-MS. Competitive, Complimentary or Complementary Techniques for Bio-imaging?, <i>John Stephen Fletcher, I Kaya</i>, University of Gothenburg, Sweden</p>
9:20am	<p>INVITED: 2D+EM+MI+NS-TuM-5 Discovering and Visualizing Ferromagnetism in Intrinsic Two Dimensional Materials, <i>Jing Xia</i>, University of California Irvine</p>	<p>AS+BI-TuM-5 High Spatial Resolution Metabolic Imaging using the 3D OrbiSIMS - Fundamentals of Metabolite Fragmentation and Biological Applications, <i>C Newell, Y Panina</i>, Francis Crick Institute, UK; <i>L Matjacic, V Cristaudo</i>, National Physical Laboratory, UK; <i>A Bailey</i>, Francis Crick Institute, UK; <i>R Havelund</i>, National Physical Laboratory, UK; <i>M Yuneva, A Gould</i>, Francis Crick Institute, UK; <i>Ian S. Gilmore</i>, National Physical Laboratory, UK</p>
9:40am	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall
11:00am	<p>2D+EM+MI+NS-TuM-10 Onset of Buckling Folding and Slipping Instabilities in 2D Materials under Compressive Strain, <i>Jaehyung Yu, E Ertekin, A van der Zande</i>, University of Illinois at Urbana-Champaign</p>	<p>INVITED: AS+BI-TuM-10 Pushing the Limits of Measurement Science with SIMS, <i>Christopher Szakal, D Simons, J Fassett, T Forbes</i>, National Institute of Standards and Technology (NIST)</p>
11:20am	<p>2D+EM+MI+NS-TuM-11 Title: Spatially-Resolved Contact-Free Electrical Characterization of Transition Metal Dichalcogenide Films Grown by Chemical Vapor Deposition., <i>Miguel Isarraraz, L Bartels</i>, University of California, Riverside</p>	Invited talk continues.
11:40am	<p>INVITED: 2D+EM+MI+NS-TuM-12 Electronic, Thermal, and Unconventional Applications of 2D Materials, <i>Eric Pop, E Yalon, C McClellan, K Smithe, C English, M Mleczo, M Muñoz Rojo, N Wang, S Suryavanshi, I Dadye, C Bailey, A Gabourie, M Chen, V Chen, K Schauble, R Grady</i>, Stanford University</p>	<p>AS+BI-TuM-12 Multiplexed Ion Beam Imaging: Cell and Tissue Imaging using Secondary Ion Mass Spectrometry for Pathology, <i>Jay Tarolli, R Finck, M Aksoy, D Stumba</i>, Ionpath, Inc.</p>
12:00pm	Invited talk continues.	<p>AS+BI-TuM-13 Combined ToF-SIMS and AFM Protocol for Accurate 3D Chemical Analysis and Data Visualization, <i>Maiglid Andreina Moreno Villavicencio, N Chevalier, J Barnes, I Mouton</i>, Univ. Grenoble Alpes, CEA, LETI, France; <i>F Bassani</i>, Univ. Grenoble Alpes, CNRS, LTM, France; <i>B Gautier</i>, Université de Lyon, INSA Lyon, Institut des Nanotechnologies de Lyon, UMR CNRS 5270, F-69621 Villeurbanne cedex, France</p>

Tuesday Morning, October 23, 2018

Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-TuM Nanochemistry in Heterogeneous Catalysis Moderator: Matthew Marcinkowski, Pacific Northwest National Laboratory		Industrial Physics Forum Room 101B - Session IPF+AS+BI+MN-TuM Advanced Imaging and Structure Determination of Biomaterials Moderators: David G. Castner, University of Washington, Michael Grunze, Max Planck Institute for Medical Research	
8:00am	HC+SS-TuM-1 Probing Oxide Supported Single Rh Atoms as Model Catalysts for CO Oxidation, <i>Alex C. Schilling, C Sykes</i> , Tufts University	INVITED: IPF+AS+BI+MN-TuM-1 Chemical Imaging as a Tool to assess Molecular and Morphologic Content in Natural Tissues and Fabricated Models, <i>Rohit Bhargava, T Comi, M Gryka</i> , University of Illinois at Urbana-Champaign	
8:20am	HC+SS-TuM-2 Methanol Partial Oxidation Mechanisms on a Single-site Catalyst Pt ₁ /ZnO(10-10): A First-principles Study, <i>Tao Jiang</i> , University of Central Florida; <i>T Rawal</i> , Oak Ridge National Laboratory; <i>D Le, T Rahman</i> , University of Central Florida	Invited talk continues.	
8:40am	HC+SS-TuM-3 Imaging the Ordering of Weakly Adsorbed CO ₂ Molecules on Rutile Titania using Ambient Pressure Microscopy and Spectroscopy, <i>Rebecca Hamlyn</i> ¹ , Brookhaven National Lab; <i>J Rodriguez, S Senanayake, M Mahapatra, F Xu, D Grinter, S Luo, P Liu, R Palomino, I Waluyo, S Kattel, D Stacchiola</i> , Brookhaven National Laboratory	INVITED: IPF+AS+BI+MN-TuM-3 Fluorescence Dynamics and Nonlinear Optical Imaging Methods for Biomedical Applications, <i>Alba Alfonso Garcia, L Marcu</i> , University of California at Davis	
9:00am	HC+SS-TuM-4 Using Sn Atomic Layer Deposition to Tune the Coking Resistance of Size-selected Pt Model Catalysts, <i>Timothy Gorey</i> ¹ , <i>E Baxter, A Cass, S Anderson</i> , University of Utah; <i>B Zandkarimi, A Alexandrova</i> , University of California at Los Angeles	Invited talk continues.	
9:20am	HC+SS-TuM-5 Synergistic Effects of Pd and PdO Domains on Thin Film TbOx(111)/Pt(111), <i>Christopher Lee</i> ¹ , <i>J Weaver</i> , University of Florida	INVITED: IPF+AS+BI+MN-TuM-5 Single Molecule Imaging of Receptor Signalling, <i>Katharina Gaus</i> , University of New South Wales, Australia	
9:40am	HC+SS-TuM-6 Copper Vapor Adsorption Calorimetry on HCa ₂ Nb ₃ O ₁₀ (001) Nanosheets: Energetics and Adsorbate Structure, <i>Wei Zhang</i> ¹ , <i>J Eichler</i> , University of Washington; <i>R Uppuluri, T Mallouk</i> , The Pennsylvania State University; <i>C Campbell</i> , University of Washington	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	HC+SS-TuM-10 Adsorption and Adhesion of Ni on MgO(100) at 300 and 100 K by Calorimetry, <i>Zhongtian Mao, W Zhao, Z Almuallem, C Campbell</i> , University of Washington	INVITED: IPF+AS+BI+MN-TuM-10 Developing a Google-earth View of Tumour Metabolism through Multiscale Molecular Imaging, <i>J Bunch, Rory T. Steven</i> , National Physical Laboratory, UK	
11:20am	HC+SS-TuM-11 The atomic-scale Structure of the Active CoO(OH)/Au Interface in Electrochemical Water Splitting, <i>J Fester, Z Sun, J Rodriguez-Fernandez</i> , Aarhus University, Denmark; <i>R Gutzler</i> , Max Planck Institute for Solid State Research, Germany; <i>D Grumelli</i> , Universidad Nacional de La Plata, Argentina; <i>K Kern</i> , Max Planck Institute for Solid State Research, Germany; <i>Jeppe Vang Lauritsen</i> , Aarhus University, Denmark	Invited talk continues.	
11:40am	INVITED: HC+SS-TuM-12 <i>In situ</i> Microscopy of Oxide Growth and Transformation under Reaction Conditions, <i>Jan Ingo Flege</i> , University of Bremen, Germany	INVITED: IPF+AS+BI+MN-TuM-12 X-ray Diffraction and Coherent Imaging with Nano-focused Radiation: A Multi-scale Approach from Biomolecular Assembly to Cell, Tissue and Organ, <i>Jan-David Nicolas, T Salditt</i> , University of Göttingen, Germany	
12:00pm	Invited talk continues.	Invited talk continues.	

Tuesday Morning, October 23, 2018

<p>Materials and Processes for Quantum Computing Focus Topic Room 203A - Session MP+EM+NS-TuM High Coherence Qubits for Quantum Computing Moderator: Robert Ilic, National Institute of Standards and Technology (NIST)</p>		<p>Manufacturing Science and Technology Group Room 202B - Session MS+MI+RM-TuM IoT Session: Challenges of Neuromorphic Computing and Memristor Manufacturing (8:00-10:00 am)/Federal Funding Opportunities (11:40 am-12:20 pm) Moderators: Christopher L. Hinkle, University of Texas at Dallas, Sean Jones, National Science Foundation, Alain C. Diebold, SUNY College of Nanoscale Science and Engineering</p>	
8:00am	<p>MP+EM+NS-TuM-1 MBE Grown Nitride Superconductors for Quantum Circuits, <i>Christopher Richardson, A Alexander, C Weddle</i>, Laboratory for Physical Sciences</p>	<p>INVITED: MS+MI+RM-TuM-1 ReRAM – Fabrication, Characterization, and Radiation Effects, <i>David Hughart, R Jacobs-Gedrim, K Knisely, N Martinez, C James, B Draper, E Bielejec, G Vizkelethy, S Agarwal</i>, Sandia National Laboratories; <i>H Barnaby</i>, Arizona State University; <i>M Marinella</i>, Sandia National Laboratories</p>	
8:20am	<p>MP+EM+NS-TuM-2 Towards Improved Coherence Times in Transmon Qubits, <i>Sam Stanwyck</i>, Rigetti Computing</p>	<p>Invited talk continues.</p>	
8:40am	<p>INVITED: MP+EM+NS-TuM-3 Design and Fabrication for High Coherence Quantum Circuits, <i>David Pappas, X Wu, R Lake, M Bal, J Long, C McRae, H Ku</i>, National Institute of Standards and Technology (NIST)</p>	<p>INVITED: MS+MI+RM-TuM-3 Memristive Synapses – Tuning Memristors for Performance and CMOS Integration, <i>Nathaniel Cady</i>, SUNY Polytechnic Institute</p>	
9:00am	<p>Invited talk continues.</p>	<p>Invited talk continues.</p>	
9:20am	<p>MP+EM+NS-TuM-5 Effect of Surface Treatment on Superconducting Qubit Coherence, <i>Bradley Christensen</i>, University of Wisconsin-Madison; <i>P Kumar</i>, University of Wisconsin - Madison; <i>J Nelson, Y Liu, A Ballard, B Plourde</i>, Syracuse University; <i>R McDermott</i>, University of Wisconsin - Madison</p>	<p>INVITED: MS+MI+RM-TuM-5 Analog In-Memory Computing for Deep Neural Network Acceleration, <i>Hsinyu Tsai, S Ambrogio, P Narayanan, R Shelby, G Burr</i>, IBM Almaden Research Center</p>	
9:40am	<p>MP+EM+NS-TuM-6 Metrology of Dielectric Loss using Lumped-Element Microwave Resonators, <i>Corey Rae McRae, X Wu, M Bal, J Long, H Ku, D Pappas, R Lake</i>, National Institute of Standards and Technology</p>	<p>Invited talk continues.</p>	
10:00am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	
10:20am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	
10:40am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	
11:00am	<p>INVITED: MP+EM+NS-TuM-10 Direct Observation of Atomic Structure of Ultra Thin AlO_x Barriers in Al/AlO_x/Al Josephson Junctions for Quantum Devices, <i>Eva Olsson</i>, Chalmers University of Technology, Gothenburg, Sweden</p>	<p>INVITED: MS+MI+RM-TuM-10 Computation Immersed in Memory: Integrating 3D vertical RRAM in the N3XT Architecture, <i>Weier Wan, W Hwang, H Li, T Wu, Y Malviya</i>, Stanford University; <i>M Aly</i>, Nanyang Technological University, Singapore; <i>S Mitra, H Wong</i>, Stanford University</p>	
11:20am	<p>Invited talk continues.</p>	<p>Invited talk continues.</p>	
11:40am	<p>MP+EM+NS-TuM-12 Metrology of Tunnel Junctions for Superconducting Qubits, <i>Russell Lake</i>, National Institute of Standards and Technology (NIST); <i>X Wu, H Ku, J Long, M Bal, C McRae</i>, National Institute of Standards and Technology (NIST) and University of Colorado Boulder; <i>D Pappas</i>, National Institute of Standards and Technology (NIST)</p>	<p>MS+MI+RM-TuM-12 Materials for the Second Quantum Revolution, <i>Tomasz Durakiewicz</i>, Los Alamos National Laboratory</p>	
12:00pm		<p>MS+MI+RM-TuM-13 SynBio(medicine): The Intersection Biomaterials and Living Systems, <i>David Rampulla</i>, National Institute of Health</p>	

Tuesday Morning, October 23, 2018

Nanometer-scale Science and Technology Division Room 102B - Session NS+AN+EM+MN+MP+RM-TuM Nanophotonics, Plasmonics, and Metamaterials Moderators: Alokik Kanwal, NIST Center for Nanoscale Science and Technology, Nikolai Klimov, National Institute of Standards and Technology		Processing and Characterization of Air-Liquid, Solid-Liquid and Air-Solid Interfaces Focus Topic Room 202A - Session PC+AS+BI+NS+PB+SS-TuM Solid-Liquid and Gas-Liquid Interfacial Processes and Characterization Moderators: Stephen Nonnenmann, University of Massachusetts - Amherst, Juan Yao, Pacific Northwest National Laboratory	
8:00am	INVITED: NS+AN+EM+MN+MP+RM-TuM-1 Parametric Nonlinear Interactions in Nanofabricated Silicon-based Photonics, <i>Amy Foster</i> , Johns Hopkins University	INVITED: PC+AS+BI+NS+PB+SS-TuM-1 Liquefied Gas Electrolytes for Electrochemical Energy Storage Devices, <i>Y. Shirley Meng</i> , University of California San Diego; <i>Y Yang</i> , University of California at San Diego	
8:20am	Invited talk continues.	Invited talk continues.	
8:40am	INVITED: NS+AN+EM+MN+MP+RM-TuM-3 Ultrafast Optical Pulse Shaping using Dielectric Metasurfaces, <i>Amit Agrawal, S Divitt, W Zhu, C Zhang, H Lezec</i> , NIST Center for Nanoscale Science and Technology	INVITED: PC+AS+BI+NS+PB+SS-TuM-3 An <i>In situ</i> Molecular-scale View of Nucleation and Self-assembly at Solid-liquid Interfaces, <i>James De Yoreo</i> , Pacific Northwest National Laboratory	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	INVITED: NS+AN+EM+MN+MP+RM-TuM-5 Single-Particle Nanophotonics and Materials Investigations with Optical Microresonator Spectrometers, <i>Erik Horak</i> , University of Wisconsin - Madison; <i>K Heylman, K Knapper, M Rea, F Pan, L Hogan, R Goldsmith</i> , University of Wisconsin-Madison	INVITED: PC+AS+BI+NS+PB+SS-TuM-5 Non-linear Surface Spectroscopy at the Aerosol Particle/Gas Interface, <i>F Geiger, Ariana Gray Be</i> , Northwestern University	
9:40am	Invited talk continues.	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: NS+AN+EM+MN+MP+RM-TuM-10 Optomechanical Interactions for Metrology and Signal Processing, <i>Karen Grutter</i> , The Laboratory for Physical Sciences	PC+AS+BI+NS+PB+SS-TuM-10 The Influence of Electrochemical Potential and Water Vapor on Ionic Liquid Binding Energy Shifts Examined by AP-XPS, <i>Meng Jia</i> , University of Delaware; <i>A Broderick, J Newberg</i> , University of Delaware	
11:20am	Invited talk continues.	PC+AS+BI+NS+PB+SS-TuM-11 Role of Air Gas at the Interface between Water and Graphite Surfaces, <i>Ing-Shouh Hwang</i> , Institute of Physics, Academia Sinica, Taiwan, Republic of China; <i>C Yang, C Fang</i> , Institute of Physics, Academia Sinica, Taiwan, Republic of China, Taiwan, Republic of China; <i>Y Lu</i> , Institute of Physics, Academia Sinica, Taiwan, Republic of China; <i>H Ko</i> , Institute of Physics, Academia Sinica, Taiwan, Republic of China, Taiwan, Republic of China	
11:40am	INVITED: NS+AN+EM+MN+MP+RM-TuM-12 Cold-atom based Sensors and Standards, <i>Stephen Eckel, D Barker, J Fedchak, N Klimov, E Norrgard, J Scherschligt</i> , National Institute of Standards and Technology	INVITED: PC+AS+BI+NS+PB+SS-TuM-12 Probing Cluster and Nanoparticle Growth Processes with X-Ray Spectroscopy and Mass Spectrometry, <i>Musahid Ahmed, O Kostko</i> , Lawrence Berkeley National Laboratory	
12:00pm	Invited talk continues.	Invited talk continues.	

Tuesday Morning, October 23, 2018

Plasma Science and Technology Division Room 104A - Session PS+EM+SE-TuM Plasma Processing of Challenging Materials - I Moderators: Necmi Biyikli, University of Connecticut, Jun-Chieh Wang, Applied Materials		Plasma Science and Technology Division Room 104C - Session PS+PB-TuM Plasma Medicine Moderator: Deborah O'Connell, University of York, UK	
8:00am	PS+EM+SE-TuM-1 Development and Understanding of Isotropic Etching Process of Si Selectively to Si _{0.7} Ge _{0.3} , Sana Rachidi , <i>A Campo, V Loup</i> , CEA-LETI, France; <i>N Posseme</i> , CEA, LETI, France, France; <i>J Hartmann, S Barnola</i> , CEA-LETI, France		PS+PB-TuM-1 Lessons from Tesla for Plasma Medicine, David Graves , University of California at Berkeley
8:20am	PS+EM+SE-TuM-2 III-V/Ge Heterostructure Etching for Through Cell Via Contact Multijunction Solar Cell, Mathieu de Lafontaine , <i>G Gay, C Petit-Etienne, E Pargon</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France; <i>M Darnon, A Jaouad, M Volatier, S Fafard, V Aimez</i> , 3IT, Univ. de Sherbrooke, Canada		PS+PB-TuM-2 Characterization of a Helium Atmospheric Pressure Plasma Jet by Measuring the Total Yield of Reactive Species in Real Time, Ek Adhikari , <i>V Samara, S Ptasinska</i> , University of Notre Dame
8:40am	PS+EM+SE-TuM-3 Feature Scale Modeling of Etching of High Aspect Ratio Silicon Structures in Pulsed Plasmas, Wei Tian , <i>J Wang, S Sadighi, J Kenny, S Rauf</i> , Applied Materials		PS+PB-TuM-3 Dry Etching of Patterned Medical Grade Titanium Alloys, Eitan Barlaz , <i>J Mettler, D Ruzic</i> , University of Illinois at Urbana-Champaign
9:00am	PS+EM+SE-TuM-4 Plasma Etching of High Aspect Ratio Oxide-Nitride-Oxide Stacks, S Huang , <i>C Hurard</i> , University of Michigan; <i>S Nam, S Shim, W Ko</i> , Samsung Electronics Co., Ltd., Republic of Korea; Mark Kushner , University of Michigan		PS+PB-TuM-4 Electron Temperature And Plasma Density Of Ar Plasma In Atmospheric Pressure Micro-DBD, Pradoong Suanpoot , <i>J Sornsakdanuphap</i> , Maejo University Phrae Campus, Thailand; <i>B Ghimire, Y Hong</i> , Plasma Bioscience Research Center, Republic of Korea; <i>G Cho</i> , Charged Particle Beam and Plasma Laboratory, Republic of Korea; <i>E Choi</i> , Plasma Bioscience Research Center, Republic of Korea
9:20am	PS+EM+SE-TuM-5 Etch Profile Evolution in Poly-silicon using Halogen Containing Plasmas for Next Generation Device Fabrication, Shyam Sridhar , <i>S Voronin, P Biolsi, A Ranjan</i> , TEL Technology Center, America, LLC		INVITED: PS+PB-TuM-5 Plasma Immunotherapy of Cancers, Vandana Miller , <i>A Lin, P Ranieri</i> , Drexel University; <i>A Snook</i> , Thomas Jefferson University; <i>A Fridman</i> , Drexel University
9:40am	PS+EM+SE-TuM-6 Flux and Energy of Reactive Species Arriving at the Etch Front in High Aspect Ratio Features During Plasma Etching of SiO ₂ in Ar/CF ₄ /CHF ₃ Mixtures, Soheila Mohades , University of Michigan; <i>M Wang, A Mosden</i> , TEL Technology Center America, LLC; <i>M Kushner</i> , University of Michigan		Invited talk continues.
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	INVITED: PS+EM+SE-TuM-10 Wafer-scale Fabrication of Suspended Graphene Nanoribbon Arrays -from Growth Dynamics to Optoelectrical Applications-, Toshiaki Kato , <i>T Kaneko</i> , Tohoku University, Japan		PS+PB-TuM-10 Hydroxyl Radical Footprinting with Plasma-Induced Modification of Biomolecules (PLIMB): A Novel Tool for Protein Structural Analysis, Faraz Choudhury , <i>D Benjamin, B Minkoff, J Blatz, M Sussman, J Shohet</i> , University of Wisconsin-Madison
11:20am	Invited talk continues.		PS+PB-TuM-11 Biological Effects of Plasma-Irradiated Organic Molecules in Plasma- Treated Liquids, Kenji Ishikawa , <i>Y Hosoi, D Kanno, Y Kurokawa, H Tanaka, M Mizuno, F Kikkawa, M Hori</i> , Nagoya University, Japan
11:40am	PS+EM+SE-TuM-12 Investigation of Surface Reactions for GeSbTe-based Phase Change Material: From Etching to Final Sealing Process, Yann Canvel , <i>S Lagrasta</i> , STMicroelectronics, France; <i>C Boixaderas, S Barnola</i> , CEA-LETI, France; <i>E Martinez</i> , CEA/LETI-University Grenoble Alpes, France		PS+PB-TuM-12 OH-Radical Generation in an Atmospheric-Pressure Plasma Discharge for use in Three-Dimensional Protein Structural Analysis, Joshua Blatz , <i>B Minkoff, F Choudhury, D Benjamin, J Shohet, M Sussman</i> , University of Wisconsin-Madison
12:00pm	PS+EM+SE-TuM-13 Behaviors of Charged Species in Afterglow of Dual Frequency Pulsed Capacitively Coupled Plasma with a Synchronous Negative DC-bias, Takayoshi Tsutsumi , <i>T Ueyama, K Ishikawa, H Kondo, M Sekine</i> , Nagoya University, Japan; <i>Y Ohya</i> , Tokyo Electron Miyagi Limited; <i>M Hori</i> , Nagoya University, Japan		PS+PB-TuM-13 Plasma-Surface Interaction at Atmospheric Pressure: From Mechanisms with Model Polymers to Applications for Sterilization, Pingshan Luan ¹ , <i>G Oehrlein</i> , University of Maryland, College Park

Tuesday Morning, October 23, 2018

Advanced Surface Engineering Division Room 202C - Session SE+PS-TuM Plasma-assisted Surface Modification and Deposition Processes Moderators: Jolanta Klemberg-Sapieha, Ecole Polytechnique de Montreal, Canada, Matjaz Panjan, Jozef Stefan Institute, Slovenia		Surface Science Division Room 203C - Session SS+HC+NS+PS-TuM Controlling Mechanisms of Surface Chemical Reactions Moderators: Bruce D. Kay, Pacific Northwest National Laboratory, Arthur Utz, Tufts University	
8:00am	SE+PS-TuM-1 Surface Modification of 304 Stainless Steel by Neutral Nitriding, <i>Petros Abraha</i> , Meijo University, Japan	INVITED: SS+HC+NS+PS-TuM-1 Bond Making and Bond Breaking at Wet and Dry Surfaces, <i>Angelos Michaelides</i> , University College London, UK Invited talk continues.	
8:20am	SE+PS-TuM-2 Plasma Cratering and Hardening for Friction Reduction and Wear Resistance of Cast Iron, <i>Wei Zha</i> , University of Windsor, Canada; <i>C Zhao, X Nie</i> , University of Windsor, Canada		
8:40am	SE+PS-TuM-3 Area-selective Deposition by Surface Engineering for Applications in Nanoelectronics. From Blanket to Confined Dimensions, <i>Silvia Armini</i> , IMEC, Belgium	SS+HC+NS+PS-TuM-3 Stability and Reactivity of Isolated Rh ₁ Atoms on Fe ₃ O ₄ (001), <i>Gareth Parkinson</i> , TU Wien, Austria	
9:00am	SE+PS-TuM-4 Experimental and Numerical Evaluation of Cohesive and Adhesive Failure Modes during Indentation of TiAlN Coatings on Si(100) Deposited by MPPMS, <i>Z.T. Jiang, M Lei</i> , Dalian University of Technology, China	SS+HC+NS+PS-TuM-4 The Mechanism of Glaser Coupling Reactions on Ag(111) and Cu(111) Surfaces: a Case for Halogen Substituted Terminal Alkyne, <i>T Wang, H Lv</i> , University of Science and Technology of China, China; <i>L Feng</i> , University of Science and Technology of China, China; <i>J Huang, X Wu</i> , University of Science and Technology of China, China; <i>Junfa Zhu</i> , National Synchrotron Radiation Laboratory and Department of Chemical Physics, University of Science and Technology of China, China	
9:20am	SE+PS-TuM-5 Growth of TiB _x Thin Films by DC Magnetron Sputtering and High-Power Impulse Magnetron Sputtering: Effect of Pressure and Substrate Temperature, <i>Niklas Hellgren</i> , Messiah College; <i>J Thörnberg, I Zhirkov</i> , Linköping University, Sweden; <i>G Greczynski</i> , Linköping University, Sweden; <i>J Palisaitis</i> , Linköping University, Sweden; <i>M Sortica</i> , Uppsala University, Sweden; <i>P Persson</i> , Linköping University, Sweden; <i>I Petrov, J Greene</i> , University of Illinois at Urbana-Champaign; <i>L Hultman, J Rosen</i> , Linköping University, Sweden	SS+HC+NS+PS-TuM-5 Sulfur-driven Switching of the Ullmann Coupling on Au(111), <i>Jonathan Rodríguez-Fernández, S Schmidt, J Lauritsen</i> , Aarhus University, Denmark	
9:40am	SE+PS-TuM-6 Time-resolved Analysis of the Cathodic Arc Plasma from Nb-Al Cathodes, <i>S Zährer</i> , Montanuniversität Leoben, Austria; <i>A Anders</i> , Lawrence Berkeley National Laboratory, Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany; <i>D Holec, Robert Franz</i> , Montanuniversität Leoben, Austria	SS+HC+NS+PS-TuM-6 The Step Sites of Ultrathin ZnO Promote Methanol Oxidation to Formaldehyde, <i>Xingyi Deng, D Sorescu, J Lee</i> , National Energy Technology Laboratory	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: SE+PS-TuM-10 Dedicated Experiments to Challenge a Model for Reactive Magnetron Sputtering, <i>Diederik Depla</i> , Ghent University, Belgium	SS+HC+NS+PS-TuM-10 Investigation of Configuration Change in Water Clusters on a Bilayer ZnO Surface, <i>Junseok Lee, D Sorescu, X Deng</i> , National Energy Technology Laboratory	
11:20am	Invited talk continues.	SS+HC+NS+PS-TuM-11 Oxygen Reduction Reaction on Fullerene, <i>Yosuke Kikuchi, J Nakamura</i> , The University of Electro-Communications (UEC-Tokyo), Japan	
11:40am	SE+PS-TuM-12 Current-voltage-time Characteristics of HiPIMS Discharges Revisited, <i>André Anders</i> , Leibniz Institute of Surface Engineering (IOM), Germany	SS+HC+NS+PS-TuM-12 Surface Structure and Reactivity of Ni-Cu Single-Atom Alloys, <i>Dipna Patel, C Sykes</i> , Tufts University	
12:00pm	SE+PS-TuM-13 Advantages Associated with Applying a Positive Pulse Option to a HiPIMS Power Supply, <i>Jason Hrebik</i> , Kurt J. Lesker Company	SS+HC+NS+PS-TuM-13 Effective Local Structure for Bottom-up Designed ORR Catalyst Using Pyridinic Nitrogen Containing Molecules, <i>Kotarou Takeyasu, Y Shimoyama, M Furukawa, S Singh, J Nakamura</i> , University of Tsukuba, Japan	

Tuesday Morning, October 23, 2018

Thin Films Division Room 104B - Session TF+AM+EM+PS-TuM Atomic Layer Processing: Area Selective Deposition Moderators: Christophe Vallee, LTM - MINATEC - CEA/LETI, France, Steven George, University of Colorado at Boulder		Thin Films Division Room 102A - Session TF+AS-TuM Special Session in Honor of Paul Holloway: Luminescent Materials Growth, Synthesis and Characterization Moderators: Sean Jones, National Science Foundation, Jay Lewis, RTI International	
8:00am	INVITED: TF+AM+EM+PS-TuM-1 New Approaches for Area-Selective Atomic Layer Deposition: Inspiration from Etching, Adrie Mackus , Eindhoven University of Technology, The Netherlands, Nederland	TF+AS-TuM-1 INTRO: Special Session Honoring Professor Paul H. Holloway, Gary McGuire , Adamas Nanotechnologies	
8:20am	Invited talk continues.	TF+AS-TuM-2 Harnessing Disorder in Detectors, Jay Lewis , Defense Advanced Research Projects Agency	
8:40am	TF+AM+EM+PS-TuM-3 Nucleation of HfO ₂ on Si, SiO ₂ and TiN Substrates in PE-ALD Processes Investigated by In situ Ellipsometry and Optical Emission Spectroscopy (OES), Marceline Bonvalot , <i>S belahcen, V Pesce, A Chaker, P Gonon, C Vallée, A Bsiesy</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France	INVITED: TF+AS-TuM-3 Luminescent Materials for Solid State Lighting and Solar Cell Applications, Hendrik C Swart , <i>J Terblans</i> , University of the Free State, Republic of South Africa, South Africa; <i>R Kroon, E Coetsee, M Duvenhage, E Hasabeldaim, A Balakrishna, A Kumar</i> , University of the Free State, Republic of South Africa; <i>P Holloway</i> , University of Florida	
9:00am	TF+AM+EM+PS-TuM-4 Topographical Selectivity with BN Electron-Enhanced ALD, Jaclyn Sprenger , <i>A Cavanagh, H Sun</i> , University of Colorado at Boulder; <i>A Roshko, P Blanchard</i> , National Institute of Standards and Technology; <i>S George</i> , University of Colorado at Boulder	Invited talk continues.	
9:20am	TF+AM+EM+PS-TuM-5 Optimization by In situ Ellipsometry of ALD and ALE Successive Steps for the Selective Atomic Layer Deposition of Ta ₂ O ₅ on TiN and Si., Vincent Pesce , <i>C Vallée</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France; <i>R Gassilloud</i> , Cea Leti, France; <i>A Chaker, M Bonvalot, B Pelissier</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France; <i>P Nicolas</i> , Cea, France; <i>A Bsiesy</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France	INVITED: TF+AS-TuM-5 Fluorescent Nanodiamond for Applications in Whole Body Imaging, Olga Shenderova , <i>M Torelli</i> , Adamas Nanotechnologies; <i>A Rickard</i> , Duke University; <i>N Nunn</i> , Adamas Nanotechnologies; <i>J Backer</i> , SibTech; <i>G Palmer</i> , Duke University; <i>G McGuire</i> , Adamas Nanotechnologies	
9:40am	TF+AM+EM+PS-TuM-6 ALD and PEALD of ZnO on MoS ₂ and WSe ₂ , Timothy N. Walter ¹ , <i>S Lee</i> , The Pennsylvania State University; <i>M Chubarov</i> , The Pennsylvania State University; <i>X Zhang</i> , The Pennsylvania State University; <i>T Choudhury</i> , <i>J Redwing</i> , The Pennsylvania State University; <i>T Jackson</i> , <i>S Mohnney</i> , The Pennsylvania State University	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: TF+AM+EM+PS-TuM-10 From Fundamental Insights into Growth and Nucleation Mechanisms to Area-selective Deposition, Annelies Delabie , IMEC & KU Leuven, Belgium; <i>J Soethoudt</i> , KU Leuven, Belgium; <i>G Pourtois</i> , <i>S Van Elshocht</i> , <i>K Barla</i> , Imec, Belgium; <i>F Grillo</i> , <i>E Marques</i> , <i>R van Ommen</i> , TU Delft, Netherlands	INVITED: TF+AS-TuM-10 The Apple does not Fall Far from the Tree: A Serendipitous Journey from Luminescent Materials to Nanoscale Focused Electron (and Ion) Beam Induced Processing, Philip D. Rack , University of Tennessee Knoxville	
11:20am	Invited talk continues.	Invited talk continues.	
11:40am	TF+AM+EM+PS-TuM-12 DETA SAMs as ALD Ru Inhibitor for Area-selective Bottom-up Interconnects, Ivan Zyulkov , IMEC & KU Leuven; <i>S Armini</i> , IMEC, Belgium; <i>S De Gendt</i> , IMEC, KU Leuven, Belgium	INVITED: TF+AS-TuM-12 Atomic Layer Deposition of Optoelectronic Materials, Markku Leskela , <i>M Ritala</i> , University of Helsinki, Finland	
12:00pm		Invited talk continues.	

Tuesday Morning, October 23, 2018

Thin Films Division Room 101A - Session TF-TuM Emerging Applications for ALD Moderators: Arrelaine Dameron, Forge Nano, Qing Peng, University of Alabama		Vacuum Technology Division Room 203B - Session VT-TuM Large Vacuum Systems and Accelerator Vacuum Technology Moderator: Yevgeniy Lushtak, SAES Getters USA	
8:00am	TF-TuM-1 Atomic Layer Deposition of the Metal Pyrites FeS ₂ , CoS ₂ , and NiS ₂ , <i>Xinwei Wang</i> , Shenzhen Graduate School, Peking University, China	INVITED: VT-TuM-1 Design of Vacuum Control System for the Linac Coherent Light Source II (LCLS-II) at SLAC National Accelerator Laboratory, <i>Shweta Saraf, S Kwon, G Lanza, D Gill</i> , SLAC National Accelerator Laboratory	
8:20am	TF-TuM-2 Atomic Layer Deposition of Yttrium Fluoride and Yttrium Oxyfluoride Films with Tunable Stoichiometry, <i>Jasmine Wallas¹, J Murdzek, D Lancaster, A Cavanagh, S George</i> , University of Colorado at Boulder	Invited talk continues.	
8:40am	TF-TuM-3 Synthesis of Single Phase Two-dimensional SnS ₂ by Plasma-enhanced Atomic Layer Deposition, <i>J Pyeon, I Baek</i> , Korea Institute of Science and Technology; <i>T Chung</i> , Korea Research Institute of Chemical Technology; <i>J Han</i> , Seoul National University of Science and Technology; <i>C Kang, SeongKeun Kim</i> , Korea Institute of Science and Technology, Republic of Korea	VT-TuM-3 Vacuum System Design for Advanced Light Source Upgrade (ALS-U), <i>Sol Omolayo</i> , Lawrence Berkeley Lab, University of California, Berkeley	
9:00am	TF-TuM-4 Phase Selective, Low Temperature Growth of TiO ₂ by Atomic Layer Epitaxy, <i>Jason Avila, D Boris, S Qadri, J Freitas, S Walton, C Eddy Jr., V Wheeler</i> , U.S. Naval Research Laboratory	VT-TuM-4 Vacuum System for CHESS-U: Design, Manufacturing, and Installation, <i>Xianghong Liu, D Burke, A Holic, Y Li, A Lyndaker</i> , Cornell University	
9:20am	TF-TuM-5 Substrate Biasing During Plasma Atomic Layer Deposition: From Stress-controlled Oxides to Low-resistivity Nitrides, <i>Harm Knoops</i> , Oxford Instruments, The Netherlands; <i>T Faraz</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>K Arts</i> , Eindhoven University of Technology, The Netherlands; <i>S Karwal, M Creatore, E Kessels</i> , Eindhoven University of Technology, The Netherlands, Netherlands	VT-TuM-5 Design and Fabrication of CHESS-U Crotch Absorbers, <i>Yulin Li, X Liu, A Lyndaker, K Smolenski, A Woll, L Smieska</i> , Cornell Laboratory of Accelerator-based Sciences and Education	
9:40am	TF-TuM-6 Development of Novel Superconducting ALD Films for Astronomy Applications, <i>Frank Greer, P Day, B Eom, H Leduc</i> , Jet Propulsion Laboratory, California Institute of Technology	VT-TuM-6 Simulation and Measurement of the Tritium Retention in the Beamline of the KATRIN Experiment, <i>Joachim Wolf</i> , Karlsruhe Institute of Technology, Germany	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	TF-TuM-10 Atomic Layer Deposition of Cobalt Nanoparticles, <i>Gerben van Straaten, E Kessels, M Creatore</i> , Eindhoven University of Technology, The Netherlands, Netherlands	VT-TuM-10 NSLS-II Beamline Vacuum Challenges: Design, Commissioning, and Operations, <i>Robert Todd, C Hetzel</i> , Brookhaven National Laboratory	
11:20am	TF-TuM-11 Atomic Layer Deposition of Ni-Al-O Catalysts for Water Oxidation, <i>Jon Baker, J Schneider, J Singh, A Mackus, S Bent</i> , Stanford University	VT-TuM-11 Thin film Heterostructures for Superconducting Photocathode Applications, <i>Mark Warren</i> , Illinois Institute of Technology	
11:40am	TF-TuM-12 Atomic Layer Deposition of Bismuth Vanadate Photoanodes, <i>Sudarat Lee, A Bielinski, S Esarey, J Brancho, B Bartlett, N Dasgupta</i> , University of Michigan, Ann Arbor	VT-TuM-12 TPD Results on Electrode Materials for Pulsed Power Vacuum Environments, <i>Ronald Goeke, S Simpson, K Coombes, K Alam, D Adams</i> , Sandia National Laboratories	
12:00pm	TF-TuM-13 ALD of Cobalt Phosphate Electro-catalyst for Oxygen Evolution Reaction, <i>Valerio Di Palma</i> , Eindhoven University of Technology, The Netherlands; <i>G Zafeiropoulos, M Tsampas</i> , DIFFER; <i>W Kessels</i> , Eindhoven University of Technology, The Netherlands; <i>M Creatore</i> , Eindhoven University of Technology, The Netherlands, Netherlands	VT-TuM-13 Radio Frequency Surface Resistance Measurement of Metals for Accelerator Vacuum Chamber, <i>Omid Seify</i> , STFC/DL/ASTeC, Daresbury, Warrington, Cheshire, UK	

Tuesday Morning, October 23, 2018

Exhibitor Technology Spotlight Workshops Room Hall A - Session EW-TuB Exhibitor Technology Spotlight Session I Moderator: Christopher Moffitt, Kratos Analytical Inc		Manufacturing Science and Technology Group Room 103C - Session MS-TuB Working with Government Labs and other User Facilities Moderator: Bridget Rogers, Vanderbilt University	
10:00am			MS-TuB-1 Joining the Research Community at the Cornell NanoScale Science and Technology Facility, <i>Michael Skvarla</i> , Cornell University
10:20am	EW-TuB-2 IMPULSE HIPIMS Power Supply with Positive Pulse Option Advantages, <i>Jason Hrebik</i> , Kurt J. Lesker Company		MS-TuB-2 Opportunities at DOE Nanoscale Science Research Centers, <i>Arthur Baddorf</i> , Oak Ridge National Laboratory
10:40am	EW-TuB-3 Choosing the Proper Equipment for Vacuum Heat Treatment, <i>Rachael Stene</i> , Across International		

Tuesday Afternoon, October 23, 2018

Exhibitor Technology Spotlight Workshops
Room Hall A - Session EW-TuL
Exhibitor Technology Spotlight Session II
Moderator: Christopher Moffitt, Kratos Analytical Inc

12:00pm		
12:20pm		
12:40pm	EW-TuL-3 Correlative Spectroscopy with the Thermo Scientific Nexsa, Tim Nunney , <i>P Mack, R Simpson</i> , Thermo Fisher Scientific, UK	
1:00pm	EW-TuL-4 Exploring the Capabilities of a Modern XPS Spectrometer: In-situ Surface Preparation & Modification, Adam Roberts , Kratos Analytical Limited, UK; <i>D Surman, C Moffitt</i> , Kratos Analytical Inc; <i>J Counsell</i> , Kratos Analytical Ltd, UK	
1:20pm	EW-TuL-5 Design and Characterization of Nanomaterials using PREVAC's Research Platforms, Lukasz Walczak , PREVAC sp. z o.o., Poland	
1:40pm	EW-TuL-6 Agilent's New Helium Leak Detector, John McLaren , Agilent	
2:00pm	EW-TuL-7 Auger Multi-Technique: EDS, EBSD, BSE, FIB, John Newman , Physical Electronics	

Tuesday Afternoon, October 23, 2018

2D Materials Focus Topic Room 201B - Session 2D+EM+MI+MN+NS-TuA 2D Device Physics and Applications Moderator: Roland Kawakami, The Ohio State University		Applied Surface Science Division Room 204 - Session AS-TuA The Impact of Modeling (Ion, Electron) and Data Analysis on Applied Surface Science, a Celebration of the Career of Barbara Garrison Moderators: Gregory L. Fisher, Physical Electronics, Alexander Shard, National Physical Laboratory	
2:20pm	2D+EM+MI+MN+NS-TuA-1 Spin Relaxation and Proximity Effect in WS ₂ /Graphene/Fluorographene Non-local Spin Valves, Adam Friedman , Laboratory for Physical Sciences; <i>K McCreary, J Robinson, O van 't Erve, B Jonker</i> , US Naval Research Laboratory	INVITED: AS-TuA-1 Collective Action, the Key to Soft Molecule Desorption under Particle Bombardment, Arnaud Delcorte , Université catholique de Louvain, Belgium	
2:40pm	2D+EM+MI+MN+NS-TuA-2 Two-dimensional Field-effect Light Emitting Transistors, Junyoung Kwon , <i>H Ryu</i> , Yonsei University, Republic of Korea; <i>J Lee, C Lee</i> , Korea University, Republic of Korea; <i>G Lee</i> , Yonsei University, Republic of Korea	Invited talk continues.	
3:00pm	INVITED: 2D+EM+MI+MN+NS-TuA-3 Quantum Devices with 2D Materials, <i>H Overweg, M Eich, R Pisoni, T Ihn, P Rickhaus</i> , ETH Zurich, Switzerland; <i>Klaus Ensslin</i> , ETH Zürich, Switzerland	AS-TuA-3 Mechanisms of the Generation of Nanoparticles and Surface Modification in Short Pulse Laser Ablation of Metal Targets in Liquids, Leonid Zhigilei , <i>C Shih, M Shugaev</i> , University of Virginia	
3:20pm	Invited talk continues.	AS-TuA-4 First Principles Thermodynamics and Molecular Modeling of Surfaces in Aqueous Environments, Donald Brenner , <i>Z Rak, L Su, J Krim</i> , North Carolina State University	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	2D+EM+MI+MN+NS-TuA-7 GaN Microdisk Light-emitting Diode Display Fabricated on Graphene, Youngbin Tchoe , <i>K Chung, K Lee, M Song, J Park, H Kim, J Park, G Yi</i> , Seoul National University, Republic of Korea	INVITED: AS-TuA-7 Computer Modeling of Cluster Projectile Impacts for SIMS Applications, Zbigniew Postawa , Jagiellonian University, Krakow, Poland	
4:40pm	2D+EM+MI+MN+NS-TuA-8 Room Temperature Magnetron Sputtering and Laser Annealing of Ultrathin MoS ₂ for Transistor Device Fabrication on Flexible Polymer Substrates, Benjamin Sirota , University of North Texas; <i>N Glavin</i> , Air Force Research Laboratory; <i>C Arnold, A Voevodin</i> , University of North Texas	Invited talk continues.	
5:00pm	INVITED: 2D+EM+MI+MN+NS-TuA-9 Black Phosphorus: Fundamental Properties and Emerging Applications, Han Wang , University of Southern California	AS-TuA-9 Use of Ion-Solid Interactions Modeling and Theory for Real Applications in FIB Milling, Lucille Giannuzzi , L.A. Giannuzzi & Associates LLC	
5:20pm	Invited talk continues.	AS-TuA-10 The Influence of the Projectile Cluster on the Molecular Ionization Probability in SIMS, Lars Breuer , <i>A Wucher</i> , Universität Duisburg-Essen, Germany; <i>N Winograd</i> , The Pennsylvania State University	
5:40pm	2D+EM+MI+MN+NS-TuA-11 Patterned Growth of Hybrid Bulk-2D Tungsten Diselenide for Transistor Applications, Quinten Yurek , <i>I Liao, D Barroso, A Nguyen, N Duong, G Stecklein, L Bartels</i> , University of California, Riverside	INVITED: AS-TuA-11 In Situ Liquid SIMS, a Molecular Eye for Examination of Liquids and Liquid Interfaces, Zihua Zhu ¹ , <i>Y Zhang</i> , Pacific Northwest National Laboratory	
6:00pm	2D+EM+MI+MN+NS-TuA-12 Enhanced Ionic Sensitivity in Solution-Gated Graphene-Hexagonal Boron Nitride Heterostructure Field-Effect Transistors, <i>A Radadia</i> , Nowzesh Hasan , <i>B Hou, A Moore</i> , Louisiana Tech University	Invited talk continues.	

