

AVS 70 Program Key

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

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with:

1. All sponsoring topic acronyms (e.g. **AC+EM+SS**),
2. Then a number to indicate simultaneous sessions sponsored by the same topic(s) (e.g. **SS1, SS2**),
3. Then a dash followed by the first two characters of the day of the week:
Monday, Tuesday, Wednesday, Thursday, Friday,
4. Then a single letter for **Morning, Afternoon, Evening, Poster,**
5. And finally a number indicating the starting time slot for the paper.

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

AVS 70 Program Overview

Room /Time	114	115	116	117	120	121
SuA	NSP-SuP: Nanoscale Science and Technology Plenary Session (INVITED SESSION)			BP-SuA: Biomaterials Plenary Session (INVITED SESSION)		
MoM	NS1-MoM: Water and Ionic Transport at the Nanoscale/NS2-MoM: Imaging at the Nano incl. Focused Ion Beam & Electron Microscopy	TF1-MoM: TF for Energy Apps I: Green Fuels and Photovoltaics TF2-MoM: TF Special Session: Remembering Dr. Paul Holloway I	AP+EM+PS+TF-MoM: Area Selective Deposition (ASD) I	B1-MoM: Biomolecules and Biophysics at Interfaces B12-MoM: Functional Materials	SS+AMS-MoM: Dynamics and Mechanisms in Heterogeneous Catalysis	LS-MoM: Light Sources Enabled Science Mini-Symposium
MoA	NS1-MoA: Functionality in 2D Nanostruct & Devices NS2-MoA: Light-Matter Interactions at the Nanoscale	TF+AP-MoA: Thin Films Special Session: Remembering Dr. Paul Holloway II & Reception	AP1+EM+PS+TF-MoA: ASD II AP2+EM+PS+TF-MoA: Modeling and Simulations of Atomic Layer Processing	B1-MoA: Microbes at Interfaces	SS+AMS-MoA: Surface Chemistry and Reactivity on Oxide Surfaces	VT1-MoA: History of Vac Tech/VT2-MoA: Measure, Part Press, & Gas Anal/VT3-MoA: Leaks, Flows, and Material Outgassing
MoE	PLENARY LECTURE – BALLROOM B – 5:30-6:30 PM					
TuM	NS1+2D+QS-TuM: Synthesis and Visualization of Nanostructures I NS2-TuM: Novel Imaging Techniques at the Nanoscale	TF1-TuM: Thin Films: Controlling Crystalline Phases TF2-TuM: Thin Films for Extreme Environments	AP1+EM+PS+TF-TuM: Atomic Layer Etching I: Thermal Processes AP2+EM+PS+TF-TuM: Atomic Layer Etching II: Energy-Enhanced Processes	B1-TuM: Char of Biological & Bio Surfaces I/B12-TuM: Char of Biological & Bio Surfaces II: Celebration of Stephanie Allen	SS+CA+LS-TuM: Electrochemical Transformations on Surfaces	VT1-TuM: Vac Tech for Semicond/VT2-TuM: Sustain Energy Prod VT3-TuM: Novel Vac Instrum/VT4-TuM: Accel & Large Vac Systems
TuL						
TuA	EM+2D+BI+QS+TF-TuA: Advances in Photonic Materials and Devices	TF1-TuA: TF for Energy Apps II: Batteries TF2-TuA: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP I)	AP+PS+TF-TuA: Atomic Layer Etching III: Plasma Processes	AS-TuA: Theory, Surface Structure and Processes	SS+CA+LS-TuA: Electrochemistry and Photocatalysis	VT1-TuA: Aerospace Research and Apps VT2-TuA: Vacuum Technology for Fusion Energy
WeM	EM+AIME+AP+QS+TF-WeM: Ferroelectrics and Memory Devices	TF-WeM: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP II)	AP1+EM+PS+TF-WeM: Energy-Enhanced Atomic Layer Proc AP2+EM+PS+TF-WeM: New Advances in ALD	AS-WeM: Quantitative Surface Analysis	SS+2D+AMS-WeM: On-Surface Synthesis: Atomic and Molecular Ensambling on Surfaces	MI+2D+AC+TF-WeM: Altermagnetism and Spin-Dependent Systems
WeA	EM+AP+TF-WeA: CMOS and BEOL - Advances in Materials Integration and Devices	TF-WeA: Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP III)	AMS1-WeA: Adv Micro & Spect to Explore Field-Assisted Chem I/AMS2-WeA: Adv Micro & Spectro to Exp Field-Assisted Chem II	AS-WeA: Advanced Materials and Methods	SS+2D+AMS-WeA: Defects Nanoarchitecture and Complex Systems	MI+2D+AC+TF-WeA: 2D Magnetism and Magnetic Nanostructures
ThM	EM+2D+AP+QS+TF-ThM: Epitaxy: Advances in Materials Integration and Devices	TF1+AP-ThM: TF: Fundamentals of ALD TF2+EM-ThM: TF for Microelectronics I: BEOL		AS-ThM: Machine Learning and Data Evaluation	SS-ThM: Celebration of Robert J. Madix and his Contributions to Surface Science (INVITED SESSION)	CA-ThM: In Situ and Operando Analysis of Energy and Environmental Interfaces I
ThA		TF+EM-ThA: Thin Films for Microelectronics II: Ferroelectrics, Dielectrics, and Semiconductors	EL1-ThA: Fundamental Ellipsometry Apps EL2-ThA: Evolving Methodology & Anal Methods of Ellipsometry	AS-ThA: Complementary Methods and Industrial Challenges	SS-ThA: Celebration of Robert J Madix and his Contributions to Surface Science & Reception	CA-ThA: In Situ and Operando Analysis of Energy and Environmental Interfaces II
ThP						
FrM		TF1+EM-FrM: TF for Microelectronics III: Wide Band Gap Matls TF2-FrM: TF: Characterization	EL-FrM: Emerging Applications and Workforce Development	MS-FrM: Next Generation and Sustainable Micro-/Nano- Manufacturing	SS+AMS+AS+CA+LS-FrM: Advanced Surface Characterization Techniques & Mort Traum Presentation	CA-FrM: Materials, Interfaces and Metrologies for Electronics

AVS 70 Program Overview

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

Sunday Afternoon, November 3, 2024

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

Sunday Afternoon, November 3, 2024

**Nanoscale Science and Technology Plenary Session
(INVITED SESSION)
Room 114 - Session NSP-SuP
Nanoscale Science and Technology Plenary Session
(INVITED SESSION)
Moderator: Nikolai Klimov, NIST**

3:00pm	INVITED: NSP-SuP-1 NSTD Nanotechnology Recognition Talk: The Energy Challenge from a Materials Perspective, <i>Federico Rosei</i> ¹ , Institut National de la Recherche Scientifique, Centre Énergie, Matériaux et Télécommunications, Canada	
3:15pm		
3:30pm		
3:45pm		
4:00pm		
4:15pm		
4:30pm		

¹ NSTD Nanotechnology Recognition Award

Monday Morning, November 4, 2024

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

Monday Morning, November 4, 2024

Room 115	
8:15am	INVITED: TF1-MoM-1 Unravelling the Role of Stoichiometry of ALD Oxygen Evolution Electrocatalysts on Their Activity, <i>Mariadriana Creatore</i> , Eindhoven University of Technology, The Netherlands
8:30am	
8:45am	TF1-MoM-3 Stability of CsPbBr ₃ Employing an Ultrathin Al ₂ O ₃ Protective Layer, <i>F. Quintero-Borbon</i> , Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey, Mexico; <i>J. Roy, L. Izquierdo-Fernandez, R. Wallace, M. Quevedo-Lopez</i> , Department of Material Science and Engineering, University of Texas at Dallas; Francisco S. Aguirre-Tostado , Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey, Mexico
9:00am	TF1-MoM-4 Deposition of Yb-doped Double Halide Perovskite Cs ₂ AgBiCl ₆ for High-Efficiency Downconversion of Ultraviolet Photons, <i>Pulkita Jain, M. Tran, I. Cleveland, Y. Liu, S. Sarp, E. Aydil</i> , New York University
9:15am	TF1-MoM-5 Low-cost Grown a-Si:H Using Trisilane and its Application to Post Deposition Processes, <i>Benedikt Fischer, M. Nuys, S. Haas, U. Rau</i> , Forschungszentrum Jülich GmbH, Germany
9:30am	TF1-MoM-6 Optimization of DC Reactive Sputtering of NiOx Transport Layer and Effects of Annealing Conditions on NiOx film for Perovskite Solar Cells, <i>Firdos Ali, S. Gupta</i> , University of Alabama
9:45am	TF1-MoM-7 Optimizing Sputtered Nickel Oxides as Hole Transport Layers and Their Applications for Perovskite Solar Cells, <i>Jae Won Kim, M. Kim, S. Lee</i> , Korea Research Institute of Chemical Technology (KRICT), Republic of Korea
10:00am	TF1-MoM-8 Tunable Sn _n S _y Deposition onto Functionalized Alkanethiolate Self-Assembled Monolayers by Chemical Bath Deposition, <i>Christopher Brewer, R. Woolard, T. Estrada, A. Walker</i> , University of Texas at Dallas
10:15am	BREAK
10:30am	INVITED: TF2-MoM-10 Fundamental Aspects of Focused Nanoscale Electron-Ion- and Photon-Beam Induced Processing and Recent Advances in Editing Transition Metal Dichalcogenide Materials and Devices, <i>Philip Rack</i> , Department of Materials Science and Engineering, University of Tennessee, Knoxville
10:45am	
11:00am	INVITED: TF2-MoM-12 Stability of Phosphor Thin Films During Cathodoluminescence and Upconversion, <i>Hendrik Swart</i> , University of the Free State, South Africa
11:15am	
11:30am	TF2-MoM-14 Extracting Diffusing Parameters for Indium Segregating from Copper using TOF-SIMS, <i>Jacobus Johannes Terblans, L. Makoloane, S. Cronje, H. Swart</i> , University of the Free State, South Africa
11:45am	TF2-MoM-15 Commercializing Nanowire LEDs, <i>David Laleyan, B. Le, G. Frolov</i> , NS Nanotech Canada; <i>M. Stevenson, S. Coe-Sullivan</i> , NS Nanotech

Thin Films
Session TF1-MoM
Thin Films for Energy Applications I: Green Fuels and Photovoltaics
Moderators:
Alexander Kozen, University of Vermont,
Blake Nuwayhid, Naval Research Laboratory

Thin Films
Session TF2-MoM
Thin Films Special Session: Remembering Dr. Paul Holloway I
Moderators:
Sean Jones, Argonne National Laboratory,
Robert Grubbs, IMEC Belgium

Monday Morning, November 4, 2024

Room 116		
8:15am	INVITED: AP+EM+PS+TF-MoM-1 Unlocking the Atomic Canvas: Applications and Challenges of Area Selective Deposition in Next-Generation Memory Devices, <i>Ebony Mays</i> , Micron Technology	Atomic Scale Processing Mini-Symposium Session AP+EM+PS+TF-MoM Area Selective Deposition (ASD) I Moderators: Eric Joseph, IBM T.J. Watson Research Center, Adrie Mackus, Eindhoven University, Netherlands
8:30am		
8:45am	AP+EM+PS+TF-MoM-3 Area-Selective Atomic Layer Deposition by Sputter Yield Amplification, <i>Arthur de Jong, M. Bär, M. Merckx, E. Kessels, A. Mackus</i> , Eindhoven University of Technology, Netherlands	
9:00am	AP+EM+PS+TF-MoM-4 Effectiveness of SiO ₂ Functionalization with Methyl versus Silyl Groups to Enable Area-Selective Atomic Layer Deposition of Al ₂ O ₃ , <i>Andrew Kaye</i> , Colorado School of Mines; <i>S. Agarwal</i> , Colorado School of Mines, USA; <i>H. Chandra, R. Pearlstein, X. Lei, A. Derecskei</i> , EMD Electronics, USA; <i>B. Zope</i> , Intermolecular, Inc.	
9:15am	AP+EM+PS+TF-MoM-5 Progress Towards a New Class of Area Selective Deposition Using Photoassisted Chemical Vapor Deposition on Thermally Sensitive Substrates, <i>B. Das, R. Rashmi</i> , University of Florida; <i>B. Salazar, C. Brewer</i> , University of Texas at Dallas; <i>L. McElwee-White</i> , University of Florida; <i>Amy Walker</i> , University of Texas at Dallas	
9:30am	AP+EM+PS+TF-MoM-6 A Stochastic Lattice Deposition Model for Visualization of ALD and Area-Selective Deposition of Metal Oxides, <i>Nicholas Carroll, G. Parsons</i> , North Carolina State University	
9:45am	AP+EM+PS+TF-MoM-7 Selective Deposition of Low k SiCOH and Surface Sialylation Repair of Low K Dielectrics for Nano Cu Interconnects, <i>Son Nguyen, H. Shobha, A. Jag, H. Huang, B. Peethala, J. Li, J. Demarest, Y. Yao</i> , IBM Research Division, Albany, NY	
10:00am	AP+EM+PS+TF-MoM-8 Atomic and Molecular Monolayers on Silicon as Resists for Area-Selective Deposition, <i>Andrew Teplyakov</i> , University of Delaware	
10:15am	BREAK	
10:30am	INVITED: AP+EM+PS+TF-MoM-10 Selectivity Loss During Area-Selective Deposition Processes: The Role of Chemical Passivation and Steric Shielding, <i>M. Merckx, P. Yu, I. Tezsevin, A. Mackus</i> , Eindhoven University of Technology, Dept. Applied Physics, Netherlands; <i>Tania E. Sandoval</i> , Universidad Técnica Federico Santa María, Dept. Chemical and Environmental Engineering, Chile	
10:45am		
11:00am	AP+EM+PS+TF-MoM-12 Computational Screening of Small Molecule Inhibitor Candidates for Area-Selective Atomic Layer Deposition, <i>Joost Maas, I. Tezsevin, P. Yu, M. Merckx</i> , TU / Eindhoven, Netherlands; <i>T. Sandoval</i> , Universidad Tecnica Federico Santa Maria, Chile; <i>A. Mackus</i> , TU / Eindhoven, Netherlands	
11:15am	AP+EM+PS+TF-MoM-13 Ordering of Small Molecule Inhibitors to Block Precursor Adsorption on Cu During Area-Selective Atomic Layer Deposition: A Computational Study, <i>Ilker Tezsevin, J. Maas, M. Merckx</i> , Eindhoven University of Technology, Netherlands; <i>S. Semproni, J. Chen</i> , Intel Corporation; <i>T. Sandoval</i> , Universidad Técnica Federico Santa María, Chile; <i>A. Mackus</i> , Eindhoven University of Technology, Netherlands	
11:30am	AP+EM+PS+TF-MoM-14 Revealing the Mechanisms for Loss of Selectivity in Area-Selective ALD Using in-Situ Infrared Spectroscopy, <i>Eric H. K. Wong, M. Merckx, J. Maas, I. Tezsevin, W. Kessels</i> , Eindhoven University of Technology, The Netherlands; <i>T. Sandoval</i> , Universidad Tecnica Federico Santa Maria, Chile; <i>A. Mackus</i> , Eindhoven University of Technology, The Netherlands	
11:45am	AP+EM+PS+TF-MoM-15 Use of Sulfide Inhibitors for Multi-Surface Passivation and Area Selective Deposition, <i>Summal Zoha, B. Gu</i> , Incheon National University, Republic of Korea; <i>F. Pieck, R. Tonner Zeck</i> , Leipzig University, Germany; <i>H. Lee</i> , Incheon National University, Republic of Korea	

Monday Morning, November 4, 2024

Room 117	
8:15am	INVITED: BI1-MoM-1 Molecular Modeling of Peptide and Protein-Based Materials: Role of Surface and Interface on Structure and Function, <i>Yaroslava Yingling</i> , North Carolina State University
8:30am	
8:45am	BI1-MoM-3 Crowding Accelerates Molecular Aging in Protein Droplets, <i>M. Brzezinski, P. Argudo, J. Michels</i> , Max Planck Institute for Polymer Research, Germany; <i>Sapun Parekh</i> , University of Texas at Austin
9:00am	BI1-MoM-4 Self-Healing Nanotubes Consisting of Cyclic Peptides Conjugated by Azobenzene Derivatives, <i>Olufolasade Atoyebi, M. Beasley, W. Maza, M. Thum, C. Pyles, S. Tuck, A. Dunkelberger, M. Kolel-Veetil, K. Fears</i> , US Naval Research Laboratory
9:15am	
9:30am	
9:45am	
10:00am	
10:15am	BREAK
10:30am	BI2-MoM-10 Customizing Naturally-Derived Polymers Using Plasma-Enhanced Chemical Vapor Deposition, <i>Morgan Hawker</i> , California State University, Fresno
10:45am	BI2-MoM-11 Vascularized Polymers: Optimizing Support Systems for Biotic/Abiotic Living Materials, <i>E. Leonard, S. Zier, Caitlin Howell</i> , University of Maine
11:00am	BI2-MoM-12 Preserving the Hydrophilicity of Biodegradable Films Post-Plasma Treatment: Impact of Aging Environment on Hydrophobic Recovery, <i>Mina Abdelmessih, M. Hawker</i> , California State University, Fresno
11:15am	BI2-MoM-13 Substrate-independent Vapor Deposition of Superhydrophobic Coating with Hierarchical Roughness to Reduce Bio-adhesion, <i>C. Huang, Jessie Mao</i> , Oklahoma State University
11:30am	BI2-MoM-14 Injectable Siloxane Sponges for on-Site Treatment and Rapid Hemostasis, <i>Pritha Sarkar, K. Mukhopadhyay</i> , University of Central Florida
11:45am	BI2-MoM-15 3-D Atomic Layer Infiltrated Metal Oxide Barriers for Thin-Film Active Microelectrode Arrays, <i>Martin Niemiec</i> , University of Connecticut

Biomaterial Interfaces
Session BI1-MoM
Biomolecules and Biophysics at Interfaces
Moderators:
Christopher So, Naval Research Laboratory,
Markus Valtiner, Vienna University of Technology, Austria

Biomaterial Interfaces
Session BI2-MoM
Functional Materials
Moderators:
Kenan Fears, U.S. Naval Research Laboratory,
Rong Yang, Cornell University

Monday Morning, November 4, 2024

	Surface Science Room 120 - Session SS+AMS-MoM Dynamics and Mechanisms in Heterogeneous Catalysis Moderators: Prabhakar Kasala , Brookhaven National Laboratory, Arthur Utz , Tufts University	Light Sources Enabled Science Mini-Symposium Room 121 - Session LS-MoM Light Sources Enabled Science Mini-Symposium Moderators: Slavomir Nemsak , Advanced Light Source, Lawrence Berkeley National Laboratory, Jessica McChesney , Argonne National Laboratory
8:15am	INVITED: SS+AMS-MoM-1 Accurate Dynamical Modelling of Vibrationally Enhanced N ₂ Dissociation on Ru(0001) – Implications (Not Only) for Plasma Catalysis, <i>F. van den Bosch</i> , <i>N. Gerrits</i> , Jörg Meyer , Leiden University, Netherlands	INVITED: LS-MoM-1 Microsecond Dynamics of Surface Reactions Studied by the Time-resolved Ambient Pressure XPS with Chemical Perturbations, <i>C. Eads</i> , <i>W. Wang</i> , Max IV Laboratory, Sweden; <i>U. Kust</i> , <i>J. Prumbs</i> , Lund University, Sweden; <i>R. Temperton</i> , max iv Laboratory, Sweden; <i>M. Scardamaglia</i> , max iv laboratory, Sweden; <i>J. Knudsen</i> , Lund University, Sweden; Andrey Shavorskiy , Max IV Laboratory, Sweden
8:30am		
8:45am	SS+AMS-MoM-3 SSD Morton S. Traum Award Finalist Talk: A Priori Designed NiAg Single-Atom Alloys for Selective Epoxidation Reactions, Elizabeth E. HappeL , Tufts University; <i>A. Jalil</i> , University of California at Santa Barbara; <i>S. Stratton</i> , Tulane University; <i>L. Cramer</i> , Tufts University; <i>P. Christopher</i> , University of California at Santa Barbara; <i>M. Montemore</i> , Tulane University; <i>E. Sykes</i> , Tufts University	LS-MoM-3 HAXPES at PETRA III and IV: Electronic Structure, Operando Devices and In-situ Catalysis, Christoph Schlueter , DESY, Deutsches Elektronen-Synchrotron, Germany
9:00am	SS+AMS-MoM-4 Effect of Surface Diffusion of Methoxy Intermediates on Methanol Decomposition on Pt/TiO ₂ (110), <i>C. Liu</i> , <i>B. Lu</i> , Hokkaido University, Japan; <i>H. Ariga-Miwa</i> , The University of Electro-Communications (UEC-Tokyo), Japan; <i>S. Ogura</i> , Tokyo Denki Univ., Japan; <i>K. Fukutani</i> , The Univ. of Tokyo, Japan; <i>M. Gao</i> , <i>J. Hasegawa</i> , <i>K. Shimizu</i> , Hokkaido University, Japan; <i>K. Asakura</i> , Ritsumeikan University, Japan; Satoru Takakusagi , Hokkaido University, Japan	LS-MoM-4 Hard X-Ray Photoelectron Spectroscopy and Its Application to the Bonding and Electronic Structure of Metal Dihydrides, Anna Regoutz , University College London, UK
9:15am	SS+AMS-MoM-5 Simultaneous Tracking of Ultrafast Surface and Gas-Phase Dynamics in Solid-Gas Interfacial Reactions, Keith Blackman , <i>E. Segrest</i> , <i>G. Turner</i> , <i>K. Machamer</i> , <i>A. Gupta</i> , <i>M. Pathan</i> , University of Central Florida, Department of Physics; <i>N. Berriel</i> , University of Central Florida, Department of Material Science and Engineering; <i>P. Banerjee</i> , University of Central Florida, Department of Material Science and Engineering, Renewable Energy and Chemical Transformations Cluster (REACT); <i>M. Vaida</i> , University of Central Florida, Department of Physics, Renewable Energy and Chemical Transformations Cluster (REACT)	LS-MoM-5 VerSoX B07-B: A Soft X-ray Beamline for High-throughput and Ambient Pressure XPS and NEXAFS, David Grinter , <i>P. Ferrer</i> , <i>S. Kumar</i> , <i>G. Held</i> , Diamond Light Source, UK
9:30am	SS+AMS-MoM-6 In situ Photoemission of Ru(0001) Model Catalyst in Plasma-activated N ₂ -H ₂ Mixtures, Roland Bliem , Advanced Research Center for Nanolithography, Netherlands	LS-MoM-6 The Electric Double Layer at Ultra-Thin Film Electrodes and How to Experimentally Assess It, Maximilian Jaugstetter , LBNL; <i>L. Falling</i> , Technical University Munich, Germany; <i>S. Nemsak</i> , <i>M. Salmeron</i> , LBNL
9:45am	SS+AMS-MoM-7 Velocity Map Imaging of Desorbing Oxygen from sub-Surface States of Single Crystals, <i>A. Dorst</i> , <i>R. Dissanayake</i> , Georg-August Universität, Göttingen, Germany; <i>D. Killelea</i> , Loyola University Chicago; Tim Schäfer , Georg-August Universität, Göttingen, Germany	
10:00am		
10:15am	BREAK	BREAK
10:30am	INVITED: SS+AMS-MoM-10 Designing the Local Environment of Single Atom Catalysts for Product Selectivity: Theory Meets Experiment, Talat Shahnaz Rahman , University of Central Florida	INVITED: LS-MoM-10 In situ Synchrotron Characterization of Materials Synthesis and Electrochemical Interfaces, Katherine Harmon , Stanford University; <i>F. Heremans</i> , <i>S. Hruszkewycz</i> , <i>M. Highland</i> , Argonne National Laboratory
10:45am		
11:00am	SS+AMS-MoM-12 Stabilizing and Characterizing Single-Atom Catalysts: Rhodium on Titania, Faith J Lewis , <i>M. Eder</i> , <i>J. Hütner</i> , <i>D. Rath</i> , <i>J. Balajka</i> , <i>J. Pavelec</i> , <i>G. Parkinson</i> , TU Wien, Austria	LS-MoM-12 Direct Imaging of Local Orbitals in Quantum Materials, Martin Sundermann , Max Planck Institute for Chemical Physics of Solids, Germany; <i>H. Yavas</i> , PETRA III, Deutsches Electron Synchrotron, DESY, Germany; <i>P. Dolmantis</i> , <i>C. Chang</i> , Max Planck Institute for Chemical Physics of Solids, Germany; <i>H. Gretarsson</i> , PETRA III, Deutsches Elektron Synchrotron, DESY, Germany; <i>A. Komarek</i> , Max Planck Institute for Chemical Physics of Solids, Germany; <i>A. Severing</i> , Universität zu Köln, Germany; <i>M. Haverkort</i> , Universität Heidelberg, Germany; <i>L. Tjeng</i> , Max Planck Institute for Chemical Physics of Solids, Germany
11:15am	SS+AMS-MoM-13 In-Situ Observation of the Effects of Oxygen-Containing Compounds on MoS ₂ -Based Catalysts Using Near-Ambient Pressure Scanning Tunnelling Microscopy, Kerry Hazeldine , <i>M. Hedevang</i> , Aarhus University, Denmark; <i>L. Mohrhusen</i> , Carl von Ossietzky University of Oldenburg, Germany; <i>J. Vang Lauritsen</i> , Aarhus University, Denmark	LS-MoM-13 Resonant X-Ray Photon Correlation Spectroscopy on the Spin Density Waves in (La/Pr) ₄ Ni ₃ O ₁₀ , Hao Zheng , Argonne National Laboratory
11:30am	SS+AMS-MoM-14 Revealing Local Coordination of Ag Single Atom Catalyst Supported on CeO ₂ (110) and ZrO ₂ (-111), Syeda Sherazi , <i>D. Le</i> , <i>K. Ye</i> , <i>S. Xie</i> , <i>F. Liu</i> , <i>T. Rahman</i> , University of Central Florida	LS-MoM-14 Innovative High Energy X-Ray Characterization of Interfaces for Quantum Application, Andrea Sartori , <i>J. Drnec</i> , ESRF, France
11:45am	SS+AMS-MoM-15 Trends for Predicting Adhesion Energies of Catalytic Late Transition Metal Nanoparticles on Oxide Supports, Nida Janulaitis , The University of Washington; <i>K. Zhao</i> , <i>C. Campbell</i> , University of Washington	LS-MoM-15 Bismuth-Trimer Adlayer and Thin Film Growth on In- and Sb-Terminated InSb(111) Surfaces, Rohit Yadav , <i>S. Huang</i> , <i>S. Ritter</i> , <i>R. Timm</i> , Lund University, Sweden

Monday Morning, November 4, 2024

Room 122	
8:15am	<p>CHIPS Act Mini-Symposium Session CPS-MoM CHIPS Act Mini-Symposium</p> <p>Moderators: Alain Diebold, University at Albany-SUNY, Erica Douglas, Sandia National Laboratories, Timothy Gessert, Gessert Consulting</p>
8:30am	
8:45am	
9:00am	
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11:00am	
11:15am	
11:30am	
11:45am	

INVITED: CPS-MoM-3 Strategic Roadmapping for Information and Communication Technologies, **Victor Zhirnov**, Semiconductor Research Corporation; **V. Zhirnov**, SRC

INVITED: CPS-MoM-5 Challenges and Opportunities in Characterization and Metrology for the Microelectronics and Advanced Packaging Technologies (MAPT) Roadmap, **Markus Kuhn**, Rigaku; **A. Diebold**, SUNY Polytechnic Institute, Albany

INVITED: CPS-MoM-7 CHIPS Act and Optoelectronics, Devices, and AI/ML, **Volker Sorger**, University of Florida

BREAK

INVITED: CPS-MoM-10 Bridging Opportunities and Challenges: Examining a Community College's Role in Preparing Technicians for the Semiconductor Industry, **Nancy Louwagie**, Normandale Community College

CPS-MoM-12 CHIPS Act and the Future of the Semiconductor Industry Panel Discussion, **Erica Douglas**, Sandia National Lab

Monday Morning, November 4, 2024

Room 123	
8:15am	QS1+VT-MoM-1 High-Precision, Four-Way Comparison of Three Cold Atom Vacuum Standards and an Orifice Flow Standard, <i>Stephen Eckel, D. Barker, J. Fedchak, J. Scherschligt</i> , National Institute of Standards and Technology (NIST)
8:30am	QS1+VT-MoM-2 Vacuum Based Quantum Technology with Aluminum Alloys for Space Applications, <i>Klaus Bergner, F. Löwinger, C. Gruber, L. Gerlach, S. Hüttl, L. Axtmann, A. Trützscher, J. Hertel</i> , VACOM, Germany; <i>J. Schneider, L. Kanzenbach, T. Schmidt, S. Wieland, D. Richter</i> , Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany; <i>J. Grosse, M. Warner, M. Elsen</i> , ZARM Center of Applied Space Technology and Microgravity, Germany
8:45am	INVITED: QS1+VT-MoM-3 Compact UHV Technology for Quantum, <i>Alex Kato</i> , IonQ
9:00am	
9:15am	QS1+VT-MoM-4 Quantum-Based Sensors and Standards with the NIST on a Chip Program, <i>Jay Hendricks</i> , NIST; <i>B. Goldstein</i> , NIST-Gaithersburg
9:30am	INVITED: QS1+VT-MoM-5 3D Printed Ion Traps for Quantum Computation, <i>Kristin Beck</i> , Lawrence Livermore National Laboratory
9:45am	
10:00am	
10:15am	BREAK
10:30am	INVITED: QS2-MoM-10 Power System Dynamic Simulation with Generalized Quantum Carleman Linearization, <i>J. Chen, Yan Li</i> , The Pennsylvania State University
10:45am	
11:00am	QS2-MoM-12 Quantum Computer Simulation of Near-Surface Oxygen Vacancies in α -Al ₂ O ₃ (0001), <i>Vijaya Begum-Hudde, Y. Lee</i> , University of Illinois at Urbana-Champaign; <i>B. Jones</i> , IBM; <i>A. Schleife</i> , University of Illinois at Urbana-Champaign
11:15am	QS2-MoM-13 Quantum Inception Score: A Quality Measure of Quantum Generative Models, <i>Akira Sone</i> , University of Massachusetts Boston
11:30am	QS2-MoM-14 Deep-learning-based Randomness assessment of Quantum Random Number Generators, <i>Hamid Tebyanian</i> , University of York, UK

Quantum Science and Technology Mini-Symposium
Session QS1+VT-MoM
Vacuum Systems for Quantum Applications
Moderators:
Freek Molkenboer, TNO Science and Industry, the Netherlands,
Russell Gleason, Infleqtion,
Corey Rae McRae, National Institute of Standard and Technology,
David Pappas, Rigetti Computing

Quantum Science and Technology Mini-Symposium
Session QS2-MoM
Quantum Simulations: Materials, Power Distribution, Computing, and Machine Learning Applications
Moderators:
Andre Schleife, University of Illinois at Urbana-Champaign,
Sisira Kanhirathingal, Rigetti Computing

Monday Morning, November 4, 2024

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

Monday Morning, November 4, 2024

Room 125		Advanced Surface Engineering Session SE-MoM Plasma-Assisted Surface Modification and Deposition Processes/Nanostructured and Multifunctional Coatings Moderators: Diana Berman , University of North Texas, Filippo Mangolini , The University of Texas at Austin
8:15am	INVITED: SE-MoM-1 Materials Design in Surface Engineering, <i>Johanna Rosen</i> , Linköping University, IFM, Sweden	
8:30am		
8:45am	SE-MoM-3 Development of Texture in Ta ₂ C Thin Films Sputter-Deposited on Free-Standing Graphene, <i>Suneel Kodambaka</i> , Virginia Tech; <i>K. Tanaka</i> , University of Chicago	
9:00am	SE-MoM-4 Manufacture and Microstructure of Tantalum Nitride Films by Radio Frequency and High Power Impulse Magnetron Sputtering Techniques, <i>Y. Chiang</i> , <i>Y. Chang</i> , <i>Fan-Bean Wu</i> , National United University, Taiwan	
9:15am	SE-MoM-5 In-Situ Laser Diagnostics of Plasma Surface Interactions by Fs-TALIF, <i>Mruthunjaya Uddi</i> , Advanced Cooling Technologies; <i>G. Urdaneta</i> , <i>A. Dogariu</i> , Texas A&M University	
9:30am	SE-MoM-6 Interlayer Optimization for Nitrogen-Incorporated Tetrahedral Amorphous Carbon Thin Film Optically Transparent Electrode, <i>Nina Baule</i> , <i>D. Galstyan</i> , <i>L. Haubold</i> , Fraunhofer USA Center Midwest	
9:45am	SE-MoM-7 Highly-Ordered Metallic Nanostructure Arrays: Strategies, Status, and Challenges, <i>Jinn P. Chu</i> , National Taiwan University of Science and Technology, Taiwan	
10:00am	SE-MoM-8 Refining Deposition and Thermal Processes for High-Quality Bi-Mo-O Thin Films, <i>R. Gonzalez-Campuzano</i> , <i>A. Hernandez-Gordillo</i> , <i>Sandra Elizabeth Rodil</i> , Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México	
10:15am	BREAK	
10:30am	SE-MoM-10 Low-Temperature Synthesis of Stress-Free, Ceramics Thin Films Using Metal-Ion Irradiation, <i>Ivan Petrov</i> , University of Illinois at Urbana-Champaign; <i>L. Hultman</i> , <i>G. Greczynski</i> , Linköping University, IFM, Sweden	
10:45am	SE-MoM-11 ASED Young Investigator Award Finalist Talk: Understanding Ceramics Under Extreme Mechanical Loads via Machine-Learning Potential Molecular Dynamics, <i>Nikola Koutna</i> ¹ , <i>S. Lin</i> , TU Wien, Austria; <i>L. Hultman</i> , <i>D. Sangiovanni</i> , Linköping Univ., IFM, Thin Film Physics Div., Sweden; <i>P. Mayrhofer</i> , TU Wien, Austria	
11:00am	SE-MoM-12 ASED Rising Star Talk: Coupling CdS/g-C ₃ N ₄ Heterojunctions with Remarkably Transfers Process: Impact of Stacking Grade of g-C ₃ N ₄ Micro-flakes, <i>Karen Valencia García</i> ² , <i>A. Henández Gordillo</i> , <i>S. Rodil Posada</i> , National Autonomous University of Mexico	
11:15am	SE-MoM-13 ASED Young Investigator Award Finalist Talk: Advanced EMI Shielding with Quantum Dots and 2D Nanomaterial Enhanced Dual-Polymer Fiber Films, <i>Lihua Lou</i> ¹ , Florida International University; <i>G. Al-Duhni</i> , Florida International University, Jordan; <i>O. Cruz</i> , Florida International University, Nicaragua; <i>J. Volakis</i> , <i>M. Pulugurtha</i> , <i>A. Agarwal</i> , Florida International University	
11:30am	SE-MoM-14 ASED Young Investigator Award Finalist Talk: Functionalizing GaN Surfaces for Enhanced Soft Tissue Integration in Biomedical Implants, <i>Monu Mishra</i> ¹ , Dyal Singh College, University of Delhi, India; <i>J. Sharan</i> , All India Institute of Medical Sciences, Bhuvneshwar, India; <i>M. Kashyap</i> , Jawaharlal Nehru University, India; <i>G. Gupta</i> , CSIR National Physical Laboratory, India	

¹ ASED Young Investigator Award Finalist

² Rising Star

Monday Afternoon, November 4, 2024

Room 114		
1:30pm	INVITED: NS1+2D+QS-MoA-1 Low-Dimensional Neuromorphic Electronic Materials and Applications, <i>Mark Hersam</i> , Northwestern University	Nanoscale Science and Technology Session NS1+2D+QS-MoA Functionality in 2D Nanostructures and Devices Moderator: Dahlia Klein , Weizmann Institute of Science, Israel
1:45pm		
2:00pm	INVITED: NS1+2D+QS-MoA-3 Defect Manipulation in van der Waals Heterostructures and its Applications, <i>Son Le</i> , Laboratory for Physical Sciences; <i>T. Mai</i> , <i>M. Munoz</i> , <i>A. Hight Walker</i> , <i>C. Richter</i> , 100 Bureau Dr.; <i>A. Hanbicki</i> , <i>A. Friedman</i> , 8050 Greenmead Dr.	
2:15pm		
2:30pm	NS1+2D+QS-MoA-5 Extraordinary Tunnel Electroresistance in Layer-by-Layer Engineered Van Der Waals Ferroelectric Tunnel Junctions, <i>Qinqin Wang</i> , Department of Electrical and Computer Engineering and Quantum Technology Center, University of Maryland, College Park	
2:45pm	NS1+2D+QS-MoA-6 Scanning Tunneling Microscopy Studies of Twisted Transition Metal Dichalcogenides, <i>Adina Luican-Mayer</i> , STEM 150 Louis Pasteur Private, Canada	
3:00pm	NS1+2D+QS-MoA-7 Hybrid Molecule/Quantum Material Van Der Waals Heterostructures, <i>Emanuele Orgiu</i> , Institut National de la Recherche Scientifique (INRS), Canada	
3:15pm	NS1+2D+QS-MoA-8 Revealing Quantum Functionality of Thin Films by in situ Characterization with Materials Cluster System, <i>Wonhee Ko</i> , University of Tennessee Knoxville	
3:30pm	NS1+2D+QS-MoA-9 Functionalized 2D Materials for Sustainable Energy Nanomaterials, <i>Nozomi Shirato</i> , Argonne National Lab	
3:45pm	BREAK	
4:00pm	NS2-MoA-11 Time-Resolved Photoemission Electron Microscopy Imaging of the Near-Field Dynamics in Silver Nanowires Excited by Few-Cycle Short-Wave Infrared Pulses, <i>Nelia Zaiats</i> , Lund University, Sweden	Nanoscale Science and Technology Session NS2-MoA Light-Matter Interactions at the Nanoscale Moderator: Nikolai Klimov , NIST
4:15pm	NS2-MoA-12 AFM-IR of EHD-Printed PbS Quantum Dots: Quantifying Ligand Exchange at the Nanoscale, <i>L. Ferraresi</i> , <i>G. Kara</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>Nancy Burnham</i> , Worcester Polytechnic Institute; <i>R. Furrer</i> , <i>D. Dirin</i> , <i>F. La Mattinia</i> , <i>M. Kovalenko</i> , <i>M. Calame</i> , <i>I. Shorubalko</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	
4:30pm	NS2-MoA-13 AVS National Student Award Finalist Talk: Slow and Fast Timescale Effects of Photoinduced Surface Oxygen Vacancies on the Charge Carrier Dynamics of TiO ₂ , <i>Bugrahan Guner</i> ¹ , <i>O. Dagdeviren</i> , École de technologie supérieure, University of Quebec, Canada	
4:45pm	NS2-MoA-14 Improving the Shape and Optical Stabilities of Plasmonic Au Nanobipyramids by Metal Shell Deposition, <i>Thomas Egan</i> , <i>G. Chen</i> , University of Central Florida	
5:00pm	NS2-MoA-15 Photonic Chip Packaging for Extreme Environments, <i>Nikolai N Klimov</i> , <i>S. Robinson</i> , National Institute for Science and Technology (NIST); <i>A. Rao</i> , National Institute for Science and Technology (NIST); University of Maryland; <i>D. Barker</i> , <i>F. Bateman</i> , <i>G. Holland</i> , <i>D. Westly</i> , National Institute for Science and Technology (NIST)	
5:15pm	NS2-MoA-16 Periodic and Quasi-Periodic Plasmonic Architectures for Strong Light-Matter Interaction, <i>M. Ferrera</i> , <i>V. Aglieri</i> , <i>J. Pelli Cresi</i> , Istituto Italiano di Tecnologia, Italy; <i>E. Ghidorsi</i> , Istituto Italiano di Tecnologia, Dipartimento di Fisica, Università degli Studi di Genova, Italy; <i>Andrea Toma</i> , Istituto Italiano di Tecnologia, Italy	

Monday Afternoon, November 4, 2024

Room 115	
1:30pm	INVITED: TF+AP-MoA-1 A Surface Science Approach to Advancing Area-Selective Deposition and Atomic Layer Etching, <i>Adrie Mackus</i> , Eindhoven University of Technology, Netherlands
1:45pm	
2:00pm	INVITED: TF+AP-MoA-3 Tuning Surface Radical Species for Area-Selective Initiated Chemical Vapor Deposition of Polymer Thin Films, <i>Junjie Zhao</i> , Zhejiang University, China
2:15pm	
2:30pm	TF+AP-MoA-5 Recent Trends in Thermal ALD Chemistry, <i>Markku Leskelä, G. Popov, M. Mattinen, A. Vihervaara, M. Ritala</i> , University of Helsinki, Finland
2:45pm	TF+AP-MoA-6 Ultrathin Polymers Films: Smart Materials and Functionality, <i>Rigoberto Advincula</i> , University of Tennessee Knoxville
3:00pm	INVITED: TF+AP-MoA-7 Growing Polymers Molecule by Molecule Through Vapor Deposition, <i>Matthias J. Young</i> , University of Missouri-Columbia; <i>N. Paranamana, M. Mehregan, S. Mehregan, A. Datta</i> , University of Missouri, Columbia
3:15pm	
3:30pm	INVITED: TF+AP-MoA-11 Solar Cells, Sensors, and Sensorimotor Neural Prosthetics: My Branch of the Holloway Tree, <i>Loren Rieth</i> , West Virginia University
3:45pm	
4:00pm	
4:15pm	

Thin Films
Session TF+AP-MoA
Thin Films Special Session: Remembering Dr. Paul Holloway II & Reception
Moderators:
Sean Jones, Argonne National Laboratory,
Philip Rack, University of Tennessee

Monday Afternoon, November 4, 2024

Room 116		
1:30pm		Atomic Scale Processing Mini-Symposium Session AP1+EM+PS+TF-MoA Area Selective Deposition (ASD) II Moderators: Satoshi Hamaguchi , Osaka University, Japan, Greg Parsons , North Carolina State University
1:45pm		
2:00pm		
2:15pm		
2:30pm	INVITED: AP1+EM+PS+TF-MoA-5 Area Selective Deposition: Advances, Challenges and Future Technology Enablement, <i>Kandabara Tapily, J. Smith, A. deVilliers, G. Leusink</i> , TEL Technology Center, America, LLC	
2:45pm		
3:00pm	AP1+EM+PS+TF-MoA-7 Examining UV-Induced Functional Group Formation on 2D Nanomaterials for Patterned ALD, <i>Azeez O. Musa, A. Werbrouck, N. Paranamana, M. Maschmann, M. Young</i> , University of Missouri-Columbia	
3:15pm	AP1+EM+PS+TF-MoA-8 ASD of Low Temperature Cu Capping Layers for Polymers-Based 3D Technologies, <i>Silvia Armini</i> , IMEC Belgium; <i>A. Brady Boyd</i> , Aberystwyth University, UK; <i>E. Chery</i> , IMEC Belgium	
3:30pm	AP1+EM+PS+TF-MoA-9 SiO ₂ Fluorination/Passivation for Area-Selective Deposition of TiO ₂ , ZnO, and Polymer on Metal and SiN _x vs. SiO ₂ , <i>Jeremy Thelven, H. Oh, H. Margavio, G. Parsons</i> , North Carolina State University	
3:45pm	BREAK	
4:00pm	INVITED: AP2+EM+PS+TF-MoA-11 Atomistic Simulations on the Fundamental Aspects of Atomic Layer Processing (ALP), <i>Bonggeun Shong</i> , Hongik University, Republic of Korea	Atomic Scale Processing Mini-Symposium Session AP2+EM+PS+TF-MoA Modeling and Simulations of Atomic Layer Processing Moderators: Satoshi Hamaguchi , Osaka University, Japan, Greg Parsons , North Carolina State University
4:15pm		
4:30pm	AP2+EM+PS+TF-MoA-13 Understanding Process Parameters in High-Aspect-Ratio ALD via Transport Modeling, <i>Victor Vogt</i> , University of Michigan; <i>A. Gayle</i> , National Institute of Standards and Technology (NIST); <i>A. Miranda Manon, A. Lenert, N. Dasgupta</i> , University of Michigan	
4:45pm	AP2+EM+PS+TF-MoA-14 Modeling Remote Inductively Coupled Plasmas for Plasma-Enhanced Atomic Layer Deposition, <i>Mackenzie Meyer, D. Boris, M. Johnson, J. Woodward, V. Wheeler</i> , US Naval Research Laboratory; <i>M. Kushner</i> , University of Michigan, Ann Arbor; <i>S. Walton</i> , US Naval Research Laboratory	
5:00pm	AP2+EM+PS+TF-MoA-15 Prediction of Plasma-induced Changes in Surface Morphology and Composition during Atomic Layer Deposition: A Combined Ab-Initio and Monte Carlo Approach, <i>G. Hwang, Ting-Ya Wang</i> , University of Texas at Austin	
5:15pm	AP2+EM+PS+TF-MoA-16 Modelling and Simulation of Plasma-Enhanced Atomic Layer Deposition of Silicon Nitride Over Sidewall Surfaces of a Closing Narrow-Gap Trench, <i>Jomar Tercero, K. Ikuse, S. Hamaguchi</i> , Osaka University, Japan	

Monday Afternoon, November 4, 2024

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

Monday Afternoon, November 4, 2024

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

Monday Afternoon, November 4, 2024

Room 123	
1:30pm	INVITED: QS1+EM+MN+PS-MoA-1 Elastic Layered Quantum Materials, <i>Jiun-Haw Chu</i> , University of Washington
1:45pm	
2:00pm	QS1+EM+MN+PS-MoA-3 Controllable Extended Defect States in Topological Insulators and Weyl Semimetals, <i>Eklavya Thareja, J. Gayles</i> , University of South Florida; <i>I. Vekhter</i> , Louisiana State University
2:15pm	QS1+EM+MN+PS-MoA-4 Topological Interfacial State in One-Dimensional h-BN Phononic Waveguide, <i>Y. Wang, Sanchaya Pandit</i> , University of Nebraska - Lincoln
2:30pm	QS1+EM+MN+PS-MoA-5 Scanning Nano-Optical Imaging of Quantum Materials, <i>Guangxin Ni</i> , Florida State University
2:45pm	QS1+EM+MN+PS-MoA-6 Engineering of Erbium-Implanted Lithium Niobate Films for Integrated Quantum Applications, <i>Souryaya Dutta</i> , College of Nanotechnology, Science, and Engineering (CNSE), University at Albany; <i>A. Kaloyeros, S. Gallis</i> , College of Nanotechnology, Science, and Engineering (CNSE), University at Albany (UAlbany)
3:00pm	
3:15pm	
3:30pm	
3:45pm	BREAK
4:00pm	QS2+PS-MoA-11 High-Rate (>50 nm/hour) Plasma-Enhanced ALD of Superconducting Nb _x Ti _{1-x} N with Substrate Biasing for Quantum Technologies, <i>Silke Peeters, L. Nelissen</i> , Eindhoven University of Technology, Netherlands; <i>D. Besprozvannyi</i> , Oxford Instruments Plasma Technology, UK; <i>N. Choudhary</i> , University of Glasgow, UK; <i>C. Lennon</i> , Oxford Instruments Plasma Technology, UK; <i>M. Verheijen</i> , Eindhoven University of Technology, Netherlands; <i>M. Powell, L. Bailey</i> , Oxford Instruments Plasma Technology, UK; <i>R. Hadfield</i> , University of Glasgow, UK; <i>E. Kessels</i> , Eindhoven University of Technology, Netherlands; <i>H. Knoops</i> , Oxford Instruments Plasma Technology, UK
4:15pm	QS2+PS-MoA-12 Plasma etch study of NbTiN/aSi/NbTiN Josephson Junctions for Superconducting Digital Logic, <i>Yann Canvel, S. Kundu, V. renaud, A. Pokhrel, D. Lozano, D. Vangoidsenhoven, B. Kennens, A. Walke</i> , IMEC Belgium; <i>A. Herr</i> , IMEC
4:30pm	QS2+PS-MoA-13 Patterning Improvements and Oxidation Mitigation of Nb _x Ti _{1-x} N Metal Lines Processes for Superconducting Digital Logic, <i>Vincent Renaud, Y. Canvel, A. Pokhrel, S. Iraci, M. Kim, B. Huet, J. Soulie, S. Sarkar, Q. Herr, A. Herr, Z. Tokei</i> , IMEC, Belgium
4:45pm	QS2+PS-MoA-14 Patterning of TiN and TaN for advanced superconducting BEOL, <i>Thibaut Chêne</i> , CEA-LETI, France; <i>R. Segaud, F. Nemouchi, S. Minoret</i> , CEA-Leti, France; <i>F. Gustavo</i> , CEA INP Grenoble, IRIG, France; <i>J. Garrione, T. Chevolleau</i> , CEA-Leti, France
5:00pm	QS2+PS-MoA-15 Optimization of Superconducting Transition Metal Nitride Films Deposited by Reactive High-Power Impulse Magnetron Sputtering, <i>Hudson Horne, C. Hugo, B. Reid, D. Santavicca</i> , University of North Florida

Quantum Science and Technology Mini-Symposium
Session QS1+EM+MN+PS-MoA
Materials + Devices for Quantum Systems
Moderators:
Parag Banerjee, University of Central Florida,
Jaesung Lee, University of Central Florida

Quantum Science and Technology Mini-Symposium
Session QS2+PS-MoA
Advanced Fabrication and Plasma Techniques for Quantum Applications
Moderators:
Angelique Raley, TEL Technology Center America,
Sebastian Engelmann, IBM T.J. Watson Research Center,
David Pappas, Rigetti Computing