Tuesday Afternoon, October 23, 2018

Biomaterial Interfaces Division Room 101B - Session BI+AS+IPF+NS-TuA IoT Session: Biofabrication, Bioanalytics, Biosensors and Diagnostics Moderators: Graham Leggett, University of Sheffield, UK, Tobias Weidner, Aarhus University, Denmark		Electronic Materials and Photonics Division Room 101A - Session EM+2D+AN+MI+MP+NS-TuA Solar/Energy Harvesting and Quantum Materials and Applications Moderators: Yohannes Abate, Georgia State University, Nicholas Strandwitz, Lehigh University	
2:20pm	BI+AS+IPF+NS-TuA-1 Functionalization of Silica Materials <i>via</i> Click Reaction of Surface Silanol Groups with Vinyl Sulfones, <i>Fang Cheng, H Wang, W He, B Sun, J Qu</i> , Dalian University of Technology, China	INVITED: EM+2D+AN+MI+MP+NS-TuA-1 Plasmonic Metasurface Electrodes for Excitonic Solar Cells., <i>Deirdre O'Carroll</i> , Rutgers, the State University of New Jersey Invited talk continues.	
2:40pm	BI+AS+IPF+NS-TuA-2 Organosilica pH Nanosensors Applied to Realtime Metabolite Monitoring, <i>Kye Robinson</i> , Monash University, Australia; <i>K Thurecht</i> , University of Queensland, Australia; <i>S Corrie</i> , Monash University, Australia		
3:00pm	BI+AS+IPF+NS-TuA-3 Impact of Different Receptor Binding Modes on Surface Morphology and Electrochemical Properties of PNA-based Sensing Platforms, <i>Johannes Daniel Bartl</i> , Walter Schottky Institut (WSI) and Physics Department, Technische Universität München, Germany; <i>P Scarbolo</i> , Dipartimento Politecnico di Ingegneria e Architettura (DPIA), Università degli Studi di Udine, Italy; <i>S Gremmo, G Rzig, M Stutzmann</i> , Walter Schottky Institut (WSI) and Physics Department, Technische Universität München, Germany; <i>M Tornow</i> , Molecular Electronics Group and Department of Electrical and Computer Engineering, Technische Universität München, Germany; <i>L Selmi</i> , Dipartimento di Ingegneria "Enzo Ferrari" (DIEF), Università di Modena e Reggio Emilia, Italy; <i>A Cattani-Scholz</i> , Walter Schottky Institut (WSI) and Physics Department, Technische Universität München, Germany	EM+2D+AN+MI+MP+NS-TuA-3 Photoemission Electron Microscopy as a New Tool to Study the Electronic Properties of an Inhomogeneous Semiconductor for Photovoltaics, <i>M Berg</i> , Sandia National Laboratories; <i>J Kephart, A Munshi, W Sampath</i> , Colorado State University; <i>Taisuke Ohta, C Chan</i> , Sandia National Laboratories	
3:20pm	BI+AS+IPF+NS-TuA-4 Biosensor for Detection of Gasotransmitter from Living Cells Employing Silver Nanorods Array, <i>Shashank Gahlaut, C Sharan, J Singh</i> , Indian Institute of Technology Delhi, India	EM+2D+AN+MI+MP+NS-TuA-4 Modification of Bandgap for Lead-Free Double Perovskite Cs ₂ AgInCl ₆ with Bi Doping, <i>Hassan Siddique</i> , University of Science and Technology of China; <i>H Da, X Wang</i> , University of Science and Technology of China, China; <i>R Dai, Z Wang</i> , University of Science and Technology of China; <i>Z Ding, Z Zhang</i> , University of Science and Technology of China, China	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	BI+AS+IPF+NS-TuA-7 Conversion of Human Stem Cells into Insulin Producing Cells Through 2D Platforms for Enhanced in-vitro Insulin Production, <i>S Vishwakarma, A Khan</i> , Central Laboratory for Stem Cell Research and Translational Medicine, Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, India; <i>Marshal Dhayal</i> , IIT (BHU), Varanasi, India	INVITED: EM+2D+AN+MI+MP+NS-TuA-7 Optimized (Quantum) Photonics, <i>Jelena Vuckovic</i> , Stanford University	
4:40pm	BI+AS+IPF+NS-TuA-8 Polyzwitterion-modified Nanoparticles for Selective Antibody Separation, <i>F Cheng, C Zhu, Wei He, B Sun, J Qu</i> , Dalian University of Technology, China	Invited talk continues.	
5:00pm	BI+AS+IPF+NS-TuA-9 Orienting Proteins on Surfaces with Site-specific Bioorthogonal Ligations, <i>Riley Bednar, R Mehl</i> , Department of Biochemistry and Biophysics, Oregon State University	EM+2D+AN+MI+MP+NS-TuA-9 Optical Properties of Single Silicon Vacancies in 4H-SiC, <i>H Banks</i> , National Research Council Postdoc residing at the Naval Research Laboratory; <i>O Soykal</i> , Sotera Defense Solutions, Inc, residing at the Naval Research Laboratory; <i>S Pavunny, R Myers-Ward, D Gaskill, Samuel Carter</i> , U.S. Naval Research Laboratory	
5:20pm	BI+AS+IPF+NS-TuA-10 High-throughput Study of the Role of Spatial Organization on the Activity of Surface-Bound Enzymes, <i>Nourin Alsharif</i> , Boston University; <i>T Lawton, J Uzarski</i> , Natick Soldier Research, Development and Engineering Center; <i>K Brown</i> , Boston University	EM+2D+AN+MI+MP+NS-TuA-10 Photoluminescence Studies on Patterned Silicon Vacancy Defects in Li Ion Implanted 4H-SiC for Scalable Quantum Device Applications, <i>Shojan Pavunny</i> , U. S. Naval Research Laboratory; <i>S Carter, H Banks, R Myers-Ward, P Klein</i> , U.S. Naval Research Laboratory; <i>E Bielejec</i> , Sandia National Laboratories; <i>M DeJarld, A Bracker, E Glaser, D Gaskill</i> , U.S. Naval Research Laboratory	
5:40pm	BI+AS+IPF+NS-TuA-11 Fabrication of Amino acid Contained Poly-lactic Acid Nanofibers by Electrospinning. <i>C Li</i> , National Yang Ming University, Taiwan, Republic of China; <i>J Hsieh</i> , Ming Chi University of Technology, Taiwan, Republic of China; <i>P.H. Lin</i> , National Yang Ming University, Taiwan, Republic of China	EM+2D+AN+MI+MP+NS-TuA-11 Processing of Cavities in SiC Material for Quantum Technologies, <i>Rachael Myers-Ward, K Hobart, K Daniels, A Giles, M Tadjer, L Luna, F Kub, S Pavunny, S Carter, H Banks, E Glaser</i> , U.S. Naval Research Laboratory; <i>P Klein</i> , Sotera Defense Solutions; <i>K Qiao, Y Kim, J Kim</i> , Massachusetts Institute of Technology; <i>K Gaskill</i> , U.S. Naval Research Laboratory	
6:00pm		EM+2D+AN+MI+MP+NS-TuA-12 Investigation of Localized Electronic structures of PbSe Quantum Dot Superlattice on a Highly Oriented Pyrolytic Graphite (HOPG), <i>Il Jo Kwak, S Ueda</i> , University of California at San Diego; <i>A Abelson, C Qian, M Law</i> , University of California, Irvine; <i>A Kummel</i> , University of California at San Diego	

Tuesday Afternoon, October 23, 2018

	<p>Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-TuA A Tale of Two Scales: Catalytic Processes and Surface Science Moderator: Ashleigh Baber, James Madison University</p>	<p>Manufacturing Science and Technology Group Room 202B - Session MS+MN-TuA IoT Session: Challenges of Sensor Manufacturing for the IoT Moderator: Robert Lad, University of Maine</p>
2:20pm	<p>HC+SS-TuA-1 CO₂ Reduction on the Surface of Cu/TiO₂ NPs Supported on Graphite Studied using Ambient Pressure-XPS and Differential Electrochemical Mass Spectrometer, Djawhar Ferrah, A Haines, R Galhenage, University of California at Irvine; A Javier, California Institute of Technology; J Bruce, University of California at Irvine; M Soriaga, California Institute of Technology; J Hemminger, University of California at Irvine</p>	<p>INVITED: MS+MN-TuA-1 Manufacturing Strategies for Flexible Hybrid Electronics, Scott Miller, NextFlex</p>
2:40pm	<p>HC+SS-TuA-2 Influence of Bi and Sb on the Structure of Pd-based Catalysts, Joo Kang, W Lee, P Vlasak, The Dow Chemical Company; A Kirilin, The Dow Chemical Company, Netherlands; H Clements, C Menzies, S Yusuf, The Dow Chemical Company</p>	<p>Invited talk continues.</p>
3:00pm	<p>INVITED: HC+SS-TuA-3 The Molecular Surface Chemistry Approach to Heterogeneous Catalysts, Peter Stair, Northwestern University</p>	<p>INVITED: MS+MN-TuA-3 Enabling Smart and Connected Living through High Volume Roll to Roll Manufacturing, Enid Kivuti, Sheldahl Flexible Technologies</p>
3:20pm	<p>Invited talk continues.</p>	<p>Invited talk continues.</p>
3:40pm	<p>BREAK</p>	<p>BREAK</p>
4:00pm	<p>BREAK</p>	<p>BREAK</p>
4:20pm	<p>HC+SS-TuA-7 Formation and Stability of Subsurface Oxygen on Ag(111), Marie Turano, Loyola University Chicago; S Isbill, S Roy, University of Tennessee Knoxville; R Farber, Loyola University Chicago; E Iski, University of Tulsa; D Killelea, Loyola University Chicago</p>	<p>INVITED: MS+MN-TuA-7 New Generation Chemical and Biological Sensors: From New Ideas to Manufacturable Products in the era of Internet of Things and Industrial Internet, Radislav Potyrailo, General Electric Global Research Center</p>
4:40pm	<p>HC+SS-TuA-8 Mechanistic Insights into Catalytic Transfer Hydrogenation and Decarbonylation of Aromatic Aldehydes on P_x-Ru(0001), Abinaya Sampath, D Flaherty, University of Illinois at Urbana-Champaign</p>	<p>Invited talk continues.</p>
5:00pm	<p>HC+SS-TuA-9 Hot Electron Flux under Methanol Oxidation on Pt/TiO₂ Catalytic Nanodiode; Intrinsic Relation between Selectivity and Chemicurrent, Si Woo Lee, S Lee, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; H Lee, Institute for Basic Science (IBS), Republic of Korea; W Park, Y Jung, J Park, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea</p>	<p>INVITED: MS+MN-TuA-9 The Unique Challenges Implantable Sensor Manufacture, Kimberly Chaffin, S Terry, Medtronic plc</p>
5:20pm	<p>HC+SS-TuA-10 Online Kinetics Study of Oxidative Coupling of Methane over La₂O₃ for C₂ Activation: What is Behind the Distinguished Light-off Temperatures, Yong Yang, Z Liu, E Vovk, X Zhou, C Guan, ShanghaiTech University, China</p>	<p>Invited talk continues.</p>
5:40pm	<p>INVITED: HC+SS-TuA-11 Non-Innocent Solvents, Hydrogen Transfer, Oxygen Dissociation on Nanoparticles during the Direct Synthesis of H₂O₂, David W. Flaherty, University of Illinois, Urbana-Champaign</p>	
6:00pm	<p>Invited talk continues.</p>	

Tuesday Afternoon, October 23, 2018

<p>Nanometer-scale Science and Technology Division Room 102B - Session NS+AM+MI+MN+SS+TR-TuA SPM – Probing and Manipulating Nanoscale Structures Moderators: Renu Sharma, NIST Center for Nanoscale Science and Technology, Carl Ventrice, Jr., SUNY Polytechnic Institute</p>		<p>Processing and Characterization of Air-Liquid, Solid-Liquid and Air-Solid Interfaces Focus Topic Room 202A - Session PC+AS+BI+EM+NS+PB+SS-TuA Progress in Industrial Processes and Characterization of Interfaces and Gas-Solid Interfacial Processes and Characterization Moderators: Jeffrey Fenton, Medtronic, Inc., Xiao-Ying Yu, Pacific Northwest National Laboratory</p>	
2:20pm	<p>INVITED: NS+AM+MI+MN+SS+TR-TuA-1 Building Artificial Quantum Matter with Dopant Atoms, <i>Sven Rogge</i>, University of New South Wales, Australia</p>	<p>INVITED: PC+AS+BI+EM+NS+PB+SS-TuA-1 Near Ambient Pressure XPS as a Standard Tool for True Non-destructive High-throughput Surface Chemical Analysis in Industrial Applications, <i>Andreas Thissen</i>, <i>P Dietrich</i>, SPECS Surface Nano Analysis GmbH, Germany; <i>M Kjaervik</i>, <i>W Unger</i>, Bundesanstalt für Materialforschung und -prüfung (BAM), Germany</p> <p>Invited talk continues.</p>	
2:40pm	Invited talk continues.		
3:00pm	<p>NS+AM+MI+MN+SS+TR-TuA-3 Scanning Tunneling Microscopy Study of Structure Control of a Nanocarbon Catalyst through a Surface-Activated coupling Reaction, <i>Jeremy Schultz</i>, <i>P Whiteman</i>, <i>N Jiang</i>, University of Illinois at Chicago</p>	<p>INVITED: PC+AS+BI+EM+NS+PB+SS-TuA-3 Surface Modifications in the Medical Device Field – Understanding of Methods to Control Adhesion and Reactions That Materials Undergo, <i>Jeffrey Fenton</i>, <i>B Theilacker</i>, <i>A Belu</i>, <i>B Tischendorf</i>, Medtronic</p> <p>Invited talk continues.</p>	
3:20pm	<p>NS+AM+MI+MN+SS+TR-TuA-4 Detecting the Tip Shape Dependence of the Plasmonic Photon Emission under STM, <i>Songbin Cui</i>, Pohang University of Science and Technology, Republic of Korea; <i>U Ham</i>, Institute for Basic Science (IBS), Republic of Korea; <i>T Kim</i>, Pohang University of Science and Technology, Republic of Korea</p>		
3:40pm	BREAK	BREAK	
4:00pm	BREAK		
4:20pm	<p>INVITED: NS+AM+MI+MN+SS+TR-TuA-7 Advances in SPM Methods for Energy-relevant Materials, <i>Marina Leite</i>, University of Maryland College Park</p>	<p>INVITED: PC+AS+BI+EM+NS+PB+SS-TuA-7 Ambient Pressure X-Ray Photoelectron Spectroscopy Studies of Catalytically Active Interfaces using Electron Transparent Graphene Membranes, <i>R Mom</i>, <i>L Frevel</i>, Fritz-Haber Institute of the Max Planck Society, Germany; <i>J Velasco-Velez</i>, MPI CEC Mülheim, Germany; <i>T Jones</i>, <i>M Plodinec</i>, Fritz-Haber Institute of the Max Planck Society, Germany; <i>R Schlägl</i>, MPI CEC Mülheim, Germany; <i>Axel Knop-Gericke</i>, Fritz Haber Institute of the Max Planck Society, Germany</p> <p>Invited talk continues.</p>	
4:40pm	Invited talk continues.		
5:00pm	<p>NS+AM+MI+MN+SS+TR-TuA-9 Coherent Electrical Contact to Semiconducting Graphene Nanoribbon, <i>Chuanxu Ma</i>, <i>L Liang</i>, Oak Ridge National Laboratory; <i>Z Xiao</i>, North Carolina State University; <i>A Puzetzyk</i>, <i>K Hong</i>, Oak Ridge National Laboratory; <i>W Lu</i>, <i>J Bernholc</i>, North Carolina State University; <i>A Li</i>, Oak Ridge National Laboratory</p>	<p>INVITED: PC+AS+BI+EM+NS+PB+SS-TuA-9 The Influence of Density and Chemical Bonding on Atomic and Molecular Structures of Alcohols, Water and Oxides, <i>Gabor A. Somorjai</i>, University of California at Berkeley</p> <p>Invited talk continues.</p>	
5:20pm	<p>NS+AM+MI+MN+SS+TR-TuA-10 Visualizing Coordination Structures of Small Gas Molecules to Metallo-porphyrin on Au(111) Using Scanning Tunneling Microscopy, <i>MinHui Chang</i>, Korea University, Republic of Korea; <i>Y Chang</i>, <i>N Kim</i>, Korea Advanced Institute of Science and Technology (KAIST); <i>U Jeon</i>, <i>H Kim</i>, Korea University, Republic of Korea; <i>Y Kim</i>, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; <i>S Kahng</i>, Korea University, Republic of Korea</p>		
5:40pm	<p>NS+AM+MI+MN+SS+TR-TuA-11 Effects of Dimensionality on the Reactivity of Carboxylic-Acid-Terminated Monolayers, <i>Dominic Goronzy</i>¹, <i>E Avery</i>, <i>N Gallup</i>, University of California, Los Angeles; <i>J Staněk</i>, <i>J Macháček</i>, <i>T Baše</i>, Institute of Inorganic Chemistry, Academy of Sciences of the Czech Republic; <i>K Houk</i>, Chemistry and Biochemistry, University of California, Los Angeles; <i>P Weiss</i>, University of California at Los Angeles</p>	<p>PC+AS+BI+EM+NS+PB+SS-TuA-11 Atomic Scale Observation of Oxidation and Reduction of Palladium Surface, <i>Takehiro Tamaoka</i>, <i>H Yoshida</i>, <i>S Takeda</i>, Osaka University, Japan</p>	
6:00pm			
		<p>PC+AS+BI+EM+NS+PB+SS-TuA-12 Polymorphism of Hydrogen-Bonded Clusters at the Vacuum-Solid Interface, <i>Angela Silski</i>, <i>J Petersen</i>, University of Notre Dame; <i>R Brown</i>, Clarkson University; <i>S Corcelli</i>, <i>S Kandel</i>, University of Notre Dame</p>	

Tuesday Afternoon, October 23, 2018

Plasma Science and Technology Division Room 104A - Session PS+EM+NS+SS-TuA Plasma Processing of Challenging Materials - II Moderators: Michael Gordon, University of California at Santa Barbara, Wei Tian, Applied Materials Inc.		Plasma Science and Technology Division Room 104C - Session PS+PB+SE-TuA Atmospheric Pressure Plasmas Moderators: Francois Reniers, Université libre de Bruxelles, Steven Vitale, MIT Lincoln Laboratory	
2:20pm	INVITED: PS+EM+NS+SS-TuA-1 Self-limiting Growth of III-nitride Materials via Hollow-cathode Plasma-ALD: Structural and Chemical Analysis, <i>Necmi Biyikli, A Mohammad, D Shukla</i> , University of Connecticut		PS+PB+SE-TuA-1 Compact, Low Cost Atmospheric Pressure Plasma Jets Driven by Piezoelectric Transformers, <i>Michael Johnson</i> , National Research Council; <i>D Boris, L Petrova, S Walton</i> , Naval Research Laboratory
2:40pm	Invited talk continues.		PS+PB+SE-TuA-2 Process Regimes of Atmospheric Pressure Plasma-enhanced Chemical Vapor Deposition with Source Materials Highly Diluted in Inert Gases, <i>Seungjae Baik, J Jang</i> , Hankyong National University, Republic of Korea; <i>H Oh</i> , Yonsei University, Republic of Korea
3:00pm	PS+EM+NS+SS-TuA-3 Electrostatic Charge of Solution-droplet in Plasma-coupled Micro Reactor, <i>Tae Hwan Kim, S Lee</i> , National Fusion Research Institute, Republic of Korea		PS+PB+SE-TuA-3 Plasma-enhanced Chemical Film Conversion (PECFC): Direct, Low-temperature Growth of Solution-processible and Printable Layered Thin Films, <i>T Liu, R. Mohan Sankaran</i> , Case Western Reserve University
3:20pm	PS+EM+NS+SS-TuA-4 Surfactant-free and Stable Colloidal Metal Oxide Ultra-small Quantum Dots via Plasma-liquid Electrochemistry, <i>Dillibabu Padmanaban, D Carolan, R McGlynn, T Velusamy, P Maguire, D Mariotti</i> , Nanotechnology & Integrated Bio-Engineering Centre, Ulster University, UK		PS+PB+SE-TuA-4 Plasma-based Remediation of Nanoscale Particulate Matter in Charbroiler Smoke Emissions, <i>Sisi Yang, S Subramanian</i> , University of Southern California, Los Angeles; <i>D Singleton</i> , Transient Plasma Systems; <i>C Schroeder, W Schroeder, M Gundersen, S Cronin</i> , University of Southern California, Los Angeles
3:40pm	BREAK		BREAK
4:00pm	BREAK		BREAK
4:20pm	PS+EM+NS+SS-TuA-7 From Organometallic Precursors to Bimetallic Nanocatalysts using Atmospheric-pressure Plasma Processes, <i>Joffrey Baneton, J Mertens, M Smiljanic, S Cauchies, T Segato</i> , Université Libre de Bruxelles, Belgium; <i>Y Busby</i> , Université de Namur, Belgium; <i>G Caldarella</i> , Université de Liège, Belgium; <i>V Debaille, S Godet</i> , Université Libre de Bruxelles, Belgium; <i>J Pireaux</i> , Université de Namur, Belgium; <i>N Job</i> , Université de Liège, Belgium; <i>M Gordon</i> , University of California at Santa Barbara; <i>M Sankaran</i> , Case Western Reserve University; <i>F Reniers</i> , Université Libre de Bruxelles, Belgium		PS+PB+SE-TuA-7 The Interactions of Atmospheric Pressure Plasma Jets with Surfaces: <i>In situ</i> Measurements of Electron Heating in Materials, <i>Scott Walton</i> , U.S. Naval Research Laboratory; <i>J Tomko, B Foley</i> , University of Virginia; <i>D Boris</i> , U.S. Naval Research Laboratory; <i>M Johnson</i> , National Research Council; <i>T Petrova</i> , U.S. Naval Research Laboratory; <i>A Giri, P Hopkins</i> , University of Virginia
4:40pm	PS+EM+NS+SS-TuA-8 Synthesis of Hydrogenated Amorphous Carbon Nanoparticles using High-Pressure CH ₄ +Ar Plasmas and Their Deposition, <i>Kazunori Koga, S Hwang, K Kamataki, N Itagaki</i> , Kyushu University, Japan; <i>T Nakatani</i> , Okayama University of Science, Japan; <i>M Shiratani</i> , Kyushu University, Japan		PS+PB+SE-TuA-8 Surface Activation by Atmospheric Plasma: the Right Technology for the Right Application, <i>A Ozkan, D Merche, Francois Reniers</i> , Université Libre de Bruxelles, Belgium
5:00pm	PS+EM+NS+SS-TuA-9 Antimony-doped Tin Oxide Nanocrystals Synthesized by Low Temperature Plasma, <i>Qinyi Chen, E Thimsen</i> , Washington University in St. Louis		PS+PB+SE-TuA-9 Aluminum Alloy Surface Cleaning by Atmospheric Pressure Microwave Discharge, <i>Lucia Bonova, W Zhu, A Farrokhpahan, D Krogstad, Z Jeckell, S Chaudhuri, D Ruzic</i> , University of Illinois at Urbana-Champaign
5:20pm	PS+EM+NS+SS-TuA-10 Femtosecond Laser Texturing of Plasma-immersed Ti to Create TiN, <i>Chisung Ahn, E Barlaz, D Ruzic</i> , University of Illinois at Urbana-Champaign		PS+PB+SE-TuA-10 Temporal and Spatial Study of a Parallel pin-plate Plasma Reactor, <i>Vladimir Milosavljević, M Gulan, L Scally, P Cullen</i> , BioPlasma Research Group, Dublin Institute of Technology, Dublin, Ireland
5:40pm	PS+EM+NS+SS-TuA-11 Modeling Chemical Reactions in Contact Glow Discharge Electrolysis, <i>Bocong Zheng, M Shrestha, K Wang, T Schuelke, Q Fan</i> , Michigan State University		PS+PB+SE-TuA-11 Plasma-modulated Metamaterials and Photonic Crystals, <i>Jeffrey Hopwood, H Kim</i> , Tufts University
6:00pm	PS+EM+NS+SS-TuA-12 Effects of Light Ion Beam Irradiation in Plasma Etching Processes, <i>Kazuhiro Karahashi, T Ito, H Li, M Isobe, K Mizotani, S Shigeno</i> , Osaka University, Japan; <i>M Fukasawa, A Hirata, T Tatsumi</i> , Sony Semiconductor Solutions Corporation, Japan; <i>S Hamaguch</i> , Osaka University, Japan		PS+PB+SE-TuA-12 Generation of Large-Volume Transient Glow Discharge Plasma by an External Fast Ionization Wave (FIW) from a Plasma Jet, <i>Hamid Razavi, M Laroussi</i> , Old Dominion University

Tuesday Afternoon, October 23, 2018

<p>Reconfigurable Materials and Devices for Neuromorphic Computing Focus Topic Room 203A - Session RM+EM+NS-TuA IoT Session: Reconfigurable Materials and Devices for Neuromorphic Computing Moderators: Gina Adam, National Institute for R&D in Microtechnologies (IMT Bucharest), Brian Hoskins, National Institute of Standards and Technology (NIST)</p>		<p>Advanced Surface Engineering Division Room 202C - Session SE-TuA Wear, Oxidation and Corrosion Protective Coatings Moderators: Suneel Kodambaka, University of California Los Angeles, Andrey Voevodin, University of North Texas</p>	
2:20pm	<p>INVITED: RM+EM+NS-TuA-1 Non-volatile Memories for Neuromorphic Computing, <i>Alec Talin</i>, Sandia National Laboratories</p>	<p>INVITED: SE-TuA-1 Dissociative Extraction of Carbon-based Tribofilms from Hydrocarbon Molecules on Catalytically Active Nanocomposite Coatings, <i>Ali Erdemir, G Ramirez, O Eryilmaz</i>, Argonne National Laboratory</p>	
2:40pm	Invited talk continues.	Invited talk continues.	
3:00pm	<p>INVITED: RM+EM+NS-TuA-3 Anionic and Protonic Transfer Materials for ReRAM and Neuromorphic Computing, <i>Jennifer Rupp</i>, Massachusetts Institute of Technology</p>	<p>SE-TuA-3 Use of Carbon Nanotube-Silver Metal Matrix Composite Thin Films to Enhance Mechanical Properties of Grid Fingers and Busbars on Photovoltaic Cells, <i>Cayla Nelson</i>, University of New Mexico; <i>O Abudayyeh</i>, Osazda Energy, LLC; <i>Y Shen, S Han</i>, University of New Mexico</p>	
3:20pm	Invited talk continues.	<p>SE-TuA-4 Study of Effects of Synergistic Environmental Exposures on Fiber-Reinforce Polymer Composites Protected by Metallic Coatings, <i>Arash Afshar, D Mihut, S Hill</i>, Mercer University School of Engineering</p>	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	<p>INVITED: RM+EM+NS-TuA-7 Memristor Neural Networks for Brain-Inspired Computing, <i>Qiangfei Xia</i>, University of Massachusetts Amherst</p>	<p>SE-TuA-7 Atomistic View of Mg Metal Corrosion Using <i>in-situ</i> cryo-XPS and <i>ab initio</i> Computation, <i>Vaithiyalingam Shutthanandan, A Martinez, P Sushko, A Devaraj, E Stevens, O Marina, V Joshi, S Thevuthasan, V Murugesan</i>, Pacific Northwest National Laboratory</p>	
4:40pm	Invited talk continues.	<p>SE-TuA-8 Scratch Behavior and Modelling of Cu/Si(100) Thin Films Deposited by Modulated Pulsed Power Magnetron Sputtering, <i>D Meng, Y Li, M.K. Lei</i>, Dalian University of Technology, China</p>	
5:00pm	<p>RM+EM+NS-TuA-9 Indium Phosphide Synaptic Device on Silicon for Scalable Neuromorphic Computing, <i>Jun Tao, D Sarkar, R Kapadia</i>, University of Southern California</p>	<p>INVITED: SE-TuA-9 Corrosion Resistance of Mechanically Reinforced Aluminium based Coatings obtained by PVD Techniques, <i>Frederic Sanchette</i>, UTT - Université de Technologie de Troyes, France; <i>J Creus</i>, Université de La Rochelle, France; <i>A Billard</i>, FEMTO-ST, France</p>	
5:20pm	<p>RM+EM+NS-TuA-10 Ultra-low Power Microwave Oscillators based on Phase Change Oxides as Solid-State Neurons, <i>Boyang Zhao, J Ravichandran</i>, University of Southern California</p>	Invited talk continues.	
5:40pm	<p>INVITED: RM+EM+NS-TuA-11 Leveraging Nanodevice Volatility for Low Energy Computing Inspired from Nature, <i>Alice Mizrahi</i>, NIST/University of Maryland; <i>T Hirtzlin</i>, Centre de Nanosciences et Nanotechnologies; <i>B Hoskins</i>, NIST Center for Nanoscale Science and Technology; <i>A Fukushima</i>, AIST; <i>A Madhavan</i>, NIST Center for Nanoscale Science and Technology; <i>H Kubota, S Yuasa</i>, AIST; <i>N Zhitenev, J McClelland, M Stiles</i>, NIST Center for Nanoscale Science and Technology; <i>D Querlioz</i>, Centre de Nanosciences et Nanotechnologies, France; <i>J Grollier</i>, UMR CNRS/Thales</p>	<p>SE-TuA-11 High Temperature Mechanical Properties of CrAlN and CrAlSiN Hard Coatings, <i>Aljaž Drnovšek, M Rebelo de Figueiredo, A Xia</i>, Montanuniversität Leoben, Austria; <i>S Kolozsvári</i>, Plansee Composite Materials GmbH, Germany; <i>H Vo, P Hosemann</i>, University of California Berkeley; <i>R Franz</i>, Montanuniversität Leoben, Austria</p>	
6:00pm	Invited talk continues.	<p>SE-TuA-12 Thick CrN/AlN Superlattice Coatings for Solid Particle Erosion and High Temperature Wear Resistant Applications, <i>Jianliang Lin</i>, Southwest Research Institute</p>	

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Surface Science Division Room 203C - Session SS+HC+MI-TuA Oxides/Chalcogenides: Structures and Reactions Moderator: Andrew Teplyakov, University of Delaware		Thin Films Division Room 104B - Session TF+PS-TuA Atomic Layer Processing: Chemistry & Surface Reactions for Atomic Layer Processing Moderators: Jessica Kachian, Intel Corporation, Keren Kanarik, Lam Research Corporation	
2:20pm	INVITED: SS+HC+MI-TuA-1 New Eyes for Nanocatalysis: Atomic Scale Investigations of TiO ₂ Chemistry, <i>Melissa Hines</i> , Cornell University		INVITED: TF+PS-TuA-1 N-heterocyclic Carbenes on Au and Cu Surfaces, <i>Cathleen Crudden</i> , Queen's University, Canada
2:40pm	Invited talk continues.		Invited talk continues.
3:00pm	SS+HC+MI-TuA-3 Coverage-dependent Water Agglomerates on Fe ₃ O ₄ Surfaces, <i>Zdenek Jakub</i> , Vienna University of Technology, Austria; <i>M Meier</i> , University of Vienna, Austria; <i>J Hulva, J Pavelec, M Setvin, M Schmid, U Diebold</i> , Vienna University of Technology, Austria; <i>C Franchini</i> , University of Vienna, Austria; <i>G Parkinson</i> , Vienna University of Technology, Austria		TF+PS-TuA-3 Enhancing Nucleation in Platinum Atomic Layer Deposition by Surface Pre-Treatment with Small Organometallic Molecules, <i>Camila de Paula, L Zeng, S Bent</i> , Stanford University
3:20pm	SS+HC+MI-TuA-4 Reversible Structural Evolution and Identification of the Catalytically Active Phase of NiCoO _x H _y During the Oxygen Evolution Reaction (OER), <i>Bruce E. Koel</i> , Princeton University		TF+PS-TuA-4 Mass Spectrometer Studies of Volatile Etch Products Produced by Ligand-Exchange Reactions During Thermal Atomic Layer Etching, <i>Joel Clancey, A Cavanagh, S George</i> , University of Colorado Boulder
3:40pm	BREAK		BREAK
4:00pm	BREAK		BREAK
4:20pm	SS+HC+MI-TuA-7 Understanding the Growth and Chemical Activity of Titania-Supported MoS _x Clusters, <i>Donna Chen</i> , University of South Carolina; <i>R Galhenage</i> , University of California at Irvine; <i>H Yan</i> , University of Louisiana Lafayette; <i>D Le, T Rawal, T Rahman</i> , University of Central Florida		INVITED: TF+PS-TuA-7 Beyond Conventional Lithography – Using Self-assembly to Create Patterns for New Device Fabrication Techniques, <i>Michael Morris</i> , Trinity College Dublin, Ireland
4:40pm	SS+HC+MI-TuA-8 Analyzing Single Atom Catalysts using Low Energy Ion Scattering (LEIS), <i>Thomas Grehl</i> , IONTOF GmbH, Germany; <i>R ter Veen</i> , Tascon GmbH, Germany; <i>D Kunwar, A Datye</i> , University of New Mexico; <i>H Brongersma</i> , IONTOF GmbH and Tascon GmbH, Germany		Invited talk continues.
5:00pm	SS+HC+MI-TuA-9 Synthesis and Characterization of Metals Supported on ZnO Nanoparticles, <i>Amanda Haines, D Ferrah, J Hemminger</i> , University of California at Irvine		TF+PS-TuA-9 Calculations of Etch Products from Thermal Atomic Layer Etching Using Fluorination and Ligand-Exchange Reactions, <i>Andrew Cavanagh, J Clancey, S Sharma, S George</i> , University of Colorado at Boulder
5:20pm	SS+HC+MI-TuA-10 Molecular Water Adsorption and Reactions on α -Al ₂ O ₃ (0001) and α -Alumina Particles, <i>Greg Kimmel, N Petrik</i> , Pacific Northwest National Laboratory; <i>P Huestis, J LaVerne</i> , University of Notre Dame; <i>A Aleksandrov, T Orlando</i> , Georgia Institute of Technology		TF+PS-TuA-10 Formation of Monolayers and Multilayers During the Vapor-Phase Deposition of Dodecanethiols on Copper Oxide, <i>David Bergsman, T Liu, R Closser, S Bent</i> , Stanford University
5:40pm	SS+HC+MI-TuA-11 Applying Low Temperature Titration for Determination of Metallic Sites on Active Oxide Supported Catalysts, <i>Jerry Pui Ho Li, Z Liu, Y Yang</i> , ShanghaiTech University, China		TF+PS-TuA-11 Exchange Reactions During Atomic Layer Deposition: ZnO Conversion to Al ₂ O ₃ by Trimethylaluminum, <i>Tyler Myers, A Cano, J Clancey, D Lancaster, S George</i> , University of Colorado at Boulder
6:00pm	SS+HC+MI-TuA-12 Giant Optical Anisotropy in Hexagonal Perovskite Chalcogenides with Quasi-1D Structures, <i>Shanyuan Niu</i> , University of Southern California; <i>G Joe</i> , University of Wisconsin - Madison; <i>H Zhao, M Mecklenburg</i> , University of Southern California; <i>T Tiwald</i> , J.A. Woollam Co. Inc; <i>K Mahalingam</i> , Air Force Research Laboratory; <i>H Wang</i> , University of Southern California; <i>M Kats</i> , University of Wisconsin - Madison; <i>J Ravichandran</i> , University of Southern California		TF+PS-TuA-12 3D Feature Profile Simulation Coupled with Realistic Plasma Surface Reaction Model for ALE Process, <i>Y Im, YeongGeun Yook, H You, J Park</i> , Chonbuk National University, Republic of Korea; <i>D You</i> , KW Tech, Republic of Korea; <i>K Choi</i> , Chonbuk National University, Republic of Korea; <i>W Chang</i> , National Fusion Research Institute, Republic of Korea

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Thin Films Division Room 102A - Session TF+SS-TuA Organic/Inorganic Materials and Interfaces Moderator: Matthew Richard Linford, Brigham Young University		Vacuum Technology Division Room 203B - Session VT-TuA IoT Session: Vacuum System Design and Automation & Flash Networking Session Moderators: Julia Scherschligt, National Institute of Standards and Technology, Martin Wuest, Inficon	
2:20pm	TF+SS-TuA-1 Chemical Interactions at Hybrid Interfaces: An In Situ Investigation of Organic/Inorganic Systems, <i>Sven Pletincx</i> , Vrije Universiteit Brussel, Belgium; <i>L Trotochaud</i> , Lawrence Berkeley Lab, University of California, Berkeley; <i>L Fockaert, M Meeusen, A Mol</i> , Technical University Delft, Netherlands; <i>H Bluhm</i> , Lawrence Berkeley Lab, University of California, Berkeley; <i>H Terry, T Hauffman</i> , Vrije Universiteit Brussel, Belgium	INVITED: VT-TuA-1 The Importance of Vacuum Cleanliness in Semiconductor Process Control SEM Tools, <i>Irit Ruach Nir</i> , Applied Materials, Israel; <i>M Eilon, K Luria, G Eytan</i> , Applied Materials	
2:40pm	TF+SS-TuA-2 Microscopic and Spectroscopic evidence of Odd-Even Effect in Self-Assembled Monolayers of Biphenyl-Substituted Fatty Acid on Ag(111), <i>Anna Krzykawska</i> , Jagiellonian University, Polska; <i>P Cyganik, M Szwed, J Ossowski</i> , Jagiellonian University, Poland		
3:00pm	INVITED: TF+SS-TuA-3 CVD of Thin Polymer Films for Engineered Material Properties, <i>AnnaMaria Coclite</i> , Graz University of Technology, Austria	INVITED: VT-TuA-3 Vacuum Chamber Design and Fabrication., <i>Steve Greuel</i> , Nor-Cal Products	
3:20pm	Invited talk continues.	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	TF+SS-TuA-7 Organosilicon Functionally Nanostructured Films as Engineered Interlayers for Hybrid Materials, <i>Vladimir Cech</i> , Brno University of Technology, Czech Republic; <i>J Houdkova</i> , Institute of Physics, Academy of Sciences of the Czech Republic; <i>M Branecky, T Plichta</i> , Brno University of Technology; <i>J Zemek</i> , Institute of Physics, Academy of Sciences of the Czech Republic	INVITED: VT-TuA-7 Compact Ultra High Vacuum Systems for Applications of Cold Matter, <i>Evan Salim, S Hughes, M Perez, D Anderson</i> , ColdQuanta Inc.	
4:40pm	TF+SS-TuA-8 Studying Electron Induced Chemical Changes of Hafnium Oxide-Methacrylate EUV Photoresists with <i>In Situ</i> IR Spectroscopy and Model Flat Surfaces, <i>Yasiel Cabrera, E Mattson, K Oyekan, Y Wang, Y Chabal</i> , University of Texas at Dallas	Invited talk continues.	
5:00pm	TF+SS-TuA-9 Photoactivated Molecular Layer Deposition of Fluoropolymer Thin Films, <i>Richard Closser</i> , Stanford University; <i>M Lillethorup</i> , Radisurf Aps, Denmark; <i>D Bergsman, J Shi, S Bent</i> , Stanford University	INVITED: VT-TuA-9 Plasma Window as Vacuum Atmosphere Interface for Various Applications, <i>Ady Herscovitch</i> , Brookhaven National Laboratory	
5:20pm	TF+SS-TuA-10 Sputter-Deposited Porous Coatings for Solid Phase Microextraction, <i>Tuhin Roychowdhury, D Patel, M Linford</i> , Brigham Young University	Invited talk continues.	
5:40pm	TF+SS-TuA-11 Interfacial Electron Transfer of Ferrocene Immobilized onto Indium Tin Oxide through Noncovalent Interactions, <i>Caitlin Hanna, J Yang</i> , University of California, Irvine	VT-TuA-11 Applications of IoT in Vacuum Technology, <i>Jacob Ricker, J Hendricks</i> , NIST	
6:00pm	TF+SS-TuA-12 Vapor Phase Infiltration of Polymers with Intrinsic Microporosity: Structure and Chemical Separation Performance, <i>Mark Losego, E McGuinness, F Zhang, R Lively</i> , Georgia Institute of Technology		

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Exhibitor Technology Spotlight Workshops
Room Hall A - Session EW-TuAB
Exhibitor Technology Spotlight Session III
Moderator: Christopher Moffitt, Kratos Analytical Inc

3:40pm

4:00pm

EW-TuAB-2 eSpectra, your Data, and your Collaborations, *Jessica Hoy*,
AIPP/AVS

Extending Additive Manufacturing to the Atomic Scale

Focus Topic

Room Hall B - Session AM-TuP

Extending Additive Manufacturing to the Atomic Scale

Poster Session

6:30pm

AM-TuP-1 Direct-Write Fabrication of 3D Nano-Probes for Thermal Microscopy, *J Sattelkow, J Froech, R Winkler*, Graz University of Technology, Austria; *C Schwalb, E Fantner*, GETec Microscopy Inc., Austria; **Harald Plank**, Graz University of Technology, Austria

AM-TuP-2 Laser Induced Formation of Eutectic Nanostructures in Al-Cu Powder for Additive Manufacturing, *Jonathan Skelton, C Headley, J Floro, J Fitz-Gerald*, University of Virginia

Biomaterial Interfaces Division

Room Hall B - Session BI-TuP

Biomaterial Interfaces Division Flash Poster Session

Moderator: Joe Baio, Oregon State University

6:30pm

BI-TuP-1 An Ultrasensitive, Selective, Multiplexed Superbioelectronic Nose That Mimics the Human Sense of Smell, *Sungeun Seo, O Kwon*, Korea Research Institute of Bioscience & Biotechnology(KRIBB), Republic of Korea

BI-TuP-2 Graphene Field-effect Transistor Microfluidics Sensor for Real-time Bacteria Detection, *O Kwon, KyungHo Kim, J Lee*, Korea Research Institute of Bioscience & Biotechnology(KRIBB), Republic of Korea

BI-TuP-3 Stimuli-responsive Thin Films made from Highly Methoxylated Citrus Pectin, *Zeinab Veisi, N Alcantar, R Toomey*, University of South Florida

BI-TuP-4 Fluorescent DNA Nanosphere Barcode System by Rolling Circle Amplification for Tumor Cells Detection, *S Han, JongBum Lee*, University of Seoul, Republic of Korea

BI-TuP-5 Conducting Polymer Nanotubes-based Field Effect Transistor Dopamine sensor, *O Kwon, Jiyeon Lee, S Park*, Korea Research Institute of Bioscience & Biotechnology(KRIBB), Republic of Korea

BI-TuP-6 A study of Dopamine Receptor D1 Agonism and Antagonism Using GPCR-based FET biosensor, *O Kwon*, Korea Research Institute of Bioscience & Biotechnology(KRIBB), Republic of Korea; *Sanghyuck Lee*, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Republic of Korea; *S Park*, Korea Research Institute of Bioscience & Biotechnology(KRIBB), Republic of Korea