Monday Afternoon, November 4, 2024

Room 124			
1:30pm	<p>INVITED: PS1-MoA-1 Advanced Semiconductor Plasma Processes Pioneered by Understanding and Controlling Plasma-Surface Interactions, <i>Masaru Hori, M. Sekine, T. Tsutsumi, K. Ishikawa</i>, Nagoya University, Japan</p>	<p>Plasma Science and Technology Session PS1-MoA Plasma Surface Interactions Moderators: Sumit Agarwal, Colorado School of Mines, Tetsuya Tatsumi, Sony Semiconductor Solutions Corporation, Japan</p>	
1:45pm			
2:00pm	<p>PS1-MoA-3 Concurrent Thin Film Deposition in Fluorocarbon Plasmas as a Function of Gas Phase and Surface Reactions, <i>Austin Krauss</i>, University at Albany; <i>Q. Wang, N. Smieszek, S. Voronin, A. Ko</i>, Tokyo Electron America; <i>S. Tahara</i>, Tokyo Electron Ltd., Japan; <i>C. Vallee</i>, University at Albany</p>		
2:15pm	<p>PS1-MoA-4 Investigation of Highly Diffusive Point Defects During Si Plasma Etching, <i>Nobuyuki Kuboi, K. Saga, M. Miyoshi, T. Hamano, S. Kobayashi, T. Tatsumi</i>, Sony Semiconductor Solutions Corporation, Japan; <i>K. Eriguchi</i>, Kyoto University, Japan; <i>Y. Hagimoto, H. Iwamoto</i>, Sony Semiconductor Solutions Corporation, Japan</p>		
2:30pm	<p>PS1-MoA-5 Effect of Bias Voltage and H₂ Addition on the Formation of Ammonium Salt Layer during RIE of SiN_x in a CH₂F₂/Ar Plasma, <i>Xue Wang</i>, Colorado School of Mines; <i>P. Kumar, T. Lill, H. Singh, M. Wang, T. Ozel</i>, Lam Research Corporation; <i>S. Agarwal</i>, Colorado School of Mines</p>		
2:45pm	<p>PS1-MoA-6 Plasma-Induced Oxidation in Micron-Sized Droplets: Evaluating Transport Limitations, <i>Dongxuan Xu, P. Bruggeman</i>, University of Minnesota</p>		
3:00pm	<p>PS1-MoA-7 Effects of Si/N Ratio on Plasma-induced Damage Creation in Silicon Nitride Films, <i>Takahiro Goya, K. Urabe, K. Eriguchi</i>, Kyoto University, Japan</p>		
3:15pm	<p>PS1-MoA-8 Highly Selective Sin Etching by HF Plasma, <i>Megan Manos</i>, Hitachi High-Tech America, Inc.; <i>Y. Kurosaki</i>, Hitachi High-Tech America, Inc., Japan; <i>J. Ditto</i>, Hitachi High-Tech America, Inc.; <i>T. Maeda, T. Hattori</i>, Hitachi High-Tech, Corp., Japan; <i>M. Yamada</i>, Hitachi, Ltd., Japan; <i>Y. Ishii</i>, Hitachi High-Tech America, Inc.; <i>H. Ohtake</i>, Hitachi High-Tech, Corp., Japan; <i>K. Maeda</i>, Hitachi High-Tech Corp., Japan</p>		
3:30pm	<p>PS1-MoA-9 Dense-Amorphous-Carbon (DAC) Formation from Ion bombardment of Plasma Deposited FCH Films: Temperature and Precursor Dependence, <i>Sang-Jin Chung</i>, University of Maryland, College Park; <i>P. Luan, M. Park</i>, TEL Technology Center America; <i>G. Oehrlein</i>, University of Maryland, College Park</p>		
3:45pm	BREAK		
4:00pm	<p>INVITED: PS2-MoA-11 Stress Reduction of Hydrogenated Amorphous Carbon Films by Controlling Incorporation of Carbon Nanoparticles, <i>Kazunori Koga, S. Ono, T. Okumura, K. Kamataki, M. Shiratani</i>, Kyushu University, Japan</p>		<p>Plasma Science and Technology Session PS2-MoA Plasma Chemistry and Catalysis I Moderators: Michael Gordon, University of California at Santa Barbara, Mohan Sankaran, University of Illinois at Urbana-Champaign</p>
4:15pm			
4:30pm	<p>PS2-MoA-13 Is Plasma Electrochemistry Just Electrochemistry at Plasma-Liquid Interfaces? Learnings from Organic Reactions, <i>Casey Bloomquist, E. Aydil, M. Modestino</i>, New York University</p>		
4:45pm	<p>PS2-MoA-14 Nonequilibrium Plasma Aerotaxy of In_xGa_{1-x}N Nanocrystals, <i>Dillon Moher, E. Thimsen</i>, Washington University in St. Louis</p>		
5:00pm	<p>PS2-MoA-15 Plasma-Based Reforming of LNG?, <i>N. Lim, Michael Gordon</i>, UC Santa Barbara</p>		

Monday Afternoon, November 4, 2024

Room 125		
1:30pm	INVITED: SE-MoA-1 Towards Responsible Surface Engineering Based on PVD Technology, <i>Marcus Hans, J. Schneider</i> , RWTH Aachen University, Germany; <i>A. Matthews</i> , The University of Manchester, UK; <i>C. Mitterer</i> , Montanuniversität Leoben, Austria	Advanced Surface Engineering Session SE-MoA Surface Engineering Solutions for Sustainable Development Moderators: Ivan Petrov , University of Illinois at Urbana-Champaign, Fan-Bean Wu , National United University, Taiwan
1:45pm		
2:00pm	SE-MoA-3 ASED Rising Star Talk: Unprecedented B Solubility in Cubic (Hf,Ta,Ti,V,Zr)B-C-N Coatings, <i>Andreas Kretschmer</i> ¹ , TU Wien, Austria; <i>A. Kirnbauer</i> , TU Wien, Institute of Materials Science and Technology, Austria; <i>R. Frost, D. Primetzhofer</i> , Uppsala University, Sweden; <i>M. Hans, J. Schneider</i> , RWTH Aachen University, Germany; <i>P. Mayrhofer</i> , TU Wien, Institute of Materials Science and Technology, Austria	
2:15pm	SE-MoA-4 ASED Rising Star Talk: High Temperature Behavior of Ti _{0.12} Al _{0.21} B _{0.67} Coatings Investigated by High-Resolution Transmission Electron Microscopy and DFT Calculations, <i>Sebastian Lellig</i> ¹ , RWTH Aachen University, Germany, Switzerland; <i>A. Navidi Kashani</i> , RWTH Aachen University, Germany; <i>P. Schweizer</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>M. Hans, G. Nayak</i> , RWTH Aachen University, Germany; <i>J. Michler</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>J. Schneider</i> , RWTH Aachen University,	
2:30pm	SE-MoA-5 Surface Engineering for New Highly Graphitized Carbon with High Pyrrolic-N as a Robust Support for Pt Electrocatalysts, <i>H. Lee, D. Lee, Jong-Sung Yu</i> , DGIST, Republic of Korea	
2:45pm	SE-MoA-6 ASED Rising Star Talk: Tunable Tribochemical Behavior of Pt-Au Thin Film Alloys Using High-Throughput Testing, <i>Tomas Babuska</i> ¹ , <i>F. DelRio, J. Hall, B. Boyce, D. Adams, J. Custer, M. Jain</i> , Sandia National Laboratories; <i>J. Killgore</i> , NIST-Boulder; <i>F. Mangolini, C. Edwards</i> , University of Texas at Austin; <i>J. Curry</i> , Sandia National Laboratories	
3:00pm	SE-MoA-7 ASED Rising Star Talk: Advanced Hipims Nanocrystalline and Metallic-Glass High Z Coatings for Interaction with Liquid Metals, <i>Davide Vavassori</i> ¹ , <i>L. Bana, M. Bugatti, M. Galli De Magistris</i> , Politecnico di Milano, Italy; <i>M. Iafrati</i> , Department of Fusion and Technology for Nuclear Safety and Security, ENEA, Italy; <i>D. Dellasega, M. Passoni</i> , Politecnico di Milano, Italy	
3:15pm	SE-MoA-8 Eliminating Surface Charging in X-Ray Photoelectron Spectroscopy of Insulators for Reliable Bonding Assignments, <i>Grzegorz (Greg) Greczynski</i> , Linköping University, Sweden	
3:30pm	SE-MoA-9 ASED Rising Star Talk: Friction and Wear of MXene/MoS ₂ Nanocomposite Coating Under Dry and Hydrocarbon-Lubricated Conditions, <i>Ali Zayaan Macknoja</i> ¹ , <i>A. Voevodin, S. Aouadi</i> , University of North Texas; <i>S. Berkebile</i> , Army Research Laboratory; <i>D. Berman</i> , University of North Texas	
3:45pm	BREAK	
4:00pm	SE-MoA-11 STrengthening Mechanisms for High Entropy Alloy Coatings Fabricated by Magnetron Sputtering, <i>Jyh-Wei Lee</i> , Ming Chi University of Technology, Taiwan, Republic of China; <i>B. Lou</i> , Chang Gung University, Taiwan	
4:15pm	SE-MoA-12 ASED Rising Star Talk: Multifunctional Optical Surfaces for Displays: From Antireflective to Self-Cleaning and Antimicrobial Functionalities, <i>Iliyan Karadzhov</i> ¹ , <i>C. Graham, A. Mezzadrelli</i> , ICFO-Institut de Ciències Fòtoniques, Spain; <i>W. Senaratne, K. Koch, P. Mazumder</i> , Corning Research and Development Corporation; <i>V. Pruneri</i> , ICFO-Institut de Ciències Fòtoniques, Spain	
4:30pm	SE-MoA-13 Effect of Europium and Gadolinium Alloying Elements on the Tribological Response of Low Hydrogen Content Amorphous Carbon, <i>C. Edwards, H. Lien, N. Molina, Filippo Mangolini</i> , The University of Texas at Austin	

Monday Afternoon, November 4, 2024

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

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

Metrology plays a key role in semiconductor manufacturing. As devices become more complex, smaller, and multi-layered, the ability to measure, monitor, predict, and ensure quality in manufacturing becomes much more difficult and uncertain. For example, modern chips may contain over 100 billion complex nanodevices that are less than 50 atoms across—all must work nearly identically for the chip to function. Today, the semiconductor industry faces some of these metrology challenges with workarounds and inadequate tools, limiting production yields, impacting quality, and increasing costs. As greater demands are put on semiconductor device performance and material requirements, these challenges will continue to intensify.

The 2022 NIST Report *Strategic Opportunities for U.S. Semiconductor Manufacturing* identified seven grand challenges that if overcome will support increased production, innovation, and competitiveness in the domestic semiconductor industry. The CHIPS Metrology Program has aligned its R&D portfolio with these grand challenges, emphasizing measurements that are accurate, precise, and fit-for-purpose to produce microelectronic materials, devices, circuits, and systems.

This work leverages NIST’s proven measurement science expertise, foundational communications and computing research capabilities, standards development contributions, and stakeholder engagement practices to address the highest priority metrology challenges identified across industry, academia, and government agencies. This talk will highlight research activities that support measurements for materials, processing and interfaces of interest to the semiconductor research and manufacturing communities.

6:30pm **WELCOME MIXER**

Tuesday Morning, November 5, 2024

Room 1147		
8:00am	<p>NS1-TuM-1 Fabrication of High Aspect Ratio GaN and AlN Nanopillar Arrays with M-Oriented Sidewalls by Combining Dry and Wet Processes for the Next Generation of Deep Ultraviolet Light-Emitting Diodes, <i>Lucas Jaloustre</i>, <i>S. Sales de mello</i>, CNRS-LTM, France; <i>L. Valera</i>, CEA, France; <i>S. Labau</i>, <i>C. Petit-Etienne</i>, CNRS-LTM, France; <i>G. Jacopin</i>, CNRS, France; <i>C. Durand</i>, CEA, France; <i>E. Pargon</i>, CNRS-LTM, France</p>	<p>Nanoscale Science and Technology Session NS1-TuM Synthesis and Visualization of Nanostructures I Moderator: Aubrey Todd Hanibiki, Laboratory for Physical Sciences</p>
8:15am	<p>NS1-TuM-2 Exploring Large PAH in “Stardust” by HR-AFM, <i>Percy Zahl</i>, Brookhaven National Laboratory; <i>M. Chacon-Patino</i>, <i>J. Frye-Jones</i>, National High Magnetic Field Laboratory</p>	
8:30am	<p>NS1-TuM-3 Direct Atomic Manipulation of a Buried Graphene Interface, <i>Marek Kolmer</i>, Ames National Laboratory; <i>J. Hall</i>, Iowa State University; <i>S. Chen</i>, Ames National Laboratory; <i>S. Roberts</i>, <i>Z. Fei</i>, Iowa State University; <i>Y. Han</i>, Ames National Laboratory; <i>M. Tringides</i>, Iowa State University</p>	
8:45am	<p>NS1-TuM-4 Effect of Methanol and Photoinduced Surface Oxygen Vacancies on the Charge Carrier Dynamics in TiO₂, <i>B. Guner</i>, <i>Omur E. Dagdeviren</i>, École de technologie supérieure, University of Quebec, Canada</p>	
9:00am	<p>NS1-TuM-5 Single Nanofabrication Step of Low Series Resistance Silicon Nanowire-Based Devices for Giant Piezoresistance Characterization, <i>K. Shao Chi</i>, <i>L. Spejo</i>, University of Campinas (UNICAMP), Brazil; <i>R. Minamisawa</i>, Institut für Mathematik und Naturwissenschaften Fachhochschule, Switzerland; <i>J. Diniz</i>, <i>Marcos Puydinger</i>, University of Campinas (UNICAMP), Brazil</p>	
9:15am	<p>NS1-TuM-6 Size-Dependent Oxidation of Supported Pd and Pd-Pt Nano-Catalysts Under Methane Oxidation Conditions, <i>A. Large</i>, Diamond Light Source, UK; <i>H. Hoddinott</i>, <i>R. Palmer</i>, University of Swansea, UK; <i>Georg Held</i>, Diamond Light Source, UK</p>	
9:30am	<p>NS1-TuM-7 Evidence from Molecular Force Microscopy of Magnetic Monopole-Like Behavior in Chiral Molecule-Coated Superparamagnetic Nanoparticles, <i>Sidney Cohen</i>, <i>Q. Zhu</i>, Weizmann Institute of Science, Israel; <i>J. Fransson</i>, Uppsala University, Sweden; <i>O. Brontvein</i>, <i>R. Naaman</i>, Weizmann Institute of Science, Israel</p>	
9:45am	<p>NS1-TuM-8 Mapping the Slow-Decay of End States in a Laterally Extended Graphene Nanoribbon, <i>Umamahesh Thupakula</i>, CEMES-CNRS, France</p>	
10:00am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	
11:00am	<p>INVITED: NS2-TuM-13 Measuring Electrostatic Potential in a Moiré Superlattice using the Atomic SET, <i>Dahlia Klein</i>, <i>U. Zondiner</i>, <i>J. Birkbeck</i>, <i>A. Inbar</i>, Weizmann Institute of Science, Israel; <i>A. Keren</i>, Technion Israel Institute of Technology, Israel; <i>J. Xiao</i>, Weizmann Institute of Science, Israel; <i>T. Taniguchi</i>, <i>K. Watanabe</i>, NIMS (National Institute for Materials Science), Japan; <i>S. Ilani</i>, Weizmann Institute of Science, Israel</p>	
11:15am		
11:30am	<p>NS2-TuM-15 Silicon-Containing Poly(Phthalaldehyde) Resists for Nanofrazor Applications – Direct Patterning of Hard Mask Materials by Thermal Scanning Probe Lithography, <i>Nicholas Hendricks</i>, <i>E. Çağın</i>, Heidelberg Instruments Nano AG, Switzerland</p>	
11:45am	<p>NS2-TuM-16 Atomic Force Microscopy-Based Nanoscale Mechanics as a Function of Temperature, <i>Gheorghe Stan</i>, National Institute for Science and Technology (NIST); <i>C. Ciobanu</i>, Colorado School of Mines</p>	
12:00pm	<p>NS2-TuM-17 Cryogenic Scattering Near-Field Optical Microscopy for Probing Optical Properties with 20nm Spatial Resolution at Temperatures < 10k, <i>Tobias Gokus</i>, attocube systems AG, Germany; <i>A. Danilov</i>, attocube systems AG; <i>R. Hentrich</i>, <i>A. Huber</i>, attocube systems AG, Germany</p>	

Tuesday Morning, November 5, 2024

Room 115	
8:00am	INVITED: TF1-TuM-1 Peter Mark Memorial Award Talk: Strain-Induced Magnetism and Superconductivity in Single-Crystalline Heusler Membranes, <i>Jason Kawasaki¹</i> , University of Wisconsin - Madison
8:15am	
8:30am	TF1-TuM-3 Stabilization of P63cm ScFeO ₃ on (111) Pt Mediated via an Fe ₃ O ₄ Interlayer, <i>Marshall Frye, J. Chin</i> , Georgia Institute of Technology; <i>N. Parker, M. Barone</i> , Cornell University; <i>L. Garten</i> , Georgia Institute of Technology
8:45am	TF1-TuM-4 Thermo-Controlled Defect Engineering in Ceria: An XPS and Raman Spectroscopy Study with In-Situ Heating, <i>U. Kumar, C. Feit, J. Prakash Ganesan, S. Berriel, Y. Fu, C. Neal, E. Kolanthai, P. Banerjee, Sudipta Seal</i> , University of Central Florida
9:00am	TF1-TuM-5 Hybrid Pulsed Laser Deposition Growth of Epitaxial Chalcogenides, <i>Mythili Surendran</i> , USC
9:15am	TF1-TuM-6 Atomic Layer Deposition of Entropy Stabilized Zr _x Ta _y O _z , <i>Shane Witsell, J. Haglund, J. Conley</i> , Oregon State University
9:30am	TF1-TuM-7 Stabilizing Oriented Barium Nickelate Thin Films, <i>Ian Graham, M. Frye, L. Garten</i> , Georgia Institute of Technology
9:45am	TF1-TuM-8 Optimizing Sputter Deposition of Bi ₂ Te ₃ and Sb ₂ Te ₃ for Photolithographic Device Fabrication, <i>Rumana Zahir</i> , University of Central Florida; <i>F. Gonzalez</i> , Truventic LLC; <i>D. Smalley, A. Bharath, E. Nino, K. Sundaram, M. Ishigami, R. Peale</i> , University of Central Florida
10:00am	BREAK - Complimentary Coffee in Exhibit Hall
10:15am	
10:30am	
10:45am	
11:00am	INVITED: TF2-TuM-13 Nanoscale Metasurfaces for UV Spectropolarimetric Applications, <i>Tobias Wenger, D. Nemchick, D. Wilson, R. Muller, K. Manatt, F. Winiberg, W. Johnson</i> , Jet Propulsion Laboratory (NASA/JPL); <i>H. Hsiao</i> , National Taiwan University, Taiwan; <i>B. Drouin</i> , Jet Propulsion Laboratory (NASA/JPL)
11:15am	
11:30am	TF2-TuM-15 Amorphous Boron Carbide-Amorphous Silicon Heterojunction Devices for Neutron Voltaic Application, <i>Vojislav Medic, N. Ianno</i> , University of Nebraska - Lincoln
11:45am	TF2-TuM-16 Investigating the Practical Limits of Delta Doping by Low-temperature Silicon Molecular Beam Epitaxy, <i>April Jewell, M. Hoenk</i> , Jet Propulsion Laboratory
12:00pm	TF2-TuM-17 Improvement of Coating Uniformity on Non-Planar, Non-Stationary Substrates Through a Combined Experiment-Simulation Approach, <i>Sean Hayes, S. Baxamusa, J. Biener, X. Lepro-Chavez, J. Forien, T. Parham, T. Braun, L. Sohngen</i> , Lawrence Livermore National Laboratory; <i>C. Wild, T. Fehrenbach</i> , Diamond Materials GmbH, Germany

Thin Films
Session TF1-TuM
Thin Films: Controlling Crystalline Phases
Moderators:
Lauren Garten, Georgia Institute of Technology,
April Jewell, Jet Propulsion Laboratory

Thin Films
Session TF2-TuM
Thin Films for Extreme Environments
Moderators:
April Jewell, Jet Propulsion Laboratory,
Lauren Garten, Georgia Institute of Technology

Tuesday Morning, November 5, 2024

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

**Atomic Scale Processing Mini-Symposium
Session AP1+EM+PS+TF-TuM
Atomic Layer Etching I: Thermal Processes
Moderators:
Steven M. George**, University of Colorado at Boulder,
Austin Minnich, California Institute of Technology

**Atomic Scale Processing Mini-Symposium
Session AP2+EM+PS+TF-TuM
Atomic Layer Etching II: Energy-Enhanced
Processes
Moderators:
Steven M. George**, University of Colorado at Boulder,
Austin Minnich, California Institute of Technology

Tuesday Morning, November 5, 2024

Room 117		
8:00am		Biomaterial Interfaces Session BI1-TuM Characterization of Biological and Biomaterial Surfaces I Moderators: Morgan Hawker , California State University, Fresno, Sapun Parekh , University of Texas at Austin
8:15am		
8:30am	INVITED: BI1-TuM-3 Native Supported Lipid Bilayers: A Bioanalytical Tool to Study and Detect Viruses, Marta Bally , <i>H. Pace</i> , Umea University, Sweden	
8:45am		
9:00am	BI1-TuM-5 Machine Learning-Enhanced Point of Care SERS Detection Of SARS-CoV2 Variants using Handheld Raman Spectrometer, Sneha Senapati , <i>J. Singh</i> , Indian Institute of Technology Delhi, India	
9:15am	BI1-TuM-6 Nanoprobe X-Ray Fluorescence Analysis of Frozen-Hydrated Biological Samples - from 2D to 3D, Axel Rosenhahn , <i>C. Rumancev, L. Jusifagic, A. Gräfenstein</i> , Ruhr University Bochum, Germany	
9:30am	INVITED: BI1-TuM-7 Harnessing Plasmon-Enhanced Fluorescence for Ultrasensitive and Minimally-Invasive Bio-Diagnostics, Srikanth Singamaneni , Washington University in St. Louis	
9:45am		
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	
10:15am		
10:30am		
10:45am		
11:00am	BI2-TuM-13 Biointerfacial Characterisation of Implanted Medical Devices with OrbiSIMS, Morgan Alexander , University of Nottingham, UK	Biomaterial Interfaces Session BI2-TuM Characterization of Biological and Biomaterial Surfaces II: Celebration of Stephanie Allen Moderators: Morgan Hawker , California State University, Fresno, Sapun Parekh , University of Texas at Austin
11:15am	BI2-TuM-14 SIMS for Label-Free in situ Analysis of Glycosaminoglycans, Li Jennifer Lu , University of Nottingham, UK; J. Hippensteel , University of Colorado - Anschutz Medical Center; K. Grobe , University of Münster, Germany; C. Gorzelanny , University Medical Center Hamburg - Eppendorf, Germany; A. Kotowska , D. Scurr , A. Hook , University of Nottingham, UK	
11:30am	BI2-TuM-15 Force Probe Techniques for Probing Biologic and Lipid Bilayer Interactions Under Physiological Conditions, Markus Valtiner , <i>L. Mears, I. Peters</i> , TU Wien, Austria	
11:45am	BI2-TuM-16 Tribochemical Nanolithography – Fast, Simple Biomolecular Nanopatterning with 23 nm Resolution at Speeds of up to 1 mm s ⁻¹ , O. Siles-Brugge , <i>C. Ma, A. Meijer</i> , Graham Leggett , University of Sheffield, UK	

Tuesday Morning, November 5, 2024

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

Surface Science

Session SS+CA+LS-TuM

Electrochemical Transformations on Surfaces

Moderators:

Florencia C. Calaza, Instituto de Desarrollo Tecnológico para la Industria Química, Argentina,

Zhuanghe Ren, University of Central Florida

¹ AVS National Student Award Finalist

² SSD Morton S. Traum Award Finalist

Tuesday Morning, November 5, 2024

Room 121		
8:00am	VT1-TuM-1 New Advanced Home-Built Reactor for in-Situ Studies of ALD and ALE, <i>Cristian van Helvoirt, C. van Bommel, M. Merck, J. Zeebregts, F. van Uittert, E. Kessels, A. Mackus</i> , Eindhoven University of Technology, Netherlands	Vacuum Technology Session VT1-TuM Vacuum Technology for Semiconductor Moderators: Sol Omolayo , Lawrence Berkeley National Laboratory, Jacob Ricker , NIST
8:15am	VT1-TuM-2 Plasma Delayering for Non-Selective Precision Etching, <i>Leonid Miroshnik, J. Iannello III</i> , University of New Mexico; <i>T. Stevens, J. Duree, R. Shul, C. Nakakura, S. Han</i> , Sandia National Laboratories	
8:30am	VT1-TuM-3 Improved Thermal Uniformity in Pedestal Heaters Through the Integration of Thermal Pyrolytic Graphite (TPG®), <i>Matt Gallagher, I. Nas, A. Murugaiah, J. Troha, D. Sabens</i> , Momentive Technologies	
8:45am	INVITED: VT2-TuM-4 Photochemistry and Photocatalysis of Alcohols – Vacuum Technology for Sustainable Chemistry, <i>Moritz Eder</i> , TU Wien, Austria; <i>P. Petzoldt, C. Aletsee, M. Tschurl</i> , Technical University of Munich, Germany; <i>J. Pavelec, G. Parkinson</i> , TU Wien, Austria; <i>U. Heiz</i> , Technical University of Munich, Germany	Vacuum Technology Session VT2-TuM Sustainable Energy Production Moderators: Sol Omolayo , Lawrence Berkeley National Laboratory, Jacob Ricker , NIST
9:00am		
9:15am	VT3-TuM-6 Enabling Vacuum Process Monitoring with Time-of-Flight Spectroscopy, <i>Marco John, K. Bergner, S. Hüttl, K. Kirsch, A. Trützscher</i> , VACOM Vakuum Komponenten & Messtechnik GmbH, Germany	Vacuum Technology Session VT3-TuM Novel Vacuum Instrumentation Moderators: Sol Omolayo , Lawrence Berkeley National Laboratory, Jacob Ricker , NIST
9:30am		
9:45am		
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	
10:15am		
10:30am		
10:45am		
11:00am	VT4-TuM-13 Vacuum System for the High Magnetic Field Beamline at Cornell High Energy Synchrotron Sources, <i>Yulin Li</i> , Cornell University	Vacuum Technology Session VT4-TuM Accelerators and Large Vacuum Systems Moderators: Sol Omolayo , Lawrence Berkeley National Laboratory, Jacob Ricker , NIST
11:15am	VT4-TuM-14 Leveraging SLAC Facilities and Expertise to Optimize Vacuum Beamline for LCLS-II Accelerator, <i>Giulia Lanza</i> , SLAC National Accelerator Laboratory	
11:30am	VT4-TuM-15 Factors Affecting XHV Polarized Electron Source Lifetime, <i>Marcy Stutzman</i> , Jefferson Lab; <i>J. Yuskowitz</i> , Jefferson Lab, Los Alamos National Lab	
11:45am	VT4-TuM-16 Vacuum Technology Developments at Daresbury Laboratory for Modern Accelerators, <i>Keith J. Middleman, C. Benjamin, J. Conlon, R. Luff, O. Malyshev, E. Marshall, O. Poynton, D. Seal, L. Smith, R. Valizadeh, S. Wilde</i> , STFC Daresbury Laboratory, UK	
12:00pm	FLASH SESSION	

Tuesday Morning, November 5, 2024

	<p>2D Materials Room 122 - Session 2D+AP+EM+QS+SS+TF-TuM 2D Materials: Synthesis and Processing Moderators: Jyoti Katoch, Carnegie Mellon University, Huamin Li, University at Buffalo-SUNY</p>	<p>Quantum Science and Technology Mini-Symposium Room 123 - Session QS-TuM Superconducting Qubits and Surface Engineering for Quantum Applications Moderators: David Pappas, Rigetti Computing, Corey Rae McRae, National Institute of Standard and Technology, Ekta Bhatia, NY CREATES, Sisira Kanhirathingal, Rigetti Computing</p>
8:00am	<p>INVITED: 2D+AP+EM+QS+SS+TF-TuM-1 Tailored Growth of Transition Metal Dichalcogenides Monolayers and Their Heterostructures, Andrey Turchanin, Friedrich Schiller University Jena, Germany</p>	<p>QS-TuM-1 Cryogenic Growth of Tantalum on Silicon and the Effect of Substrate Preparation on Superconducting Circuit Performance, Teun van Schijndel, University of California Santa Barbara; A. McFadden, NIST-Boulder; W. Yáñez-Parreño, J. Dong, University of California Santa Barbara; R. Simmonds, NIST-Boulder; C. Palmström, University of California Santa Barbara</p>
8:15am		<p>QS-TuM-2 Thin Film Growth of Alpha- and Beta-Ta on Low-Loss Oxides for Superconducting Resonator Development, N. Price, C. Wade, L. Don Manuwelge Don, Miami University; S. Padhye, H. Yusuf, E. Mikheev, University of Cincinnati; Joseph Perry Corbett, Miami University</p>
8:30am	<p>2D+AP+EM+QS+SS+TF-TuM-3 High-Coverage MoS₂ Growth by Two-Step Annealing Process, Shinichi Tanabe, H. Miura, Tokyo Electron Ltd., Japan; N. Okada, T. Irisawa, AIST, Japan; Y. Huang, H. Warashina, A. Fukazawa, H. Maehara, Tokyo Electron Ltd., Japan</p>	<p>INVITED: QS-TuM-3 Quantum Engineering of Superconducting Qubits, William D. Oliver, MIT</p>
8:45am	<p>2D+AP+EM+QS+SS+TF-TuM-4 Anomalous Isotope Effect on the Optical Bandgap in a Monolayer Transition Metal Dichalcogenide Semiconductor, Kai Xiao, Center for Nanophase and Materials Sciences Oak Ridge National Laboratory; Y. Yu, ZSchool of Physics and Technology, Wuhan University, China; V. Turkowski, Department of Physics, University of Central Florida; J. Hachtel, Center for nanophase and Materials Sciences Oak Ridge National Laboratory; A. Puzetzyk, A. Ievlev, C. Rouleau, D. Geohegan, Center for Nanophase and Materials Sciences Oak Ridge National Laboratory</p>	
9:00am	<p>2D+AP+EM+QS+SS+TF-TuM-5 CVD Growth and Characterization of High-Quality Janus SeMoS and SeWS Monolayers, Julian Picker, Friedrich Schiller University Jena, Germany; M. Ghorbani-Asl, Helmholtz Zentrum Dresden-Rossendorf, Germany; M. Schaal, O. Meißner, F. Otto, M. Gruenewald, C. Neumann, A. George, Friedrich Schiller University Jena, Germany; S. Kretschmer, Helmholtz Zentrum Dresden-Rossendorf, Germany; T. Fritz, Friedrich Schiller University Jena, Germany; A. Krasheninnikov, Helmholtz Zentrum Dresden-Rossendorf, Germany; A. Turchanin, Friedrich Schiller University Jena, Germany</p>	
9:15am	<p>2D+AP+EM+QS+SS+TF-TuM-6 Location-Selective CVD Synthesis of Circular MoS₂ Flakes with Ultrahigh Field-Effect Mobility, Chu-Te Chen, A. Cabanillas, A. Ahmed, A. Butler, Y. Fu, H. Hui, A. Chakravarty, H. Zeng, University at Buffalo-SUNY; A. Yadav, Applied Materials, Inc.; H. Li, University at Buffalo-SUNY; K. Wong, Applied Materials, Inc.; F. Yao, University at Buffalo-SUNY</p>	<p>QS-TuM-6 Characterization of Hydroxyls in Surface Oxides of Tantalum and Their Mitigation for Superconducting Qubits, Ekta Bhatia, N. Pieniazek, A. Biedron, S. Schujman, NY CREATES; H. Frost, Tokyo Electron Ltd. Technology Center America (TTCA) LLC; Z. Xiao, S. Olson, J. Nalaskowski, K. Musick, T. Murray, C. Johnson, S. Papa Rao, NY CREATES</p>
9:30am	<p>2D+AP+EM+QS+SS+TF-TuM-7 Optoelectronic Properties of Exfoliated and CVD Grown TMD Heterostructures, Elycia Wright, K. Johnson, S. Coye, M. Senevirathna, M. Williams, Clark Atlanta University</p>	<p>INVITED: QS-TuM-7 Identifying and Mitigating Sources of Loss in Superconducting Qubits, Akshay Murthy, M. Bal, F. Crisa, S. Zhu, D. Bafia, J. Lee, A. Romanenko, A. Grassellino, Fermilab</p>
9:45am	<p>2D+AP+EM+QS+SS+TF-TuM-8 Pulsed Laser Deposited Amorphous Boron Nitride for 2D Materials Encapsulation, Daniel T. Yimam, S. Harris, A. Puzetzyk, I. Vlasiouk, G. Eres, K. Xiao, D. Geohegan, Oak Ridge National Laboratory, USA</p>	
10:00am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>
11:00am	<p>2D+AP+EM+QS+SS+TF-TuM-13 Topotaxy for Compositional Variations of Transition Metal Dichalcogenides, Matthias Batzill, University of South Florida</p>	<p>INVITED: QS-TuM-13 Dielectric Loss and Two-Level Systems in Superconducting Qubits, Chen Wang, University of Massachusetts</p>
11:15am	<p>2D+AP+EM+QS+SS+TF-TuM-14 Solid State Reaction Epitaxy to Create van der Waals Heterostructures between Topological Insulators and Transition Metal Chalcogenides, Salma Khatun, O. Alanwoko, V. Pathirage, M. Batzill, University of South Florida</p>	
11:30am	<p>2D+AP+EM+QS+SS+TF-TuM-15 AVS National Student Award Finalist Talk: Quasi-Van Der Waals Epitaxial Growth of Thin γ-Gase Films, Mingyu Yu¹, University of Delaware; S. Law, Pennsylvania State University</p>	<p>QS-TuM-15 Measuring Loss Tangents of Substrates for Superconducting Qubits with Part per Billion Precision, Daniel Bafia, A. Murthy, A. Lunin, G. Nahal, A. Clairmont, M. Bal, A. Romanenko, A. Grassellino, Fermi National Accelerator Laboratory</p>
11:45am	<p>2D+AP+EM+QS+SS+TF-TuM-16 Investigation of Dry Transfer of Epitaxial Graphene from SiC(0001), Jenifer Hajzus, D. Pennachio, S. Mack, R. Myers-Ward, U.S. Naval Research Laboratory</p>	<p>INVITED: QS-TuM-16 Enhanced Qubit Frequency Targeting and Quantum Gate Fidelities in a 25-Qubit Superconducting Quantum Processor, Amr Osman, L. Chen, H. Li, A. Nylander, M. Rommel, S. Hill, E. Moschandreou, D. Shiri, M. Fucci Giannelli, A. Fadavi Roudsari, G. Tancredi, J. Bylander, Chalmers University of Technology, Gothenburg, Sweden</p>
12:00pm		

¹ AVS National Student Award Finalist

Tuesday Morning, November 5, 2024

Room 124	
8:00am	PS1-TuM-1 Control of High Aspect Ratio Dielectric Etch Profile using Additive Etching Gases, <i>Hyun Woo Tak, C. Choi, M. Park, J. Lee, B. Kim, J. Jang, E. Kim, D. Kim, G. Yeom</i> , Sungkyunkwan University (SKKU), Republic of Korea
8:15am	PS1-TuM-2 Experimental and Molecular Dynamics Simulation Study of W and WSi Hard-Mask Etching by Fluorocarbon Plasmas, <i>Hojun Kang</i> , Osaka University, Japan, Republic of Korea; <i>S. Kawabata</i> , Osaka University, Japan; <i>N. Mauchamp</i> , Osaka University, Japan, France; <i>E. Tinacba</i> , Osaka University, Japan, Philippines; <i>T. Ito</i> , Osaka University, Japan; <i>S. Kang, D. Lee, J. Son</i> , Samsung Electronics, Republic of Korea; <i>K. Karahashi, S. Hamaguchi</i> , Osaka University, Japan
8:30am	INVITED: PS1-TuM-3 3D NAND Dielectric Etch Technology Challenges and Breakthrough, <i>Youn-Jin Oh, T. Lill, M. Wilcoxson, T. Kim, H. Singh</i> , Lam Research Corporation
8:45am	
9:00am	PS1-TuM-5 Patterning Challenges of Thick Tungsten Carbide Hard Mask Layers, <i>Daniel Montero, K. Katcko, F. Lazzarino</i> , IMEC, Belgium
9:15am	PS1-TuM-6 Sheath Uniformity with Pulsed Low Frequency Biases for High Aspect Ratio Plasma Etching, <i>Evan Litch, M. Kushner</i> , University of Michigan
9:30am	PS1-TuM-7 Study of Electrode Material Effects on High Aspect Ratio SiO ₂ Etching in CCP Etch Systems, <i>Chanhyuk Choi, H. Tak, S. Kim, M. Park, J. Lee, B. Kim, J. Jang, E. Kim, D. Kim, G. Yeom</i> , Sungkyunkwan University (SKKU), Republic of Korea
9:45am	PS1-TuM-8 Low GWP and Low Emission Gases for High Aspect Ratio Etching Application, <i>Scott Biltek, N. Stafford, P. Nguyen, F. Qin</i> , Air Liquide; <i>P. Forest</i> , Air Liquide, France
10:00am	BREAK - Complimentary Coffee in Exhibit Hall
10:15am	
10:30am	
10:45am	
11:00am	INVITED: PS2-TuM-13 Plasma Prize Award Talk: The Evolution of Cryogenic Etching Plasma Processes Since Their Introduction 35 Years Ago, <i>Remi Dussart¹</i> , GREMI CNRS/Université d'Orléans, France
11:15am	
11:30am	PS2-TuM-15 The Role of PF ₃ on Etching Characteristics of SiO ₂ and SiN Using HF-Based Cryogenic Plasma Etching Analyzed with in situ Monitoring Techniques, <i>Shih-Nan Hsiao, M. Sekine</i> , Nagoya University, Japan; <i>Y. Iijima, R. Suda, M. Yokoi, Y. Kihara</i> , Tokyo Electron Ltd. Miyagi, Japan; <i>M. Hori</i> , Nagoya University, Japan
11:45am	PS2-TuM-16 MD Simulations of Cryogenic Etching of SiO ₂ by HF Plasmas, <i>Nicolas Mauchamp</i> , Osaka University, Japan; <i>T. Lill, M. Wang, H. Singh</i> , Lam Research Corporation; <i>S. Hamaguchi</i> , Osaka University, Japan
12:00pm	PS2-TuM-17 Mechanisms for Cryogenic Plasma Etching, <i>Y. Yook, Mark J. Kushner</i> , University of Michigan

Plasma Science and Technology
Session PS1-TuM
Plasma Processes for Advanced Memory
Moderators:
Sebastian Engelmann, IBM T. J. Watson Research Center,
Angelique Raley, TEL Technology Center America

Plasma Science and Technology
Session PS2-TuM
Plasma Processing at Cryogenic Temperatures
Moderators:
Angelique Raley, TEL Technology Center America,
Mingmei Wang, TEL Technology Center, America, LLC

¹ PSTD Plasma Prize Winner

Tuesday Morning, November 5, 2024

Room 125	
8:00am	<p>MEMS and NEMS Session MN1-TuM RF and Magnetic MEMS Moderators: Robert Davis, Brigham Young University, Vikrant Gokhale, Naval Research Laboratory</p>
8:15am	
8:30am	
8:45am	
9:00am	
9:15am	
9:30am	
9:45am	
10:00am	
10:15am	
10:30am	<p>MEMS and NEMS Session MN2-TuM Heterogeneous Integration and Packaging Moderators: Robert Davis, Brigham Young University, Vikrant Gokhale, Naval Research Laboratory</p>
10:45am	
11:00am	
11:15am	
11:30am	
11:45am	

Tuesday Afternoon, November 5, 2024

Exhibitor Technology Spotlight Sessions Room West/Central Hall - Session EW-TuL Exhibitor Technology Spotlight Session Moderator: Christopher Moffitt, Kratos Analytical Inc		
12:00pm		
12:15pm		
12:30pm	EW-TuL-3 New Developments for Surface Analysis from Thermo Fisher Scientific, Tim Nunney , <i>P. Mack, R. Simpson, H. Tseng</i> , Thermo Fisher Scientific, UK	
12:45pm	EW-TuL-4 Physical Electronics Spotlight Session,	
1:00pm	EW-TuL-5 Kratos Spotlight Session,	
1:15pm	EW-TuL-6 Enviroesca II: An Evolution in Surface Chemical Analysis Under Environmental Conditions, Stefan Böttcher , <i>F. Mirabella, P. Dietrich, A. Thissen</i> , SPECS Surface Nano Analysis GmbH, Germany	
1:30pm	EW-TuL-6 IMPEDANS Spotlight Session,	

Tuesday Afternoon, November 5, 2024

Room 114		
2:15pm	INVITED: EM+2D+BI+QS+TF-TuA-1 New Materials for Metamaterials: Electrochemical Materials and Switchable Chiral Nanostructures, <i>Vivian Ferry</i> , University of Minnesota	Electronic Materials and Photonics Session EM+2D+BI+QS+TF-TuA Advances in Photonic Materials and Devices Moderators: Leland Nordin, University of Central Florida, Philip Lee, University of Kentucky
2:30pm		
2:45pm	EM+2D+BI+QS+TF-TuA-3 Optoelectronic Nanowire Neuron, <i>Thomas Kjellberg Jensen</i> , Lund University, Sweden; <i>J. E. Sestoft</i> , Niels Bohr Institute, Denmark; <i>D. Alcer, N. Löfström, V. Flodgren, A. Das</i> , Lund University, Sweden; <i>R. D. Schlosser, T. Kanne Nordqvist</i> , Niels Bohr Institute, Denmark; <i>M. Borgström</i> , Lund University, Sweden; <i>J. Nygård</i> , Niels Bohr Institute, Denmark; <i>A. Mikkelsen</i> , Lund University, Sweden	
3:00pm	EM+2D+BI+QS+TF-TuA-4 Modulation of Optical and Plasmonic Properties of Epitaxial and Precision Titanium Nitride Thin Films, <i>I. Chris-Okoro</i> , North Carolina A&T State University; <i>S. Cherono</i> , North Carolina A & T State Uni; <i>C. Martin</i> , Ramapo College of New Jersey; <i>V. Craciun</i> , National Institute for Laser, Plasma, and Radiation Physics, Romania; <i>S. Kim, J. Mahl, J. Yano</i> , Lawrence Berkeley National Laboratory; <i>E. Crumlin</i> , Lawrence Berkeley Lab; <i>Dhananjay Kumar</i> , North Carolina A & T State Uni	
3:15pm	EM+2D+BI+QS+TF-TuA-5 Nano-Focusing and Characterization of the OAM Beam Through an Optical Fiber Using Plasmonic Nanostructure, <i>Rohil Kayastha, W. Zhang, B. Birmingham</i> , Baylor University; <i>Z. Gao</i> , Texas A&M University; <i>J. Hu</i> , Baylor University; <i>R. Quintero-Torres</i> , UNAM, Mexico; <i>A. V. Sokolov</i> , Texas A&M University; <i>Z. Zhang</i> , Baylor University	
3:30pm	BREAK	
3:45pm		
4:00pm	EM+2D+BI+QS+TF-TuA-8 Templated Block Copolymer Network Thin Films as 3D Chiral Optical Metamaterials: Connecting Finite-Difference Time-Domain and Self-Consistent Field Theory Simulations, <i>Emily McGuinness, B. Magruder, P. Chen, K. Dorfman, C. Ellison, V. Ferry</i> , University of Minnesota	
4:15pm	EM+2D+BI+QS+TF-TuA-9 Solution Processing of Optical Phase Change Materials, <i>Brian Mills</i> , Massachusetts Institute of Technology; <i>R. Sharma, D. Wiedeman</i> , University of Central Florida; <i>C. Schwarz</i> , Ursinus College; <i>N. Li</i> , Massachusetts Institute of Technology; <i>E. Bissell</i> , University of Central Florida; <i>C. Constantin Popescu</i> , Massachusetts Institute of Technology; <i>D. Callahan</i> , Charles Stark Draper Laboratory, Inc.; <i>P. Banerjee, K. Richardson</i> , University of Central Florida; <i>J. Hu</i> , Massachusetts Institute of Technology	
4:30pm	EM+2D+BI+QS+TF-TuA-10 Effects of Ce Concentration on the Microstructural, Optical, and Luminescence Properties in Ce:GAGG Ceramic Phosphors, <i>William Bowman, S. Lass</i> , University of Central Florida; <i>F. Moretti, W. Wolszczak</i> , Lawrence Berkeley National Laboratory; <i>R. Gaume</i> , University of Central Florida	
4:45pm	EM+2D+BI+QS+TF-TuA-11 Solution Based Processing of Ge ₂ Sb ₂ Se ₄ Te ₁ Phase Change Material for Optical Applications, <i>Daniel Wiedeman, R. Sharma, E. Bissel, P. Banerjee</i> , University of Central Florida; <i>B. Mills, J. Hu</i> , Massachusetts Institute of Technology; <i>M. Sykes, J. Stackawitz, J. Lucinec, C. Schwarz</i> , Ursinus College; <i>K. Richardson</i> , University of Central Florida	
5:00pm	EM+2D+BI+QS+TF-TuA-12 Multi-Dimensional p-WSe ₂ /n-Ga ₂ O ₃ Enhancement-Mode Phototransistors for Stand-Alone Deep-Ultraviolet Sensing, <i>J. Kim, Soobeen Lee</i> , Seoul National University, South Korea	

Tuesday Afternoon, November 5, 2024

Room 115	
2:15pm	<p>TF1-TuA-1 Unlocking High Volumetric Energy Densities in LCO Cathode Materials through Atomic Layer Deposition, Jaime DuMont, M. Martinez, M. Herbert-Walters, A. Dameron, B. Hughes, Forge Nano</p>
2:30pm	<p>TF1-TuA-2 Surface Chemistry of Plasma Exposure on Sulfide Solid Electrolytes, Alexander Kozen, University of Vermont; Y. Wang, D. Fontecha, G. Rubloff, S. Lee, University of Maryland, College Park</p>
2:45pm	<p>TF1-TuA-3 Tuning the Composition and Structure of High Mobility Nasicon-Type Thin Films Through Atomic Layer Deposition, Daniela R. Fontecha, University of Maryland College Park; A. Kozen, University of Vermont; D. Stewart, G. Rubloff, K. Gregorczyk, University of Maryland College Park</p>
3:00pm	<p>TF1-TuA-4 Unlocking Novel Chemistry in Atomic Layer Deposition: Transformative Insights from Trimethylaluminum Interactions with Battery Materials, Donghyeon Kang, A. Mane, J. Elam, Argonne National Laboratory</p>
3:15pm	<p>TF1-TuA-5 Mapping Lithium Diffusion in Thin-Film V₂O₅ using Raman Spectroscopy, Daniel MacAyeal, University of Vermont; L. Tapia-Aracayo, S. Caverly, D. Stewart, G. Rubloff, University of Maryland; A. Kozen, University of Vermont</p>
3:30pm	BREAK
3:45pm	
4:00pm	<p>INVITED: TF2-TuA-8 Roll-to-Roll Photoinitiated Chemical Vapor Deposition of Polymer Films for Liquid-Repellent Textiles, Trisha Andrew, University of Massachusetts - Amherst; W. Viola, E. Chalouhi, Soliyarn</p>
4:15pm	
4:30pm	<p>TF2-TuA-10 Battery Separators with Ultrathin iCVD-Polymer Coatings Mitigate Polysulfide Crossover in Lithium-Sulfur Batteries, Ramsay Nuwayhid, H. Ford, J. Yeom, C. Love, J. Long, R. Carter, U.S. Naval Research Laboratory</p>
4:45pm	<p>TF2-TuA-11 Synthesis and Characterization of Ion Beam Nano-Engineered Metal-Polymer Nanocomposite Thin Films for SERS Application, Jai Prakash, National Institute of Technology Hamirpur, India; H. Swart, University of the Free State, South Africa</p>
5:00pm	<p>TF2-TuA-12 In situ Analysis of Temperature Dependence During Molecular Layer Deposition of Polyurea, Wallis Scholl, Colorado School of Mines; T. Lill, H. Singh, M. Wang, Lam Research Corporation; S. Agarwal, Colorado School of Mines</p>
5:15pm	<p>INVITED: TF2-TuA-13 Multi-Stimuli Responsive Sensors for Electronic Skin Applications, Anna Maria Coclite, University of Bari, Italy</p>
5:30pm	

Thin Films
Session TF1-TuA
Thin Films for Energy Applications II: Batteries
Moderators:
Adriana Creatore, Eindhoven University of Technology, Netherlands,
Mark Losego, Georgia Institute of Technology

Thin Films
Session TF2-TuA
Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP I)
Moderators: Mark Losego, Georgia Institute of Technology, **Adriana Creatore**, Eindhoven University of Technology, Netherlands