BI-TuP-7 Vapor-Deposited Porous Polymers for the Fabrication of Giant Lipid Vesicles, *Nareh Movsesian, M Matthew Tittensor, G Dianat, N Malmstadt, M Gupta*, University of Southern California

BI-TuP-8 Developing a pH Responsive Hydrogel for the Encapsulation of Poly(ethylene glycol) 3350, *Phuong Anh Nguyen¹, B Matheson, D Cuylear, H Canavan*, University of New Mexico

BI-TuP-9 Hemocompatibility of the Endexo™ Fluoro-oligomeric Surface, *Bill Theilacker*, Medtronic; *J Ho, J Swenor*, Interface Biologics; *M Wolf, J Kalscheue, S Thinamany*, Medtronic; *S Ubl*, medtronic

BI-TuP-10 High Performance Dopamine Sensor Based on Field-Effect Transistor (FET) with Human Dopamine Receptor Integrated-Multidimensional Conducting Polymer Nanofiber, *O Kwon, Jinyeong Kim, S Park*, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Republic of Korea

BI-TuP-11 Detection of B-type Natriuretic Peptide in Human Serum Based on Flexible Biosensors and Data Analysis Methodology, *Xinruo Yi, A Khalaf, R Gunasekaran, M Yun, M Akcakaya*, University of Pittsburgh; *Y Zhang, S Marc, N Petroni*, UPMC

BI-TuP-12 Characterizing Hetero-oligomer of Amyloid-beta and Alpha-synuclein with Bio-AFM, *Eun Ji Shin, J Park*, Pohang University of Science and Technology, Republic of Korea

BI-TuP-13 Creation of de novo Nucleic Acid Binding Disordered Proteins using the Thermally Responsive Behavior of Elastin-like Polypeptides, *Telmo Diez, G Lopez, N Carroll*, University of New Mexico

Spectroscopic Ellipsometry Focus Topic

Room Hall B - Session EL-TuP

Spectroscopic Ellipsometry Focus Topic Poster Session

Moderator: Tino Hofmann, University of North Carolina at Charlotte

6:30pm

EL-TuP-1 An In situ Spectroscopic Ellipsometry Study of Cerium Oxidation, *Wayne Lake, P Roussel*, AWE, UK

EL-TuP-2 In-situ Multi-wavelength Ellipsometric Monitoring of the Reactive Sputter Deposition of WO_x Films, *Ned Ianno, G Kaufman, C Luth*, University of Nebraska-Lincoln; *C Exstrom, S Darveau*, University of Nebraska at Kearney; *B Johs*, Film Sense

EL-TuP-3 Mid-infrared Optical Constants of InAsSb Alloys and Bulk GaSb, *Pablo Paradis, S Zollner, R Carrasco*, New Mexico State University, Department of Physics; *J Carlin, V Dahiya, A Kazemi, S Krishna*, The Ohio State University, Department of Electrical and Computer Engineering

EL-TuP-4 Temperature-dependent Ellipsometry and Thermal Stability of Ge₂Sb₂Te₅:C Phase Change Memory Alloys, *Cesy Zamarripa, N Samarasingha, F Abadizaman, R Carrasco, S Zollner*, New Mexico State University

In-situ Microscopy, Spectroscopy, and Microfluidics Focus Topic

Room Hall B - Session MM-TuP

In-situ Microscopy, Spectroscopy, and Microfluidics Focus Topic Poster Session

6:30pm

MM-TuP-1 In-situ Low Energy Electron Microscopy at Near Ambient Pressures, *Thomas Schulmeyer*, SPECS Surface Nano Analysis GmbH

MM-TuP-2 NanoESCA III: Recent Progress and Applications, *M Merkel, N Weber, M Escher, T Kühn*, FOCUS GmbH, Germany; *Marten Patt*, Scienta Omicron GmbH, Germany

Manufacturing Science and Technology Group

Room Hall B - Session MS-TuP

Topics in Manufacturing Science and Technology Poster Session

6:30pm

MS-TuP-1 Formation of High Entropy Film for Cutting Tool by Magnetron Sputtering, *Ki Buem Kim*, Sejong University, Republic of Korea; *T Choi*, Sejong university, Korea, Republic of Korea; *H Lee*, Korea Institute of Industrial Technology, Republic of Korea; *J Lee*, Kongju National University, Republic of Korea; *Y Kim*, Sejong University, Republic of Korea; *Y Park, K Kim, S Jeong*, YG-1 Co. LTD, Republic of Korea

MS-TuP-2 Plasma Diagnostics Technique using Floating Harmonic Method for Pulsed Plasma Monitoring, *Yusin Kim*, Samsung Electronics, Republic of Korea; *C Chung*, Hanyang University, Republic of Korea; *J Kim*, Samsung Electronics, Republic of Korea

MS-TuP-3 Trace Level Detection of Gas Impurities Using Atmospheric Pressure Ionization Mass Spectrometry, *Gregory Thier*, Extrel CMS

MS-TuP-4 Novel Safe Approach to Process Gas Delivery, *Richard Elzer*, Entegris; *K Olander*, Retired co-founder of ATMI Corp

MS-TuP-5 Advanced Characterization to Support Development of Next Generation Phosphors, *Vincent Smentkowski, R Davis, J Murphy, A Setlur, M Butts, J Lu*, General Electric Global Research Center; *W Beers*, Current by GE

Plasma Biology, Agriculture, and Environment Focus Topic

Room Hall B - Session PB-TuP

Plasma Biology, Agriculture, and Environment Focus Topic Poster Session

6:30pm

PB-TuP-1 Detection of Metallic Ions in Solution Using Optical Emission Spectroscopy of Plasma Driven by Bipolar Pulsed Power Sources, *Ching-Yu Wang, C Hsu*, National Taiwan University, Taiwan, Republic of China

Processing and Characterization of Air-Liquid, Solid-Liquid and Air-Solid Interfaces Focus Topic

Room Hall B - Session PC+AS+BI+EM+NS+PB+SS-TuP

Processing and Characterization of Gas-Liquid, Solid-Liquid, and Gas-Solid Interfaces

6:30pm

PC+AS+BI+EM+NS+PB+SS-TuP-1 Operando Photoelectron Spectroscopic Study of Copper-based Oxide Semiconductor Interface with Water, *Pitambar Sapkota, S Ptasinska*, University of Notre Dame; *A Cabrera*, Instituto de Física, Pontificia Universidad Católica de Chile, Chile

PC+AS+BI+EM+NS+PB+SS-TuP-2 Interfacial Water in Silicon-based Catalytic Motors, *Jordi Fraxedas, K Zhang, B Sepulveda, M Esplandiu*, Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Spain; *X Garcia, J Llorca*, Institute of Energy Technologies, Department of Chemical Engineering and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Spain; *V Perez-Dieste, C Escudero*, Alba Synchrotron Light Source, Spain

PC+AS+BI+EM+NS+PB+SS-TuP-3 Chiral Modification of Oxide-Supported Pt Surfaces: An in-situ ATR-IR Study, *Yufei Ni, F Zaera*, University of California, Riverside

PC+AS+BI+EM+NS+PB+SS-TuP-4 Wettability Behaviour of Synthesized Carbon Nanospheres and its Application as a Photocatalyst, *Sonal Singhal, A Shukla*, IIT Delhi, India

PC+AS+BI+EM+NS+PB+SS-TuP-5 Thermally Driven Solid-solid Li⁺ Transfer into Nanostructured TiO₂, *Tiffany Kaspar, T Varga*, Pacific Northwest National Laboratory; *D Shapiro*, Advanced Light Source, Lawrence Berkeley National Laboratory; *A Martinez, Y Shin, K Han, M Lee, S Thevuthasan, V Murugesan*, Pacific Northwest National Laboratory

Plasma Science and Technology Division

Room Hall B - Session PS-TuP

Plasma Science and Technology Division Poster Session

6:30pm

PS-TuP-1 Surface Modification for the Enhancement of the Patterning Margin by Using Plasma Treatment, *Wanjae Park, L Huli, S Chae, A Ko, P Biolsi*, TEL Technology Center, America, LLC

PS-TuP-2 N₂/H₂, O₂ and NF₃ Dissociation Percentages in a Remote, Low Frequency, High Density Plasma Source, *Yingliang Zhou, H Li, V Donnelly*, University of Houston; *J Chiu, X Chen*, MKS Instruments, Inc., Pressure and Vacuum Measurement Group

PS-TuP-3 Thermal Atomic Layer Etching of Silicon and Silicon Nitride Using an Oxidation and "Conversion-Etch" Mechanism, *Aziz Abdulagatov, S George*, University of Colorado at Boulder

PS-TuP-4 Annihilation Kinetics of Plasma-induced Electronic Defects in Semiconductor Materials, *S Nunomura, Isao Sakata, K Matsubara*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

PS-TuP-5 High efficiency Magnetic Induction Plasma Source for Remote Plasma Removal Process, *TaeSeung Cho, S Park, D Lubomirsky*, Applied Materials

PS-TuP-6 Aspect-ratio and Line-edge Fluctuation Controlled Nanolithography using Poly(styrene-*b*-Dimethylsiloxane) and Amorphous Carbon Layer, *JISoo Oh, G Yeom*, Sungkyunkwan University, Republic of Korea

PS-TuP-7 Development of A Low-Cost ZnO Nanorods-Based Gas Sensor with an Integrated Microplasma Generation Unit for Ethanol Sensing, *Sz-Yun Lin, F Huang, C Hsu*, National Taiwan University, Taiwan, Republic of China

PS-TuP-8 Development of a Plasma Generation Device Integrated with a Piezoelectric Spray to Detect Metal Ions in Solution, *Ting-Ting Pan, S Lin, C Hsu*, National Taiwan University, Taiwan, Republic of China

PS-TuP-9 Development of a Light-weight System for Detection of Metal Ions in Solutions Using Plasma Spectroscopy, *Ching-Yu Su, S Lin, C Hsu*, National Taiwan University, Taiwan, Republic of China

PS-TuP-10 Inductively Coupled Plasma Reactive Ion Etching of Nanometer-scale Patterned Copper Thin Films using Alcohol-based Gases, *Jinsu Ryu, E Lim, D Park, C Chung*, INHA University, Republic of Korea

PS-TuP-11 Etch Characteristics of Nanometer-scale Patterned Cu Thin Film Using Pulse-modulated RF Source Plasma, *Euntaek Lim, J Ryu, C Chung*, INHA University, Republic of Korea

PS-TuP-12 Etch Characteristics of Magnetic Tunneling Junction Materials by Using Noble Gas and Hydrogen, *SooGang Kim, K Yang, Y Shin, D Sung, G Yeom*, Sungkyunkwan University, Republic of Korea

PS-TuP-13 Particle Temperature Histories in a Tubular Low Temperature Plasma Reactor: Relevance to the Synthesis of Amorphous Metal Alloys, *N Uner, Elijah Thimsen*, Washington University in St. Louis

PS-TuP-14 Building Tailored Chemistry Sets for Plasma Modelling using a Statistical Approach Embedded in an Online Engine, *Sebastian Mohr, G Evans, A Dzarasova*, Quantemol Ltd., UK; *M Virdee*, University College London, UK

PS-TuP-15 Easy Synthesis of Hybrid Laterally or Vertically Patterned Hydrophobic/Hydrophilic Surfaces using a Dielectric Barrier Discharge, *Annaëlle Demaude*, Université Libre de Bruxelles, Belgique; *M Gordon*, University of California at Santa Barbara; *F Reniers*, Université Libre de Bruxelles, Belgium

PS-TuP-16 Plasma-based Approach to Driving an Amorphous-To-Crystalline Phase Change in MoS₂ Grown on Polymers, *S Walton, D Boris*, U.S. Naval Research Laboratory; *A Kozen*, American Society for Engineering Education; *Gary Kushto*, U.S. Naval Research Laboratory; *M Johnson*, National Research Council; *R Rai*, University of Dayton; *N Glavin*, Air Force Research Laboratory; *C Muratore*, University of Dayton

PS-TuP-17 Atmospheric Plasma Deposition of Vanadium Oxide Thin Coatings on Cold and Heated Substrates, *Antoine Remy*, Université Libre de Bruxelles, Belgium; *M Gordon*, University of California at Santa Barbara; *F Reniers*, Université Libre de Bruxelles, Belgium

PS-TuP-18 The Increased Efficiency Of The Amorphous/Silicon Heterojunction Solar Cells With Silicon Micro-Channels In Back Side Substrate, *Hugo Alvarez, G Bertão, A Silva, F Ciodin, J Diniz*, University of Campinas, Brazil

PS-TuP-19 Effect of RF Plasma on H Radical Generation on DCMS Produced a-Si:H, *Jan Uhlig, E Barlaz, D Ruzic*, University of Illinois at Urbana-Champaign

PS-TuP-20 Hardmasks of TiN and Al for Silicon Micro-Channel Definition via ICP Plasma Etching Process, *Camila Ruiz*, Plasma Nanotechnology Research Center, UNICAMP, Brazil; *J Diniz, A Rosa*, Plasma Nanotechnology Research Center, University of Campinas, Brazil

PS-TuP-21 Time- and space-resolved Diagnostics of a Self-Neutralized Ion Beam Extracted from a Pulsed Plasma, *Ryan Sawadichai, Y Chen*, University of Houston; *S Tian*, Lam Research Corporation; *V Donnelly, P Ruchhoeft, D Economou*, University of Houston

PS-TuP-22 Vacuum-ultraviolet-radiation Damage of Low-k Dielectrics, *J. Leon Shohet, S Kim, H Nguyen, P Xue, J Blatz, H Cheng*, University of Wisconsin-Madison; *Y Lin*, NSRRC, Taiwan; *J de Marneffe, M Redzheb, S Armini*, IMEC, Belgium; *C Chen*, NSRRC, Taiwan; *Y Wu*, University of Wisconsin-Madison

PS-TuP-23 Porous Alumina as a Vacuum Ultraviolet Transmission Window, *Yuting Wu, H Cheng*, University of Wisconsin-Madison; *Y Lin, C Chen, H Fung*, NSRRC, Taiwan; *J Shohet*, University of Wisconsin-Madison

PS-TuP-24 Frequency Response of Microwave Excited Argon Microplasmas using Continuum Simulations, *Ayyaswamy Venkattraman, A Verma*, University of California Merced

PS-TuP-25 Development of an In-situ Plasma Enhanced Atomic Layer Etching System for III-group Nitride Device Process, *C.P. Lin, Y Lin, C Chen, M Wang*, National Applied Research Laboratories, Taiwan, Republic of Korea; *C Hsiao*, National applied research Laboratories, Taiwan, Republic of Korea, Taiwan, Republic of Korea; *F Chen*, National Applied Research Laboratories, Taiwan, Republic of Korea

PS-TuP-26 Advances in the Spectroscopic Characterization of Ceramic Films and Coatings, *Fuhe Li, A Tavakoli, J Brim*, Air Liquide Electronics - Balazs NanoAnalysis

PS-TuP-27 Effect of Plasma Configuration on Defect-free Functional Doping on Graphene Surface, *Goo-Hwan Jeong, S Jo*, Kangwon National University, Republic of Korea

PS-TuP-28 Fluid Model Numerical Simulation Analysis of Microwave Plasma Discharges, *Wan-Ting Chiu*, National Tsing-Hua University, Taiwan, Taiwan, Republic of China; *I Yeh, K Leou*, National Tsing-Hua University, Taiwan, Republic of China

PS-TuP-29 Evaluation of Simulation Tool for a Plasma Generation based on the Dual Property of Electrons, *Shinichiro Kitamoto, P Abraha*, Meijo University, Japan

PS-TuP-30 Plasma Nitriding of Highly Polished Metallic Surfaces, *Yoshiki Handa, P Abraha*, Meijo University, Japan

Tuesday Evening Poster Sessions, October 23, 2018

Reconfigurable Materials and Devices for Neuromorphic Computing Focus Topic

Room Hall B - Session RM-TuP

Reconfigurable Materials and Devices for Neuromorphic Computing Poster Session

6:30pm

RM-TuP-1 Selector-less Crossbar Array through Self-rectifying Characteristic of Pt/HfO₂/Ti Memristor, **Yong Kim**, *S Ryu, W Jeong*, Seoul National University of Science and Technology, Republic of Korea; *K Min*, Kookmin University, Republic of Korea; *B Choi*, Seoul National University of Science and Technology, Republic of Korea

RM-TuP-2 Electron Beam Induced Current Microscopy of Interfacial Barrier Effects in Al₂O₃/TiO_x Resistive Switches, **Brian Hoskins**, National Institute of Standards and Technology (NIST); *G Adam*, National Institute for R&D in Microtechnologies (IMT Bucharest), Romania; *E Strelcov*, National Institute of Standards and Technology (NIST)/University of Maryland; *A Kolmakov, N Zhitenev*, National Institute of Standards and Technology (NIST); *D Strukov*, University of California at Santa Barbara; *J McClelland*, National Institute of Standards and Technology (NIST)

RM-TuP-3 Ion-insertion Electrodes for Brain Inspired Computing, **Elliot Fuller**, Sandia National Laboratories; *S Keene*, Stanford University; *Z Wang*, University of Massachusetts Amherst; *S Agarwal, R Jacobs-Gedrim, J Niroula, C Bayley, U Sohi*, Sandia National Laboratories; *A Melianas, Y Tuchman*, Stanford University; *M Marinella*, Sandia National Laboratories; *J Yang*, University of Massachusetts Amherst; *A Salleo*, Stanford University; *A Talin*, Sandia National Laboratories

Advanced Surface Engineering Division

Room Hall B - Session SE-TuP

Advanced Surface Engineering Division Poster Session

6:30pm

SE-TuP-1 Deposition and Characterization of Ga-doped TaON Thin Films, *J Hsieh, Shi-Jei Lin*, Ming Chi University of Technology, Taiwan, Republic of China

SE-TuP-2 Fabrication of Porous Membranes of Controlled Porosity and Chemical Functionality, **Golnaz Dianat**, *M Gupta, S Seidel, M Deluna*, University of Southern California

SE-TuP-3 Plasma Treatment of Thiol-Carborane Self-Assembled Monolayers on Copper, **Michelle Paquette**, *R Thapa, L Dorsett, S Malik, S Wagner, A Caruso*, University of Missouri-Kansas City; *D Merrill, J Bielefeld, S King*, Intel Corporation

SE-TuP-4 Improved Light Extraction Efficiency using Homeotropic Thin Films on SiO₂ Micro Pillars, **J.H. Lee**, *Y Lin, G Wu*, Chang Gung University, Taiwan

SE-TuP-5 Investigating the Influence of Substrate Cleaning on the Solution Stability of Plasma Polymer Films, **Karyn Jarvis**, Swinburne University of Technology, Australia; *S McArthur*, Swinburne University of Technology and CSIRO, Australia

SE-TuP-6 Tribological Systems Solutions for Gas Turbine Engines, **Pantcho Stoyanov**, Pratt & Whitney

SE-TuP-7 Effect of Laser Processing on the Atmospheric Corrosion Behavior of Mg Alloy AZ31B and Weldments, *M Melia*, Sandia National Laboratories; *L Agnew, J Skelton, J Scully, James Fitz-Gerald*, University of Virginia

Surface Science Division

Room Hall B - Session SS-TuP

Surface Science Division Poster Session

6:30pm

SS-TuP-1 Encapsulation of Metallic Nanoparticles near the Surface of Graphite, **Ann Lii-Rosales**^{1,2}, *P Thiel*, Iowa State University and Ames Laboratory

SS-TuP-2 Uncovering the Mechanism of Thermal Dry Etching of Cobalt Thin Films Using Hexafluoroacetylacetone (hfach), **Mahsa Konh**, *J Zhao, A Teplyakov*, University of Delaware

SS-TuP-3 Revealing the Atomic Scale Insights for CO₂ Dissociation on the Rh(111) Surfaces at Ambient Pressure, **Won Hui Doh**, Institute for Basic Science (IBS), Republic of Korea; *J Kim*, Institute for Basic Science (IBS), Republic of Korea; *J Park*, Institute for Basic Science (IBS), Republic of Korea

¹ Morton S. Traum Award Finalist

² National Student Award Finalist

SS-TuP-4 Study of Spin Dependent Electrochemical Charge Transfer Across the Ferromagnetic Electrode/Solution Interface, **Mika Tamski**, *F Blumenschein, C Roussel, J Ansermet*, Ecole Polytechnique Fédérale de Lausanne, Switzerland

SS-TuP-5 Two-faced Steps: How Molecular Alignment does and does not Impacts O₂ Sticking Dynamics on Pt., *K Cao*, Leiden University, Nederland; *M Kurahashi*, National Institute for Materials Science, Japan; **Ludo Juurlink**, Leiden University, Nederland, Netherlands

SS-TuP-6 Secondary Electron Emission from Borosilicate Glass Under Electron Impact, *C Li*, University of Science and Technology of China, China; *L Repetto*, Università di Genova, Italy; *Z Ding*, University of Science and Technology of China, China; **Karoly Tokesí**, Institute for Nuclear Research, Hungarian Academy of Sciences (ATOMKI), Hungary

SS-TuP-7 Crystallinity-Transport Investigations of Nanoscale Ru Conductors at Al₂O₃ and/or SiO₂ Interfaces, **Asim Khaniya**, *S Ezzat, W Kaden, K Coffey*, University of Central Florida

SS-TuP-8 Iron Oxide Surface Transformations Revealed by AP-XPS for Ammonia Synthesis, **Mikhail Trought**, Michigan Technological University; *E Crumlin, S Nemsak*, Advanced Light Source, Lawrence Berkeley National Laboratory; *K Perrine*, Michigan Technological University

SS-TuP-9 Surface Energies of Thin Oxides of Si(100) as Function of Thickness, Composition and Surface Processing, **Saaketh Narayan**, *J Day, N Herbots, A Brimhall, A Mascareno*, Arizona State University; *A Krishnan*, Harvard University; *S Whaley*, Arizona State University; *R Bennett-Kennett*, Stanford University; *K Kavanagh*, Simon Fraser University, Canada

SS-TuP-10 Space Weathering Effects at the Surface of Thin-Film Aluminosilicate Model Regolith, **Bijaya Dhar**, *W Kaden*, University of Central Florida

SS-TuP-11 Identification of Surface Processes in Individual Minerals of a Complex Ore through the Analysis of Polished Sections using Polarization Microscopy and X-ray Photoelectron Spectroscopy (XPS), **Dhamelyz Silva Quiñones**, UTEC, Perú; *C He*, University of Delaware; *J Rodriguez*, UTEC, Perú; *A Teplyakov*, University of Delaware; *C Benndorf*, UTEC, Perú

SS-TuP-12 Effect of Surface Roughness, Etch Pits, and Adsorbates on the Surface Phonon Density of States of Graphite, **Krishnan Swaminathan-Gopalan**, *K Stephani*, University of Illinois at Urbana-Champaign

SS-TuP-13 Variation of Structure Colors of Copper with LIPSS(Laser-Induced Periodic Surface Structure) by Femtosecond Laser Irradiation, **TaeHaon Park**, *J Kim, T Hwang, J Kang*, Korea Institute of Industrial Technology (KITECH), Republic of Korea; *K Kim*, Sejong University, Republic of Korea; *H Lee*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

SS-TuP-14 Bio-synthesis of Finely Distributed Ag Nanoparticle-decorated TiO₂ Nanorods for Sunlight-induced Photoelectrochemical Water Splitting, **Moo Hwan Cho**, *S Sawant, M Sayed, T Han, J Shim*, Yeungnam University, Republic of Korea

SS-TuP-15 Oxidation of Nb(100) and Kinetics of Surface to Bulk Transport and Extension to Nb₃Sn, **Rachael Farber**, *D Veit, S Sibener*, The University of Chicago

Tribology Focus Topic

Room Hall B - Session TR-TuP

Tribology Focus Topic Poster Session

6:30pm

TR-TuP-1 Measurements of Microscale Friction on Molybdenum Disulfide using an Integrated Quartz Crystal Microbalance and Nanoindentation System, **Brian Borovsky**, *G McAndrews, R Wieser*, St. Olaf College

TR-TuP-2 Sliding Wear Behavior of Tool Steel Functionalized with Organic Monolayers Against Aluminum, **Stephan Prünfte**, *D Music*, RWTH Aachen University, Germany; *V Terziyska, C Mitterer*, Montanuniversität Leoben, Austria; *J Schneider*, RWTH Aachen University, Germany

Vacuum Technology Division

Room Hall B - Session VT-TuP

Vacuum Technology Division - Poster Session

6:30pm

VT-TuP-1 Characterization and Imaging of Surface Acoustic Waves on GaAs with Raman Spectroscopy, **Brian Rummel**, University of New Mexico; *M Henry*, Sandia National Laboratory; *S Han*, University of New Mexico

Tuesday Evening Poster Sessions, October 23, 2018

VT-TuP-2 Sapphire MEMS based Capacitance Manometer for Vacuum Freeze-Drying Device, **Masashi Sekine**, *M Soeda, T Ishihara, M Nagata*, Azbil Corporation, Japan

VT-TuP-3 Development of Vacuum Equipment Trainer (VET) Systems for Off-site Students, **Delmer Smith**, *N Louwagie*, Normandale Community College

VT-TuP-4 Vacuum System of the SuperKEKB Main Ring in the Phase - 2 Commissioning, **Yusuke Suetsugu**, *K Shibata, T Ishibashi, M Shirai, S Terui, K Kanazawa, H Hisamatsu*, KEK, Japan

VT-TuP-5 Smart Diagnostics for Dry Vacuum Pumps Running in Semiconductor Processes, **Wan-Sup Cheung**, *J Lim*, KRIS, Republic of Korea; *N LEE, J LEE, T Park, T Kim*, SK Hynix, Republic of Korea

VT-TuP-6 Commissioning of Vacuum System for Positron Damping Ring for SuperKEKB, **Kyo Shibata**, *Y Suetsugu, T Ishibashi, M Shirai, S Terui, K Kanazawa, H Hisamatsu*, KEK, Japan

VT-TuP-7 Development of a Measurement System for Pressures in Vacuum Regions using an Optical Method, **Yoshinori Takei**, *K Arai, H Yoshida, Y Bitou, S Telada, T Kobata*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

VT-TuP-8 Study on a Performance of a Sniffer Leak Detector based on EN 14624, **Kenta Arai**, *H Yoshida*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

VT-TuP-9 Elimination of Electron-Beam-Induced Carbonaceous Contamination in SEMs and the new RGM 10100 NIST Contamination Testing Artifact, **Andras Vladar**, *K Purushotham*, National Institute of Standards and Technology (NIST)

VT-TuP-10 PAL-XFEL Vacuum System, **Donghyun Na**, Pohang Accelerator Laboratory, Republic of Korea

VT-TuP-11 Extreme 2 Million Liter/sec Hydrogen Pump Speed Measurements of C-2W Divertors, **Ernesto Barraza-Valdez**, *A Van Drie*, TAE Technologies

VT-TuP-12 KICT Dirty Thermal Vacuum Chamber: design, fabrication, and performance test, *T Chung*, Korea Institute of Civil Engineering and Building Technology, Republic of Korea; **Jong Yeon Lim**, Korea Research Institute of Standards and Science, Republic of Korea; *Y Yoo, H Shin*, Korea Institute of Civil Engineering and Building Technology, Republic of Korea

Special Events Wednesday

Special Events Wednesday

- 6:15 AM AVS 38th Annual 5 km Run (Register at the 5 km Booth before Wednesday)/TBD, Offsite
- 7:30 AM AVS Diversity & Inclusion Committee Breakfast/Tides Restaurant-Hyatt Regency (by invitation)
- 8:00 AM ASED Business Meeting/Shoreline-Hyatt Regency
- 8:15 AM ASED Executive Committee Meeting & Lunch/Shoreline-Hyatt Regency (by invitation)
- 10:00 AM AVS Member Center: Diversity and Inclusion--"Inclusion and Diversity at the Workplace: Your Suggestions for Best Practices"/103C
- 10:00 AM Session Coffee Break/Hall A
- 12:20 PM Exhibit Hall Lunch/Hall A
- 12:20 PM NSTD Graduate Student and Postdoc Award Competitions/102B
- 12:20 PM PSTD Coburn and Winters Adjudication Session (Closed Session)/104A (by invitation)
- 12:30 PM AVS Member Center: Professional Development--"XPS for the Non-Analyst" & Lunch/103C
- 12:30 PM Governance Committee Meeting and Lunch/Tides Restaurant-Hyatt Regency (by invitation)
- 12:30 PM PacSurf Committee Meeting & Lunch/Tides Restaurant-Hyatt Regency (by invitation)
- 1:00 PM Biointerphases Strategic Planning Meeting/Seaview A-Hyatt Regency (by invitation)
- 3:00 PM AVS Member Center: Professional Development--"Get Involved: How to Moderate and Lead Conference Sessions"/103C
- 3:40 PM Session Refreshment Break/Hall A
- 4:30 PM Exhibitors & Manufacturers' Reception (Invitation Only)/Hall A (by invitation)
- 5:30 PM Heterogeneous Catalysis Graduate Student Presentation Awards Reception/201A
- 6:30 PM AVS Awards Ceremony & Reception/Grand Ballroom

Wednesday Morning, October 24, 2018

2D Materials Focus Topic Room 201B - Session 2D+AM+EM+NS-WeM Dopants, Defects, and Interfaces in 2D Materials Moderator: Eric Pop, Stanford University		Actinides and Rare Earths Focus Topic Room 202C - Session AC+MI+SA-WeM Magnetism, Complexity, and Superconductivity in the Actinides and Rare Earths Moderators: Melissa Denecke, University of Manchester, UK, David Geeson, AWE, James Tobin, UW Oshkosh	
8:00am	2D+AM+EM+NS-WeM-1 Carbon Doping of 2D Transition Metal Dichalcogenides by Plasma Enhanced CVD, <i>Yanfu Lu, F Zhang, S Sinnott, M Terrones</i> , The Pennsylvania State University	INVITED: AC+MI+SA-WeM-1 Strong electron-electron Interactions in the Actinides: Using Organometallics to Probe Delocalization Effects, <i>Corwin Booth</i> , Lawrence Berkeley National Laboratory	
8:20am	2D+AM+EM+NS-WeM-2 Methoxy Formation Induced Defects on MoS ₂ *, <i>Duy Le</i> , University of Central Florida; <i>P Evans</i> , University of Nebraska - Lincoln; <i>Z Hooshmand</i> , University of Central Florida; <i>T Rawal</i> , Oak Ridge National Laboratory; <i>L Bartels</i> , University of California, Riverside; <i>P Dowben</i> , University of Nebraska-Lincoln; <i>T Rahman</i> , University of Central Florida	Invited talk continues.	
8:40am	INVITED: 2D+AM+EM+NS-WeM-3 Defect Engineering of 2D Materials for Advanced Electronic Devices, <i>Gwan-Hyung Lee</i> , Yonsei University, Republic of Korea	INVITED: AC+MI+SA-WeM-3 Structure and Magnetism of U-based Thin Films and Heterostructures, <i>Evgeniya Tereshina-Chitrova</i> , Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic; <i>L Havela</i> , Charles University, Prague, Czech Republic; <i>T Gouder</i> , Z Bao, Institute for Transuranium Elements, Germany; <i>M Dopita</i> , Charles University, Prague, Czech Republic; <i>R Caciuffo</i> , Institute for Transuranium Elements, Germany	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	2D+AM+EM+NS-WeM-5 Modeling Defects and Electron-electron Interactions in Low-dimensional Materials, <i>Daniel Gunlycke, C Ekuma</i> , U.S. Naval Research Laboratory	INVITED: AC+MI+SA-WeM-5 Field Induced Lifshitz Transitions in URu ₂ Si ₂ , <i>E Calegari</i> , Univ Federale Santa Maria, Brazil; <i>S Magalhaes</i> , Universidade Federale Rio Grande do Sul, Brazil; <i>Peter Riseborough</i> , Temple University	
9:40am	2D+AM+EM+NS-WeM-6 Post-Synthesis Modifications of Two-Dimensional MoSe ₂ or MoTe ₂ by Incorporation of Excess Metal Atoms into the Crystal Structure, <i>Paula Mariel Coelho</i> , University of South Florida; <i>H Komsa</i> , Aalto University, Finland; <i>H Coy Diaz, Y Ma</i> , University of South Florida; <i>A Krashennnikov</i> , Institute of Ion Beam Physics and Materials Research, Germany; <i>M Batzill</i> , University of South Florida	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	2D+AM+EM+NS-WeM-10 Dry Cleaning and Doping of MX ₂ for Contact Engineering, <i>Daniil Marinov</i> , IMEC, Belgium; <i>J Ludwig</i> , IMEC & KU Leuven, Belgium; <i>D Chiappe</i> , IMEC, Belgium; <i>E Voronina, T Rakhimova</i> , Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University; <i>J de Marneffe, I Asselberghs</i> , IMEC, Belgium; <i>S De Gendt</i> , IMEC, KU Leuven, Belgium	AC+MI+SA-WeM-10 New Form of Uranium Hydride - UH ₂ , <i>Ladislav Havela, M Paukov, M Dopita, L Horak, P Minarik, M Divis, I Turek</i> , Charles University, Prague, Czech Republic; <i>D Legut</i> , VSB-Technical University of Ostrava, Czech Republic; <i>T Gouder, A Seibert, F Huber</i> , European Commission - Joint Research Centre; <i>E Tereshina-Chitrova</i> , Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic	
11:20am	2D+AM+EM+NS-WeM-11 Deep Learning for Atomically-Resolved Scanning Transmission Electron Microscopy Experiments on 2D Materials, <i>Maxim Ziatdinov, S Kalinin</i> , Oak Ridge National Laboratory	AC+MI+SA-WeM-11 Tuning of Electronic Properties of U- and RE-Metallic Systems by H Absorption, <i>Silvie Maskova</i> , Charles University, Prague, Czech Republic; <i>K Miliyanchuk</i> , Ivan Franko National University of Lviv, Lviv, Ukraine; <i>A Kolomiets</i> , Lviv Polytechnic National University, Lviv, Ukraine; <i>L Havela</i> , Charles University, Prague, Czech Republic	
11:40am	2D+AM+EM+NS-WeM-12 Magnetic Doping in 2D MBE-grown-MoSe ₂ /graphene Heterostructures Studied by Photoelectron Spectroscopy and Band Structure Imaging, <i>Maxime Gay, O Renault</i> , CEA-LETI, France; <i>M Dau, C Vergnaud, M Jamet</i> , CEA-INAC-SPINTEC, France	AC+MI+SA-WeM-12 Magnetic Structures of U _n RhIn _{3n+2} Materials, <i>Attila Bartha, M Klicpera</i> , Charles University, Prague, Czech Republic; <i>P Cermak</i> , Forschungszentrum Juelich GmbH, Germany; <i>B Ouladdiaf</i> , Institute Laue-Langevin, France; <i>J Custers</i> , Charles University, Prague, Czech Republic	
12:00pm		AC+MI+SA-WeM-13 Insights into the Magnetic Dead Layer in La _{0.7} Sr _{0.3} MnO ₃ Thin Films from Temperature, Magnetic Field and Thickness Dependence of their Magnetization, <i>Navid Mottaghi, M Seehra, R Trappen, S Kumari, C Huang, S Yousefi, G Cabrera, A Romero, M Holcomb</i> , West Virginia University	

Wednesday Morning, October 24, 2018

<p>Extending Additive Manufacturing to the Atomic Scale Focus Topic Room 102B - Session AM+NS+SS-WeM Nanofabrication with Focused Electron Beams (8:00-10:00 am)/Atomic Scale Manipulation with Focused Electron Beams (11:00 am-12:20 pm) Moderator: Ondrej Dyck, Oak Ridge National Laboratory</p>		<p>Applied Surface Science Division Room 204 - Session AS+NS+SA-WeM Beyond Traditional Surface Analysis Moderators: Mark Engelhard, EMSL, Environmental Molecular Sciences Laboratory, Kathryn Lloyd, DuPont</p>	
8:00am	<p>INVITED: AM+NS+SS-WeM-1 3D Nano-Printing via Focused Electron Beams: An Emerging Technology for Novel Applications, <i>Harald Plank, R Winkler, J Sattelkow</i>, Graz University of Technology, Austria; <i>J Fowlkes</i>, Oak Ridge National Laboratory; <i>P Rack</i>, University of Tennessee Knoxville</p>	<p>AS+NS+SA-WeM-1 Solar Wind Interaction with Carbonate Deposits on Asteroid (1) Ceres' Surface: The Role of Surface Analysis in Laboratory Planetary Science, <i>Catherine Dukes, G Rodriguez Lopez, C Bu</i>, University of Virginia</p>	
8:20am	Invited talk continues.	<p>AS+NS+SA-WeM-2 Looking Deeper and Smaller: Enhancing XPS by Hard X-ray Probes and High-resolution Imaging, <i>Olivier Renault</i>, CEA/LETI-University Grenoble Alpes, France; <i>C Zborowski</i>, University of Southern Denmark, Denmark; <i>J Rueff</i>, Synchrotron SOLEIL, L'orme des Merisiers, France; <i>Y Yamashita, S Ueda</i>, NIMS, Japan; <i>G Grenet</i>, Lyon Institute of Nanotechnology, France; <i>S Tougaard</i>, University of Southern Denmark, Denmark</p>	
8:40am	<p>INVITED: AM+NS+SS-WeM-3 3D Nanoprinting using an Electron Beam: Simulations and Computer-aided Design, <i>Jason Fowlkes</i>, Oak Ridge National Laboratory; <i>R Winkler</i>, Graz Centre for Electron Microscopy, Austria; <i>B Lewis</i>, Carl Zeiss Microscopy, LLC; <i>A Fernandez-Pacheco, L Skoric, D Sanz-Hernandez</i>, University of Cambridge; <i>M Stanford, E Mutunga, P Rack</i>, University of Tennessee; <i>H Plank</i>, Graz University of Technology, Austria</p>	<p>INVITED: AS+NS+SA-WeM-3 Reenvisioning Amphiphilicity: Translating Cell Membrane Design Principles to Synthetic 2D Materials, <i>Shelley Claridge</i>, Purdue University</p>	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	<p>INVITED: AM+NS+SS-WeM-5 2D/3D Nano-printed Functional Structures for Application and Device Development using Focused Electron Beams, <i>Michael Huth</i>, Institute of Physics, Goethe University, Frankfurt am Main, Germany</p>	<p>AS+NS+SA-WeM-5 Microstructural Effects on Surface Potential of Amorphous Solid Water, <i>Caixia Bu, C Dukes</i>, University of Virginia</p>	
9:40am	Invited talk continues.	<p>AS+NS+SA-WeM-6 Speciation and Reactivity of Organic Matter in Uranium Mine Wastes from Laguna- New Mexico: An Application of Surface Sciences in Environmental Systems., <i>Carmen A. Velasco, A Ali</i>, University of New Mexico; <i>C Osburn</i>, North Carolina State University; <i>K Artyushkova, J Cerrato</i>, University of New Mexico</p>	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	<p>INVITED: AM+NS+SS-WeM-10 Single Atom Scale Manipulation of Matter by Scanning Transmission Electron Microscopy, <i>Stephen Jesse, O Dyck, S Kalinin</i>, Oak Ridge National Laboratory</p>	<p>AS+NS+SA-WeM-10 Optical Constants Measured for Iridium and Samarium by Reflection Electron Energy-loss Spectroscopy Spectra, <i>LiHao Yang, H Xu</i>, University of Science and Technology of China; <i>A Sulyok, M Menyhard</i>, Institute for Technical Physics and Materials Science Centre for Energy Research, Hungarian Academy of Sciences (MTA); <i>K Tokesi</i>, Institute for Nuclear Research, Hungarian Academy of Sciences (ATOMKI), Hungary; <i>Z Ding</i>, University of Science and Technology of China, China</p>	
11:20am	Invited talk continues.	<p>AS+NS+SA-WeM-11 X-Ray Photoelectron Spectroscopy and Electrical Modeling of Electrowetting on Dielectric Devices, <i>Pinar Aydogan Gokturk</i>, Bilkent University, Turkey; <i>B Ulgut, S Suzer</i>, Bilkent University, Turkey</p>	
11:40am	<p>INVITED: AM+NS+SS-WeM-12 Single Atom Modification of 2D Materials: Fabrication and Electronic Structure, <i>Demie Kepaptsoglou, F Hage</i>, SuperSTEM Laboratory, UK; <i>T Susi, J Kotakoski, J Meyer</i>, University of Vienna, Austria; <i>Y Lin, K Suenaga</i>, National Institute of Advanced Industrial Science and Technology (AIST), Japan; <i>T Hardcastle</i>, University of Leeds, UK; <i>U Bangert</i>, University of Limerick, Republic of Ireland; <i>J Amani, H Hofsaess</i>, University of Göttingen, Germany; <i>Q Ramasse</i>, SuperSTEM Laboratory, UK, United Kingdom of Great Britain and Northern Ireland</p>	<p>AS+NS+SA-WeM-12 Near Ambient Pressure XPS Study of Oxygen Binding to the Surface of Transition Metal-nitrogen-carbon Electrocatalysts for Oxygen Reduction, <i>K Artyushkova, Yechuan Chen, P Atanassov</i>, University of New Mexico</p>	
12:00pm	Invited talk continues.	<p>AS+NS+SA-WeM-13 Surface Chemistry of Scandium, <i>Michael Brumbach, D Casalnuovo, E Barnat, C Winters, D Robinson Brown, C Snow, A Grillet</i>, Sandia National Laboratories</p>	

Wednesday Morning, October 24, 2018

Electronic Materials and Photonics Division Room 101A - Session EM+AN+MI+SS-WeM Surface and Interface Challenges in Electronics and Photonics Moderators: Andy Antonelli, Nanometrics, Michael Filler, Georgia Institute of Technology		Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-WeM Mechanisms and Reaction Pathways of Heterogeneously Catalyzed Reactions Moderator: Johan Gustafson, Lund University	
8:00am	INVITED: EM+AN+MI+SS-WeM-1 Few Monolayer Atomic Layer Deposition (ALD) to Engineer New Surfaces and Interfaces, <i>Parag Banerjee</i> , Washington University in St. Louis	HC+SS-WeM-1 Surface Reactions of Methanol on Fe ₃ O ₄ (001) and Pd/Fe ₃ O ₄ (001) Model Catalysts, <i>Matthew Marcinkowski, N Doudin, R Smith, B Kay, Z Dohnalek</i> , Pacific Northwest National Laboratory	
8:20am	Invited talk continues.	HC+SS-WeM-2 Hydrogen Activation and Spillover on Single Palladium Atoms Supported on Fe ₃ O ₄ (001) Surface, <i>Nassar Doudin</i> , Pacific Northwest National Laboratory; <i>J Cheng Liu</i> , Tsinghua University, China; <i>M Marcinkowski, M Nguyen</i> , Pacific Northwest National Laboratory; <i>J Li</i> , Tsinghua University, China; <i>V Glezakou</i> , Pacific Northwest National Laboratory; <i>G Parkinson</i> , Vienna University of Technology, Austria; <i>R Rousseau, Z Dohnalek</i> , Pacific Northwest National Laboratory	
8:40am	EM+AN+MI+SS-WeM-3 Lattice-alignment mechanism of SiGe on Sapphire, <i>HyunJung Kim</i> , National Institute of Aerospace; <i>S Choi</i> , NASA Langley Research Center	INVITED: HC+SS-WeM-3 Model Studies on Ligand-assisted Heterogeneous Catalysis, <i>Swetlana Schauer mann</i> , Christian-Albrechts-University Kiel, Germany	
9:00am	EM+AN+MI+SS-WeM-4 An Effort to Resolve Band Offset Anomalies in ZnO/GaN Heterostructures, <i>Monu Mishra</i> ¹ , <i>A Gundimeda, V Vandana, G Gupta</i> , CSIR-National Physical Laboratory, India	Invited talk continues.	
9:20am	EM+AN+MI+SS-WeM-5 Stress Relaxation in the Si-SiO ₂ System and its Influence on the Interface Properties, <i>Daniel Kropman, T Laas</i> , Tallinn University, Estonia; <i>A Medvids</i> , Riga Technical University, Latvia	HC+SS-WeM-5 <i>In situ</i> Structural Studies and Gas Phase Visualization of Model Catalysts at Work, <i>Sara Blomberg</i> ² , <i>J Zetterberg, J Zhou, J Gustafson, E Lundgren</i> , Lund University, Sweden	
9:40am	EM+AN+MI+SS-WeM-6 Unique Sensitivity to Deep Trap States Demonstrated by CREM of Broad Bandgap Dielectric Layers, <i>Hagai Cohen</i> , Weizmann Institute of Science, Israel; <i>K Steirer</i> , Colorado School of Mines	HC+SS-WeM-6 Adsorption, Thermal Stability, and Kinetics of Atomic Oxygen at Ag(111) and Ag(110) Surfaces, <i>Sara Isbill</i> ² , <i>S Roy</i> , University of Tennessee Knoxville	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	EM+AN+MI+SS-WeM-10 Fabrication of Multilayered Optically Active Nanocrystal Solids by Surface Passivation using Metal Oxides: ALD vs CVD, <i>Riya Bose, A Dangerfield</i> , University of Texas at Dallas; <i>S Rupich</i> , University of Texas; <i>Y Chabal, A Malko</i> , University of Texas at Dallas	HC+SS-WeM-10 Understanding the Intrinsic Surface Reactivity of Multilayer vs. Single-layer PdO(101) on Pd(100), <i>Jason Weaver, V Mehar</i> , University of Florida; <i>M Kim</i> , Ohio State University; <i>M Shipilin</i> , Lund University, Sweden; <i>M van den Bossche</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>J Gustafson</i> , Lund University, Sweden; <i>L Merte</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>U Hejral</i> , Lund University, Sweden; <i>H Gronbeck</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>E Lundgren</i> , Lund University, Sweden; <i>A Asthagiri</i> , Ohio State University	
11:20am	EM+AN+MI+SS-WeM-11 The Role of Surface Oxides for the Optoelectronic Performance of III-V Semiconductor Nanowires, <i>J Colvin, A Troian, O Persson, A Mikkelsen, Rainer Timm</i> , Lund University, Sweden	HC+SS-WeM-11 Simultaneous Study of Catalyst Structure, Gas Phase and Morphology, <i>Sebastian Pfaff, J Zhou, S Albertin</i> , Lund University, Sweden; <i>M Shipilin</i> , Stockholm University, Sweden; <i>J Gustafson, S Blomberg, E Lundgren, J Zetterberg</i> , Lund University, Sweden	
11:40am	EM+AN+MI+SS-WeM-12 Photonic Annealing of 2D Transition Metal Dichalcogenides for Tailored Optical Properties, <i>Rachel Rai, K Gliebe</i> , University of Dayton; Air Force Research Laboratory; <i>N Glavin, R Kim, A Jawaid, R Wheeler, L Bissell</i> , Air Force Research Laboratory; <i>C Muratore</i> , University of Dayton	INVITED: HC+SS-WeM-12 New Catalysis for Light Alkanes – From Methane Functionalization to Light Akenes, <i>Johannes Lercher</i> , Pacific Northwest National Laboratory and TU München, United States of America/Germany	
12:00pm	EM+AN+MI+SS-WeM-13 Polarity Control of GaN Nanowires on Diamond: Experiment and Theory, <i>Karin Larsson</i> , Uppsala University, Sweden; <i>M Hetzl, M Kraut, T Hoffmann, M Stutzmann</i> , Technical University Munich, Germany	Invited talk continues.	