Tuesday Afternoon, November 5, 2024

	Atomic Scale Processing Mini-Symposium Room 116 - Session AP+PS+TF-TuA Atomic Layer Etching III: Plasma Processes Moderators: Robert Bruce , IBM Research, T. J. Watson Research Center, Udyavara Sagar , Lam Research	Applied Surface Science Room 117 - Session AS-TuA Theory, Surface Structure and Processes Moderators: Paul S. Bagus , University of North Texas, Jodi Grzeskowiak , Tokyo Electron America, USA
2:15pm	INVITED: AP+PS+TF-TuA-1 Atomic Layer Etching with Plasma Processing for Semiconductor Device Fabrication, Heeyeop Chae , Sungkyunkwan University (SKKU), Republic of Korea	INVITED: AS-TuA-1 Advances in Understanding Structure and Electron Transfer Dynamics at Iron Oxide/Water Interfaces, Kevin Rosso , Pacific Northwest National Laboratory
2:30pm		
2:45pm	AP+PS+TF-TuA-3 Atomic Layer Etching in HBr/He/Ar/O ₂ Plasmas, Qinzheng Hao , M. Elgarhy, University of Houston; P. Kim, S. Nam, S. Kang, Samsung Electronics Co., Republic of Korea; V. Donnelly, University of Houston	AS-TuA-3 Manifestation of Correlated Electronic Structure in a Kagome Metal YbTi ₃ Bi ₄ , Anup Pradhan Sakhya , University of Central Florida; B. Ortiz, Materials Science and Technology Division, Oak Ridge National Laboratory; B. Ghosh, Northeastern University, US; M. Sprague, M. Mondal, University of Central Florida; M. Matzelle, Northeastern University, US; I. Elius, N. Valadez, University of Central Florida; D. Mandrus, University of Tennessee Knoxville; A. Bansil, Northeastern University, US; M. Neupane, University of Central Florida
3:00pm	AP+PS+TF-TuA-4 Comparisons of Atomic Layer Etching of Silicon in Cl ₂ and HBr-Containing Plasmas, Mahmoud Elgarhy , Q. Hao, University of Houston; P. Kim, S. Nam, S. Kang, Samsung Electronics Co.; V. Donnelly, University of Houston	AS-TuA-4 Impact of Surface Pretreatment on Al ₂ O ₃ /GaN and HfO ₂ /GaN Band Offsets Measured by X-Ray Photoelectron Spectroscopy, Melissa Meyerson , P. Dickens, J. Klesko, B. Rummel, P. Kotula, A. Binder, Sandia National Laboratories
3:15pm	AP+PS+TF-TuA-5 Atomic Layer Etching of Crystalline MoS ₂ by Plasma Fluorination and Oxygenation, Sanne Deijkers , C. Palmer, N. Chittock, E. Kessels, A. Mackus, Eindhoven University of Technology, The Netherlands	AS-TuA-5 Absence of Electronic Structure Reconfiguration in EuSnP Across the Antiferromagnetic Transition, Milo Sprague , A. Sakhya, University of Central Florida; S. Regmi, Idaho National Laboratory; M. Mondal, I. Bin Elius, N. Valadez, University of Central Florida; T. Romanova, A. Ptak, D. Kaczorowski, Polish Academy of Sciences, Poland; M. Neupane, University of Central Florida
3:30pm	BREAK	BREAK
3:45pm		
4:00pm	AP+PS+TF-TuA-8 A Reduced Order Model of Plasma-Surface Interactions in Atomic Layer Etching, David Graves , Princeton University; J. Vella, TEL Technology Center, America, LLC	INVITED: AS-TuA-8 Calculation of X-Ray Absorption Spectra of f-Element Compounds from First Principles, Jochen Autschbach , University at Buffalo, SUNY
4:15pm	AP+PS+TF-TuA-9 Atomic Layer Etching of SiO ₂ using Sequential Exposures of Al(CH ₃) ₃ and H ₂ /SF ₆ Plasma, David Catherall , A. Hossain, A. Minnich, California Institute of Technology	
4:30pm	AP+PS+TF-TuA-10 Atomic Layer Etching of Cu Using Alternating Cycles of Hexafluoroacetylacetone and O ₂ Plasma, Yusuke Nakatani , Hitachi High-Tech, Japan; A. Kaye, Colorado School of Mines, USA; Y. Sonoda, M. Tanaka, K. Maeda, Hitachi High-Tech, Japan; S. Agarwal, Colorado School of Mines, USA	AS-TuA-10 The XPS of Ni Compounds – A Comparative Study, Paul S. Bagus , University of North Texas; C. Nelin, Consultant; N. Lahiri, Pacific Northwest National Lab; E. Ilton, Pacific Northwest National Lab
4:45pm	AP+PS+TF-TuA-11 Enabling Anisotropic and Selective Etch Through Surface Modification of Ru, Owen Watkins , UCLA; H. Simka, Samsung Electronics; J. Chang, UCLA	AS-TuA-11 The Experimental Asymmetry of the 2p, 3d, and 4f, Photoemission Spectra of the Elements of the 3 rd , 4 th , and 5 th Periods, Alberto Herrera-Gomez , Cinvestav, Mexico; A. Dutoi, University of the Pacific; D. Guzman-Bucio, CINVESTAV-Queretaro, Mexico; D. Cabrera-German, Universidad de Sonora, Mexico; A. Carmona-Carmona, Benemerita Universidad Autonoma de Puebla, Mexico; O. Cortazar-Martinez, CINVESTAV-Unidad Queretaro, Mexico; B. Crist, The XPS Library; M. Mayorga-Garay, CINVESTAV-Unidad Queretaro, Mexico
5:00pm	AP+PS+TF-TuA-12 Enhanced Control of Plasma Surface Interaction to Etch Alloys Using Transient Assisted Plasma Etching (Tape), Atefeh Fathzadeh , KU Leuven/IMEC, Belgium; P. Bezard, IMEC Belgium; T. Conard, F. Holsteyns, IMEC, Belgium; S. De Gendt, KU Leuven/Imec, Belgium	AS-TuA-12 Computational Exploration of Dimension Limits for Narrow Gap Transport of Reactive Species, Greg Hartmann , S. Sridhar, P. Ventzek, Tokyo Electron America, Inc.
5:15pm	AP+PS+TF-TuA-13 Leveraging Plasma Nitridation for Atomic Layer Etching of Ni ₃ Al, Taylor G. Smith , University of California, Los Angeles; J. de Marneffe, imec, Belgium; J. Chang, University of California, Los Angeles	AS-TuA-13 High-Temperature Diffraction and Surface Electron-Phonon Coupling of the Unreconstructed Metallic and (3x1)-O Reconstructed Nb(100) Surfaces by Helium Atom Scattering, Michael Van Duinen , C. Thompson, University of Chicago; M. Kelley, C. Mendez, Cornell University; S. Willson, V. Do, University of Chicago; T. Arias, Cornell University; S. Sibener, University of Chicago
5:30pm	AP+PS+TF-TuA-14 Precision Etching for Vertical GaN Nanowire Transistor Fabrication: A Focus on Atomic Layer Etching, Amin Karimi , R. Jafari Jam, I. Sharma, O. Danielsson, M. Asif, Y. Ilarionova, AlixLabs A.B., Sweden; A. Kumar, P. Ramvall, RISE Research Institutes of Sweden; D. Suyatin, J. Sundqvist, AlixLabs A.B., Sweden	AS-TuA-14 The Type of Ru Oxide on Ru(0001) Determines the Activity for the Decomposition of Silane, Ester Perez Penco , R. Bliem, ARCNL

Tuesday Afternoon, November 5, 2024

Room 120		
2:15pm	INVITED: SS+CA+LS-TuA-1 Surface Sensitive Studies of the Electrolyte-Electrode Interface, <i>Edvin Lundgren</i> , Lund University, Sweden	Surface Science Session SS+CA+LS-TuA Electrochemistry and Photocatalysis Moderators: Jared Bruce , University of Nevada Las Vegas, Taku Suzuki , NIMS (National Institute for Materials Science), Japan
2:30pm		
2:45pm	SS+CA+LS-TuA-3 Operando Studies of CO ₂ , CO and N ₂ Catalytic Hydrogenation Reactions investigated with Ambient Pressure XPS, <i>Peter Amann</i> , Scienta Omicron, Germany	
3:00pm	SS+CA+LS-TuA-4 Understanding the Intrinsic Activity and Selectivity of Cu for Ammonia Electrosynthesis from Nitrate, <i>Zhuanghe Ren, K. Shi, Z. Meng, X. Feng</i> , University of Central Florida	
3:15pm	SS+CA+LS-TuA-5 Insights Into Photocatalytic Reduction Activities of Different Well-Defined Single Bulk Crystal TiO ₂ Surfaces in Liquid, <i>Olawale Ayode, W. Lu, H. Zhu, Z. Zhang</i> , Baylor University	
3:30pm	BREAK	
3:45pm		
4:00pm	INVITED: SS+CA+LS-TuA-8 Selectivity Control by Ionic Liquid Layers: From Surface Science to the Electrified Interface, <i>Joerg Libuda</i> , Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Germany	
4:15pm		
4:30pm	SS+CA+LS-TuA-10 Area Selective Atomic Layer Deposition for Spatial Control of Reaction Selectivity on Model Photocatalysts, <i>Wilson McNeary</i> , National Renewable Energy Laboratory; <i>W. Stinson</i> , Columbia University; <i>W. Zang, M. Waqar, X. Pan</i> , University of California Irvine; <i>D. Esposito</i> , Columbia University; <i>K. Hurst</i> , National Renewable Energy Laboratory	
4:45pm	SS+CA+LS-TuA-11 Titanium-Based Catalysts for CO ₂ Activation: Experimental Modelling of Hybride (Photo-)Catalysts, <i>N. Kruse, J. Klimek, C. Groothuis, Lars Mohrhusen</i> , University of Oldenburg, Germany	
5:00pm	SS+CA+LS-TuA-12 Tracking the Ultrafast Dynamics of a Photoinduced Reaction at the Surface of a Reactive Semiconductor: CH ₃ I Photoinduced Reaction on TiO ₂ (110) Surface, <i>A. Gupta</i> , University of Central Florida; <i>T. Wang</i> , University of Washington; <i>K. Blackman, C. Smith</i> , University of Central Florida; <i>X. Li</i> , University of Washington; <i>Mihai E. Vaida</i> , University of Central Florida	
5:15pm	SS+CA+LS-TuA-13 Kinetic Theory of Mixed-Potential-Driven Catalysis and the Experimental Proof, <i>M. Yan, N. Namari, R. Arsyad, H. Suzuki</i> , University of Tsukuba, Japan; <i>J. Nakamura</i> , Kyushu University, Japan; <i>Kotaro Takeyasu</i> , Hokkaido University, Japan	
5:30pm	FLASH SESSION	

Tuesday Afternoon, November 5, 2024

Room 121	
2:15pm	INVITED: VT1-TuA-1 Gas Analysis and Vacuum Characterization for Space and Lunar Exploration, <i>Andres Diaz</i> , INFICON
2:30pm	
2:45pm	
3:00pm	VT2-TuA-4 ITER Service Vacuum System Client Connections, <i>C. Smith III, Jared Tippens</i> , Oak Ridge National Laboratory
3:15pm	VT2-TuA-5 All-Metal Mechanical Pumping Solution Replacing the ITER Cryogenic Regeneration Roughing Pump System, <i>Jonathan Perry</i> , Oak Ridge National Laboratory; <i>S. Hughes</i> , ITER Organization, France; <i>C. Smith</i> , Oak Ridge National Laboratory
3:30pm	BREAK
3:45pm	
4:00pm	INVITED: VT2-TuA-8 Exploring Vacuum Technology in Nuclear Fusion: Challenges and Opportunities within STEP Fuel Cycle, <i>Sophie Davies</i> , United Kingdom Atomic Energy Authority, UK; <i>A. Tarazona</i> , United Kingdom Atomic Energy Authority (UKAEA), UK
4:15pm	
4:30pm	
4:45pm	VT2-TuA-11 An Enhanced, High-Vacuum System and Related Testing of Plasma Cell Prototypes for the ITER-DRGA Project, <i>Chris Marcus, T. Biewer</i> , ORNL; <i>J. Brindley</i> , Gencoa, UK; <i>A. Jugan</i> , North Carolina State University; <i>C. Klepper</i> , ORNL; <i>P. McCarthy</i> , Gencoa, UK; <i>B. Quinlan</i> , ORNL
5:00pm	VT2-TuA-12 Design and Development of an Optical Gas Sensor for Fusion Applications, <i>Joe Brindley, P. McCarthy</i> , Gencoa, UK; <i>C. Marcus, C. Klepper, B. Quinlan</i> , ORNL
5:15pm	VT2-TuA-13 Development of the SPARC Tokamak Exhaust Purification System, <i>Eric Dombrowski</i> , Commonwealth Fusion Systems

Vacuum Technology
Session VT1-TuA
Aerospace Research and Applications
Moderators:
Giulia Lanza, SLAC National Accelerator Laboratory,
Julia Scherschligt, National Institute of Standards and Technology

Vacuum Technology
Session VT2-TuA
Vacuum Technology for Fusion Energy
Moderators:
Giulia Lanza, SLAC National Accelerator Laboratory,
Julia Scherschligt, National Institute of Standards and Technology

Tuesday Afternoon, November 5, 2024

	<p>2D Materials Room 122 - Session 2D+LS+NS+SS-TuA Electronics Properties Moderators: Masa Ishigami, University of Central Florida, Slavomir Nemsak, Advanced Light Source, Lawrence Berkeley National Laboratory</p>	<p>Quantum Science and Technology Mini-Symposium Room 123 - Session QS-TuA Advances in Quantum Dots and Dynamic Effects in Josephson Junctions Moderators: Sisira Kanhirathingal, Rigetti Computing, Ekta Bhatia, NY CREATES</p>
2:15pm	<p>INVITED: 2D+LS+NS+SS-TuA-1 NanoARPES for the Study of 2D Materials, Aaron Bostwick, Advanced Light Source, Lawrence Berkeley National Laboratory</p>	<p>INVITED: QS-TuA-1 Toward Robust Spin-Optical Interfaces in Molecular Spin Qubits, Leah Weiss, G. Smith, University of Chicago; R. Murphy, B. Galesorkhi, J. Long, University of California at Berkeley; D. Awschalom, University of Chicago</p>
2:30pm		
2:45pm	<p>2D+LS+NS+SS-TuA-3 Observation of Interlayer Plasmon Polaron in Graphene/WS₂ Heterostructures, S. Ulstrup, Aarhus University, Denmark; Y. Veld, Radboud University, Netherlands; J. Miwa, A. ones, Aarhus University, Denmark; K. McCreary, J. Robinson, B. Jonker, Naval Research Laboratory; S. Singh, Carnegie Mellon University, USA; R. Koch, E. Rotenberg, A. Bostwick, C. Jozwiak, Advanced Light Source, Lawrence Berkeley National Laboratory; M. Rosner, Radboud University, Netherlands; Jyoti Katoch, Carnegie Mellon University, USA</p>	<p>QS-TuA-3 Development of a Flip-Chip Induced Quantum Dot Device with Semiconductor Materials, Giovanni Franco-Rivera, J. Marbey, M. Dryer, R. Butera, Laboratory for Physical Sciences</p>
3:00pm	<p>2D+LS+NS+SS-TuA-4 Harnessing the Synergy of X-ray Photoelectron Spectroscopy (XPS) and Argon Cluster Etching for Profound Analysis of MoS₂ and Graphene, Jonathan Counsell, Kratos Analytical Limited, UK; C. Moffitt, D. Surman, Kratos Analytical Inc.; L. Soomary, K. Zahra, Kratos Analytical Limited, UK</p>	<p>QS-TuA-4 Nanoscale Spatial Control of Colloidal Quantum Dots and Rods Using DNA for Next-Generation Quantum Devices, X. Luo, C. Chen, Mark Bathe, MIT</p>
3:15pm		<p>QS-TuA-5 Characterization of epitaxially grown Al-Ge/SiGe quantum wells for voltage-controlled Josephson junctions, Joshua Thompson, Laboratory for Physical Sciences; S. Davari, University of Arkansas; C. Gaspe, C. Sardashti, Laboratory for Physical Sciences; H. Churchill, University of Arkansas; C. Richardson, Laboratory for Physical Sciences</p>
3:30pm	BREAK	BREAK
3:45pm		
4:00pm	<p>INVITED: 2D+LS+NS+SS-TuA-8 Manipulation of Chiral Interface States in a Moiré Quantum Anomalous Hall Insulator, Tiancong Zhu, Purdue University</p>	<p>QS-TuA-8 Developing a Novel Approach to Extract the Current-Phase Relation of Josephson Junctions with On-Wafer Microwave Probing and Calibration Techniques, Elyse McEntee Wei, Colorado School of Mines; P. Dresselhaus, A. Fox, D. Williams, C. Long, National Institute of Standards and Technology, Boulder; S. Eley, University of Washington</p>
4:15pm		<p>QS-TuA-9 Aging effects after Alternating Bias Assisted Annealing of Josephson Junctions, David P. Pappas, X. Wang, J. Howard, E. Sete, Rigetti Computing; G. Stiehl, rice University; S. Poletto, X. Wu, M. Field, N. Sharac, C. Eckberg, H. Cansizoglu, J. Mutus, K. Yadavalli, A. Bestwick, Rigetti Computing</p>
4:30pm	<p>2D+LS+NS+SS-TuA-10 Scanning Tunneling Microscopy and Spectroscopy of Single Layer NiTe₂ on Au, Stephanie Lough, University of Central Florida; M. Ishigami, University of Central Florida</p>	<p>QS-TuA-10 Evaluating Radiation Impact on Transmon Qubits Using a Fast Decay Protocol in Above and Underground Laboratories, Tanay Roy, Fermi Lab</p>
4:45pm	<p>2D+LS+NS+SS-TuA-11 Nanoscale heterogeneities at Transition Metal Dichalcogenide-Au Interfaces, Taisuke Ohta, A. Boehm, A. Kim, C. Spataru, K. Thuermer, J. Sugar, Sandia National Laboratories; J. Fonseca Vega, J. Robinson, Naval Research Laboratory</p>	<p>QS-TuA-11 Quantum Enhanced Josephson Junction Field-Effect Transistors for Logic Applications, W. Pan, A. Muhowski, W. Martinez, C. Sovinec, J. Mendez, D. Mamaluy, Sandia National Laboratories</p>
5:00pm	<p>2D+LS+NS+SS-TuA-12 Xenon Trapping in Silica Nanocages Supported on Metal Powder, Laiba Bilal, SBU; A. Boscoboinik, Brookhaven National Laboratory</p>	<p>QS-TuA-12 Revealing Signatures of Unconventional Superconductivity in Tunneling Andreev Spectroscopy, Petra Maksymovych, S. Song, Oak Ridge National Laboratory; C. Lane, Los Alamos National Laboratory; J. Wang, Oak Ridge National Laboratory; W. Ko, University of Tennessee Knoxville; J. Lado, Aalto University, Finland</p>

Tuesday Afternoon, November 5, 2024

Room 124		Plasma Science and Technology Session PS-TuA Plasma Chemistry and Catalysis II Moderators: Michael Gordon , University of California at Santa Barbara, François Reniers , Université Libre de Bruxelles, Belgium
2:15pm	INVITED: PS-TuA-1 Nonthermal Plasmas for Advanced Nanomanufacturing, <i>Rebecca Anthony</i> , Michigan State University	
2:30pm		
2:45pm	PS-TuA-3 Understanding Olefin Selectivity in Light Hydrocarbon DBD Plasmas, <i>Ibukunoluwa Akintola, J. Yang, J. Hicks, D. Go</i> , University of Notre Dame	
3:00pm	PS-TuA-4 Pulsing a Methane Discharge for Temperature Control and Better Energy Efficiency for Hydrogen Production, <i>Thomas Fontaine, L. Nyssen, D. Petitjean</i> , Université libre de Bruxelles, Belgium; <i>N. De Geyter</i> , Ghent University, Belgium; <i>R. Snyders</i> , University of Mons, Belgium; <i>F. Reniers</i> , Université libre de Bruxelles, Belgium	
3:15pm	PS-TuA-5 Conversion of Liquid Hydrocarbons to H ₂ and C ₂ Olefins in AC Plasma Discharges, <i>Norleakvisoth Lim, M. Gordon</i> , UCSB Chemical Engineering	
3:30pm	BREAK	
3:45pm		
4:00pm	PS-TuA-8 Integrated Reactor Models of Diamond Growth: Advancing Towards Low-Temperature CVD, <i>Yuri Barsukov, I. Kaganovich, M. Mokrov</i> , PPPL; <i>A. Khrabry</i> , Princeton University	
4:15pm	PS-TuA-9 Solid State Generated Microwave Power for Hydrogen Plasma Reduction of Iron Oxide, <i>Daniel Ellis, J. Rebolgar</i> , University of Illinois Urbana-Champaign; <i>B. Jurczyk</i> , Starfire Industries; <i>J. Krogstad, M. Sankaran</i> , University of Illinois Urbana-Champaign	
4:30pm	PS-TuA-10 Plasma Synthesis of Hydrogen from Ethanol Solution: A Mechanistic Study, <i>D. Lajen, T. Fontaine, L. Nyssen, N. Roy</i> , Université Libre de Bruxelles, Belgium; <i>R. Snyders</i> , Université de Mons, Belgium; <i>N. De Geyter</i> , Ghent University, Belgium; François Reniers , Université libre de Bruxelles, Belgium	
4:45pm	PS-TuA-11 Study of Plasma-Catalyst Surface Interactions for Coking Reduction, <i>Michael Hinshelwood, G. Oehrlein</i> , University of Maryland, College Park	

Tuesday Afternoon, November 5, 2024

Room 125	
2:15pm	INVITED: MN1-TuA-1 Gaede-Langmuir Award Talk: Ingestible Technologies for Disease Assessment and Treatment in the Gastrointestinal Tract, <i>Reza Ghodssi¹</i> , University of Maryland, College Park
2:30pm	
2:45pm	MN1-TuA-3 Packaging Development with an Integrated Wireless System for an Electrochemical Cardiac Biosensor, <i>Jorge Manrique Castro, B. Walker, F. Kashem, S. Rajaraman</i> , University of Central Florida
3:00pm	MN1-TuA-4 Self-Powered, Eco-Friendly, and Edible UV Sensors for Food Packaging Applications, <i>Pouya Borjian, M. Chimerad, P. Pathak, H. Cho</i> , University of Central Florida
3:15pm	MN1-TuA-5 Inkjet Printing of AgNO ₃ inks With Solvent-Selective Morphologies on Liquid Crystal Polymer Substrates, <i>L. Murthy, Christian Zorman, A. Hess-Dunning</i> , Case Western Reserve University
3:30pm	BREAK
3:45pm	
4:00pm	MN2-TuA-8 Development of an in-Situ Helium Purity Sensor for Cryopump Contamination Detection, <i>Peter Moran, N. Kozomora, M. Salvetti</i> , Edwards Vacuum, LLC.
4:15pm	MN2-TuA-9 Facile Fabrication of CuO/ZnO Heterojunctions from Sputtered Films UV Sensing, <i>P. Pathak, Mohammadreza Chimehrad, P. Borjian, H. Cho</i> , University of Central Florida
4:30pm	MN2-TuA-10 Diamagnetically Levitating Graphite Plate Resonators, <i>Y. Wang, S. Yousuf</i> , University of Florida; <i>Jaesung Lee</i> , University of Central Florida; <i>P. Feng</i> , University of Florida
4:45pm	MN2-TuA-11 A Novel MEMS Reservoir Computing Approach for Classifying Human Acceleration Activity Signal, <i>F. Alsaleem, Mohammad Okour, M. Megdadi, A. Al Zubi, M. Fayad</i> , University of Nebraska - Lincoln

**MEMS and NEMS
Session MN1-TuA
Bio and Environmental MEMS
Moderators:
Matthew Jordan**, Sandia National Laboratories,
Yanan Wang, University of Nebraska-Lincoln

**MEMS and NEMS
Session MN2-TuA
MEMS Sensing and Computation
Moderators:
Matthew Jordan**, Sandia National Laboratories,
Yanan Wang, University of Nebraska-Lincoln

¹ Gaede-Langmuir Award Winner

Wednesday Morning, November 6, 2024

<p>Electronic Materials and Photonics Room 114 - Session EM+AIML+AP+QS+TF-WeM Ferroelectrics and Memory Devices Moderators: Samantha Jaszewski, Sandia National Labs, Erin Cleveland, Laboratory of Physical Sciences</p>	<p>Thin Films Room 115 - Session TF-WeM Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP II) Moderators: Trisha Andrew, Univ. of Massachusetts - Amherst, Siamak Nejati, University of Nebraska-Lincoln</p>
<p>8:00am EM+AIML+AP+QS+TF-WeM-1 A Scalable Ferroelectric Non-Volatile Memory Operating at High Temperature, Dhiren Pradhan, Department of Electrical and Systems Engineering, University of Pennsylvania; D. Moore, 2Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; G. Kim, Department of Engineering Chemistry, Chungbuk National University, Cheongju, Republic of Korea; Y. He, Department of Electrical and Systems Engineering, University of Pennsylvania; P. Musavigharavi, Department of Materials Science and Engineering, University of Central Florida; K. Kim, N. Sharma, Z. Han, X. Du, Department of Electrical and Systems Engineering, University of Pennsylvania; V. Pulj, Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; E. Stach, Department of Materials Science and Engineering, University of Pennsylvania; W. Kennedy, N. Glavin, Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB; R. Olsson III, D. Jariwala, Department of Electrical and Systems Engineering, University of Pennsylvania</p>	<p>INVITED: TF-WeM-1 Chemical Vapor Deposition of Metalloporphyrins: Engineering and Integration of Advanced Conjugated Polymers for Catalysis and Sensing, Nicolas Boscher, Luxembourg Institute of Science and Technology (LIST), Luxembourg</p>
<p>8:15am EM+AIML+AP+QS+TF-WeM-2 Oxygen Diffusion Coefficients in Ferroelectric Hafnium Zirconium Oxide Thin Films, Jon Ihlefeld, L. Shvilberg, University of Virginia; C. Zhou, North Carolina State University</p>	
<p>8:30am INVITED: EM+AIML+AP+QS+TF-WeM-3 Thin Film Physics of Ferroelectric HfO₂ and ZrO₂ - From Laboratory Demonstrations to Semiconductor Chips, P. Lomenzo, Uwe Schroeder, Namlab, Germany</p>	<p>TF-WeM-3 Introducing Non-Covalent Interactions during initiated Chemical Vapor Deposition (iCVD), Rong Yang, Cornell University</p>
<p>8:45am</p>	<p>TF-WeM-4 oCVD PEDOT Thin Film as the Hole Transport Layer in Perovskite Solar Cell to Enhance Device Stability and Performance, Meysam Heydari Gharahcheshmeh, San Diego State University/ Department of Mechanical Engineering</p>
<p>9:00am EM+AIML+AP+QS+TF-WeM-5 Iridium Etching: Exploring Reactive Ion Etching Parameters for Efficient Electrode Fabrication in Ferroelectric Memory, Yanan Li, P. Bezard, S. Kundu, F. Lazzarino, X. Piao, Y. Canvel, IMEC Belgium</p>	<p>TF-WeM-5 Networking Density Effects on the Patterning Performance of Metal-Organic Resists Deposited via Hybrid Molecular Layer Deposition, Long Viet Than, G. D'Acunato, S. Bent, Stanford University</p>
<p>9:15am EM+AIML+AP+QS+TF-WeM-6 Investigations in Current Transport Mechanisms of Multi-Resistance State Hafnia Zirconia Ferroelectric Tunnel Junctions, Troy Tharpe, Sandia National Laboratories; M. Lenox, University of Virginia; S. Jaszewski, G. Esteves, Sandia National Laboratories; J. Ihlefeld, University of Virginia; M. Henry, Sandia National Laboratories</p>	<p>TF-WeM-6 Synthesis of Disulfide Polymer by Oxidative Molecular Layer Deposition (oMLD), Amit K. Datta, University of Missouri, Columbia; N. Paranamana, P. Kinlen, M. Young, University of Missouri-Columbia</p>
<p>9:30am EM+AIML+AP+QS+TF-WeM-7 Correlation between Elastic Modulus and Biaxial Stress in Hafnium Zirconium Oxide (HZO) Thin Films, Megan Lenox, University of Virginia; S. Jaszewski, Sandia National Laboratories; S. Fields, Naval Research Laboratory; A. Salanova, M. Islam, M. Hoque, University of Virginia; J. Maria, Penn State University; P. Hopkins, J. Ihlefeld, University of Virginia</p>	<p>TF-WeM-7 High-Throughput MLD for Advanced EUV Photoresists: Stability and Performance of Organic-Inorganic Hybrid Films, Duncan Reece, University of Washington, UK; E. Crum, A. Dao, J. Keth, D. Bergsman, University of Washington</p>
<p>9:45am</p>	<p>TF-WeM-8 Development of a 300mm Wafer Scale Molecular Layer Deposition Process, C. Vallee, Van Long Nguyen, University at Albany-SUNY; O. Sathoud, D. Newman, J. Sathoud, J. McAdams, C. Wajda, K. Tapily, G. Leusink, TEL Technology Center America</p>
<p>10:00am BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>
<p>11:00am INVITED: EM+AIML+AP+QS+TF-WeM-13 Innovations in DARPA's Optimum Processing Technology Inside Memory Arrays (OPTIMA) Program, Todd Bauer, DARPA</p>	<p>INVITED: TF-WeM-13 Area Selective Deposition of Ferrocene-Functionalized Thin Films, J. Lomax, The University of Western Ontario, Canada; E. Goodwin, Carleton University, Canada; J. Bentley, The University of Western Ontario, Canada; M. Aloisio, C. Crudden, Queen's University, Canada; S. Barry, Carleton University, Canada; Paul Ragogna, The University of Western Ontario, Canada</p>
<p>11:15am</p>	
<p>11:30am EM+AIML+AP+QS+TF-WeM-15 A Transition Toward Solid-State in TiO₂ Protonic ECRAM, John Hoerauf, University of Maryland, College Park; M. Schroeder, Army Research Laboratory; D. Stewart, G. Rubloff, University of Maryland, College Park</p>	<p>TF-WeM-15 Infiltration of Methanol Vapor Induces Lattice Flexibility in Microporous Ni₂(BDC)₂DABCO Thin Films, Greg Szulczewski, The University of Alabama</p>
<p>11:45am EM+AIML+AP+QS+TF-WeM-16 Effects of Gamma Radiation on the Structural and Ferroelectric Properties of Hafnium Zirconium Oxide Capacitors, Samantha Jaszewski, Sandia National Laboratories; M. Lenox, J. Ihlefeld, University of Virginia; M. Henry, Sandia National Laboratories</p>	<p>TF-WeM-16 Nanomolecularly-Induced Kinetic, Chemical, and Morphological Effects During Thin Film Synthesis of Hybrid Inorganic/Organic Nanolaminate Multilayers, Collin Rowe, G. Sharma, Materials Science and Engineering Department, Rensselaer Polytechnic Institute; A. Devos, Institute of Electronics, Microelectronics and Nanotechnology, CNRS UMR 8250, France; H. Pedersen, Department of Physics, Chemistry, and Biology, Linköping University, Sweden; G. Ramanath, Materials Science and Engineering Department, Rensselaer Polytechnic Institute</p>
<p>12:00pm EM+AIML+AP+QS+TF-WeM-17 Reconfigurable Ferroelectric Field-Effect Transistor Arrays from SWCNTs, Dongjoon Rhee, K. Kim, S. Song, University of Pennsylvania; L. Peng, Peking University, China; J. Kang, Sungkyunkwan University (SKKU), Republic of Korea; R. Olsson III, D. Jariwala, University of Pennsylvania</p>	<p>TF-WeM-17 The Impact of Copolymer Molecular Sequence on Electronic Transport, Mahya Mehregan, University of Missouri-Columbia; J. Schultz, M. Maschman, M. Young, University of Missouri, Columbia</p>

Wednesday Morning, November 6, 2024

Room 116		
8:00am	AP1+EM+PS+TF-WeM-1 Low-Temperature Synthesis of Crystalline In _x Ga _{1-x} N Films via Plasma-Assisted Atomic Layer Alloying, <i>S. Allaby, F. Bayansal, H. Silva, B. Willis, Necmi Biyikli</i> , University of Connecticut	Atomic Scale Processing Mini-Symposium Session AP1+EM+PS+TF-WeM Energy-Enhanced Atomic Layer Processing Moderators: Ashley Bielinski, Argonne National Laboratory, USA, John F. Conley, Jr., Oregon State University
8:15am	AP1+EM+PS+TF-WeM-2 Comparison of Low Temperature Methods for Crystallization of Vanadium Oxide Produced by Atomic Layer Deposition, <i>Peter Litwin</i> , Naval Research Laboratory, USA; <i>M. Currie, N. Nepal, M. Sales, D. Boris, S. Walton, V. Wheeler</i> , US Naval Research Laboratory	
8:30am	AP1+EM+PS+TF-WeM-3 Temperature-Dependent Dielectric Function of Plasma-Enhanced ZnO Atomic Layer Deposition using in-Situ Spectroscopic Ellipsometry, <i>Yousra Traouli, U. Kilic</i> , University of Nebraska-Lincoln, USA; <i>M. Schubert</i> , University of Nebraska - Lincoln; <i>E. Schubert</i> , University of Nebraska-Lincoln, USA	
8:45am	AP1+EM+PS+TF-WeM-4 Optical Properties and Carrier Transport Characteristics of NiO Films Grown via Low-Temperature Hollow-cathode Plasma-assisted Atomic Layer Deposition, <i>Fatih Bayansal, S. Allaby, H. Mousa, H. Silva, B. Willis, N. Biyikli</i> , University of Connecticut	
9:00am	AP1+EM+PS+TF-WeM-5 Characterizing Inductively Coupled Plasmas in Ar/SF ₆ Mixtures for Atomic Layer Deposition, <i>David Boris, V. Wheeler</i> , U.S. Naval Research Laboratory; <i>M. Sales</i> , NRC Research Associateship Program; <i>L. Rodriguez de Marcos, J. Del Hoyo</i> , NASA Goddard Space Flight Center; <i>A. Lang</i> , U.S. Naval Research Laboratory; <i>E. Wollack, M. Quijada</i> , NASA Goddard Space Flight Center; <i>M. Meyer</i> , NRC Research Associateship Program; <i>S. Walton</i> , U.S. Naval Research Laboratory	
9:15am	AP1+EM+PS+TF-WeM-6 Dynamic Global Model of Cl ₂ /Ar Plasmas: In-Depth Investigations on Plasma Kinetics, <i>Tojo Rasoanarivo, C. Mannequin</i> , Institut des Matériaux de Nantes Jean ROUXEL - Nantes Université, France; <i>F. Roqueta, M. Boufnichel</i> , ST Microelectronics, France; <i>A. Rhallabi</i> , Institut des Matériaux de Nantes Jean ROUXEL - Nantes Université, France	
9:30am	AP1+EM+PS+TF-WeM-7 Precise Growth and Removal of Carbon Films by Electron-Enhanced Chemical Vapor Deposition (EE-CVD) and Chemical Vapor Etching (EE-CVE), <i>Z. Sobell, Steven George</i> , University of Colorado at Boulder	
9:45am	AP1+EM+PS+TF-WeM-8 Microwave Enhanced ALD of Al ₂ O ₃ , <i>Benjamin Kupp, J. Haglund, S. Witsell, J. Conley</i> , Oregon State University	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	
10:15am		
10:30am		
10:45am		
11:00am	AP2+EM+PS+TF-WeM-13 Direct Atomic Layer Processing (Dalp™): Revolutionizing Precision Coatings for Emerging Device Technologies, <i>S. Santucci, M. Akbari, B. Borie, Mira Baraket, I. Kundrata, M. Plakhotnyuk</i> , ATLANT 3D Nanosystems, Denmark	Atomic Scale Processing Mini-Symposium Session AP2+EM+PS+TF-WeM New Advances in Atomic Layer Deposition Moderators: Ashley Bielinski, Argonne National Laboratory, USA, John F. Conley, Jr., Oregon State University
11:15am	AP2+EM+PS+TF-WeM-14 Ceramic Thin-Film Composite Membranes with Tunable Subnanometer Pores for Molecular Sieving by Atomic Layer Deposition, <i>X. Zhou</i> , Yale University; <i>R. Shevate, A. Mane, Jeffrey Elam</i> , Argonne National Laboratory; <i>J. Kim, M. Eliimelech</i> , Yale University	
11:30am	AP2+EM+PS+TF-WeM-15 Electrical and Optical Properties of Macroscopic Nanocomposites Fabricated by ALD Infiltration and Pressure-Assisted Sintering of Nanoparticle Compacts, <i>Benjamin Greenberg, K. Anderson, A. Jacobs</i> , U.S. Naval Research Laboratory; <i>A. Cendejas</i> , American Society for Engineering Education; <i>E. Patterson, J. Freitas, J. Wollmershauser, B. Feigelson</i> , U.S. Naval Research Laboratory	
11:45am	AP2+EM+PS+TF-WeM-16 Tunable Growth of Layered Double Hydroxide Nanosheets through Hydrothermal Conversion of ALD Seed Layers, <i>Daniel Delgado Cornejo, A. Ortiz-Ortiz, K. Fuelling</i> , University of Michigan, Ann Arbor; <i>A. Bielinski</i> , Argonne National Laboratory, USA; <i>T. Ma, N. Dasgupta</i> , University of Michigan, Ann Arbor	
12:00pm	AP2+EM+PS+TF-WeM-17 Passivation Strategies for Far-Ultraviolet Al Mirrors Using Plasma-Based AlF ₃ Processing, <i>Maria Gabriela Sales, D. Boris</i> , U.S. Naval Research Laboratory; <i>L. Rodriguez de Marcos</i> , NASA Goddard Space Flight Center; <i>J. Hart, A. Lang, B. Albright, T. Kessler</i> , U.S. Naval Research Laboratory; <i>E. Wollack, M. Quijada</i> , NASA Goddard Space Flight Center; <i>S. Walton, V. Wheeler</i> , U.S. Naval Research Laboratory	

Wednesday Morning, November 6, 2024

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

Wednesday Morning, November 6, 2024

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

Wednesday Morning, November 6, 2024

<p>Quantum Science and Technology Mini-Symposium Room 123 - Session QS-WeM Quantum Technologies: From Networks and Education to Sensors and User Facilities Moderators: Vijaya Begum-Hudde, Univ. of Illinois at Urbana-Champaign, Sean Jones, Argonne National Laboratory, Corey Rae McRae, National Institute of Standard and Technology</p>		<p>Plasma Science and Technology Room 124 - Session PS-WeM Plasma Modelling Moderators: Pingshan Luan, TEL Technology Center America, Kenji Maeda, Hitachi High Technologies America Inc.</p>	
8:00am	<p>INVITED: QS-WeM-1 The New York Quantum Network: An Advanced Platform for Experiments in Real-Life Conditions, <i>Gabriella Carini</i>, Brookhaven National Laboratory</p>	<p>PS-WeM-1 Challenges and Opportunities of a Holistic Approach toward Simulation-Assisted Plasma Etch Technology Development, <i>Du Zhang, Y. Tsai</i>, TEL Technology Center, America, LLC; <i>T. Nishizuka</i>, Tokyo Electron Miyagi Limited, Japan; <i>A. Ko, P. Biolsi</i>, TEL Technology Center, America, LLC</p>	
8:15am		<p>PS-WeM-2 Some Lessons from Particle-in-Cell Modeling of Intermediate Pressure Capacitively Coupled Plasmas, <i>Shahid Rauf, A. Verma, R. Sahu, N. Nuwal, K. Bera</i>, Applied Materials, Inc.</p>	
8:30am	<p>QS-WeM-3 Building Quantum Information Science Capabilities at HBCUs: Insights and Recommendation, <i>K. Lee</i>, IBM; <i>M. Lowe</i>, IBM HBCU Quantum Center, Howard University; Thomas A. Searles, University of Illinois – Chicago</p>	<p>INVITED: PS-WeM-3 Modeling to Inform Optimization of Radiofrequency Plasma Sources, <i>Amanda Lietz, C. Wagoner, S. Zulqarnain, S. Bin Amir, M. Hossain</i>, North Carolina State University</p>	
8:45am	<p>INVITED: QS-WeM-4 The UCSB NSF Quantum Foundry, <i>John Harter</i>, UC Santa Barbara</p>		
9:00am		<p>PS-WeM-5 Stability Model for Capacitively Coupled Radiofrequency Argon Plasma at Moderate Pressures*, <i>Omar Alsaeed</i>, NCSU - Nuclear Engineering Department; <i>A. Lietz</i>, North Carolina State University; <i>B. Yee, B. Scheiner, M. Mamunuru, C. Qu</i>, Lam Research Corporation</p>	
9:15am	<p>QS-WeM-6 Recent Progress in Quantum Applications via the Q-One Single Ion Implantation System, <i>Gianfranco Aresta, K. Stockbrodige</i>, Unit B6, UK; <i>K. McHardy, P. Blenkinsopp</i>, Ionoptika Ltd., UK</p>	<p>PS-WeM-6 Plasma Modeling Guided Process Development and Optimization for High Density Plasma Sources, <i>Qiang Wang, G. Hartmann, P. Conlin, R. Longo, S. Sirdhar, P. Ventzek</i>, Tokyo Electron America, Inc.</p>	
9:30am	<p>INVITED: QS-WeM-7 Laying the Foundation for a Global Quantum Economy Through Sensors and Standards, <i>Barbara Goldstein</i>, NIST</p>	<p>PS-WeM-7 Investigating Instabilities in Magnetized Low-Pressure Asymmetric Capacitively Coupled Plasma Sources, <i>Sathya Ganta, K. Bera, S. Rauf</i>, Applied Materials, Inc.; <i>I. Kaganovich, A. Khrabrov, A. Powis</i>, Princeton University Plasma Physics Lab; <i>D. Sydorenko</i>, University of Alberta, Canada; <i>L. Xu</i>, Soochow University (SUDA), Suzhou, Jiangsu, China</p>	
9:45am		<p>PS-WeM-8 Fast Kinetic Modeling of Magnetron Sputtering, <i>Daniel Main, T. Jenkins</i>, Tech-X Corporation; <i>J. Theiss, G. Werner</i>, University of Colorado Boulder; <i>S. Kruger, J. Cary</i>, Tech-X Corporation</p>	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall		BREAK - Complimentary Coffee in Exhibit Hall
10:15am			
10:30am			
10:45am			
11:00am	<p>INVITED: QS-WeM-13 PARADIM: An NSF-Supported National User Facility that can help YOU Discover and Perfect Quantum Materials, <i>Darrell Schlom</i>, Cornell University</p>	<p>PS-WeM-13 Advancements in Multiscale Simulation of Silicon Etching: Broader Implications for Plasma Processing, <i>Rim Ettouri, A. Rhallabi</i>, Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, France</p>	
11:15am		<p>PS-WeM-14 Modeling of Modern Plasma Processing Reactors Using Particle-in-Cell Codes, <i>Igor Kaganovich</i>, Princeton Plasma Physics Laboratory, Princeton University; <i>D. Sydorenko</i>, University of Alberta, Canada; <i>A. Khrabrov</i>, Princeton Plasma Physics Laboratory, Princeton University; <i>S. Sharma</i>, Institute for Plasma Research, India; <i>S. Jubin, A. Powis, W. Villafana, S. Ethier</i>, Princeton Plasma Physics Laboratory, Princeton University</p>	
11:30am	FLASH SESSION	<p>PS-WeM-15 Intermediate Pressure Capacitively Coupled Ar/N₂ Plasmas – Experimental Diagnostics and Modeling, <i>Abhishek Verma, K. Bera, S. Rauf</i>, Applied Materials Inc.; <i>S. Hussain, M. Goeckner</i>, University of Texas at Dallas</p>	
11:45am		<p>PS-WeM-16 Controlling the Etch Process by Changing the Plasma Chemistry Through Pulsing, <i>Evrin Solmaz, D. Zhang</i>, TEL Technology Center America; <i>B. Lane</i>, Tokyo Electron America; <i>Y. Sakakibara, S. Uda, M. Yamazaki, C. Thomas, T. Saito</i>, Tokyo Electron, Japan; <i>Y. Tsai</i>, TEL Technology Center America; <i>T. Hisamatsu, Y. Yamazawa</i>, Tokyo Electron, Japan</p>	

Wednesday Morning, November 6, 2024

Room 125	
8:00am	INVITED: AIML-WeM-1 "Beyond Fingerprinting": Rapid Process Exploration and Optimization via High-Throughput and Machine Learning, Brad Boyce , Sandia National Laboratories, USA; <i>R. Dingreville, J. Coleman, E. Fowler, C. Martinez</i> , Sandia National Labs; <i>D. Adams</i> , Sandia National Laboratories
8:15am	
8:30am	INVITED: AIML-WeM-3 Simulations of Epitaxial Inorganic Interfaces Using DFT with Machine-Learned Hubbard U Corrections, Noa Marom , Carnegie Mellon University
8:45am	
9:00am	AIML-WeM-5 On-The-Fly Analysis of RHEED Images During Deposition Using Artificial Intelligence, Tiffany Kaspar , <i>J. Pope, S. Akers, H. Sprueill, A. Ter-Petrosyan, D. Hopkins, E. King, J. Drgona</i> , Pacific Northwest National Laboratory
9:15am	AIML-WeM-6 An Unsupervised Machine Learning Approach for the Identification of Adsorbates on a Semiconductor Surface: BCl ₃ Adsorption on Si(100), Azadeh Farzaneh , University of Maryland, College Park; <i>C. Wang, S. Kalinin</i> , University of Tennessee Knoxville; <i>R. Butera</i> , Laboratory for Physical Sciences
9:30am	AIML-WeM-7 Quantum and Classical Supervised Learning Analysis of Synthesis-Structure Relationships in Epitaxially-Grown Semiconductors, Andrew Messecar , Western Michigan University; <i>S. Durbin</i> , University of Hawai'i at Mānoa; <i>R. Makin</i> , Western Michigan University
9:45am	AIML-WeM-8 'DECIEDD with CARE' - Building an Autonomous Ecosystem for the Discovery and Optimization of Metal Nanoparticle Inks, J. Elliott Fowler , Sandia National Laboratories; <i>N. Trask</i> , University of Pennsylvania; <i>M. Kottwitz, N. Bell, A. Hesu, A. Roth</i> , Sandia National Laboratories; <i>J. Hanna</i> , University of Wisconsin - Madison; <i>J. Foster</i> , University of Texas at Austin; <i>J. Boissiere</i> , Sandia National Laboratories
10:00am	BREAK - Complimentary Coffee in Exhibit Hall
10:15am	
10:30am	
10:45am	
11:00am	
11:15am	
11:30am	AIML-WeM-15 Accelerating Innovation: Using AI for Process Pathfinding, Leandro Medina , SandBox Semiconductor; <i>M. Karam, S. Sirard, M. Chopra</i> , SandBox Semiconductor
11:45am	AIML-WeM-16 AI-Driven Synthesis of Thin Films with Pulsed Laser Deposition, Sumner Harris , Oak Ridge National Laboratory; <i>A. Biswas</i> , University of Tennessee, Oak Ridge National Laboratory; <i>C. Rouleau, A. Poretzky, S. Yun, R. Vasudevan, D. Geohegan, K. Xiao</i> , Oak Ridge National Laboratory
12:00pm	AIML-WeM-17 Active-Learning Based Structure Discovery in STM, Ganesh Narasimha , Oak Ridge National Laboratory; <i>S. Hus</i> , Oak Ridge National Lab (ORNL); <i>A. Biswas</i> , Oak Ridge National Laboratory, USA; <i>D. Kong</i> , University of Virginia, USA; <i>Z. Gai, R. Vasudevan</i> , Oak Ridge National Laboratory, USA; <i>M. Ziatdinov</i> , Pacific Northwest National Laboratory

AI/ML for Scientific Discovery
Session AIML-WeM
AI/ML for Scientific Discovery
Moderators:
Alain Diebold, University at Albany-SUNY,
Erica Douglas, Sandia National Laboratories

Wednesday Afternoon, November 6, 2024

Electronic Materials and Photonics Room 114 - Session EM+AP+TF-WeA CMOS and BEOL - Advances in Materials Integration and Devices Moderators: Erica Douglas, Sandia National Laboratories, Cheng Gong, University of Maryland College Park		Thin Films Room 115 - Session TF-WeA Vapor Synthesis of Hybrid, Organic, and Polymeric Materials (VSHOP III) Moderators: David Bergsman, University of Washington, Rong Yang, Cornell University	
2:15pm	INVITED: EM+AP+TF-WeA-1 All-Acoustic and Single-Chip Radio Frequency Signal Processing via Heterogeneous Integration of Semiconductors and Piezoelectric Materials, Matt Eichenfeld , University of Arizona	INVITED: TF-WeA-1 Chemical Vapor Deposition of Polymers for Lithium Ion Batteries, Kenneth Lau , Rowan University	
2:30pm			
2:45pm	EM+AP+TF-WeA-3 Breaking the Quantum Conductance Barrier in CMOS Interconnect Design, William Kaden , University of Central Florida	TF-WeA-3 Exploring the Influence of Reduced Vacuum Conditions on Structural and Chemical Variations in Hybrid Perovskite Films Deposited by Resonant Infrared Matrix-Assisted Pulsed Laser Evaporation, Joshua Aveni, A. Stiff-Roberts , Duke University	
3:00pm	EM+AP+TF-WeA-4 "Suboxide MBE" — A Route to p-Type and n-Type Semiconducting Oxides at BEOL Conditions, Darrell Schlom , Cornell University	TF-WeA-4 Low Surface Energy for Tuning the Surface Repellency through Initiated Chemical Vapor Deposition, Syed Ibrahim Gnani Peer Mohamed, G. Kaufman, D. Egbibunmi, M. Bavarian, J. Shield, C. Zuhlke, S. Nejadi , University of Nebraska Lincoln	
3:15pm	EM+AP+TF-WeA-5 Epitaxial Metastable Cubic CO(001)/MgO(001): Potential Interconnect Conductor, Anshuman Thakral, D. Gall , RPI	TF-WeA-5 From iCVD Thin Films to 3D Aeropolymers for Biomedical Applications, Torge Hartig, J. Paulsen, W. Reichstein, M. Hauck, J. Piehl , Kiel University, Germany; M. Taale , Universität Heidelberg, Germany; T. Strunskus , Kiel University, Germany; C. Selhuber-Unkel , Universität Heidelberg, Germany; G. Schnell , University of Rostock, Germany; A. Amin , National Research Center, Giza, Egypt; R. Adelung , Kiel University, Germany; B. Freedman , Harvard University; F. Schütt, F. Faupel, S. Schröder , Kiel University, Germany	
3:30pm	EM+AP+TF-WeA-6 Characteristics of Reconfigurable FETs Implemented on Bulk Silicon Using Reduced Pressure CVD, S. Lee, S. Kim, J. Park, W. Lee, Dongwoo Suh , Electronics and Telecommunications Research Institute, Republic of Korea	TF-WeA-6 Investigating PEDTT Thin Films: Comparing Synthesis Methods and Properties for Electronic Applications, Siamak Nejati, S. Gnani Peer Mohamed, L. Okpaire, V. Medic, M. Bavarian , University of Nebraska-Lincoln, USA	
3:45pm	BREAK	BREAK	
4:00pm			
4:15pm	EM+AP+TF-WeA-9 Forward Bias Annealing of Proton Radiation Damage in NiO/Ga ₂ O ₃ Rectifiers, Jian-Sian Li, C. Chiang, H. Wan , University of Florida, Gainesville; M. Rasel, A. Haque , Pennsylvania State University; J. Kim , Seoul National University, Republic of Korea; F. Ren , University of Florida; L. Chernyak , University of Central Florida; S. Pearton , University of Florida	INVITED: TF-WeA-9 Exploring New Avenues Resulting from the Rational Process Design of Sequential Infiltration Synthesis, Nari Jeon , Chungnam National University, Republic of Korea	
4:30pm	EM+AP+TF-WeA-10 Studies of the Effects of Doping and Nanolamination on the Temperature Coefficient of Resistivity of Ru-TiO ₂ Thin Films, S. Berriel, Gauri Syamala Rao Mullapudi , University of Central Florida; N. Rudawski , University of Florida; P. Banerjee , University of Central Florida		
4:45pm	EM+AP+TF-WeA-11 AVS National Student Award Finalist Talk: Determination of Band Offsets at the Interfaces of NiO, SiO ₂ , Al ₂ O ₃ and ITO with AlN, Hsiao-Hsuan Wan¹, J. Li, C. Chiang, X. Xia, D. Hays , University of Florida; N. Al-Mamun, A. Haque , Pennsylvania State University; F. Ren, S. Pearton , University of Florida	TF-WeA-11 Vapor Phase Infiltration of ZnO into Photo-Polymerizable Polyacrylates: Patterning and the Importance of Free Volume, Mark Losego , Georgia Tech; L. Demelius , Graz University of Technology, Austria; A. Coclite , University of Bari, Italy	
5:00pm		TF-WeA-12 Effect of Alumina Priming on Structural and Electrical Properties of ZnO Nanostructures Synthesized via Vapor-Phase Infiltration Into Self-Assembled Block Copolymer Thin Films, C. Nam, Won-Il Lee, A. Subramanian , Stony Brook University/Brookhaven National Laboratory; K. Kisslinger , Brookhaven National Laboratory; N. Tiwale , Brookhaven National Laboratory	
5:15pm		TF-WeA-13 Spectroscopic Study of the Inorganic Structure in Pim-1/Metal Oxyhydroxide Hybrid Membranes Synthesized via Vapor Phase Infiltration, Benjamin Jean, I. Slagle, F. Alamgir, M. Losego , Georgia Tech	
5:30pm		TF-WeA-14 Nanoporous TiO ₂ Coating Designed by Swelling-Assisted Sequential Infiltration Synthesis (SIS) of Block Copolymer for Self-Cleaning Application, Khalil Omotosho, D. Berman , University of North Texas	
5:45pm		TF-WeA-15 Permanent Electric Polarization in Vapor Phase Deposited Polymer Thin Films, Stefan Schröder, T. Hartig, L. Schwäke, T. Strunskus, F. Faupel , Kiel University, Germany	
6:00pm		TF-WeA-16 Using ALD to Alter the Biological Response of Cellulose Fabrics, Li Zhang, M. Losego , Georgia Institute of Technology	

Wednesday Afternoon, November 6, 2024

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

Wednesday Afternoon, November 6, 2024

Applied Surface Science, Room 117 - Session AS-WeA Advanced Materials and Methods Moderators: Tanguy Terlier, Rice University, Julia Zakei, IONTOF GmbH, Germany		Surface Science, Room 120 - Session SS+2D+AMS-WeA Defects Nanoarchitecture and Complex Systems Moderators: Dario Stacchiola, Brookhaven National Laboratory, Zhenrong Zhang, Baylor University	
2:15pm	INVITED: AS-WeA-1 Ion Migration and Chemical Phenomena in Functional Materials: Correlative Studies via Combined AFM/ToF-SIMS Approach, Anton Ievlev , Oak Ridge National Laboratory	2:30pm	SS+2D+AMS-WeA-1 Exploring ZIF-8 Vibrational Spectra with Its IR Peak Assignments and Defect Signal Characterization, Mueed Ahmad , Stony Brook University/Brookhaven National Lab; R. Patel , Univ. of Minnesota; D. T. Lee , Stony Brook University/Brookhaven National Laboratory; P. Corkery , A. Kraetz, Johns Hopkins Univ.; P. Prerna , University of Minnesota; S. Tenney , D. Nykypanchuk, X. Tong, Brookhaven National Lab; J. Siepmann , Univ. of Minnesota; M. Tsapatsis , Johns Hopkins Univ.; J. Boscoboinik , Stony Brook Univ./Brookhaven National Lab
2:45pm	AS-WeA-3 Elemental and Chemical Quantification of Porous Transport Electrodes with X-Ray Photoelectron Spectroscopy Analysis and Scanning Electron Microscopy – Energy Dispersive X-Ray Spectroscopy, Lonneke van Eijk , Colorado School of Mines; J. Foster , Colorado School of Mines, USA; S. Khandavalli , NREL; L. Ding , Univ. of Tennessee, Knoxville; G. Stelmacovich , Colorado School of Mines, USA; S. Mauger , NREL; F. Zhang , University of Tennessee, Knoxville; A. Paxson , Plug Power; S. Pylypenko , Colorado School of Mines, USA	2:45pm	INVITED: SS+2D+AMS-WeA-3 Finding Surface Defects in Electronic Materials, Sujitra Pookpanratana , National Institute of Standards and Technology
3:00pm	AS-WeA-4 Comprehensive Characterization of Porous Transport Layers and Porous Transport Electrodes with Time-of-Flight Secondary Ion Mass Spectrometry, Genevieve Stelmacovich , L. van Eijk, J. Foster, Colorado School of Mines; L. Ding , Univ. of Tennessee, Knoxville; S. Ware , J. Young, NREL; F. Zhang , Univ. of Tennessee, Knoxville; A. Paxson , Plug Power Inc.; G. Bender , NREL; D. Cullen , Oak Ridge National Laboratory; S. Pylypenko , Colorado School of Mines	3:15pm	SS+2D+AMS-WeA-5 SSD Morton S. Traum Award Finalist Talk: Silver Iodide – Surface Structure and Ice Nucleation Investigated by Noncontact AFM, Johanna Hütner¹ , D. Kugler , Vienna University of Technology, Austria; F. Sabath , Bielefeld University, Germany; M. Schmid , Vienna University of Technology, Austria; A. Kühnle , Bielefeld University, Germany; U. Diebold , J. Balajka, Vienna University of Technology, Austria
3:30pm	AS-WeA-6 Development of Best Practices for Cryo-XPS – Opening the Possibility to New Sample Analysis and Paving a Route to Standardization, K. Zahra , Liam Soomary , Kratos Analytical Limited, UK; C. Moffitt , D. Surman , Kratos Analytical Inc.; J. Counsell , Kratos Analytical Limited, UK	3:30pm	SS+2D+AMS-WeA-6 SSD Morton S. Traum Award Finalist Talk: Reversible Non-Metal to Metal Transition and Effective Debye Temperatures of Highly Crystalline NiFe ₂ O ₄ Thin Films, Arjun Subedi² , D. Yang , X. Xu , P. Dowben , University of Nebraska-Lincoln, USA
3:45pm	BREAK	3:45pm	BREAK
4:15pm	AS-WeA-9 ASSD Student Award Finalist Talk: 3D ToF-SIMS Imaging of Polyethylene Oxide-Lithium Nitrate Electrolytes in Lithium Ion Batteries, Reyhane Shavand³ , University of Illinois Chicago	4:15pm	SS+2D+AMS-WeA-9 In situ Structure Study of a MnOX-Na ₂ WO ₄ /SiO ₂ Catalyst for OCM under Na ₂ WO ₄ Melting Conditions, Yong Yang , ShanghaiTech University, China; D. Wang , E. Vovk , ShanghaiTech.edu.cn, China; Y. Liu , J. Lang , ShanghaiTech University, China
4:30pm	AS-WeA-10 Understanding the Impacts of Battery Electrode Manufacturing Processes through Surface Characterization Techniques, Mikhail Trought , T. Kravchuk , S. Peczonczyk , A. Straccia , M. Nichols , Ford Motor Co	4:30pm	SS+2D+AMS-WeA-10 Characterization of Nanoplastics Samples, T. Roorda , M. Brohet , S. Campos , Irene Groot , Leiden University, Netherlands
4:45pm	INVITED: AS-WeA-11 Characterization of Sodium Ion Batteries - from Postmortem to Operando, Marcus Rohnke , T. Ortman , D. Schäfer , J. Janek , Justus Liebig University Giessen, Germany	4:45pm	SS+2D+AMS-WeA-11 Oxidation of NiCr and NiCrMo- Unraveling the Role of Mo with XPEEM Studies, Keithen Orson , D. Jessup , University of Virginia; W. Blades , Juniata College; J. Sadowski , Brookhaven National Laboratory; Y. Niu , A. Zakharov , Lund University, Sweden; P. Reinke , University of Virginia
5:00pm		5:00pm	SS+2D+AMS-WeA-12 An Investigation of Local Distortions on High Entropy Alloy Surfaces, Lauren Kim , University of Wyoming; P. Sharma , Lehigh University; G. Balasubramanian , Lehigh University; T. Chien , University of Wyoming
5:15pm	AS-WeA-13 Surface Analysis of Engineered Particles for Improved Battery Performance and Stability, Jennifer Mann , S. Zaccarine , Physical Electronics; I. Oladeji , ULVAC Technologies, Inc.; K. Suu , Ulvac Technologies, Inc., Germany; K. Artyushkova , Physical Electronics	5:15pm	SS+2D+AMS-WeA-13 Grain Boundary and Twin Boundary Solute Segregations in Nanocrystalline Al-Mg Alloy, Xuanyu Sheng , z. Shang , A. Shang , Purdue University, China; H. Wang , X. Zhang , Purdue University
5:30pm	AS-WeA-14 X-ray Photoelectron Spectroscopy for Battery Research Applications, Tatyana Bendikov , A. Maity , N. Yahalom , Y. Steinberg , H. Weissman , B. Rybtchinski , M. Leskes , Weizmann Institute of Science, Israel	5:30pm	SS+2D+AMS-WeA-14 Charge Ordering Phase Transition in Bilayer Sn on Si(111), Nathan Guisinger , M. Chan , Argonne National Laboratory; C. Lilley , University of Illinois – Chicago
5:45pm	AS-WeA-15 AVS National Student Award Finalist Talk: Investigating the Substrate Mediated Growth Pathways and High-Field Superconducting Behavior of Nb ₃ Sn Films for Particle Accelerator Cavities, Sarah Willson³ , University of Chicago; A. Harbick , Brigham Young University; R. Farber , University of Kansas; H. Lew-Kiedrowska , V. Do , University of Chicago; M. Transtrum , Brigham Young University; S. Sibener , University of Chicago	5:45pm	SS+2D+AMS-WeA-15 SSD Morton S. Traum Award Finalist Talk: On-Surface Design of Highly-Ordered Two-Dimensional Networks Stabilized by Nonmetal Atoms, Alisson Ceccatto⁴ , Univ. of Campinas (UNICAMP), Brazil; G. Campi , Yachay Tech Univ., Ecuador; V. Carreño , E. Ferreira , Univ. of Campinas (UNICAMP), Brazil; N. Waleska-Wellenhofer , E. Freiburger , S. Jaekel , Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany; C. Papp , Freie Univ. Berlin, Germany; H. Steinhilber , Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany; D. Mowbray , Yachay Tech Univ., Ecuador; A. de Siervo , UNICAMP, Brazil
6:00pm	AS-WeA-16 Silicon Wafer Doping with Mineral Films Prepared via Tethering by Aggregation and Growth, Peter Thissen , KIT, Germany	6:00pm	FLASH SESSION

¹ SSD Morton S. Traum Award Finalist

² ASSD Student Award Finalist

³ AVS National Student Award Finalist

⁴ SSD Morton S. Traum Award Finalist

Wednesday Afternoon, November 6, 2024

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

¹ AVS National Student Award Finalist

² Falicov Student Award Finalist

Wednesday Afternoon, November 6, 2024

Room 124		
2:15pm	PS1-WeA-1 Sequential Plasma Process Design by Genetic Algorithm, <i>Patrick Conlin, G. Hartmann, Q. Wang, R. Longo, S. Sridhar, P. Ventzek</i> , Tokyo Electron America, Inc.	Plasma Science and Technology Session PS1-WeA Plasma Modelling AI/ML Moderator: Amanda Lietz , North Carolina State University
2:30pm	PS1-WeA-2 Machine-Learning-Based Force Fields for Molecular Dynamics Simulation of Silicon and Silicon Dioxide Ion Beam Etching, <i>Shunya Tanaka, S. Hamaguchi</i> , Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan; <i>H. Kino</i> , National Institute for Materials Science (NIMS), Japan	
2:45pm	PS1-WeA-3 Machine Learning Interatomic Potentials for Plasma-Surface Interaction Simulations, <i>Jack Draney, A. Panagiotopoulos, D. Graves</i> , Princeton University	
3:00pm	PS1-WeA-4 Dry Etching Process with NLD Plasma Distribution Determined by Machine Learning, <i>Keiichiro Asakawa, K. Doi, Y. Morikawa</i> , ULVAC, Inc., Japan	
3:15pm	PS1-WeA-5 Accelerating Plasma-based Process Development and Chamber Productivity with Artificial Intelligence, <i>Meghali Chopra, S. Sirard</i> , SandBox Semiconductor Incorporated	
3:30pm		
3:45pm	BREAK	
4:00pm		
4:15pm	PS2-WeA-9 Low Damaged GaN Surface Through Passivating Plasma Etching and Post-Etch Treatments for Improved GaN-MOS Capacitor Performance, <i>David Cascales</i> , CEA-LETI & LTM, France; <i>P. Pimenta-Barros, E. Martinez</i> , CEA-LETI, France; <i>B. Salem</i> , LTM - MINATEC - CEA/LETI, France	Plasma Science and Technology Session PS2-WeA Plasma Processes for Emerging Device Technologies Moderator: Phillipe Bezar , IMEC Belgium
4:30pm	PS2-WeA-10 Anisotropic and Sub-Micrometric InGaP Plasma Etching for High Efficiency Photovoltaics, <i>Alison Clarke, M. de Lafontaine</i> , University of Ottawa, Canada; <i>R. King, C. Honsberg</i> , Arizona State University; <i>K. Hinzer</i> , University of Ottawa, Canada	
4:45pm	PS2-WeA-11 On the Plasma Etching Mechanisms of Patterned Aluminum Nitride Nanowires with High Aspect Ratio, <i>Saron Sales de Mello, L. Jaloustre</i> , University Grenoble Alpes, CNRS, LTM, France; <i>S. Labau, C. Petit-Etienne</i> , University Grenoble Alpes, CNRS, LTM, France; <i>G. Jacopin</i> , University Grenoble Alpes, CNRS, Institut Néel, France; <i>E. Pargon</i> , University Grenoble Alpes, CNRS, LTM, France	
5:00pm	PS2-WeA-12 Room Temperature ICP Plasma Passivation for SiC MOS Capacitor, <i>Rodrigo Cesar</i> , Center for Electronic Components and Nanotechnology - CCSNano, Brazil	

Thursday Morning, November 7, 2024

Room 114	
8:00am	<p>EM+2D+AP+QS+TF-ThM-1 Electronic and Photonic Integrated Devices Enabled by Local III-V on Si Heteroepitaxy, <i>M. Scherrer</i>, IBM Research GmbH, Zurich Research Laboratory, Switzerland; <i>K. Moselund</i>, Paul Scherrer Institute, Switzerland; <i>Heinz Schmid</i>, IBM Research GmbH, Zurich Research Laboratory, Switzerland</p>
8:15am	<p>EM+2D+AP+QS+TF-ThM-2 In situ Graphene Barriers for Remote Epitaxy of SiC, <i>Daniel Pennachio</i>, <i>J. Hajzus</i>, <i>R. Myers-Ward</i>, US Naval Research Laboratory</p>
8:30am	<p>EM+2D+AP+QS+TF-ThM-3 Basal Plane Dislocation Mitigation via Annealing and Growth Interrupts, <i>Rachael Myers-Ward</i>, <i>N. Mahadik</i>, <i>D. Scheiman</i>, <i>J. Hajzus</i>, <i>S. White</i>, <i>D. Pennachio</i>, Naval Research Laboratory</p>
8:45am	<p>EM+2D+AP+QS+TF-ThM-4 Shadow Mask Molecular Beam Epitaxy, <i>S. Mukherjee</i>, <i>R. Sitaram</i>, <i>X. Wang</i>, University of Delaware; <i>Stephanie Law</i>, Pennsylvania State University</p>
9:00am	<p>EM+2D+AP+QS+TF-ThM-5 Impact of Excess Ga on Electronic Properties in Plasma-assisted MBE-grown β-Ga₂O₃, <i>Thaddeus Asel</i>, <i>B. Noesges</i>, <i>J. Li</i>, <i>Y. Kim</i>, <i>A. Neal</i>, <i>S. Mou</i>, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA</p>
9:15am	<p>EM+2D+AP+QS+TF-ThM-6 Advancing Single-Crystalline Oxide Membrane Growth via Molecular Beam Epitaxy, <i>Shivasheesh Varshney</i>, <i>S. Choo</i>, University of Minnesota; <i>M. Ramis</i>, Institute of Materials Science of Barcelona (ICMAB-CSIC), Spain; <i>L. Thompson</i>, <i>J. Shah</i>, <i>Z. Yang</i>, <i>J. Wen</i>, <i>S. J. Koester</i>, <i>K. Mkhoyan</i>, <i>A. S. McLeod</i>, University of Minnesota; <i>M. Coll</i>, Institute of Materials Science of Barcelona (ICMAB-CSIC), Spain; <i>B. Jalan</i>, University of Minnesota</p>
9:30am	<p>FLASH SESSION</p>
9:45am	
10:00am	
10:00am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>
10:15am	
10:30am	
10:45am	
10:45am	

**Electronic Materials and Photonics
Session EM+2D+AP+QS+TF-ThM
Epitaxy: Advances in Materials Integration and
Devices**
Moderators:
Haozhe Wang, Duke University,
Jason Kawasaki, University of Wisconsin - Madison

Thursday Morning, November 7, 2024

Room 115	
8:00am	INVITED: TF1+AP-ThM-1 AVS Medard W. Welch Award Talk: The Surface Chemistry of the Atomic Layer Deposition of Metal Thin Films, <i>Francisco Zaera</i> ¹ , University of California - Riverside
8:15am	
8:30am	TF1+AP-ThM-3 Effects of ALD Chemistry on Process Windows, Thin Film Composition and Modification of the Underlying Substrate Surface, <i>J. Swarup, James Engstrom</i> , Cornell University
8:45am	TF1+AP-ThM-4 Atomic Layer Deposition Chemistry – Trimethylaluminum on SiO ₂ and Cu from a Surface Science Perspective, <i>Leonhard Winter, F. Zaera</i> , University of California, Riverside
9:00am	TF1+AP-ThM-5 Spatial Atomic Layer Deposition: Transport-Reaction Modeling and Experimental Validation of Film Geometry, <i>Daniel Penley, N. Dasgupta</i> , University of Michigan, Ann Arbor
9:15am	TF1+AP-ThM-6 Deposition Efficiency Modeling according to Precursor Flow Rate in ALD Process with Fixed Chamber Pressure, <i>Dongho Shin</i> , Samsung Electronics, Republic of Korea
9:30am	TF1+AP-ThM-7 Time-Resolved Heat Generation of ALD MgO Surface Reactions, <i>Ashley Bielinski, J. Xu</i> , Argonne National Laboratory; <i>S. Htun</i> , Northwestern University; <i>S. Hruszkewycz, C. Liu, A. Martinson</i> , Argonne National Laboratory
9:45am	TF1+AP-ThM-8 In situ Stress Measurements During Tungsten Atomic Layer Deposition, <i>Ryan B. Vanfleet, S. George</i> , University of Colorado at Boulder
10:00am	BREAK - Complimentary Coffee in Exhibit Hall
10:15am	
10:30am	
10:45am	
11:00am	INVITED: TF2+EM-ThM-13 Inherently Selective Thermal Atomic Layer Deposition of Copper Metal Thin Films, <i>Charles Winter</i> , Wayne State University
11:15am	
11:30am	TF2+EM-ThM-15 Effect of Hydrogen Annealing on Grain Growth of Tungsten Films, <i>Seunghyun Park</i> , School of Advanced Materials Science & Engineering, Sungkyunkwan University, Republic of Korea; <i>S. Kim</i> , Department of Semiconductor and Display Engineering, Sungkyunkwan University, Republic of Korea; <i>C. Park, H. Kim</i> , School of Advanced Materials Science & Engineering, Sungkyunkwan University, Republic of Korea
11:45am	TF2+EM-ThM-16 Textured Growth of Zinc Sulfide on Back-End-of-the-Line (BEOL) Compatible Substrates, <i>Claire Wu</i> , University of Southern California; <i>M. Surendran</i> , Lawrence Berkeley National Laboratory; <i>P. Tzeng, C. Wu, X. Bao</i> , TSMC, Taiwan; <i>J. Ravichandran</i> , University of Southern California
12:00pm	TF2+EM-ThM-17 Steep-Slope IGZO Transistor with an Ag/Hf _{1-x} Zr _x O ₂ Atomic Threshold Switch, <i>Junmo Park, D. Eom, H. Kim, Y. Kim, H. Kim</i> , Sungkyunkwan University, Republic of Korea

Thin Films
Session TF1+AP-ThM
Thin Films: Fundamentals of ALD
Moderators:
Matthias Young, University of Missouri,
Sarah Atanasov, Intel

Thin Films
Session TF2+EM-ThM
Thin Films for Microelectronics I: BEOL
Moderators:
Sarah Atanasov, Intel,
Matthias Young, University of Missouri

¹ Medard W. Welch Award Winner

Thursday Morning, November 7, 2024

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

¹ ASSD Student Award Finalist

² AVS National Student Award Finalist

³ ASSD Peter Sherwood Award

Thursday Morning, November 7, 2024

	Chemical Analysis and Imaging of Interfaces Room 121 - Session CA-ThM In Situ and Operando Analysis of Energy and Environmental Interfaces I Moderators: Sefik Suzer , Bilkent University, Turkey, Xiao-Ying Yu , Oak Ridge National Laboratory, USA	2D Materials Room 122 - Session 2D-ThM 2D Materials: Defects, Dopants, Edges, Functionalization, and Intercalation Moderators: Arkady Krasheninnikov , Helmholtz Zentrum Dresden Rossendorf, Germany, Young Hee Lee , Sungkyunkwan University, Korea (Democratic People's Republic of)
8:00am	INVITED: CA-ThM-1 Rationally Engineering Interfaces to Improve Performances of Li Metal Batteries, Bin Li , Oak Ridge National Laboratory, USA	2D-ThM-1 Electronic and Magnetic Properties of Intrinsic Defects in TiS ₂ , P. Keeney , university of North Florida; A. Evans , T. Pekarek , J. Haraldsen , Paula Mariel Coelho , University of North Florida
8:15am		2D-ThM-2 DFT-Based Investigation of Formation Energies and Properties of 2D TiS ₂ with Various Defects, Patrick Keeney , P. Coelho , J. Haraldsen , University of North Florida
8:30am	CA-ThM-3 Dynamic Molecular Investigation of the Solid-Electrolyte Interphase of an Anode-Free Lithium Metal Battery Using in situ Liquid SIMS and Cryo-TEM, Zihua Zhu , Y. Xu , P. Gao , C. Wang , Pacific Northwest National Laboratory	2D-ThM-3 Role of Chalcogen Vacancies and Hydrogen in Bulk and Monolayer Transition-Metal Dichalcogenides, Shoaib Khalid , Princeton University Plasma Physics Lab; A. Janotti , University of Delaware; B. Medasani , Princeton University Plasma Physics Lab
8:45am	CA-ThM-4 Understanding the Surface and Bulk Transitions of Functional Inorganic Materials for Energy Applications, Ajay Karakoti , Pacific Northwest National Laboratory; K. Thangaraj , Washington State University, US; T. Bathena , Oregon State University; V. Shutthanandan , Pacific Northwest National Laboratory; S. Lee , K. Ramasamy , V. Murugesan , Pacific Northwest National Lab	2D-ThM-4 Defect-engineered High-gain WS ₂ Photodetector after 10 MeV Proton Irradiations, Joonyup Bae , D. Lee , S. Kwak , J. Kim , W. Lee , Seoul National University, Republic of Korea
9:00am	CA-ThM-5 In situ Imaging and Spectroscopy of Boehmite Particles in Liquid, Xiao-Ying Yu , Oak Ridge National Laboratory	2D-ThM-5 Doping Transition Metal Dichalcogenides by Low Energy Ion Irradiation, W. Blades , Juniata College; F. Bastani , E. Truhart , K. Burns , Petra Reinke , University of Virginia
9:15am	CA-ThM-6 Square Wave Modulated Xps Enables Capturing Dynamics of Local-Electrical Potential Variations of Solid-Liquid Interfaces, E. Kutbay , Bilkent University, Ankara, Turkey; P. Aydoğan-Gokturk , Koc University, Istanbul, Turkey; S. Ergoktas , C. Kocabas , Manchester University, UK; Sefik Suzer , Bilkent University, Chemistry Department, 06800 Ankara, Turkey	2D-ThM-6 Atomic-scale Manipulation of Two-dimensional Materials with Ion Beams: From Aberration-corrected STEM to Monochromated EELS, Kory Burns , T. Alem , E. Truhart , University of Virginia, USA; C. Smyth , Sandia National Laboratories, USA; S. McDonnell , University of Virginia, USA; T. Ohta , Sandia National Laboratories, USA; J. Hachtel , Oak Ridge National Laboratory, USA
9:30am	CA-ThM-7 Infrared Spectro-Microscopy of Solid-Liquid Interfaces, Xiao Zhao , M. Salmeron , Lawrence Berkeley National Laboratory	2D-ThM-7 MoS ₂ /MoSe ₂ Janus Crystals: Nanoscale Defects and Composition Misconceptions Revealed Through Cross-Correlated AFM and TERS Imaging, Andrey Krayev , HORIBA Scientific; T. Zhang , MIT; L. Hoang , Stanford University; N. Mao , MIT; A. Mannix , E. Pop , Stanford University; J. Kong , MIT
9:45am	CA-ThM-8 Scanning Photoelectron Spectro-Microscopy – Opportunities and Possibilities of Operando Micro-Imaging and Chemical Analysis, Zygmunt Milosz , M. Amati , L. Gregoratti , Elettra-Sincrotrone Trieste, Italy	
10:00am	BREAK - Complimentary Coffee in Exhibit Hall	BREAK - Complimentary Coffee in Exhibit Hall
10:15am		
10:30am		
10:45am		
11:00am	INVITED: CA-ThM-13 The Dynamics of Encapsulated Clusters Under the Microscope, Barbara A.J. Lechner , Technical University of Munich, Germany	2D-ThM-13 Oxidation Stability of SnSe Under Atmospheric Conditions, Jonathan Chin , B. Gardner , M. Frye , Georgia Institute of Technology; D. Liu , Applied Materials; S. Marini , Cornell University; J. Shallenberger , The Pennsylvania State University; M. McDowell , Georgia Institute of Technology; M. Hilsse , S. Law , The Pennsylvania State University; L. Garten , Georgia Institute of Technology
11:15am		2D-ThM-14 Enhanced Chemical Sensing with Ag-Functionalized WS ₂ Vertical Nanoflakes Grown by PLD for SERS Applications, Arvind Kaushik , J. Singh , IIT Delhi, India
11:30am	CA-ThM-15 Scanning Tunneling Microscopy for High Entropy Materials, TeYu Chien , University of Wyoming	
11:45am	CA-ThM-16 <i>in-Situ</i> Observation of Chemical and Morphological Transformations by Multi-Modal X-Ray Characterization, Slavomir Nemsak , Lawrence Berkeley National Laboratory	
12:00pm	CA-ThM-17 NO Adsorption on Pd(111): A Relationship between Coverage and Spectral Shift, Sayantani Sikder , Stony Brook University; E. Fornero , Universidad Nacional del Litoral (UNL), Argentina; A. Boscoboinik , Center for Functional Nanomaterials, BNL	

Thursday Morning, November 7, 2024

	<p>Actinides and Rare Earths, Rm 123-Session AC+MI-ThM Superconductivity, Electron Correlation, Magnetism and Complex Behavior</p> <p>Moderators: Tomasz Durakiewicz, Idaho National Laboratory, Ladislav Havela, Charles University, Czech Republic, David Shuh, Lawrence Berkeley National Laboratory, James G. Tobin, University of Wisconsin-Oshkosh</p>	<p>Plasma Science and Technology Room 124 - Session PS-ThM Plasma Sources, Diagnostics and Control I</p> <p>Moderators: Michael Gordon, University of California at Santa Barbara, Steven Vitale, MIT Lincoln Laboratory</p>
8:00am	<p>INVITED: AC+MI-ThM-1 Electronic Structures of f-Electron Superconductors, <i>Shin-ichi Fujimori</i>, Japan Atomic Energy Agency, Japan</p>	<p>PS-ThM-1 Radio-frequency Hollow Cathode Discharge: Modeling and Experimental Diagnostics, <i>Kallol Bera</i>, Applied Materials, Inc.; <i>H. Luo</i>, Applied Materials, Inc., Canada; <i>X. Shi</i>, Applied Materials, Inc.; <i>I. Korolov</i>, Ruhr Universität Bochum, Germany; <i>A. Verma</i>, <i>S. Rauf</i>, Applied Materials, Inc.; <i>J. Guttmann</i>, <i>J. Schulze</i>, Ruhr Universität Bochum, Germany</p>
8:15am		<p>PS-ThM-2 Advancing In situ Transmission Electron Microscopy to Study Plasma-Nanomaterials Interactions, <i>Jae Hyun Nam</i>, University of Minnesota; <i>D. Alsem</i>, Hummingbird Scientific; <i>P. Bruggeman</i>, University of Minnesota</p>
8:30am	<p>INVITED: AC+MI-ThM-3 RIXS Study of the 5f Configuration in UTe₂: Low-Energy Excitations, Te₂ Chains and U Dimers, <i>D. Christovam</i>, <i>M. Sundermann</i>, <i>A. Marino</i>, Max Planck Institute for Chemical Physics of Solids, Germany; <i>H. Gretarsson</i>, PETRA III, Deutsches Elektronen-Synchrotron DESY, Germany; <i>B. Keimer</i>, Max Planck Institute for Solid State Research, Germany; <i>A. Gloskovskii</i>, PETRA III, Deutsches Elektronen-Synchrotron DESY, Germany; <i>M. Haverkort</i>, Heidelberg University, Germany; <i>I. Elfimov</i>, Univ. of British Columbia, Canada; <i>E. Bauer</i>, <i>P. Rosa</i>, Los Alamos National Laboratory; <i>A. Severing</i>, Univ. of Cologne, Germany; <i>Liu Hao Tjeng</i>, Max Planck Inst. for Chemical Physics of Solids, Germany</p>	<p>INVITED: PS-ThM-3 Sensing and Control of Radio-Frequency Driven Plasmas, <i>Timo Gans</i>, Dublin City University, Ireland</p>
9:00am	<p>INVITED: AC+MI-ThM-5 Incommensurate Antiferromagnetism in UTe₂ Under Pressure, <i>William Knafo</i>, LNCMI, CNRS, France</p>	<p>PS-ThM-5 AVS National Student Award Finalist Talk: Time Resolved Diagnostics of HiPIMS Discharges With Positive Cathode Reversal, <i>Zachary Jeckell</i>, <i>T. Choi</i>, <i>N. Connolly</i>, Univ. of Illinois Urbana-Champaign; <i>S. Das</i>, University of Illinois at Urbana Champaign, India; <i>M. Hossain</i>, University of Illinois Urbana-Champaign, Bangladesh; <i>D. Kapelyan</i>, <i>N. Vishnoi</i>, <i>R. Pickering</i>, <i>D. Ruzic</i>, University of Illinois at Urbana-Champaign</p>
9:15am		<p>PS-ThM-6 Understanding Plasma Surface Dynamics Through Time Resolved Ion Energy Analysis for Deposition/Etch Processes, <i>Angus McCarter</i>, Impedans Ltd., Ireland; <i>A. Verma</i>, Impedans Ltd., India</p>
9:30am	<p>INVITED: AC+MI-ThM-7 New Spectroscopic Insights into Correlation Effects and Covalency of U 5f Electrons in Uranium Intermetallic Compounds, <i>A. Marino</i>, <i>M. Sundermann</i>, <i>D. Christovam</i>, Max-Planck Institute for Chemical Physics of Solids, Physics of Correlated Matter, Germany; <i>H. Gretarsson</i>, DESY/PETRA-III, Germany; <i>B. Keimer</i>, Max-Planck Institute for Solid State Research, Germany; <i>A. Gloskovskii</i>, DESY/PETRA-III, Germany; <i>J. Kunes</i>, Department of Condensed Matter Physics, Masaryk Univ., Brno, Czechia; <i>A. Hariki</i>, Department of Physics and Electronics, Osaka Metropolitan University, Osaka, Japan; <i>L. Tjeng</i>, Max-Planck Institute for Chemical Physics of Solids, Physics of Correlated Matter, Germany; <i>Andrea Severing</i>, University of Cologne, Cologne, Germany</p>	<p>PS-ThM-7 The Plasma Dynamics of Dual Frequency Capacitively Coupled Argon Discharge using Tailored Voltage Waveforms, <i>Syed M Zulqarnain</i>, <i>A. Lietz</i>, North Carolina State University; <i>J. Prager</i>, <i>T. Ziemba</i>, <i>J. Perry</i>, <i>P. Melnik</i>, EHT Semi</p>
9:45am		<p>PS-ThM-8 A Real-Time 2-D Gas Temperature Monitoring Sensor Based on Molecular Emission Spectroscopy, <i>Dhruval Patel</i>, University of Illinois at Urbana-Champaign; <i>D. Jacobson</i>, Lyten; <i>D. Qerimi</i>, University of Illinois at Urbana-Champaign; <i>M. Stowell</i>, Lyten; <i>D. Ruzic</i>, University of Illinois at Urbana-Champaign</p>
10:00am	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>	<p>BREAK - Complimentary Coffee in Exhibit Hall</p>
11:00am	<p>AC+MI-ThM-13 Unusual orders in the heavy-fermion superconductor CeRh₂As₂, <i>Gertrud Zwicknagl</i>, TU Braunschweig, Germany</p>	<p>PS-ThM-13 Fiber PROES: Phase-Resolved Optical Emission Spectroscopy by Time-Correlated Photon Counting Through Optical Fibers, <i>Florian Beckfeld</i>, <i>I. Korolov</i>, Ruhr University Bochum, Germany; <i>M. Höfner</i>, SENTECH Instruments GmbH, Germany; <i>J. Schulze</i>, Ruhr University Bochum, Germany</p>
11:15am	<p>AC+MI-ThM-14 The Relation between Crystal Chemistry and Superconductivity in Actinide-Based Superconductors, <i>Eteri Svanidze</i>, Max Planck Institute for Chemical Physics of Solids, Germany</p>	<p>PS-ThM-14 Atomic Hydrogen Density, Electron Density and Ion Flux Energy Distribution of an Ar/H₂ Remote CCP Plasma Source for Atomic Scale Processing, <i>M. van Gorp</i>, <i>Thomas van den Biggelaar</i>, <i>A. Salden</i>, <i>H. Knoops</i>, <i>E. Kessels</i>, Eindhoven University of Technology, Netherlands</p>
11:30am	<p>AC+MI-ThM-15 Thermoelectric Properties of Strongly Correlated Compounds NpPd₃ and PuPd₃, <i>Krzysztof Gofryk</i>, Idaho National Laboratory; <i>J. Griveau</i>, 3DG Joint Research Centre, Directorate G-Nuclear Safety and Security, Germany; <i>K. McEwen</i>, University College London, UK; <i>W. Nellis</i>, Harvard University; <i>J. Smith</i>, Los Alamos National Laboratory</p>	<p>PS-ThM-15 Spatially Resolved Measurement of Fluorine Radical Density Using Reactive Radical Probes, <i>Jeremy Mettler</i>, University of Illinois at Urbana-Champaign; <i>T. Tohara</i>, Tokyo Electron; <i>D. Qerimi</i>, <i>D. Ruzic</i>, University of Illinois at Urbana-Champaign</p>
11:45am	<p>AC+MI-ThM-16 Magnetism and Electronic Transport of U₃Te₄: Contrasting Bulk and Thin Film Studies, <i>S. Alex</i>, Inst. of Physics of the Czech Acad. of Sciences, Czechia; <i>O. Koloskova</i>, <i>A. Cabala</i>, Charles Univ., Czechia; <i>M. Mišek</i>, Inst. of Physics of the Czech Acad. of Sciences, Czechia; <i>L. Horák</i>, Charles Univ., Czechia; <i>T. Gauder</i>, <i>F. Huber</i>, European Commission, JRC, Germany; <i>Evgenia Tereshina-Chitrova</i>, Inst. of Physics of the Czech Acad. of Sciences, Czechia</p>	<p>PS-ThM-16 The Applicability of a Microwave Resonant Probe to the Plasma Processing of Silicon Oxide, <i>D. White</i>, <i>G. Hassall</i>, <i>James Ellis</i>, Oxford Instruments Plasma Technology, UK</p>
12:00pm	<p>AC+MI-ThM-17 Theory of Valence-to-Core RIXS Measured at the Uranium M₅ Edge: Comparison of UO₂ and UF₄, <i>O. Stejskal</i>, <i>Jindrich Kolorenc</i>, Institute of Physics (FZU), Czech Academy of Sciences, Czechia</p>	<p>PS-ThM-17 Terahertz Absorption Spectroscopy for Measuring Atomic Oxygen Densities: A Comparison with ps-TALIF and CRDS, <i>Jente Wubs</i>, <i>U. Macherius</i>, <i>A. Nave</i>, Leibniz Inst for Plasma Science and Tech (INP), Germany; <i>L. Invernizzi</i>, <i>K. Gazeli</i>, <i>G. Lombardi</i>, Laboratoire des Sciences des Procédés et des Matériaux (LSPM), CNRS, France; <i>X. Lü</i>, <i>L. Schrottke</i>, Paul-Drude-Inst für Festkörperelektronik Leibniz-Inst im Forschungsverbund Berlin, Germany; <i>K. Weltmann</i>, <i>J. van Helden</i>, Leibniz Inst for Plasma Science and Tech (INP), Germany</p>

Thursday Afternoon, November 7, 2024

Room 115		Thin Films Session TF+EM-ThA Thin Films for Microelectronics II: Ferroelectrics, Dielectrics, and Semiconductors Moderators: Elton Graugnard, Boise State University, Christophe Vallee, University at Albany
2:15pm	TF+EM-ThA-1 Atomic Scale Control of Ferroelectric HfZrO _x Thin Films through Atomic Layer Modulation, Ngoc Le Trinh, C. Nguyen , Incheon National University, Viet Nam; B. Gu, B. Lee , Incheon National University, Republic of Korea; K. Yang , Seoul National University, Republic of Korea; H. Kim, H. Kim , Korea Electronics Technology Institute (KETI), Republic of Korea; M. Park , Seoul National University, Republic of Korea; Y. Kang , Incheon National University, Republic of Korea; S. Kim , Ulsan National Institute of Science & Technology, Republic of Korea; H. Lee , Incheon National University, Republic of Korea	
2:30pm	TF+EM-ThA-2 Plasma-Enhanced Atomic Layer Deposition Based Ferroelectric Field Effect Transistors, Chinsung Park, P. Ravindran , Georgia Institute of Technology, USA; D. Das , National Institute of Technology, India; P. Ravikumar , Georgia Institute of Technology, USA, Uganda; w. chern, S. Yu, A. Khan , Georgia Institute of Technology, USA	
2:45pm	TF+EM-ThA-3 Effect of Annealing Temperature on the Electrical Characteristics of Hf _{0.5} Zr _{0.5} O ₂ /InGaZnO Ferroelectric Field-Effect Transistor, Deokjoon Eom, H. Kim, W. Lee, J. Lee, C. Park, J. Park, H. Lee, Y. Kim, H. Kim , Sungkyunkwan University (SKKU), Republic of Korea	
3:00pm	TF+EM-ThA-4 Polarization Switching in Metal-Organic MBE-Grown Metal-Ferroelectric-Metal Heterostructures, Anusha Kamath Manjeshwar, Z. Yang , University of Minnesota; A. Rao, G. Rojas , University of Minnesota, USA; J. Wen , University of Minnesota; C. Liao, S. Koester, R. James, B. Jalan , University of Minnesota, USA	
3:15pm	TF+EM-ThA-5 Integration of Barium Titanate onto high-Al content AlGa _N , Peter Dickens, A. Allerman, C. Harris, B. Klein , Sandia National Laboratories	
3:30pm	TF+EM-ThA-6 Understanding the Crystallization of BaTiO ₃ Thin Films Prepared by Atomic Layer Deposition, Jiayi Chen , Georgia Institute of Technology, USA, China; A. Khan, M. Losego , Georgia Institute of Technology, USA	
3:45pm	TF+EM-ThA-7 Thermal and Plasma ALD BN for Low-k Applications, Pegah Bagheri, M. Konh, R. Pearlstein, X. Lei, H. Chandra , EMD Electronics, USA	
4:00pm	TF+EM-ThA-8 Quantum Chemical Analysis for Effects of Carbon and/or Nitrogen Bond-Types on Dielectric Constant and Leakage Current in Low-K Dielectric SiOCN Film, Hu Li, J. Zhao, P. Ventzek , Tokyo Electron America, Inc.	
4:15pm	TF+EM-ThA-9 Electrical Measurement of in-situ Boron-Doped Epitaxial Si _{1-x} Ge _x Films with Crystalline Defects, Hyung Chul Shin, D. Eom , Sungkyunkwan University (SKKU), Republic of Korea; D. Yoon , Yonsei University, Republic of Korea; K. Kim, H. Yoo , Samsung Electronics Co., Republic of Korea; D. Ko , Yonsei University, Republic of Korea; H. Kim , Sungkyunkwan University (SKKU), Republic of Korea	

Thursday Afternoon, November 7, 2024

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

Thursday Afternoon, November 7, 2024

Applied Surface Science Room 117 - Session AS-ThA Complementary Methods and Industrial Challenges Moderators: Vincent Smentkowski , GE Research Center, Suntharampillai Thevuthasan , PNNL		Surface Science Room 120 - Session SS-ThA Celebration of Robert J Madix and his Contributions to Surface Science & Reception Moderators: Liney Árnadóttir , Oregon State University, Dan Killelea , Loyola University Chicago	
2:15pm	AS-ThA-1 ASSD Student Award Finalist Talk: Elucidating the Interaction Forces between Surface Nanobubbles and Nanoparticles, <i>Daniela Miano¹</i> , <i>P. Bilotto</i> , CEST GmbH, Italy; <i>M. Valtiner</i> , TU Wien, Austria	INVITED: SS-ThA-1 Alkane Activation and Oxidation on Solid Surfaces, <i>Jason Weaver</i> , University of Florida	
2:30pm	AS-ThA-2 A Correlative Microscopy Platform for In-Situ AFM-SEM-EDS, <i>Kerim T. Arat</i> , <i>W. Neils</i> , <i>S. Spagna</i> , Quantum Design Inc.		
2:45pm	AS-ThA-3 Coincident XPS, Raman and SEM Analysis of Additive Manufacturing Devices, <i>Mark Isaacs</i> , University College London, UK; <i>D. Morgan</i> , Cardiff University, UK; <i>A. Leung</i> , <i>K. Kim</i> , <i>S. Bhagavath</i> , University College London, UK	INVITED: SS-ThA-3 Thermodynamics and Kinetics of Elementary Reaction Steps on Late Transition Metal Catalysts: A Tribute to R. J. Madix, <i>Charles T. Campbell</i> , University of Washington	
3:00pm	AS-ThA-4 Analysis of Cu-Ag and Ni-Pt High Throughput Survey Results, <i>Kyle Dorman</i> , <i>N. Bianco</i> , <i>R. Kothari</i> , <i>M. Kalaswad</i> , <i>C. Sobczak</i> , <i>S. Desai</i> , <i>J. Custer</i> , <i>S. Addamane</i> , <i>M. Jain</i> , <i>A. Hinojos</i> , <i>F. DelRio</i> , <i>B. Boyce</i> , <i>R. Dingreville</i> , <i>D. Adams</i> , Sandia National Labs		
3:15pm	AS-ThA-5 Characterization of Functional Surface Modifications in Medical Devices, <i>Andrew Francis</i> , <i>A. Rafati</i> , <i>A. Belu</i> , Medtronic, Inc.		
3:30pm	AS-ThA-6 XPS Study of ZrN as a Barrier to Silver Migration in TRISO Fuels, <i>Jeff Terry</i> , Illinois Institute of Technology		
3:45pm	AS-ThA-7 Surface Properties of Actinide Dioxide and Their Effect on Reactivity, <i>Enrique Batista</i> , <i>G. Wang</i> , <i>P. Yang</i> , Los Alamos National Laboratory		
4:00pm	AS-ThA-8 Degradation Analysis of Bitumen Using XPS, <i>Nirmalya Karar</i> , National Physical Laboratory, India; <i>S. Kar</i> , CSIR-CRRI, India		
4:15pm	AS-ThA-9 High-Efficient Bifacial Ge-incorporated Sb ₂ Se ₃ Photovoltaic Devices Enabled with Cu ₂ O Back Buffer, <i>Sanghyun Lee</i> , <i>K. Price</i> , University of Kentucky		

¹ ASSD Student Award Finalist

Thursday Afternoon, November 7, 2024

	<p>Chemical Analysis and Imaging of Interfaces Room 121 - Session CA-ThA In Situ and Operando Analysis of Energy and Environmental Interfaces II Moderators: Ashley Head, Brookhaven National Laboratory, Andrei Kolmakov, National Institute of Standards and Technology (NIST)</p>	<p>2D Materials Room 122 - Session 2D+EM+QS-ThA 2D Materials: Applications Moderators: Matthias Batzill, University of South Florida, Fei Yao, University at Buffalo</p>
2:15pm	<p>INVITED: CA-ThA-1 Understanding the Molecular Rearrangement at Interface by Atomic Modeling, Difan Zhang, D. Heldebrant, Pacific Northwest National Laboratory; V. Glezakou, R. Rousseau, Oak Ridge National Laboratory</p>	<p>2D+EM+QS-ThA-1 Tuning Functionality: Graphene Oxide (GO)/Few Layers Graphene (FLG) Membranes for Water Treatments, J. Flores-Arciniega, S. Acosta, H. Ojeda-Galván, CICSaB, Universidad Autónoma de San Luis Potosí, Mexico; B. Yáñez-Soto, Instituto de Física, Universidad Autónoma de San Luis Potosí, Mexico; Mildred Quintana, Facultad de Ciencias, CICSaB, Universidad Autónoma de San Luis Potosí, Mexico</p>
2:30pm		<p>2D+EM+QS-ThA-2 New Graphene Oxide-based Nanozymes for Cancer Theranostics, A. Foti, S. Sciacca, G. Tranchida, S. Petralia, R. Fiorenza, S. Scirè, L. D'Urso, C. Bonaccorso, A. Fraix, University of Catania, Catania, Italy; A. De Bonis, University of Basilicata, Italy; Cristina Satriano, University of Catania, Catania, Italy</p>
2:45pm	<p>CA-ThA-3 Complexity to Clarity: Detecting, Identifying and Analyzing Complex Materials with Machine Learning, Paul Pigram, W. Gardner, S. Bamford, D. Winkler, La Trobe University, Australia; B. Muir, CSIRO, Australia; R. Sun, S. Wong, La Trobe University, Australia</p>	<p>2D+EM+QS-ThA-3 Graphene and Copper Nanoparticles Based Electrochemical Sensors for the Detection of Glyphosate in Water, Uswah Yasin, F. Torrisi, University of Catania, Italy</p>
3:00pm	<p>CA-ThA-4 Advances in Electron Microscopy for Imaging Surfaces, Saumya Mukherjee, S. Böttcher, SPECS Surface Nano Analysis GmbH, Germany; K. Kunze, SPECS Surface Nano Analysis GmbH, Germany, Gibraltar; O. Schaff, SPECS Surface Nano Analysis GmbH, Germany</p>	<p>2D+EM+QS-ThA-4 Engineering Novel Hybrid Membranes for Battery Separators from Sustainable Sources, Suvash Ghimire, P. Makkar, M. Islam, K. Mukhopadhyay, University of Central Florida</p>
3:15pm	<p>CA-ThA-5 The NanoMi Open-source Electron Microscope: Electronics Builds and SEM/STEM Image Generation, Darren Homeniuk, National Research Council, Canada; M. Kamal, University of Alberta Edmonton, Canada; M. Malac, M. Schreiber, M. Salomons, National Research Council of Canada; S. Ruttiman, National Research Council, Canada; X. Wang, University of Alberta, Canada; K. Kwan, National Research Council of Canada; O. Adkin-Kaya, J. Calzada, University of Alberta, Canada; P. Price, M. Cloutier, M. Hayashida, National Research Council of Canada; R. Egerton, University of Alberta, Canada; K. Harada, RIKEN, Japan; Y. Takahashi, Hitachi, Ltd., Japan</p>	<p>2D+EM+QS-ThA-5 Unveiling Composition-Structure Relationships for the Discovery of Novel High-Entropy 2D Materials Using the Mixed Enthalpy-Entropy Descriptor, Dibyendu Dey, University of Central Florida; O. Ogunbiyi, University of Missouri; B. Ball, University of Central Florida; L. Liang, M. Zachman, Oak Ridge National Laboratory; Y. Yang, University of Missouri; L. Yu, University of Central Florida</p>
3:30pm	<p>INVITED: CA-ThA-6 Advancing Carbon Dioxide Removal Technologies with Microscopic Insights Gained Using in-Situ and Operando Transmission Electron Microscopy, Wei-Chang David Yang, National Institute of Standards and Technology (NIST)</p>	<p>2D+EM+QS-ThA-6 Antenna-Coupled Magic-Angle-Twist-Graphene Josephson Junction Millimeter Wave Detector, David Castro, University of Central Florida</p>
3:45pm		<p>2D+EM+QS-ThA-7 Antenna-Coupled Graphene Josephson Junction THz/mm-wave Detector, Rachid Ben Khallouq, University of Central Florida</p>
4:00pm	<p>CA-ThA-8 In situ Photoelectron and Infrared Spectroscopic Studies of Materials Under Various Plasmas, Ashley Head, Brookhaven National Laboratory; T. Hu, Brookhaven National Laboratory and State University of New York at Stony Brook; A. Boscoboinik, D. Stacchiola, Brookhaven National Laboratory</p>	
4:15pm	<p>CA-ThA-9 Chemical and Morphological Stability of Diamond Device Interfaces Under Operando Plasma-XPS, J. Trey Diulus, NIST-Gaithersburg; A. Head, J. Boscoboinik, Center for Functional Nanomaterials, BNL; A. Kolmakov, NIST-Gaithersburg</p>	

Thursday Afternoon, November 7, 2024

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

2D Materials

Room Central Exhibit Hall - Session 2D-ThP

2D Materials Poster Session

4:30 – 8:00 pm

2D-ThP-1 Discretized Atomic Layer Deposition Recipe for Wafer-scale Synthesis of MoS₂, *S. Shendokar, Shyam Aravamudan*, North Carolina A&T State University

2D-ThP-2 Topotactical Reaction of NiTe₂ Films with Excess Ni, *Nirosha Rajapakse, M. Batzill, K. Lasek*, University of South Florida

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

2D-ThP-4 Influence of Fluorination and Oxygenation Sources on the Thermal Atomic Layer Etching of MoS₂, *Jacob Tenorio*, Boise State University

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

2D-ThP-6 Plasma Assisted Etching of MoS₂: An Ab-Initio Molecular Dynamics(AIMD) Study, *Shoaib Khalid, Y. Barsukov, S. Ethier, I. Kaganovich*, Princeton University Plasma Physics Lab

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

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

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

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

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

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

2D-ThP-13 Engineering Surface Termination of Ti₂C₃T_x MXene for Enhanced Soft Actuator Performance, *Dhamelyz Silva Quinones, H. Wang*, Duke University