¹ National Student Award Finalist

² Heterogeneous Catalysis Graduate Student Presentation Award Finalist

Wednesday Morning, October 24, 2018

Industrial Physics Forum Room 101B - Session IPF+AS+BI+NS-WeM IoT Session: Bioanalytics, Biosensors and Diagnostics Moderators: Anna Belu, Medtronic, Inc., Sally McArthur, Swinburne University of Technology, Australia		MEMS and NEMS Group Room 202B - Session MN+NS+PS-WeM IoT Session: Multiscale Manufacturing: Enabling Materials and Processes Moderators: Susan Burkett, The University of Alabama, Roya Maboudian, University of California at Berkeley	
8:00am		INVITED: MN+NS+PS-WeM-1 Miniaturizing 3D Printed Microfluidics: State-of-the-Art and Outlook, Greg Nordin , Brigham Young University	
8:20am		Invited talk continues.	
8:40am	INVITED: IPF+AS+BI+NS-WeM-3 Harnessing Bacteria for Fabrication of Photoelectrodes and Pressure Sensors, <i>Y Feng, K Marusak, Y Cao, E Ngaboyamahina, J Glass, L You, Stefan Zauscher</i> , Duke University	MN+NS+PS-WeM-3 A Novel Inkjet Printing Technology Based on Plasma Conversion of Metal-Salt Based Inks for the Fabrication of Microfabricated Sensors, <i>Y Sui, M Sankaran, Christian Zorman</i> , Case Western Reserve University	
9:00am	Invited talk continues.	MN+NS+PS-WeM-4 Full Wafer Thickness Through Silicon Vias for MEMS Devices, Andrew Hollowell , <i>E Baca, D Dagele, M Jordan, L Menk, K Musick, T Pluym, J McClain</i> , Sandia National Laboratories	
9:20am	INVITED: IPF+AS+BI+NS-WeM-5 Surface Chemistry and Surface Analysis: Their Importance and Application in Industrial Genomics, Fiona Black , Illumina Inc.	MN+NS+PS-WeM-5 Scaling from Die Level to Full 150 mm Wafer TSV Filling through Fluid Dynamics Modeling and Current Controlled Deposition, Ehren Baca , <i>M Jordan, L Menk, K Musick, P Yeh, A Hollowell</i> , Sandia National Laboratories	
9:40am	Invited talk continues.	MN+NS+PS-WeM-6 Batch Level Electroless Under Bump Metallization for Singulated Semiconductor Die, Matthew Jordan , <i>E Baca, J Pillars, C Michael, A Hollowell</i> , Sandia National Laboratories	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: IPF+AS+BI+NS-WeM-10 Design and Evaluation of Organosilica Nanosensors for Continuous Molecular Monitoring in Complex Biological Environments, Simon Corrie , Monash Univ., Melbourne AU, Australia	INVITED: MN+NS+PS-WeM-10 MEMS-based Atomic Force Microscopy Probes: From Electromechanical to Optomechanical Vibrating Sensors, Bernard Legrand , LAAS-CNRS, France; <i>L Schwab</i> , LAAS-CNRS, Univ Tououse, France; <i>P Allain, I Favero</i> , MPQ, CNRS, Univ Paris Diderot, France; <i>M Faucher, D Théron</i> , IEMN, CNRS, Univ Lille, France; <i>B Walter</i> , Vmicro SAS, France; <i>J Salvetat</i> , CRPP, CNRS, Univ Bordeaux, France; <i>S Hentz, G Jourdan</i> , CEA-LETI, France	
11:20am	Invited talk continues.	Invited talk continues.	
11:40am	INVITED: IPF+AS+BI+NS-WeM-12 Optoregulated Biointerfaces, Aránzazu del Campo , INM-Leibniz Institute for New Materials, Germany	MN+NS+PS-WeM-12 Suppressing Secondary Grain Growth in $Sc_{0.125}Al_{0.875}N$ Using a CMOS Compatible Electrode, Giovanni Esteves , <i>M Berg, M Henry, B Griffin, E Douglas</i> , Sandia National Laboratories	
12:00pm	Invited talk continues.	MN+NS+PS-WeM-13 A Low Voltage NEMS Relay. Design, Fabrication and Challenges, <i>A Solot, A Dinescu</i> , National Institute for R&D in Microtechnologies (IMT), Bucharest, Romania; <i>M Fernandez-Bolaños, A Ionescu</i> , École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland; Gina Adam , National Institute for R&D in Microtechnologies (IMT Bucharest), Romania	

Wednesday Morning, October 24, 2018

Nanometer-scale Science and Technology Division Room 203A - Session NS+2D+AN+MN+MP+SE-WeM Micro, Nano and Opto Mechanics Moderators: Robert Ilic, National Institute of Standards and Technology (NIST), Alokik Kanwal, NIST Center for Nanoscale Science and Technology		Processing and Characterization of Air-Liquid, Solid-Liquid and Air-Solid Interfaces Focus Topic Room 202A - Session PC+AS+BI+EM+PB+SS-WeM Novel Approaches and Challenges of Interfaces Moderators: Andrei Kolmakov, National Institute of Standards and Technology (NIST), Xiao-Ying Yu, Pacific Northwest National Laboratory	
8:00am		INVITED: PC+AS+BI+EM+PB+SS-WeM-1 Probing Chemical Species and Potential Profiles of Electrified Interfaces, <i>Ethan J. Crumlin</i> , Advanced Light Source, Lawrence Berkeley National Laboratory	
8:20am	NS+2D+AN+MN+MP+SE-WeM-2 The Collective Behavior of Large Ensembles of Coupled MEMS Cantilevers with Varying Natural Frequencies, <i>Christopher Wallin</i> , National Institute of Standards and Technology, Center for Nanoscale Science and Technology; <i>N Dick</i> , Tel Aviv University, Israel; <i>R De Alba</i> , <i>D Westly</i> , National Institute of Standards and Technology, Center for Nanoscale Science and Technology; <i>S Grutzik</i> , Sandia National Laboratories; <i>A Zehnder</i> , <i>R Rand</i> , Cornell University; <i>V Aksyuk</i> , National Institute of Standards and Technology, Center for Nanoscale Science and Technology; <i>S Krylov</i> , Tel Aviv University, Israel; <i>R Ilic</i> , National Institute of Standards and Technology, Center for Nanoscale Science and Technology	Invited talk continues.	
8:40am	INVITED: NS+2D+AN+MN+MP+SE-WeM-3 Piezoelectric Optomechanical Systems, <i>Krishna Coimbatore Balram</i> , University of Bristol, UK	PC+AS+BI+EM+PB+SS-WeM-3 Observation of Electron Transfer in Riboflavin Reduction by In Situ Liquid SIMS, <i>Rachel Komorek</i> , <i>X Yu</i> , <i>Z Zhu</i> , <i>X Yu</i> , Pacific Northwest National Laboratory	
9:00am	Invited talk continues.	PC+AS+BI+EM+PB+SS-WeM-4 Electrowetting of Liquid Drops Revisited by XPS, <i>Sefik Suzer</i> , <i>P Gokturk</i> , <i>B Ulgut</i> , Bilkent University, Turkey	
9:20am	NS+2D+AN+MN+MP+SE-WeM-5 Absolute Deflection Measurements in a MEMS/NEMS Fabry-Perot Interferometry System, <i>Roberto De Alba</i> , <i>C Wallin</i> , <i>G Holland</i> , National Institute of Standards and Technology; <i>S Krylov</i> , Tel Aviv University, Israel; <i>R Ilic</i> , National Institute of Standards and Technology	INVITED: PC+AS+BI+EM+PB+SS-WeM-5 Probing Interfaces in Heterogeneous Catalysts at Atomic Scale: Current and Emerging STEM Techniques, <i>Miaofang Chi</i> , Oak Ridge National Laboratory	
9:40am	NS+2D+AN+MN+MP+SE-WeM-6 Silicon on Insulator Electrostatically Actuated Bistable Cantilevers for Resonant Displacement/Acceleration Sensing, <i>O HaLevy</i> , <i>E Benjamin</i> , <i>N Krakover</i> , <i>Y Kessler</i> , <i>Slava Krylov</i> , Tel Aviv University, Israel	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: NS+2D+AN+MN+MP+SE-WeM-10 Electron-Photon-Phonon Hybrid Systems Based on Compound Semiconductor Mechanical Resonators, <i>Hiroshi Yamaguchi</i> , NTT Basic Research Laboratories, Nippon Telegraph and Telephone Corporation, Japan	PC+AS+BI+EM+PB+SS-WeM-10 From 2D to Advanced 3D Surface Functionalization using Self-limiting Reactions in the Fluidized Bed Reactor Technology, <i>Didier Arl</i> , <i>T Da Cunha</i> , <i>N Adjeroud</i> , <i>K Menguelti</i> , <i>M Gerard</i> , <i>D Lenoble</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg	
11:20am	Invited talk continues.		
11:40am	NS+2D+AN+MN+MP+SE-WeM-12 Size Dependent Mechanics of Elastomers, <i>Le Li</i> , <i>N Alsharif</i> , <i>K Brown</i> , Boston University		

Wednesday Morning, October 24, 2018

Plasma Science and Technology Division Room 104B - Session PS+AS+EL+EM+SE-WeM Current and Future Stars of the AVS Symposium I Moderator: Eric A. Joseph, IBM Research Division, T.J. Watson Research Center		Plasma Science and Technology Division Room 104A - Session PS+EM-WeM Advanced Patterning Moderators: Jeffrey Shearer, IBM Research Division, Albany, NY, Yiting Zhang, KLA-Tencor	
8:00am			PS+EM-WeM-1 Study of High Selective Silicon Nitride Etching Mechanisms in Remote Plasmas: Impact of Wafer Temperature, <i>Emilie Prevost</i> , STMicroelectronics, France; <i>L Vallier, G Cunge</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France; <i>C De Buttet</i> , CEA-LETI, France; <i>S Lagrasta</i> , STMicroelectronics, France; <i>C Petit-Etienne</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France
8:20am	PS+AS+EL+EM+SE-WeM-2 Invited Talk-Future Stars of AVS Session: Ellipsometry at THz Frequencies: New Approaches for Metrology and Metamaterial-based Sensing, <i>Tino Hofmann</i> ¹ , University of North Carolina at Charlotte		PS+EM-WeM-2 Mechanism of Highly Selective SiO ₂ Etching over Si ₃ N ₄ using a Cyclic Process with BCl ₃ and Fluorocarbon Gas Chemistries, <i>Miyako Matsui</i> , Hitachi Ltd., Japan; <i>K Kuwahara</i> , Hitachi High-Technologies Corp., Japan
8:40am	PS+AS+EL+EM+SE-WeM-3 Invited Talk-Future Stars of AVS Session: Remote Epitaxy – The Future for Stackable SiC Electronics, <i>Rachael Myers-Ward</i> ¹ , U.S. Naval Research Laboratory; <i>J Kim</i> , Massachusetts Institute of Technology; <i>M Dejarld</i> , US Naval Research Laboratory; <i>K Qiao, Y Kim</i> , Massachusetts Institute of Technology; <i>S Pavunny, K Gaskill</i> , U.S. Naval Research Laboratory		INVITED: PS+EM-WeM-3 DSA Patterning for and Beyond CMOS, <i>Patricia Pimenta Barros</i> , CEA-LETI, France; <i>N Posseme</i> , CEA, LETI, France; <i>S Barnola</i> , CEA-LETI, France; <i>R Tiron</i> , CEA-LETI, MINATEC, France; <i>A Gharbi, M Argoud, Z Chalupa, M Gusmao-Cacha</i> , CEA-LETI, France; <i>A Paquet</i> , Arkema, France; <i>F Delachat</i> , CEA-LETI, France; <i>Nicolet</i> , <i>Navarro</i> , Arkema, France
9:00am	PS+AS+EL+EM+SE-WeM-4 Invited Talk-Future Stars of AVS Session: Low-Temperature Growth for 3D Integration of van der Waals Materials, <i>Christopher L. Hinkle</i> ¹ , University of Texas at Dallas		
9:20am	PS+AS+EL+EM+SE-WeM-5 Invited Talk-Future Stars of AVS Session: Engineering the Properties at Heusler Interfaces, <i>Jason Kawasaki</i> ¹ , University of Wisconsin - Madison		PS+EM-WeM-5 Composition Modulation of SiGe for Si/SiGe Dual Channel Fin Application, <i>Yohei Ishii</i> , Hitachi High Technologies America Inc.; <i>Y Lee</i> , National Nano Device Laboratories; <i>W Wu</i> , National Nano Device Laboratories; <i>K Maeda</i> , Hitachi High Technologies America Inc.; <i>H Ishimura</i> , Hitachi High-Technologies Taiwan Corp.; <i>M Muira</i> , Hitachi High-Technologies Corp.
9:40am	PS+AS+EL+EM+SE-WeM-6 Invited Talk-Future Star of AVS Session: Atom Probe Tomography for 3D Semiconductor Devices Applications, <i>Ajay Kumar Kambham</i> ¹ , GLOBALFOUNDRIES U.S. Inc.		PS+EM-WeM-6 Etching Mechanisms of Si Containing Materials in Remote Plasma Source using NF ₃ based Gas Mixture, <i>Erwine Pargon, V Renaud, C Petit-Etienne, L Vallier, G Tomachot, G Cunge, O Joubert</i> , Univ. Grenoble Alpes, CNRS, LTM, Grenoble, France; <i>J Barnes, N Rochat</i> , Univ. Grenoble Alpes, CEA, LETI, Grenoble, France
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	PS+AS+EL+EM+SE-WeM-10 Invited Talk-Future Stars of AVS Session: Three-Dimensional Imaging of Complex Oxide Interfaces, <i>Divine P. Kumah</i> ¹ , North Carolina State University		PS+EM-WeM-10 Precise Control of Silicon Nitride Spacer Etching Selectively to Silicon for 3D CMOS Device, <i>V Ah-Leung, N Possémé, Olivier Pollet, S Barnola</i> , CEA-LETI, France
11:20am	PS+AS+EL+EM+SE-WeM-11 Invited Talk-Future Stars of AVS Session: Illuminating Physics of Magnetron Sputtering Discharges, <i>Matjaz Panjan</i> ¹ , Jozef Stefan Institute, Slovenia		PS+EM-WeM-11 A Study on the Distortion of Poly Si Nano Hole Profile with High Aspect Ratio in sub X nm, <i>Jin Won Lee, J Lee, K Seong, T Kwon, H Jeong, S Hong, D Han, B Lim, A Ji, Y Oh, J Park</i> , Samsung Electronics, Republic of Korea
11:40am	INVITED: PS+AS+EL+EM+SE-WeM-12 Peter Mark Memorial Award: Plasma-bio Interactions: Investigating Mechanisms to Enable New Applications, <i>Peter Bruggeman</i> ² , University of Minnesota		INVITED: PS+EM-WeM-12 Etching Recipe Optimization Using Machine Learning, <i>Takeshi Ohmori, H Nakada, M Ishikawa, N Kofuji, T Usui, M Kurihara</i> , Hitachi, Ltd., Japan
12:00pm	Invited talk continues.		Invited talk continues.

¹ Future Stars of the AVS

² Peter Mark Memorial Award Winner

Wednesday Morning, October 24, 2018

Plasma Science and Technology Division Room 104C - Session PS+MN-WeM IoT Session: Enabling IoT Era Moderators: Ankur Agarwal, KLA-Tencor, David Lishan, Plasma-Therm LLC		Surface Science Division Room 203C - Session SS+HC-WeM Catalytic Alloys: Understanding Heterogeneity Moderators: April Jewell, Jet Propulsion Laboratory, Jean-Sabin McEwen, Washington State University	
8:00am	INVITED: PS+MN-WeM-1 A "Moore's Law" for Packaging, <i>Subramanian Iyer</i> , University of California at Los Angeles		INVITED: SS+HC-WeM-1 Toward Surface Science-informed Design of Bifunctional Deoxygenation Catalysts, <i>J. Will Medlin</i> , University of Colorado Boulder
8:20am	Invited talk continues.		Invited talk continues.
8:40am	PS+MN-WeM-3 Fabrication, Chemical Lift-Off and Optical Characterization of Nanoscale III-Nitride Light Emitters, <i>Lesley Chan¹, C Pynn, P Shapturenka, T Margalith, S DenBaars, M Gordon</i> , University of California at Santa Barbara		SS+HC-WeM-3 Computationally Assisted Correlative STEM and EXAFS Characterization for Multiscale Structure Determination of Tunable Rh/Au Bimetallic Nanoparticle Catalysts, <i>S House, C Bonifacio</i> , University of Pittsburgh; <i>J Timoshenko</i> , Stony Brook University; <i>P Kunal, H Wan, Z Duan, H Li</i> , University of Texas at Austin; <i>Judith Yang</i> , University of Pittsburgh; <i>A Frenkel</i> , Stony Brook University; <i>S Humphrey, R Crooks, G Henkelman</i> , University of Texas at Austin
9:00am	PS+MN-WeM-4 High Radical Flux, with Low Ion and Photon Flux, Plasma Source, for MEM'S Technology, <i>Marc Segers, Y Pilloux, D Lishan, S FERRAND</i> , Plasma-Therm LLC		SS+HC-WeM-4 Designing Heterogeneous Alloy Catalysts from First Principles and Surface Science, <i>Charles Sykes</i> , Tufts University
9:20am	INVITED: PS+MN-WeM-5 Use of Plasma in Advanced Packaging, <i>Michael Seddon</i> , ON Semi		SS+HC-WeM-5 Extracting Diffusing Parameters for Cu and S from Surface Segregation Data Recorded with AES on a Ni-Cu(S) Ternary Alloy, <i>Jacobus Terblans</i> , University of the Free State, South Africa; <i>X Yan</i> , University of the Free State, China; <i>J Wand</i> , Shantou University, China; <i>H Swart</i> , University of the Free State, Republic of South Africa, South Africa
9:40am	Invited talk continues.		SS+HC-WeM-6 Atomic and Electronic Structure of CoO Nanoislands on Au(111), <i>Ana Sanchez-Grande</i> , IMDEA Nanoscience, Spain; <i>J Rodriguez-Fernandez</i> , Aarhus University, Denmark; <i>E Carrasco, B Cirera, K Lauwaet</i> , IMDEA Nanoscience, Spain; <i>J Fester</i> , Aarhus University, Denmark; <i>R Miranda</i> , Universidad Autonoma Madrid, Spain; <i>J Lauritsen</i> , Aarhus University, Denmark; <i>D Ecija</i> , IMDEA Nanoscience, Spain
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	INVITED: PS+MN-WeM-10 Low Temperature Plasmas in Nanotechnology Applications, <i>Meyya Meyyappan</i> , NASA Ames Research Center		INVITED: SS+HC-WeM-10 Using Water as a Co-catalyst in Heterogeneous Catalysis to Improve Activity and Selectivity, <i>Lars Grabow</i> , University of Houston
11:20am	Invited talk continues.		Invited talk continues.
11:40am	PS+MN-WeM-12 Gas Phase Synthesis of Pure III-V Semiconductor Nanoparticles from Bulk Metals by using Low Temperature Plasma, <i>Necip Berker Uner, E Thimsen</i> , Washington University in St. Louis		SS+HC-WeM-12 Experimental and Theoretical Evaluation of Water Chemistry on Two-dimensional Silica and Aluminosilicate, <i>Jin-Hao Jhang, G Hutchings</i> , Yale University; <i>J Boscoboinik</i> , Center for Functional Nanomaterials Brookhaven National Laboratory; <i>E Altman</i> , Yale University
12:00pm	PS+MN-WeM-13 Investigation of Fundamental Hydrocarbon Plasma Chemistry for Unraveling Film Deposition Processes on Nanomaterials, <i>Tara Van Surksum, E Fisher</i> , Colorado State University		SS+HC-WeM-13 Double Layer Formation of Water Molecules on Graphene, <i>A Akaishi, T Yonemaru, Jun Nakamura</i> , The University of Electro-Communications (UEC-Tokyo), Japan

Wednesday Morning, October 24, 2018

Thin Films Division Room 102A - Session TF+EM+MI-WeM Thin Film Processes for Electronics and Optics I Moderators: Joe Becker, Kurt J. Lesker Company, Virginia Wheeler, U.S. Naval Research Laboratory		Vacuum Technology Division Room 203B - Session VT-WeM Vacuum Technology Developments Moderators: Jason Carter, Argonne National Laboratory, Yulin Li, Cornell University	
8:00am	INVITED: TF+EM+MI-WeM-1 Crystalline Conductors: Transition Metal Nitride Materials and Device Applications, <i>David Meyer, D Katzer, N Nepal, B Downey, M Hardy, D Storm</i> , U.S. Naval Research Laboratory	VT-WeM-1 Trace Helium Effects from High Pressure Swing Adsorption Nitrogen Generator on Semiconductor Capital Equipment Manufacturer, <i>S Borichevsky, William Johnson</i> , Applied Materials, Varian Semiconductor Equipment	
8:20am	Invited talk continues.	VT-WeM-2 Remote Handling Clamps for Flange Connections in Vacuum Service, <i>Ryan McCall</i> , Technetics Group	
8:40am	TF+EM+MI-WeM-3 Growth Mechanism and Characteristics of Hf-Si-O Film by PE-ALD using TDMAS and TDMAH Precursors and Oxygen Plasma Gas, <i>Toshihide Nabatame</i> , National Institute for Materials Science (NIMS), Japan; <i>M Inoue</i> , National Institute for Materials Science (NIMS); <i>E Maeda, K Yuge, M Hirose</i> , Shibaura Institute of Technology, Japan; <i>M Takahashi, K Ito</i> , Joining and Welding Research Institute, Osaka University, Japan; <i>N Ikeda</i> , National Institute for Materials Science (NIMS), Japan; <i>T Ohishi</i> , Shibaura Institute of Technology, Japan; <i>A Ohi</i> , National Institute for Materials Science (NIMS), Japan		
9:00am	TF+EM+MI-WeM-4 Atomic Layer Epitaxy of Ultra-wide Bandgap Ga ₂ O ₃ Films, <i>Virginia Wheeler, N Nepal</i> , U.S. Naval Research Laboratory; <i>L Nyakiti</i> , Texas A&M University; <i>D Boris, S Walton, B Downey, D Meyer, C Eddy Jr.</i> , U.S. Naval Research Laboratory	VT-WeM-4 Role of Rotor Surface Conditions on Calibration Constant of Spinning Rotor Gauges, <i>Tim Verbousek</i> , Institute of Metals and Technology, Slovenia	
9:20am	TF+EM+MI-WeM-5 Effects of Process Gases and Gate TiN Electrode during the Post Deposition Anneal to ALD-Al ₂ O ₃ Dielectric Film, <i>Masaya Saito, A Teramoto, T Suwa, K Nagumo, Y Shiba, R Kuroda, S Sugawa</i> , Tohoku University, Japan	VT-WeM-5 Condensation-based Low-grade Heat Powered Dual-chamber Vacuum Technology, <i>Tony Guo</i> , New Jersey Institute of Technology	
9:40am	TF+EM+MI-WeM-6 Controlling the NbO _x Materials System for Neuromorphic Computing, <i>Alexander C. Kozen</i> , U.S. Naval Research Laboratory; <i>Z Robinson, A Rowley</i> , The College at Brockport - SUNY; <i>T Larrabee, M Twigg, H Cho, S Prokes</i> , U.S. Naval Research Laboratory	VT-WeM-6 Vacuum Design and Testing of the ARIEL Radio Frequency Quadrupole Buncher and Cooler (ARQB), <i>Geoff Hodgson, B Barquest</i> , TRIUMF, Canada	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	TF+EM+MI-WeM-10 Sputtering Power Dependent on Switching Characteristics of ZnO-based Transparent Resistive Memory Devices, <i>Firman Mangasa Simanjuntak</i> , Tohoku University, Japan; <i>T Ohno</i> , Oita University, Japan; <i>S Samukawa</i> , Tohoku University, Japan		
11:20am	TF+EM+MI-WeM-11 Influence of Intrinsic and Extrinsic Dopants in HfO _x Films for Resistive Switching Memory, <i>SungYeon Ryu, Y Kim</i> , Seoul National University of Science and Technology, Republic of Korea; <i>W Park, S Kim</i> , SK Hynix Inc., Republic of Korea; <i>B Choi</i> , Seoul National University of Science and Technology, Republic of Korea		
11:40am	TF+EM+MI-WeM-12 Scaling up of an Electrochemical Atomic Layer Deposition of Copper, <i>D Dictus</i> , Lam Research Corporation, Belgium; <i>Aniruddha Jai</i> , Lam Research Corporation; <i>G Alessio Verni</i> , Lam Research Corporation, Belgium; <i>K Vandersmissen</i> , Imec, Belgium; <i>B Frees</i> , Lam Research Corporation, Belgium; <i>D Yezdi</i> , Lam Research Corporation		
12:00pm	TF+EM+MI-WeM-13 A Novel High-deposition-rate PECVD Process based on Hollow Cathode Plasma Technique, <i>S Shayestehaminzadeh, N Rivolta</i> , AGC Glass Europe, Belgium; <i>M Datz</i> , Interpane E&B GmbH; <i>John Chambers</i> , AGC North America; <i>H Wiame</i> , AGC Glass Europe, Belgium		

Wednesday Morning, October 24, 2018

Exhibitor Technology Spotlight Workshops
Room Hall A - Session EW-WeB
Exhibitor Technology Spotlight Session IV
Moderator: Christopher Moffitt, Kratos Analytical Inc

10:00am		
10:20am	EW-WeB-2 HAXPES-Lab: A Laboratory Based System for HAXPES Measurements, <i>Susanna Eriksson</i> , Scienta Omicron	
10:40am	EW-WeB-3 Coatings Characterization Solution from Fischer Technology - XRF, Nanoindentation and Progressive Load Scratch, <i>Rahul Nair</i> , Fischer Scientific	

Wednesday Afternoon, October 24, 2018

Exhibitor Technology Spotlight Workshops
Room Hall A - Session EW-WeL
Exhibitor Technology Spotlight Session V
Moderator: Christopher Moffitt, Kratos Analytical Inc

12:00pm		
12:20pm		
12:40pm	EW-WeL-3 The TESLA JT SPM, Markus Maier , Scienta Omicron GmbH, Germany	
1:00pm	EW-WeL-4 MKS Instruments, Inc., 523 Granville-Phillips® Wide-Range Cold Cathode Transducer: Applications and Market Update, David Kelly , MKS Instruments	

Wednesday Afternoon, October 24, 2018

	2D Materials Focus Topic Room 201B - Session 2D+MN+NS+SS-WeA IoT Session: Surface Chemistry, Functionalization, Bio and Sensor Applications Moderator: Daniel Walkup, National Institute of Standards and Technology (NIST)/ University of Maryland, College Park	Actinides and Rare Earths Focus Topic Room 202C - Session AC+AS+SA-WeA Chemistry and Physics of the Actinides and Rare Earths Moderators: Krzysztof Gofryk, Idaho National Laboratory, Ladislav Havela, Charles University, Czech Republic, David Shuh, Lawrence Berkeley National Laboratory
2:20pm	2D+MN+NS+SS-WeA-1 Impact of Hydrogen on Graphene-based Materials: Atomistic Modeling and Simulation of HRSTEM Images, <i>C Guedj</i> , Univ. Grenoble Alpes, CEA, LETI, France; <i>L Jaillet, F Rousse, Stéphane Redon</i> , Univ. Grenoble Alpes, CNRS, INRIA, Grenoble INP*, LJK, France, France	INVITED: AC+AS+SA-WeA-1 New Directions in f-Block Separations Chemistry based on Metal and Ligand Redox Activity, <i>Eric Schelter</i> , A McSkimming, University of Pennsylvania; <i>J Su</i> , Los Alamos National Laboratory;; <i>T Cheisson, H Fang</i> , University of Pennsylvania; <i>L Moreau</i> , Lawrence Berkeley National Laboratory, Berkeley; <i>B Cole, B Manor, M Gau, P Carroll</i> , University of Pennsylvania; <i>E Batista, P Yang</i> , Los Alamos National Laboratory; <i>C Booth</i> , Lawrence Berkeley National Laboratory; <i>Y Qiao, J Bogart</i> , University of Pennsylvania
2:40pm	2D+MN+NS+SS-WeA-2 High Density H ₂ and He Plasmas: Can They be used to Treat Graphene?, <i>Hasan-AI Mehedi</i> , Laboratoire des Technologies de la Microélectronique, CNRS-UJF, France; <i>D Ferrah</i> , Cea, Leti, Minatex, France; <i>J Dubois</i> , Laboratoire des Technologies de la Microélectronique, CNRS-UJF, France; <i>C Petit-Etienne</i> , Laboratoire des Technologies de la Microélectronique, CNRS-UJF, France; <i>H Okuno</i> , Cea, Inac/sp2m/lemma; <i>V Bouchiat</i> , Institut Néel, CNRS-UJF-INP; <i>O Renault</i> , CEA/LETI-University Grenoble Alpes, France; <i>G Cunge</i> , Laboratoire des Technologies de la Microélectronique, CNRS-UJF, France	Invited talk continues.
3:00pm	2D+MN+NS+SS-WeA-3 Novel Binder-free Ag@Ni(OH) ₂ over Graphene/Ni Foam and Glucose Sensing, <i>Tong-Hyun Kang, J Yu</i> , DGIST, Republic of Korea	INVITED: AC+AS+SA-WeA-3 Bond Distance Variations for Lanthanide and Actinide Compounds and its Implication, <i>Tsuyoshi Yaita</i> , Japan Atomic Energy Agency, Japan; <i>S Suzuki, T Kobayashi, H Shiwaku</i> , Materials Sciences Research Center, Japan Atomic Energy Agency, Japan
3:20pm	2D+MN+NS+SS-WeA-4 Surface Modification and Magnetization of Carbon Based Nanostructures, <i>Rina Tannenbaum</i> , University of Stony Brook; <i>I Kim</i> , Gachon University, Korea; <i>S Sharma</i> , University of Stony Brook	Invited talk continues.
3:40pm	BREAK	BREAK
4:00pm	BREAK	BREAK
4:20pm	2D+MN+NS+SS-WeA-7 Chemical Modification of Graphene and Carbon Nano Tubes as viewed by XPS and NEXAFS Spectroscopies underpinned by DFT Spectra Simulation, <i>C Ehlert, E Donskyi</i> , Bundesanstalt für Materialforschung und -prüfung (BAM), Germany; <i>P Girard-Lauriault</i> , McGill University, Canada; <i>R Illgen</i> , Bundesanstalt für Materialforschung und -prüfung (BAM), Germany; <i>A Lippitz</i> , Bundesanstalt für Materialforschung und -prüfung (BAM); <i>R Haag, M Adeli</i> , Freie Universität Berlin, Germany; <i>Wolfgang Unger</i> , Bundesanstalt für Materialforschung und -prüfung (BAM), Germany	INVITED: AC+AS+SA-WeA-7 Spectroscopic Studies of Trivalent Actinide Coordination, <i>Benjamin Stein, M Kerlin, A Morgenstern, E Batista, S Bone, S Cary</i> , Los Alamos National Laboratory; <i>J Lezama Pacheco</i> , SLAC National Accelerator Laboratory; <i>S Kozimor, P Yang</i> , Los Alamos National Laboratory
4:40pm	2D+MN+NS+SS-WeA-8 Elastic Spongy Graphene-Functionalized Silicon Anode with Excellent Cycle Stability in Li battery, <i>Byong-June Lee, J Yu</i> , DGIST, Republic of Korea	Invited talk continues.
5:00pm	2D+MN+NS+SS-WeA-9 Electrical and Structural Changes of Multilayer WSe ₂ Transistors: Atmospheric Gas Adsorption and Long Term Aging, <i>Anna Hoffman</i> , University of Tennessee Knoxville, usa; <i>M Stanford, C Zhng</i> , University of Tennessee Knoxville; <i>I Ivanon</i> , Oak Ridge National Laboratory; <i>A Oyedele, D Mandrus</i> , University of Tennessee Knoxville; <i>L Liang, B Sumpter, K Xiao</i> , Oak Ridge National Laboratory; <i>P Rack</i> , University of Tennessee Knoxville	AC+AS+SA-WeA-9 Speciation of Rare Earth Elements in Coal Harvesting Byproducts, <i>Xu Feng, M Council-Troche, J Morris, A Noble, R Yoon</i> , Virginia Polytechnic Institute and State University
5:20pm	2D+MN+NS+SS-WeA-10 Ion Migration Studies in Exfoliated 2D Molybdenum Oxide via Ionic Liquid Gating for Neuromorphic Device Applications, <i>Cheng Zhang, P Pudasaini, A Oyedele</i> , University of Tennessee Knoxville; <i>A Ivelev, K Xiao, T Ward</i> , Oak Ridge National Laboratory; <i>D Mandrus</i> , University of Tennessee Knoxville; <i>O Ovchinnikova</i> , Oak Ridge National Laboratory; <i>P Rack</i> , University of Tennessee Knoxville	AC+AS+SA-WeA-10 Exotic Electronic Properties of Strongly Correlated Compounds NpPd ₃ and PuPd ₃ , <i>Krzysztof Gofryk</i> , Idaho National Laboratory; <i>J Griveau, E Colineau</i> , Institute for Transuranium Elements; <i>K McEwen</i> , University College London; <i>W Nellis</i> , Harvard University; <i>J Smith</i> , Los Alamos National Laboratory
5:40pm	2D+MN+NS+SS-WeA-11 Infrared Absorption of Nanometer-scale Thermally Reduced Graphene Oxide, <i>Erin Cleveland, J Nolde, G Jernigan, E Aifer</i> , U.S. Naval Research Laboratory	
6:00pm	2D+MN+NS+SS-WeA-12 Dielectric Properties of Carbon Nanomembranes prepared from aromatic Self-Assembled Monolayers and their application in All-Carbon Capacitors, <i>Xianghui Zhang, P Penner, E Marschewski</i> , Bielefeld University, Germany; <i>T Weimann, P Hinze</i> , Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; <i>A Götzhäuser</i> , Bielefeld University, Germany	

Wednesday Afternoon, October 24, 2018

<p>Extending Additive Manufacturing to the Atomic Scale Focus Topic Room 102B - Session AM+MP+NS-WeA Atomic Scale Manipulation with SPM Moderator: Sven Rogge, University of New South Wales, Australia</p>		<p>Applied Surface Science Division Room 204 - Session AS+SE-WeA Industrial and Practical Applications of Surface Analysis Moderators: Jeffrey Fenton, Medtronic, Inc., Svitlana Pylypenko, Colorado School of Mines</p>	
2:20pm	<p>INVITED: AM+MP+NS-WeA-1 Advanced Scanning Probe Lithography: Processes, Nanopatterning and Nanoelectronics, <i>Ricardo Garcia</i>, Inst Ciencia Materiales Madrid, CSIC, Spain</p>	<p>AS+SE-WeA-1 Identification of Unknown Contaminants in Industrial Applications Using MS/MS in Combination with High Resolution Mass Spectrometry, <i>A Pirkl, Julia Zakel, D Rading</i>, IONTOF GmbH, Germany; <i>N Havercroft</i>, IONTOF USA; <i>S Kayser, H Arlinghaus, R Maellers, E Niehuis</i>, IONTOF GmbH, Germany</p>	
2:40pm	Invited talk continues.	<p>AS+SE-WeA-2 ToF-SIMS Analysis of Glass and Glass Coatings, <i>Christine Mahoney</i>, Corning Inc.</p>	
3:00pm	<p>AM+MP+NS-WeA-3 Integrated Devices made Using Atomically Precise Advanced Manufacturing, <i>D Ward, D Campbell, M Marshall, T Lu, L Tracy, L Maurer, A Baczeski, Shashank Misra</i>, Sandia National Laboratories</p>	<p>INVITED: AS+SE-WeA-3 Problem Solving with Valence Band Spectroscopy and SIMS MS/MS, <i>Steven Pachuta, D Poirier</i>, 3M Company</p>	
3:20pm		Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	<p>AM+MP+NS-WeA-7 Electrical Transport Properties of Si:P δ-layer Devices, <i>Ranjit Kashid, X Wang, P Namboodiri, J Hagmann</i>, National Institute of Standards and Technology (NIST); <i>S Schmucker</i>, University of Maryland College Park; <i>J Wyrick, C Richter, R Silver</i>, National Institute of Standards and Technology (NIST)</p>	<p>AS+SE-WeA-7 Surface and In-depth XPS Characterization of Liquid and Cured Control Release Additives (CRAs) Used in Silicone-Based Release Coatings, <i>Brian Strohmeier, K Rhodes, R Munigeti, J Orlovski</i>, Avery Dennison Corporation</p>	
4:40pm	<p>AM+MP+NS-WeA-8 Atomically Precise Tip Positioning for Automated Writing of Atomic-scale Devices, <i>James Owen, E Fuchs, J Randall, J Von Ehr</i>, Zyvex Labs</p>	<p>AS+SE-WeA-8 Differentiating Silicones Using SIMS, <i>Paul Vlasak, M Pacholski</i>, The Dow Chemical Company</p>	
5:00pm	<p>INVITED: AM+MP+NS-WeA-9 Kilobyte Scale Data Storage through Autonomous Atom Assembly, <i>S Otte, David Coffey</i>, Delft University of Technology, Netherlands</p>	<p>AS+SE-WeA-9 Uranium Particles Analysis and Imaging Using ToF-SIMS for Source Identification, <i>Juan Yao, E Krogstad, S Shen, Z Zhu, X Yu</i>, Pacific Northwest National Laboratory</p>	
5:20pm	Invited talk continues.	<p>AS+SE-WeA-10 XPS Depth Profiling of Organic Resins with Inorganic Inclusions, <i>Benjamin Schmidt, J Newman, J Mann, L Swartz</i>, Physical Electronics</p>	
5:40pm	<p>INVITED: AM+MP+NS-WeA-11 Extending the Capabilities of STM-based Dopant Device Fabrication, <i>T Skeren, N Pascher, S Köster, Andreas Fuhrer</i>, IBM Research - Zurich, Switzerland</p>	<p>AS+SE-WeA-11 Application of X-ray Photoelectron Spectroscopy to Degradation Studies of Electrodes in Fuel Cells and Electrolyzers, <i>Kateryna Artyushkova</i>, University of New Mexico; <i>N Danilovic</i>, Lawrence Berkeley Lab, University of California, Berkeley; <i>C Capuano</i>, Proton on site; <i>A Serov</i>, Pajarito Powder LLC; <i>P Atanassov</i>, University of New Mexico</p>	
6:00pm	Invited talk continues.	<p>AS+SE-WeA-12 Application of X-ray Photoelectron Spectroscopy in Semiconductor Industry, <i>Yibin Zhang, Z Bayindir, Z Sun, M Zhu, J Gao, X Wang, T Han, J Shu, D Shao, J Riendeau, J Liu</i>, GLOBALFOUNDRIES</p>	