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

Actinides and Rare Earths

Room Central Exhibit Hall - Session AC-ThP

Actinides and Rare Earths Poster Session

4:30 – 8:00 pm

AC-ThP-1 Simulation Tools for Improvement of the Fission Track Analysis Method for Nuclear Forensic – AI Classification using Deep Learning, *R. Babayew, Itzhak Halevy, N. Elgad, Y. Yehuda-Zada*, Ben Gurion Uni., Israel; *J. Lorincik*, Research Centre Řež, Czech Republic, Israel; *M. Last, I. Orion, G. Katarivas-Levy*, Ben Gurion Uni., Israel; *A. Weiss*, Faculty of Engineering, Bar Ilan University, Israel

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

AC-ThP-3 Tracking the Impact of Varied Oxygen Partial Pressure during PLD Growth on the Magnetic Response of Metastable Orthoferrite LuFeO₃, *Washat Ware, M. Frye, M. Mourigal, L. Garten*, Georgia Institute of Technology, USA

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

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

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

Advanced Surface Engineering

Room Central Exhibit Hall - Session SE-ThP

Advanced Surface Engineering Poster Session

4:30 – 8:00 pm

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

SE-ThP-2 ASED Rising Star Talk: The Influence of Deposition Parameters on the Structure and Properties of TiZrNbTaMo High Entropy Alloy Films Fabricated by High Power Impulse Magnetron Sputtering, *Chia-Lin Li¹*, Center for Plasma and Thin Film Technologies, Ming Chi University of Technology; *S. Hou*, Department of Materials Science and Engineering, National Tsing Hua University; *B. Lou*, Chemistry Division, Center for General Education, Chang Gung University; *J. Lee*, Department of Materials Engineering, Ming Chi University of Technology; *P. Chen*, Department of Materials Science and Engineering, National Tsing Hua University, Taiwan

SE-ThP-3 Enhanced SiO₂/Ag Multilayer Coatings via Magnetron Sputtering: Advancing Potential Applications in Removable Implants, *Magali Restrepo Posada*, Universidad de Antioquia, Colombia

SE-ThP-4 Investigating the Atomistics underlying Magnetron Sputter Deposition of Mo Thin Films and their Microstructure/Property Influence, *Joyce Custer*, Sandia National Laboratories

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

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

AI/ML for Scientific Discovery

Room Central Exhibit Hall - Session AIML-ThP

AI/ML for Scientific Discovery Poster Session

4:30 – 8:00 pm

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

Applied Surface Science

Room Central Exhibit Hall - Session AS-ThP

Applied Surface Science Poster Session

4:30 – 8:00 pm

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

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

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

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

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

AS-ThP-6 Multitechnique Analysis of Ultrathin Films for the Photocatalytic Production of Sustainable Aviation Fuels, **Mark Isaacs**, University College London, UK; **L. Durrndell**, University of Plymouth, UK; **C. Parlett**, University of Manchester, UK; **C. Drivas**, Cardiff University, UK

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

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

AS-ThP-9 Electronic Structure in a Transition Metal Dipnictide TaAs₂, **S. Regmi**, Idaho National Laboratory; **Arun Kumar Kumay**, **M. Neupane**, University of Central florida

AS-ThP-10 Misunderstandings in Field Electron Emission Theory: The Great Fowler-Nordheim Hoax, **Richard Forbes**, University of Surrey, UK

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

AS-ThP-12 XPS Analysis of Plasma Exposed TiB₂ and ZrB₂ Substrates, **Harry Meyer**, **L. Nuckols**, **C. Parish**, **J. Rapp**, ORNL

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

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

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

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

AS-ThP-17 Observation of Multiple Flat Bands and Van-Hove Singularities in a Distorted Kagome System NdTi₃Bi₄, **Mazharul Islam Mondal**, **A. Sakhya**, **M. Sprague**, University of Central Florida; **B. Ortiz**, Oak Ridge National Laboratory, USA; **M. Matzelle**, Northeastern University, US; **N. Valadez**, **J. Bin Elius**, University of Central Florida; **B. Ghosh**, **A. Bansil**, Northeastern University, US; **M. Neupane**, University of Central Florida

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

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

Atomic Scale Processing Mini-Symposium

Room Central Exhibit Hall - Session AP-ThP

Atomic Scale Processing Mini-Symposium Poster Session

4:30 – 8:00 pm

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

AP-ThP-2 Thermal Atomic Layer Etching Process for 2D van der Waals Material CrPS₄, **Marissa Pina**, **M. Whalen**, **J. Xiao**, **A. Tepyakov**, University of Delaware

AP-ThP-3 Conversion of TiO₂ ALD Precursor Selectivity via Amination of Chlorinated Silicon with Primary Amines, **Tyler Parke**, **J. Mason**, **A. Tepyakov**, University of Delaware

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

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

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

Biomaterial Interfaces

Room Central Exhibit Hall - Session BI-ThP

Biomaterial Interfaces Poster Session

4:30 – 8:00 pm

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

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

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

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

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

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

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

¹ ASSD Student Award Finalist

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

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

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

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

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

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

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

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

Chemical Analysis and Imaging of Interfaces

Room Central Exhibit Hall - Session CA-ThP

Chemical Analysis and Imaging of Interfaces Poster Session

4:30 – 8:00 pm

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

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

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

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

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

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

CA-ThP-7 Stability and Dielectric Strength of Model Metal/Al₂O₃/Diamond Interfaces Under Harsh Environments, *J. Trey Diulus, A. Biacchi, E. Bittle, A. Kolmakov*, NIST-Gaithersburg

CA-ThP-8 Profiling Ultrathick Films using Argon Clusters – Characterizing Polystyrene Microsphere Standards as Surrogates for Pharmaceutical Particles inside Drug Delivery Films, *Shin Muramoto*, national institute of standard and Technology

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

CHIPS Act Mini-Symposium

Room Central Exhibit Hall - Session CPS-ThP

CHIPS Act Mini-Symposium Poster Session

4:30 – 8:00 pm

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

Electronic Materials and Photonics

Room Central Exhibit Hall - Session EM-ThP

Electronic Materials and Photonics Poster Session

4:30 – 8:00 pm

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

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

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

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

EM-ThP-5 Charge Trapping in a-Si₃N₄: Hydrogen as Savior and Saboteur, *Lukas Hückmann, J. Cottom, J. Meyer*, Leiden University, The Netherlands

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

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

EM-ThP-8 Theoretical Study of van der Waals Epitaxy of Bilayer Silicene on Iii-Sb Substrates, *Kumar Vishal, H. Huang, Y. Zhuang*, Wright State University

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

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

EM-ThP-11 Synthesis of Lead free KNbO₃ Piezoelectric Film on LiNbO₃ Single Crystal by Hydrothermal Method, *Thithi Lay, A. Hagiwara, R. Arai*, Josai University, Japan

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

EM-ThP-13 Interfacial Triangular Nanostructure Formation During Annealing of GaAsSb on InP, *Leonid Miroshnik, D. Shima*, University of New Mexico; *A. Li*, University of Pennsylvania; *G. Balakrishnan*, University of New Mexico; *T. Sinno*, University of Pennsylvania; *S. Han*, University of New Mexico

EM-ThP-14 Metal Matrix Composite Metallization Improves PV Module Efficiency and Electrical Bridging of Solar Cell Cracks for Durability, *A. Chavez*, University of New Mexico; *A. Jeffries*, Osazda Energy; *Sang Han*, University of New Mexico; *S. Huneycutt, A. Ebong*, University of North Carolina at Charlotte; *D. Harwood, N. Azpiroz, D2Solar; B. White, B. Boyce*, Sandia National Laboratories

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

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

EM-ThP-17 Atomic-Level Insights into RRAMs: Improving Performance and Energy Efficiency for Advanced Computing, *M. Chowdhury, A. Moazzeni, Gozde Tutuncuoglu*, Wayne State University

Light Sources Enabled Science Mini-Symposium

Room Central Exhibit Hall - Session LS-ThP

Light Sources Enabled Science Mini-Symposium Poster Session

Session

4:30 – 8:00 pm

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

Magnetic Interfaces and Nanostructures

Room Central Exhibit Hall - Session MI-ThP

Magnetic Interfaces and Nanostructures Poster Session

4:30pm

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

MI-ThP-2 Magneto-Optical Spectroscopy of Co-Doped ZnO Thin Films Grown by Pulsed Laser Deposition, *Da-Ren Liu*, Taiwan Instrument Research Institute, Taiwan

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

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

Manufacturing Science and Technology

Room Central Exhibit Hall - Session MS-ThP

Manufacturing Science and Technology Poster Session

4:30 – 8:00 pm

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

MEMS and NEMS

Room Central Exhibit Hall - Session MN-ThP

MEMS and NEMS Poster Session

4:30 – 8:00 pm

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

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

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

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

Nanoscale Science and Technology

Room Central Exhibit Hall - Session NS-ThP

Nanoscale Science and Technology Poster Session

4:30pm

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

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

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

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

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

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

NS-ThP-7 Probing Isotopic Effects on Hyperbolic Phonon Polaritons in MoO₃ with Nanoscale IR Imaging, *Jeremy Schultz, S. Krylyuk*, National Institute of Standards and Technology (NIST); *J. Schwartz*, University of Maryland, College Park; *A. Davydov, A. Centrone*, National Institute of Standards and Technology (NIST)

NS-ThP-8 Ratiometric Ph Sensing at the Nanoscale for Biochemical Applications, *Bradley Demosthene, J. Pereira, S. Santra, L. Tetard*, University of Central Florida

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

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

NS-ThP-11 Delamination of Epitaxially-Grown Single-Crystalline GeTe Films for Flexible Phase Change Memory, *Seohui Lee*, University of Central Florida

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

Plasma Science and Technology

Room Central Exhibit Hall - Session PS-ThP

Plasma Science and Technology Poster Session

4:30 – 8:00 pm

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

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

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

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

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

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

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

PS-ThP-8 Electron-Assisted Etching of Poly-Si and SiO₂ in Ans Inductively Coupled CF₄ Plasma, *Jiwon Jung, C. Chung*, hanyang university, Republic of Korea

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

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

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

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

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

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

PS-ThP-15 Radio Frequency Plasma Reactor for the Surface Modification of Powder Materials, *Michael Denchy, J. Kintzer, G. Troop, D. Jensen*, Advanced Cooling Technologies, Inc.

PS-ThP-16 SF₆- and CF-based Plasmas Interaction with Si and SiO₂ at Room and Cryogenic Temperature: Insights from Molecular Dynamics Simulation, *J. ROMERO CEDILLO, G. CUNGE, Emilie DESPIAU-PUJO*, LTM, CNRS/Universite Grenoble Alpes, France

PS-ThP-17 Ion Energy Distributions in a Kaufman-type Ion Beam Source Operated with Ar and O₂, *Raymond Smith*, Department of Electrical and Computer Engineering, University of Nebraska-Lincoln; *E. Rohkamm, P. Birtel, D. Kalanov, F. Frost*, Leibniz Institute of Surface Engineering (IOM), Germany; *U. Kilic, E. Schubert*, Department of Electrical and Computer Engineering, University of Nebraska-Lincoln

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

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

Quantum Science and Technology Mini-Symposium

Room Central Exhibit Hall - Session QS-ThP

Quantum Science and Technology Mini-Symposium Poster Session

Moderators: *Andre Schleife*, University of Illinois at Urbana-Champaign, *Ekta Bhatia*, NY CREATES

4:30 – 8:00 pm

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

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

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

QS-ThP-4 Correlating the Electronic Structure with the Emergence of Magnetism in PdCo₂, *Jessica McChesney*, Argonne National Laboratory

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

Spectroscopic Ellipsometry

Room Central Exhibit Hall - Session EL-ThP

Spectroscopic Ellipsometry Poster Session

4:30 – 8:00 pm

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

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

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

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

EL-ThP-5 Verification of Time-Domain Frequency-Resolved Terahertz Spectroscopic Ellipsometry, *Ian Greem, M. Schuber, P. Sorenson, A. Ruder*, University of Nebraska, Lincoln

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

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

Surface Science

Room Central Exhibit Hall - Session SS-ThP

Surface Science Poster Session

4:30 – 8:00 pm

SS-ThP-1 A Model Interstellar Medium Reactivity Study: Low Energy Electron Induced Chemistry of CH₃OH@H₂O, *Ahmad Nawaz, M. Asscher*, The Hebrew University of Jerusalem, Israel

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

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

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

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

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

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

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

SS-ThP-9 In-situ X-Ray Absorption Spectroscopy (XAS) study of CeO₂-based Catalysts for CO₂ Hydrogenation, *Irene Barba-Nieto*, Brookhaven National Laboratory, Spain; *J. Rodriguez*, Brookhaven National Laboratory

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

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

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

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

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

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

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

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

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

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

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

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

SS-ThP-22 Coverage-Dependent Adsorption and Reactivity of Formic Acid on Fe₃O₄(001), **Jose Ortiz-Garcia**, Pacific Northwest National Laboratory; **M. Sharp**, Washington State University; **Z. Novotny**, **B. Kay**, **Z. Dohnalek**, Pacific Northwest National Laboratory

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

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

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

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

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

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

SS-ThP-30 Kinetic Monte Carlo Modelling of Hydrogen Oxidation on Pt/Pd Surfaces, **Alexander Kandratsenka**, MPI for Multidisciplinary Sciences, Germany

SS-ThP-31 Epoxidation of Styrene on Ag(111) Surface, **Rasika E. A. Dissanayake**, Institute of Physical Chemistry, University of Göttingen, Germany; **A. Dorst**, **K. Benfreha**, Institute For Physical Chemistry, University Of Goettingen, Germany; **D. Killelea**, Loyola University Chicago; **T. Schaefer**, Institute For Physical Chemistry, University Of Goettingen, Germany

SS-ThP-32 Weakly and Strongly Adsorbed H₂O Layers on Hydroxylated SiO₂ Surfaces: Dependence on H₂O Pressure at Various Temperatures, **Samantha Rau**, **R. Hirsch**, **M. Junige**, University of Colorado Boulder; **A. Rotondaro**, **H. Paddubrouskaya**, **K. Abel**, Tokyo Electron America, Inc.; **S. George**, University of Colorado Boulder

Thin Films

Room Central Exhibit Hall - Session TF-ThP

Thin Films Poster Session

4:30 – 8:00 pm

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

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

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

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

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

TF-ThP-6 HfO₂ Thin Film for Si and SiC MOS Capacitor, **Rodrigo Reigota Cesar**, Center for Electronic Components and Nanotechnology - CCSNano, Brazil

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

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

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

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

TF-ThP-11 Study of Plasma-Polymerized Fluorocarbon Nano-Thin Films Deposited by Sputtering, **Mac Kim**, **J. Kim**, **S. Lee**, Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

TF-ThP-12 Effect of Vanadium Substitution for Electron Correlations in CrN Thin Films, **Shu Sawaya**, **K. Bin Onn**, **T. Suzuki**, Nagaoka University of Technology, Japan

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

TF-ThP-14 Tuning the Crystallinity of TiO₂ Coatings Synthesized by an Atmospheric Pressure Dielectric Barrier Discharge, **Nicolas Fosseur**, Chemistry of Surfaces, Interfaces and Nanomaterials (ChemSIN), Faculty of Sciences & 4MAT, Engineering faculty, Université Libre de Bruxelles, Brussels, Belgium; **S. Godet**, 4MAT, Engineering faculty, Université Libre de Bruxelles, Brussels, Belgium; **F. Reniers**, Chemistry of Surfaces, Interfaces and Nanomaterials (ChemSIN), Faculty of Sciences, Université Libre de Bruxelles, Brussels, Belgium

TF-ThP-15 Simultaneous Nanopatterning of SiO₂ and Ru via Area-Selective Atomic Layer Deposition, **Chi Thang Nguyen**, **A. Yanguas-Gil**, **J. W. Elam**, Argonne National Laboratory, USA

TF-ThP-16 Deposition of Novel (Cr,Yb)(N,O) Thin Films and Its Mechanical Properties, **Khairul Abrar Bin Onn**, **T. Suzuki**, Nagaoka University of Technology, Japan

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

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

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

TF-ThP-20 Achieving a Low-Voltage Operation Indium Gallium Zinc Oxide Thin Film Transistor Through Optimized Crystallinity ZrO₂ Gate Insulator, **Hanseok Jeong**, S. Yoo, Kyunghee University, Republic of Korea; **M. Choe, I. Baek**, Inha University, Republic of Korea; **W. Jeon**, Kyunghee University, Republic of Korea

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

TF-ThP-22 Controlling the Electrical Properties of ZrO₂ Dielectric Films by Employing Sc₂O₃, **Nam Jihun**, L. Seungwoo, C. Yoona, J. Jonghwan, Kyunghee University, Republic of Korea; **O. Hansol**, SK trichem, Republic of Korea; **K. Hanbyul, P. Yongjoo**, SK Trichem, Republic of Korea; **J. Woojin**, Kyunghee University, Republic of Korea

TF-ThP-23 Influence of Different Oxygen Sources on the Optical Properties of HfO₂ Films Grown by Atomic Layer Deposition, **B. Xherahi**, Community College of Philadelphia, Philadelphia, PA 19130,USA; **S. Azadi, D. Barth, Lucas Barreto**, Singh Center for Nanotechnology, University of Pennsylvania, Philadelphia, PA 19104, USA

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

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

Undergraduate Poster Session

Room Central Exhibit Hall - Session UN-ThP

Undergraduate Poster Session

4:30 – 8:00 pm

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

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

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

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

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

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

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

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

Vacuum Technology

Room Central Exhibit Hall - Session VT-ThP

Vacuum Technology Poster Session

4:30 – 8:00 pm

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

VT-ThP-2 Fabrication and Characterization of a Standard Leak Element Based on Capillary Tubings, **Han Wook Song**, KRIS, Republic of Korea; **M. Salazar**, ITDI, Philippines; **J. Kim, M. Seo, S. Cho, S. Woo**, KRIS, Republic of Korea

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

VT-ThP-4 Developing an Extreme Environment Vacuum System for ITER's Ion Cyclotron Heating Antenna, **John Michael Clark**, Oak Ridge National Laboratory

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

Friday Morning, November 8, 2024

Room 115		
8:15am	INVITED: TF1+EM-FrM-1 Interlayer Engineering of Heterostructure Thermal Boundary Resistance of Power Device Heat Spreader, <i>Y. Jo, T. Hwang, Kyeongjae Cho</i> , University of Texas at Dallas	Thin Films Session TF1+EM-FrM Thin Films for Microelectronics III: Wide Band Gap Materials Moderators: Jessica Kachian , Kokusai Semiconductor Equipment Corporation, Virginia Wheeler , U.S. Naval Research Laboratory
8:30am		
8:45am	TF1+EM-FrM-3 Characterization of Defects in AlN Using Deep Ultraviolet Photoluminescence, <i>Virginia Wheeler, N. Nepal, M. Hardy, A. Lang</i> , Naval Research Laboratory; <i>J. Hart</i> , Nova Research Inc; <i>B. Downey, D. Meyer</i> , Naval Research Laboratory	
9:00am	TF1+EM-FrM-4 Ultrathin Tantalum Films for Silicon Carbide Schottky Barrier Diode, <i>Renato Beraldo, R. Reigota Cesar, J. Alexandre Diniz</i> , Center for Semiconductor Components and Nanotechnology - CCSNano, Brazil	
9:15am	TF1+EM-FrM-5 Plasma Enhanced Atomic Layer Deposition of Hydrogen Free In ₂ O ₃ Thin Films with High Charge Carrier Mobility, <i>Sudipta Mondal, I. Campbell, A. Bol</i> , University of Michigan, Ann Arbor	
9:30am	TF1+EM-FrM-6 Epitaxial Integration of Transition-Metal Nitrides with Cubic Gallium Nitride, <i>Zachery Cresswell, N. Fessler, T. Garrett, K. Vallejo, B. May</i> , Idaho National Laboratory	
9:45am	TF1+EM-FrM-7 Comparison of AlScN Thin Films Grown via Pulsed Laser Deposition and Sputtering, <i>John Wellington-Johnson</i> , Georgia Institute of Technology	
10:00am	TF1+EM-FrM-8 Exploring the Impact of [Si-C] and [N=C] Bonds in SiCN Films by First Principles Calculation: A Study of Composition, Structure, and Properties, <i>Tsung-Hsuan Yang</i> , Tokyo Electron America, Inc.; <i>G. Hwang</i> , University of Texas at Austin; <i>P. Ventzek, J. Zhao</i> , Tokyo Electron America, Inc.	
10:15am	BREAK	
10:30am	TF2-FrM-10 Variable-Angle, Spectroscopic Ellipsometry Studies of the Repeated Application of First Contact Polymers on Optical Surfaces, <i>Joshua Vawdrey</i> , Brigham Young University; <i>J. Hamilton</i> , University of Wisconsin, Platteville; <i>D. Allred</i> , Brigham Young University	
10:45am	TF2-FrM-11 EnviroMETROS – A Novel Surface and Multilayer Thin Film Analysis Tool, <i>Paul Dietrich, F. Mirabella, S. Boetcher, K. Kunze, O. Schaff, A. Thissen</i> , SPECS Surface Nano Analysis GmbH, Germany	
11:00am	TF2-FrM-12 Passivation of Indium Phosphide Substrate Evaluated by Atomic Force Microscopy, <i>Fabiano Borges</i> , Federal Institute of Sao Paulo, Brazil; <i>C. Almeida</i> , PUC-Rio, LabSem, Brazil; <i>A. Silva</i> , Unicamp, CCS, Brazil; <i>O. Berenguel, C. Costa</i> , CNPEM, LNNano, Brazil; <i>G. Vieira</i> , IEAv, Brazil; <i>J. Diniz</i> , Unicamp, CCS, Brazil	
11:15am		

Friday Morning, November 8, 2024

Spectroscopic Ellipsometry Room 116 - Session EL-FrM Emerging Applications and Workforce Development Moderators: Ufuk Kilic, University of Nebraska - Lincoln, Stefan Zollner, New Mexico State University		Manufacturing Science and Technology Room 117 - Session MS-FrM Next Generation and Sustainable Micro-/Nano- Manufacturing Moderators: Erica Douglas, Sandia National Laboratories, Diane Hickey, Department of Energy	
8:15am	INVITED: EL-FrM-1 Singular Propagation States of Electromagnetic Waves in Anisotropic Media, <i>Chris Sturm</i> , University Leipzig, Germany	INVITED: MS-FrM-1 Sustainable Microelectronics in the Age of AI, <i>Emre Salman</i> , Stony Brook University	
8:30am			
8:45am	EL-FrM-3 Infrared-Active Phonon Modes in Variably Alloyed Bulk β -(AlxGa1-x)2O3 Determined by Mueller-Matrix Spectroscopic Ellipsometry, <i>Preston Sorensen, I. Green</i> , University of Nebraska - Lincoln; <i>M. Stokey</i> , Milwaukee School of Engineering; <i>A. Mauze, Y. Zhang</i> , University of California Santa Barbara; <i>J. Speck</i> , University of California at Santa Barbara; <i>V. Stanishev, V. Darakchieva</i> , Lund University, Sweden; <i>Z. Galazka</i> , ikz berlin, Germany; <i>M. Schubert</i> , University of Nebraska - Lincoln	MS-FrM-3 Plasma Processing and the Semiconductor Supply Chain in an Era of Low GWP and/or PFAS-Free Gas Chemistries, <i>Eric Joseph</i> , IBM Research Division, T.J. Watson Research Center	
9:00am	EL-FrM-4 Predicting Perovskite Photovoltaics Performance from Spectroscopic Ellipsometry, <i>Emily Amonette, K. Dolia, Y. Yan, Z. Song, N. Podraza</i> , University of Toledo	MS-FrM-4 Patterning and Etch Development of High Aspect Ratio 2.5D MIM Capacitor Structures, <i>Quyung Lin, P. Nolmans, D. Montero Alvarez, F. Lazzarino, G. Beyer, G. Van der Plas, E. Beyne</i> , IMEC Belgium	
9:15am	INVITED: EL-FrM-5 Vacuum and Extreme Ultraviolet Scatterometry for Critical Dimension Metrology, <i>Thomas Germer, B. Barnes, S. Moffitt, S. Grantham, M. Sohn, D. Sunday, E. Shirley</i> , National Institute of Standards and Technology (NIST)	INVITED: MS-FrM-5 CMOS Design Pathways to Sustainable Compute Scaling, <i>Azeez Bhavnagarwala</i> , Metis Microsystems	
9:30am			
9:45am	EL-FrM-7 Immersion Ellipsometry of Ultrathin Films - Breaking the Correlation between Index of Refraction and Film Thickness, <i>Samira Jafari</i> , Brigham Young University; <i>B. Johs</i> , Film Sense; <i>M. Linford</i> , Brigham Young University	MS-FrM-7 Semiconductor Technology Needs Vacuum - How Growth in the Semiconductor Industry and Sustainable Production Can Be Achieved, <i>Kevin Mahler, K. Bergner</i> , VACOM, Germany	
10:00am	EL-FrM-8 Temperature Dependence of the Long-Wavelength Lattice Vibrations of NiO (111) Using Infrared Spectroscopic Ellipsometry from 25 K to 500 K, <i>Yoshitha Hettige, J. Love, C. Armenta, A. Moses, J. Marquez, S. Zollner</i> , New Mexico State University	MS-FrM-8 High Resolution Ion Beam Imaging, Nano-Scale Analytics and Nanofabrication with Light and Heavy Ions from a Single Ion Source, <i>Peter Gnauck, T. Richter, A. Ost</i> , Raith GmbH, Germany	
10:15am	BREAK	BREAK	
10:30am	INVITED: EL-FrM-10 Far-Infrared Mueller Matrix Ellipsometry and Vortex Beam Spectroscopy Using Synchrotron Radiation, <i>Andrei Sirenko</i> , New Jersey Institute of Technology	MS-FrM-10 Efficient 3D Printing: Investigating Wall Count as an Alternative to High Infill Density in PLA, PET-G, and PA-CF, <i>Devyn Fidel, M. Rabea</i> , California State Polytechnic University, Pomona	
10:45am			
11:00am	EL-FrM-12 Infrared Dielectric Function of Thiazolothiazole Embedded Polymer Films Determined by Spectroscopic Ellipsometry, <i>Nuren Shuchi, T. Adams, D. Louisos, G. Boreman, M. Walter, T. Hofmann</i> , University of North Carolina at Charlotte		
11:15am	EL-FrM-13 Non-Destructive Measurement Limitations of Cavity Etched Si/SiGe Layer Superlattice Structures Using MMSE Based OCD Metrology and X-Ray Fluorescence, <i>Ezra Pasikatan</i> , SUNY Albany CNSE; <i>A. Antonelli</i> , ONTO Innovation; <i>N. Keller</i> , ONTO Innovation; <i>M. Kuhn</i> , Rigaku; <i>S. Murakami</i> , Rigaku, Japan; <i>A. Diebold</i> , SUNY Albany CNSE		
11:30am	EL-FrM-14 Elevated Temperature Spectroscopic Ellipsometry Analysis of Bulk Single-Crystal In ₂ O ₃ , <i>Sema Guvenc Kilic, U. Kilic</i> , University of Nebraska-Lincoln; <i>M. Hilfiker</i> , ONTO Innovation; <i>Z. Galazka</i> , Leibniz-Institute für Kristallzüchtung, Germany; <i>M. Schubert</i> , University of Nebraska-Lincoln		
11:45am	EL-FrM-15 Modeling Many-body Effects in Ge Using Pump-probed Femtosecond Ellipsometry, <i>Carlos Armenta</i> , New Mexico State University; <i>M. Zahradnik</i> , ELI ERIC, Czechia; <i>C. Emminger</i> , Leipzig University, Austria; <i>S. Espinoza</i> , ELI ERIC, Czechia; <i>M. Rebarz</i> , ERIC ELI, Poland; <i>S. Vazquez</i> , ELI ERIC, Mexico; <i>J. Andreasson</i> , ELI ERIC, Czechia; <i>S. Zollner</i> , New Mexico State University		

Friday Morning, November 8, 2024

	Surface Science Room 120 - Session SS+AMS+AS+CA+LS-FrM Advanced Surface Characterization Techniques & Mort Traum Presentation Moderators: Donna Chen , University of South Carolina, Charles Sykes , Tufts University	Chemical Analysis and Imaging of Interfaces Room 121 - Session CA-FrM Materials, Interfaces and Metrologies for Electronics Moderators: Alex Belianinov , Sandia National Laboratory, Andrei Kolmakov , National Institute of Standards and Technology (NIST)
8:15am	INVITED: SS+AMS+AS+CA+LS-FrM-1 Infrared Spectroscopy as a Surface Science Technique, <i>Michael Trenary</i> , University of Illinois - Chicago	INVITED: CA-FrM-1 Surface Transfer - Modulation Doping at the Diamond-Dielectric Interface, <i>A. Deshmukh, Y. Yang, F. Koeck, Robert Nemanich</i> , Arizona State University
8:30am		
8:45am	SS+AMS+AS+CA+LS-FrM-3 Modeling Pipeline Surface Chemistry: Reaction of Monochloramine on Iron Surfaces, <i>Kathryn Perrine, S. Pandey, O. Agbelusi</i> , Michigan Technological University	CA-FrM-3 Probing the Nanoscale: The Synergy of XPS and LEIS Analyses, <i>Joshua W. Pinder, J. Crossman</i> , Brigham Young University; <i>S. Prusa, T. Sikola</i> , Brno Institute of Technology, Czechia; <i>M. Linford</i> , Brigham Young University
9:00am	SS+AMS+AS+CA+LS-FrM-4 Development of Tip-Enhanced Raman Spectroscopy for Solid-Liquid Interfaces, <i>Naihao Chiang</i> , University of Houston	CA-FrM-4 Capacitively and Electrically Detected Magnetic Resonance in 4H SiC MOSFET, <i>Artur Solodovnyk, P. Lenahan</i> , The Pennsylvania State University
9:15am	SS+AMS+AS+CA+LS-FrM-5 Ion Based Pump-Probe: Probing the Dynamics Following an Ion Impact, <i>Lars Breuer, L. Kalkhoff, A. Meyer, N. Junker, L. Lasnik</i> , Universität Duisburg-Essen, Germany; <i>Y. Yao, A. Schleife</i> , University of Illinois at Urbana Champaign; <i>K. Sokolowski-Tinten, A. Wucher, M. Schleberger</i> , Universität Duisburg-Essen, Germany	CA-FrM-5 Photoluminescence Mapping of Gallium Oxide Surfaces and Epilayers, <i>Matthew McCluskey</i> , Washington State University
9:30am	SS+AMS+AS+CA+LS-FrM-6 How Hot Plasmonic Heating Can Be: Phase Transition and Melting of P25 TiO ₂ from Plasmonic Heating of Au Nanoparticles, <i>W. Lu, R. Kayastha, B. Birmingham, B. Zechmann, Zhenrong Zhang</i> , Baylor University	INVITED: CA-FrM-6 Focused Ion Beam Low Energy Implantation, <i>M. Titze, C. Smyth</i> , Sandia National Laboratory; <i>J. Poplawsky</i> , Oak Ridge National Laboratory; <i>B. Doyle, E. Bielejec, Alex Belianinov</i> , Sandia National Laboratory
9:45am	SS+AMS+AS+CA+LS-FrM-7 Kinetics and Dynamics of Recombinative Desorption of Oxygen from Silver and Rhodium Surfaces, <i>Dan Killelea</i> , Loyola University Chicago	
10:00am	Mort Traum Award Announcement	CA-FrM-8 NIST Nanocalorimetry for In-Plasma Process Metrology Relevant to Semiconductor Fabrication, <i>Andrei Kolmakov, J. Diulus, F. Yi, D. LaVan</i> , NIST-Gaithersburg
10:15am	BREAK	BREAK
10:30am	SS+AMS+AS+CA+LS-FrM-10 Unveiling Surface Mysteries with XPS Lab from Scienta Omicron, <i>Tamara Sloboda</i> , Scienta Omicron, Sweden; <i>P. Amann</i> , Scienta Omicron, Germany; <i>B. Gerace, F. Henn, A. Yost, X. Zhang</i> , Scienta Omicron; <i>M. Lundwall</i> , Scienta Omicron, Sweden	
10:45am	SS+AMS+AS+CA+LS-FrM-11 Investigation of Stannane (SnH ₄) Decomposition and Sticking Coefficient on Varied Metal Surfaces in EUV Lithography Environments, <i>Emily Greene, N. Barlett, D. Qerimi, D. Ruzic</i> , University of Illinois at Urbana-Champaign	
11:00am	SS+AMS+AS+CA+LS-FrM-12 First Principles Methods for Predicting Surface Reaction Mechanisms for Chemical Functionalization of Semiconductor Surfaces, <i>Roberto Longo, S. Sridhar, P. Ventzek</i> , Tokyo Electron America Inc.,	

Friday Morning, November 8, 2024

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

Friday Morning, November 8, 2024

Room 124		Plasma Science and Technology Session PS+TF-FrM Plasma Processes for Coatings and Thin Films Moderators: François Reniers , Université Libre de Bruxelles, Belgium, Scott Walton , Naval Research Laboratory
8:15am	PS+TF-FrM-1 Interaction of Polycrystalline Aluminum Oxide and Sapphire Surfaces with Halogen-Containing Plasmas and Gases, Takuya Ishihara , <i>H. Tochigi</i> , Azbil corporation, Japan; <i>H. Kang</i> , Osaka University, Japan, Republic of Korea; <i>T. Ito</i> , <i>K. Karahashi</i> , <i>S. Hamaguchi</i> , Osaka University, Japan	
8:30am	PS+TF-FrM-2 Development of Corrosion-Resistant, Low-ICR aC and TiN Coatings Using HIPIMS for Bipolar Plate Manufacturing for Hydrogen Fuel Cells, Nicholas Connolly , University of Illinois at Urbana-Champaign; <i>Z. Jeckell</i> , University of Illinois Urbana-Champaign; <i>R. Paul</i> , <i>M. Hysick</i> , Starfire Industries; <i>M. Hossain</i> , <i>B. Jurczyk</i> , <i>D. Ruzic</i> , University of Illinois Urbana-Champaign	
8:45am	PS+TF-FrM-3 Evolution of Graphene Nanoflake Size and Morphology in Atmospheric Pressure Microwave Plasma, Parker Hays , <i>D. Patel</i> , <i>D. Qerimi</i> , University of Illinois at Urbana-Champaign; <i>M. Stowell</i> , LytEn; <i>D. Ruzic</i> , University of Illinois at Urbana-Champaign	
9:00am	PS+TF-FrM-4 Gentle Processing of Graphene and Diamond in a Low Temperature Magnetized Plasma, Yevgeny Raitses , Princeton Plasma Physics Laboratory; <i>F. Zhao</i> , Fermi Lab; <i>C. Pederson</i> , <i>K. Fu</i> , University of Washington; <i>A. Dogariu</i> , Princeton University	
9:15am	PS+TF-FrM-5 A Plasma-Based Anodization Process for the Production of AlF ₃ Layers, Scott Walton , <i>J. Murphy</i> , US Naval Research Laboratory; <i>L. Rodriguez de Marcos</i> , <i>J. Del Hoyo</i> , <i>M. Quijada</i> , NASA; <i>V. Wheeler</i> , <i>M. Sales</i> , <i>M. Meyer</i> , <i>D. Boris</i> , US Naval Research Laboratory	
9:30am	PS+TF-FrM-6 One-Step Synthesis of Spatially Differentiated Crystalline Vanadium Oxide Coatings Using Atmospheric Pressure Dielectric Barrier Discharge, Marie Brabant , <i>A. Demaude</i> , <i>D. Petitjean</i> , <i>F. Reniers</i> , Université libre de Bruxelles, Belgium	
9:45am	PS+TF-FrM-7 Biofilm Decontamination in an Endoscope-Like Setup Using a Cold Atmospheric Plasma, Juliette Zveny , Université libre de Bruxelles, Belgium; <i>F. Reniers</i> , <i>A. Remy</i> , Université Libre de Bruxelles, Belgium; <i>T. Serra</i> , université libre de Bruxelles, Belgium; <i>A. Bourgeois</i> , Erasme Hospital, Belgium; <i>A. Nonclercq</i> , <i>D. Lakhloufi</i> , <i>A. Botteaux</i> , université libre de Bruxelles, Belgium; <i>A. Delchambre</i> , Université Libre de Bruxelles, Belgium; <i>J. Deviere</i> , Erasme Hospital, Belgium	
10:00am	PS+TF-FrM-8 Nonthermal Plasma Jet Integrated Aerosol-Based 3D Printing with Machine Learning Optimization, Jinyu Yang , <i>Y. Du</i> , <i>K. Song</i> , <i>Q. Jiang</i> , <i>Y. Zhang</i> , <i>D. Go</i> , University of Notre Dame	
10:15am		

Bold page numbers indicate presenter

— A —

A. Armenta, C.: EM-ThP-16, 65
 Abbas, A.: MI+2D+AC+TF-WeA-4, 51;
 MI+2D+AC+TF-WeM-7, 45; MI+2D+AC+TF-
 WeM-8, **45**; MI-ThP-1, 66
 Abdala, P.: AS-WeM-14, 44
 Abdelmessih, M.: BI2-MoM-12, **9**
 Abdolvand, R.: MN1-TuM-3, **32**; MN1-TuM-8,
 32; MN-ThP-4, 66
 Abel, K.: SS-ThP-32, 68
 Acosta, S.: 2D+EM+QS-ThA-1, 61
 Adachi, Y.: SS+2D-WeA-2, 50
 Adams, D.: AIML-WeM-1, 47; AS-ThA-4, 60;
 SE-MoA-6, 22
 Adams, T.: EL-FrM-12, 71
 Addamane, S.: AS-ThA-4, 60
 Adelung, R.: BI-ThP-10, 65; TF-WeA-5, 48
 Adkin-Kaya, O.: CA-ThA-5, 61
 Advincola, R.: TF+AP-MoA-6, **16**
 Agarwal, A.: SE-MoM-13, 14
 Agarwal, S.: AP+EM+PS+TF-MoM-4, 8;
 AP+PS+TF-TuA-10, 36; PS1-MoA-5, 21; TF2-
 TuA-12, 35
 Agbelusi, O.: SS+AS+CA+LS-FrM-3, 72
 Aglieri, V.: NS2-MoA-16, 15
 Agosto, A.: 2D-ThP-9, 63
 Agrios, A.: AP-ThP-5, 64; PS-ThP-13, 67
 Aguirre, S.: AS-ThP-18, 64
 Aguirre-Tostado, F.: TF1-MoM-3, **7**
 Ahluwalia, P.: BI-MoA-1, 18
 Ahmad, M.: SS+2D-WeA-1, **50**
 Ahmed, A.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Ahsen, A.: SS-ThM-1, 55; SS-ThP-21, 68
 Akbari, M.: AP2+EM+PS+TF-WeM-13, 43
 Akers, S.: AIML-WeM-5, 47
 Akinrinola, F.: CA-ThP-5, 65
 Akintola, I.: PS-TuA-3, **40**
 Al Shamery, K.: SS-ThP-25, 68
 Al Sid Cheikh, M.: BI-ThP-8, 65
 Al Zubi, A.: MN2-TuA-11, 41
 Al-Allaq, A.: VT3-MoA-13, **19**; VT-ThP-1, **69**
 Alamgir, F.: TF-WeA-13, 48
 Alanwoko, O.: 2D+AP+EM+QS+SS+TF-TuM-14,
 30; 2D-ThP-3, **63**
 Al-Basheer, W.: 2D+EM+MN+TF-FrM-8, **73**
 Albertson, M.: BI-ThP-13, 65
 Albright, B.: AP2+EM+PS+TF-WeM-17, 43
 Alcalá, J.: PS2-MoM-15, 13
 Alcer, D.: EM+2D+BI+QS+TF-TuA-3, 34
 Al-Duhni, G.: SE-MoM-13, 14
 Alem, T.: 2D-ThM-6, 56
 Aletsee, C.: VT2-TuM-4, 29
 Alex, J.: PS-ThP-14, 67
 Alex, S.: AC+MI-ThM-16, 57
 Alexander, E.: AP1+EM+PS+TF-TuM-5, 26
 Alexander, M.: BI2-TuM-13, **27**
 Alexandre Diniz, J.: NS-ThP-1, **66**; TF1+EM-
 FrM-4, 70
 Alfonso, D.: SS-TuM-3, 28
 Ali, F.: TF1-MoM-6, **7**
 Allaby, S.: AP1+EM+PS+TF-WeM-1, 43;
 AP1+EM+PS+TF-WeM-4, 43; PS-ThP-13, 67
 Allerman, A.: NS2-MoM-10, 6; TF+EM-ThA-5,
 58
 Allred, D.: TF2-FrM-10, 70; TF-ThP-19, **69**
 Al-Mamun, N.: AS-ThP-5, 64; EM+AP+TF-
 WeA-11, 48
 Almeida, C.: TF2-FrM-12, 70
 Aloisio, M.: TF-WeM-13, 42
 Alphonse, A.: PS-ThP-14, 67
 Alsaeed, O.: PS-WeM-5, **46**
 Alsaleem, F.: MN2-TuA-11, 41
 Alsem, D.: PS-ThM-2, 57

Altum, S.: AS-ThP-7, 64
 Alupothe Gedara, B.: SS-ThP-24, **68**
 Amann, P.: SS+AS+CA+LS-FrM-8, 72; SS-TuA-3,
37
 Amati, M.: CA-ThM-8, 56
 Ambrozaite, O.: 2D-WeA-6, 51
 Amin, A.: BI-ThP-10, 65; TF-WeA-5, 48
 Amiriseti, S.: MN1-TuM-7, **32**
 Amonette, E.: EL-FrM-4, **71**
 Anderson, K.: AP2+EM+PS+TF-WeM-15, 43
 Andreasson, J.: EL-FrM-15, 71
 Andrew, T.: TF2-TuA-8, **35**
 Anthony, R.: PS-TuA-1, **40**
 Antoine, L.: PS-ThP-13, 67
 Antonelli, A.: EL-FrM-13, 71
 Aouadi, S.: SE-MoA-9, 22
 Applebee, Z.: BI-ThP-5, **64**
 Arai, R.: EM-ThP-11, 65
 Arat, K.: AS-ThA-2, **60**
 Aravamudhan, S.: 2D-ThP-1, **63**; AP-ThP-4, 64
 Aresta, G.: NS2-MoM-14, 6; QS-WeM-1, **46**
 Argudo, P.: BI1-MoM-3, 9
 Argyropoulos, C.: MI+2D+AC+TF-WeA-10, 51;
 NS-ThP-12, 66
 Arias, S.: SS-ThP-26, **68**
 Arias, T.: AS-TuA-13, 36
 Ariga-Miwa, H.: SS-MoM-4, 10
 Armenta, C.: EL-FrM-15, **71**; EL-FrM-8, 71; EL-
 ThP-7, 67
 Armini, S.: AP1+EM+PS+TF-MoA-8, **17**
 Árnadóttir, L.: SS-ThM-7, **55**
 Arsyad, R.: SS-TuA-13, 37
 Artyushkova, K.: AS-WeA-13, 50; AS-WeM-2,
44
 Arvind, S.: PS1-MoM-5, **13**
 Aryal, A.: MN1-TuM-5, **32**
 Asakawa, K.: PS1-WeA-4, **52**
 Asakura, K.: SS-MoM-4, 10
 Asef, T.: EM+2D+AP+QS+TF-ThM-5, **53**
 Ashraf, B.: SS-ThP-25, **68**
 Asif, M.: AP+PS+TF-TuA-14, 36
 Aspnes, D.: AS-ThM-3, 55; AS-ThM-4, 55; EL-
 ThP-3, **67**
 Asscher, M.: SS-ThP-1, 67
 Asselberghs, I.: 2D+EM+MI+QS-WeM-4, 45
 Asthagiri, A.: SS-MoA-12, 18; SS-MoA-3, 18;
 SS-MoA-9, 18
 Atoyebi, O.: BI1-MoM-4, **9**
 Atta-Fynn, R.: AC-ThP-5, 63
 Atwinmah, S.: AS-WeM-17, 44
 Austin, D.: SS-ThP-25, 68; SS-WeM-7, **18**
 Autschbach, J.: AS-TuA-8, **36**
 Auwärter, W.: SS-WeM-5, **44**
 Awschalom, D.: AP2+EM+PS+TF-TuM-16, 26;
 QS-TuA-1, 39
 Axtmann, L.: QS1+VT-MoM-4, 12
 Aydil, E.: PS2-MoA-13, 21; TF1-MoM-4, 7
 Aydogan-Gokturk, P.: CA-ThM-6, 56
 Ayeeni, J.: TF-WeA-3, **48**
 Ayoade, O.: SS-TuA-5, **37**
 Azadi, S.: TF-ThP-23, 69
 Azpiroz, N.: EM-ThP-14, 65

— B —

Baba, K.: PS2-MoM-14, **13**
 Babayew, R.: AC-ThP-1, 63; AC-ThP-2, 63
 Baber, A.: SS-MoA-11, **18**; UN-ThP-6, 69
 Babuska, T.: AS-ThP-14, 64; PS-ThA-7, 62; SE-
 MoA-6, **22**
 Bacon, S.: AS-WeM-13, **44**
 Bae, D.: SS-MoA-9, 18
 Bae, J.: 2D-ThM-4, **56**
 Baek, I.: TF-ThP-20, 69
 Baer, D.: AS-ThM-17, **55**; AS-ThP-13, 64

Bafia, D.: QS-TuM-15, **30**; QS-TuM-7, 30
 Bagheri, P.: TF+EM-ThA-7, **58**
 Bagus, P.: AS-TuA-10, **36**
 Bahr, M.: MN2-TuM-16, 32
 Bai, Y.: SS-ThP-23, **68**
 Bailey, L.: QS2+PS-MoA-11, 20
 Bailey, M.: BI-ThP-8, 65
 Baillie, J.: UN-ThP-4, 69
 Baker, A.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
 Baker, M.: AS-WeM-13, 44
 Bal, M.: QS-TuM-15, 30; QS-TuM-7, 30
 Balajka, J.: SS+2D-WeA-5, 50; SS-MoM-12, 10
 Balakrishnan, G.: EM-ThP-13, 65
 Balashov, T.: 2D-WeA-12, 51
 Balasubramanian, G.: SS+2D-WeA-12, 50
 Bale, R.: EM-ThP-15, 65
 Balicas, L.: 2D+EM+MI+QS-WeM-15, **45**
 Ball, B.: 2D+EM+QS-ThA-5, 61
 Ballav, S.: 2D-WeA-4, **51**
 Bally, M.: BI1-TuM-3, **27**
 Bamford, S.: AS-ThM-5, **55**; CA-ThA-3, 61
 Bana, L.: SE-MoA-7, 22
 Banerjee, P.: AP1+EM+PS+TF-TuM-6, 26;
 EM+2D+BI+QS+TF-TuA-11, 34;
 EM+2D+BI+QS+TF-TuA-9, 34; EM+AP+TF-
 WeA-10, 48; SS-MoM-5, 10; TF1-TuM-4, 25;
 UN-ThP-2, 69; UN-ThP-4, 69
 Banik, S.: NS1-MoM-7, 6
 Bansil, A.: AS-ThP-17, 64; AS-TuA-3, 36;
 MI+2D+AC+TF-WeA-3, 51
 Bao, X.: TF2+EM-ThM-16, 54
 Bär, M.: AP+EM+PS+TF-MoM-3, 8
 Bara, J.: SS-WeM-17, 44
 Baraket, M.: AP2+EM+PS+TF-WeM-13, **43**
 Barão, V.: BI-MoA-3, 18
 Barba-Nieto, I.: SS-ThP-9, **67**
 Barker, D.: NS2-MoA-15, 15; QS1+VT-MoM-3,
 12; VT-ThP-3, **69**
 Barlett, N.: SS+AS+CA+LS-FrM-10, 72
 Barnes, B.: EL-FrM-5, 71
 Barone, M.: TF1-TuM-3, 25
 Barrentine, E.: CA-ThP-5, 65
 Barreto, L.: MI+2D+AC+TF-WeM-14, **45**; TF-
 ThP-23, **69**
 Barry, S.: TF-WeM-13, 42
 Barsukov, Y.: 2D-ThP-6, 63; PS-TuA-8, **40**
 Barth, D.: TF-ThP-23, 69
 Barton, D.: EL2-ThA-8, 59; EL-ThP-2, 67
 Basso, L.: MN2-TuM-16, 32
 Bastani, F.: 2D-ThM-5, 56
 Bateman, F.: NS2-MoA-15, 15
 Bathe, M.: QS-ThP-2, 67; QS-TuA-4, **39**
 Bathena, T.: CA-ThM-4, 56
 Batista, E.: AC+MI-FrM-1, 73; AC+MI-FrM-14,
 73; AS-ThA-7, **60**
 Battistella, A.: BI-ThP-1, **64**
 Batzill, M.: 2D+AP+EM+QS+SS+TF-TuM-13,
30; 2D+AP+EM+QS+SS+TF-TuM-14, 30; 2D-
 ThP-2, 63; 2D-ThP-3, 63
 Bauer, E.: AC+MI-ThM-3, 57
 Bauer, T.: EM+AIML+AP+QS+TF-WeM-13, **42**
 Baule, N.: SE-MoM-6, **14**; SE-ThP-6, **63**
 Bavarian, M.: TF-ThP-18, 69; TF-WeA-4, 48;
 TF-WeA-6, 48
 Baxamusa, S.: TF2-TuM-17, 25
 Bayansal, F.: AP1+EM+PS+TF-WeM-1, 43;
 AP1+EM+PS+TF-WeM-4, **43**; AP-ThP-5, 64;
 PS-ThP-13, **67**
 Bayram, C.: CA-ThP-4, 65
 Beasley, M.: BI1-MoM-4, 9
 Beaton, D.: CA-ThP-6, 65
 Beaux, M.: AC+MI-FrM-10, 73; AC+MI-ThA-8,
62