Wednesday Afternoon, October 24, 2018

Biomaterial Interfaces Division Room 104B - Session BI+AC+AS+HC+NS+SS+TF-WeA Current and Future Stars of the AVS Symposium II Moderator: David Boris, U.S. Naval Research Laboratory		Biomaterial Interfaces Division Room 101B - Session BI-WeA Microbes and Fouling at Surfaces Moderator: Caitlin Howell, University of Maine	
2:20pm	INVITED: BI+AC+AS+HC+NS+SS+TF-WeA-1 Medard W. Welch Award Lecture: A Surface Scientist's Journey from Small Molecules to Biomolecules and Biomaterials, <i>David G. Castner</i> ¹ , University of Washington		
2:40pm	Invited talk continues.		
3:00pm	BI+AC+AS+HC+NS+SS+TF-WeA-3 Invited Talk-Future Stars of AVS Session: Making, Studying, and Designing Hierarchically Structured Soft Materials, <i>Keith A. Brown</i> ² , Boston University	INVITED: BI-WeA-3 Gaede-Langmuir Award Lecture: From Description to Prediction of Biointerphase Reactions, <i>Michael Grunze</i> ³ , Max Planck Institute for Medical Research, Germany; <i>H Kreuzer</i> , Dalhousie University, Canada	
3:20pm	BI+AC+AS+HC+NS+SS+TF-WeA-4 Invited Talk-Future Stars of AVS Session: Vapor Phase Infiltration for Transforming Polymers into Hybrid Materials: Processing Kinetics and Applications, <i>Mark Losego</i> ² , Georgia Institute of Technology	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	BI+AC+AS+HC+NS+SS+TF-WeA-7 Invited Talk-Future Stars of AVS Session: Surface Preparation Methods for the Selective Oxidation of Ethanol to Acetaldehyde over TiO ₂ /Au(111), <i>Ashleigh Baber</i> ² , <i>D Boyle</i> , <i>J Wilke</i> , <i>V Lam</i> , <i>D Schlosser</i> , James Madison University	INVITED: BI-WeA-7 Unraveling Complexities at the Adhesive Interface of Acorn Barnacles, <i>Kenan Fears</i> , <i>C So</i> , <i>D Leary</i> , <i>H Ryou</i> , <i>J Schultzhans</i> , <i>C Wang</i> , US Naval Research Laboratory; <i>B Orihuela</i> , <i>D Rittschof</i> , Duke University Marine Laboratory; <i>C Spillmann</i> , <i>K Wahl</i> , US Naval Research Laboratory	
4:40pm	BI+AC+AS+HC+NS+SS+TF-WeA-8 Invited Talk-Future Stars of AVS Session: Single Atom Catalysis: An Atomic-Scale View, <i>Gareth Parkinson</i> ² , TU Wien, Austria	Invited talk continues.	
5:00pm	BI+AC+AS+HC+NS+SS+TF-WeA-9 Invited Talk-Future Stars of AVS Session: Multimodal Chemical and Functional Imaging of Nanoscale Transformations Away from Equilibrium, <i>Olga Ovchinnikova</i> ² , Oak Ridge National Laboratory	BI-WeA-9 Ultra Low Fouling Zwitterionic Coatings – Influence of Molecular Architecture on Fouling Inhibition, <i>Axel Rosenhahn</i> , <i>J Koc</i> , Ruhr-University Bochum, Germany; <i>S Bauer</i> , Ruhr-Universität Bochum, Germany; <i>J Finlay</i> , <i>A Clare</i> , Newcastle University; <i>E Schoenemann</i> , University of Potsdam; <i>A Laschewsky</i> , University of Potsdam	
5:20pm	BI+AC+AS+HC+NS+SS+TF-WeA-10 Invited Talk-Future Stars of AVS Session: Expanding the Structural Toolkit to Characterize Heavy Actinide Complexes, <i>Rebecca Abergele</i> ² , Lawrence Berkeley Lab, University of California, Berkeley; <i>G Deblonde</i> , <i>A Mueller</i> , <i>P Ercius</i> , Lawrence Berkeley National Laboratory; <i>A Minor</i> , Lawrence Berkeley Lab, University of California, Berkeley; <i>C Booth</i> , <i>W de Jong</i> , Lawrence Berkeley National Laboratory; <i>R Strong</i> , Fred Hutchinson Cancer Research Center	BI-WeA-10 Biomimetic Surfaces on Chitosan Membranes with Enhanced Antibacterial Properties Produced by Directed Plasma Nanosynthesis, <i>Camilo Jaramillo</i> , <i>A Civantos</i> , <i>J Allain</i> , University of Illinois at Urbana-Champaign	
5:40pm	BI+AC+AS+HC+NS+SS+TF-WeA-11 Invited Talk-Future Stars of AVS Session: Trends in Adsorbate Interactions with Bimetal Surfaces, <i>Liney Arnadottir</i> ² , <i>L Sprowl</i> , Oregon State University	BI-WeA-11 How Do Geobacter Aggregates Communicate: New Understanding from In Situ Liquid SIMS, <i>Wenchao Wei</i> , <i>R Komarek</i> , Pacific Northwest National Laboratory; <i>C Yang</i> , <i>F Liu</i> , Yantai Institute of Coastal Zone Research; <i>Z Zhu</i> , <i>X Yu</i> , Pacific Northwest National Laboratory	

¹ Medard W. Welch Award Winner

² Future Stars of the AVS

³ Gaede Langmuir Award Winner

Wednesday Afternoon, October 24, 2018

Electronic Materials and Photonics Division Room 101A - Session EM+2D+SS-WeA Wide and Ultra-Wide Bandgap Materials for Electronic Devices: Growth, Modeling and Properties Moderators: Erica Douglas, Sandia National Laboratories, Rachael Myers-Ward, U.S. Naval Research Laboratory		Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-WeA Theory and Dynamics of Heterogeneously Catalyzed Reactions Moderator: Erin Iski, University of Tulsa	
2:20pm			HC+SS-WeA-1 First-Principles Kinetic Monte Carlo Simulation of CO Oxidation on PdO(101): Role of Oxygen Vacancies, <i>Minkyu Kim¹</i> , <i>A Asthagiri</i> , Ohio State University
2:40pm	EM+2D+SS-WeA-2 2300 V Reverse Breakdown Voltage Ga ₂ O ₃ Schottky Rectifiers, <i>Jiancheng Yang²</i> , <i>F Ren</i> , University of Florida; <i>M Tadjer</i> , U.S. Naval Research Laboratory; <i>S Pearton</i> , University of Florida; <i>A Kuramata</i> , Tamura Corporation and Novel Crystal Technology, Inc., Japan		HC+SS-WeA-2 Surface Reactivity of Activated CO ₂ , <i>Richard van Lent¹</i> , Leiden University, Netherlands; <i>A Walsh</i> , <i>M Gleeson</i> , DIFFER, Netherlands; <i>L Juurlink</i> , Leiden University, Netherlands
3:00pm	EM+2D+SS-WeA-3 Characterization of β -(Al,Ga,In) ₂ O ₃ Epitaxial Films for UV Photodetector Applications, <i>Luke Lyle</i> , <i>L Porter</i> , <i>R Davis</i> , Carnegie Mellon University; <i>S Okur</i> , <i>G Tompa</i> , Structured Materials Industries, Inc.; <i>M Chandrashekar</i> , <i>V Chava</i> , <i>J Letton</i> , University of South Carolina		INVITED: HC+SS-WeA-3 Shining Light on Complexity: State- and Energy-Resolved Studies of Gas-Surface Reaction Dynamics and Mechanism, <i>Arthur Utz</i> , Tufts University
3:20pm	EM+2D+SS-WeA-4 High Three-terminal Breakdown Voltage Quasi-two-dimensional β -Ga ₂ O ₃ Field-effect Transistors with a Dual Field Plate Structure, <i>Jinho Bae</i> , Korea University, Republic of Korea; <i>H Kim</i> , <i>I Kang</i> , Korea Electrotechnology Research Institute (KERI), Republic of Korea; <i>G Yang</i> , <i>S Oh</i> , <i>J Kim</i> , Korea University, Republic of Korea		Invited talk continues.
3:40pm	BREAK		BREAK
4:00pm	BREAK		BREAK
4:20pm	INVITED: EM+2D+SS-WeA-7 GaN Vertical Device Technology and its Future, <i>Srabanti Chowdhury</i> , UC Davis		HC+SS-WeA-7 Vibration-driven Reaction of CO ₂ on Cu Surfaces via Eley-Rideal Type Mechanism, <i>Junji Nakamura</i> , <i>J Quan</i> , <i>T Kozarashi</i> , <i>T Mogi</i> , <i>T Imabayashi</i> , <i>K Takeyasu</i> , <i>T Kondo</i> , University of Tsukuba, Japan
4:40pm	Invited talk continues.		INVITED: HC+SS-WeA-8 First Principles Reaction Kinetics over Metals, Oxides and Nanoparticles, <i>Henrik Grönbeck</i> , Chalmers University of Technology, Gothenburg, Sweden
5:00pm	EM+2D+SS-WeA-9 Effects of Proton Irradiation Energy on SiN _x /AlGaIn/GaN Metal-insulator-semiconductor High Electron Mobility Transistors, <i>Chaker Fares</i> , <i>F Ren</i> , University of Florida; <i>J Kim</i> , Korea University, Republic of Korea; <i>S Pearton</i> , University of Florida; <i>C Lo</i> , <i>J Johnson</i> , IQE; <i>G Yang</i> , Korea University, Republic of Korea		Invited talk continues.
5:20pm	EM+2D+SS-WeA-10 Cesium-Free III-Nitride Photocathodes Based on Control of Polarization Charge, <i>Douglas Bell</i> , Jet Propulsion Laboratory, California Institute of Technology; <i>E Rocco</i> , <i>F Shahedipour-Sandvik</i> , SUNY Polytechnic Institute; <i>S Nikzad</i> , Jet Propulsion Laboratory, California Institute of Technology		HC+SS-WeA-10 Formation of Pd/Ag Sandwiches, a Stable PdAg Subsurface Alloy, and the Pd Segregation induced by CO and O ₂ , Studied with STM, Ambient-pressure XPS, and DFT, <i>Matthijs van Spronsen</i> , Lawrence Berkeley National Laboratory; <i>K Duanmu</i> , UCLA; <i>R Madix</i> , Harvard University; <i>M Salmeron</i> , Lawrence Berkeley National Laboratory; <i>P Sautet</i> , UCLA; <i>C Friend</i> , Harvard University
5:40pm	EM+2D+SS-WeA-11 Current Enhancement for Ultra-Wide Bandgap AlGaIn High Electron Mobility Transistors by Regrowth Contact Design, <i>Erica Douglas</i> , <i>B Klein</i> , <i>S Reza</i> , <i>A Allerman</i> , <i>R Kaplar</i> , <i>A Armstrong</i> , <i>A Baca</i> , Sandia National Laboratories		
6:00pm	EM+2D+SS-WeA-12 Understanding Homoepitaxial GaN Growth, <i>Jennifer Hite</i> , <i>T Anderson</i> , <i>M Mastro</i> , <i>L Luna</i> , <i>J Gallagher</i> , <i>J Freitas</i> , <i>C Eddy</i> , U.S. Naval Research Laboratory		

¹ Heterogeneous Catalysis Graduate Student Presentation Award Finalist

² National Student Award Finalist

Wednesday Afternoon, October 24, 2018

Advanced Ion Microscopy Focus Topic Room 203B - Session HI-WeA Novel Beam Induced Material Engineering & Nano-Patterning Moderators: Armin Gölzhäuser, University of Bielefeld, Germany, Olga Ovchinnikova, Oak Ridge National Laboratory		MEMS and NEMS Group Room 202B - Session MN+2D+AN+NS-WeA IoT Session: MEMS for IoT: Chemical and Biological Sensing Moderators: Robert Davis, Brigham Young University, Sushma Kotru, University of Alabama	
2:20pm	INVITED: HI-WeA-1 Delving into the Finer Details of Helium FIBID, <i>Frances Allen</i> , University of California, Berkeley	INVITED: MN+2D+AN+NS-WeA-1 BioMEMS for Eye Applications, <i>Yu-Chong Tai</i> , California Institute of Technology	
2:40pm	Invited talk continues.	Invited talk continues.	
3:00pm	INVITED: HI-WeA-3 Anderson localization of Graphene by Helium Ion Irradiation, <i>Yuichi Naitou, S Ogawa</i> , National Institute of Advanced Industrial Science and Technology (AIST), Japan	MN+2D+AN+NS-WeA-3 Real-Time, Single Cell, Size Measurements using a Facile, Multimode Microwave Resonator, <i>Selim Hanay, H Aydogmus, A Secme, H Pisheh, M Kelleci</i> , Bilkent University, Turkey	
3:20pm	Invited talk continues.		
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	INVITED: HI-WeA-7 The Frontiers of Focused Ion Beam in Semiconductor Applications, <i>Shida Tan</i> , Intel Corporation	INVITED: MN+2D+AN+NS-WeA-7 Magnetic Microsystems for Communications, <i>Rob Candler</i> , University of California at Los Angeles	
4:40pm	Invited talk continues.	Invited talk continues.	
5:00pm	HI-WeA-9 2D Materials Under Ion Irradiation: In-situ Experiments and the Role of the Substrate, <i>Gregor Hlawacek, S Kretschmer</i> , Helmholtz Zentrum Dresden-Rossendorf, Germany; <i>M Maslov</i> , Moscow Institute of Physics and Technology; <i>S Ghaderzadeh, M Ghorbani-Asl, A Krashennnikov</i> , Helmholtz Zentrum Dresden-Rossendorf, Germany	INVITED: MN+2D+AN+NS-WeA-9 MEMS-Based Resonant Sensors for IoT Applications, <i>Oliver Brand, M Kim, P Getz</i> , Georgia Institute of Technology	
5:20pm	HI-WeA-10 Sample Heating Effects from Light Ions in Thin Films, <i>John A. Notte, B Lewis</i> , Carl Zeiss Microscopy, LLC	Invited talk continues.	
5:40pm	HI-WeA-11 Helium Ion Direct Write Patterning of Superconducting Electronics, <i>Shane Cybart, E Cho, H Li</i> , UC Riverside; <i>Y Naitou, S Ogawa</i> , National Institute of Advanced Industrial Science and Technology (AIST), Japan	MN+2D+AN+NS-WeA-11 Etched Silicon Microcolumn For Tunable Thermal Gradient Gas Chromatography, <i>Aaron Davis, P Schnepf, P Ng, R Vanfleet, R Davis, B Jensen</i> , Brigham Young University	

Wednesday Afternoon, October 24, 2018

Nanometer-scale Science and Technology Division Room 203A - Session NS+MN+PC+SS-WeA IoT Session: Bio at the Nanoscale Moderators: Juraj Topolancik, Roche Sequencing Solutions, Liya Yu, NIST Center for Nanoscale Science and Technology		Plasma Biology, Agriculture, and Environment Focus Topic Room 104A - Session PB+BI+PC+PS-WeA Plasma Agriculture & Environmental Applications Moderator: Deborah O'Connell, University of York, UK	
2:20pm		INVITED: PB+BI+PC+PS-WeA-1 Pulsed Power Applications for Farming and Food Processing, <i>Koichi Takaki</i> , Iwate University, Japan	
2:40pm		Invited talk continues.	
3:00pm	NS+MN+PC+SS-WeA-3 Nanoscale Label-free Imaging of Protein Molecules via Photo-induced Force Microscopy, <i>D Nowak, Sung Park</i> , Molecular Vista	INVITED: PB+BI+PC+PS-WeA-3 Stimulus Control on Organisms Using Pulsed Power Technology, <i>Douyan Wang, T Namihira</i> , Institute of Pulsed Power Science, Kumamoto University, Japan	
3:20pm	NS+MN+PC+SS-WeA-4 Evaluating Reaction-diffusion Immunoassays via High-resolution Imaging Techniques, <i>Imanda Jayawardena</i> , University of Queensland, Australia; <i>S Corrie</i> , Monash University, Australia; <i>L Grandahl</i> , University of Queensland, Australia	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	INVITED: NS+MN+PC+SS-WeA-7 The Last Nanometer – Hydration Structure of DNA and Solid Surfaces Probed by Ultra-High Resolution AFM, <i>Uri Sivan, K Kuchuk, I Schlesinger</i> , Technion - Israel Institute of Technology, Israel	PB+BI+PC+PS-WeA-7 Synthesis of Nitrates by Atmospheric Microplasma in Aqueous Solution, <i>Nicolas Maira, F Reniers</i> , Université Libre de Bruxelles, Belgium	
4:40pm	Invited talk continues.		
5:00pm	INVITED: NS+MN+PC+SS-WeA-9 Open-hardware, High-speed Atomic Force Microscopy using Photothermal Off-resonance Tapping, <i>Georg Fantner</i> , École Polytechnique Fédérale de Lausanne, Switzerland	INVITED: PB+BI+PC+PS-WeA-9 Design Considerations for Plasma-based Water Purification Reactor Scale-up, <i>John Foster, S Mujovic, J Groele, J Lai</i> , The University of Michigan-Ann Arbor	
5:20pm	Invited talk continues.	Invited talk continues.	
5:40pm	NS+MN+PC+SS-WeA-11 Development of Multimodal Chemical Nano-Imaging for <i>in situ</i> Investigations of Microbial Systems, <i>A Bhattarai, B O'Callahan, P El Khoury, Scott Lea</i> , Pacific Northwest National Laboratory; <i>K Park, E Muller, M Raschke</i> , University of Colorado Boulder	PB+BI+PC+PS-WeA-11 Radicals and Ozone Generated in Ar/He and Ar/He/H ₂ O Plasma by using Atmospheric Pressure Plasma Jet Systems and their use in Methylene Blue Degradation, <i>J Hsieh, YJinWei Wei</i> , Ming Chi University of Technology, Taiwan, Republic of China; <i>C Li</i> , National Yang Ming University, Taiwan, Republic of China	

Wednesday Afternoon, October 24, 2018

Plasma Science and Technology Division Room 104C - Session PS+EM-WeA Advanced BEOL/Interconnect Etching Moderators: Michael Morris, Trinity College Dublin, Tetsuya Tatsumi, Sony Semiconductor Solutions Corporation		Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic Room 202A - Session SA+AS+MI-WeA Hard X-Ray Photoemission for Probing Buried Interfaces Moderators: Zahid Hussain, ALS-LBNL, Olivier Renault, CEA-University Grenoble Alps, France	
2:20pm	PS+EM-WeA-1 Etch Strategies for Reducing Defects and Pattern Roughness in BEOL EUV Patterning, <i>Jeffrey Shearer</i> , IBM Research Division, Albany, NY; <i>A Raley, Q Lou, J Kaminsky</i> , TEL Technology Center, America, LLC; <i>L Meli</i> , IBM Research Division, Albany, NY	SA+AS+MI-WeA-1 Element-resolved Electronic Band Structure of Ga(Mn)As Measured by Standing-wave Hard X-ray Angle-resolved Photoemission, <i>Slavomir Nemsak</i> , Advanced Light Source, Lawrence Berkeley National Laboratory; <i>M Gehlmann, C Kuo</i> , University of California, Davis; <i>T Lee</i> , Diamond Light Source Diamond House, Harwell Science and Innovation Campus; <i>L Plucinski</i> , Forschungszentrum Juelich GmbH, Germany; <i>J Minar</i> , University of West Bohemia; <i>C Schneider</i> , Forschungszentrum Juelich GmbH, Germany; <i>C Fadley</i> , University of California, Davis	
2:40pm	PS+EM-WeA-2 Influence of Topological Constraints on the Ion Damage Resistance of Low- <i>k</i> Dielectrics, <i>Qing Su</i> , University of Nebraska-Lincoln; <i>T Wang, J Gigax, L Shao</i> , Texas A&M University; <i>W Lanford</i> , University at Albany; <i>M Nastasi</i> , University of Nebraska-Lincoln; <i>L Li</i> , Intel Corporation; <i>G Bhattarai, M Paquette</i> , University of Missouri-Kansas City; <i>S King</i> , Intel Corporation	SA+AS+MI-WeA-2 Probing Surface Band Bending of Polar GaN by Hard X-ray Photoemission Combined with X-ray Total Reflection, <i>Shigenori Ueda</i> , NIMS, Japan	
3:00pm	INVITED: PS+EM-WeA-3 BEOL Patterning Challenges for 14nm and Beyond High Volume Manufacturing, <i>Xiang Hu</i> , GLOBALFOUNDRIES; <i>Y Ren</i> , GLOBALFOUNDRIES; <i>D Medeiros, P Lee</i> , GLOBALFOUNDRIES	INVITED: SA+AS+MI-WeA-3 Interfaces in Cycled Battery Electrodes: Insights from HAXPES Studies, <i>Julia Maibach</i> , Karlsruhe Institut of Technology (KIT), Germany	
3:20pm	Invited talk continues.	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	BREAK	BREAK	
4:20pm	INVITED: PS+EM-WeA-7 Innovative Approaches for Future Challenges in MOL/BEOL Etch, <i>Ryukichi Shimizu</i> , Tokyo Electron Miyagi Limited, Japan	INVITED: SA+AS+MI-WeA-7 Development of Ambient Pressure HAXPES and other HAXPES Measurements at SPring-8 for Buried Interface, <i>Yasumasa Takagi</i> , Japan Synchrotron Radiation Research Institute (JASRI), Japan	
4:40pm	Invited talk continues.	Invited talk continues.	
5:00pm	PS+EM-WeA-9 Gas-phase Pore Stuffing for Low-damage Patterning of Organo-silicate Glass Dielectric Materials, <i>Jean-Francois de Marneffe</i> , IMEC, Belgium; <i>M Fujikama, T Yamaguchi, S Nozawa, R Niino, N Sato</i> , Tokyo Electron Technology Solutions Limited; <i>R Chanson, K Babaei Gavan</i> , IMEC, Belgium; <i>A Rezvanov</i> , IMEC, Belgium/Moscow Institute of Physics and Technology; <i>F Lazzarino, Z Tokei</i> , IMEC, Belgium	SA+AS+MI-WeA-9 Operando HAXPES Investigations of La Manganite-based Resistive Memories, <i>Eugénie Martinez</i> , CEA/LETI-University Grenoble Alpes, France; <i>B Meunier</i> , Univ. Grenoble Alpes, CEA, LETI & LMGP, CNRS, France; <i>D Pla</i> , Univ. Grenoble Alpes, LMGP, CNRS, France; <i>R Rodriguez-Lamas</i> , Univ. Grenoble Alpes, LMGP, CNRS, France; <i>M Burriel, C Jimenez</i> , Univ. Grenoble Alpes, LMGP, CNRS, France; <i>J Rueff</i> , Synchrotron SOLEIL, France; <i>Y Yamashita, S Ueda</i> , NIMS, Japan; <i>O Renault</i> , CEA/LETI-University Grenoble Alpes, France	
5:20pm	PS+EM-WeA-10 ALD-Sequential Etch to Address Advanced BEOL Etch/Integration Challenges, <i>Xinghua Sun</i> , <i>Y Lu, K Lutker-Lee, A Raley</i> , TEL Technology Center, America, LLC; <i>D O'Meara</i> , Tokyo Electron, America, Inc.; <i>T Yamamura</i> , Tokyo Electron Miyagi Limited; <i>Y Kikuchi</i> , TEL Technology Center, America, LLC	INVITED: SA+AS+MI-WeA-10 Combining Hard and Soft X-ray Angle-resolved Photoemission to Probe the Bulk Electronic Structure of Engineered Quantum Solids, <i>Alexander Gray</i> , Temple University	
5:40pm	PS+EM-WeA-11 The Underlying Role of Mechanical Rigidity and Topological Constraints in Reactive Ion Etching of Amorphous Materials, <i>Gyanendra Bhattarai</i> , <i>S Dhungana, B Nordell, A Caruso, M Paquette</i> , University of Missouri-Kansas City; <i>W Lanford</i> , University at Albany; <i>S King</i> , Intel Corporation	Invited talk continues.	
6:00pm	PS+EM-WeA-12 Plasma Processing of Phase Change Materials for PCRAM, <i>N Altieri, Ernest Chen, J Chang</i> , University of California, Los Angeles; <i>S Fong, C Neumann, P Wong</i> , Stanford University; <i>M Shen, T Lill</i> , Lam Research Corporation	SA+AS+MI-WeA-12 Surface/Interface Coupling in Buried Oxide Interfaces, <i>Conan Weiland</i> , National Institute of Standards and Technology (NIST); <i>A Rumaiz</i> , Brookhaven National Laboratory; <i>G Sterbinsky</i> , Argonne National Laboratory; <i>J Woicik</i> , National Institute of Standards and Technology (NIST)	

Wednesday Afternoon, October 24, 2018

	Surface Science Division Room 203C - Session SS+AS+EM-WeA Semiconducting Surfaces Moderators: Melissa Hines, Cornell University, Ludo Juurlink, Leiden University	Thin Films Division Room 102A - Session TF+EM+MI-WeA Thin Film Processes for Electronics and Optics II Moderators: Hilal Cansizoglu, University of California, Davis, John F. Conley, Jr., Oregon State University
2:20pm	INVITED: SS+AS+EM-WeA-1 Functionalizing Semiconductor Surfaces and Interfaces, <i>Stacey Bent</i> , Stanford University	INVITED: TF+EM+MI-WeA-1 What can we Benefit from Nanochemistry of Crystalline Silicon?, <i>Naoto Shirahata</i> , National Institute for Materials Science, Tsukuba, Japan
2:40pm	Invited talk continues.	Invited talk continues.
3:00pm	SS+AS+EM-WeA-3 Atomic Structure of UHV-prepared GaP(111)A Surface and its Reactivity Towards Simple Molecules, <i>Denis Potapenko, X Yang, B Koel</i> , Princeton University	TF+EM+MI-WeA-3 Low-temperature Homoepitaxial Growth of Two-dimensional Antimony Superlattices in Silicon, <i>April Jewell, M Hoenk, A Carver, S Nikzad</i> , Jet Propulsion Laboratory
3:20pm	SS+AS+EM-WeA-4 Stabilization Mechanism of the Se- or S-treated GaAs(111)B Surface, <i>Shunji Goto</i> , The University of Electro-Communications (UEC-Tokyo), Japan; <i>A Ohtake</i> , National Institute for Materials Science (NIMS), Japan; <i>J Nakamura</i> , The University of Electro-Communications (UEC-Tokyo), Japan	
3:40pm	BREAK	BREAK
4:00pm	BREAK	BREAK
4:20pm	SS+AS+EM-WeA-7 Novel Pathways in Reaching Buried Interfaces of Organic/Inorganic Hybrid Systems: A Mechanistic Understanding of Polymer Adsorption on Passivated Metal Oxide Surfaces, <i>Tom Hauffman, S Pletincx, K Marcoen, F Cavezza</i> , Vrije Universiteit Brussel, Belgium; <i>L Fockaert, J Mol</i> , Technical University Delft, Netherlands; <i>H Terry</i> , Vrije Universiteit Brussel, Belgium	TF+EM+MI-WeA-7 Electron-Doped BaZrO ₃ Thin Films Prepared by Topochemical Reduction, <i>Thomas Orvis</i> , University of Southern California
4:40pm	SS+AS+EM-WeA-8 Surface Modification of Metal Oxide Surfaces with Gas-Phase Propiolic Acid for Dye Sensitization by Click Reaction, <i>Chuan He, A Teplyakov, B Abraham, M Konh, Z Li, L Gundlach, S Bai</i> , University of Delaware; <i>E Galoppini, H Fan, R Harmer</i> , Rutgers, the State University of New Jersey	TF+EM+MI-WeA-8 Epitaxial Growth and Electrical Properties of VO ₂ Thin Films, <i>Yang Liu, S Niu, T Orvis, H Zhang, H Wang, J Ravichandran</i> , University of Southern California
5:00pm	SS+AS+EM-WeA-9 Solar Energy Storage in the Norbornadiene-quadracyclane System: From Surface Science to In-situ Photochemistry and photospectroelectrochemistry, <i>M Schwarz, F Waidhas, C Schuschke</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; <i>S Mohr</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg; <i>O Brummel, T Döpfer, C Weiss, K Civalo</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; <i>M Jevric</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>J Bachmann</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; <i>A Görling, A Hirsch</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; <i>K Moth-Poulsen</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>Jörg Libuda</i> , Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany	TF+EM+MI-WeA-9 A Novel Technique for the Growth of Gallium Oxide Nanowires for UV Detection, <i>Badriyah Alhalaili</i> , UC, Davis; <i>R Bunk, H Mao, UC Davis; R Vidu</i> , UC, Davis; <i>H Cansizoglu</i> , UC Davis; <i>M Islam</i> , UC, Davis
5:20pm	SS+AS+EM-WeA-10 In-situ Characterization of Photon induced Chemistries in Organotin Clusters with Ambient Pressure XPS, <i>J. Trey Diulus¹, R Frederick</i> , Oregon State University; <i>M Li</i> , Rutgers, the State University of New Jersey; <i>D Hutchison, I Lyubinetsky, L Árnadóttir, M Olsen</i> , Oregon State University; <i>E Garfunkel</i> , Rutgers, the State University of New Jersey; <i>M Nyman</i> , Oregon State University; <i>H Ogasawara</i> , SLAC National Accelerator Laboratory; <i>G Herman</i> , Oregon State University	TF+EM+MI-WeA-10 Enhanced Efficiency in Photon-trapping Ge-on-Si Photodiodes for Optical Data Communication, <i>Hilal Cansizoglu, C Bartolo Perez, Y Gao, E Ponizovskaya Devine, S Ghandiparsi, K Polat, H Mamtaz, M Cansizoglu</i> , University of California, Davis; <i>T Yamada</i> , University of California, Santa Cruz; <i>A ElRefaie, S Wang</i> , W&WSens Devices, Inc.; <i>S Islam</i> , University of California, Davis
5:40pm	SS+AS+EM-WeA-11 Integrated Photonics Driven Electron Emission from LaB ₆ Nanoparticles, <i>Fatemeh Rezaeifar, R Kapadia</i> , University of Southern California	TF+EM+MI-WeA-11 Correlating Composition and Structure with Optical Properties of Combinatorial Sputtered Thin Film Au _x Al _{1-x} Alloys, <i>Robyn Collette</i> , University of Tennessee Knoxville; <i>Y Wu, J Camden</i> , University of Notre Dame; <i>P Rack</i> , University of Tennessee Knoxville
6:00pm	SS+AS+EM-WeA-12 Photon Stimulated Desorption and Diffusion of CO on TiO ₂ (110), <i>Nikolay Petrik, R Mu, A Dahal, Z Wang, Z Dohnalek, I Lyubinetsky, G Kimmel</i> , Pacific Northwest National Laboratory	TF+EM+MI-WeA-12 The Multifunctional TiO ₂ Thin Films Sensor, <i>Awais Ali, M Alam, S Nasser, N Akbar, A Saeed, A Bhatti</i> , COMSATS Institute of Information Technology, Islamabad Pakistan, Pakistan

Special Events Thursday

Special Events Thursday

- 10:00 AM AVS Presidents Panel/Hall A
- 10:00 AM Session Coffee Break/Hall A
- 12:20 PM Exhibit Finale & Refreshments/Hall A
- 12:20 PM PSTD Coburn and Winters Award Ceremony/104A
- 12:20 PM Surface Science Division Mort Traum Awards Ceremony/203C
- 12:30 PM 2019 Program Committee Chairs' Meeting & Lunch/Seaview-Hyatt Regency (by invitation)
- 12:30 PM AVS Business Meeting/101A
- 12:30 PM AVS Member Center: Professional Development--"Work Life Satisfaction" & Lunch/103C
- 3:30 PM History Committee Meeting/Shoreline B-Hyatt Regency (by invitation)
- 6:00 PM Thursday Poster Session & Refreshments/Hall B
- 6:30 PM 2018/2019 Program Committee Reception and Dinner/Seaview-Hyatt Regency (by invitation)
- 7:00 PM SSS Editorial Board Dinner/Shoreline A-Hyatt Regency (by invitation)

Thursday Morning, October 25, 2018

2D Materials Focus Topic Room 201B - Session 2D+EM+MI+MN+NS+SS-ThM Novel 2D Materials Moderator: Han Wang, University of Southern California		Actinides and Rare Earths Focus Topic Room 202C - Session AC+AS+SA-ThM Nuclear Power, Forensics, and Other Applications Moderator: Ladislav Havela, Charles University, Czech Republic	
8:00am		INVITED: AC+AS+SA-ThM-1 Electron Microscopy in Nuclear Forensics, <i>Edgar Buck, D Reilly, J Schwantes, J Soltis, T Meadows, D Meier, J Corbey</i> , Pacific Northwest National Laboratory	
8:20am	2D+EM+MI+MN+NS+SS-ThM-2 Controlled Growth of 2D Ni-Silicate and Silica Films on Ni _x Pd _{1-x} (111) Substrates, <i>Chao Zhou, X Liang, G Hutchings, Z Fishman, J Jhang, S Hu, S Ismail-Beigi, U Schwarz, E Altman</i> , Yale University	Invited talk continues.	
8:40am	INVITED: 2D+EM+MI+MN+NS+SS-ThM-3 Topological Materials, <i>Hsin Lin</i> , Institute of Physics, Academia Sinica	INVITED: AC+AS+SA-ThM-3 New Frontiers with Fission Track Analysis and TOF-SIMS Techniques, <i>Itzhak Halevy</i> , Nrcn Israel, Israel; <i>R Radus</i> , Ben Gurion University, Israel; <i>S Maskova</i> , Charles University, Prague, Czech Republic; <i>A Kogan, S Samuha, D Gridchin, E Grinberg, E Boblil, N Haikin</i> , IAEC-NRCN, Israel; <i>I Orion</i> , Ben-Gurion University -Negev, Israel; <i>A Weiss</i> , Faculty of Engineering, Bar-Ilan University, Israel	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	2D+EM+MI+MN+NS+SS-ThM-5 Few-Layer Rhenium Disulfide Synthesized Via Chemical Vapor Deposition, <i>Michael Valentin</i> , Army Research Laboratory; <i>A Guan, A Nguyen, I Lu, C Merida, M Gomez</i> , University of California, Riverside; <i>R Burke, M Dubey</i> , Army Research Laboratory; <i>L Bartels</i> , University of California, Riverside	INVITED: AC+AS+SA-ThM-5 Predictive Nuclear Forensics: Fundamental Frameworks to Fill Missing Pieces, <i>Jenifer Shafer, M Koehl, A Baldwin, D Wu</i> , Colorado School of Mines; <i>R Rundberg</i> , Los Alamos National Laboratory; <i>M Servis</i> , Washington State University; <i>T Kawano</i> , Los Alamos National Laboratory	
9:40am	2D+EM+MI+MN+NS+SS-ThM-6 Dipolar Disorder of a van-der-Waals Surface Revealed by Direct Atomic Imaging, <i>M Susner</i> , Air Force Research Laboratory; <i>M McGuire, Petro Maksymovych</i> , Oak Ridge National Laboratory	Invited talk continues.	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	2D+EM+MI+MN+NS+SS-ThM-10 Advanced ARPES Analyzer and Momentum Microscope KREIOS 150 – Concepts and first results on layered materials and topological insulators, <i>Paul Dietrich, M Wietstruk, T Kampen, A Thissen</i> , SPECS Surface Nano Analysis GmbH, Germany	AC+AS+SA-ThM-10 Soft X-ray Synchrotron Radiation Spectromicroscopy Studies of Radioactive Materials, <i>David Shuh</i> , Lawrence Berkeley National Laboratory; <i>A Altman</i> , Lawrence Berkeley National Laboratory and UC Berkeley; <i>D Kilcoyne, S Minasian, J Pacold, D Smiles, T Tyliczszak, D Vine</i> , Lawrence Berkeley National Laboratory; <i>L He, J Harp, M Meyer</i> , Idaho National Laboratory; <i>C Degueldre</i> , University of Lancaster, Switzerland	
11:20am	2D+EM+MI+MN+NS+SS-ThM-11 Carbon Nanomembranes with Sub-nanometer Channels: 2D Materials for Water Purification with High Selectivity and Highest Permeance, <i>Y Yang, P Dementyev, N Biere, D Emmrich, P Stohmann, R Korzetz, X Zhang, A Beyer, S Koch, D Anselmetti, Armin Götzhäuser</i> , Bielefeld University, Germany	AC+AS+SA-ThM-11 Comparison of the Oxidation Rates for Alpha Versus Delta Plutonium by X-ray Photoelectron Spectroscopy, <i>Art Nelson, S Donald, D Roberts, W McLean</i> , Lawrence Livermore National Laboratory	
11:40am	INVITED: 2D+EM+MI+MN+NS+SS-ThM-12 Discovery of Dirac Monolayers and Elucidation of Functonalites by Advanced Soft X-ray Spectroscopy, <i>Iwao Matsuda</i> , University of Tokyo, Japan	AC+AS+SA-ThM-12 A Single-Stage AMS Detector for Secondary Ion Mass Spectrometry and its Applications to Nuclear Materials Analyses, <i>David Willingham, E Groopman, K Grabowski</i> , U.S. Naval Research Laboratory; <i>L Sangely</i> , International Atomic Energy Agency; <i>A Meshik, O Pravdivtseva</i> , Washington University in St. Louis; <i>D Weisz, K Knight</i> , Lawrence Livermore National Laboratory	
12:00pm	Invited talk continues.	AC+AS+SA-ThM-13 Physicochemical Properties of Ag in Annealed ZrN/SiC/Ag Heterostructures Used to Simulate TRISO Nuclear Fuels, <i>Jeff Terry, M Warren, R Seibert</i> , Illinois Institute of Technology	

Thursday Morning, October 25, 2018

Applied Surface Science Division Room 204 - Session AS+SE-ThM Applied Surface Analysis of Novel, Complex or Challenging Materials Moderators: Michael Brumbach, Sandia National Laboratories, Thomas Grehl, ION-TOF GmbH, Germany		Biomaterial Interfaces Division Room 101B - Session BI-ThM Biomolecules and Biophysics at Interfaces Moderator: Joe Baio, Oregon State University	
8:00am	INVITED: AS+SE-ThM-1 Understanding the Surface of Complex Oxides used in High Temperature Electrochemical Devices, <i>John Kilner</i> , Imperial College London, UK; <i>J Druce</i> , International Institute for Carbon Neutral Energy Research (I2CNER), Japan; <i>H Tellez</i> , A Staykov, International Institute for Carbon Neutral Energy Research (I2CNER)	8:00am	INVITED: BI-ThM-1 Bioinspired Adaptive Reconfigurable Material Systems based on Smart Hydrogels, <i>Ximin He</i> , University of California, Los Angeles
8:20am	Invited talk continues.	8:20am	Invited talk continues.
8:40am	AS+SE-ThM-3 Vectorial Method used to Monitor a XPS Evolving System: Titanium Oxide Thin Films under UV Illumination, <i>S Bechu</i> , Institut Photovoltaïque d'Île-de-France, France; <i>N Fairley</i> , Casa Software Ltd, UK; <i>L Brohan</i> , Institut des matériaux Jean Rouxel, France; Vincent Fernandez , Université de Nantes, Institut des matériaux Jean Rouxel, France; <i>M Richard-Plouet</i> , Institut des matériaux Jean Rouxel, France	8:40am	BI-ThM-3 Importance of a In Depth Characterisation for the Design of Functional Gold Nanoparticles for Bioapplications, <i>R Capomaccio</i> , <i>I Ojea-Jimenez</i> , <i>D Mehn</i> , <i>P Colpo</i> , <i>D Gilliland</i> , European Commission - Joint Research Centre, Italy; <i>R Hussain</i> , <i>G Siligardi</i> , Diamond Light Source Diamond House, Harwell Science and Innovation Campus, UK; <i>L Calzolari</i> , Giacomo Ceccone , European Commission - Joint Research Centre, Italy
9:00am	AS+SE-ThM-4 XPS Characterization of Copper and Silver Nanostructures, <i>Tatyana Bendikov</i> , <i>M Susman</i> , <i>F Muench</i> , <i>A Vaskevich</i> , <i>I Rubinstein</i> , Weizmann Institute of Science, Israel	9:00am	BI-ThM-4 A Model Membrane Microsystem for Measurement of the Kinetics of Transmembrane Proton Transport, <i>J Madsen</i> , <i>A Johnson</i> , <i>M Cartron</i> , <i>N Hunter</i> , <i>S Armes</i> , Graham Leggett , University of Sheffield, UK
9:20am	AS+SE-ThM-5 Quantification of Hydroxyl, Major Element and Trace Element Concentrations in Oxide Glasses by Quadrupole SIMS., Albert Fahey , <i>A Sarafian</i> , <i>T Dimond</i> , Corning Inc.	9:20am	BI-ThM-5 Theranostics Gold Nanoparticles for Brain Cancer Applications, <i>I Naletova</i> , <i>L Cucci</i> , <i>F D'Angeli</i> , <i>C Anfuso</i> , <i>G Lupo</i> , University of Catania, Italy; <i>A Magri</i> , National Council of Research (CNR), Italy; <i>C Satriano</i> , University of Catania, Italy; Diego La Mendola , University of Pisa, Italy
9:40am	AS+SE-ThM-6 Modification of Sputtered Carbon Surfaces in Biosensor Arrays, Varun Jain , <i>M Linford</i> , Brigham Young University	9:40am	BI-ThM-6 Repeated Biorecognition Assays Based on Reversibly Bifunctionalized Surfaces, <i>A Francesko</i> , University of Minho, Portugal; <i>S Lanceros-Mendez</i> , IKERBASQUE, Basque Foundation for Science, Spain; <i>J Määttä</i> , <i>V Hytönen</i> , University of Tampere, Finland; <i>E Fernandes</i> , International Iberian Nanotechnology Laboratory (INL), Portugal; <i>J Guerreiro</i> , International Iberian Nanotechnology Laboratory (INL), Portugal; Dmitri Petrovykh , International Iberian Nanotechnology Laboratory, Portugal
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	10:00am	BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	10:20am	BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	10:40am	BREAK - Complimentary Coffee in Exhibit Hall
11:00am	AS+SE-ThM-10 The Role of Surface Analysis in Characterization of Synthetic Opioids: TOF-SIMS imaging of Fentanyl and Fentanyl Analogs for Forensics and First Responder Safety, Greg Gillen , <i>S Muramoto</i> , <i>J Verkouteren</i> , <i>E Sisca</i> , National Institute of Standards and Technology (NIST)	11:00am	BI-ThM-10 Non-equilibrium Thermodynamic Model for DNA at Nanochannel Junctions, <i>R Riehn</i> , Saraj Dangi , North Carolina State University
11:20am	AS+SE-ThM-11 3D TOF SIMS, Parallel Imaging MS/MS, and XPS Analysis of Glitterwing (<i>Chalcopteryx rutilans</i>) Damselfly Wings, Ashley Ellsworth , <i>D Carr</i> , <i>G Fisher</i> , <i>B Schmidt</i> , Physical Electronics; <i>W Valeriano</i> , <i>W Rodrigues</i> , UFMG, Brazil	11:20am	BI-ThM-11 Dipeptide Nanocontainers Immobilised on Graphene Nanoplatfoms for Drug-delivery Applications, <i>V Caruso</i> , University of Catania, Italy; <i>G Trapani</i> , University of Catania and Scuola Superiore di Catania, Italy; <i>L Cucci</i> , <i>I Naletova</i> , University of Catania, Italy; <i>D La Mendola</i> , University of Pisa, Italy; Cristina Satriano , University of Catania, Italy
11:40am	AS+SE-ThM-12 Characterization of Aniline Dyes in the Modern Colored Papers and the Prints of José Posada, <i>J Hedlund</i> , <i>L Gelb</i> , Amy Walker , University of Texas at Dallas	11:40am	BI-ThM-12 Seriatim Operando STM and FTIR Study of Phospholipid Membrane Phase Transition Driven by Electrochemical Potential Control, Taro Yamada , RIKEN, Japan; <i>S Matsunaga</i> , <i>H Shimizu</i> , The University of Tokyo; <i>T Kobayashi</i> , RIKEN, Japan; <i>M Kawai</i> , The University of Tokyo
12:00pm	AS+SE-ThM-13 GaAs and Si Surface Energies derived from Three Liquid Contact Angle Analysis (3LCAA), as a Function of Oxygen Coverage for Heterogeneous Nano-Bonding™, Sukesh Ram , Arizona State University; <i>K Kavanagh</i> , Simon Fraser University, Canada; <i>F Ark</i> , <i>C Cornejo</i> , <i>T Diaz</i> , <i>M Bertram</i> , <i>S Narayan</i> , <i>J Day</i> , <i>M Mangus</i> , <i>R Culbertson</i> , <i>N Herbots</i> , Arizona State University; <i>R Islam</i> , Cactus Materials, Inc.	12:00pm	BI-ThM-13 Mitochondria Localized Polymerization for New Cancer Therapy, Ja-Hyoung Ryu , Ulsan National Institute of Science and Technology, Republic of Korea

Thursday Morning, October 25, 2018

Electronic Materials and Photonics Division Room 101A - Session EM+MI+MN+NS-ThM Nanostructures for Electronic and Photonic Devices Moderators: Sang M. Han, University of New Mexico, Jason Kawasaki, University of Wisconsin - Madison		Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-ThM In-situ Analysis of Heterogeneously Catalyzed Reactions Moderator: Sharani Roy, University of Tennessee Knoxville	
8:00am	INVITED: EM+MI+MN+NS-ThM-1 Extreme Nanophotonics from Ultrathin Metallic Junctions, <i>Maiken Mikkelsen</i> , Duke University		HC+SS-ThM-1 Structural Characterization of ZnO on Cu(111) by using STM and XPS: Role of Cu-ZnO Interface in Methanol Synthesis, <i>Mausumi Mahapatra</i> , <i>J Rodriguez</i> , Brookhaven National Laboratory
8:20am	Invited talk continues.		HC+SS-ThM-2 Dissociative Adsorption of CO ₂ on Cu-surfaces, <i>Benjamin Hagman</i> , Lund University, Sweden; <i>A Posada-Borbón</i> , <i>A Schaefer</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>C Zhang</i> , Lund University, Sweden; <i>M Shipilin</i> , Stockholm University, Sweden; <i>N Martin</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>E Lundgren</i> , Lund University, Sweden; <i>H Grönbeck</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>J Gustafson</i> , Lund University, Sweden
8:40am	EM+MI+MN+NS-ThM-3 The Geode Process: A Route to the Large-Scale Manufacturing of Functionally-Encoded Semiconductor Nanostructures, <i>M Mujica</i> , <i>G Tutuncuoglu</i> , <i>V Breedveld</i> , <i>S Behrens</i> , <i>Michael Filler</i> , Georgia Institute of Technology		HC+SS-ThM-3 Infrared Spectroscopy of Carbon Dioxide Hydrogenation over the Cu(111) Surface Under Ambient Pressure Conditions, <i>C Kruppe</i> , <i>Michael Trenary</i> , University of Illinois at Chicago
9:00am	EM+MI+MN+NS-ThM-4 Disordered Microsphere-Based Coatings for Effective Radiative Cooling under Direct Sunlight, <i>S Atiganyanun</i> , <i>J Plumley</i> , <i>K Hsu</i> , University of New Mexico; <i>T Peng</i> , Air Force Research Laboratory; <i>Sang M. Han</i> , <i>S Han</i> , University of New Mexico		HC+SS-ThM-4 Oxide Formation on Ir(100) Studied by in-Situ Surface X-ray-Diffraction, <i>Stefano Albertin</i> , <i>U Hejral</i> , Lund University, Sweden; <i>R Felici</i> , SPIN-CNR, Italy; <i>R Martin</i> , University of Florida; <i>M Jankowski</i> , ESRF, France; <i>J Weaver</i> , University of Florida; <i>E Lundgren</i> , Lund University, Sweden
9:20am	EM+MI+MN+NS-ThM-5 Assessing Strain Relaxation in Nanostructured InGaN Multiple Quantum Wells Using X-Ray Diffraction Reciprocal Space Mapping and Photoluminescence Spectroscopy, <i>Ryan Ley</i> , <i>C Pynn</i> , <i>M Wong</i> , <i>S DenBaars</i> , <i>M Gordon</i> , University of California at Santa Barbara		INVITED: HC+SS-ThM-5 Dynamic Nanocatalysts: Environmental Effects, <i>Beatriz Roldan Cuenya</i> , Fritz-Haber Institute of the Max Planck Society, Germany
9:40am	EM+MI+MN+NS-ThM-6 Scalable, Tunable, and Polarization-Independent High Contrast Grating Reflectors for Integration into Resonant-Cavity micro-LEDs, <i>Pavel Shapturenka</i> , <i>S DenBaars</i> , <i>M Gordon</i> , University of California at Santa Barbara		Invited talk continues.
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	INVITED: EM+MI+MN+NS-ThM-10 Nano-optical Activation of Defect-bound Excitons in Monolayer WSe ₂ : Towards Room-temperature 2D Single-photon Optoelectronics, <i>Jim Schuck</i> , Columbia University		HC+SS-ThM-10 Atomic Layer Deposition (ALD) Synthesis of Au/TiO ₂ /SBA-15 Catalysts, <i>W Ke</i> , <i>X Qin</i> , <i>Francisco Zaera</i> , University of California, Riverside
11:20am	Invited talk continues.		HC+SS-ThM-11 Enhanced Stability of Pt/Cu Single-Atom Alloy Catalysts: In Situ Characterization of the Pt/Cu(111) Surface in an Ambient Pressure of CO, <i>Juan Pablo Simonovis Santamaria</i> , Brookhaven National Laboratory
11:40am	EM+MI+MN+NS-ThM-12 Light Scattering Properties of Silver Nanoprisms in Different Environments, <i>Yuri Strzhemechny</i> , Texas Christian University; <i>S Requena</i> , Harris Night Vision; <i>H Doan</i> , Texas Christian University; <i>S Raut</i> , University of North Texas Health Science Center; <i>Z Gryczynski</i> , Texas Christian University; <i>I Gryczynski</i> , University of North Texas Health Science Center		INVITED: HC+SS-ThM-12 Multiscale Modelling of Metal Oxide Interfaces and Nanoparticles, <i>Kersti Hermansson</i> , <i>P Mitev</i> , <i>J Kullgren</i> , <i>P Braqvist</i> , Dept of Chemistry-Ångström, Uppsala University, Sweden
12:00pm	EM+MI+MN+NS-ThM-13 Core-Shell Processing of BTO Nanocomposites for Optimal Dielectric Properties, <i>Kimberly Cook-Chennault</i> , Rutgers University		Invited talk continues.

Thursday Morning, October 25, 2018

Advanced Ion Microscopy Focus Topic Room 203B - Session HI+AS-ThM Advanced Ion Microscopy & Surface Analysis Moderators: Gregor Hlawacek, Helmholtz-Zentrum Dresden - Rossendorf, Shida Tan, Intel Corporation		Magnetic Interfaces and Nanostructures Division Room 203A - Session MI+2D-ThM Magnetism at the Nanoscale Moderators: Axel Enders, University of Nebraska-Lincoln, Hendrik Ohldag, SLAC National Accelerator Laboratory	
8:00am	INVITED: HI+AS-ThM-1 Pushing the Limits: Secondary Ion Mass Spectrometry with Helium Ion Microscopy, <i>Alex Belianinov</i> , Oak Ridge National Laboratory; <i>S Kim</i> , Pusan National University, South Korea; <i>M Lorenz</i> , University of Tennessee Knoxville; <i>A Ievlev</i> , <i>A Trofimov</i> , <i>O Ovchinnikova</i> , Oak Ridge National Laboratory		
8:20am	Invited talk continues.		MI+2D-ThM-2 Magnetic Competition in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Thin Films, <i>Mikel B. Holcomb</i> , West Virginia University
8:40am	HI+AS-ThM-3 When HIM meets SIMS, <i>Tom Wirtz</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg; <i>O De Castro</i> , <i>J Lovric</i> , Luxembourg Institute of Science and Technology (LIST); <i>J Audinot</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg		INVITED: MI+2D-ThM-3 Ferromagnetism in 2D Materials, <i>Jiabao Yi</i> , The University of New South Wales, Australia
9:00am	HI+AS-ThM-4 Deciphering Chemical Nature of Ferroelastic Twin Domain in MAPbI_3 perovskite by Helium Ion Microscopy Secondary Ion Mass Spectrometry, <i>Yongtao Liu</i> , University of Tennessee; <i>L Collins</i> , Oak Ridge National Laboratory; <i>R Proksch</i> , Asylum Research an Oxford Instruments Company; <i>S Kim</i> , Oak Ridge National Laboratory; <i>B Watson</i> , University of Tennessee; <i>B Doughty</i> , Oak Ridge National Laboratory; <i>T Calhoun</i> , <i>M Ahmadi</i> , University of Tennessee; <i>A Ievlev</i> , <i>S Jesse</i> , <i>S Retterer</i> , <i>A Belianinov</i> , <i>K Xiao</i> , <i>J Huang</i> , <i>B Sumpter</i> , <i>S Kalinin</i> , Oak Ridge National Laboratory; <i>B Hu</i> , University of Tennessee; <i>O Ovchinnikova</i> , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory		Invited talk continues.
9:20am	INVITED: HI+AS-ThM-5 Helium and Neon Ion Microscopy for Microbiological Applications, <i>Ilari Maasilta</i> , University of Jyväskylä, Finland		INVITED: MI+2D-ThM-5 New Insights into Nanomagnetism by Low-temperature Spin-polarized Scanning Tunneling Microscopy, <i>Dirk Sander</i> , Max Planck Institute of Microstructure Physics, Germany
9:40am	Invited talk continues.		Invited talk continues.
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	HI+AS-ThM-10 Characterization of Soot Particles by Helium Ion Microscopy, <i>André Beyer</i> , <i>D Emmrich</i> , <i>M Salamanca</i> , <i>L Ruwe</i> , <i>H Vieker</i> , <i>K Kohse-Höinghaus</i> , <i>A Götzhäuser</i> , Bielefeld University, Germany		INVITED: MI+2D-ThM-10 Materials Optimization to Form Skyrmion and Skyrmion Lattices, <i>Eric Fullerton</i> , University of California at San Diego
11:20am	HI+AS-ThM-11 Development of a Surface Science Spectra Submission Form for Low Energy Ion Scattering (LEIS), <i>M Linford</i> , <i>Tahereh Gholian Avval</i> , Brigham Young University; <i>H Brongersma</i> , <i>T Grehl</i> , IONTOF GmbH, Germany		Invited talk continues.
11:40am	HI+AS-ThM-12 Time of Flight Backscatter and Secondary Ion Mass Spectrometry in the Helium Ion Microscope, <i>Nico Klingner</i> , <i>R Heller</i> , <i>G Hlawacek</i> , <i>J von Borany</i> , <i>S Facsko</i> , Helmholtz Zentrum Dresden-Rossendorf, Germany		MI+2D-ThM-12 Giant Magnetostriction and Low Loss in FeGa/NiFe Nanolaminates for Strain-Mediated Multiferroic Micro-Antenna Applications, <i>Kevin Fitzell</i> ¹ , <i>C Rementer</i> , University of California, Los Angeles; <i>N Virushabados</i> , University of Texas at Dallas; <i>M Jamer</i> , National Institute of Standards and Technology (NIST); <i>A Barra</i> , University of California, Los Angeles; <i>J Borchers</i> , <i>B Kirby</i> , National Institute of Standards and Technology (NIST); <i>G Carman</i> , University of California, Los Angeles; <i>R Henderson</i> , University of Texas at Dallas; <i>J Chang</i> , University of California, Los Angeles
12:00pm	HI+AS-ThM-13 Helium and Neon Focused Ion Beam Hard Mask Lithography on Atomic Layer Deposition Films, <i>Matthew Hunt</i> , California Institute of Technology; <i>J Yang</i> , University of Texas at Austin; <i>S Wood</i> , <i>O Painter</i> , California Institute of Technology		MI+2D-ThM-13 Structural and Electronic Origin of Stable Perpendicular Magnetic Anisotropy in Pt/Co/Pt magnetic ultra-thin film with Ti Buffer Layer, <i>Baha Sakar</i> , Gebze Technical University, Turkey; <i>Z Balogh-Michels</i> , <i>A Neels</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>O Öztürk</i> , Gebze Technical University, Turkey

Thursday Morning, October 25, 2018

<p>MEMS and NEMS Group Room 202B - Session MN+2D+AN+MP+NS-ThM Optomechanics and 2D NEMS Moderator: Max Zenghui Wang, University of Electronic Science and Technology of China</p>		<p>Nanometer-scale Science and Technology Division Room 102B - Session NS+AN+EM+MI+MN+MP+PS+RM-ThM Nanopatterning and Nanofabrication Moderators: Brian Hoskins, National Institute of Standards and Technology (NIST), Meredith Metzler, University of Pennsylvania, Leonidas Ocola, IBM Research Division, T.J. Watson Research Center</p>	
8:00am	<p>INVITED: MN+2D+AN+MP+NS-ThM-1 Towards Microwave to Telecom Wavelength Quantum Information Transfer using Cavity Optomechanics, <i>John Davis</i>, University of Alberta, Canada</p>	<p>NS+AN+EM+MI+MN+MP+PS+RM-ThM-1 Femtosecond Laser Processing of Ceria-Based Micro Actuators, <i>Jenny Shklovsky</i>, Tel Aviv University, Israel; <i>E Mishuk</i>, Weizmann Institute of Science, Israel; <i>Y Berg</i>, Orbotech Ltd, Israel; <i>N Vengerovsky</i>, <i>Y Sverdlov</i>, Tel Aviv University, Israel; <i>I Lubomirsky</i>, Weizmann Institute of Science, Israel; <i>Z Kotler</i>, Orbotech Ltd; <i>S Krylov</i>, <i>Y Shacham-Diamand</i>, Tel Aviv University, Israel</p>	
8:20am	Invited talk continues.	<p>NS+AN+EM+MI+MN+MP+PS+RM-ThM-2 Synthesis of Functional Particles by Condensation and Polymerization of Monomer Droplets in Silicone Oils, <i>Prathamesh Karandikar</i>, <i>M Gupta</i>, University of Southern California</p>	
8:40am	<p>INVITED: MN+2D+AN+MP+NS-ThM-3 1D/2D NEMS Quantum Information Processing, <i>Guangwei Deng</i>, Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China 610054, Chengdu, Sichuan, China.0</p>	<p>INVITED: NS+AN+EM+MI+MN+MP+PS+RM-ThM-3 Competition Between Scale and Perfection in Self-assembling Structures, <i>James Liddle</i>, NIST Center for Nanoscale Science and Technology</p>	
9:00am	Invited talk continues.	Invited talk continues.	
9:20am	<p>INVITED: MN+2D+AN+MP+NS-ThM-5 Characterization and Modeling of Radio Frequency Graphene Resonant Channel Transistor, <i>Yuehang Xu</i>, University of Electronic Science and Technology of China, China; <i>T Mei</i>, University of Electronic Science and Technology of China</p>	<p>NS+AN+EM+MI+MN+MP+PS+RM-ThM-5 Polymer Templated Annealing of DNA Patterned Gold Nanowires, <i>Tyler Westover</i>, <i>B Aryal</i>, <i>R Davis</i>, <i>A Woolley</i>, <i>J Harb</i>, Brigham Young University</p>	
9:40am	Invited talk continues.		
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am		<p>INVITED: NS+AN+EM+MI+MN+MP+PS+RM-ThM-10 Directed Self-assembly of Block Copolymers for Applications in Nanolithography, <i>Paul Nealey</i>, University of Chicago</p>	
11:20am	<p>MN+2D+AN+MP+NS-ThM-11 Reconfigurable Resonant Responses in Atomic Layer 2D Nanoelectromechanical Systems (NEMS), <i>Zenghui Wang</i>, University of Electronic Science and Technology of China, China; <i>R Yang</i>, <i>P Feng</i>, Case Western Reserve University</p>	Invited talk continues.	
11:40am	<p>INVITED: MN+2D+AN+MP+NS-ThM-12 Cavity Optomechanics: Dynamics and Applications, <i>Eyal Buks</i>, Israel Institute of Technology, Israel</p>	<p>NS+AN+EM+MI+MN+MP+PS+RM-ThM-12 Three Dimensional Mesoporous Silicon Nanowire Network Fabricated by Metal-Assisted Chemical Etching, <i>Deepak Ganta</i>, <i>C Guzman</i>, <i>R Villanueva</i>, TAMIU</p>	
12:00pm	Invited talk continues.	<p>NS+AN+EM+MI+MN+MP+PS+RM-ThM-13 Enhancing Light Extraction from Free-standing InGaN/GaN light Emitters Using Bio-inspired Backside Surface Structuring, <i>L Chan</i>, <i>C Pynn</i>, <i>S DenBaars</i>, <i>Michael Gordon</i>, University of California at Santa Barbara</p>	

Thursday Morning, October 25, 2018

Plasma Science and Technology Division Room 104C - Session PS+EM+TF-ThM Atomic Layer Processing: Atomic Layer Etching Moderators: Erwin Kessels, Eindhoven University of Technology, the Netherlands, Mingmei Wang, TEL Technology Center, America, LLC		Plasma Science and Technology Division Room 104A - Session PS-ThM Plasma Sources Moderators: TaeSeung Cho, Applied Materials, Geunyoung Yeom, Sungkyunkwan University, Republic of Korea	
8:00am	INVITED: PS+EM+TF-ThM-1 Precise Flux Control of Ions and Radicals using Electron Beam Generated Plasmas, <i>David Boris</i> , U.S. Naval Research Laboratory		PS-ThM-1 Model of a Radio-Frequency Low Electron Temperature Plasma Source, <i>Shahid Rauf, L Dorf, K Collins</i> , Applied Materials
8:20am	Invited talk continues.		PS-ThM-2 Electron-beam Sustained Plasma with Unique Characteristic of Low Electron Temperature at Very Low Pressure, <i>Zhiying Chen</i> , Tokyo Electron America, Inc.; <i>K Nagaseki</i> , Tokyo Electron Miyagi, Ltd., Japan; <i>J Blakeney, M Doppel, P Ventzek</i> , Tokyo Electron America, Inc.; <i>A Ranjan</i> , TEL Technology Center, America, LLC.
8:40am	PS+EM+TF-ThM-3 Demonstration of Self-limiting Nature and Selectivity Control in Annealing Procedures for Rapid Thermal-Cyclic ALE of W, TiN, and SiN, <i>Kazunori Shinoda, H Kobayashi</i> , Hitachi, Japan; <i>N Miyoshi, K Kawamura, M Izawa</i> , Hitachi High-Technologies, Japan; <i>K Ishikawa, M Hori</i> , Nagoya University, Japan		INVITED: PS-ThM-3 Hybrid Plasma Source with Inductive and Capacitive Fields: Fundamental Understanding and Nano-applications, <i>Hyo-Chang Lee</i> , Korea Research Institute of Standards and Science (KRISS), Republic of Korea
9:00am	PS+EM+TF-ThM-4 Mechanisms for Atomic Layer Etching of Metal Films by the Formation of Beta-diketonate Metal Complexes, <i>Tomoko Ito, K Karahashi, S Hamaguchi</i> , Osaka University, Japan		Invited talk continues.
9:20am	INVITED: PS+EM+TF-ThM-5 Thermal Atomic Layer Etching of Transition Metal Films, <i>Charles Winter</i> , Wayne State University		PS-ThM-5 Improving RF Power Delivery for Pulsed Operation, <i>J Brandon, C Smith, K Ford</i> , North Carolina State University; <i>S Nam</i> , Samsung Electronics; <i>Steven Shannon</i> , North Carolina State University
9:40am	Invited talk continues.		PS-ThM-6 Optimizing Transients Using Low-High Pulsed Power in Inductively Coupled Plasmas, <i>Chenhui Qu, S Lanham</i> , University of Michigan; <i>T Ma, T List, P Arora, V Donnelly</i> , University of Houston; <i>M Kushner</i> , University of Michigan
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	INVITED: PS+EM+TF-ThM-10 Gas Cluster Ion Beam Etching under Organic Vapor for Atomic Layer Etching, <i>Noriaki Toyoda</i> , University of Hyogo, Japan		PS-ThM-10 Silicon Nitride Film Formations Using Magnetic-Mirror Confined New Plasma Source, <i>Tetsuya Goto</i> , Tohoku University, Japan; <i>S Kobayashi</i> , Kotec Company, Ltd., Japan; <i>S Sugawa</i> , Tohoku University, Japan
11:20am	Invited talk continues.		PS-ThM-11 Resonant Element Microwave Plasma Source, <i>Barton Lane, P Ventzek, A Bhakta</i> , Tokyo Electron, America, Inc.; <i>K Nagaseki</i> , Tokyo Electron Miyagi, Ltd., Japan; <i>A Ranjan</i> , Tokyo Technology Center America
11:40am	PS+EM+TF-ThM-12 Utilizing Chemical Structure of Hydrofluorocarbon Precursors to Achieve Ultra-High Selective Material Removal in Atomic Layer Etching, <i>Kang-Yi Lin, C Li</i> , University of Maryland, College Park; <i>S Engelmann, R Bruce, E Joseph</i> , IBM Research Division, T.J. Watson Research Center; <i>D Metzler</i> , IBM Research Division, Albany, NY; <i>G Oehrlein</i> , University of Maryland, College Park		INVITED: PS-ThM-12 Microwave Plasma Enabling Efficient Power-To-X Conversion, <i>Gerard van Rooij</i> , DIFFER, The Netherlands, Netherlands
12:00pm	PS+EM+TF-ThM-13 Etch Selectivity Mechanisms of Implanted Over Pristine SiN Materials in NH ₃ /NF ₃ Remote Plasma for Quasi Atomic Layer Etching with the Smart Etch Concept, <i>Vincent Renaud, E Pargon, C Petit-Etienne</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France; <i>J Barnes, N Rochat</i> , Cea, Leti, Minatex, France; <i>L Vallier, G Cunge, O Joubert</i> , LTM, Univ. Grenoble Alpes, CEA-LETI, France		Invited talk continues.

Thursday Morning, October 25, 2018

Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic Room 202A - Session SA+MI-ThM Ultra-fast Dynamics for Magnetic and Quantum Systems Moderator: Claus Michael Schneider, Forschungszentrum Juelich GmbH, Germany		Surface Science Division Room 203C - Session SS+EM+NS-ThM Defects in and Functionalization of 2D Materials Moderators: Lars Grabow, University of Houston, Greg Kimmel, Pacific Northwest National Laboratory	
8:00am	SA+MI-ThM-1 New Opportunities at the APS: Using Intermediate Energy X-rays to Investigate Collective Behavior in Interacting Electron Systems, <i>Jessica McChesney, F Rodolakis</i> , Argonne National Laboratory	INVITED: SS+EM+NS-ThM-1 Holes, Pinning Sites and Metallic Wires in Monolayers of 2D Materials, <i>Thomas Michely</i> , University of Cologne, Germany	
8:20am	SA+MI-ThM-2 Observation of Surface Recombination in Ultra-fast Carrier Dynamics of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Thin Films, <i>Saeed Yousefi Sarraf, G Cabrera, R Trappen, N Mottaghi, S Kumari, C Huang, A Bristow, M Holcomb</i> , West Virginia University	Invited talk continues.	
8:40am	INVITED: SA+MI-ThM-3 Non-equilibrium Control of Charge & Spin Motion in Quantum Materials, <i>Hermann Dürr</i> , Uppsala University, Sweden	SS+EM+NS-ThM-3 CO Chemisorption at Pristine, Doped and Defect Sites on Graphene/Ni(111), <i>Mario Rocca, G Carraro</i> , University of Genova, Italy; <i>M Smerieri, L Savio</i> , IMEM-CNR, UOS Genova, Italy; <i>E Celasco, L Vattuone</i> , University of Genova, Italy	
9:00am	Invited talk continues.	SS+EM+NS-ThM-4 Geometry of Cu Islands Buried Beneath the Surface of Graphite, <i>A Lii-Rosales</i> , Ames Laboratory and Iowa State University; <i>S Julien</i> , Northeastern University; <i>Y Han, J Evans</i> , Ames Laboratory and Iowa State University; <i>K Wan</i> , Northeastern University; <i>Patricia A. Thiel</i> , Ames Laboratory and Iowa State University	
9:20am	INVITED: SA+MI-ThM-5 XUV-transient Grating: Probing Fundamental Excitations at the Nanoscale, <i>Laura Foglia, F Capotondi, R Mincigrucci, D Naumenko, E Pedersoli, A Simoncig, G Kurdi, M Manfreda, L Raimondi</i> , Elettra-Sincrotrone Trieste, Italy; <i>N Mahne</i> , IOM-CNR, Italy; <i>M Zangrando, C Masciovecchio, F Bencivenga</i> , Elettra-Sincrotrone Trieste, Italy	SS+EM+NS-ThM-5 Intercalation of O ₂ and CO between Graphene and Ru(0001) and the Role of Defects, <i>Jory Yarmoff, T Li</i> , University of California, Riverside	
9:40am	Invited talk continues.	SS+EM+NS-ThM-6 Organic-2D Transition Metal Dichalcogenide van der Waals Heterostructures, <i>Yu Li Huang</i> , Institute of Materials Research & Engineering (IMRE), A*STAR, Singapore; <i>Z Song</i> , National University of Singapore, Singapore; <i>D Chi</i> , Institute of Materials Research & Engineering (IMRE), A*STAR, Singapore; <i>A Wee</i> , National University of Singapore, Singapore	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:20am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
10:40am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall	
11:00am	INVITED: SA+MI-ThM-10 Study of Photo-induced Dynamics in Quantum Materials using Femtosecond Time-resolved X-ray Scattering, <i>Wei-Sheng Lee</i> , SLAC National Accelerator Laboratory	SS+EM+NS-ThM-10 Influence of Surface Functionalization on Surface Topography and Growth of Metal Oxide Structures on HOPG, <i>Kathryn Perrine, M Trought, I Wentworth, C de Alwis, T Leftwich</i> , Michigan Technological University	
11:20am	Invited talk continues.	SS+EM+NS-ThM-11 Impurity Induced Chemical Properties of BN on Rh(111) Studied by First Principle Calculations: A New Phase, <i>Zahra Hooshmand¹, D Le, T Rahman</i> , University of Central Florida	
11:40am	SA+MI-ThM-12 HAXPES Lab- A Home Lab System for HAXPES Measurements, <i>S Eriksson</i> , Scienta Omicron; <i>Anna Regoutz</i> , Imperial College London, UK	SS+EM+NS-ThM-12 Texture of Atomic-layer Deposited MoS ₂ : A polarized Raman Study, <i>Vincent Vandalan, A Sharma, E Kessels</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>A Bol</i> , Eindhoven University of Technology, Netherlands	

Thursday Morning, October 25, 2018

Thin Films Division Room 102A - Session TF+AS+EL+PS-ThM In-situ Characterization and Modeling of Thin Film Processes Moderator: Thomas Riedl, University of Wuppertal		Thin Films Division Room 104B - Session TF+PS-ThM Deposition Processes for 3D and Extreme Geometries Moderators: Richard Vanfleet, Brigham Young University, AnnaMaria Coclite, Graz University of Technology	
8:00am	INVITED: TF+AS+EL+PS-ThM-1 Defects in Thin Films: A First Principles Perspective, <i>Douglas Irving, J Harris, J Baker, S Washiyama, M Breckenridge</i> , North Carolina State University; <i>P Reddy</i> , Adroit Materials; <i>R Collazo, Z Sitar</i> , North Carolina State University		TF+PS-ThM-1 ALD and Diffusion in High Aspect Ratio Carbon Nanotube Forests, <i>David Kane, R Davis, R Vanfleet</i> , Brigham Young University
8:20am	Invited talk continues.		TF+PS-ThM-2 Nanoporous Reference Substrates for ALD on High Aspect Ratio High Surface Area Materials, <i>Dmitri Routkevitch</i> , InRedox
8:40am	TF+AS+EL+PS-ThM-3 Advances in Numerical Simulation of SiN ALD, <i>Paul Moroz</i> , TEL Technology Center, America, LLC		TF+PS-ThM-3 Fine-tuned Resistive Coatings for Detector Applications, <i>Maximilian Gebhard, A Mane, D Choudhury, S Letourneau, D Mandia, Y Zhang, J Elam</i> , Argonne National Laboratory
9:00am	TF+AS+EL+PS-ThM-4 Diffusion Kinetics Study of Adatom Islands: Activation Energy Barriers Predicted using Data-driven Approaches, <i>ShreeRam Acharya, T Rahman</i> , University of Central Florida		TF+PS-ThM-4 Tungsten Atomic Layer Deposition on Vertically Aligned Carbon Nanotube Structures, <i>Ryan Vanfleet, R Davis, D Allred, R Vanfleet</i> , Brigham Young University
9:20am	TF+AS+EL+PS-ThM-5 Using Ellipsometry and XPS to Understand the Degradation of Thin-film Aluminum Mirrors Protected by Ultrathin Fluorides, <i>M Linford, Brian I. Johnson, R Turley, D Allred</i> , Brigham Young University		INVITED: TF+PS-ThM-5 ALD in Metal Organic Frameworks: Toward Single Site Synthesis and Sinter-Resistant Catalysts, <i>Alex Martinson</i> , Argonne National Laboratory
9:40am	TF+AS+EL+PS-ThM-6 Model for Amorphous Thin Film Formation and Validation, <i>Rahul Basu</i> , VTU, India		Invited talk continues.
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:20am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:40am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
11:00am	INVITED: TF+AS+EL+PS-ThM-10 2D TMD Monolayer of MoS ₂ BY ALD and Insight in the Mechanism by Surface Organometallic Chemistry, <i>Elsje Alessandra Quadrelli</i> , CNRS CPE Lyon, France		TF+PS-ThM-10 Alumina Deposition by Atomic Layer Deposition (ALD) on Flat Surfaces and High Aspect Ratio Structures, <i>Dhruv Shah, D Patel, D Jacobsen, J Erickson, M Linford</i> , Brigham Young University
11:20am	Invited talk continues.		TF+PS-ThM-11 Resistivity of the Alumina Diffusion Barrier in Catalytic Carbon Nanotube Growth, <i>Berg Dodson, G Chen, R Davis, R Vanfleet</i> , Brigham Young University
11:40am	TF+AS+EL+PS-ThM-12 A Novel Fourier Transform Ion Trap Mass Spectrometer for Semiconductor Processes, <i>Gennady Fedosenko, H Chung, R Reuter, A Laue, V Derpmann, L Gorkhaver, M Aliman, M Antoni</i> , Carl Zeiss SMT GmbH, Germany		TF+PS-ThM-12 High Temperature Active CeO ₂ Nanorods Generated via Diffusion Limited Atomic Layer Deposition, <i>Haoming Yan, X Yu, Q Peng</i> , University of Alabama
12:00pm	TF+AS+EL+PS-ThM-13 Realization of Shifts in Threshold Voltage and Subthreshold Swing in Atomic Layer Deposited Zinc Oxide As Channel Layer through <i>in-situ</i> Half-Cycle Analysis, <i>Harrison Sejoon Kim, A Lucero, S Kim, J Kim</i> , University of Texas at Dallas		

Thursday Afternoon, October 25, 2018

2D Materials Focus Topic Room 201B - Session 2D+EM+MN+NS-ThA Novel Quantum Phenomena in 2D Materials Moderator: Hsin Lin, Institute of Physics, Academia Sinica		Actinides and Rare Earths Focus Topic Room 202C - Session AC-ThA Early Career Scientists Moderators: Tomasz Durakiewicz, National Science Foundation, David Shuh, Lawrence Berkeley National Laboratory	
2:20pm	2D+EM+MN+NS-ThA-1 Double Indirect Interlayer Exciton in a MoSe ₂ /WSe ₂ van der Waals Heterostructure, Aubrey Hanbicki , <i>H Chuang, M Rosenberger, C Hellberg, S Sivaram, K McCreary, I Mazin, B Jonker</i> , Naval Research Laboratory	INVITED: AC-ThA-1 Complexation, Characterization and Separation of the Lanthanides and Actinides: Shedding Light to Subtle Differences within the f-element Series, Gauthier Deblonde , <i>C Booth</i> , Lawrence Berkeley National Laboratory; <i>M Kelley, J Su, E Batista, P Yang</i> , Los Alamos National Laboratory; <i>A Müller, P Ercius, A Minor, R Abergel</i> , Lawrence Berkeley National Laboratory	
2:40pm	2D+EM+MN+NS-ThA-2 Comparison of A- and B-exciton Intensity and Polarization in Transition Metal Dichalcogenide Monolayers and Heterostructures, Kathleen McCreary , <i>A Hanbicki, S Sivaram, B Jonker</i> , U.S. Naval Research Laboratory	Invited talk continues.	
3:00pm	INVITED: 2D+EM+MN+NS-ThA-3 Optospintronics and Magnetism with 2D Materials and Heterostructures, Roland Kawakami , The Ohio State University	INVITED: AC-ThA-3 Improving the Understanding of Actinides Through Spectroscopy, Samantha Cary , <i>J Su</i> , Los Alamos National Laboratory; <i>S Galley, T Albrecht-Schmitt</i> , Florida State University; <i>E Batista, M Ferrier, S Kozimor, V Mocko, B Scott, B Stein</i> , Los Alamos National Laboratory; <i>F White</i> , Florida State University; <i>P Yang</i> , Los Alamos National Laboratory	
3:20pm	Invited talk continues.	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	2D+EM+MN+NS-ThA-6 Giant Electromechanical Response in Van-der-Waals Layered Crystals, Sabine Neumayer , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; <i>E Elliseev</i> , National Academy of Sciences of Ukraine; <i>A Tselev</i> , CICECO and Department of Physics, University of Aveiro, Portugal; <i>A Morozovska</i> , National Academy of Sciences of Ukraine; <i>M Susner, M McGuire</i> , Oak Ridge National Laboratory; <i>J Brehm, S Pantelides</i> , Vanderbilt University; <i>N Balke, P Maksymovych</i> , Center for Nanophase Materials Sciences, Oak Ridge National Laboratory	INVITED: AC-ThA-6 Structural Chemistry of M(IV) (M = Ce, Th, and U) Complexes Isolated from Aqueous Solution, Karah Knope , Georgetown University	
4:20pm	2D+EM+MN+NS-ThA-7 A Universal Method for Measuring Valleytronic Quality of 2D Materials using Conventional Raman Spectroscopy, Steven Vitale , <i>J Varghese, D Nezych, M Rothschild</i> , MIT Lincoln Laboratory	Invited talk continues.	
4:40pm	INVITED: 2D+EM+MN+NS-ThA-8 Discovery of Intrinsic Ferromagnetism in 2D van der Waals Crystals, Xiang Zhang , <i>C Gong</i> , University of California, Berkeley	INVITED: AC-ThA-8 Hundess, Coherence and Magnetism in URu ₂ Si ₂ - and USb ₂ -family Materials, L. Andrew Wray , <i>L Miao, H He</i> , New York University; <i>S Ran</i> , University of Maryland, College Park; <i>N Butch</i> , NIST / UMD; <i>J Denlinger, Y Chuang</i> , Advanced Light Source, Lawrence Berkeley National Laboratory	
5:00pm	Invited talk continues.	Invited talk continues.	
5:20pm	2D+EM+MN+NS-ThA-10 Spectroscopic Evidence of Pair-mediated Bosonic Modes in Superconductor FeSe/SrTiO ₃ (100) Film, Minjun Lee , Seoul National University, Republic of Korea; <i>M Oh, H Jeon, S Yi, I Zoh</i> , Seoul National University, Republic of Korea; <i>C Zhang</i> , Seoul National University, Republic of Korea; <i>J Chae, Y Kuk</i> , Center for Quantum Nanoscience, Institute for Basic Science, Republic of Korea		

Thursday Afternoon, October 25, 2018

Applied Surface Science Division Room 204 - Session AS+NS-ThA Profiling, Imaging and Other Multidimensional Pursuits Moderators: Ashley Ellsworth, Physical Electronics, Jordan Lerach, ImaBiotech Corp.		Biomaterial Interfaces Division Room 101B - Session BI-ThA Biolubrication and Wear / Women in Bio-surface Science Moderators: Anna Belu, Medtronic, Inc., Sally McArthur, Swinburne University of Technology, Australia	
2:20pm	AS+NS-ThA-1 Surface Science Study of Au/Ni/Cr/n-SiC and Au/Cr/Ni/n-SiC Thin Film Ohmic Contact Material, <i>Martyn Kibel, A Barlow</i> , La Trobe University, Australia; <i>P Leech</i> , RMIT University, Australia	INVITED: BI-ThA-1 Super Lubrication and Extremewear Protection using Bioinspired Polymers, <i>Xavier Banquy, J Faivre</i> , Universite de Montreal, Canada; <i>G Xie, M Olszewski</i> , Carnegie Mellon University; <i>L David, T Delair, G Sudre, A Montebault</i> , Univ. Claude Bernard Lyon I; <i>K Matyjaszewski</i> , Carnegie Mellon University; <i>B Shrestha</i> , Universite de Montreal, Canada	Invited talk continues.
2:40pm	AS+NS-ThA-2 3D Imaging of InGaN/GaN based Nanowires and Nanotubes using Time-of-flight Secondary Ion Mass Spectrometry, <i>Jean-Paul Barnes</i> , Univ. Grenoble Alpes, CEA, LETI, France; <i>A Kapoor</i> , Univ. Grenoble Alpes, CEA, France; <i>C Durand</i> , Univ. Grenoble Alpes, CEA, France; <i>C Bougerol</i> , Univ. Grenoble Alpes, CNRS, France; <i>J Eymery</i> , Univ. Grenoble Alpes, CEA, France		
3:00pm	INVITED: AS+NS-ThA-3 Atom Probe Tomography: Applications and Prospects for Surface and Interface Science, <i>Austin Akey, D Bell</i> , Harvard University	BI-ThA-3 A Billion Force Runs: The AFM/Single-molecule Version of the Pitch Drop Experiment, <i>Laila Moreno Ostertag</i> , Vienna University of Technology, Austria; <i>T Utzig</i> , Max Planck Institute for Iron Research, Germany; <i>C Klinger</i> , TU Bergakademie Freiberg, Germany; <i>M Valtiner</i> , Vienna University of Technology, Austria	BI-ThA-4 Ionic Liquid Behaviour in Biologic Environments: Structuring and Lubrication at Aqueous Solid/liquid Interfaces, <i>H Cheng</i> , TU Wien, Germany; <i>H Weiss, M Mezger</i> , Max Planck Institute for Polymer Research, Germany; <i>Markus Valtiner</i> , Vienna University of Technology, Austria
3:20pm	Invited talk continues.		
3:40pm	BREAK	BREAK	
4:00pm	AS+NS-ThA-6 TOF-SIMS Analysis with High Lateral and High Mass Resolution in Parallel, <i>F Kollmer</i> , IONTOF GmbH, Germany; <i>N Havercroft</i> , IONTOF USA; <i>A Henß</i> , Justus-Liebig University Giessen, Germany; <i>J Zakel, D Rading, H Arlinghaus, Ewald Niehuis</i> , IONTOF GmbH, Germany	INVITED: BI-ThA-6 Synergistic Mechanisms of Selenium and Tellurium based Nano-Alloys Towards Biofilm Inhibition, <i>Kelly Nash, S Tek, B Vincent, C Smith, R Robledo</i> , University of Texas at San Antonio	
4:20pm	AS+NS-ThA-7 Industrial Applications of Surface Analysis in Chemical Mechanical Planarization, <i>Hong Piao, Y Liang, J McDonough, C Ballesteros</i> , FUJIFILM Planar Solutions, LLC, FUJIFILM Electronic materials USA., Inc.; <i>E Turner</i> , FUJIFILM Planar Solutions, LLC, FUJIFILM Electronic materials USA., Inc; <i>A Mishra, R Wen</i> , FUJIFILM Planar Solutions, LLC, FUJIFILM Electronic materials USA., Inc.	Invited talk continues.	
4:40pm	AS+NS-ThA-8 Correlative Images of Microscopy Spectroscopy: Beyond the 3D Characterization in Surface Analysis, <i>Tanguy Terlier</i> , Korea Institute of Science and Technology, Republic of Korea; <i>R Verduzco</i> , Shared Equipment Authority, Rice University; <i>Y Lee</i> , Korea Institute of Science and Technology, Republic of Korea	BI-ThA-8 From Bedside Back to Bench: Combining Human Centered Design with Biointerfacial Research, <i>P Nguyen, T Martin, D Cuylear, L Mckennedy, B Matheson, A Yingling, L Ista, Heather Canavan</i> , University of New Mexico	
5:00pm	AS+NS-ThA-9 3D Structure of Atomically Dispersed Metal Species on an Oxide Single Crystal Surface Studied by Polarization-dependent Total Reflection Fluorescence (PTRF)-XAFS, <i>Satoru Takakusagi, K Asakukra</i> , Hokkaido University, Japan	BI-ThA-9 Liquid-Infused Surfaces Coated on Paper Improve Bacteria Handling Efficiency and Detection, <i>D Regan, C Lilly, A Weigang, H Patanwala, Caitlin Howell</i> , University of Maine	
5:20pm	AS+NS-ThA-10 XPS Imaging and Spectromicroscopy Investigation of Extended Release Pharmaceutical Tablets, <i>Jonathan Counsell, S Coultas, C Blomfield</i> , Kratos Analytical Ltd, UK; <i>D Scurr</i> , The University of Nottingham, UK; <i>L Mason</i> , University of Nottingham, UK; <i>V Ciarnelli, J Garfitt, S Rigby-Singleton</i> , Juniper Pharma Services Ltd, UK; <i>M Alexander</i> , The University of Nottingham, UK; <i>M Davies</i> , University of Nottingham, UK; <i>C Moffitt</i> , Kratos Analytical Inc.; <i>S Hutton</i> , Kratos Analytical Ltd, UK, United Kingdom of Great Britain and Northern Ireland	BI-ThA-10 Tailoring Interactions at the Nanoparticle-nucleic Acid Interface using Molecular Modelling, <i>M Manning, J Nash, Yaroslava Yingling</i> , North Carolina State University	
5:40pm	AS+NS-ThA-11 An experimental Guide to Conversion of ToF-SIMS Spectrum to BIG DATA: Application in Analysis of Ultrathin Coatings, <i>Kevin Abbasi, A Avishai</i> , Swagelok Center for Surface Analysis of Materials, Case school of Engineering, Case Western Reserve University	BI-ThA-11 Biomolecule Interaction with Polymer Thin Films Based on Zwitterions and Polymer Nanoparticles, <i>Eva Bittrich, C Naas</i> , Leibniz-Institut für Polymerforschung Dresden e.V., Germany; <i>F Mele</i> , Leibniz-Institut für Polymerforschung Dresden e.V. and Polytechnic University of Turin, Italy; <i>A Münch</i> , Leibniz-Institut für Polymerforschung Dresden e.V., Germany; <i>P Uhlmann</i> , Leibniz-Institut für Polymerforschung Dresden e.V., Germany; <i>D Appelhans, K Eichhorn, B Voit</i> , Leibniz-Institut für Polymerforschung Dresden e.V., Germany	

Thursday Afternoon, October 25, 2018

Electronic Materials and Photonics Division Room 101A - Session EM+2D+NS+PS+RM+TF-ThA IoT Session: Flexible Electronics & Flash Networking Session Moderators: Shalini Gupta, Northrop Grumman ES, Sang M. Han, University of New Mexico		Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Room 201A - Session HC+SS-ThA Bridging Gaps in Heterogeneously Catalyzed Reactions Moderator: Ryan Brown, Clarkson University	
2:20pm	INVITED: EM+2D+NS+PS+RM+TF-ThA-1 Epitaxial Electrodeposition of Electronic and Photonic Materials onto Wafer-size Single Crystal Gold Foils for Flexible Electronics, Jay Switzer , Missouri University of Science and Technology		HC+SS-ThA-1 Hydrogen Adsorption and Reaction on RuO ₂ (110) Surface, A Dahal, I Lyubinetzky, Zdenek Dohnalek , Pacific Northwest National Laboratory
2:40pm	Invited talk continues.		HC+SS-ThA-2 The Role of Oxides for CO Oxidation over Pd and Rh, and How to Deal with Oxygen Poisoning, Johan Gustafson , Lund University, Sweden; O Balmes , MAX IV Laboratory, Sweden; C Zhang , Lund University, Sweden; M Shipilin , Stockholm University, Sweden; A Schaefer , Chalmers University of Technology, Gothenburg, Sweden; B Hagman , Lund University, Sweden; L Merte, N Martin, P Carlsson , Chalmers University of Technology, Gothenburg, Sweden; M Jankowski , ESRF, France; E Crumlin , Advanced Light Source, Lawrence Berkeley National Laboratory; E Lundgren , Lund University, Sweden
3:00pm	EM+2D+NS+PS+RM+TF-ThA-3 Flexible Electronic Devices Based on Two Dimensional Materials, R Kim, N Glavin , Air Force Research Laboratory; R Rai, K Gliebe, M Beebe , University of Dayton; Air Force Research Laboratory; J Leem , University of Illinois at Urbana-Champaign, Republic of Korea; S Nam , University of Illinois at Urbana-Champaign; R Rao , Air Force Research Laboratory; Christopher Muratore , University of Dayton		INVITED: HC+SS-ThA-3 Simplifying the Relationships between Catalyst Structure and Reaction Rates for Complex Mechanisms, Charles T. Campbell , University of Washington
3:20pm	EM+2D+NS+PS+RM+TF-ThA-4 Contact Resistances and Schottky Barrier Heights of Metal-SnS Interfaces, Jenifer Hajzus, L Porter , Carnegie Mellon University; A Bicchii, S Le, C Richter, A Hight Walker , National Institute of Standards and Technology (NIST)		Invited talk continues.
3:40pm	BREAK		BREAK
4:00pm			HC+SS-ThA-6 Spectroscopic Techniques for Identifying Reactive Intermediate Structures during Decomposition of Formic Acid over Metals and Metal Oxides, Megan Witzke, D Flaherty , University of Illinois at Urbana-Champaign
4:20pm			HC+SS-ThA-7 Self-sustained Reaction Oscillations in a New Light, Uta Hejral, S Albertin, J Zhou, S Pfaff , Lund University, Sweden; M Shipilin , Stockholm University, Sweden; S Blomberg , Lund University, Sweden; O Gutowski, A Dippel , Deutsches Elektronen-Synchrotron DESY, Germany; J Gustafson, J Zetterberg, E Lundgren , Lund University, Sweden
4:40pm			INVITED: HC+SS-ThA-8 Operando Catalysis--A First-Principles Perspective, William Schneider , University of Notre Dame
5:00pm			Invited talk continues.
5:20pm			HC+SS-ThA-10 Chiral Selectivity in Heterogeneous Catalysis, R Chapleski, Sharani Roy , University of Tennessee Knoxville
5:40pm			HC+SS-ThA-11 Combining <i>in situ</i> Environmental TEM and Multiscale Simulations to Study the Dynamic Processes of Copper Oxidation, Meng Li, M Curnan, W Saidi, J Yang , University of Pittsburgh

Thursday Afternoon, October 25, 2018

Advanced Ion Microscopy Focus Topic Room 203B - Session HI-ThA Emerging Ion Sources, Optics, and Applications Moderators: John A. Notte, Carl Zeiss Microscopy, LLC, Shinichi Ogawa, National Institute of Advanced Industrial Science and Technology (AIST)		Magnetic Interfaces and Nanostructures Division Room 203A - Session MI+BI-ThA Interdisciplinary Magnetism Moderator: Markus Donath, Muenster University, Germany	
2:20pm	INVITED: HI-ThA-1 Development of Gas Field Ionization Source using Gas with Low Ionization Energy that Enables Sample Processing and Observation, <i>Shinichi Matsubara, H Shichi, T Hashizume</i> , Hitachi, Japan		
2:40pm	Invited talk continues.	MI+BI-ThA-2 Chiral Induced Spin Selectivity in Molecular Bond Dissociation, <i>Richard Rosenberg</i> , Argonne National Laboratory	
3:00pm	HI-ThA-3 Development of Scanning Helium Microscopy (SHeM), <i>Susanne Schulze, D Ward, M Bergin, S Lambrick, B Allison, J Ellis, A Jardine</i> , University of Cambridge, UK	INVITED: MI+BI-ThA-3 The Chiral Induced Spin Selectivity Effect- From Spintronics to Controlling Chemistry, <i>Ron Naaman</i> , Weizmann Institute of Science, Israel	
3:20pm	HI-ThA-4 Fabrication of Trimer/Single Atom Tip for GFIS by Field Evaporation without Tip Heating, <i>Kwang-Il Kim</i> , University of Science and Technology, Republic of Korea; <i>Y Kim, T Ogawa</i> , Korea Research Institute of Standards and Science (KRISS), Republic of Korea; <i>S Choi</i> , Kyungpook National University, Republic of Korea; <i>B Cho, S Ahn, I Park</i> , Korea Research Institute of Standards and Science (KRISS), Republic of Korea	Invited talk continues.	
3:40pm	BREAK	BREAK	
4:00pm	INVITED: HI-ThA-6 Nano Aperture Ion Source, <i>Greg Schwind, A Botman, S Kellogg</i> , Thermal Fisher Scientific; <i>L van Kouwen, P Kruit</i> , Delft University of Technology, Netherlands	INVITED: MI+BI-ThA-6 Multifunctional Ferromagnetic Disks for Life Sciences Applications, <i>Elena Rozhkova, V Novosad</i> , Argonne National Laboratory	
4:20pm	Invited talk continues.	Invited talk continues.	
4:40pm	HI-ThA-8 Avoiding Amorphization Related Shape Changes of Nanostructures during Medium Fluence Ion Beam Irradiation of Semiconductor Materials, <i>Xiaomo Xu, G Hlawacek, H Engelmann, K Heinig</i> , Helmholtz Zentrum Dresden-Rossendorf, Germany; <i>W Möller</i> , Helmholtz-Zentrum Dresden-Rossendorf, Germany; <i>A Gharbi</i> , CEA-LETI, France; <i>R Tiron</i> , CEA-LETI, MINATEC, France; <i>L Bischoff, T Prüfer, R Hübner, S Facsko, J von Borany</i> , Helmholtz Zentrum Dresden-Rossendorf, Germany	INVITED: MI+BI-ThA-8 Magnetic Nanoparticles in Biomedicine: Recent Developments in Imaging, Diagnostics and Therapy, <i>Kannan Krishnan</i> , University of Washington	
5:00pm		Invited talk continues.	