Author Index

- Beck, K.: QS1+VT-MoM-5, **12**
 Beckfeld, F.: PS-ThM-13, **57**
 Beckman, E.: 2D-WeA-1, 51
 Beebe, J.: AS-ThP-7, 64
 Begum-Hudde, V.: QS2-MoM-12, **12**
 Belianinov, A.: CA-FrM-6, **72**
 Bell, N.: AIML-WeM-8, 47
 Belu, A.: AS-ThA-5, 60
 Ben Khallouq, R.: 2D+EM+QS-ThA-7, **61**; 2D-WeA-4, 51
 Bender, G.: AS-WeA-4, 50
 Bendikov, T.: AS-WeA-14, **50**
 Benfreha, K.: SS-ThP-31, 68
 Benjamin, C.: VT4-TuM-16, 29
 Bent, S.: TF-WeM-5, 42
 Bentley, J.: TF-WeM-13, 42
 Bentmann, H.: MI+2D+AC+TF-WeM-1, 45
 Bepari, S.: PS2-MoM-15, 13
 Bera, K.: PS-ThM-1, **57**; PS-WeM-15, 46; PS-WeM-2, 46; PS-WeM-7, 46
 Beraldo, R.: TF1+EM-FrM-4, **70**
 Berber Halmen, F.: EM-ThP-15, 65
 Berdidi, J.: EM-ThP-1, 65; TF-ThP-1, 68
 Berenguel, O.: TF2-FrM-12, 70
 Bergner, K.: MS-FrM-7, 71; QS1+VT-MoM-4, **12**; VT3-TuM-6, 29
 Bergsman, D.: SS-WeM-13, **44**; TF-WeM-7, 42
 Berkebile, S.: SE-MoA-9, 22
 Berman, D.: SE-MoA-9, 22; TF-WeA-14, 48
 Berriel, N.: SS-MoM-5, 10
 Berriel, S.: AP1+EM+PS+TF-TuM-6, 26; EM+AP+TF-WeA-10, 48; TF1-TuM-4, 25
 Besprozvanny, D.: QS2+PS-MoA-11, 20
 Bestwick, A.: QS-TuA-9, 39
 Beyer, A.: NS1-MoM-6, 6
 Beyer, G.: MS-FrM-4, 71
 Beyne, E.: MS-FrM-4, 71
 Bezard, P.: AP+PS+TF-TuA-12, 36; EM+AIML+AP+QS+TF-WeM-5, 42; PS1-MoM-5, 13
 BEZARD, P.: PS1-MoM-11, **13**
 Bézard, P.: PS1-MoM-6, 13
 Bhagavath, S.: AS-ThA-3, 60
 Bhandari, G.: CA-ThP-5, 65; MI+2D+AC+TF-WeM-4, **45**
 Bharath, A.: TF1-TuM-8, 25
 Bhatia, E.: QS-ThP-1, 67; QS-TuM-5, **30**
 Bhatia, H.: BI-MoA-3, **18**; BI-ThP-7, **64**
 Bhattacharjee, N.: MI+2D+AC+TF-WeA-3, 51
 Bhattarai, G.: EM-ThP-15, 65
 Bhavnagarwala, A.: MS-FrM-5, **71**
 Biacchi, A.: CA-ThP-7, 65
 Bianco, N.: AS-ThA-4, 60
 Biderman, N.: AS-WeM-2, 44
 Biedron, A.: QS-TuM-5, 30
 Bielejec, E.: CA-FrM-6, 72
 Bielinski, A.: AP2+EM+PS+TF-WeM-16, 43; TF1+AP-ThM-7, **54**
 Biener, J.: TF2-TuM-17, 25
 Biewer, T.: VT2-MoA-5, 19; VT2-TuA-11, 38
 Bilal, L.: 2D+LS+NS+SS-TuA-12, **39**
 Bilotto, P.: AS-ThA-1, 60
 Biltek, S.: PS1-TuM-8, **31**
 Bin Amir, S.: PS-WeM-3, 46
 Bin Elius, I.: 2D-ThP-9, 63; AC-ThP-4, **63**; AS-ThP-17, 64; AS-TuA-5, 36
 Bin Hafiz, S.: AP-ThP-5, 64
 Bin Onn, K.: TF-ThP-12, 68; TF-ThP-16, **68**
 Binder, A.: AS-TuA-4, 36
 Binek, C.: MI+2D+AC+TF-WeA-10, 51
 Biolsi, P.: PS-WeM-1, 46
 Birkbeck, J.: NS2-TuM-13, 24
 Birmingham, B.: EM+2D+BI+QS+TF-TuA-5, 34; SS+AS+CA+LS-FrM-6, 72
 Birtel, P.: PS-ThP-17, 67
 Bissel, E.: EM+2D+BI+QS+TF-TuA-11, 34
 Bissell, E.: EM+2D+BI+QS+TF-TuA-9, 34
 Biswas, A.: AIML-WeM-16, 47; AIML-WeM-17, 47
 Bittle, E.: CA-ThP-7, 65
 Biyikli, N.: AP1+EM+PS+TF-WeM-1, **43**; AP1+EM+PS+TF-WeM-4, 43; PS-ThP-13, 67
 BIYIKLI, N.: AP-ThP-5, **64**
 Blackman, K.: SS-MoM-5, **10**; SS-ThP-19, 68; SS-TuA-12, 37
 Blades, W.: 2D-ThM-5, 56; SS+2D-WeA-11, 50
 Blenkinsopp, P.: BI-ThP-8, 65; QS-WeM-1, 46
 Bliem, R.: AS-TuA-14, 36; SS-MoA-1, 18; SS-MoM-6, **10**
 Bloomquist, C.: PS2-MoA-13, **21**
 Bocaniciu, C.: AS-ThP-15, 64
 Boden, D.: SS-ThP-10, 67
 Boehm, A.: 2D+LS+NS+SS-TuA-11, 39
 Böer, S.: BI-ThP-4, 64
 Boetcher, S.: TF2-FrM-11, 70
 Boissiere, J.: AIML-WeM-8, 47
 Bol, A.: TF1+EM-FrM-5, 70
 Bonaccorso, C.: 2D+EM+QS-ThA-2, 61
 Bordoalvas, O.: EL-ThP-1, **67**
 Boreman, G.: EL-FrM-12, 71
 Borges, F.: TF2-FrM-12, **70**
 Borgschulte, A.: MI+2D+AC+TF-WeA-11, 51; SS-ThP-11, 68
 Borgström, M.: EM+2D+BI+QS+TF-TuA-3, 34
 Borie, B.: AP2+EM+PS+TF-WeM-13, 43
 Boris, D.: AP1+EM+PS+TF-WeM-2, 43; AP1+EM+PS+TF-WeM-5, **43**; AP2+EM+PS+TF-MoA-14, 17; AP2+EM+PS+TF-WeM-17, 43; PS+TF-FrM-5, 74
 Borjian, P.: MN1-TuA-4, **41**; MN2-TuA-9, 41
 Boscher, N.: PS2-MoM-14, 13; TF-WeM-1, **42**
 Boscoboinik, A.: 2D+LS+NS+SS-TuA-12, 39; CA-ThA-8, 61; CA-ThM-17, 56; SS-ThP-20, 68
 Boscoboinik, J.: CA-ThA-9, 61; SS+2D-WeA-1, 50; SS-ThP-26, 68; SS-WeM-16, **44**
 Bostwick, A.: 2D+LS+NS+SS-TuA-1, **39**; 2D+LS+NS+SS-TuA-3, 39; 2D-ThP-10, 63
 Böttcher, S.: CA-ThA-4, 61; EW-TuL-6, **33**
 Botteaux, A.: PS+TF-FrM-7, 74
 Boufnichel, M.: AP1+EM+PS+TF-WeM-6, 43
 Bourgeois, A.: PS+TF-FrM-7, 74
 Bousfield, D.: BI-ThP-6, 64
 Bowman, C.: PS-ThP-6, 66; PS-ThP-7, 66
 Bowman, W.: EM+2D+BI+QS+TF-TuA-10, **34**
 Boyce, B.: AIML-WeM-1, **47**; AS-ThA-4, 60; EM-ThP-14, 65; SE-MoA-6, 22
 Boyen, H.: AS-ThP-11, 64
 Brabant, M.: PS+TF-FrM-6, **74**
 Brackbill, J.: AC+MI-ThA-6, 62
 Brady Boyd, A.: AP1+EM+PS+TF-MoA-8, 17
 Branch, D.: MN1-TuM-5, 32
 Brannon, J.: BI-MoA-1, 18
 Braun, T.: TF2-TuM-17, 25
 Breuer, L.: SS+AS+CA+LS-FrM-5, **72**
 Brewer, C.: AP+EM+PS+TF-MoM-5, 8; TF1-MoM-8, **7**
 Briley, C.: MI+2D+AC+TF-WeA-10, 51
 Brindley, J.: VT2-TuA-11, 38; VT2-TuA-12, **38**
 Brinkmann, N.: SS-ThP-25, 68
 Brohet, M.: SS+2D-WeA-10, 50
 Brontvein, O.: NS1-MoA-7, 24
 Bruce, J.: SS-TuM-14, **28**
 Brucker, G.: VT3-MoA-15, 19
 Bruggeman, P.: PS1-MoA-6, 21; PS-ThM-2, 57
 Brumbach, M.: AS-WeM-5, 44
 Brüner, P.: AS-WeM-14, 44
 Brzezinski, M.: BI1-MoM-3, 9
 Buck, E.: AC+MI-ThA-5, **62**; AC-ThP-6, 63
 Buck, M.: 2D-WeA-11, 51
 Bugatti, M.: SE-MoA-7, 22
 Bui, T.: VT2-MoA-4, 19
 Bulten, H.: VT2-MoA-11, **19**
 Burgos, A.: CA-ThP-1, 65
 Burnham, N.: NS2-MoA-12, **15**
 Burns, K.: 2D-ThM-5, 56; 2D-ThM-6, **56**; CA-ThP-2, **65**
 Busani, T.: MN1-TuM-5, 32
 Bushell, A.: AS-WeM-13, 44
 Butera, R.: AIML-WeM-6, 47; QS-TuA-3, 39
 Butkus, B.: AP1+EM+PS+TF-TuM-6, 26; UN-ThP-2, 69
 Butler, A.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Buturlim, V.: AC+MI-FrM-12, **73**; AC+MI-FrM-13, 73; AC+MI-FrM-15, 73; AC+MI-FrM-8, 73; AC-ThP-4, 63
 Bylander, J.: QS-TuM-16, 30
 — **C** —
 C. Grant, P.: EM-ThP-16, 65
 Cabala, A.: AC+MI-ThM-16, 57
 Cabanillas, A.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Cabrera-German, D.: AS-ThP-1, 64; AS-TuA-11, 36; AS-WeM-1, 44
 Çağın, E.: 2D-ThP-12, 63; NS2-TuM-15, 24
 Calame, M.: NS2-MoA-12, 15
 Callahan, D.: EM+2D+BI+QS+TF-TuA-9, 34
 Calzada, J.: CA-ThA-5, 61
 Campbell, C.: SS-MoM-8, 10; SS-ThA-3, **60**
 Campbell, I.: TF1+EM-FrM-5, 70
 Campi, G.: SS-ThP-29, 50
 Campos Jara, S.: SS+2D-WeA-10, 50
 can Duin, A.: 2D+EM+MN+TF-FrM-5, 73
 Cansizoglu, H.: QS-TuA-9, 39
 Canto, B.: 2D+EM+MI+QS-WeM-4, 45
 Cantelo, Y.: EM+AIML+AP+QS+TF-WeM-5, 42; QS2+PS-MoA-12, **20**; QS2+PS-MoA-13, 20
 Carini, G.: QS-WeM-3, **46**
 Carlson, E.: CA-ThP-1, 65
 Carmona-Carmona, A.: AS-ThP-1, 64; AS-TuA-11, 36; AS-WeM-1, 44
 Carreño, V.: SS-ThP-29, 50
 Carreño-Díaz, V.: SS-WeM-3, 44
 Carroll, J.: MN2-TuM-16, 32
 Carroll, N.: AP+EM+PS+TF-MoM-6, **8**
 Carter, R.: TF2-TuA-10, 35
 Caruso, B.: AS-WeM-15, 44
 Cary, J.: PS-WeM-8, 46
 Cascales, D.: PS2-WeA-9, **52**
 CASTREJÓN FLORES, J.: 2D-ThP-7, 63
 Castro, D.: 2D+EM+QS-ThA-6, **61**; 2D-WeA-4, 51
 Catherall, D.: AP+PS+TF-TuA-9, **36**
 Cavanagh, A.: AP1+EM+PS+TF-TuM-5, 26
 Caverly, S.: TF1-TuA-5, 35
 Ceballos-Sanchez, O.: AS-ThP-1, 64; AS-WeM-1, 44
 Ceccatto, A.: SS-ThP-29, **50**; SS-WeM-3, 44
 Cechal, J.: SS-WeM-4, 44
 Celebi, A.: AS-ThP-15, 64
 Cendejas, A.: AP2+EM+PS+TF-WeM-15, 43
 Centrone, A.: NS-ThP-7, 66
 Cesar, R.: PS2-WeA-12, **52**
 Chaaban, J.: 2D-ThP-12, 63
 Chacon-Patino, M.: NS1-MoA-2, 24
 Chae, H.: AP+PS+TF-TuA-1, **36**; PS-ThP-3, 66
 Chakraborty, S.: PS2-MoM-15, 13
 Chakravarty, A.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Chalouhi, E.: TF2-TuA-8, 35
 Chan, H.: NS1-MoM-7, 6
 Chan, K.: MN-ThP-4, 66
 Chan, M.: TF2-FrM-13, 50
 Chandra, H.: AP+EM+PS+TF-MoM-4, 8; TF+EM-ThA-7, 58

Author Index

- Chang, C.: LS-MoM-12, 10
 Chang, J.: AP+PS+TF-TuA-11, 36; AP+PS+TF-TuA-13, 36; AP1+EM+PS+TF-TuM-7, **26**
 Chang, M.: UN-ThP-4, 69
 Chang, Y.: SE-MoM-4, 14
 Chaussard, J.: TF-ThP-4, **68**
 Chavez, A.: EM-ThP-14, 65
 Chen, C.: 2D+AP+EM+QS+SS+TF-TuM-6, **30**; QS-ThP-2, 67; QS-TuA-4, 39
 Chen, D.: SS-ThM-1, **55**; SS-ThP-21, 68
 Chen, G.: NS2-MoA-14, 15
 Chen, J.: AP+EM+PS+TF-MoM-13, 8; QS2-MoM-10, 12; TF+EM-ThA-6, **58**
 Chen, L.: QS-TuM-16, 30
 Chen, P.: EM+2D+BI+QS+TF-TuA-8, 34; SE-ThP-2, 63
 Chen, S.: NS1-MoA-3, 24
 Chen, T.: PS-ThA-3, 62
 Chêne, T.: QS2+PS-MoA-14, **20**
 Cherepanov, V.: 2D-WeA-12, 51
 chern, w.: TF+EM-ThA-2, 58
 Chernyak, L.: EM+AP+TF-WeA-9, 48
 Cheroni, S.: EM+2D+BI+QS+TF-TuA-4, 34
 Chery, E.: AP1+EM+PS+TF-MoA-8, 17
 Cheung, K.: CA-ThP-4, 65
 Chevolleau, T.: QS2+PS-MoA-14, 20
 Chi, H.: MI+2D+AC+TF-WeA-1, **51**
 Chiang, C.: AS-ThP-5, 64; EM+AP+TF-WeA-11, 48; EM+AP+TF-WeA-9, 48; EM-ThP-7, **65**
 Chiang, N.: SS+AS+CA+LS-FrM-4, **72**
 Chiang, Y.: SE-MoM-4, 14
 Chiaverini, L.: 2D-ThP-14, 63
 Chien, T.: CA-ThM-15, **56**; SS+2D-WeA-12, 50
 Chimehrad, M.: MN2-TuA-9, **41**
 Chimera, M.: MN1-TuA-4, 41
 Chin, J.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, **56**; TF1-TuM-3, 25
 CHINO ULLOA, A.: 2D-ThP-7, 63
 Chittock, N.: AP+PS+TF-TuA-5, 36
 Cho, H.: AP1+EM+PS+TF-TuM-4, 26; MN1-TuA-4, 41; MN2-TuA-9, 41
 Cho, K.: TF1+EM-FrM-1, **70**
 Cho, S.: VT-ThP-2, 69
 Choe, M.: TF-ThP-20, 69
 Choe, S.: PS-ThP-13, 67
 Choi, b.: EM-ThP-2, 65
 Choi, B.: EM-ThP-10, 65; NS-ThP-5, 66
 Choi, C.: PS1-TuM-1, 31; PS1-TuM-7, **31**
 Choi, J.: PS-ThA-1, 62
 Choi, T.: PS-ThA-6, **62**; PS-ThM-5, 57
 Choo, S.: EM+2D+AP+QS+TF-ThM-6, 53
 Chopra, M.: AIML-WeM-15, 47; PS1-WeA-5, **52**
 Choquet, P.: PS2-MoM-14, 13
 Choudhary, N.: QS2+PS-MoA-11, 20
 Chowdhury, M.: EM-ThP-17, 65
 Chowdhury, R.: PS1-MoM-8, 13; TF-ThP-8, 68
 Chowrira, B.: PS1-MoM-6, 13
 Chris-Okoro, I.: EM+2D+BI+QS+TF-TuA-4, 34
 Christiansen, J.: MN2-TuM-16, 32
 Christopher, P.: SS-MoM-3, 10; SS-ThP-2, 67
 Christovam, D.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57
 Chu, J.: 2D-ThP-9, 63; QS1+EM+MN+PS-MoA-1, **20**; SE-MoM-7, **14**
 Chueh, W.: CA-ThP-1, 65
 Chung, B.: AC+MI-ThA-6, 62; AC+MI-ThA-7, **62**
 Chung, C.: PS-ThA-1, 62; PS-ThA-5, 62; PS-ThP-12, 67; PS-ThP-8, 66
 Chung, G.: TF-ThP-9, **68**
 Chung, S.: PS1-MoA-9, **21**
 Churchill, H.: QS-TuA-5, 39
 Cicchetti, N.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
 Ciobanu, C.: NS2-TuM-16, 24
 Clairmont, A.: AS-ThP-8, **64**; QS-TuM-15, 30
 Clark, J.: VT-ThP-4, **69**
 Clarke, A.: PS2-WeA-10, **52**
 Clerc, E.: 2D-ThP-12, 63
 Cleveland, I.: TF1-MoM-4, 7
 Cloutier, M.: CA-ThA-5, 61
 Clowes, S.: NS2-MoM-14, 6
 Cobet, C.: EL1-ThA-3, 59; EL1-ThA-4, **59**
 Coclite, A.: TF2-TuA-13, **35**; TF-WeA-11, 48
 Coelho, P.: 2D-ThM-1, **56**; 2D-ThM-2, 56
 Coe-Sullivan, S.: TF2-MoM-15, 7
 Cohen, S.: NS1-MoA-7, **24**
 Coleman, J.: AIML-WeM-1, 47
 Coles, R.: AC+MI-ThA-6, 62
 Coll, M.: EM+2D+AP+QS+TF-ThM-6, 53
 Colleran, T.: AP1+EM+PS+TF-TuM-3, 26
 Collings, M.: AP2+EM+PS+TF-TuM-15, **26**
 Conard, T.: AP+PS+TF-TuA-12, 36; AS-ThP-11, 64; AS-WeM-3, **44**
 Conley, J.: AP1+EM+PS+TF-WeM-8, 43; TF1-TuM-6, 25
 Conlin, P.: PS1-WeA-1, **52**; PS-WeM-6, 46
 Conlon, J.: VT4-TuM-16, 29
 Connolly, N.: PS+TF-FrM-2, **74**; PS-ThM-5, 57
 Constantin Popescu, C.: EM+2D+BI+QS+TF-TuA-9, 34
 Cook, T.: UN-ThP-2, **69**
 Cooper, A.: UN-ThP-2, 69
 Corbett, J.: QS-TuM-6, **30**
 Corkery, P.: SS+2D-WeA-1, 50
 Cortazar, O.: AS-ThP-18, 64
 Cortazar-Martinez, O.: AS-ThP-1, 64; AS-ThP-3, **64**; AS-TuA-11, 36; AS-WeM-1, 44; AS-WeM-16, **44**
 Costa, C.: TF2-FrM-12, 70
 Cottom, J.: EM-ThP-5, 65
 Counsell, J.: 2D+LS+NS+SS-TuA-4, **39**; AS-WeA-6, 50; AS-WeM-6, 44; AS-WeM-8, 44
 Cox, D.: NS2-MoM-14, 6
 Coye, S.: 2D+AP+EM+QS+SS+TF-TuM-7, 30
 Craciun, V.: EM+2D+BI+QS+TF-TuA-4, 34
 Cramer, L.: SS-MoM-3, 10
 Crane, N.: MN-ThP-3, 66
 Createore, M.: TF1-MoM-1, **7**
 Cresswell, Z.: AC+MI-FrM-15, 73; TF1+EM-FrM-6, **70**
 Crisa, F.: QS-TuM-7, 30
 Crist, B.: AS-TuA-11, 36
 Croce, M.: AC+MI-ThA-3, **62**
 Cronje, S.: TF2-MoM-14, 7
 Crossman, J.: CA-FrM-3, 72; UN-ThP-5, **69**
 Crudden, C.: TF-WeM-13, 42
 Crum, E.: TF-WeM-7, 42
 Crumlin, E.: EM+2D+BI+QS+TF-TuA-4, 34
 Cruz, O.: SE-MoM-13, 14
 Cu, T.: AP-ThP-5, 64
 Cui, A.: 2D+EM+MI+QS-WeM-7, 45
 Cullen, D.: AS-WeA-4, 50
 Cumpson, P.: AS-ThM-1, **55**
 CUNGE, G.: PS-ThP-16, 67
 Cunha, C.: 2D+EM+MI+QS-WeM-4, 45
 Currie, M.: AP1+EM+PS+TF-WeM-2, 43
 Currie, T.: UN-ThP-4, 69
 Curry, J.: AS-ThP-14, 64; PS-ThA-7, 62; SE-MoA-6, 22
 Custer, J.: AS-ThA-4, 60; SE-MoA-6, 22; SE-ThP-4, **63**
 — **D** —
 D. Schlosser, R.: EM+2D+BI+QS+TF-TuA-3, 34
 D.C., B.: NS-ThP-9, 66
 D'Acunto, G.: TF-WeM-5, 42
 Dagdeviren, O.: NS1-MoA-4, **24**; NS2-MoA-13, 15; NS-ThP-2, **66**; NS-ThP-4, 66
 Dameron, A.: TF1-TuA-1, 35
 Danahey, S.: SS-ThP-28, 68
 Daneshmehr, S.: EM-ThP-15, 65
 Daniels, A.: SS-MoA-2, **44**
 Danielsson, O.: AP+PS+TF-TuA-14, 36
 Danilov, A.: NS2-TuM-17, 24
 Dao, A.: TF-WeM-7, 42
 Darakchieva, V.: EL1-ThA-5, 59; EL-FrM-3, 71
 Dares, C.: AC+MI-FrM-3, **73**
 Darling, S.: NS1-MoM-5, 6
 Darwin, E.: MI+2D+AC+TF-WeA-11, 51
 Das, A.: EM+2D+BI+QS+TF-TuA-3, 34
 Das, B.: AP+EM+PS+TF-MoM-5, 8
 Das, D.: TF+EM-ThA-2, 58
 Das, S.: PS-ThA-2, **62**; PS-ThM-5, 57
 Das, T.: PS2-MoM-15, 13
 Dasgupta, N.: AP2+EM+PS+TF-MoA-13, 17; AP2+EM+PS+TF-WeM-16, 43; TF1+AP-ThM-5, 54
 Datta, A.: TF+AP-MoA-7, 16; TF-WeM-6, **42**
 DAVAJI, B.: MN-ThP-1, 66
 Davari, S.: QS-TuA-5, 39
 Davies, S.: VT2-TuA-8, **38**
 Davis, H.: MN-ThP-3, 66
 Davis, R.: MN-ThP-2, 66; MN-ThP-3, 66
 Davydov, A.: NS-ThP-7, 66
 De Bonis, A.: 2D+EM+QS-ThA-2, 61
 De Gendt, S.: 2D+EM+MI+QS-WeM-4, 45; AP+PS+TF-TuA-12, 36; PS1-MoM-11, 13; PS1-MoM-5, 13
 De Geyter, N.: PS-TuA-10, 40; PS-TuA-4, 40
 de Jong, A.: AP+EM+PS+TF-MoM-3, **8**
 de Lafontaine, M.: PS2-WeA-10, 52
 de Marneffe, J.: 2D+EM+MI+QS-WeM-4, **45**; AP+PS+TF-TuA-13, 36
 de Rooij-Lohmann, V.: AS-WeM-8, **44**
 de Siervo, A.: SS-ThP-29, 50; SS-WeM-3, **44**
 De Yoreo, J.: NS1-MoM-7, 6
 Dean, A.: UN-ThP-8, **69**
 Debenedetti, W.: SS-MoA-8, 18
 Dechant, C.: PS-ThA-3, 62
 Deijkers, S.: AP+PS+TF-TuA-5, **36**
 Deitz, J.: NS2-MoM-10, **6**
 Del Hoyo, J.: AP1+EM+PS+TF-WeM-5, 43; PS+TF-FrM-5, 74
 Delchambre, A.: PS+TF-FrM-7, 74
 Delegan, N.: AP2+EM+PS+TF-TuM-16, 26
 Delgado Cornejo, D.: AP2+EM+PS+TF-WeM-16, **43**
 Dellasega, D.: SE-MoA-7, 22; SE-ThP-5, 63
 DelRio, F.: AS-ThA-4, 60; AS-ThP-14, 64; PS-ThA-7, 62; SE-MoA-6, 22
 Demarest, J.: AP+EM+PS+TF-MoM-7, 8
 Demaude, A.: PS+TF-FrM-6, 74
 Demelius, L.: TF-WeA-11, 48
 Demosthene, B.: NS-ThP-8, **66**
 Denchy, M.: PS-ThP-15, **67**
 Denecke, R.: AMS2-WeA-12, 49
 Deng, X.: SS-TuM-3, **28**
 Derecskei, A.: AP+EM+PS+TF-MoM-4, 8
 Desai, S.: AS-ThA-4, 60
 Deshmukh, A.: CA-FrM-1, 72
 Deshpande, V.: 2D+EM+MI+QS-WeM-5, **45**
 DESPIAU-PUJO, E.: PS-ThP-16, **67**
 Desta, D.: AS-ThP-11, 64
 Devadasan, D.: AS-ThM-1, 55
 Deviere, J.: PS+TF-FrM-7, 74
 deVilliers, A.: AP1+EM+PS+TF-MoA-5, 17
 Devos, A.: TF-WeM-16, 42
 Dewasurendra, V.: CA-ThP-5, 65; MI+2D+AC+TF-WeM-4, 45
 Dey, D.: 2D+EM+QS-ThA-5, **61**
 Dhakal, U.: NS-ThP-9, 66
 Dhas, J.: BI-MoA-2, 18; SS-WeM-17, 44
 Dhungana, B.: BI-ThP-14, **65**
 Dhungana, S.: EM-ThP-15, 65

Author Index

- Di Leo, R.: 2D-ThP-14, 63
 Diaz, A.: VT1-TuA-1, **38**
 Dickens, P.: AS-TuA-4, 36; TF+EM-ThA-5, **58**
 Diebold, A.: CPS-MoM-5, 11; EL-FrM-13, 71
 Diebold, U.: SS+2D-WeA-5, 50; SS-MoA-1, 18
 Dietrich, P.: EW-TuL-6, 33; TF2-FrM-11, **70**
 Ding, L.: AS-WeA-3, 50; AS-WeA-4, 50
 Dingreville, R.: AIML-WeM-1, 47; AS-ThA-4, 60
 Diniz, J.: NS1-MoA-5, 24; TF2-FrM-12, 70
 Dirin, D.: NS2-MoA-12, 15
 Dissanayake, N.: SS-ThP-5, 67; SS-WeM-8, 44
 Dissanayake, R.: SS-MoM-7, 10; SS-ThP-31, **68**
 Ditter, A.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
 Dittmar, M.: MI-ThP-4, **66**
 Ditto, J.: PS1-MoA-8, 21
 Diulus, J.: CA-FrM-8, 72; CA-ThA-9, **61**; CA-ThP-7, **65**
 Do, Q.: NS-ThP-6, **66**
 Do, V.: AS-TuA-13, 36; AS-WeA-15, 50
 Dogariu, A.: PS+TF-FrM-4, 74; SE-MoM-5, 14
 Dohnalek, Z.: SS-MoA-8, 18; SS-ThP-22, 68; SS-ThP-24, 68
 Doi, K.: PS1-WeA-4, 52
 Dolia, K.: EL-FrM-4, 71
 Dolmantis, P.: LS-MoM-12, 10
 Dolocan, A.: AS-ThM-8, 55
 Dombrowski, E.: VT2-TuA-13, **38**
 Don Manuwelge Don, L.: QS-TuM-6, 30
 Donald, S.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
 Donath, M.: MI+2D+AC+TF-WeM-13, **45**
 Dong, J.: QS-TuM-4, 30
 Donnelly, V.: AP+PS+TF-TuA-3, 36; AP+PS+TF-TuA-4, 36
 Dorf, L.: PS-ThP-9, 67
 Dorfman, K.: EM+2D+BI+QS+TF-TuA-8, 34
 Dorman, K.: AS-ThA-4, **60**
 Dorst, A.: SS-MoM-7, 10; SS-ThP-31, 68
 Douglas, E.: CPS-MoM-12, 11
 Douglass, K.: VT2-MoA-4, 49
 Dowben, P.: SS+2D-WeA-6, 50
 Dowell, M.: PL-MoM-1, **23**
 Downey, B.: TF1+EM-FrM-3, 70
 Doyle, B.: CA-FrM-6, 72
 Draney, J.: PS1-WeA-3, **52**
 Dresselhaus, P.: QS-TuA-8, 39
 Drgona, J.: AIML-WeM-5, 47
 Drivas, C.: AS-ThP-6, 64
 Drnec, J.: LS-MoM-14, 10
 Drouin, B.: TF2-TuM-13, 25
 Dryer, M.: QS-TuA-3, 39
 Dryzhakov, B.: MI+2D+AC+TF-WeA-9, **51**; NS-ThP-10, **66**
 Du, J.: NS1-MoM-7, 6
 Du, X.: EM+AIML+AP+QS+TF-WeM-1, 42
 Du, Y.: PS+TF-FrM-8, 74
 Dubs, C.: MI+2D+AC+TF-WeA-3, 51
 Duffin, A.: AC+MI-ThA-6, 62
 Dugger, M.: AS-ThP-14, 64; PS-ThA-7, 62
 DuMont, J.: TF1-TuA-1, **35**
 Dunkelberger, A.: BI1-MoM-4, 9
 Dunn, S.: AC+MI-ThA-1, **62**
 Dunuwila, S.: SS-ThP-8, **67**
 Durakiewicz, T.: AC+MI-FrM-13, 73; AQS-SuA-5, **4**
 Durand, C.: NS1-MoA-1, 24
 Durbin, S.: AIML-WeM-7, 47
 Duree, J.: VT1-TuM-2, 29
 Durndell, L.: AS-ThP-6, 64
 Dürr, M.: SS-ThP-7, **67**; SS-WeM-15, **44**
 D'Urso, L.: 2D+EM+QS-ThA-2, 61
 Dussart, R.: PS2-TuM-13, **31**
 Dutoi, A.: AS-ThP-2, 64; AS-TuA-11, 36
 Dutta, S.: QS1+EM+MN+PS-MoA-6, **20**
- E —
- E. Sestoft, J.: EM+2D+BI+QS+TF-TuA-3, 34
 Eads, C.: LS-MoM-1, 10
 Ebong, A.: EM-ThP-14, 65
 Eckberg, C.: QS-TuA-9, 39
 Eckel, S.: QS1+VT-MoM-3, **12**
 Edel, R.: AP1+EM+PS+TF-TuM-5, **26**
 Eden, G.: AP2+EM+PS+TF-TuM-16, 26
 Eder, M.: SS-MoA-1, 18; SS-MoM-12, 10; VT2-TuM-4, **29**
 Edwards, C.: AS-ThP-14, 64; SE-MoA-13, 22; SE-MoA-6, 22
 Egan, T.: NS2-MoA-14, **15**
 Egbunmi, D.: TF-WeA-4, 48
 Egerton, R.: CA-ThA-5, 61
 Eichenfeld, M.: EM+AP+TF-WeA-1, **48**
 Elahi, S.: TF-ThP-24, 69
 Elam, J.: AP2+EM+PS+TF-WeM-14, **43**; TF1-TuA-4, 35
 Eley, S.: QS-TuA-8, 39
 Elfimov, I.: AC+MI-ThM-3, 57
 Elgad, N.: AC-ThP-1, 63; AC-ThP-2, **63**
 Elgarhy, M.: AP+PS+TF-TuA-3, 36; AP+PS+TF-TuA-4, **36**
 Elimelech, M.: AP2+EM+PS+TF-WeM-14, 43
 Elius, I.: AS-TuA-3, 36
 Ellis, D.: PS-TuA-9, **40**
 Ellis, J.: PS-ThM-16, **57**
 Ellison, C.: EM+2D+BI+QS+TF-TuA-8, 34
 Elmustafa, A.: VT3-MoA-13, 19; VT-ThP-1, 69
 Elsen, M.: QS1+VT-MoM-4, 12
 Emminger, C.: EL-FrM-15, 71
 Endres, F.: CA-ThP-9, 65
 Engelhard, M.: AS-ThP-13, 64
 Engstrom, J.: TF1+AP-ThM-3, **54**
 Eom, D.: TF+EM-ThA-3, **58**; TF+EM-ThA-9, 58; TF2+EM-ThM-17, 54
 Erends, V.: VT2-MoA-11, 19
 Eres, G.: 2D+AP+EM+QS+SS+TF-TuM-8, 30
 Ergoktas, S.: CA-ThM-6, 56
 Erickson, K.: NS1-MoM-8, **6**
 Erickson, T.: MI+2D+AC+TF-WeM-7, 45; MI-ThP-1, **66**
 Eriguchi, K.: PS1-MoA-4, 21; PS1-MoA-7, 21; PS-ThA-4, 62
 Esatu, T.: 2D-WeA-5, 51
 Esmaeilabadi, F.: BI-ThP-7, 64
 Espinoza, S.: EL-FrM-15, 71
 Esposito, D.: SS-TuA-10, 37
 Esteves, G.: EM+AIML+AP+QS+TF-WeM-6, 42
 Estrada, T.: TF1-MoM-8, 7
 Ethier, S.: 2D-ThP-6, 63; PS-WeM-14, 46
 Ettouri, R.: PS-WeM-13, **46**
 Evans, A.: 2D-ThM-1, 56
 Evans, P.: SS-ThP-24, 68
- F —
- Fabian-Jacobi, J.: AS-ThP-3, 64
 Fadavi Roudsari, A.: QS-TuM-16, 30
 Falling, L.: LS-MoM-6, 10
 Farber, R.: AS-WeA-15, 50; SS-ThP-5, 67; SS-WeM-8, **44**
 Farzaneh, A.: AIML-WeM-6, **47**
 Fathzadeh, A.: AP+PS+TF-TuA-12, **36**; PS1-MoM-11, 13; PS1-MoM-6, 13
 Faucci Giannelli, M.: QS-TuM-16, 30
 Faupel, F.: BI-ThP-10, 65; EM-ThP-12, 65; TF-WeA-15, 48; TF-WeA-5, 48
 Faussett, S.: SS-TuM-14, 28
 Fayad, M.: MN2-TuA-11, 41
 Fears, K.: BI1-MoM-4, 9; BI-MoA-4, 18; BI-MoA-5, **18**; BI-ThP-15, 65
 Fedchak, J.: QS1+VT-MoM-3, 12; VT-ThP-3, 69
 Feder, R.: MI+2D+AC+TF-WeA-10, 51
 Fehrenbach, T.: TF2-TuM-17, 25
 Fei, Z.: NS1-MoA-3, 24
- Feigelson, B.: AP2+EM+PS+TF-WeM-15, 43
 Feit, C.: TF1-TuM-4, 25
 Felbinger, J.: AQS-SuA-8, **4**
 Feng, P.: 2D+EM+MN+TF-FrM-6, 73; 2D+EM+MN+TF-FrM-7, 73; MN2-TuA-10, 41
 Feng, X.: SS-ThP-14, 68; SS-TuA-4, 37; SS-TuM-13, 28; SS-TuM-4, 28; SS-TuM-5, 28
 Ferekides, C.: TF-ThP-24, 69
 Ferraresi, L.: NS2-MoA-12, 15
 Ferreira, E.: SS-ThP-29, 50; SS-WeM-3, 44
 Ferrer, P.: LS-MoM-5, 10
 Ferrera, M.: NS2-MoA-16, 15
 Ferris, A.: MN2-TuM-16, 32
 Ferry, V.: EM+2D+BI+QS+TF-TuA-1, **34**; EM+2D+BI+QS+TF-TuA-8, 34
 Fessler, N.: TF1+EM-FrM-6, 70
 Fidel, D.: MS-FrM-10, **71**
 Field, M.: AQS-SuA-10, 4; QS-TuA-9, 39
 Fields, S.: EM+AIML+AP+QS+TF-WeM-7, 42
 Fielitz, T.: AS-ThP-7, 64
 Figgemeier, T.: MI+2D+AC+TF-WeM-1, 45
 Filippidou, K.: PS1-MoM-11, 13; PS1-MoM-6, 13
 Fiorenza, R.: 2D+EM+QS-ThA-2, 61
 Fischer, B.: TF1-MoM-5, **7**
 Fisher, G.: AS-ThM-16, 55
 Flavell, W.: AC+MI-ThA-1, 62
 Fleischer, J.: 2D-WeA-5, 51
 Flodgren, V.: EM+2D+BI+QS+TF-TuA-3, 34
 Flores-Arciniega, J.: 2D+EM+QS-ThA-1, 61
 Folley, A.: BI-ThP-12, **65**
 Fonseca Vega, J.: 2D+LS+NS+SS-TuA-11, 39
 Fontaine, T.: PS-TuA-10, 40; PS-TuA-4, **40**
 Fontecha, D.: TF1-TuA-2, 35; TF1-TuA-3, **35**
 Forbes, R.: AMS1-WeA-3, **49**; AS-ThP-10, **64**
 Ford, H.: TF2-TuA-10, 35
 Forest, P.: PS1-TuM-8, 31
 Forien, J.: TF2-TuM-17, 25
 Fornero, E.: CA-ThM-17, 56
 Fosseur, N.: TF-ThP-14, **68**
 Foster, G.: AS-WeM-17, **44**
 Foster, J.: AIML-WeM-8, 47; AS-WeA-3, 50; AS-WeA-4, 50; PS2-MoM-15, 13
 Foti, A.: 2D+EM+QS-ThA-2, 61
 Fowler, E.: AIML-WeM-1, 47
 Fowler, J.: AIML-WeM-8, **47**
 Fox, A.: QS-TuA-8, 39
 Fraix, A.: 2D+EM+QS-ThA-2, 61
 Franceschini, E.: SS-TuM-6, 28
 Franchini, C.: SS-MoA-1, 18
 Francis, A.: AS-ThA-5, **60**
 Franco-Rivera, G.: QS-TuA-3, **39**
 Fransson, J.: NS1-MoA-7, 24
 Franz, K.: BI-MoA-4, 18
 Franz, M.: MN1-TuM-8, 32
 Frechette, J.: BP-SuA-8, **4**
 Frederick, E.: 2D-WeA-3, **51**
 Freedman, B.: BI-ThP-10, 65; TF-WeA-5, 48
 Freiburger, E.: SS-ThP-29, 50
 Freitas, J.: AP2+EM+PS+TF-WeM-15, 43
 Freund, L.: SS-ThP-7, 67
 Friedman, A.: 2D+EM+MI+QS-WeM-3, 45; 2D-WeA-5, 51; 2D-WeA-6, 51; NS1+2D+QS-TuM-3, 15
 Fritsch, B.: NS1-MoM-7, 6
 Fritz, T.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
 Frolov, G.: TF2-MoM-15, 7
 Frost, F.: PS-ThP-17, 67
 Frost, H.: QS-TuM-5, 30
 Frost, R.: SE-MoA-3, 22
 Frye, M.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56; AC-ThP-3, 63; TF1-TuM-3, **25**; TF1-TuM-7, 25
 Frye-Jones, J.: NS1-MoA-2, 24
 Fu, K.: PS+TF-FrM-4, 74

Author Index

- Fu, Y.: 2D+AP+EM+QS+SS+TF-TuM-6, 30; TF1-TuM-4, 25
- Fuelling, K.: AP2+EM+PS+TF-WeM-16, 43
- Fujimori, S.: AC+MI-ThM-1, **57**
- Fukazawa, A.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
- Fukutani, K.: SS-MoM-4, 10
- Fullerton Shirey, S.: 2D-WeA-1, **51**
- Furche, F.: SS-TuM-14, 28
- Furrer, R.: NS2-MoA-12, 15
- **G** —
- Gagnon, N.: MN1-TuM-8, **32**
- Gai, Z.: AIML-WeM-17, 47; MI+2D+AC+TF-WeM-3, 45
- Galazka, Z.: EL-FrM-14, 71; EL-FrM-3, 71
- Gall, D.: EM+AP+TF-WeA-5, 48
- Gallagher, E.: PS1-MoM-11, 13
- Gallaughier, M.: VT1-TuM-3, **29**
- Galli De Magistris, M.: SE-MoA-7, 22; SE-ThP-5, **63**
- Gallis, S.: QS1+EM+MN+PS-MoA-6, 20
- Galstyan, D.: SE-MoM-6, 14
- Gamelin, D.: UN-ThP-4, 69
- Gamez, M.: MN1-TuM-8, 32
- Gans, T.: PS-ThM-3, **57**
- Ganta, S.: PS-WeM-7, **46**
- Gao, M.: SS-MoM-4, 10
- Gao, P.: CA-ThM-3, 56
- Gao, Z.: EM+2D+BI+QS+TF-TuA-5, 34
- Garcia Ferré, F.: SE-ThP-5, 63
- Gardner, B.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56
- Gardner, W.: AS-ThM-5, 55; CA-ThA-3, 61
- Garno, J.: NS-ThP-6, 66
- Garrett, T.: TF1+EM-FrM-6, 70
- Garrione, J.: QS2+PS-MoA-14, 20
- Garten, L.: 2D+EM+MN+TF-FrM-5, **73**; 2D-ThM-13, 56; AC-ThP-3, 63; TF1-TuM-3, 25; TF1-TuM-7, 25
- Gaspe, C.: QS-TuA-5, 39
- Gaume, R.: EM+2D+BI+QS+TF-TuA-10, 34; UN-ThP-2, 69
- Gayle, A.: AP2+EM+PS+TF-MoA-13, 17
- Gayles, J.: MI-ThP-3, 66; QS1+EM+MN+PS-MoA-3, 20
- Gazeli, K.: PS-ThM-17, 57
- Gazzola, S.: AS-ThM-1, 55
- Gelb, L.: AS-ThM-7, **55**
- Geldiyev, B.: MI+2D+AC+TF-WeM-1, 45
- Gentile, M.: SE-ThP-5, 63
- Geohegan, D.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; 2D+AP+EM+QS+SS+TF-TuM-8, 30; AIML-WeM-16, 47
- George, A.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
- George, S.: AP1+EM+PS+TF-TuM-3, 26; AP1+EM+PS+TF-TuM-7, **43**; AP2+EM+PS+TF-TuM-15, 26; SS-ThP-32, 68; TF1+AP-ThM-8, 54
- Gerace, B.: SS+AS+CA+LS-FrM-8, 72
- Gerlach, L.: QS1+VT-MoM-4, 12
- Germer, T.: EL-FrM-5, **71**
- Gerrits, N.: SS-MoM-1, 10
- Gessert, T.: AQS-SuA-3, **4**; CPS-ThP-1, **65**
- Ghidorsi, E.: NS2-MoA-16, 15
- Ghimire, S.: 2D+EM+QS-ThA-4, **61**
- Ghodssi, R.: MN1-TuA-1, **41**
- Ghorbani-Asl, M.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
- Ghosh, B.: AS-ThP-17, 64; AS-TuA-3, 36
- Gillum, M.: SS-ThP-28, **68**
- Gil-Rostra, J.: SS-ThP-11, 68
- Giorgieri, C.: 2D-ThP-14, 63
- Glaser, T.: SS-ThP-7, 67; SS-WeM-15, 44
- Glavin, N.: EM+AIML+AP+QS+TF-WeM-1, 42
- Glezakou, V.: CA-ThA-1, 61
- Glor, E.: AS-WeM-15, 44
- Gloskovskii, A.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57
- Gnani Peer Mohamed, S.: TF-ThP-18, 69; TF-WeA-4, **48**; TF-WeA-6, 48
- Gnauck, P.: MS-FrM-8, **71**
- Go, D.: PS+TF-FrM-8, 74; PS-TuA-3, 40
- Goddard, W.: PS2-MoM-15, 13
- Godet, S.: TF-ThP-14, 68
- Goeckner, M.: PS-WeM-15, 46
- Goeke, R.: VT-ThP-5, 69
- Gofryk, K.: AC+MI-FrM-12, 73; AC+MI-FrM-13, 73; AC+MI-FrM-15, 73; AC+MI-ThM-15, **57**; AC-ThP-4, 63
- Gokus, T.: NS2-TuM-17, **24**
- Goldstein, B.: QS1+VT-MoM-7, 12; QS-ThP-5, 67; QS-WeM-7, **46**
- Golesorkhi, B.: QS-TuA-1, 39
- Göhlhäuser, A.: NS1-MoM-6, 6
- Gómez Muñoz, C.: AS-WeM-16, 44
- Gonon, P.: TF-ThP-4, 68
- Gonzalez, A.: SS-ThP-28, 68
- Gonzalez, F.: TF1-TuM-8, 25
- Gonzalez-Campuzano, R.: SE-MoM-8, 14
- González-Elipe, A.: SS-ThP-11, 68
- Goodin, A.: PS2-MoM-15, **13**
- Goodwin, E.: TF-WeM-13, 42
- Goosen, J.: PS-ThP-13, 67
- Gordon, M.: PS2-MoA-15, **21**; PS-TuA-5, 40
- Gorzellanny, C.: BI2-TuM-14, 27
- Gouder, T.: AC+MI-ThM-16, 57
- Goya, T.: PS1-MoA-7, **21**
- Gräfenstein, A.: BI1-TuM-6, 27
- Graham, C.: SE-MoA-12, 22
- Graham, I.: 2D+EM+MN+TF-FrM-5, 73; TF1-TuM-7, **25**
- Gramajo, C.: AS-ThM-15, 55
- Grantham, S.: EL-FrM-5, 71
- Grassellino, A.: QS-TuM-15, 30; QS-TuM-7, 30
- Graugnard, E.: TF-ThP-17, 68
- Graves, D.: AP+PS+TF-TuA-8, **36**; PS1-WeA-3, 52
- Greczynski, G.: SE-MoA-8, **22**; SE-MoM-10, 14
- Greem, I.: EL-ThP-5, **67**
- Green, A.: EL2-ThA-6, 59
- Green, I.: EL-FrM-3, 71
- Green, R.: MI+2D+AC+TF-WeM-14, 45
- Greenberg, B.: AP2+EM+PS+TF-WeM-15, **43**
- Greene, E.: SS+AS+CA+LS-FrM-10, **72**
- Gregoratti, L.: CA-ThM-8, 56
- Gregorczyk, K.: TF1-TuA-3, 35
- Grehl, T.: AS-WeM-14, **44**
- Gretarsson, H.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57; LS-MoM-12, 10
- Grimes, T.: AC+MI-FrM-3, 73
- Grinter, D.: LS-MoM-5, **10**
- Griveau, J.: AC+MI-ThM-15, 57
- Grobe, K.: BI2-TuM-14, 27
- Groot, I.: SS+2D-WeA-10, **50**; SS-ThP-10, 67
- Groothuis, C.: SS-TuA-11, 37
- Grosse, J.: QS1+VT-MoM-4, 12
- Grow, J.: MN-ThP-3, 66
- Gruber, C.: QS1+VT-MoM-4, 12
- Gruenewald, M.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
- Grutter, A.: MI+2D+AC+TF-WeA-3, 51
- Grutter, K.: 2D+EM+MI+QS-WeM-3, 45
- Gruzick, S.: MN2-TuM-15, 32
- Gu, B.: AP+EM+PS+TF-MoM-15, 8; TF+EM-ThA-1, 58
- Guérin, C.: TF-ThP-4, 68
- Guest, J.: SS-ThP-27, 68
- Guisinger, N.: TF2-FrM-13, **50**
- Guner, B.: NS1-MoA-4, 24; NS2-MoA-13, **15**; NS-ThP-2, 66; NS-ThP-4, **66**
- Gunther, O.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
- Gupta, A.: SS-MoM-5, 10; SS-ThP-19, **68**; SS-TuA-12, 37
- Gupta, G.: SE-MoM-14, 14
- Gupta, S.: TF1-MoM-6, 7
- Gustavo, F.: QS2+PS-MoA-14, 20
- Guttman, J.: PS-ThM-1, 57
- Guvenc Kilic, S.: EL-FrM-14, **71**; NS-ThP-12, **66**
- Guzman Bucio, D.: AS-WeM-16, 44
- Guzman-Bucio, D.: AS-ThP-1, **64**; AS-ThP-2, 64; AS-TuA-11, 36; AS-WeM-1, **44**
- **H** —
- Haas, S.: TF1-MoM-5, 7
- Haberkmann, H.: MI-ThP-4, 66
- Hachtel, J.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; 2D-ThM-6, 56; CA-ThP-2, 65
- Hadfield, R.: QS2+PS-MoA-11, 20
- Hagenhoff, B.: TF-ThP-2, 68
- Hager, J.: BI-MoA-2, 18
- Hagimoto, Y.: PS1-MoA-4, 21
- Hagiwara, A.: EM-ThP-11, 65
- Haglund, J.: AP1+EM+PS+TF-WeM-8, 43; TF1-TuM-6, 25
- Haines, A.: SS-TuM-14, 28
- Hajzsu, J.: 2D+AP+EM+QS+SS+TF-TuM-16, **30**; EM+2D+AP+QS+TF-ThM-2, 53; EM+2D+AP+QS+TF-ThM-3, 53
- Halevy, I.: AC-ThP-1, **63**; AC-ThP-2, 63
- Hall, H.: MI+2D+AC+TF-WeM-7, 45; MI-ThP-1, 66
- Hall, J.: NS1-MoA-3, 24; SE-MoA-6, 22
- Hamaguchi, S.: AP2+EM+PS+TF-MoA-16, 17; PS+TF-FrM-1, 74; PS1-TuM-2, 31; PS1-WeA-2, 52; PS2-TuM-16, 31
- Hamano, T.: PS1-MoA-4, 21
- Hamilton, J.: TF2-FrM-10, 70
- Hammer, L.: MI+2D+AC+TF-WeM-13, 45
- Han, S.: EM-ThP-13, 65; EM-ThP-14, **65**; PS-ThP-3, **66**; VT1-TuM-2, 29
- Han, Y.: NS1-MoA-3, 24
- Han, Z.: CA-ThP-4, 65; EM+AIML+AP+QS+TF-WeM-1, 42
- Hanbicki, A.: 2D+EM+MI+QS-WeM-3, 45; 2D-WeA-5, 15; 2D-WeA-6, 51; NS1+2D+QS-TuM-3, 51
- Hanbyul, K.: TF-ThP-22, 69
- Hancock, J.: NS2-MoM-12, **6**
- Hanley, L.: BI-MoA-2, 18; CA-ThP-3, 65
- Hanna, J.: AIML-WeM-8, 47
- Hans, M.: SE-MoA-1, **22**; SE-MoA-3, 22; SE-MoA-4, 22
- Hansol, O.: TF-ThP-22, 69
- Hao, Q.: AP+PS+TF-TuA-3, **36**; AP+PS+TF-TuA-4, 36
- Happel, E.: SS-MoM-3, **10**; SS-ThP-2, **67**
- Haque, A.: AS-ThP-5, 64; EM+AP+TF-WeA-11, 48; EM+AP+TF-WeA-9, 48
- Harada, K.: CA-ThA-5, 61
- Haraldsen, J.: 2D-ThM-1, 56; 2D-ThM-2, 56
- Harbick, A.: AS-WeA-15, 50
- Hardy, M.: TF1+EM-FrM-3, 70
- Hariki, A.: AC+MI-ThM-7, 57
- Harmon, K.: LS-MoM-10, **10**
- Harris, C.: TF+EM-ThA-5, 58
- Harris, S.: 2D+AP+EM+QS+SS+TF-TuM-8, 30; AIML-WeM-16, **47**; BI-ThP-13, 65
- Harrison, I.: MI+2D+AC+TF-WeM-3, 45
- Harrison, R.: AC+MI-ThA-1, 62
- Hart, J.: AP2+EM+PS+TF-WeM-17, 43; TF1+EM-FrM-3, 70
- Harter, J.: QS-WeM-5, **46**
- Hartig, T.: BI-ThP-10, **65**; EM-ThP-12, 65; TF-WeA-15, 48; TF-WeA-5, **48**