Thursday Afternoon, October 25, 2018

MEMS and NEMS Group Room 202B - Session MN+2D+AN+NS-ThA Nonlinear and Thermal Resonators Moderators: Meredith Metzler, University of Pennsylvania, Christian Zorman, Case Western Reserve University		Nanometer-scale Science and Technology Division Room 102B - Session NS+2D+AS+MN+PC-ThA SPM – Probing Electronic and Transport Properties Moderators: Ondrej Dyck, Oak Ridge National Laboratory, Sergei Kalinin, Oak Ridge National Laboratory, Indira Seshadri, IBM Research Division, Albany, NY	
2:20pm	INVITED: MN+2D+AN+NS-ThA-1 Embracing Nonlinearity and Thermal Fluctuations in Nanomechanics, <i>Daniel Lopez</i> , <i>D Czaplowski</i> , <i>C Chen</i> , Argonne National Laboratory; <i>D Zanette</i> , Centro Atomico Bariloche, Argentina; <i>S Shaw</i> , Michigan State Univrsity	2:40pm	Invited talk continues.
2:40pm	Invited talk continues.	2:40pm	Invited talk continues.
3:00pm	MN+2D+AN+NS-ThA-3 Probing Ion Radiation Effects in Silicon Crystals by 3D Integrated Resonating Thin Diaphragms, <i>Hailong Chen</i> , <i>H Jia</i> , <i>V Pashaei</i> , Case Western Reserve University; <i>W Liao</i> , <i>C Arutt</i> , <i>M McCurdy</i> , Vanderbilt University; <i>P Hung</i> , The Aerospace Corporation; <i>R Reed</i> , <i>R Schrimpf</i> , <i>M Alles</i> , Vanderbilt University; <i>P Feng</i> , Case Western Reserve University	3:00pm	NS+2D+AS+MN+PC-ThA-3 Side-gate Construct for Probing Active Energy Levels in Electron Transport through a Solid-state Surface-bound Protein Monolayer, <i>Sidney Cohen</i> , <i>B Kayser</i> , <i>C Gua</i> , <i>M Sheves</i> , <i>I Pecht</i> , <i>D Cahen</i> , Weizmann Institute of Science, Israel
3:20pm	MN+2D+AN+NS-ThA-4 An Array of Thermally-actuated Nanoresonators for Real-time Mass Spectrometry, <i>Martial Defoort</i> , <i>M Sansa</i> , <i>M Gély</i> , <i>G Jourdan</i> , <i>S Hentz</i> , CEA/LETI-University Grenoble Alpes, France	3:20pm	NS+2D+AS+MN+PC-ThA-4 Adding Electrons One at a Time to Electrostatically Confined Graphene Quantum Dots, <i>Daniel Walkup</i> , <i>C Gutierrez</i> , <i>F Ghahari</i> , National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; <i>C Lewandowski</i> , MIT; <i>J Rodriguez-Nieva</i> , Harvard University; <i>T Taniguchi</i> , <i>K Watanabe</i> , National Institute for Materials Science (NIMS), Japan; <i>L Levitov</i> , MIT; <i>N Zhitenev</i> , <i>J Stroscio</i> , National Institute of Standards and Technology (NIST)
3:40pm	BREAK	3:40pm	BREAK
4:00pm	INVITED: MN+2D+AN+NS-ThA-6 Nonlinear and Noise Induced Dynamics of High Q Nanomechanical Resonators, <i>Jana Huber</i> , <i>E Weig</i> , University of Konstanz, Germany	4:00pm	NS+2D+AS+MN+PC-ThA-6 Bulk and Surface Contribution to the Charge and Spin Transport in Topological Insulators Observed with a Four-Probe Scanning Tunneling Microscope, <i>Wonhee Ko</i> , <i>G Nguyen</i> , Oak Ridge National Laboratory; <i>H Kim</i> , <i>J Kim</i> , Pohang University of Science and Technology, Republic of Korea; <i>A Li</i> , Oak Ridge National Laboratory
4:20pm	Invited talk continues.	4:20pm	NS+2D+AS+MN+PC-ThA-7 Modulation of Single-Walled Carbon Nanotube Electronic Structure by External Electronic Perturbations: Scanning Tunneling Spectroscopy and Density Functional Theory, <i>Benjamin Taber</i> ¹ , <i>G Nazin</i> , University of Oregon
4:40pm	MN+2D+AN+NS-ThA-8 SNIC Bifurcation Generated Mechanical Frequency Comb, <i>David Czaplowski</i> , <i>D Lopez</i> , Center for Nanoscale Materials, Argonne National Laboratory; <i>O Shoshani</i> , Ben-Gurion University -Negev, Israel; <i>A Eriksson</i> , Chalmers University of Technology, Gothenburg, Sweden; <i>S Shaw</i> , Florida Institute of Technology	4:40pm	NS+2D+AS+MN+PC-ThA-8 Single Charge and Exciton Dynamics probed on the Molecular Scale, <i>Anna Roslowska</i> , <i>P Merino</i> , <i>C Grosse</i> , <i>C Leon</i> , <i>O Gunnarsson</i> , <i>M Etzkorn</i> , <i>K Kuhnke</i> , <i>K Kern</i> , Max Planck Institute for Solid State Research, Germany
5:00pm	MN+2D+AN+NS-ThA-9 A Buckling-based, DC Controlled, Non-volatile Nanoelectromechanical Logic Memory, <i>S Erbil</i> , <i>U Hatipoğlu</i> , Bilkent University, Turkey; <i>C Yanik</i> , Sabancı University; <i>M Ghavami</i> , <i>Mehmet Selim Hanay</i> , Bilkent University, Turkey	5:00pm	NS+2D+AS+MN+PC-ThA-9 Microscopic Understanding of the Temperature-dependent Carrier Transport in Ge Nano - Crystal s Films, <i>Dan Shan</i> , Yangzhou Polytechnic Institute, China; <i>J Xu</i> , Nanjing University, China

¹ NSTD Postdoc Finalist

Thursday Afternoon, October 25, 2018

Plasma Science and Technology Division Room 104C - Session PS+EM+TF-ThA Atomic Layer Processing: Integration of ALD and ALE Moderator: Scott Walton, Naval Research Laboratory		Plasma Science and Technology Division Room 104A - Session PS-ThA Plasma Diagnostics, Sensors and Controls Moderator: Steven Shannon, North Carolina State University	
2:20pm	PS+EM+TF-ThA-1 Atomic-Layer Etching (ALE) of Nickel or Nickel Oxide Films by Hexafluoroacetylacetone (HFAC) Molecules, <i>Abdulrahman Basher, M Isobe, T Ito, K Karahashi</i> , Osaka University, Japan; <i>M Kiuchi</i> , National Institute of Advanced Industrial Science and Technology (AIST), Japan; <i>T Takeuchi</i> , Nara Women's University, Japan; <i>S Hamaguchi</i> , Osaka University, Japan	2:20pm	PS-ThA-1 In-situ Measurement of Electron Emission and Electron Reflection Yields, <i>Mark Sobolewski</i> , National Institute of Standards and Technology (NIST)
2:40pm	PS+EM+TF-ThA-2 Thermal Atomic Layer Etching of HfO ₂ Using HF for Fluorination and TiCl ₄ for Ligand-Exchange, <i>Y Lee, Steven George</i> , University of Colorado at Boulder	2:40pm	PS-ThA-2 Electron Energy Distribution Measurements in Dusty Non-thermal Plasmas, <i>Austin Woodard, L Mangolini</i> , University of California, Riverside
3:00pm	PS+EM+TF-ThA-3 Rapid thermal-cyclic Atomic Layer Etching of SiO ₂ Using Infrared Annealing, <i>Nobuya Miyoshi</i> , Hitachi High-Technologies, Japan; <i>H Kobayashi, K Shinoda, M Kurihara</i> , Hitachi, Japan; <i>K Kawamura, K Ookuma, Y Kouzuma, M Izawa</i> , Hitachi High-Technologies, Japan	3:00pm	INVITED: PS-ThA-3 The Surface Plasmon Energy and the Secondary Electron Emission on an Oxidized Aluminum Surface, <i>J Li, J Qiu, Yi-Kang Pu</i> , Tsinghua University, China
3:20pm	PS+EM+TF-ThA-4 The Smoothing Effect in Atomic Layer Etching (ALE), <i>Keren Kanarik, S Tan, W Yang, I Berry, T Lill, Y Pan, R Gottscho</i> , Lam Research Corporation	3:20pm	Invited talk continues.
3:40pm	BREAK	3:40pm	BREAK
4:00pm	INVITED: PS+EM+TF-ThA-6 Prospects for Combining ALD and ALE in a Single Chamber, <i>Mike Cooke</i> , Oxford Instruments, UK	4:00pm	PS-ThA-6 Transient Phenomena in Power Modulated Chlorine Plasma, <i>Priyanka Arora, T List, T Ma</i> , University of Houston; <i>S Shannon</i> , North Carolina State University; <i>S Nam</i> , Samsung Electronics Co., Ltd., Republic of Korea; <i>V Donnelly</i> , University of Houston
4:20pm	Invited talk continues.	4:20pm	PS-ThA-7 Measurements of RF Magnetic Fields and Plasma Current in Coupled Low and Very High Dual-Frequency Plasma Sources, <i>J Zhao, P Ventzek, B Lane</i> , Tokyo Electron America, Inc.; <i>Toshihiko Iwao, K Ishibashi</i> , Tokyo Electron Technology Solutions Ltd., Japan
4:40pm	PS+EM+TF-ThA-8 Low Temperature Surface Preparation of GaN Substrates for Plasma Assisted-Atomic Layer Epitaxial Growth, <i>Samantha G. Rosenberg</i> , U.S. Naval Research Laboratory; <i>D Pennachio</i> , University of California, Santa Barbara; <i>M Munger</i> , SUNY Brockport; <i>C Wagenbach</i> , Boston University; <i>V Anderson</i> , U.S. Naval Research Laboratory; <i>S Johnson</i> , U. S. Naval Research Laboratory; <i>N Nepal, A Kozen, J Woodward</i> , U.S. Naval Research Laboratory; <i>Z Robinson</i> , SUNY Brockport; <i>K Ludwig</i> , Boston University; <i>C Palmstrøm</i> , University of California, Santa Barbara; <i>C Eddy, Jr.</i> , U. S. Naval Research Laboratory	4:40pm	PS-ThA-8 Self-neutralized Nearly Monoenergetic Positive Ion Beam Extracted from a Pulsed Plasma, <i>Ya-Ming Chen, R Sawadichai</i> , University of Houston; <i>S Tian</i> , Lam Research Corporation; <i>V Donnelly, D Economou, P Ruchhoeft</i> , University of Houston
5:00pm	PS+EM+TF-ThA-9 Chemical Interactions with Alkali Compounds for Controlling the Transition between Thermal HF-based Atomic Layer Etching and Deposition, <i>John Hennessy</i> , Jet Propulsion Laboratory, California Institute of Technology	5:00pm	PS-ThA-9 Diagnostics of Plasma Neutral Species in a Very High Frequency Oxygen Plasma with High Sensitivity Broadband Absorption Spectroscopy, <i>Jianping Zhao, P Ventzek, B Lane</i> , Tokyo Electron America, Inc.; <i>T Iwao, K Ishibashi</i> , Tokyo Electron Technology Solutions Ltd., Japan; <i>J Booth</i> , CNRS, Ecole Polytechnique, France
5:20pm	INVITED: PS+EM+TF-ThA-10 Selective Processing to Enable High Fidelity Control for the 5 nm Node, <i>Benjamin Rathsack</i> , Tokyo Electron America, Inc.; <i>A Ranjan</i> , TEL Technology Center, America, LLC.; <i>P Ventzek</i> , Tokyo Electron America, Inc.; <i>H Mochiki</i> , Tokyo Electron Miyagi, Ltd., Japan; <i>J Bannister</i> , Tokyo Electron America, Inc.	5:20pm	PS-ThA-10 Development of the Virtual Metrology Using a Plasma Information Variable (PI-VM) for Monitoring SiO ₂ Etch Depth, <i>Yunchang Jang, H Roh, S Ryu, J Kwon, G Kim</i> , Seoul National University, Republic of Korea
5:40pm	Invited talk continues.	5:40pm	PS-ThA-11 Model Predictive Control of Plasma Density in Ar/SF ₆ Capacitively Coupled Plasma Source, <i>Sangwon Ryu, H Roh, Y Jang, D Park, J Koo, J Lee, G Kim</i> , Seoul National University, Republic of Korea

Thursday Afternoon, October 25, 2018

	<p>Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic Room 202A - Session SA+AS+HC+SS-ThA IoT Session: Multi-modal Characterization of Energy Materials & Device Processing Moderators: Maya Kiskinova, Elettra-Sincrotrone Trieste, Italy, Slavomir Nemsak, Advanced Light Source, Lawrence Berkeley National Laboratory</p>	<p>Surface Science Division Room 203C - Session SS+AS+BI+MI+NS-ThA Organic/Inorganic Surfaces, Interfaces and Nanostructures Moderator: Denis Potapenko, Princeton University</p>
2:20pm	<p>INVITED: SA+AS+HC+SS-ThA-1 Revealing Structure-Function Correlations in Fuel-Cells and Batteries., <i>Klaus Attenkofer, E Stavitski, M Liu, D Lu, M Tropschal, D Stacchiola, M Hybertsen</i>, Brookhaven National Laboratory</p>	<p>SS+AS+BI+MI+NS-ThA-1 Investigation of the Stability of Ag Monolayers on Au(111) as a Function of Metal Adatom Diffusion, <i>J Phillips, L Harville, H Morgan, L Jackson, G LeBlanc, Erin Iski</i>, University of Tulsa</p>
2:40pm	Invited talk continues.	<p>SS+AS+BI+MI+NS-ThA-2 Chain-Length Dependent Reactivity of Thiolate Self-Assembled Monolayers with Atomic Gas Species, <i>Jeffrey Saylor, S Brown, S Sibener</i>, University of Chicago</p>
3:00pm	<p>INVITED: SA+AS+HC+SS-ThA-3 Soft X-ray Spectroscopy for High Pressure Liquid, <i>Ruimin Qiao, J Guo, W Chao</i>, Lawrence Berkeley National Laboratory</p>	<p>INVITED: SS+AS+BI+MI+NS-ThA-3 Scan Probe Studies of Lithium Transfer through Solid State Electrochemical Interfaces, <i>Janice Reutt-Robey</i>, University of Maryland College Park</p>
3:20pm	Invited talk continues.	Invited talk continues.
3:40pm	BREAK	BREAK
4:00pm	<p>SA+AS+HC+SS-ThA-6 Surface Action Spectroscopy Using FHI FEL Infrared Radiation, <i>Zongfang Wu, H Kuhlenbeck, W Schöllkopf, H Freund</i>, Fritz-Haber Institute of the Max Planck Society, Germany</p>	<p>SS+AS+BI+MI+NS-ThA-6 Adsorption and Self-assembly of Halogenated Organic Molecules on the Si(111) $\sqrt{3}\times\sqrt{3}$-Ag Surface, <i>Renjie Liu</i>, Lakehead University, Canada; <i>C Fu, A Moiseev, M Rao, Y Chen, D Perepichka</i>, McGill University, Canada; <i>M Gallagher</i>, Lakehead University, Canada</p>
4:20pm	<p>SA+AS+HC+SS-ThA-7 Spectroscopic Insight into Resistive Switching Processes in Oxides, <i>C Baeumer, C Schmitz</i>, Forschungszentrum Juelich GmbH, Germany; <i>A Kindsmüller</i>, RWTH Aachen University, Germany; <i>N Raab, V Feyer, D Mueller, J Hackl, S Nemsak</i>, Forschungszentrum Juelich GmbH, Germany; <i>O Menten, A Locatelli</i>, Elettra-Sincrotrone Trieste, Italy; <i>R Waser, R Dittmann, Claus Michael Schneider</i>, Forschungszentrum Juelich GmbH, Germany</p>	<p>SS+AS+BI+MI+NS-ThA-7 Electron Interactions with Alkanethiol Self-assembled Monolayers on Au(111), <i>Jodi Grzeskowiak</i>, University at Albany-SUNY; <i>C Ventrice, Jr.</i>, SUNY Polytechnic Institute</p>
4:40pm	<p>INVITED: SA+AS+HC+SS-ThA-8 Visualizing Electronic Structures of Topological Quantum Materials by Synchrotron Based Photoemission Spectroscopy, <i>Yulin Chen</i>, Oxford University, UK</p>	<p>SS+AS+BI+MI+NS-ThA-8 Measuring the Electronic Properties of Organic Single Crystals, <i>Sujitra Pookpanratana, E Bittle, C Hacker, S Robey</i>, National Institute of Standards and Technology (NIST); <i>R Ovsyannikov, E Giangristostomi</i>, Helmholtz-Zentrum Berlin, Germany</p>
5:00pm	Invited talk continues.	<p>SS+AS+BI+MI+NS-ThA-9 Surface Functionalization of Porous Substrates via Initiated Chemical Vapor Deposition, <i>Christine Cheng, M Gupta</i>, University of Southern California</p>
5:20pm	<p>SA+AS+HC+SS-ThA-10 Electronic Structure of FeO, γ-Fe₂O₃ and Fe₃O₄ Epitaxial Films using High-energy Spectroscopies, <i>German Rafael Castro</i>, Spanish CRG BM25-SpLine Beamline at the ESRF., France; <i>J Rubio Zuazo</i>, Spanish CRG BM25-SpLine at the ESRF, France; <i>A Chainani</i>, Condensed Matter Physics Group, NSRRC, Taiwan, Republic of China; <i>M Taguchi</i>, RIKEN SPring-8 centre, Japan; <i>D Malterre</i>, Institut Jean Lamour, Université de Lorraine, France; <i>A Serrano Rubio</i>, Spanish CRG BM25-SpLine Beamline at the ESRF, France</p>	<p>SS+AS+BI+MI+NS-ThA-10 Atomic-Scale Understanding of Anatase Nanocatalyst Activation, <i>William DeBenedetti¹, E Skibinski, M Hines</i>, Cornell University</p>
5:40pm	<p>SA+AS+HC+SS-ThA-11 Single-Bunch Imaging of Detonation Fronts Using Scattered Synchrotron Radiation, <i>M Nielsen, J Hammons, M Bagge-Hansen, L Lauderbach, R Hodgin, K Champley, W Shaw</i>, Lawrence Livermore National Laboratory; <i>N Sinclair</i>, Washington State University; <i>Trevor Willey</i>, Lawrence Livermore National Laboratory</p>	<p>SS+AS+BI+MI+NS-ThA-11 Mechanistic view of Solid-Electrolyte Interphase Layer Evolution at Li-metal Anode, <i>Venkateshkumar Prabhakaran</i>, Physical Sciences Division, Pacific Northwest National Laboratory; <i>M Engelhard, A Martinez</i>, Environmental Molecular Science Laboratory, Pacific Northwest National Laboratory; <i>G Johnson</i>, Physical Sciences Division, Pacific Northwest National Laboratory; <i>S Thevuthasan</i>, Environmental Molecular Science Laboratory, Pacific Northwest National Laboratory; <i>V Murugesan</i>, Physical Sciences Division, Pacific Northwest National Laboratory</p>

Thursday Afternoon, October 25, 2018

Surface Science Division Room 102A - Session SS+EM+PS+TF-ThA Deposition, Etching and Growth at Surfaces Moderator: Bruce E. Koel, Princeton University		Thin Films Division Room 104B - Session TF+AS+EL+EM+NS+PS+SS-ThA IoT Session: Thin Films for Flexible Electronics and IoT Moderators: Jesse Jur, North Carolina State University, Siamak Nejati, University of Nebraska-Lincoln	
2:20pm	INVITED: SS+EM+PS+TF-ThA-1 Controlled Deposition and High-Resolution Analysis of Functional Macromolecules in Ultrahigh Vacuum, <i>Giovanni Costantini</i> , University of Warwick, UK	INVITED: TF+AS+EL+EM+NS+PS+SS-ThA-1 Ultraflexible Organic Electronics for Bio-medical Applications, <i>Tomoyuki Yokota, T Someya</i> , The University of Tokyo, Japan	
2:40pm	Invited talk continues.	Invited talk continues.	
3:00pm	SS+EM+PS+TF-ThA-3 Unconventional Nucleation and Growth Kinetics: <i>in situ</i> Variable-temperature Scanning Tunneling Microscopy Studies of Chemical Vapor Deposition of Inorganic Monolayers on Metallic Substrates, <i>Pedro Arias</i> , University of California, Los Angeles; <i>A Abdulslam</i> , Colorado School of Mines; <i>A Ebnonnasir</i> , University of California at Los Angeles; <i>C Ciobanu</i> , Colorado School of Mines; <i>S Kodambaka</i> , University of California, Los Angeles	TF+AS+EL+EM+NS+PS+SS-ThA-3 Molecular Surface Chemistry for Improved Interfaces in Organic Electronics, <i>Jacob W. Ciszek</i> , Loyola University Chicago	
3:20pm	SS+EM+PS+TF-ThA-4 Redox-Active Ligands for Single-Site Metal-Organic Complexes on Surfaces as Heterogeneous Catalysts, <i>Tobias Morris</i> , Indiana University; <i>D Wisman</i> , Indiana University, NAVSEA Crane; <i>I Huerfano</i> , <i>N Maciullis</i> , <i>K Caulton</i> , <i>S Tait</i> , Indiana University	TF+AS+EL+EM+NS+PS+SS-ThA-4 Investigation of Low Temperature ALD-deposited SnO ₂ Films Stability in a Microfabrication Environment, <i>Tony Maindron</i> , <i>S Sandrez</i> , <i>N Vaxelaire</i> , CEA/LETI-University Grenoble Alpes, France	
3:40pm	BREAK	BREAK	
4:00pm	SS+EM+PS+TF-ThA-6 Oxidation and Ablation of HOPG Using Supersonic Beams of Molecular Oxygen Combined with STM Visualization, <i>Ross Edel</i> , <i>T Grabnic</i> , <i>B Wiggins</i> , <i>S Sibener</i> , University of Chicago	TF+AS+EL+EM+NS+PS+SS-ThA-6 Dopant Distribution in Atomic Layer Deposited ZnO:Al and In ₂ O ₃ :H Films Studied by Atom Probe Tomography and Transmission Electron Microscopy, <i>Y Wu</i> , <i>B Macco</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>D Giddings</i> , <i>T Prosa</i> , <i>D Larson</i> , CAMECA Instruments Inc.; <i>S Kölling</i> , <i>P Koenraad</i> , Eindhoven University of Technology, The Netherlands; <i>F Roozeboom</i> , <i>Erwin Kessels</i> , Eindhoven University of Technology, The Netherlands, Netherlands; <i>M Verheijen</i> , Eindhoven University of Technology, The Netherlands	
4:20pm	SS+EM+PS+TF-ThA-7 Kinetically Trapped Molecular Growth during the Self-assembly of ZnTPP on Ag(100), <i>Sylvie Rangan</i> , <i>P Kim</i> , <i>C Ruggieri</i> , <i>R Bartynski</i> , Rutgers, the State University of New Jersey; <i>S Whitelam</i> , Lawrence Berkeley National Laboratory	TF+AS+EL+EM+NS+PS+SS-ThA-7 Roll-to-Roll Processable OTFT Sensors and Amplifier, <i>Kai Zhang</i> , University of Oxford, Department of Materials, UK; <i>C Chen</i> , <i>B Choubey</i> , <i>H Assender</i> , University of Oxford, UK	
4:40pm	SS+EM+PS+TF-ThA-8 Early Stage Oxidation and Evolution of Surface Oxides in Ni(100) and Ni-Cr(100) Thin Films, <i>William H. Blades</i> , <i>P Reinke</i> , University of Virginia	TF+AS+EL+EM+NS+PS+SS-ThA-8 Functionalization of Indium Gallium Zinc Oxide Surfaces for Transparent Biosensors, <i>X Du</i> , <i>S John</i> , <i>J Bergevin</i> , <i>Gregory Herman</i> , Oregon State University	
5:00pm	SS+EM+PS+TF-ThA-9 DLC Films by Modified HiPIMS with Effect from Pulse Parameters on Plasma Parameters and Film Quality, <i>David Ruzic</i> , <i>I Haehnlein</i> , University of Illinois at Urbana-Champaign; <i>B Wu</i> , Southwest Jiaotong University; <i>D Barlaz</i> , University of Illinois at Urbana-Champaign; <i>B Jurczyk</i> , Starfire Industries	TF+AS+EL+EM+NS+PS+SS-ThA-9 Large Area Atmospheric Pressure Spatial ALD of IZO and IGZO Thin-film Transistors, <i>C Frijters</i> , <i>I Katsouras</i> , <i>A Illiberi</i> , <i>G Gelinck</i> , Holst Centre / TNO, Netherlands; <i>Paul Poedt</i> , Holst Centre / TNO and SALDtech B.V., Netherlands	
5:20pm	SS+EM+PS+TF-ThA-10 Adsorption and Reactions on Topological Insulators Surfaces Probed by Low Energy Ion Scattering, <i>Haoshan Zhu¹</i> , <i>W Zhou</i> , <i>J Yarmoff</i> , University of California - Riverside	TF+AS+EL+EM+NS+PS+SS-ThA-10 Thin Film Ink-Jet Printing on Textiles for Flexible Electronics, <i>Jesse Jur</i> , <i>I Kim</i> , <i>H Shahariar</i> , North Carolina State University	
5:40pm	SS+EM+PS+TF-ThA-11 Atomically Controlled Metallation of Porphyrinoid Species with Lanthanides on Surfaces, <i>Borja Cirera</i> , IMDEA Nanoscience, Spain; <i>J Björk</i> , Linköping University, Sweden; <i>G Bottari</i> , <i>T Torres</i> , Universidad Autonoma Madrid, Spain; <i>R Miranda</i> , <i>D Ecija</i> , IMDEA Nanoscience, Spain	TF+AS+EL+EM+NS+PS+SS-ThA-11 Flexography Oil Patterning for In-line Metallization of Aluminium Electrodes onto Polymer Webs: Commercial Roll to Roll Manufacturing of Flexible and Wearable Electronics, <i>Bryan Stuart</i> , <i>T Cosnahan</i> , <i>A Watt</i> , <i>H Assender</i> , University of Oxford, Department of Materials, UK	

2D Materials Focus Topic

Room Hall B - Session 2D-ThP

2D Materials Poster Session

6:00pm

2D-ThP-1 Activated Reduction Plasma Assisted Sulfurization in Layered WS₂ Synthesis, **Chien-Pao Lin**, C Hsiao, ITRC,NARL, Taiwan, Republic of China; P Chen, C Jong, No Matching Affiliation, Taiwan, Republic of China

2D-ThP-2 Quantized States, Berry Phases, and Quantum-Hall Wedding-Cake structures in Graphene Quantum Dots, **Fereshte Ghahari Kermani**, D Walkup, C Gutiérrez, National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; C Lewandowski, Department of Physics, Massachusetts Institute of Technology; J Rodriguez-Nieva, Massachusetts Institute of Technology; K Watanabe, T Taniguchi, National Institute for Materials Science, Japan; L Levitov, Massachusetts Institute of Technology; N Zhitenev, J Stroscio, National Institute of Standards and Technology (NIST)

2D-ThP-3 Growth Phenomena and Mechanism of MoS₂ Formed by Conventional Chemical Vapor Deposition, **Cheol-Min Hyun**, J Choi, S Lee, J Ahn, Korea Maritime and Ocean University, Republic of Korea

2D-ThP-4 Graphene Micro Wires Defined by Photolithography and Plasma Etching for Field Effect Transistors, **R Rufino**, A Pascon, University of Campinas, Brazil; D Larrude, Mackenzie Presbyterian University, Brazil; W Mariano, José Alexandre Diniz, University of Campinas, Brazil

2D-ThP-5 Elucidating the Influence of Chemical Functionalization and Structural Defects in 2D Material Properties, **Sanjini Nanayakkara**, H Zhang, National Renewable Energy Laboratory; M Todt, J Sambur, Colorado State University; J Blackburn, E Miller, National Renewable Energy Laboratory

2D-ThP-6 In-Operando AFM/STM and Transport Measurements of a Graphene Hall Bar Device, **Johannes Schwenk**, National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; S Kim, National Institute of Standards and Technology (NIST) / Department of Physics and Astronomy, Seoul National University, Seoul, Korea; F Ghahari, National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; J Berwanger, Institut für Experimentelle und Angewandte Physik, Universität Regensburg, Germany; W Cullen, S Blankenship, National Institute of Standards and Technology (NIST); Y Kuk, Department of Physics and Astronomy, Seoul National University, Seoul, Korea; F Giessibl, Institut für Experimentelle und Angewandte Physik, Universität Regensburg, Germany; N Zhitenev, J Stroscio, National Institute of Standards and Technology (NIST)

2D-ThP-7 Mechanical Properties of Graphynes under Tension and Shearing, **Te-Hua Fang**, National Kaohsiung University of Science and Technology, Taiwan; C Hung, National Kaohsiung University of Science and Technology

Actinides and Rare Earths Focus Topic

Room Hall B - Session AC-ThP

Actinides and Rare Earths Poster Session

Moderators: David Shuh, Lawrence Berkeley National Laboratory, James Tobin, UW Oshkosh

6:00pm

AC-ThP-1 Upconversion Photoluminescence Efficiency Dependence of Yb ions in Gd_{0.91-x}NbO₄: Yb³⁺, Er^{0.09}, S Yi, **Seung Gon Lee**, Silla University, Republic of Korea

AC-ThP-2 Luminescence Characteristics of (Gd_{0.85-x}Yb_{0.15})NbO₄:Er³⁺ Phosphors, S Yi, **DongGyu Lee**, Silla University, Republic of Korea

AC-ThP-3 Exploring the Electronic Structure of Molecular Lanthanide Complexes in the +2 Oxidation State Using Photoelectron Spectroscopy, **Daniel Huh**, J Bruce, J Hemminger, W Evans, University of California, Irvine

AC-ThP-4 Effects of Cerium Content on Local Structure in U_{1-x}Ce_xO₂ Solid Solution, **H Cao**, Shanghai Institute of Applied Physics, Chinese Academy of Science., China; **Yuying Huang**, Shanghai Institute of Applied Physics, Chinese Academy of Science, China

AC-ThP-5 Magnetism of the (Nd,R)₂Fe₁₄B - H system with R = Er and Tm, I Tereshina, **Lev Ivanov**, M.V. Lomonosov Moscow State University, Russian Federation; D Gorbunov, Helmholtz-Zentrum Dresden-Rossendorf, Germany; M Paukov, Charles University, Prague, Czech Republic; E Tereshina-Chitrova, Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic; M Doerr, Technische Universität Dresden, Germany; L Havela, Charles University, Prague, Czech Republic; A Andreev, Institute of Physics ASCR, Czech Republic

Applied Surface Science Division

Room Hall B - Session AS-ThP

Applied Surface Science Division Poster Session

6:00pm

AS-ThP-1 Toward an Improved Understanding of the role of soil organic matter in NO_y cycling through Investigation of Heterogeneous Reactions with NO₂+, **R Hansen**, Indiana University; **Mark Engelhard**, Pacific Northwest National Laboratory; J Raff, Indiana University

AS-ThP-2 Measuring the Damage Depth and Recovery of PEMA Thin Films using Multiple Technique Analysis, **William Sgammato**, R Simpson, Thermo Fisher Scientific, UK

AS-ThP-3 Determination of Band Offsets in Semiconductor Heterostructures (2D/3D) by using XPS, **Mohamed Hedhili**, King Abdullah University of Science and Technology (KAUST), Core Labs, Saudi Arabia; M Tangi, P Mishra, T Ng, B Janjua, C Tseng, Photonics Laboratory, King Abdullah University of Science and Technology (KAUST), Saudi Arabia; D Anjum, King Abdullah University of Science and Technology (KAUST), Core Labs, Saudi Arabia; M Alias, Photonics Laboratory, King Abdullah University of Science and Technology (KAUST), Saudi Arabia; N Wei, King Abdullah University of Science and Technology (KAUST), Core Labs, Saudi Arabia; L Li, Physical Sciences and Engineering Division, King Abdullah University of Science and Technology (KAUST), Saudi Arabia; B Ooi, Photonics Laboratory, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

AS-ThP-4 Multi-technique Characterization of Nanowire-based Catalysts and Electrodes, **Sarah Zaccarine**, C Ngo, Colorado School of Mines; S Shulda, S Mauger, S Alia, K Neyerlin, B Pivovar, National Renewable Energy Laboratory; S Pylpenko, Colorado School of Mines

AS-ThP-5 Detailed Peak-Fitting Analysis of the Photoemission Spectra of the Early Oxidation Stages of Cobalt Thin Films, **Dagoberto Cabrera-German**, Universidad de Sonora, México; O Cortazar-Martinez, G Vázquez, J Torres-Ochoa, Cinvestav-Unidad Queretaro, Mexico; A Herrera-Gomez, CINVESTAV-Unidad Queretaro, Mexico

AS-ThP-6 Characterization of Laser-Treated Ti-6Al-4V-Surfaces, **Harry Meyer**, D Leonard, A Sabau, Oak Ridge National Laboratory

AS-ThP-7 Cross-Sectional Mapping vs. Depth Profiling Analysis: Is the Choice Always Clear?, **Kathryn Lloyd**, J Marsh, DuPont Corporate Center for Analytical Sciences

AS-ThP-8 Investigation on Human Evidences using ToF-SIMS Combined with Advanced Matching Recognition, T Terlier, Korea Institute of Science and Technology; J Lee, M Kang, **Yeonhee Lee**, Korea Institute of Science and Technology, Republic of Korea

AS-ThP-9 Calculation of Multiplet Structure in a Mixture of Copper Oxides, **Diego Fernando Mulato-Gómez**, J Torres Ochoa, Cinvestav-Unidad Queretaro, Mexico; D Cabrera-German, Universidad de Sonora, México; A Herrera-Gomez, CINVESTAV-Unidad Queretaro, Mexico

AS-ThP-10 Wafer Bonding Between LiTaO₃(100) and Alpha-quartz SiO₂(100) via Low Temperature (<220°C) NanoBonding™ Using Surface Energy Modification, **Brian Baker**, J Kintz, A Yano, N Herbots, Arizona State University; W Lee, Cactus Materials, Inc.; S Narayan, J Day, Arizona State University; R Islam, Cactus Materials, Inc.; Y Watznabe, TDC Coporation; M Koury, M Johnson, R Culbertson, M Magnus, Arizona State University

AS-ThP-11 Structural, Morphological and Electrical Properties of Multilayer Sequentially Sputtered Nb₃Sn Films for Different Layer Thicknesses, **Md. Nizam Sayeed**, Old Dominion University; U Pudasaini, College of William and Mary; H E. Elsayed-Ali, Old Dominion University; G Eremeev, Thomas Jefferson National Accelerator Facility

AS-ThP-12 Corrosive and Thermal Properties of ZrO₂- Y₂O₃ Thermal Barrier Coatings, **Byung-Koog Jang**, Kyushu University, Japan; H Kim, Korea Institute of Ceramic Engineering and Technology

Electronic Materials and Photonics Division

Room Hall B - Session EM-ThP

Electronic Materials and Photonics Division Poster Session

6:00pm

EM-ThP-1 Femtosecond-Pulsed Laser Deposition of Erbium-Doped Glass Nanoparticles in Polymer Layers for Hybrid Optical Waveguide Amplifiers., **Eric Barimah**, University of Leeds, UK, United Kingdom of Great Britain and Northern Ireland; M Ziarko, N Bamiedakis, I White, R Penty, University of Cambridge, United Kingdom of Great Britain and Northern Ireland; G Jose, University of Leeds, UK

Thursday Evening Poster Sessions, October 25, 2018

EM-ThP-2 Precisely Determining the Band Offset at GaN/AlGaIn Interfaces by Effectively Control the Surface and Interface States, **Sunan Ding**, *H Yang*, Suzhou Institute of Nano-Tech and Nano-Bionics, CAS, China

EM-ThP-3 Thermal Engineering for High-Power, Flexible Electronics, **Katherine Burzynski**, University of Dayton and Air Force Research Laboratory, Materials and Manufacturing Directorate; *E Blanton, N Glavin, E Heller, M Snure, E Heckman*, Air Force Research Laboratory; *C Muratore*, University of Dayton

EM-ThP-4 Growth and Magneto-optical Properties of ZnO/Zn_{1-x}Mn_xO Thin Films on Si Substrates, **Da-Ren Liu**, ITRC, NARL, Taiwan, Republic of Korea, Taiwan, Republic of Korea; *C Weng*, ITRC, NARL, Taiwan, Republic of Korea

EM-ThP-5 The Formation of Stable GeO₂ Oxide on Germanium Epitaxial Layer using the High Pressure Oxidation, *I Chung*, **Nakjun Choi**, *J Bae*, Sungkyunkwan University, Republic of Korea

EM-ThP-6 NH₄OH Solution Wet Etching for Silicon Channel Thinning of Junctionless-FET, **Lucas Stucchi-Zucchi**, *A Silva, J Diniz*, University of Campinas, Brazil

EM-ThP-7 Fabrication of Highly-Efficient Nanoscale Multilayered Thin-Film Thermoelectric Devices, **Alandria Henderson**, *J Kimbrough, Z Duncan, K Davis, M Howard, J Elike, T Wimbley, M Glenn, Z Xiao*, Alabama A&M University

EM-ThP-8 Plasmonic Studies of Metallic Nanostructures Fabricated by DNA Origami, **Enrique Samano**, *D Ruiz, K Cardoso*, Universidad Nacional Autónoma de México, Mexico

EM-ThP-9 Control of Randomness in Microsphere-Based Photonic Crystals Assembled by Langmuir-Blodgett Process, **Sarun Atiganyanun**, *O Abudayyeh, S Han, S Han*, University of New Mexico

EM-ThP-10 Incorporation of Ferroelectric HfO₂ into Magnetoelectric Random-Access Memory (MeRAM) Devices, *K Fitzell, Jeffrey Chang, A Acosta, H Ma, X Li, K Wang, J Chang*, University of California, Los Angeles

EM-ThP-11 Extreme Environment Operation of Al_{0.85}Ga_{0.15}N/Al_{0.7}Ga_{0.3}N High Electron Mobility Transistors, **Patrick Carey**, *F Ren*, University of Florida; *A Baca, B Klein, A Allerman, A Armstrong, E Douglas, R Kaplar*, Sandia National Laboratories; *S Pearton*, University of Florida

EM-ThP-12 Electrical Characterization of the Reduced Effective Schottky Barrier Height by Nanoscale Ge bi-layer of CZTSe Solar Cells, **Sanghyun Lee**, Indiana State University

EM-ThP-13 Optimal Contact Photolithography Techniques For HEMT Substrates using I-line Photoresist, **Whitney Ingram**, *A Jones, B Klein, A Baca, A Armstrong, A Allerman, E Douglas*, Sandia National Laboratories

EM-ThP-14 High-mobility Helical Tellurium Field Effect Transistors Enabled by Transfer-free, Low-temperature Direct Growth, **Guanyu Zhou**, *R Addou, Q Wang, S Honari, C Cormier, L Cheng, R Yue, C Smyth, A Laturia, J Kim, W Vandenberghe, M Kim, R Wallace, C Hinkle*, University of Texas at Dallas

EM-ThP-16 Investigation of Field Emission from Single ZnO Nanowire, **Yicong Chen**, *X Song, Y Wang, Z Zhang, Z Li, J She, S Deng, N Xu, J Chen*, State Key Lab of Optoelectronic Materials and Technologies, Guangdong Province Key Lab of Display Material and Technology, Sun Yat-sen University

EM-ThP-17 Photoemission under Different Mechanisms from Single- and Dual-gate Carbon Nanotubes Field Effect Transistors, *S Yang*, **Bo Wang**, *S Cronin*, University of Southern California

EM-ThP-18 100 keV Proton Irradiation Effects on AlGaIn/GaN Epistuctures, **Min Khanal**, *S Uprety, K Yapabandara, V Mirkhani, S Wang, B Schoeneck, T Isaacs-Smith, A Ahji, M Bozack, M Park*, Auburn University

EM-ThP-19 Properties of WSe₂ Thin Films Grown by Molecular Beam Epitaxy, *P Litwin, K Freedy, T Zhu, M Zebarjadi*, **Stephen McDonnell**, University of Virginia

EM-ThP-20 Effects of O₂ Partial Pressure on Ga₂O₃ Thin-films, **Seth King**, University of Wisconsin - La Crosse

Fundamental Discoveries in Heterogeneous Catalysis Focus Topic

Room Hall B - Session HC-ThP

Fundamental Discoveries in Heterogeneous Catalysis Focus Topic Poster Session

6:00pm

HC-ThP-1 Analyses of Nano-Crystalline Structure in Precipitated Iron-Based Catalysts for Fischer-Tropsch Synthesis, **Dong Hyun Chun**, *G Rhim, J Park*, Korea Institute of Energy Research, Republic of Korea; *C Kim*, Kookmin University, Republic of Korea; *J Bae, M Youn, H Jeong, S Kang, H Lee, J Yang, H Jung*, Korea Institute of Energy Research, Republic of Korea

HC-ThP-2 *In situ* Infrared and Catalytic Reaction Studies of Active Sites on Pt Nanoparticles Supported on Nanosponge Oxides under CO oxidation, **Sunyoung Oh**, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; *C Jung*, Institute for Basic Science (IBS), Republic of Korea; *H Ha*, Chungnam National University, Republic of Korea; *C Jo*, Institute for Basic Science (IBS), Republic of Korea; *S Moon, Y Kim*, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; *W Doh*, Institute for Basic Science (IBS), Republic of Korea; *H Kim*, Chungnam National University, Republic of Korea; *R Ryoo, J Park*, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

HC-ThP-3 Activity of Bimetallic Pt-Re Surfaces and Influence of the Support for the Water-Gas Shift Reaction, **Amy Brandt¹**, *T Maddumapatabandi, D Shakya, S Farzandh, D Chen*, University of South Carolina

HC-ThP-4 In-Operando Photoluminescence Imaging of a Single-Layer Molybdenum Disulfide Catalyst, **Koichi Yamaguchi**, University of California - Riverside; *S Naghibi, W Coley, L Bartels*, University of California, Riverside

HC-ThP-5 Efficient Photoelectrochemical Water Splitting in Band Edge Engineered Metal Oxide Heterostructure Photoanode for Solar Fuel Production, **Nisha Kodan**, Thin Film Laboratory, Department of Physics, IIT Delhi, India; *A Singh*, Division of Chemical Physics, Department of Physics, Chalmers University of Technology, SE-412 96 Göteborg, Sweden; *B Mehta*, Thin Film Laboratory, Department of Physics, IIT Delhi, India

HC-ThP-6 Comparative Reactivity of Oxide and Metallic Phases on Rh(111), *R Farber, M Turano, W Walkosz*, **Christopher Smith**, *D Killelea*, Loyola University Chicago

HC-ThP-7 Hybrid Adsorbent Catalyst for Siloxane Removal: Fe-BEA Zeolites, **Alba Cabrera-Codony**, University of Girona, Spain; *E Santos-Clotas, M Martin*, University of Girona

Advanced Ion Microscopy Focus Topic

Room Hall B - Session HI-ThP

Advanced Ion Microscopy Poster Session

6:00pm

HI-ThP-1 He⁺ and Ne⁺ Ion Beam Resolution Dependency on Beam Energy, **Waqas Ali**, Intel Corporation, USA; *S Tan*, Intel Corporation; *R Hallstein, R Livengood*, Intel Corporation, USA

HI-ThP-2 *Focused Cs Ion Beam-Induced Deposition and Gas Assisted Etch Characterization Results for 10nm Circuit Edit Applications*, **Roy Hallstein**, *R Livengood, M Ly*, Intel Corporation, USA; *Y Greenzweig, Y Drezner*, Intel Corporation, Israel; *B Knuffman, A Steele, A Knuffman*, zeroK NanoTech

Magnetic Interfaces and Nanostructures Division

Room Hall B - Session MI-ThP

Magnetic Interfaces and Nanostructures Division Poster Session

6:00pm

MI-ThP-1 Synthesis and Size Dependent Magnetic Properties of Iron Oxide Nanoparticles, **Jeremy Winsett**, *A Moilanen, S Neupane*, Middle Tennessee State University

¹ Morton S. Traum Award Finalist

MEMS and NEMS Group

Room Hall B - Session MN-ThP

MEMS and NEMS Group Poster Session

6:00pm

MN-ThP-1 The Ni-Co Micro-porous Array with High Dimensional Accuracy Control by Electroforming Process, **YuHsin Lin**, *H Wen*, ITRC,NARL, Taiwan, Republic of China; *C Tsia*, NCTU, Taiwan, Republic of China; *M Wang*, *N Chu*, *C Chen*, *C Hsiao*, ITRC,NARL, Taiwan, Republic of China

MN-ThP-2 Reactive Etching of AlGaN using BCl₃ and Ar/BCl₃, **Meng-Kun Wang**, *Y Lin*, *C Hsiao*, *C Chen*, *J Su*, *N Chu*, *C Lee*, ITRC,NARL, Taiwan, Republic of China

MN-ThP-3 Self-Assembled Poly(Ethylene Glycol) Initiated Spatial And Temporal Profiling Of Micro Devices For Selectively Growing Human Liver Cancer Cells, **Juhi Jaiswal**, *M Dhayal*, IIT (BHU), Varanasi, India

MN-ThP-4 III-V₂Si Wafer Bonding using Silicon Oxide Interlayer, **WoongSun Lim**, *S Jung*, Korea Advanced Nano Fab Center, Republic of Korea; *S Hwang*, Korea Advanced Nano Fab Center, Republic of Korea; *G Yeom*, Sungkyunkwan University, Republic of Korea

MN-ThP-5 Flexible Nanocomposite Sensors for Biomedical and Energy Harvesting Applications, **A Batra**, *Bir Bohara*, Alabama A&M University; *J Currie*, NASA

MN-ThP-6 Comparative Studies of Electrical Behavior of PLZT Thin Film Capacitors using Coplanar and Interplanar Configurations, **Vaishali Batra**, *R Paul*, *S Kotru*, The University of Alabama

MN-ThP-7 Carbon Nanotube Yarn Based Strain Sensor, **Maemum Han**, *J Lee*, *J Kim*, *J Park*, *D Jung*, Korea Institute of Industrial Technology (KITECH), Republic of Korea

MN-ThP-8 Carbon Nanotube Yarn Based Gas Sensor, **J Lee**, *M Han*, *J Kim*, **Daewoong Jung**, Korea Institute of Industrial Technology (KITECH), Republic of Korea

Nanometer-scale Science and Technology Division

Room Hall B - Session NS-ThP

Nanometer-scale Science and Technology Division Poster

Session

6:00pm

NS-ThP-1 Intermolecular Interactions in Self-Assembled Monolayers on Metal Surfaces Characterized by Ultrahigh Vacuum Tip-Enhanced Raman Spectroscopy, **J Schultz**, *P Whiteman*, **Nan Jiang**, University of Illinois at Chicago

NS-ThP-2 Nanoscale Detection of Surface Plasmon-driven Hot Electron Flux on Au/TiO₂ Nanodiodes with Atomic Force Microscopy, **Hyunhwa Lee**, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; *H Lee*, Institute for Basic Science (IBS), Republic of Korea; *J Park*, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

NS-ThP-3 Surface Functionalization of 2D Mo₂C, **Yang Zeng**, *P McBreen*, *T Zhang*, Laval University, Canada

NS-ThP-4 a-Si:H Spacer Lithography Using Different Mandrels (Al, SiN_x and Photoresist) and Etching Processes (RIE, ECR and ICP), **Andressa Rosa**, *J Diniz*, UNICAMP, Brazil

NS-ThP-5 Optimization of Stitching Multiple Fields of View for Large Scale Two Photon Lithography, **Steven Kooi**, Massachusetts Institute of Technology

NS-ThP-6 Fabrication of Carbon Nanotube-Based Electronic Devices with the Dielectrophoresis Method, **Joevente Kimbrough**, *S Chance*, *B Whitaker*, *Z Duncan*, *K Davis*, *A Henderson*, *Q Yuan*, *Z Xiao*, Alabama A&M University

NS-ThP-7 Fabrication and Electrical Characterization of a Flagella-Scaffolded Metallic Nanocluster Network, **Marko Chavez**, *P Edwards*, *M El-Naggarg*, *V Kresin*, University of Southern California

NS-ThP-8 High-contrast Infrared Polymer Photonic Crystals Fabricated by Direct Laser Writing, **Yanzeng Li**, *D Fullager*, *S Park*, University of North Carolina at Charlotte; *D Childers*, USC Conec, Ltd.; *G Boreman*, *T Hofmann*, University of North Carolina at Charlotte

NS-ThP-9 Controlled Water-repellent Behavior by Modulating the Density of Nanoscale Si Nanopillar Structure Fabricated with Bio-template and Neutral Beam Etching Technique, **Daisuke Ohori**, *S Samukawa*, Tohoku University, Japan

NS-ThP-10 An Empirical Model of Fences Formation during Ion Beam Processing, **Anthony De Luca**, *J Guerrero*, *C Ligaud*, Cea, Leti, Minattec, France

NS-ThP-11 Towards Molecular-Level Control of Reactions on Organic Semiconductor Surfaces, **Gregory Deye**, *J Ciszek*, Loyola University Chicago; *J Chen*, *J Vicente*, Ohio University; *S Dalke*, *S Piranej*, Loyola University Chicago

NS-ThP-12 The TESLA JT SPM, **Markus Maier**, *D Stahl*, *A Piriou*, *M Fenner*, *J Koeble*, *K Winkler*, *T Roth*, Scienta Omicron GmbH, Germany

NS-ThP-13 Recent Developments of Home-made UHV SPM Systems and their Applications, **Qing Huan**, *R Wu*, *L Yan*, *D Bao*, *R Ma*, *Z Wu*, Institute of Physics, CAS, China; *Z Gao*, *X Chen*, University of Chinese Academy of Sciences, China; *J Ren*, Institute of Physics, CAS, China; *L Dong*, *A Wang*, *H Yang*, *Y Xing*, *L Wu*, *J Yan*, *Y Wang*, *L Bao*, *S Du*, *H Gao*, Institute of Physics, CAS, China

NS-ThP-14 Novel *In-situ* Diagnostic tools to Analyze Chemical Composition and Energy Spectrum of Vapor in Thin Film Deposition Process, **Mikhail Strikovski**, *S Kolagani*, Neocera LLC

NS-ThP-15 Towards Automated High Throughput Drug Delivery with Plasmonic Nanopipettes, **Naihao Chiang**, *Y Gong*, *L Scarabelli*, *N Wattanatorn*, *C Zhao*, *J Belling*, University of California at Los Angeles; *H Cho*, Nanyang Technological University; *S Jonas*, *P Weiss*, University of California at Los Angeles

NS-ThP-16 High Fidelity and Sustainable Anti-reflective Moth-eye Nanostructures and Large Area Sub-wavelength Applications, **Shuhao Si**, Technische Universität Ilmenau, Germany; *M Hoffmann*, Ruhr-Universität Bochum, Germany

NS-ThP-17 Fano Resonances at Interference of Electron Waves in Geometrically Inhomogeneous Semiconductor 2D Nanostructures, **Victor Petrov**, Institute of Radio Engineering and Electronics, Russian Academy of Sciences, Moscow, Russia, Russian Federation

NS-ThP-18 Indirect Transition and Opposite Circular Polarization of Interlayer Exciton in a MoSe₂/WSe₂ van der Waals Heterostructure, **Hsun-Jen Chuang**, *A Hanbicki*, *M Rosenberger*, *C Hellberg*, *S Sivaram*, *K McCreary*, *I Mazin*, *B Jonker*, Naval Research Laboratory

NS-ThP-19 Pycroscopy – A Community-driven Approach for Analyzing and Storing Materials Imaging and Spectroscopy Data, **S Somnath**, *C Smith*, *R Vasudevan*, **Sergei Kalinin**, *S Jesse*, Oak Ridge National Laboratory

NS-ThP-20 Auto-dispersing Cellulose Nanoparticles with High Uniformity via Self-assembly in Ionic Liquids, **Y Ahn**, **Seung-Yeop Kwak**, Seoul National University, Republic of Korea

NS-ThP-21 The Silicon Atomic Layer Etching by Two-step PEALD Consisting of Oxidation and (NH₄)₂SiF₆ formation, **E Song**, Korea Institute of Materials Science, Republic of Korea; *J Ahn*, Korea Maritime and Ocean University, Republic of Korea; **Jung-Dae (J.-D.) Kwon**, Korea Institute of Materials Science, Republic of Korea; *S Kwon*, Pusan National University, Republic of Korea

Novel Trends in Synchrotron and FEL-Based Analysis Focus Topic

Room Hall B - Session SA-ThP

Novel Trends in Synchrotron and FEL-Based Analysis Focus

Topic Poster Session

6:00pm

SA-ThP-1 Relative Sensitivity Factors in Hard X-ray Photoelectron Spectroscopy up to 10 keV for Quantitative Analysis, **Satoshi Yasuno**, Japan Synchrotron Radiation Research Institute, Japan; *N Ikeda*, Aichi Synchrotron Radiation Center, Japan; *H Oji*, Nagoya University Synchrotron Radiation Research Center, Japan

SA-ThP-2 In Situ Characterization of Freeze-Cast Metal Nanowire Aerogels, **Tyler Fears**, *J Hammons*, *F Qian*, *T Braun*, *A Troksa*, *M Nielsen*, *J Forien*, *T Baumann*, *Y Han*, *S Kucheyev*, *M Bagge-Hansen*, Lawrence Livermore National Laboratory

SA-ThP-3 In situ Probing of the Potential Distribution in a Thin Film All-solid-state Li-ion Battery, **Evgheeni Strelcov**, National Institute of Standards and Technology (NIST)/University of Maryland; *E Fuller*, Sandia National Laboratories; *W McGehee*, *N Zhitenev*, *J McClelland*, National Institute of Standards and Technology (NIST); *A Talin*, Sandia National Laboratories

SA-ThP-4 A New Route for the Determination of Protein Structure in Physiological Environment through Coherent Diffraction Imaging., **Danny Fainozzi**, university of Trieste / Elettra Synchrotron, Italy

SA-ThP-5 The League of European Accelerator-Based Photon Sources: New strategic partnerships in Europe and beyond, **Maya Kiskinova**, Elettra-Sincrotrone Trieste, Italy

1 NSTD Postdoc Finalist

Thursday Evening Poster Sessions, October 25, 2018

Thin Films Division

Room Hall B - Session TF-ThP

Thin Film Poster Session

6:00pm

TF-ThP-2 Investigation of Target State by Plasma Emission and Target Voltage Measurements for Reactive Sputtering of Ni oxide thin films with water vapor injection, *Yuki Yokoiwa, Y Abe, M Kawamura, K Kim, T Kiba*, Kitami Institute of Technology, Japan

TF-ThP-3 Rectification and Non-linearity in Ferroelectric Tunnel Junction based on BiFeO₃ Ultra-thin Film, *Taekjib Choi*, Sejong University, Republic of Korea

TF-ThP-7 Optical and Electrochemical Properties of Rhodium Oxide Thin Films prepared by Reactive Sputtering in O₂ or H₂O Atmosphere, *ChanYang Jeong, Y Abe, M Kawamura, K Kim, T Kiba*, Kitami Institute of Technology, Japan

TF-ThP-8 Interfacial Self-assembled Monolayers as Copper Diffusion Barrier for IGZO Semiconductor Thin Film Transistor, *Sung-Eun Lee, K Lim, J Park, J Huh, J Lee, E Lee, C Im, Y Kim*, Seoul National University, Republic of Korea

TF-ThP-9 Atmospheric-pressure Plasma Treatment Effect of Solution-processed Aluminum Oxide Gate Insulator for Oxide Semiconductor Thin-film Transistors, *Jintaek Park, K Lim, S Lee, J Huh, J Lee, E Lee, C Im, Y Kim*, Seoul National University, Republic of Korea

TF-ThP-10 Microstructural and Electrical Properties of Ni Stanogermanides formed on Ge_{0.92}Sn_{0.08} epi-layer Grown on Si(100) Substrate, *C Choi*, Semiconductor Physics Research Center(SPRC), Chonbuk National University, Republic of Korea; *Hansoo Jang*, Semiconductor Physics Research Center(SPRC), Chonbuk National University, Republic of Korea

TF-ThP-11 Radiation Effects on Al₂O₃ Thin Films, *H Zhu, X Chen, Zhong-Shan Zheng, D Li, J Gao, B Li, J Luo*, Institute of Microelectronics of Chinese Academy of Sciences, China

TF-ThP-12 Comparative Study of Erosion on Various Polymers and Composites both Coated Using a DC Magnetron Sputtering Process and Uncoated, *S Hill, Dorina Mihut, A Afshar, K Culp, Z Grantham*, Mercer University School of Engineering

TF-ThP-13 Plasma-enhanced Atomic Layer Deposition of Molybdenum Compounds Thin Films Using Mo(CO)₆ with Various Plasma Gases, *Jeong-Hun Choi, S Lee, C Hyun, J Ahn*, Korea Maritime and Ocean University, Republic of Korea

TF-ThP-14 Development of Metal Linear Evaporator for OLED Panel Mass Production of Gen.6 half and Gen. 8 lines, *Jung Hyung Kim*, Korea Research Institute of Standards and Science (KRISS), Republic of Korea; *M Kang, K Shin, D Lim*, Fineva Co., Republic of Korea

TF-ThP-15 Study of W Film Properties on Various Treated TiN/AIO Underlayer, *Dong-Hoon Han, D Lee, M Park, J Bae, J Lee, Y Koo*, Samsung Electronics, Republic of Korea

TF-ThP-16 Fabrication of Mo/B₄C Periodic Films on the High Reflective Mirror for Applications in Beyond Extreme Ultraviolet Lithography, *Chao-Te Lee, W Chen, H Chen, M Wang*, Instrument Technology Research Center, Taiwan, Republic of China

TF-ThP-17 Effects of the Electric Field Application for the Photocatalytic Property of TiO₂/Ni Thin Films, *Taishi Segawa, I Takano*, Kogakuin University, Japan

TF-ThP-18 Crystallization Behavior and Thermal Stability of Zr-based Metallic Glasses, *J Park, D Song, Jinkyu Lee*, Kongju National University, Republic of Korea

TF-ThP-19 The Investigation of the Chemical State of the PTFE Surface Treated by Ar Plasma, *Koki Iesaka, I Takano*, Kogakuin University, Japan

TF-ThP-20 The Influence of ZnO Layers for Photovoltage of Cu₂O/ZnO/TiO₂ Thin Films Prepared by Reactive Sputtering, *Keisuke Ishizaka*, Kogakuin University, Japan; *I Takano*, Kogakuin University, Japan

TF-ThP-21 The Formation of Amorphous Carbon Thin Films by Ion Beam Mixing, *Kenji Iwasaki, I Takano*, Kogakuin University, Japan

TF-ThP-22 Enhancing Ultra-violet Optical Properties of Aluminum Mirrors with a Single Step Approach to Oxide Removal and Fluorine Passivation, *David Boris*, U.S. Naval Research Laboratory; *A Kozen*, ASEE Postdoctoral Fellow; *J del Hoyo, M Quijada*, NASA Goddard Space Flight Center; *S Walton*, U.S. Naval Research Laboratory

TF-ThP-23 Cu Films on Thermoelectric ZnSb, *Terje Finstad, X Song, H Riis, Ø Prytz*, University of Oslo, Norway

TF-ThP-24 Using a Semitransparent Underlayer to Determine Optical Constants of a Mostly Opaque Layer by Thin Film Interference: Application to AlF₃ on Al in the Extreme Ultraviolet, *Gabriel Richardson, K Wolfe, M Barona, S Turley, D Allred*, Brigham Young University

TF-ThP-25 Thermoelectric Properties of Sb₂Te₃ Thin Films, *Eshirdanya McGhee, B Bohara, C Payton, S Gere, S Budak*, Alabama A&M University

TF-ThP-26 Thermal Annealing Effects on the Thermoelectric Properties of CoAg Thin Films, *Satilmis Budak, S Gere, E McGhee, E Gamble*, Alabama A&M University

TF-ThP-28 Interlayer Effect for Photocatalytic Properties of TiO₂/Cu₂O Thin Films Prepared by Reactive Sputtering, *Akihiro Joichi, I Takano*, Kogakuin University, Japan

TF-ThP-29 The effect of Proton Radiation on ALD HfO₂ Films and HfO₂ based RRAM, *Panpan Xue*, University of Wisconsin-Madison; *Z Wang*, Stanford University; *T Chang*, University of Wisconsin-Madison; *Y Nishi*, Stanford University; *Z Ma, J Shohet*, University of Wisconsin-Madison

TF-ThP-30 Comparison of Hafnium Oxide and Zirconium Oxide for Fabricating Electronic Devices, *Kenneth Davis, Z Duncan, M Howard, T Wimbly, Z Xiao*, Alabama A&M University

TF-ThP-31 Development of the Synchrotron-based Capabilities for Direct, *In-situ* XANES/XAFS Measurements of Thermal ALD: Initial Proof-of-Concept Study Exploring ZrO₂ ALD, *David Mandia, B Kucukgok, S Letourneau, M Ward, A Yanguas-Gil, J Elam*, Argonne National Laboratory

TF-ThP-32 Nitridation of Transition Metal Oxide Films, *Li Chang, W Chen, K Chiu, Y Fang*, National Chiao Tung University, Hsinchu, Taiwan, Taiwan, Republic of China

TF-ThP-33 The Evolution of Atomic Layer Processing as a Field: Atomic Layer Etching, and its Connections with Atomic Layer Deposition, *Elsa Alvaro*, Northwestern University; *A Yanguas-Gil*, Argonne National Laboratory

TF-ThP-34 Optical Characterization of SiC Thin Films on Si(111), *Kjeld Pedersen*, Aalborg University, Denmark; *R Juluri*, Aarhus University, Denmark; *P Kjaer Kristensen*, Aalborg University, Denmark; *J Lundsgaard Hansen, B Julsgaard*, Aarhus University, Denmark

TF-ThP-35 Nanocarbon based Field Assisted Electron Emitter Arrays for Development of Electrical Propulsion for Nano Satellite, *Nirupama Prasad*, Jain University, Bangalore, India

TF-ThP-36 Investigation of Synthesis Yield Variation of Single-Walled Carbon Nanotubes inside Horizontal Chemical Vapor Deposition Systems, *G Jeong, Sung-Il Jo*, Kangwon National University, Republic of Korea

TF-ThP-37 Optical and Mechanical Properties of Diamond-like Carbon Thin Film deposited by Filtered Cathodic Vacuum Arc Source for Durable Coating of Infrared Optics, *Jung-Hwan In, M Seo, H Jung, S Kim, J Choi*, Korea Photonics Technology Institute, Republic of Korea

TF-ThP-38 Influence of Temperature and Plasma Gas Chemistry on Atomic Layer Epitaxial Growth of InN on GaN Assessed with *In Situ* Grazing Incidence Small-Angle X-ray Scattering, *Jeffrey Woodward, S Rosenberg*, American Society for Engineering Education (residing at U.S. Naval Research Laboratory); *N Nepal, S Johnson*, U.S. Naval Research Laboratory; *C Wagenbach*, Boston University; *A Kozen*, American Society for Engineering Education (residing at U.S. Naval Research Laboratory); *Z Robinson*, The College at Brockport - SUNY; *D Boris, S Walton*, U.S. Naval Research Laboratory; *K Ludwig*, Boston University; *C Eddy*, U.S. Naval Research Laboratory

TF-ThP-39 Water-based Superconcentrated Electrolytes as Gate Dielectric for High-performance Solution-processed Oxide Thin Film Transistors, *Eun Goo Lee, K Lim, J Park, S Lee, J Lee, C Im, Y Kim*, Seoul National University, Republic of Korea

TF-ThP-40 Atomic Layered Deposition and Characterizations of HfO₂ for OLED Encapsulation, *Nak-Kwan Chung*, Korea Research Institute of Standards and Science (KRISS), Republic of Korea; *S Kim, J Yun, J Kim*, Korea Research Institute of Standards and Science (KRISS)

TF-ThP-41 Reaction Mechanism Study on the Atomic Layer Deposition of Titanium Oxide Film using Heteroleptic Precursors, *Jaemin Kim, H Kim, J Gu, S Kim, H Jung, R Hidayat*, Sejong University, Korea; *Y Myung*, Sejong University, Korea, Republic of Korea; *W Lee*, Sejong University, Korea

Friday Morning, October 26, 2018

2D Materials Focus Topic Room 201B - Session 2D+EM+MN+NS-FrM Nanostructures including Heterostructures and Patterning of 2D Materials Moderator: Xiang Zhang, University of California, Berkeley		Actinides and Rare Earths Focus Topic Room 202C - Session AC+MI+SA-FrM Actinide and Rare Earth Theory and Related Measurements Moderators: Paul S. Bagus, University of North Texas, David Shuh, Lawrence Berkeley National Laboratory
8:20am	2D+EM+MN+NS-FrM-1 Interfacial Strength and Surface Damage Characteristics of Two-dimensional h-BN, MoS ₂ and Graphene, <i>Frank DelRio</i> , National Institute of Standards and Technology; <i>B Tran Khac, K Chung</i> , University of Ulsan, South Korea	INVITED: AC+MI+SA-FrM-1 Periodic Boundary Condition and Embedded Cluster DFT Calculations of Water Adsorption on AnO ₂ (An = U, Pu) Surfaces, <i>Nikolas Kaltsoyannis</i> , University of Manchester, UK, United Kingdom of Great Britain and Northern Ireland
8:40am	2D+EM+MN+NS-FrM-2 Optical and Optoelectronic Properties in 2D Homo- and Hetero-junctions, <i>Juan Xia</i> , Nanyang Technological University, Singapore, China	Invited talk continues.
9:00am	INVITED: 2D+EM+MN+NS-FrM-3 Sequential Edge-epitaxy: Towards Two-dimensional Multi-junctions Heterostructures and Superlattices, <i>Humberto Rodriguez Gutierrez</i> , University of South Florida	INVITED: AC+MI+SA-FrM-3 Understanding the Role of Oxidation States on the Chemistry of Actinides through Integration of Theory and Experiment, <i>Wibe de Jong, J Gibson</i> , Lawrence Berkeley National Laboratory; <i>R Abergel</i> , Lawrence Berkeley Lab, University of California, Berkeley
9:20am	Invited talk continues.	Invited talk continues.
9:40am	2D+EM+MN+NS-FrM-5 Interpretation of π -band Replicas Observed for Mono- and Multi-layer Graphene Grown on 4H SiC(0001), <i>T Balasubramanian, M Leandersson, J Adell, C Polley</i> , Lund University, Sweden; <i>Leif Johansson, R Yakimova, C Jacobi</i> , Linkoping University, Sweden	AC+MI+SA-FrM-5 An Experimentalist's Viewpoint: The Tremendous Strengths and Occasional Weaknesses of Actinide Cluster Calculations, <i>James G. Tobin</i> , University of Wisconsin-Oshkosh
10:00am	2D+EM+MN+NS-FrM-6 Effect of SiC(0001) Substrate Morphology and Termination on Multilayer Hexagonal Boron Nitride Epitaxy by Plasma-Enhanced CBE, <i>Daniel J. Pennachio, N Wilson, E Young, A McFadden, T Brown-Heft</i> , University of California at Santa Barbara; <i>K Daniels, R Myers-Ward, K Gaskill, C Eddy, Jr.</i> , U.S. Naval Research Laboratory; <i>C Palmstrøm</i> , University of California at Santa Barbara	AC+MI+SA-FrM-6 Ligand and Metal XAS Edges In Heavy Metal Compounds, <i>Paul S. Bagus</i> , University of North Texas; <i>C Nelin</i> , Consultant
10:20am	2D+EM+MN+NS-FrM-7 Nanoelectromechanical Drumhead Resonators from 2D Material Bimorphs, <i>Sun Phil Kim, J Yu, E Ertekin, A van der Zande</i> , University of Illinois at Urbana-Champaign	AC+MI+SA-FrM-7 Thermal Expansion and Conductivity of Th and Ac from First Principles Calculations, <i>Dominik Legut, L Kyvala</i> , VSB-Technical University of Ostrava, Czech Republic; <i>U Wdowik</i> , Pedagogical University, Poland
10:40am	2D+EM+MN+NS-FrM-8 Atomically-precise Graphene Etch Masks for 3D Integrated Systems from 2D Material Heterostructures, <i>Jangyup Son</i> , University of Illinois at Urbana-Champaign; <i>A van der Zande</i> , University of Illinois at Urbana Champaign	AC+MI+SA-FrM-8 XANES Investigation into the Electronic Structure of Ce Coordination Complexes, <i>Liane Moreau, C Booth</i> , Lawrence Berkeley National Laboratory; <i>Y Qiao, E Schelter</i> , University of Pennsylvania
11:00am	2D+EM+MN+NS-FrM-9 Insights into the O Atom Adsorption and O ₂ Dissociation on Halogenated Graphene Surfaces, <i>Reynaldo Geronia</i> , University of the Philippines Diliman; <i>A Padama</i> , University of the Philippines Los Baños, Philippines; <i>J Ocon</i> , University of the Philippines Diliman, Philippines; <i>P Chuang</i> , University of California, Merced	AC+MI+SA-FrM-9 Structure and Properties of Reactively Deposited Uranium Hydride Coatings Studied by the X-ray Scattering Methods, <i>Milan Dopita, L Havela, L Horák, E Chitrova</i> , Charles University, Prague, Czech Republic; <i>D Legut</i> , VSB-Technical University of Ostrava, Czech Republic; <i>M Cieslar</i> , Charles University, Prague, Czech Republic; <i>Z Matěj</i> , MAX-IV, Lund, Sweden
11:20am		AC+MI+SA-FrM-10 Ligand Induced Shape Transformation of Thorium Dioxide Nanocrystals, <i>Gaoxue Wang, E Batista, P Yang</i> , Los Alamos National Laboratory
11:40am		AC+MI+SA-FrM-11 Perspectives on the Synthesis, Characterization and Applications of Upconversion and Downconversion Nanomaterials, <i>Martin Ntwaaborwa</i> , University of the Witwatersrand, South Africa

Friday Morning, October 26, 2018

Biomaterial Interfaces Division Room 101B - Session BI+AS+NS-FrM Characterization of Biological and Biomaterial Surfaces Moderator: Bill Theilacker, Medtronic		Magnetic Interfaces and Nanostructures Division Room 203A - Session MI+EM-FrM Magnetism and Spin-Orbit Coupling at Surfaces, Interfaces and Thin Films Moderator: Valeria Lauter, Oak Ridge National Laboratory	
8:20am	INVITED: BI+AS+NS-FrM-1 Novel Insights into Skin Biology and Permeation of Actives using ToF-SIMS and 3D OrbiSIMS., <i>David Scurr</i> , The University of Nottingham, UK	INVITED: MI+EM-FrM-1 Interfacial Spin-orbitronics: Spin-charge Current Conversion in Topological Insulators and Rashba Interfaces, <i>Juan Carlos Rojas Sánchez</i> , Institut Jean Lamour, Université de Lorraine, France	
8:40am	Invited talk continues.	Invited talk continues.	
9:00am	BI+AS+NS-FrM-3 Multivariate Analysis of ToF-SIMS Data using Mass Segmented Data Matrices: Polymers and Biointerfaces, <i>R Madiola</i> , La Trobe University, Australia; <i>N Welch</i> , CSIRO Manufacturing, Australia; <i>D Winkler</i> , La Trobe University, Australia; <i>J Scoble</i> , CSIRO, Australia; <i>B Muir</i> , CSIRO, Australia; <i>Paul Pigram</i> , La Trobe University, Australia	MI+EM-FrM-3 Spin-orbit Coupling in Ion-surface Collisions Observed by a Polarized ⁴ He ⁺ Ion Beam, <i>Taku Suzuki</i> , <i>O Sakai</i> , National Institute for Materials Science, Japan	
9:20am	BI+AS+NS-FrM-4 Can you dig it? ToF-SIMS Tissue Depth Profiling, <i>Daniel Graham</i> , <i>T Angerer</i> , <i>L Gamble</i> , University of Washington	MI+EM-FrM-4 Transport and Magnetic Properties of LaAlO ₃ /SrTiO ₃ Heterostructure during Cooling and Warming, <i>Zengming Zhang</i> , <i>X Wang</i> , University of Science and Technology of China, China; <i>M Zhang</i> , <i>A Rahman</i> , <i>R Dai</i> , <i>Z Wang</i> , University of Science and Technology of China; <i>Z Ding</i> , University of Science and Technology of China, China; <i>L Cheng</i> , University of Science and Technology of China	
9:40am	BI+AS+NS-FrM-5 Characterization of Biologic Release and Transformation Processes of Clay-sorbed Ammonia using ToF-SIMS and XPS, <i>Liuqin Huang</i> , <i>W Liu</i> , State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, China; <i>Z Zhu</i> , Pacific Northwest National Laboratory; <i>H Dong</i> , Miami University	INVITED: MI+EM-FrM-5 Engineering the Magnetic Properties of Complex Oxide Heterostructures, <i>Yayoi Takamura</i> , University of California at Davis	
10:00am	BI+AS+NS-FrM-6 Novel Insights into Drug Release by a Functionalized Biomaterial and Dispersion into Bone using Surface Analytical Techniques, <i>Marcus Rohnke</i> , <i>C Kern</i> , <i>B Mogwitz</i> , <i>S Ray</i> , Justus-Liebig University Giessen, Germany; <i>J Thomas</i> , IFW Dresden, Germany	Invited talk continues.	
10:20am	BI+AS+NS-FrM-7 Spatial Distributions of Epithelial Growth Factors in Hydrogels Studied by ToF-SIMS and TIRF Microscopy for the Development of Biocompatible Multiple-protein Delivery Systems for Wound Healing, <i>Shohini Sen-Britain</i> , State University of New York, Buffalo; <i>W Hicks</i> , Roswell Park Comprehensive Cancer Center; <i>J Gardella Jr.</i> , State University of New York, Buffalo	MI+EM-FrM-7 Location of the Valence Band Maximum in the Band Structure of Anisotropic 1T'-ReSe ₂ , <i>Markus Donath</i> , <i>P Eickholt</i> , <i>J Noky</i> , Westfälische Wilhelms-Universität Münster, Germany; <i>E Schwier</i> , <i>K Shimada</i> , <i>K Miyamoto</i> , <i>T Okuda</i> , Hiroshima University, Japan; <i>C Datzler</i> , <i>M Drüppel</i> , <i>P Krüger</i> , <i>M Rohlfing</i> , Westfälische Wilhelms-Universität Münster, Germany	
10:40am		MI+EM-FrM-8 Controlling Antiferromagnetic Order at the Surface of La doped BiFeO ₃ , <i>Hendrik Ohldag</i> , SLAC National Accelerator Laboratory; <i>B Jang</i> , Korea Advanced Institute of Science and Technology; <i>J Lee</i> , <i>K Kim</i> , Korea Advanced Institute of Science and Technology, Republic of Korea; <i>H Jang</i> , SLAC National Accelerator Laboratory; <i>K Ko</i> , Max Planck Institute for Chemical Physics of Solids; <i>M Jung</i> , Pohang University of Science and Technology, Republic of Korea; <i>Y Koo</i> , Pohang Light Source; <i>Y Jeong</i> , Pohang University of Science and Technology, Republic of Korea; <i>J Lee</i> , SLAC National Accelerator Laboratory; <i>C Yang</i> , Korea Advanced Institute of Science and Technology, Republic of Korea	
11:00am		INVITED: MI+EM-FrM-9 Control of Magnetism at the Antiperovskite/Perovskite Interface, <i>D Shao</i> , <i>T Paudel</i> , <i>Evgeny Tsybal</i> , University of Nebraska-Lincoln	
11:20am		Invited talk continues.	

Friday Morning, October 26, 2018

Nanometer-scale Science and Technology Division Room 102B - Session NS+AM+AS+MN+PC+PS+SS+TR-FrM SPM – Probing Chemical Reactions at the Nanoscale Moderators: Phillip First, Georgia Institute of Technology, An-Ping Li, Oak Ridge National Laboratory		Plasma Science and Technology Division Room 104A - Session PS-FrM Plasma Modeling Moderators: Venkattraman Ayyaswamy, University of California Merced, Premkumar Panneerchelvam, KLA-Tencor	
8:20am	INVITED: NS+AM+AS+MN+PC+PS+SS+TR-FrM-1 Using Self-Assembly to Engineer Electronic Properties in 1D and 2D Molecular Nanostructures, Michael F. Crommie , University of California at Berkeley Physics Dept.	PS-FrM-1 Investigation of Electrical Asymmetric Effect in Very High Frequency Plasma Source using Electromagnetic Plasma Model, Xiaopu Li, K Bera, S Rauf, K Collins , Applied Materials	
8:40am	Invited talk continues.	PS-FrM-2 Simulation of Pulsed Inductively Coupled Plasmas, Jun-Chieh Wang, W Tian, S Rauf, S Sadighi, J Kenney, P Stout, V Vidyarthi, J Guo, K Delfin, N Lundy , Applied Materials	
9:00am	NS+AM+AS+MN+PC+PS+SS+TR-FrM-3 Chemical and Electronic Structure of Aniline Films on Silica Surfaces, Christopher Goodwin , University of Delaware; A Maynes , Virginia Polytechnic Institute and State University; Z Voras , University of Delaware; S Tenney , Center for Functional Nanomaterials Brookhaven National Laboratory; T Beebe , University of Delaware	INVITED: PS-FrM-3 The Important Role of Metal Vapour in Arc Welding: New Insights from Modelling, Anthony Murphy, J Xiang, H Park, F Chen , CSIRO, Australia	
9:20am	NS+AM+AS+MN+PC+PS+SS+TR-FrM-4 Electric Field Driven Chemical Reaction of Individual Molecular Subunits by Scanning Tunneling Microscopy, Tomasz Michnowicz , Max Planck Institute for Solid State Research, Germany, Deutschland; B Barca , Max Planck Institute for Solid State Research, Germany; R Pétuya , Donostia International Physics Centre, Spain; M Pristl, R Gutzler, V Schendel, I Pentegov, U Kraft, H Klauk , Max Planck Institute for Solid State Research, Germany; P Wahl , University of St Andrews, UK; A Arnau , Donostia International Physics Centre, Spain; U Schlickum, K Kern , Max Planck Institute for Solid State Research, Germany	Invited talk continues.	
9:40am	NS+AM+AS+MN+PC+PS+SS+TR-FrM-5 Characterising Conjugated Polymers for Organic Electronics by High-resolution Scanning Probe Microscopy, Giovanni Costantini , University of Warwick, UK	PS-FrM-5 Molecular Dynamics Study on Collision Cascade Dynamics for Sputtering of Lennard-Jones Particles, Nicolas Mauchamp, M Isobe, S Hamaguchi , Osaka University, Japan	
10:00am	NS+AM+AS+MN+PC+PS+SS+TR-FrM-6 Probing Electrical Degradation of Lithium Ion Battery Electrodes with Nanoscale Resolution, Seong Heon Kim , Samsung Advanced Institute of Technology, Republic of Korea; S Park, H Jung , Samsung Advanced Institute of Technology, Republic of Korea	PS-FrM-6 Surface Reaction Analysis by Molecular Dynamics (MD) Simulation for SiO ₂ Atomic Layer Etching (ALE), Satoshi Hamaguchi, Y Okada, M Isobe, T Ito, K Karahashi , Osaka University, Japan	
10:20am		PS-FrM-7 Atomistic Simulations of He Plasma Modification of SiO ₂ Thin Films for Advanced Etch Processes, Florian Pinzan, R Blanc, F Leverd , STMicroelectronics, France; E Despiaud-Pujo , LTM, Univ. Grenoble Alpes, CEA-LETI, France	
10:40am		PS-FrM-8 Plasma Characteristics in a Capacitively Coupled System at Moderately High Pressure: Model and Experiment Comparison, David J. Peterson, S Shannon , North Carolina State University; W Tian, P Kraus, K Bera, S Rauf, T Chua, T Koh , Applied Materials Inc.	
11:00am		PS-FrM-9 Numerical Modeling of Capacitively Coupled Plasma Process Chamber using CCPFoam, Abhishek Kumar Verma ¹ , University of California Merced; K Bera, S Rauf , Applied Materials; A Venkattraman , University of California Merced	
11:20am		PS-FrM-10 Silicon Carbide Nanoparticles for Thermoelectric Composites and Graphene Coatings for Plasmonics, Devin Coleman , University California, Riverside; A Hosseini, A Greaney , University of California, Riverside; S Bux, J Fleuriel , Jet Propulsion Laboratory, California Institute of Technology; L Mangolini , University of California, Riverside	
11:40am		PS-FrM-11 Electromagnetic Effects in Wide Area Very High Frequency Linear Plasma Source, Kallol Bera, X Li, S Rauf, K Collins , Applied Materials	
12:00pm		PS-FrM-12 External Circuitry Models for PIC Simulations of Cylindrical Magnetron Sputtering Chamber, Note Crossette, T Jenkins, D Smithe, J Cary , Tech-X Corporation	

Friday Morning, October 26, 2018

Surface Science Division Room 203C - Session SS+AS+HC-FrM Near/Ambient Pressure and Bridging Gaps between Surface Science and Catalysis Moderators: Donna Chen, University of South Carolina, Janice Reutt-Robey, University of Maryland		
8:20am	INVITED: SS+AS+HC-FrM-1 Ambient Pressure Electron Spectroscopy (XPS, XAS) and Electron Microscopy Studies of the Structure and Chemistry of Nanostructured Model Catalysts, <i>John Hemminger</i> , University of California Irvine	
8:40am	Invited talk continues.	
9:00am	SS+AS+HC-FrM-3 <i>In-operando</i> Investigation of the Initial Oxidation Stages for NiCr-(W) Alloys with X-ray Photoelectron Spectroscopy, <i>Cameron Volders</i> , <i>V Angelici Avincola</i> , <i>P Reinke</i> , University of Virginia	
9:20am	SS+AS+HC-FrM-4 Surface Hydroxylation of Polar (000-1) and Non-polar (11-20) ZnO Probed with AP-XPS, <i>Sana Rani</i> , <i>A Broderick</i> , <i>J Newberg</i> , University of Delaware	
9:40am	SS+AS+HC-FrM-5 Reason of High Stability and Reactivity of Ni/silicalite-1 Catalyst for Dry Reforming of Methane, <i>Evgeny Vovk</i> , <i>X Zhou</i> , <i>Z Liu</i> , <i>C Guan</i> , <i>Y Yang</i> , ShanghaiTech University, China; <i>W Kong</i> , Shanghai Advanced Research Institute, China; <i>R Si</i> , Shanghai Synchrotron Radiation Facility, Shanghai Institute of Applied Physics, China	
10:00am	SS+AS+HC-FrM-6 Recent Development in XPS and Ambient Pressure XPS Techniques, <i>Lukasz Walczak</i> , PREVAC sp. z o.o., Poland	
10:20am	SS+AS+HC-FrM-7 Quantum Mechanics and Reaction Kinetics Study on SiO ₂ and SiN Dry Isotropic Chemical Etching Process, <i>Taiki Kato</i> , <i>M Matsukuma</i> , <i>K Matsuzaki</i> , <i>L Chen</i> , Tokyo Electron Technology Solutions Limited, Japan	
10:40am	SS+AS+HC-FrM-8 Viscosity and Surface Tension Effects on Metal Sputtered onto Low Vapor Pressure Liquids, <i>Mark De Luna</i> , <i>M Gupta</i> , University of Southern California	

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