Author Index

- Hartmann, G.: AS-TuA-12, **36**; PS1-WeA-1, 52; PS-WeM-6, 46
- Harwood, D.: EM-ThP-14, 65
- Hasan, T.: MN-ThP-4, 66
- Hasegawa, J.: SS-MoM-4, 10
- Hassall, G.: PS-ThM-16, 57
- Hattori, K.: SS-ThP-15, 68
- Hattori, T.: PS1-MoA-8, 21
- Haubold, L.: SE-MoM-6, 14; SE-ThP-6, 63
- Hauck, M.: BI-ThP-10, 65; TF-WeA-5, 48
- HAVELA, L.: AC+MI-FrM-8, **73**
- Haverkort, M.: AC+MI-ThM-3, 57; LS-MoM-12, 10
- Hawker, M.: BI2-MoM-10, **9**; BI2-MoM-12, 9
- Hayashida, K.: SS-TuM-8, **28**
- Hayashida, M.: CA-ThA-5, 61
- Hayes, D.: MN-ThP-3, **66**
- Hayes, S.: TF2-TuM-17, **25**
- Hays, D.: EM+AP+TF-WeA-11, 48
- Hays, P.: PS+TF-FrM-3, **74**
- Hazeldine, K.: SS-MoM-13, **10**
- He, G.: 2D+EM+MI+QS-WeM-4, 45
- He, Y.: EM+AIML+AP+QS+TF-WeM-1, 42
- Head, A.: CA-ThA-8, **61**; CA-ThA-9, 61
- Hedevang, M.: SS-MoM-13, 10
- Hedlund, D.: MN1-TuM-6, 32; MN1-TuM-8, 32
- Heiman, D.: MI+2D+AC+TF-WeA-3, 51
- Heiner, B.: AC+MI-FrM-10, **73**
- Heiz, U.: VT2-TuM-4, 29
- Held, G.: LS-MoM-5, 10; NS1-MoA-6, **24**
- HELD, G.: LS-ThP-1, **66**
- Heldebrant, D.: CA-ThA-1, 61; SS-WeM-17, 44
- Heller-Krippendorf, D.: TF-ThP-2, 68
- Hemminger, J.: SS-TuM-14, 28
- Henández Gordillo, A.: SE-MoM-12, 14
- Hendricks, J.: QS1+VT-MoM-7, **12**; QS-ThP-5, **67**; VT2-MoA-4, 19
- Hendricks, N.: 2D-ThP-12, **63**; NS2-TuM-15, **24**
- Henn, F.: SS+AS+CA+LS-FrM-8, 72
- Henry, M.: EM+AIML+AP+QS+TF-WeM-16, 42; EM+AIML+AP+QS+TF-WeM-6, 42
- Hentrich, R.: NS2-TuM-17, 24
- Heo, J.: AC-ThP-6, 63
- Herbert-Walters, M.: TF1-TuA-1, 35
- Heremans, F.: LS-MoM-10, 10
- Heremans, J.: AP2+EM+PS+TF-TuM-16, 26
- Hernandez, S.: AC-ThP-5, 63
- Hernandez-Gordillo, A.: SE-MoM-8, 14
- Herr, A.: QS2+PS-MoA-12, 20; QS2+PS-MoA-13, 20
- Herr, Q.: QS2+PS-MoA-13, 20
- Herrera-Gomez, A.: AS-ThP-1, 64; AS-ThP-18, 64; AS-ThP-2, **64**; AS-ThP-3, 64; AS-TuA-11, **36**; AS-WeM-1, 44; AS-WeM-16, 44
- Hersam, M.: NS1+2D+QS-TuM-1, **15**
- Hertel, J.: QS1+VT-MoM-4, 12
- Hervey, W.: BI-MoA-5, 18
- Hess, L.: CA-ThP-5, 65
- Hess-Dunning, A.: MN1-TuA-5, 41
- Hesu, A.: AIML-WeM-8, 47
- Hetti Arachchige, H.: SS-ThP-5, 67
- Hettige, Y.: EL-FrM-8, **71**
- Heydari Gharahcheshmeh, M.: TF-WeM-4, **42**
- Hibbitts, D.: SS-MoA-6, 18
- Hicks, J.: PS-TuA-3, 40
- Higginson, M.: AC+MI-ThA-1, 62
- High, E.: SS-ThM-13, 55
- Highland, M.: LS-MoM-10, 10
- Hight Walker, A.: NS1+2D+QS-TuM-3, 15
- Hilfiker, J.: EL-ThP-4, 67
- Hilfiker, M.: EL-FrM-14, 71; EL-ThP-6, 67
- Hill, S.: QS-TuM-16, 30
- Hilse, M.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56
- Hinder, S.: AS-WeM-13, 44
- Hingerl, K.: EL1-ThA-3, **59**; EL1-ThA-4, 59
- Hinojos, A.: AS-ThA-4, 60
- Hinshelwood, M.: PS-TuA-11, **40**
- Hinzer, K.: PS2-WeA-10, 52
- Hippensteel, J.: BI2-TuM-14, 27
- Hirabayashi, M.: MN2-TuM-15, 32
- Hirsch, R.: SS-ThP-32, 68
- Hirushan, H.: SS-WeM-8, 44
- Hisamatsu, T.: PS-WeM-16, 46
- Hoang, L.: 2D-ThM-7, 56
- Hobart, K.: AS-WeM-17, 44
- Hoddinott, H.: NS1-MoA-6, 24
- Hodges, W.: MN2-TuM-16, 32
- Hoefft, O.: CA-ThP-9, 65
- Hoenk, M.: TF2-TuM-16, 25
- Hoerauf, J.: EM+AIML+AP+QS+TF-WeM-15, **42**
- Hofliijk, I.: AS-WeM-3, 44
- Hofmann, J.: 2D-WeA-12, 51
- Hofmann, T.: EL-FrM-12, 71
- Höfner, M.: PS-ThM-13, 57
- Holcomb, M.: CA-ThP-5, **65**; MI+2D+AC+TF-WeM-4, 45
- Holland, G.: CA-ThP-4, 65; NS2-MoA-15, 15
- Holsteyns, F.: AP+PS+TF-TuA-12, 36; PS1-MoM-11, 13
- Homeniuk, D.: CA-ThA-5, **61**
- Honsberg, C.: PS2-WeA-10, 52
- Hook, A.: BI2-TuM-14, 27
- Hopkins, D.: AIML-WeM-5, 47
- Hopkins, P.: EM+AIML+AP+QS+TF-WeM-7, 42
- Hoque, M.: EM+AIML+AP+QS+TF-WeM-7, 42
- Horák, L.: AC+MI-ThM-16, 57
- Hori, M.: PS1-MoA-1, **21**; PS2-TuM-15, 31
- Horne, H.: QS2+PS-MoA-15, **20**
- Hossain, A.: AP+PS+TF-TuA-9, 36
- Hossain, M.: PS+TF-FrM-2, 74; PS-ThM-5, 57; PS-WeM-3, 46; SS-ThP-4, **67**
- Hou, S.: SE-ThP-2, 63
- Hou, X.: AC+MI-FrM-3, 73
- Houmsi, H.: TF-ThP-4, 68
- Howard, J.: QS-TuA-9, 39
- Howe, A.: UN-ThP-2, 69
- Howell, C.: BI2-MoM-11, **9**; BI-ThP-11, 65; BI-ThP-12, 65; BI-ThP-2, 64; BI-ThP-5, 64; BI-ThP-6, 64
- Hruszkewycz, S.: LS-MoM-10, 10; TF1+AP-ThM-7, 54
- Hruza, D.: SS-WeM-4, 44
- Hsiao, H.: TF2-TuM-13, 25
- Hsiao, S.: PS2-TuM-15, **31**
- Htun, S.: TF1+AP-ThM-7, 54
- Hu, B.: MI+2D+AC+TF-WeA-9, 51
- Hu, J.: EM+2D+BI+QS+TF-TuA-11, 34; EM+2D+BI+QS+TF-TuA-5, 34; EM+2D+BI+QS+TF-TuA-9, 34
- Hu, T.: CA-ThA-8, 61
- Huang, C.: BI2-MoM-13, 9
- Huang, H.: 2D+EM+MN+TF-FrM-3, 73; AP+EM+PS+TF-MoM-7, 8; EM-ThP-8, 65
- Huang, S.: LS-MoM-15, 10
- Huang, Y.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
- Huber, A.: NS2-TuM-17, 24
- Huber, F.: AC+MI-ThM-16, 57
- Hückmann, L.: EM-ThP-5, **65**
- Huerta-Ruelas, J.: AS-ThP-1, 64
- Hues, J.: TF-ThP-17, **68**
- Huet, B.: QS2+PS-MoA-13, 20
- Hug, H.: MI+2D+AC+TF-WeA-11, 51
- Hughes, B.: TF1-TuA-1, 35
- Hughes, S.: VT2-TuA-5, 38
- Hugo, C.: QS2+PS-MoA-15, 20
- Hui, H.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
- Hultman, L.: AIML-ThP-1, 63; SE-MoM-10, 14; SE-MoM-11, 14
- Huneycutt, S.: EM-ThP-14, 65
- Hurst, K.: SS-TuA-10, 37
- Hus, S.: AIML-WeM-17, 47
- Husić, I.: PS2-MoM-14, 13
- Hussain, S.: PS-WeM-15, 46
- Hussey, D.: NS2-MoM-15, 6
- Hütner, J.: SS+2D-WeA-5, **50**; SS-MoM-12, 10
- Hüttl, S.: QS1+VT-MoM-4, 12; VT3-TuM-6, 29
- Hutzler, A.: NS1-MoM-7, 6
- Hwang, C.: TF-ThP-21, 69
- Hwang, G.: AP2+EM+PS+TF-MoA-15, 17; TF1+EM-FrM-8, 70
- Hwang, J.: AP-ThP-6, 64
- Hwang, S.: PS-ThP-19, **67**
- Hwang, T.: TF1+EM-FrM-1, 70
- Hysick, M.: PS+TF-FrM-2, 74
- I —
- Iafrazi, M.: SE-MoA-7, 22
- Iannello III, J.: VT1-TuM-2, 29
- Ianno, N.: TF2-TuM-15, 25
- Ievlev, A.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; AS-WeA-1, **50**
- Ihlefeld, J.: EM+AIML+AP+QS+TF-WeM-16, 42; EM+AIML+AP+QS+TF-WeM-2, **42**; EM+AIML+AP+QS+TF-WeM-6, 42; EM+AIML+AP+QS+TF-WeM-7, 42
- Iijima, Y.: PS2-TuM-15, 31
- Ikuse, K.: AP2+EM+PS+TF-MoA-16, 17
- Ilani, S.: NS2-TuM-13, 24
- Ilarionova, Y.: AP+PS+TF-TuA-14, 36
- Ilton, E.: AC-ThP-6, 63; AS-TuA-10, 36
- Inbar, A.: NS2-TuM-13, 24
- Ingram, D.: MI+2D+AC+TF-WeA-4, 51; MI-ThP-1, 66
- Invernizzi, L.: PS-ThM-17, 57
- Iraci, S.: QS2+PS-MoA-13, 20
- Irisawa, T.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
- Isaacs, M.: AS-ThA-3, **60**; AS-ThM-4, 55; AS-ThP-6, **64**
- Isegawa, M.: SS-TuM-8, 28
- Ishigami, M.: 2D+LS+NS+SS-TuA-10, 39; 2D-WeA-3, 51; 2D-WeA-4, 51; TF1-TuM-8, 25
- Ishihara, T.: PS+TF-FrM-1, **74**
- Ishii, Y.: PS1-MoA-8, 21
- Ishikawa, K.: PS1-MoA-1, 21
- Islam Mondal, M.: 2D-ThP-9, 63
- Islam, A.: SS-MoA-5, **18**
- Islam, M.: 2D+EM+QS-ThA-4, 61; EM+AIML+AP+QS+TF-WeM-7, 42
- Islam, Z.: AC+MI-FrM-12, 73
- Ito, T.: PS+TF-FrM-1, 74; PS1-TuM-2, 31
- Iwamoto, H.: PS1-MoA-4, 21
- Izawa, M.: PS1-MoM-3, **13**
- Izquierdo-Fernandez, L.: TF1-MoM-3, 7
- J —
- J. Koester, S.: EM+2D+AP+QS+TF-ThM-6, 53
- J. Lockhart de la Rosa, C.: 2D+EM+MI+QS-WeM-4, 45
- Jacobs, A.: AP2+EM+PS+TF-WeM-15, 43; AS-WeM-17, 44
- Jacobson, D.: PS-ThM-8, 57
- Jacopin, G.: NS1-MoA-1, 24; PS2-WeA-11, 52
- Jaekel, S.: SS-ThP-29, 50
- Jafari Jam, R.: AP+PS+TF-TuA-14, 36
- Jafari, S.: EL-FrM-7, **71**; UN-ThP-8, 69
- Jaime, M.: AC+MI-FrM-12, 73
- Jain, M.: AS-ThA-4, 60; SE-MoA-6, 22
- Jain, P.: TF1-MoM-4, **7**
- Jakub, Z.: SS-MoA-1, 18; SS-WeM-4, **44**
- Jalan, B.: EM+2D+AP+QS+TF-ThM-6, 53; TF+EM-ThA-4, 58
- Jalil, A.: SS-MoM-3, 10

Author Index

- Jaloustre, L.: NS1-MoA-1, **24**; PS2-WeA-11, 52
 James, R.: TF+EM-ThA-4, 58
 Jamir, J.: SS-MoA-12, 18; SS-MoA-3, 18
 Janek, J.: AS-WeA-11, 50
 Jang, J.: PS1-TuM-1, 31; PS1-TuM-7, 31
 Jang, S.: PS1-MoM-8, **13**; TF-ThP-8, **68**
 Jangid, R.: 2D+EM+MI+QS-WeM-7, 45
 Janottj, A.: 2D-ThM-3, 56
 Janulaitis, N.: SS-MoM-8, **10**
 Jariwala, D.: EM+AIML+AP+QS+TF-WeM-1, 42; EM+AIML+AP+QS+TF-WeM-17, 42
 Jarret, D.: 2D-ThP-9, 63
 Jarzembki, A.: MN2-TuM-16, 32
 Jaszewski, S.: EM+AIML+AP+QS+TF-WeM-16, **42**; EM+AIML+AP+QS+TF-WeM-6, 42; EM+AIML+AP+QS+TF-WeM-7, 42
 Jaugstetter, M.: LS-MoM-6, **10**
 Jauregui, L.: NS2-MoM-10, 6
 Jean, B.: TF-WeA-13, **48**
 Jeckell, Z.: PS+TF-FrM-2, 74; PS-ThA-6, 62; PS-ThM-5, **57**
 Jeff, D.: 2D-ThP-9, 63
 Jeffries, A.: EM-ThP-14, 65
 Jenkins, T.: PS-WeM-8, 46
 Jensen, B.: MN-ThP-3, 66
 Jensen, D.: PS-ThP-15, 67
 Jeon, J.: EM-ThP-10, **65**
 Jeon, N.: TF-WeA-9, **48**
 Jeon, W.: TF-ThP-20, 69; TF-ThP-21, 69
 Jeong, H.: TF-ThP-20, **69**
 Jeong, U.: EM-ThP-9, **65**
 Jeringan, G.: EL2-ThA-9, 59
 Jessup, D.: SS+2D-WeA-11, 50
 Jewell, A.: TF2-TuM-16, **25**
 Jiang, H.: AP-ThP-5, 64
 Jiang, N.: AMS2-WeA-11, **49**; SS-ThP-17, 68; SS-ThP-6, 67
 Jiang, Q.: PS+TF-FrM-8, 74
 Jihun, N.: TF-ThP-22, **69**
 Jimenez, J.: SS-TuM-6, 28
 Jin, M.: 2D-WeA-13, **51**
 Jin, R.: MI+2D+AC+TF-WeM-3, 45
 Jing, D.: AMS2-WeA-9, 49
 Jo, Y.: TF1+EM-FrM-1, 70
 Jocham, C.: PS2-MoM-14, 13
 Jodhka, P.: BI-MoA-1, 18
 Jog, A.: AP+EM+PS+TF-MoM-7, 8
 John, M.: VT3-TuM-6, **29**
 Johnson, C.: QS-TuM-5, 30
 Johnson, D.: BI-MoA-1, 18
 Johnson, K.: 2D+AP+EM+QS+SS+TF-TuM-7, 30
 Johnson, M.: AP2+EM+PS+TF-MoA-14, 17; CA-ThP-5, 65; MI+2D+AC+TF-WeM-4, 45; PS2-MoM-12, **13**
 Johnson, W.: TF2-TuM-13, 25
 Johs, B.: EL-FrM-7, 71
 Jois, S.: 2D-WeA-5, **51**
 Jones, B.: QS2-MoM-12, 12
 Jonghwan, J.: TF-ThP-22, 69
 Jonker, B.: 2D+LS+NS+SS-TuA-3, 39
 Jordan, M.: MN2-TuM-15, 32; MN2-TuM-16, **32**
 Joseph, E.: MS-FrM-3, **71**
 Jousseau, V.: TF-ThP-4, 68
 Joy, N.: PS1-MoM-2, 13
 Jozwiak, C.: 2D+LS+NS+SS-TuA-3, 39; 2D-ThP-10, 63
 Jubin, S.: PS-WeM-14, 46
 Jugan, A.: VT2-TuA-11, 38
 Jugdersuren, B.: TF-ThP-3, 68
 Junda, M.: EL2-ThA-6, **59**
 Jung, E.: PS-ThP-2, **66**
 Jung, J.: PS-ThA-1, 62; PS-ThP-8, **66**
 Jung, U.: PS-ThA-1, 62
 Junige, M.: AP1+EM+PS+TF-TuM-3, **26**; SS-ThP-32, 68
 Junker, N.: SS+AS+CA+LS-FrM-5, 72
 Jurca, T.: UN-ThP-4, 69
 Jurczyk, B.: PS+TF-FrM-2, 74; PS-TuA-9, 40
 Jursich, G.: BI-MoA-3, 18
 Jusifagic, L.: BI1-TuM-6, 27
 — **K** —
 Kaczorowski, D.: 2D-ThP-9, 63; AC+MI-FrM-12, 73; AC-ThP-4, 63; AS-TuA-5, 36
 Kaden, W.: EM+AP+TF-WeA-3, **48**
 Kaganovich, I.: 2D-ThP-6, 63; PS-ThP-11, 67; PS-TuA-8, 40; PS-WeM-14, **46**; PS-WeM-7, 46
 Kagerer, P.: MI-ThP-4, 66
 Kaiser, T.: 2D+EM+MN+TF-FrM-7, 73
 Kaiser, S.: VT2-MoA-3, 19
 Kalanov, D.: PS-ThP-17, 67
 Kalaswad, M.: AS-ThA-4, 60
 Kalinin, S.: AIML-WeM-6, 47
 Kalkhoff, L.: SS+AS+CA+LS-FrM-5, 72
 Kalluholematham, D.: BI-MoA-1, 18
 Kaloyeros, A.: QS1+EM+MN+PS-MoA-6, 20
 Kamal, M.: CA-ThA-5, 61
 Kamataki, K.: PS2-MoA-11, 21
 Kamath Manjeshwar, A.: TF+EM-ThA-4, **58**
 Kanatzidis, M.: 2D-WeA-13, 51
 Kandratsenka, A.: SS-ThP-30, **68**
 Kang, D.: TF1-TuA-4, **35**
 Kang, H.: PS+TF-FrM-1, 74; PS1-TuM-2, **31**
 Kang, J.: EM+AIML+AP+QS+TF-WeM-17, 42
 Kang, S.: AP+PS+TF-TuA-3, 36; AP+PS+TF-TuA-4, 36; PS1-TuM-2, 31
 Kang, Y.: TF+EM-ThA-1, 58
 Kanne Nordqvist, T.: EM+2D+BI+QS+TF-TuA-3, 34
 Kanzenbach, L.: QS1+VT-MoM-4, 12
 Kao, I.: 2D-ThP-10, 63
 Kapelyan, D.: PS-ThM-5, 57
 Kar, S.: AS-ThA-8, 60
 Kara, G.: NS2-MoA-12, 15
 Karadzov, I.: SE-MoA-12, **22**
 Karaginnakis, A.: CA-ThP-3, 65
 Karahashi, K.: PS+TF-FrM-1, 74; PS1-TuM-2, 31
 Karakoti, A.: AS-ThP-16, 64; CA-ThM-4, **56**
 Karam, M.: AIML-WeM-15, 47
 Karar, N.: AS-ThA-8, **60**
 Karbasizadeh, S.: MI+2D+AC+TF-WeM-3, 45
 Kardish, M.: BI-MoA-4, 18
 Karimi, A.: AP+PS+TF-TuA-14, **36**
 Kasala, P.: SS-MoA-13, **18**
 Kashem, F.: MN1-TuA-3, 41
 Kashyap, M.: SE-MoM-14, 14
 Kaspar, T.: AIML-WeM-5, **47**
 Kastil, J.: AC+MI-FrM-8, 73
 Katakam, S.: PS1-MoM-2, **13**
 Katarivas-Levy, G.: AC-ThP-1, 63; AC-ThP-2, 63
 Katcko, K.: PS1-TuM-5, 31
 Kathmann, S.: AMS2-WeA-13, **49**; AMS2-WeA-9, 49
 Kato, A.: QS1+VT-MoM-1, **12**
 Katoch, J.: 2D+LS+NS+SS-TuA-3, **39**; 2D-ThP-10, 63
 Kauffman, D.: SS-TuM-3, 28
 Kaufman, G.: TF-WeA-4, 48
 Kaushik, A.: 2D-ThM-14, 56
 Kaushik, N.: SS-ThP-18, 68
 Kawabata, S.: PS1-TuM-2, 31
 Kawasaki, J.: TF1-TuM-1, **25**
 Kay, B.: SS-ThP-22, 68
 Kaya, S.: MI-ThP-1, 66
 Kayaस्था, R.: EM+2D+BI+QS+TF-TuA-5, **34**; SS+AS+CA+LS-FrM-6, 72
 Kaye, A.: AP+EM+PS+TF-MoM-4, **8**; AP+PS+TF-TuA-10, 36
 Kaye, P.: AC+MI-ThA-1, 62
 Keely, D.: AS-WeM-15, 44
 Keeney, P.: 2D-ThM-1, 56; 2D-ThM-2, **56**
 Keimer, B.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57
 Keller, N.: EL-FrM-13, 71
 Kelley, K.: NS-ThP-10, 66
 Kelley, M.: AS-TuA-13, 36
 Kempa, T.: 2D-WeA-6, 51
 Kemper, B.: MN-ThP-2, **66**
 Kennedy, W.: EM+AIML+AP+QS+TF-WeM-1, 42
 Kennens, B.: QS2+PS-MoA-12, 20
 Keren, A.: NS2-TuM-13, 24
 Kerr, A.: SS-ThP-28, 68
 Kessels, E.: AP+EM+PS+TF-MoM-3, 8; AP+PS+TF-TuA-5, 36; PS-ThM-14, 57; QS2+PS-MoA-11, 20; VT1-TuM-1, 29
 Kessels, W.: AP+EM+PS+TF-MoM-14, 8
 Kessler, T.: AP2+EM+PS+TF-WeM-17, 43
 Keth, J.: TF-WeM-7, 42
 Khalid, S.: 2D-ThM-3, **56**; 2D-ThP-6, **63**
 Khan, A.: TF+EM-ThA-2, 58; TF+EM-ThA-6, 58
 Khan, M.: TF-ThP-18, **69**
 Khan, N.: TF-ThP-13, **68**
 Khandavalli, S.: AS-WeA-3, 50
 Khanna, R.: AS-WeM-17, 44
 Khatun, S.: 2D+AP+EM+QS+SS+TF-TuM-14, **30**
 Khayya, N.: NS1-MoM-6, 6
 Khomenko, A.: PS-ThP-9, 67
 Khondaker, S.: 2D-ThP-9, 63
 Khrabrov, A.: PS-WeM-14, 46; PS-WeM-7, 46
 Khrabry, A.: PS-TuA-8, 40
 Kihara, Y.: PS2-TuM-15, 31
 Kildemo, M.: EL1-ThA-1, **59**
 Kilic, U.: AP1+EM+PS+TF-WeM-3, 43; EL-FrM-14, 71; EL-ThP-6, **67**; MI+2D+AC+TF-WeA-10, **51**; NS-ThP-12, 66; PS-ThP-17, 67; PS-ThP-18, 67
 Killelea, D.: SS+AS+CA+LS-FrM-7, **72**; SS-MoM-7, 10; SS-ThP-28, 68; SS-ThP-31, 68
 Killgore, J.: AS-ThP-14, 64; SE-MoA-6, 22
 Kim, A.: 2D+LS+NS+SS-TuA-11, 39
 Kim, B.: PS1-TuM-1, 31; PS1-TuM-7, 31
 Kim, C.: AP-ThP-6, 64
 Kim, D.: PS1-TuM-1, 31; PS1-TuM-7, 31; PS-ThA-5, 62
 Kim, E.: PS1-TuM-1, 31; PS1-TuM-7, 31
 Kim, G.: EM+AIML+AP+QS+TF-WeM-1, 42
 Kim, H.: TF+EM-ThA-1, 58; TF+EM-ThA-3, 58; TF+EM-ThA-9, 58; TF2+EM-ThM-15, 54; TF2+EM-ThM-17, 54
 Kim, J.: 2D-ThM-4, 56; AC+MI-FrM-11, 73; AP1+EM+PS+TF-TuM-4, 26; AP2+EM+PS+TF-TuM-17, **26**; AP2+EM+PS+TF-WeM-14, 43; EM+2D+BI+QS+TF-TuA-12, 34; EM+AP+TF-WeA-9, 48; EM-ThP-3, **65**; PS-ThP-3, 66; TF1-MoM-7, **7**; TF-ThP-11, 68; VT-ThP-2, 69
 Kim, K.: AS-ThA-3, 60; EM+AIML+AP+QS+TF-WeM-1, 42; EM+AIML+AP+QS+TF-WeM-17, 42; TF+EM-ThA-9, 58
 Kim, L.: SS+2D-WeA-12, **50**
 Kim, M.: AP1+EM+PS+TF-TuM-4, **26**; PS-ThA-1, 62; QS2+PS-MoA-13, 20; SS-MoA-12, 18; SS-MoA-3, 18; SS-MoA-9, 18; TF1-MoM-7, 7; TF-ThP-11, **68**; TF-ThP-7, 68
 Kim, N.: PS-ThA-1, 62
 Kim, P.: 2D+EM+MI+QS-WeM-7, 45; AP+PS+TF-TuA-3, 36; AP+PS+TF-TuA-4, 36
 Kim, S.: EM+2D+BI+QS+TF-TuA-4, 34; EM+AP+TF-WeA-6, 48; EM-ThP-1, 65; EM-ThP-9, 65; PS1-TuM-7, 31; TF+EM-ThA-1, 58;

Author Index

- TF2+EM-ThM-15, 54; TF-ThP-1, 68; TF-ThP-21, 69
- Kim, T.: PS1-TuM-3, 31; SS-ThM-13, 55
- Kim, W.: AP1+EM+PS+TF-TuM-4, 26
- Kim, Y.: EL-ThP-3, 67; EM+2D+AP+QS+TF-ThM-5, 53; EM-ThP-3, 65; NS2-MoM-15, 6; TF+EM-ThA-3, 58; TF2+EM-ThM-17, 54; TF-ThP-9, 68
- Kimmel, G.: SS-MoA-8, 18
- King, E.: AIML-WeM-5, 47
- King, R.: PS2-WeA-10, 52
- Kinlen, P.: TF-WeM-6, 42
- Kino, H.: PS1-WeA-2, 52
- Kintzer, J.: PS-ThP-15, 67
- Kirnbauer, A.: SE-MoA-3, 22
- Kirsch, K.: VT3-TuM-6, 29
- Kisslinger, K.: TF-WeA-12, 48
- KiBlinger, T.: MI+2D+AC+TF-WeM-13, 45
- Kjellberg Jensen, T.: EM+2D+BI+QS+TF-TuA-3, **34**; EM-ThP-4, 65
- Klein, B.: TF+EM-ThA-5, 58
- Klein, D.: NS2-TuM-13, **24**
- Klepper, C.: VT2-MoA-5, 19; VT2-TuA-11, 38; VT2-TuA-12, 38
- Klesko, J.: AS-TuA-4, 36
- Klimek, J.: SS-TuA-11, 37
- Klimov, N.: NS2-MoA-15, **15**; NS2-MoM-15, 6
- Knafo, W.: AC+MI-ThM-5, **57**
- Knoops, H.: PS-ThM-14, 57; QS2+PS-MoA-11, 20
- Knudsen, J.: LS-MoM-1, 10
- Ko, A.: PS1-MoA-3, 21; PS-WeM-1, 46
- Ko, D.: TF+EM-ThA-9, 58
- Ko, W.: NS1+2D+QS-TuM-8, **15**; QS-TuA-12, 39
- Kobayashi, S.: PS1-MoA-4, 21
- Kocabas, C.: CA-ThM-6, 56
- Koch, K.: SE-MoA-12, 22
- Koch, R.: 2D+LS+NS+SS-TuA-3, 39
- Kodambaka, S.: SE-MoM-3, **14**
- Koock, F.: CA-FrM-1, 72
- Koehler, A.: AS-WeM-17, 44
- Koert, U.: SS-ThP-7, 67; SS-WeM-15, 44
- Koester, S.: TF+EM-ThA-4, 58
- Koga, K.: PS2-MoA-11, **21**
- Kohnert, A.: AC-ThP-5, 63
- Kolanthai, E.: TF1-TuM-4, 25
- Kolasinski, R.: PS-ThA-7, 62
- Kolel-Veetil, M.: BI1-MoM-4, 9
- Kolmakov, A.: CA-FrM-8, **72**; CA-ThA-9, 61; CA-ThP-4, **65**; CA-ThP-7, 65
- Kolmer, M.: NS1-MoA-3, **24**
- Kolorenc, J.: AC+MI-FrM-8, 73; AC+MI-ThM-17, **57**
- Koloskova, O.: AC+MI-FrM-8, 73; AC+MI-ThM-16, 57
- Komarek, A.: LS-MoM-12, 10
- Kondeti, V.: PS-ThP-9, **67**
- Kong, D.: AIML-WeM-17, 47; MI+2D+AC+TF-WeM-3, **45**
- Kong, J.: 2D-ThM-7, 56
- Konh, M.: TF+EM-ThA-7, 58
- Konoplev-Esgeburg, R.: AS-ThP-19, **64**
- Kopas, C.: AQS-SuA-10, 4
- Kopecz, R.: BI-ThP-4, **64**
- Kormunda, M.: TF-ThP-10, 68
- Korolov, I.: PS-ThM-1, 57; PS-ThM-13, 57
- Koroluk, S.: MI+2D+AC+TF-WeM-14, 45
- Koschitzki, F.: BI-ThP-3, 64
- Kostogiannes, A.: UN-ThP-2, 69
- Kothapally, S.: EL-ThP-4, **67**
- Kothari, R.: AS-ThA-4, 60
- Kotowska, A.: BI2-TuM-14, 27
- Kotru, S.: EL-ThP-4, 67
- Kottwitz, M.: AIML-WeM-8, 47
- Kotula, P.: AS-TuA-4, 36
- Koutna, N.: AIML-ThP-1, **63**; SE-MoM-11, **14**
- Kovalchuk, S.: 2D-WeA-12, 51
- Kovalenko, M.: NS2-MoA-12, 15
- Kozen, A.: TF1-TuA-2, **35**; TF1-TuA-3, 35; TF1-TuA-5, 35
- Kozomora, N.: MN2-TuA-8, 41
- Kraetz, A.: SS+2D-WeA-1, 50
- Krasheninnikov, A.: 2D+AP+EM+QS+SS+TF-TuM-5, 30; 2D+EM+MN+TF-FrM-1, **73**
- Krauss, A.: PS1-MoA-3, **21**
- Kravchuk, T.: AS-WeA-10, 50
- Krayev, A.: 2D-ThM-7, **56**
- Krebs, F.: CA-ThP-9, 65
- Kretschmer, A.: SE-MoA-3, **22**; SE-ThP-1, **63**
- Kretschmer, S.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
- Krisam, M.: BI-ThP-3, 64
- Krogstad, J.: PS-TuA-9, 40
- Krüger, P.: MI+2D+AC+TF-WeM-13, 45
- Kruger, S.: PS-WeM-8, 46
- Kruse, N.: SS-TuA-11, 37
- Krylyuk, S.: NS-ThP-7, 66
- Kuboi, N.: PS1-MoA-4, **21**
- Kugler, D.: SS+2D-WeA-5, 50
- Kuhn, M.: CPS-MoM-5, **11**; EL-FrM-13, 71
- Kühnle, A.: SS+2D-WeA-5, 50
- Kuila, D.: PS2-MoM-15, 13
- Kulbacki, B.: UN-ThP-3, **69**
- Kulik, P.: MN1-TuM-6, 32; MN1-TuM-8, 32
- Kumar, A.: AP+PS+TF-TuA-14, 36
- Kumar, D.: AP-ThP-4, 64; EM+2D+BI+QS+TF-TuA-4, **34**
- Kumar, P.: PS1-MoA-5, 21
- Kumar, S.: LS-MoM-5, 10
- Kumar, U.: MI-ThP-1, 66; TF1-TuM-4, 25
- Kumay, A.: AC-ThP-4, 63; AS-ThP-9, **64**
- Kundrata, I.: AP2+EM+PS+TF-WeM-13, 43
- Kundu, S.: EM+AIML+AP+QS+TF-WeM-5, 42; QS2+PS-MoA-12, 20
- Kunes, J.: AC+MI-ThM-7, 57
- Kunze, K.: CA-ThA-4, 61; TF2-FrM-11, 70
- Kupp, B.: AP1+EM+PS+TF-WeM-8, **43**
- Kurosaki, Y.: PS1-MoA-8, 21
- Kushner, M.: AP2+EM+PS+TF-MoA-14, 17; PS1-TuM-6, 31; PS2-TuM-17, **31**
- Kust, U.: LS-MoM-1, 10
- Kutbay, E.: CA-ThM-6, 56; CA-ThP-9, 65
- Kuwahara, K.: PS1-MoM-1, 13
- Kuyel, B.: PS-ThP-14, **67**
- Kwac, S.: 2D-ThM-4, 56
- Kwan, K.: CA-ThA-5, 61
- L —
- La Mattinia, F.: NS2-MoA-12, 15
- La Mendola, D.: 2D-ThP-14, **63**
- Labau, S.: NS1-MoA-1, 24; PS2-WeA-11, 52
- Lacount, M.: AMS2-WeA-9, 49
- Lado, J.: QS-TuA-12, 39
- Lahiri, N.: AS-TuA-10, 36
- Lakhloufi, D.: PS+TF-FrM-7, 74
- Laleyan, D.: TF2-MoM-15, **7**
- LaManna, J.: NS2-MoM-15, 6
- Lammer, H.: PS2-MoM-14, 13
- Lane, B.: PS-WeM-16, 46
- Lane, C.: QS-TuA-12, 39
- Lang, A.: AP1+EM+PS+TF-WeM-5, 43; AP2+EM+PS+TF-WeM-17, 43; TF1+EM-FrM-3, 70
- Lang, J.: SS+2D-WeA-9, 50
- Länger, C.: SS-ThP-7, 67
- Lanza, G.: VT4-TuM-14, **29**
- Large, A.: NS1-MoA-6, 24
- Larson, S.: PS-ThA-7, **62**
- Lasek, K.: 2D-ThP-2, 63
- Lasnik, L.: SS+AS+CA+LS-FrM-5, 72
- Lass, S.: EM+2D+BI+QS+TF-TuA-10, 34
- Last, M.: AC-ThP-1, 63; AC-ThP-2, 63
- Lau, E.: BI-ThP-8, 65
- Lau, K.: TF-WeA-1, **48**
- Lauter, V.: MI+2D+AC+TF-WeA-3, 51; MI+2D+AC+TF-WeA-9, 51
- LaVan, D.: CA-FrM-8, 72
- Law, S.: 2D+AP+EM+QS+SS+TF-TuM-15, 30; 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56; EM+2D+AP+QS+TF-ThM-4, **53**
- Lay, T.: EM-ThP-11, **65**
- Lazzarino, F.: EM+AIML+AP+QS+TF-WeM-5, 42; MS-FrM-4, 71; PS1-TuM-5, 31
- Le, B.: TF2-MoM-15, 7
- Le, D.: SS-MoM-14, 10; SS-TuM-4, 28; SS-TuM-5, 28; SS-WeM-7, 18
- Le, L.: EL-ThP-3, 67
- Le, S.: 2D+EM+MI+QS-WeM-3, 45; NS1+2D+QS-TuM-3, **15**
- Leach, J.: AS-WeM-17, 44
- Leary, D.: BI-MoA-5, 18
- Lechner, B.: CA-ThM-13, **56**
- Lee, B.: TF+EM-ThA-1, 58
- Lee, C.: MS-ThP-1, **66**; SS-MoA-6, 18
- Lee, D.: 2D-ThM-4, 56; AP1+EM+PS+TF-TuM-4, 26; PS1-TuM-2, 31; SE-MoA-5, 22
- Lee, E.: 2D-WeA-5, 51
- Lee, H.: AP+EM+PS+TF-MoM-15, 8; AP-ThP-6, 64; PS-ThP-19, 67; SE-MoA-5, 22; TF+EM-ThA-1, 58; TF+EM-ThA-3, 58
- Lee, J.: 2D+EM+MN+TF-FrM-7, 73; 2D-ThP-5, **63**; AP1+EM+PS+TF-TuM-4, 26; AS-ThP-8, 64; CA-ThP-4, 65; EM-ThP-1, 65; MN2-TuA-10, **41**; MN2-TuM-16, 32; PS1-MoM-2, 13; PS1-TuM-1, 31; PS1-TuM-7, 31; PS-ThP-12, 67; QS-TuM-7, 30; SE-MoA-11, **22**; SE-ThP-2, 63; TF+EM-ThA-3, 58; TF-ThP-1, **68**
- Lee, K.: 2D-WeA-13, 51; AP-ThP-6, 64; QS-WeM-2, 46
- Lee, S.: AP-ThP-6, 64; AS-ThA-9, **60**; CA-ThM-4, 56; EM+2D+BI+QS+TF-TuA-12, **34**; EM+AP+TF-WeA-6, 48; EM-ThP-6, **65**; NS-ThP-11, **66**; TF1-MoM-7, 7; TF1-TuA-2, 35; TF-ThP-11, 68; TF-ThP-7, **68**
- Lee, W.: 2D-ThM-4, 56; 2D-ThP-8, **63**; EM+AP+TF-WeA-6, 48; TF+EM-ThA-3, 58; TF-WeA-12, **48**
- Lee, Y.: 2D+EM+MI+QS-WeM-13, **45**; QS2-MoM-12, 12
- Lee, Z.: AS-ThP-1, 64; AS-WeM-1, 44
- Lefèvre, A.: TF-ThP-4, 68
- Lefler, B.: MI+2D+AC+TF-WeM-14, 45
- Leggett, G.: BI2-TuM-16, **27**
- Legut, D.: AC+MI-FrM-8, 73
- Lei, X.: AP+EM+PS+TF-MoM-4, 8; TF+EM-ThA-7, 58
- Lellig, S.: SE-MoA-4, **22**
- Lenahan, P.: CA-FrM-4, 72
- Lenert, A.: AP2+EM+PS+TF-MoA-13, 17
- Lennon, C.: QS2+PS-MoA-11, 20
- Lenox, M.: EM+AIML+AP+QS+TF-WeM-16, 42; EM+AIML+AP+QS+TF-WeM-6, 42; EM+AIML+AP+QS+TF-WeM-7, **42**
- Leonard, E.: BI2-MoM-11, 9
- Lepro-Chavez, X.: TF2-TuM-17, 25
- Leskelä, M.: TF+AP-MoA-5, **16**
- Lesker IV, K.: VT1-MoA-1, **19**
- Leskes, M.: AS-WeA-14, 50
- Leung, A.: AS-ThA-3, 60
- Leusink, G.: AP1+EM+PS+TF-MoA-5, 17; TF-WeM-8, 42
- Lewis, D.: TF-ThP-19, 69
- Lewis, F.: SS-MoM-12, **10**
- Lewis, G.: AS-ThM-4, 55; UN-ThP-7, **69**
- Lew-Kiedrowska, H.: AS-WeA-15, 50
- Li, A.: EM-ThP-13, 65

Author Index

- Li, B.: CA-ThM-1, **56**
- Li, C.: SE-ThP-2, **63**
- Li, F.: SS-ThM-1, 55; SS-ThP-21, 68
- Li, H.: 2D+AP+EM+QS+SS+TF-TuM-6, 30; 2D-ThP-11, **63**; QS-TuM-16, 30; TF+EM-ThA-8, **58**
- Li, J.: AP+EM+PS+TF-MoM-7, 8; AS-ThP-5, 64; EM+2D+AP+QS+TF-ThM-5, 53; EM+AP+TF-WeA-11, 48; EM+AP+TF-WeA-9, **48**; EM-ThP-7, 65
- Li, N.: EM+2D+BI+QS+TF-TuA-9, 34
- Li, P.: 2D-WeA-5, 51
- Li, T.: AC+MI-ThA-7, 62
- Li, X.: EL2-ThA-6, 59; SS-TuA-12, 37
- Li, Y.: EM+AIML+AP+QS+TF-WeM-5, **42**; NS1-MoM-3, **6**; QS2-MoM-10, **12**; VT4-TuM-13, **29**
- Liang, L.: 2D+EM+QS-ThA-5, 61
- Liao, C.: TF+EM-ThA-4, 58
- Libuda, J.: SS-TuA-8, **37**
- Lidsky, D.: MI+2D+AC+TF-WeA-3, 51
- Lien, H.: AS-ThP-14, 64; SE-MoA-13, 22
- Lietz, A.: PS-ThM-7, 57; PS-WeM-3, **46**; PS-WeM-5, 46
- Lill, T.: PS1-MoA-5, 21; PS1-TuM-3, 31; PS2-TuM-16, 31; TF2-TuA-12, 35
- Lilley, C.: TF2-FrM-13, 50
- Lim, N.: PS2-MoA-15, 21; PS-TuA-5, **40**
- Lim, R.: AC+MI-ThA-6, 62; AC+MI-ThA-7, 62
- Limestall, W.: AS-ThP-1, 64; AS-WeM-1, 44
- Lin, Q.: MS-FrM-4, **71**
- Lin, S.: SE-MoM-11, 14
- Lin, X.: SS-ThP-18, **68**
- Lina, K.: 2D-WeA-3, 51
- Lindner, M.: MI+2D+AC+TF-WeA-3, 51
- Linford, M.: AS-ThM-3, **55**; AS-ThM-4, 55; CA-FrM-3, 72; EL-FrM-7, 71; UN-ThP-1, 69; UN-ThP-3, 69; UN-ThP-5, 69; UN-ThP-8, 69
- Litch, E.: PS1-TuM-6, **31**
- Litwin, P.: AP1+EM+PS+TF-WeM-2, **43**
- Liu, C.: SS-MoM-4, 10; TF1+AP-ThM-7, 54
- Liu, D.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56; MI-ThP-2, **66**
- Liu, F.: SS-MoM-14, 10; UN-ThP-4, 69
- Liu, M.: QS-ThP-1, 67
- Liu, X.: TF-ThP-13, 68; TF-ThP-3, 68
- Liu, Y.: SS+2D-WeA-9, 50; TF1-MoM-4, 7
- Lizarbe, A.: AS-ThM-3, 55; AS-ThM-4, **55**
- Lloreda Jurado, P.: SS-ThP-11, 68
- Lodge, M.: 2D-WeA-3, 51; 2D-WeA-4, 51
- Löfström, N.: EM+2D+BI+QS+TF-TuA-3, 34
- Loiselet, J.: UN-ThP-6, **69**
- Lojen, D.: PS-TuA-10, 40
- Lomax, J.: TF-WeM-13, 42
- Lombardi, G.: PS-ThM-17, 57
- Lomenzo, P.: EM+AIML+AP+QS+TF-WeM-3, 42
- Long, C.: QS-TuA-8, 39
- Long, J.: QS-TuA-1, 39; TF2-TuA-10, 35; TF-ThP-3, 68
- Longo, F.: MI+2D+AC+TF-WeA-11, **51**; SS-ThP-11, **68**
- Longo, R.: PS1-WeA-1, 52; PS-WeM-6, 46; SS+AS+CA+LS-FrM-11, **72**
- Lorincik, J.: AC-ThP-1, 63; AC-ThP-2, 63
- Losego, M.: TF+EM-ThA-6, 58; TF-WeA-11, **48**; TF-WeA-13, 48; TF-WeA-16, 48
- Lou, B.: SE-MoA-11, 22; SE-ThP-2, 63
- Lou, L.: SE-MoM-13, **14**
- Lough, S.: 2D+LS+NS+SS-TuA-10, **39**
- Louisos, D.: EL-FrM-12, 71
- Louwagie, N.: CPS-MoM-10, **11**
- Love, C.: TF2-TuA-10, 35
- Love, J.: EL-FrM-8, 71; EL-ThP-7, **67**
- Lowe, M.: QS-WeM-2, 46
- Lowery, S.: AS-WeM-17, 44
- Löwinger, F.: QS1+VT-MoM-4, 12
- Loyer, F.: PS2-MoM-14, 13
- Lozano, D.: QS2+PS-MoA-12, 20
- Lu, B.: SS-MoM-4, 10
- Lu, L.: BI2-TuM-14, **27**
- Lu, Q.: BI-MoA-5, 18
- Lu, T.: MI+2D+AC+TF-WeA-3, 51
- Lu, W.: SS+AS+CA+LS-FrM-6, 72; SS-TuA-5, 37
- Lü, X.: PS-ThM-17, 57
- Luan, P.: PS1-MoA-9, 21
- Lucinec, J.: EM+2D+BI+QS+TF-TuA-11, 34
- Luff, R.: VT4-TuM-16, 29
- Luican-Mayer, A.: NS1+2D+QS-TuM-6, **15**
- Lundgren, E.: SS-TuA-1, **37**
- Lundwall, M.: CA-ThP-6, **65**; SS+AS+CA+LS-FrM-8, 72
- Lunin, A.: QS-TuM-15, 30
- Luo, B.: MI+2D+AC+TF-WeA-3, **51**; MN-ThP-1, **66**
- Luo, H.: PS-ThM-1, 57
- Luo, X.: QS-ThP-2, **67**; QS-TuA-4, 39
- Lü, X.: 2D-WeA-12, 51; NS-ThP-3, 66
- **M** —
- Ma, C.: BI2-TuM-16, 27
- Ma, T.: AP2+EM+PS+TF-WeM-16, 43
- Maas, J.: AP+EM+PS+TF-MoM-12, **8**; AP+EM+PS+TF-MoM-13, 8; AP+EM+PS+TF-MoM-14, 8
- MacAyeal, D.: TF1-TuA-5, **35**
- Machamer, K.: SS-MoM-5, 10
- Macherius, U.: PS-ThM-17, 57
- Machida, M.: CA-ThP-6, 65
- Mack, P.: AS-ThM-2, 55; AS-WeM-7, **44**; EW-TuL-3, 33
- Mack, S.: 2D+AP+EM+QS+SS+TF-TuM-16, 30
- Macknoja, A.: SE-MoA-9, **22**
- Macková, A.: TF-ThP-10, 68
- Mackus, A.: AP+EM+PS+TF-MoM-10, 8; AP+EM+PS+TF-MoM-12, 8; AP+EM+PS+TF-MoM-13, 8; AP+EM+PS+TF-MoM-14, 8; AP+EM+PS+TF-MoM-3, 8; AP+PS+TF-TuA-5, 36; TF+AP-MoA-1, **16**; VT1-TuM-1, 29
- Macy, J.: QS-ThP-1, 67
- Maeda, K.: AP+PS+TF-TuA-10, 36; PS1-MoA-8, 21
- Maeda, T.: PS1-MoA-8, 21
- Maehara, H.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
- Magalhaes, E.: NS-ThP-1, 66
- Magruder, B.: EM+2D+BI+QS+TF-TuA-8, 34
- Mahadik, N.: EM+2D+AP+QS+TF-ThM-3, 53
- Mahapatra, S.: SS-ThP-27, **68**
- Mahendran, A.: PS2-MoM-14, 13
- Mahl, J.: EM+2D+BI+QS+TF-TuA-4, 34
- Mahler, K.: MS-FrM-7, **71**
- Mahmud, S.: AS-WeM-17, 44
- Mai, T.: NS1+2D+QS-TuM-3, 15
- Main, D.: PS-WeM-8, **46**
- Maity, A.: AS-WeA-14, 50
- Majid, A.: PS-ThP-1, **66**
- Major, G.: UN-ThP-3, 69
- Makin, R.: AIML-WeM-7, 47
- Makkar, P.: 2D+EM+QS-ThA-4, 61
- Makoloane, L.: TF2-MoM-14, 7
- Maksymovych, P.: QS-TuA-12, **39**
- Malac, M.: CA-ThA-5, 61
- Malinský, P.: TF-ThP-10, 68
- Malyshev, O.: VT4-TuM-16, 29
- Mamaluy, D.: QS-TuA-11, 39
- Mamun, M.: VT3-MoA-13, 19; VT-ThP-1, 69
- Mamunuru, M.: PS-WeM-5, 46
- Manatt, K.: TF2-TuM-13, 25
- Manderfeld, E.: BI-ThP-9, 65
- Mandrus, D.: AS-TuA-3, 36
- Mane, A.: AP2+EM+PS+TF-WeM-14, 43; TF1-TuA-4, 35
- Mangolini, F.: AS-ThM-8, 55; AS-ThP-14, 64; SE-MoA-13, **22**; SE-MoA-6, 22
- Mann, J.: AS-WeA-13, **50**; SS-ThP-16, 68
- Mannequin, C.: AP1+EM+PS+TF-WeM-6, 43
- Mannix, A.: 2D-ThM-7, 56
- Manos, M.: PS1-MoA-8, **21**
- Manrique Castro, J.: MN1-TuA-3, **41**
- Mansoorzare, H.: MN-ThP-4, 66
- Mao, J.: BI2-MoM-13, **9**
- Mao, N.: 2D-ThM-7, 56
- Marbey, J.: QS-TuA-3, 39
- Marcus, C.: VT2-MoA-5, 19; VT2-TuA-11, **38**; VT2-TuA-12, 38
- Margavio, H.: AP1+EM+PS+TF-MoA-9, 17
- Maria, J.: EM+AIML+AP+QS+TF-WeM-7, 42
- Marini, S.: 2D-ThM-13, 56
- Marino, A.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57
- Mariscal, M.: SS-TuM-6, **28**
- Marom, N.: AIML-WeM-3, **47**
- Marquez, J.: EL-FrM-8, 71
- Marquis, E.: AMS1-WeA-5, 49
- Marshall, E.: VT4-TuM-16, 29
- Martin, C.: EM+2D+BI+QS+TF-TuA-4, 34
- Martinez, C.: AIML-WeM-1, 47
- Martinez, E.: PS2-WeA-9, 52
- Martinez, M.: TF1-TuA-1, 35
- Martinez, W.: QS-TuA-11, 39
- Martinson, A.: TF1+AP-ThM-7, 54
- Marzo, T.: 2D-ThP-14, 63
- Maschman, M.: TF-WeM-17, 42
- Maschmann, M.: AP1+EM+PS+TF-MoA-7, 17
- Mason, J.: AP-ThP-1, **64**; AP-ThP-3, 64
- Mastro, M.: AS-WeM-17, 44
- Matsui, M.: PS1-MoM-1, **13**
- Matthews, A.: SE-MoA-1, 22
- Mattinen, M.: TF+AP-MoA-5, 16
- Matzelle, M.: AS-ThP-17, 64; AS-TuA-3, 36; MI+2D+AC+TF-WeA-3, 51
- Mauchamp, N.: PS1-TuM-2, 31; PS2-TuM-16, **31**
- Mauger, S.: AS-WeA-3, 50
- Mauze, A.: EL-FrM-3, 71
- May, B.: AC+MI-FrM-15, 73; TF1+EM-FrM-6, 70
- May, S.: MI+2D+AC+TF-WeM-14, 45
- Mayorga-Garay, M.: AS-TuA-11, 36
- Mayrhofer, P.: AIML-ThP-1, 63; SE-MoA-3, 22; SE-MoM-11, 14; SE-ThP-1, 63
- Mays, E.: AP+EM+PS+TF-MoM-1, **8**
- Maza, W.: BI1-MoM-4, 9; BI-ThP-15, **65**
- Mazánek, V.: TF-ThP-10, 68
- Mazumder, P.: SE-MoA-12, 22
- Mazzoli, C.: 2D+EM+MI+QS-WeM-7, 45
- McAdams, J.: TF-WeM-8, 42
- McCarter, A.: PS-ThM-6, **57**
- McCarthy, P.: VT2-TuA-11, 38; VT2-TuA-12, 38
- McChesney, J.: QS-ThP-4, **67**
- McCluskey, M.: CA-FrM-5, **72**
- McCreary, K.: 2D+LS+NS+SS-TuA-3, 39
- McDonnell, S.: 2D-ThM-6, 56
- McDow, J.: MN2-TuM-15, **32**; MN2-TuM-16, 32
- McDowell, M.: 2D-ThM-13, 56
- McElwee-White, L.: AP+EM+PS+TF-MoM-5, 8
- McEntee Wei, E.: QS-TuA-8, **39**
- McEwen, J.: AMS2-WeA-12, 49
- McEwen, K.: AC+MI-ThM-15, 57
- McFadden, A.: QS-TuM-4, 30
- McGhee, E.: BI-MoA-5, 18
- McGuinness, E.: EM+2D+BI+QS+TF-TuA-8, **34**
- McHardy, K.: BI-ThP-8, **65**; QS-WeM-1, 46
- McHenry, T.: BI-MoA-1, 18

Author Index

- McLachlan, J.: AC+MI-FrM-3, 73
 McNamara, B.: AC-ThP-6, 63
 McNealy-James, T.: AP1+EM+PS+TF-TuM-6, **26**
 McNeary, W.: SS-TuA-10, **37**
 Mears, L.: BI2-TuM-15, 27
 Medasani, B.: 2D-ThM-3, 56
 Medic, V.: TF2-TuM-15, **25**; TF-ThP-18, 69; TF-WeA-6, 48
 Medina, L.: AIML-WeM-15, **47**
 Megdadi, M.: MN2-TuA-11, 41
 Mehregan, M.: TF+AP-MoA-7, 16; TF-WeM-17, **42**
 Mehregan, S.: TF+AP-MoA-7, 16
 Mehta, U.: AC+MI-ThA-7, 62
 Meier, M.: SS-MoA-1, 18
 Meijer, A.: BI2-TuM-16, 27
 Meinecke, J.: SS-ThP-7, 67
 Meißner, O.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
 Melnik, P.: PS-ThM-7, 57; PS-ThP-6, 66; PS-ThP-7, 66
 Mendez, C.: AS-TuA-13, 36
 Mendez, J.: QS-TuA-11, 39
 Meng, Z.: SS-TuA-4, 37; SS-TuM-13, **28**
 Merckling, C.: 2D+EM+MI+QS-WeM-4, 45
 Merx, M.: AP+EM+PS+TF-MoM-10, 8; AP+EM+PS+TF-MoM-12, 8; AP+EM+PS+TF-MoM-13, 8; AP+EM+PS+TF-MoM-14, 8; AP+EM+PS+TF-MoM-3, 8; VT1-TuM-1, 29
 Messecar, A.: AIML-WeM-7, **47**
 Mettler, J.: PS-ThM-15, **57**
 Metzger, J.: CA-ThP-5, 65
 Meyer, A.: SS+AS+CA+LS-FrM-5, 72
 Meyer, D.: TF1+EM-FrM-3, 70
 Meyer, H.: AS-ThP-12, **64**
 Meyer, J.: EM-ThP-5, 65; SS-MoM-1, **10**; SS-ThP-10, **67**
 Meyer, M.: AP1+EM+PS+TF-WeM-5, 43; AP2+EM+PS+TF-MoA-14, **17**; PS+TF-FrM-5, 74
 Meyerson, M.: AS-TuA-4, **36**
 Mezzadrelli, A.: SE-MoA-12, 22
 Miano, D.: AS-ThA-1, **60**
 Michaels, J.: AP2+EM+PS+TF-TuM-16, **26**
 Michels, J.: BI1-MoM-3, 9
 Michler, J.: SE-MoA-4, 22
 Middleman, K.: VT4-TuM-16, **29**
 Mignot, Y.: PS1-MoM-2, 13
 Mikheev, E.: QS-TuM-6, 30
 Mikkelsen, A.: EM+2D+BI+QS+TF-TuA-3, 34
 Miles, J.: PS-ThA-6, 62
 Miller, M.: AC+MI-ThA-6, 62
 Mills, B.: EM+2D+BI+QS+TF-TuA-11, 34; EM+2D+BI+QS+TF-TuA-9, **34**
 Milosz, Z.: CA-ThM-8, **56**
 Minamisawa, R.: NS1-MoA-5, 24
 Ming, A.: PS-ThA-7, 62
 Minnich, A.: AP+PS+TF-TuA-9, 36; AP2+EM+PS+TF-TuM-13, **26**
 Minoret, S.: QS2+PS-MoA-14, 20
 Mirabella, F.: EW-TuL-6, 33; TF2-FrM-11, 70
 Miranda Manon, A.: AP2+EM+PS+TF-MoA-13, 17
 Miroshnik, L.: EM-ThP-13, **65**; VT1-TuM-2, **29**
 Misek, M.: AC+MI-FrM-8, 73
 Mišek, M.: AC+MI-ThM-16, 57
 Mishra, M.: SE-MoM-14, **14**
 Mitchson, G.: NS2-MoM-13, **6**
 Mitterer, C.: SE-MoA-1, 22
 Miura, H.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
 Miura, M.: PS1-MoM-1, 13
 Miwa, J.: 2D+LS+NS+SS-TuA-3, 39
 Miyahara, Y.: NS-ThP-9, 66
 Miyamoto, J.: PS-ThP-4, **66**; PS-ThP-5, 66
 Miyoshi, M.: PS1-MoA-4, 21
 Miyoshi, N.: AP1+EM+PS+TF-TuM-1, **26**
 Mkhoyan, K.: EM+2D+AP+QS+TF-ThM-6, 53
 Moazzeni, A.: EM-ThP-17, 65
 Mock, A.: MI+2D+AC+TF-WeA-10, 51
 Modestino, M.: PS2-MoA-13, 21
 Moffitt, C.: 2D+LS+NS+SS-TuA-4, 39; AS-WeA-6, 50
 Moffitt, S.: EL-FrM-5, 71
 Moher, D.: PS2-MoA-14, **21**
 Mohrhusen, L.: SS-MoM-13, 10; SS-TuA-11, **37**
 Mokrov, M.: PS-TuA-8, 40
 Molina, N.: AS-ThM-8, **55**; AS-ThP-14, **64**; SE-MoA-13, 22
 Molkenboer, F.: VT3-MoA-14, **19**
 Mondal, M.: AC-ThP-4, 63; AS-ThP-17, **64**; AS-TuA-3, 36; AS-TuA-5, 36
 Mondal, S.: TF1+EM-FrM-5, **70**
 Monson, T.: MI+2D+AC+TF-WeA-3, 51
 Montemore, M.: SS-MoM-3, 10; SS-ThP-2, 67
 Montero Alvarez, D.: MS-FrM-4, 71
 Montero, D.: PS1-TuM-5, **31**
 Mook, W.: MN2-TuM-16, 32
 Moore, D.: EM+AIML+AP+QS+TF-WeM-1, 42
 Moors, K.: NS-ThP-3, 66
 Moran, P.: MN2-TuA-8, **41**
 Moretti, F.: EM+2D+BI+QS+TF-TuA-10, 34
 Morgan, D.: AS-ThA-3, 60; AS-ThM-4, 55; AS-WeA-5, **50**
 Morikawa, Y.: PS1-WeA-4, 52
 Morozumi, J.: PS-ThA-4, **62**
 Moschandreu, E.: QS-TuM-16, 30
 Moselund, K.: EM+2D+AP+QS+TF-ThM-1, 53
 Moses, A.: EL-FrM-8, 71
 Motoyama, K.: PS1-MoM-2, 13
 Mou, S.: EM+2D+AP+QS+TF-ThM-5, 53
 Mounce, A.: MN2-TuM-16, 32
 Mourigal, M.: AC-ThP-3, 63
 Mousa, H.: AP1+EM+PS+TF-WeM-4, 43; PS-ThP-13, 67
 Mowbray, D.: SS-ThP-29, 50
 Mu, S.: MI+2D+AC+TF-WeM-3, 45
 Muhowski, A.: QS-TuA-11, 39
 Muir, B.: AS-ThM-5, 55; CA-ThA-3, 61
 Mukherjee, S.: AS-WeM-8, 44; CA-ThA-4, **61**; EM+2D+AP+QS+TF-ThM-4, 53
 Mukhopadhyay, K.: 2D+EM+QS-ThA-4, 61; BI2-MoM-14, 9
 Mullapudi, G.: EM+AP+TF-WeA-10, **48**
 Müller, C.: AS-WeM-14, 44
 Muller, R.: TF2-TuM-13, 25
 Mun, J.: PS-ThP-19, 67
 Munneke, B.: VT2-MoA-11, 19
 Munoz, M.: NS1+2D+QS-TuM-3, 15
 Murakami, S.: EL-FrM-13, 71
 Muramoto, S.: CA-ThP-8, **65**
 Murdin, B.: NS2-MoM-14, 6
 Murphy, J.: EL2-ThA-9, **59**; PS+TF-FrM-5, 74
 Murphy, R.: NS2-MoM-15, 6; QS-TuA-1, 39
 Murphy, T.: 2D-WeA-6, 51
 Murray, G.: AS-ThM-4, 55
 Murray, T.: QS-TuM-5, 30
 Murthy, A.: AS-ThP-8, 64; QS-TuM-15, 30; QS-TuM-7, **30**
 Murthy, L.: MN1-TuA-5, 41
 Murugaiah, A.: VT1-TuM-3, 29
 Murugesan, V.: AS-ThP-16, 64; CA-ThM-4, 56
 Musa, A.: AP1+EM+PS+TF-MoA-7, **17**
 Musavigharavi, P.: EM+AIML+AP+QS+TF-WeM-1, 42
 Musick, K.: QS-TuM-5, 30
 Mutus, J.: AQS-SuA-10, **4**; QS-TuA-9, 39
 Myers-Ward, R.: 2D+AP+EM+QS+SS+TF-TuM-16, 30; EM+2D+AP+QS+TF-ThM-2, 53; EM+2D+AP+QS+TF-ThM-3, **53**
- N —
- Naaman, R.: NS1-MoA-7, 24
 Nagay, B.: BI-MoA-3, 18
 Nahal, G.: QS-TuM-15, 30
 Nahm, H.: PS-ThA-5, 62; PS-ThP-12, **67**
 Nakakura, C.: VT1-TuM-2, 29
 Nakamura, J.: SS-TuA-13, 37; SS-TuM-8, 28
 Nakatani, Y.: AP+PS+TF-TuA-10, **36**
 Nalaskowski, J.: QS-TuM-5, 30
 Nalawade, S.: AP-ThP-4, **64**
 Nam, C.: TF-WeA-12, 48
 Nam, J.: PS-ThM-2, **57**
 Nam, S.: AP+PS+TF-TuA-3, 36; AP+PS+TF-TuA-4, 36
 Nam, T.: AP1+EM+PS+TF-TuM-5, 26
 Namari, N.: SS-TuA-13, 37
 Nanayakkara, T.: QS-ThP-1, 67
 Narasimha, G.: AIML-WeM-17, **47**; MI+2D+AC+TF-WeM-3, 45
 Nas, I.: VT1-TuM-3, 29
 Nave, A.: PS-ThM-17, 57
 Naveed, M.: 2D+EM+MN+TF-FrM-4, **73**
 Navidi Kashani, A.: SE-MoA-4, 22
 Nawaz, A.: SS-ThP-1, **67**
 Nayak, G.: SE-MoA-4, 22
 Nayir, N.: 2D+EM+MN+TF-FrM-5, 73
 Neal, A.: EM+2D+AP+QS+TF-ThM-5, 53
 Neal, C.: BI-ThP-14, 65; TF1-TuM-4, 25
 Neely, J.: MN2-TuM-16, 32
 Neils, W.: AS-ThA-2, 60
 Nejati, S.: TF-ThP-18, 69; TF-WeA-4, 48; TF-WeA-6, **48**
 Nelin, C.: AS-TuA-10, 36
 Nelissen, L.: QS2+PS-MoA-11, 20
 Nellis, W.: AC+MI-ThM-15, 57
 Nemanich, R.: CA-FrM-1, **72**
 Nemchick, D.: TF2-TuM-13, 25
 Nemouchi, F.: QS2+PS-MoA-14, 20
 Nemsak, S.: CA-ThM-16, **56**; LS-MoM-6, 10
 Nepal, N.: AP1+EM+PS+TF-WeM-2, 43; TF1+EM-FrM-3, 70
 Netzke, S.: 2D+EM+MN+TF-FrM-8, 73
 Neumann, C.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
 Neupane, M.: 2D-ThP-9, 63; AC+MI-FrM-5, **73**; AC-ThP-4, 63; AS-ThP-17, 64; AS-ThP-9, 64; AS-TuA-3, 36; AS-TuA-5, 36
 Newman, D.: TF-WeM-8, 42
 Newsome, E.: VT-ThP-3, 69
 Nguyen, C.: TF+EM-ThA-1, 58; TF-ThP-15, **68**
 Nguyen, P.: PS1-TuM-8, 31; PS-ThP-10, **67**
 Nguyen, S.: AP+EM+PS+TF-MoM-7, **8**
 Nguyen, V.: TF-WeM-8, **42**
 Nguyen-Phan, T.: SS-TuM-3, 28
 Ni, G.: QS1+EM+MN+PS-MoA-5, **20**
 Nichols, M.: AS-WeA-10, 50
 Niedbalka, D.: AS-WeM-14, 44
 Niemiec, M.: BI2-MoM-15, **9**
 Nikolla, E.: AMS2-WeA-12, 49
 Nino, E.: TF1-TuM-8, 25
 Nishizuka, T.: PS-WeM-1, 46
 Niu, Y.: SS+2D-WeA-11, 50; SS-MoA-14, **18**
 Noesges, B.: EM+2D+AP+QS+TF-ThM-5, 53
 Nolde, J.: EL2-ThA-9, 59
 Nolmans, P.: MS-FrM-4, 71
 Nonclercq, A.: PS+TF-FrM-7, 74
 Novák, J.: TF-ThP-10, 68; TF-ThP-5, **68**
 Novak, T.: TF-ThP-3, 68
 Novotny, Z.: SS-ThP-22, 68; SS-ThP-24, 68
 Nuckols, L.: AS-ThP-12, 64
 Nunney, T.: AS-ThM-1, 55; AS-ThM-2, 55; AS-WeM-13, 44; EW-TuL-3, **33**

Author Index

- Nuwal, N.: PS-WeM-2, 46
 Nuwayhid, R.: TF2-TuA-10, **35**; TF-ThP-3, **68**
 Nuys, M.: TF1-MoM-5, 7
 Nygård, J.: EM+2D+BI+QS+TF-TuA-3, 34
 Nykpanchuk, D.: SS+2D-WeA-1, 50
 Nylander, A.: QS-TuM-16, 30
 Nyssen, L.: PS-TuA-10, 40; PS-TuA-4, 40
— O —
 O'Connor, C.: SS-MoA-8, 18; SS-ThM-13, 55
 Oehrlein, G.: PS1-MoA-9, 21; PS-TuA-11, 40
 Ogaki, T.: SS+2D-WeA-2, 50
 Ogunbiyi, O.: 2D+EM+QS-ThA-5, 61
 Ogura, S.: SS-MoM-4, 10
 Oh, H.: AP1+EM+PS+TF-MoA-9, 17
 Oh, J.: AQS-SuA-10, 4
 Oh, Y.: PS1-TuM-3, **31**
 Ohta, T.: 2D+LS+NS+SS-TuA-11, **39**; 2D-ThM-6, 56
 Ohtake, H.: PS1-MoA-8, 21
 Ojeda-Galván, H.: 2D+EM+QS-ThA-1, 61
 Okada, N.: 2D+AP+EM+QS+SS+TF-TuM-3, 30
 Okour, M.: MN2-TuA-11, **41**
 Okpaire, L.: TF-WeA-6, 48
 Okumura, T.: PS2-MoA-11, 21
 Oladeji, I.: AS-WeA-13, 50
 Oliver, W.: QS-TuM-1, **30**
 Ologun, A.: SS-ThP-3, **67**
 Olson, S.: QS-TuM-5, 30
 Olsson III, R.: EM+AIML+AP+QS+TF-WeM-1, 42; EM+AIML+AP+QS+TF-WeM-17, 42
 Omosho, K.: TF-WeA-14, **48**
 ones, A.: 2D+LS+NS+SS-TuA-3, 39
 Onivefu, A.: SS-ThP-12, **68**
 Ono, S.: PS2-MoA-11, 21
 Orgiu, E.: NS1+2D+QS-TuM-7, **15**
 Orihuela, B.: BI-MoA-4, 18
 Orion, I.: AC-ThP-1, 63; AC-ThP-2, 63
 Orson, K.: SS+2D-WeA-11, **50**
 Ortiz, B.: AS-ThP-17, 64; AS-TuA-3, 36
 Ortiz-Garcia, J.: SS-ThP-22, **68**
 Ortiz-Ortiz, A.: AP2+EM+PS+TF-WeM-16, 43
 Ortmann, T.: AS-WeA-11, 50
 Osman, A.: QS-TuM-16, **30**
 Ost, A.: MS-FrM-8, 71
 Otto IV, I.: PS1-MoM-10, **13**
 Otto, F.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
 Özcan, O.: BI-ThP-3, **64**
 Ozel, T.: PS1-MoA-5, 21
— P —
 P. Arnold, D.: MN1-TuM-7, 32
 Pace, H.: BI1-TuM-3, 27
 Pacholski, M.: AS-WeM-15, **44**
 Paddubrouskaya, H.: SS-ThP-32, 68
 Padhye, S.: QS-TuM-6, 30
 Palekis, V.: TF-ThP-24, 69
 Palmer, C.: AP+PS+TF-TuA-5, 36
 Palmer, R.: NS1-MoA-6, 24
 Palmstrøm, C.: AQS-SuA-12, **4**; QS-TuM-4, 30
 Pan, W.: QS-TuA-11, **39**
 Pan, X.: SS-TuA-10, 37
 Panagiotakopoulos, T.: SS-TuM-4, **28**; SS-TuM-5, 28
 Panagiotopoulos, A.: PS1-WeA-3, 52
 Pandey, S.: SS+AS+CA+LS-FrM-3, 72
 Pandit, S.: 2D+EM+MN+TF-FrM-4, 73; QS1+EM+MN+PS-MoA-4, **20**
 Papa Rao, S.: QS-ThP-1, 67; QS-TuM-5, 30
 Papp, C.: SS-ThP-29, 50
 Pappas, D.: AQS-SuA-10, 4; QS-TuA-9, **39**
 Paquette, M.: EM-ThP-15, **65**
 Paranamana, N.: AP1+EM+PS+TF-MoA-7, 17; TF+AP-MoA-7, 16; TF-ThP-13, 68; TF-WeM-6, 42
 Parekh, S.: BI1-MoM-3, **9**
 Pargon, E.: NS1-MoA-1, 24; PS2-WeA-11, 52
 Parham, T.: TF2-TuM-17, 25
 Parish, C.: AS-ThP-12, 64
 Park, C.: PS1-MoM-2, 13; PS-ThP-2, 66; TF+EM-ThA-2, **58**; TF+EM-ThA-3, 58; TF2+EM-ThM-15, 54
 PARK, D.: EM-ThP-2, **65**
 Park, H.: NS-ThP-5, **66**
 Park, J.: 2D-ThP-5, 63; EM+AP+TF-WeA-6, 48; PS-ThA-1, **62**; TF+EM-ThA-3, 58; TF2+EM-ThM-17, **54**
 Park, M.: PS1-MoA-9, 21; PS1-TuM-1, 31; PS1-TuM-7, 31; TF+EM-ThA-1, 58
 Park, N.: SS-MoA-9, 18
 Park, S.: TF2+EM-ThM-15, **54**
 Parke, T.: AP-ThP-3, **64**
 Parker, G.: BI-MoA-2, **18**; CA-ThP-3, **65**
 Parker, N.: TF1-TuM-3, 25
 Parker, W.: MN-ThP-2, 66
 Parkinson, G.: SS-MoA-1, 18; SS-MoM-12, 10; VT2-TuM-4, 29
 Parlett, C.: AS-ThP-6, 64
 Parsons, G.: AP+EM+PS+TF-MoM-6, 8; AP1+EM+PS+TF-MoA-9, 17
 Pasikatan, E.: EL-FrM-13, **71**
 Passoni, M.: SE-MoA-7, 22; SE-ThP-5, 63
 Patel, D.: PS+TF-FrM-3, 74; PS-ThM-8, **57**
 Patel, R.: SS+2D-WeA-1, 50
 Pathak, P.: MN1-TuA-4, 41; MN2-TuA-9, 41
 Pathan, M.: SS-MoM-5, 10
 Pathirage, V.: 2D+AP+EM+QS+SS+TF-TuM-14, 30
 Patterson, E.: AP2+EM+PS+TF-WeM-15, 43
 Patti, R.: MN2-TuM-13, **32**
 Paul, R.: PS+TF-FrM-2, 74
 Paulsen, J.: BI-ThP-10, 65; TF-WeA-5, 48
 Pavelec, J.: SS-MoA-1, **18**; SS-MoM-12, 10; VT2-TuM-4, 29
 Paxson, A.: AS-WeA-3, 50; AS-WeA-4, 50
 Peale, R.: TF1-TuM-8, 25
 Pearce, C.: MI+2D+AC+TF-WeA-3, 51
 Pearlstein, R.: AP+EM+PS+TF-MoM-4, 8; TF+EM-ThA-7, 58
 Pearton, S.: AS-ThP-5, 64; EM+AP+TF-WeA-11, 48; EM+AP+TF-WeA-9, 48; EM-ThP-7, 65
 Peczonczyk, S.: AS-WeA-10, 50
 Pedersen, H.: TF-WeM-16, 42
 Pederson, C.: PS+TF-FrM-4, 74
 Peera, A.: AS-WeM-15, 44
 Peeters, S.: QS2+PS-MoA-11, **20**
 Peethala, B.: AP+EM+PS+TF-MoM-7, 8
 Pekarek, T.: 2D-ThM-1, 56
 Pelli Cresi, J.: NS2-MoA-16, 15
 Peng, L.: EM+AIML+AP+QS+TF-WeM-17, 42
 Penland, L.: SS-ThP-5, **67**; SS-WeM-8, 44
 Penley, D.: TF1+AP-ThM-5, **54**
 Pennachio, D.: 2D+AP+EM+QS+SS+TF-TuM-16, 30; EM+2D+AP+QS+TF-ThM-2, **53**; EM+2D+AP+QS+TF-ThM-3, 53
 Penny, C.: PS1-MoM-2, 13
 Pereira, J.: NS-ThP-8, 66
 Peremadathil Pradeep, R.: MI+2D+AC+TF-WeA-11, 51
 Perez Gomez, E.: SS-ThP-20, **68**
 Perez Penco, E.: AS-TuA-14, **36**
 Perrine, K.: SS+AS+CA+LS-FrM-3, **72**
 Perry, J.: PS-ThM-7, 57; PS-ThP-6, 66; PS-ThP-7, 66; VT2-MoA-5, 19; VT2-TuA-5, **38**
 Peters, I.: BI2-TuM-15, 27
 Peters, J.: SS-WeM-15, 44
 Petersen, J.: PS1-MoM-5, 13
 Peterson, D.: PS-ThA-3, 62
 Petit-Etienne, C.: NS1-MoA-1, 24; PS2-WeA-11, 52
 Petitjean, D.: PS+TF-FrM-6, 74; PS-TuA-4, 40
 Petralia, S.: 2D+EM+QS-ThA-2, 61
 Petrov, I.: SE-MoM-10, **14**
 Petrozova, A.: TF-ThP-25, 69
 Petzoldt, P.: VT2-TuM-4, 29
 Pham, M.: VT-ThP-5, **69**
 Piao, X.: EM+AIML+AP+QS+TF-WeM-5, 42
 Pichler, J.: AS-ThP-15, 64
 Pichugin, K.: 2D+EM+MN+TF-FrM-8, 73
 Picker, J.: 2D+AP+EM+QS+SS+TF-TuM-5, **30**
 Pickering, R.: PS-ThM-5, 57
 Pickholtz, S.: PS-ThA-6, 62
 Pickrell, G.: MN2-TuM-16, 32
 Pielch, F.: AP+EM+PS+TF-MoM-15, 8
 Piehl, J.: TF-WeA-5, 48
 Pieniazek, N.: QS-TuM-5, 30
 Pierce, L.: BI-ThP-11, **65**
 Pigram, P.: AS-ThM-5, 55; CA-ThA-3, **61**
 Pimenta-Barros, P.: PS2-WeA-9, 52
 Pina, M.: AP-ThP-2, **64**
 Pinder, J.: CA-FrM-3, **72**; UN-ThP-3, 69; UN-ThP-5, 69
 Pirkel, A.: AS-ThM-13, **55**
 Plaisance, C.: SS-MoA-6, 18
 Plakhotnyuk, M.: AP2+EM+PS+TF-WeM-13, 43
 Planer, J.: SS-WeM-4, 44
 Plymale, A.: BI-MoA-2, 18
 Poccia, N.: 2D+EM+MI+QS-WeM-7, 45
 Poché, T.: PS1-MoM-8, 13; TF-ThP-8, 68
 Podraza, N.: EL-FrM-4, 71; EL-ThP-1, 67
 Poelker, M.: VT3-MoA-13, 19; VT-ThP-1, 69
 Pokhrel, A.: QS2+PS-MoA-12, 20; QS2+PS-MoA-13, 20
 Poletto, S.: QS-TuA-9, 39
 Poli, I.: TF-ThP-25, 69
 Polonsky, A.: NS2-MoM-10, 6
 Ponce, F.: QS-ThP-1, 67
 Pookpanratana, S.: SS+2D-WeA-3, **50**
 Pop, E.: 2D-ThM-7, 56
 Pope, C.: SS-MoA-12, **18**; SS-MoA-3, 18
 Pope, J.: AIML-WeM-5, 47
 Poplawsky, J.: CA-FrM-6, 72; CA-ThP-2, 65
 Popov, G.: TF+AP-MoA-5, 16
 Poudel, N.: AC+MI-FrM-12, 73
 Powell, M.: QS2+PS-MoA-11, 20
 Powis, A.: PS-WeM-14, 46; PS-WeM-7, 46
 Poynton, O.: VT4-TuM-16, 29
 Prabhakaran, V.: AS-ThP-16, 64
 Prabhu, M.: SS-ThP-10, 67
 Pradhan Sakhya, A.: 2D-ThP-9, 63
 Pradhan, D.: EM+AIML+AP+QS+TF-WeM-1, **42**
 Prager, J.: PS-ThM-7, 57; PS-ThP-6, **66**; PS-ThP-7, 66
 Prakash Ganesan, J.: TF1-TuM-4, 25
 Prakash, J.: TF2-TuA-11, **35**
 Prato, M.: TF-ThP-25, **69**
 Prchal, J.: AC+MI-FrM-8, 73
 Prem, P.: 2D-WeA-1, 51
 Prena, P.: SS+2D-WeA-1, 50
 Price, K.: AS-ThA-9, 60; EM-ThP-6, 65
 Price, N.: QS-TuM-6, 30
 Price, P.: CA-ThA-5, 61
 Primetzhofer, D.: SE-MoA-3, 22
 Prochazka, P.: SS-WeM-4, 44
 Prozorov, T.: AMS2-WeA-9, **49**
 Prumbs, J.: LS-MoM-1, 10
 Pruner, V.: SE-MoA-12, 22
 Prusa, S.: CA-FrM-3, 72
 Psczulkoski, A.: BI-ThP-13, 65
 Ptok, A.: 2D-ThP-9, 63; AC-ThP-4, 63; AS-TuA-5, 36
 Puggioni, D.: MI+2D+AC+TF-WeM-14, 45
 Puig, R.: MN1-TuM-6, **32**
 Puli, V.: EM+AIML+AP+QS+TF-WeM-1, 42
 Pulugurtha, M.: SE-MoM-13, 14

Author Index

- Puntscher, L.: SS-MoA-1, 18
 Puretzy, A.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; 2D+AP+EM+QS+SS+TF-TuM-8, 30; AIML-WeM-16, 47
 Puydinger, M.: NS1-MoA-5, **24**
 Pyles, C.: BI1-MoM-4, 9
 Pylypenko, S.: AS-WeA-3, 50; AS-WeA-4, 50
— Q —
 Qerimi, D.: PS+TF-FrM-3, 74; PS-ThA-6, 62; PS-ThM-15, 57; PS-ThM-5, 57; PS-ThM-8, 57; SS+AS+CA+LS-FrM-10, 72
 Qi, J.: AMS1-WeA-5, 49
 Qiao, M.: SS-ThM-1, 55; SS-ThP-21, **68**
 Qin, F.: PS1-TuM-8, 31
 Qin, T.: SS-WeM-1, 44
 Qu, C.: PS-WeM-5, 46
 Quevedo-Lopez, M.: TF1-MoM-3, 7
 Quijada, M.: AP1+EM+PS+TF-WeM-5, 43; 2AP2+EM+PS+TF-WeM-17, 43; PS+TF-FrM-5, 74
 Quinlan, B.: VT2-MoA-5, **19**; VT2-TuA-11, 38; VT2-TuA-12, 38
 Quinn, E.: 2D-WeA-5, 51
 Quintana, M.: 2D+EM+QS-ThA-1, **61**
 Quintero-Borbon, F.: TF1-MoM-3, 7
 Quintero-Torres, R.: EM+2D+BI+QS+TF-TuA-5, 34
— R —
 R. Love, J.: EM-ThP-16, 65
 Rabea, M.: MS-FrM-10, 71
 Rabine, Z.: BI-MoA-1, 18
 Raboño Borbolla, J.: AS-ThP-3, 64; AS-WeM-16, 44
 Rack, P.: TF2-MoM-10, 7
 Rafati, A.: AS-ThA-5, 60
 Ragona, P.: TF-WeM-13, **42**
 Rahman, T.: SS-MoM-10, **10**; SS-MoM-14, **10**; SS-ThP-25, 68; SS-TuM-4, 28; SS-TuM-5, 28; SS-WeM-7, 18
 Rai, B.: AC+MI-FrM-13, 73
 Rai, R.: NS-ThP-9, **66**
 Raites, Y.: PS+TF-FrM-4, **74**; PS-ThP-9, 67
 Rajak, S.: SS-ThP-6, **67**
 Rajapakse, N.: 2D-ThP-2, **63**
 Rajaraman, S.: MN1-TuA-3, 41
 Rajasabai, S.: MI-ThP-1, 66
 Ramanath, G.: TF-WeM-16, 42
 Ramanujam, B.: EL-ThP-1, 67
 Ramasamy, K.: CA-ThM-4, 56
 Ramasubramanian, S.: SS-MoA-3, 18; SS-MoA-6, **18**
 Ramis, M.: EM+2D+AP+QS+TF-ThM-6, 53
 Ramvall, P.: AP+PS+TF-TuA-14, 36
 Ranjan, R.: SS-ThP-13, **68**
 Rao, A.: NS2-MoA-15, 15; TF+EM-ThA-4, 58
 Rapp, J.: AS-ThP-12, 64
 Rasel, M.: EM+AP+TF-WeA-9, 48
 Rashmi, R.: AP+EM+PS+TF-MoM-5, 8
 Rasoanarivo, T.: AP1+EM+PS+TF-WeM-6, **43**
 Rath, D.: SS-MoM-12, 10
 Rau, S.: SS-ThP-32, **68**
 Rau, U.: TF1-MoM-5, 7
 Rauf, S.: PS-ThM-1, 57; PS-WeM-15, 46; PS-WeM-2, **46**; PS-WeM-7, 46
 Ravichandran, J.: TF2+EM-ThM-16, 54
 Ravikumar, P.: TF+EM-ThA-2, 58
 Ravindran, P.: TF+EM-ThA-2, 58
 Ravula, S.: SS-WeM-17, 44
 Rebar, D.: QS-ThP-1, **67**
 Rebarz, M.: EL-FrM-15, 71
 Rebolgar, J.: PS-TuA-9, 40
 Reddy, K.: SS-MoA-5, 18
 Reddy, R.: SS-MoA-12, 18
 Reece, C.: SS-ThM-13, **55**
 Reece, D.: TF-WeM-7, **42**
 Reed, B.: AS-ThP-4, **64**; AS-WeM-6, **44**
 Regmi, P.: MI+2D+AC+TF-WeM-3, 45
 Regmi, S.: 2D-ThP-9, 63; AC+MI-FrM-13, **73**; AC+MI-FrM-15, 73; AC-ThP-4, 63; AS-ThP-9, 64; AS-TuA-5, 36
 Regoutz, A.: LS-MoM-4, **10**
 Rehman, N.: PS-ThP-1, 66
 Reichstein, W.: BI-ThP-10, 65; TF-WeA-5, 48
 Reid, B.: QS2+PS-MoA-15, 20
 Reigota Cesar, R.: NS-ThP-1, 66; TF1+EM-FrM-4, 70; TF-ThP-6, **68**
 Reimann, T.: MI+2D+AC+TF-WeA-3, 51
 Reinert, F.: MI+2D+AC+TF-WeM-1, 45; MI-ThP-4, 66
 Reinke, P.: 2D-ThM-5, **56**; SS+2D-WeA-11, 50
 Remy, A.: PS+TF-FrM-7, 74
 Ren, F.: AS-ThP-5, 64; EM+AP+TF-WeA-11, 48; EM+AP+TF-WeA-9, 48; EM-ThP-7, 65
 Ren, Z.: SS-TuA-4, **37**; SS-TuM-13, 28
 renaud, V.: QS2+PS-MoA-12, 20
 Renaud, V.: QS2+PS-MoA-13, **20**
 Reniers, F.: PS+TF-FrM-6, 74; PS+TF-FrM-7, 74; PS-TuA-10, **40**; PS-TuA-4, 40; TF-ThP-14, 68
 Renzas, R.: AP2+EM+PS+TF-TuM-16, 26
 Restrepo Posada, M.: SE-ThP-3, **63**
 Reutt-Robey, J.: SS-MoA-14, 18
 Rhallabi, A.: AP1+EM+PS+TF-WeM-6, 43; PS-WeM-13, 46
 Rhee, D.: EM+AIML+AP+QS+TF-WeM-17, **42**
 Rho, H.: EM-ThP-9, 65
 Richardson, C.: QS-TuA-5, 39
 Richardson, K.: EM+2D+BI+QS+TF-TuA-11, 34; EM+2D+BI+QS+TF-TuA-9, 34; UN-ThP-2, 69
 Richter, C.: NS1+2D+QS-TuM-3, 15
 Richter, D.: QS1+VT-MoM-4, 12
 Richter, T.: MS-FrM-8, 71
 Ricker, J.: VT2-MoA-4, **19**
 Ridzel, O.: CA-ThP-4, 65
 Rieth, L.: TF+AP-MoA-11, **16**
 Rindert, V.: EL1-ThA-5, 59
 Ritala, M.: TF+AP-MoA-5, 16
 Ritter, S.: LS-MoM-15, 10
 Roberts, S.: NS1-MoA-3, 24
 Robinson, J.: 2D+LS+NS+SS-TuA-11, 39; 2D+LS+NS+SS-TuA-3, 39
 Robinson, S.: NS2-MoA-15, 15; NS2-MoM-15, **6**
 Rodil Posada, S.: SE-MoM-12, 14
 Rodil, S.: SE-MoM-8, **14**
 Rodin, G.: AS-ThM-8, 55
 Rodriguez de Marcos, L.: AP1+EM+PS+TF-WeM-5, 43; AP2+EM+PS+TF-WeM-17, 43; PS+TF-FrM-5, 74
 Rodriguez, A.: SS-ThP-19, 68
 Rodriguez, J.: SS-MoA-13, 18; SS-MoA-5, 18; SS-ThP-9, 67
 Rodriguez, M.: PS-ThA-7, 62
 Rogge, P.: MI+2D+AC+TF-WeM-14, 45
 Rohkamm, E.: PS-ThP-17, 67
 Rohnke, M.: AS-WeA-11, **50**
 Rojas, G.: TF+EM-ThA-4, 58
 Roldan Cuenya, B.: SS-TuM-1, **28**
 Rolison, D.: TF-ThP-3, 68
 Romadanov, I.: PS-ThP-9, 67
 Romanenko, A.: QS-TuM-15, 30; QS-TuM-7, 30
 Romanova, T.: 2D-ThP-9, 63; AC-ThP-4, 63; AS-TuA-5, 36
 ROMERO CEDILLO, J.: PS-ThP-16, 67
 Rommel, M.: QS-TuM-16, 30
 Rondinelli, J.: MI+2D+AC+TF-WeM-14, 45
 Ronse, K.: PS1-MoM-6, 13
 Roorda, T.: SS+2D-WeA-10, 50
 Roqueta, F.: AP1+EM+PS+TF-WeM-6, 43
 Rosa, P.: AC+MI-ThM-3, 57
 Rosas, D.: AC+MI-ThA-7, 62
 Rosei, F.: NSP-Sup-1, 5
 Rosen, J.: SE-MoM-1, **14**
 Rosenhahn, A.: BI1-TuM-6, **27**; BI-ThP-3, 64; BI-ThP-4, 64; BI-ThP-9, 65
 Rosillo Orozco, L.: EL1-ThA-4, 59
 Rosner, M.: 2D+LS+NS+SS-TuA-3, 39
 Rosso, K.: AS-TuA-1, **36**
 Rost, M.: SS-ThP-10, 67
 Rotenberg, E.: 2D+LS+NS+SS-TuA-3, 39; 2D-ThP-10, 63
 Roth, A.: AIML-WeM-8, 47
 Rotondaro, A.: SS-ThP-32, 68
 Rouleau, C.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; AIML-WeM-16, 47
 Rousseau, R.: CA-ThA-1, 61
 Roussel, P.: AC+MI-FrM-7, **73**; AC+MI-ThA-1, 62
 Rowe, C.: TF-WeM-16, **42**
 Roy, J.: TF1-MoM-3, 7
 Roy, N.: PS-TuA-10, 40
 Roy, T.: QS-TuA-10, **39**
 Rubloff, G.: EM+AIML+AP+QS+TF-WeM-15, 42; TF1-TuA-2, 35; TF1-TuA-3, 35; TF1-TuA-5, 35
 Rudawski, N.: EM+AP+TF-WeA-10, 48
 Ruder, A.: EL-ThP-5, 67; EL-ThP-6, 67
 Ruggles, T.: NS2-MoM-10, 6
 Ruiz Reyes, A.: AC+MI-FrM-3, 73
 Rumancev, C.: BI1-TuM-6, 27
 Rummel, B.: AS-TuA-4, 36
 Russell, D.: MI+2D+AC+TF-WeM-8, 45; MI-ThP-1, 66
 Russo, V.: SE-ThP-5, 63
 Ruttiman, S.: CA-ThA-5, 61
 Ruzic, D.: PS+TF-FrM-2, 74; PS+TF-FrM-3, 74; PS-ThA-2, 62; PS-ThA-6, 62; PS-ThM-15, 57; PS-ThM-5, 57; PS-ThM-8, 57; SS+AS+CA+LS-FrM-10, 72
 Rytbtchinski, B.: AS-WeA-14, 50
— S —
 S. McLeod, A.: EM+2D+AP+QS+TF-ThM-6, 53
 Sabath, E.: SS+2D-WeA-5, 50
 Sabens, D.: VT1-TuM-3, 29
 Sadowski, J.: SS+2D-WeA-11, 50
 Saga, K.: PS1-MoA-4, 21
 Sahu, R.: PS-WeM-2, 46
 Saito, T.: PS-WeM-16, 46
 Sakaguchi, I.: SS+2D-WeA-2, 50
 Sakakibara, Y.: PS-WeM-16, 46
 Sakhya, A.: AC-ThP-4, 63; AS-ThP-17, 64; AS-TuA-3, **36**; AS-TuA-5, 36
 Salanova, A.: EM+AIML+AP+QS+TF-WeM-7, 42
 Salazar, B.: AP+EM+PS+TF-MoM-5, 8
 Salazar, M.: VT-ThP-2, 69
 Salden, A.: PS-ThM-14, 57
 Saleh, H.: AP-ThP-5, 64; PS-ThP-13, 67
 Salem, B.: PS2-WeA-9, 52
 Sales de mello, S.: NS1-MoA-1, 24
 Sales de Mello, S.: PS2-WeA-11, **52**
 Sales, M.: AP1+EM+PS+TF-WeM-2, 43; AP1+EM+PS+TF-WeM-5, 43; AP2+EM+PS+TF-WeM-17, **43**; PS+TF-FrM-5, 74
 Salman, E.: MS-FrM-1, **71**
 Salmeron, M.: CA-ThM-7, 56; LS-MoM-6, 10
 Salomons, M.: CA-ThA-5, 61
 Salvetti, M.: MN2-TuA-8, 41
 Sandoval, T.: AP+EM+PS+TF-MoM-10, 8; AP+EM+PS+TF-MoM-12, 8; AP+EM+PS+TF-MoM-13, 8; AP+EM+PS+TF-MoM-14, 8
 Sangiovanni, D.: AIML-ThP-1, 63; SE-MoM-11, 14

Author Index

- Sankar Kar, G.: 2D+EM+MI+QS-WeM-4, 45
 Sankaran, M.: PS-TuA-9, 40
 Sankaranarayanan, S.: NS1-MoM-7, 6
 Sano, N.: BI-ThP-8, 65
 Santavicca, D.: QS2+PS-MoA-15, 20
 Santos, D.: PS1-MoM-7, **13**
 Santra, S.: NS-ThP-8, 66
 Santucci, S.: AP2+EM+PS+TF-WeM-13, 43
 Sarawate, D.: 2D-WeA-1, 51
 Sardashti, K.: QS-TuA-5, 39
 Sarkar, P.: BI2-MoM-14, **9**
 Sarkar, S.: QS2+PS-MoA-13, 20
 Sarp, S.: TF1-MoM-4, 7
 Sartori, A.: LS-MoM-14, **10**
 Sasmal, S.: 2D-ThP-10, 63
 Sathoud, J.: TF-WeM-8, 42
 Sathoud, O.: TF-WeM-8, 42
 Sato, K.: VT2-MoA-7, **19**
 Satriano, C.: 2D+EM+QS-ThA-2, **61**; 2D-ThP-14, 63
 Saucedo, C.: SS-ThP-16, **68**
 Sawaya, S.: TF-ThP-12, **68**
 Scardamaglia, M.: LS-MoM-1, 10
 Schaal, M.: 2D+AP+EM+QS+SS+TF-TuM-5, 30
 Schaefer, T.: SS-ThP-31, 68
 Schäfer, D.: AS-WeA-11, 50
 Schäfer, T.: SS-MoM-7, **10**
 Schaff, O.: CA-ThA-4, 61; TF2-FrM-11, 70
 Scharf, D.: SS-WeM-15, 44
 Scheiman, D.: EM+2D+AP+QS+TF-ThM-3, 53
 Scheiner, B.: PS-WeM-5, 46
 Scherrer, M.: EM+2D+AP+QS+TF-ThM-1, 53
 Scherschligt, J.: QS1+VT-MoM-3, 12; VT-ThP-3, 69
 Schiek, M.: EL1-ThA-3, 59
 Schleberger, M.: SS+AS+CA+LS-FrM-5, 72
 Schleife, A.: QS2-MoM-12, 12; SS+AS+CA+LS-FrM-5, 72
 Schlom, D.: AP2+EM+PS+TF-TuM-15, 26; EM+AP+TF-WeA-4, **48**; QS-WeM-13, **46**
 Schlueter, C.: LS-MoM-3, **10**
 Schmid, H.: EM+2D+AP+QS+TF-ThM-1, **53**
 Schmid, M.: SS+2D-WeA-5, 50; SS-MoA-1, 18
 Schmidt, H.: MI+2D+AC+TF-WeA-10, 51
 SCHMIDT, H.: MN-ThP-1, 66
 Schmidt, J.: AS-ThM-16, **55**
 Schmidt, T.: QS1+VT-MoM-4, 12
 Schneider, J.: QS1+VT-MoM-4, 12; SE-MoA-1, 22; SE-MoA-3, 22; SE-MoA-4, 22
 Schneider, M.: MI+2D+AC+TF-WeM-13, 45
 Schnell, G.: TF-WeA-5, 48
 Scholl, W.: TF2-TuA-12, **35**
 Schöttke, F.: MI+2D+AC+TF-WeM-13, 45
 Schreiber, M.: CA-ThA-5, 61
 Schröder, S.: BI-ThP-10, 65; EM-ThP-12, **65**; TF-WeA-15, **48**; TF-WeA-5, 48
 Schroeder, M.: EM+AIML+AP+QS+TF-WeM-15, 42
 Schroeder, U.: EM+AIML+AP+QS+TF-WeM-3, **42**
 Schrottke, L.: PS-ThM-17, 57
 Schuber, M.: EL-ThP-5, 67
 Schubert, E.: AP1+EM+PS+TF-WeM-3, 43; EL-ThP-6, 67; MI+2D+AC+TF-WeA-10, 51; NS-ThP-12, 66; PS-ThP-17, 67; PS-ThP-18, 67
 Schubert, M.: AP1+EM+PS+TF-WeM-3, 43; EL1-ThA-5, **59**; EL-FrM-14, 71; EL-FrM-3, 71; EL-ThP-6, 67; EL-ThP-7, 67; MI+2D+AC+TF-WeA-10, 51; NS-ThP-12, 66; PS-ThP-18, 67
 Schuelke, T.: SE-ThP-6, 63
 Schujman, S.: QS-TuM-5, 30
 Schultz, J.: NS-ThP-7, **66**; TF-WeM-17, 42
 Schulze, J.: PS-ThM-1, 57; PS-ThM-13, 57
 Schütt, F.: BI-ThP-10, 65; TF-WeA-5, 48
 Schwäke, L.: EM-ThP-12, 65; TF-WeA-15, 48
 Schwartz, J.: 2D+EM+MI+QS-WeM-3, **45**; NS-ThP-7, 66
 Schwarz, C.: EM+2D+BI+QS+TF-TuA-11, 34; EM+2D+BI+QS+TF-TuA-9, 34
 Schweizer, P.: SE-MoA-4, 22
 Sciacca, S.: 2D+EM+QS-ThA-2, 61
 Sciaini, G.: 2D+EM+MN+TF-FrM-8, 73
 Scirè, S.: 2D+EM+QS-ThA-2, 61
 Scurr, D.: BI2-TuM-14, 27
 Seal, D.: VT4-TuM-16, 29
 Seal, S.: BI-ThP-14, 65; TF1-TuM-4, **25**
 Searles, T.: QS-ThP-3, **67**; QS-WeM-2, **46**
 Segaud, R.: QS2+PS-MoA-14, 20
 Segrest, E.: SS-MoM-5, 10
 Seidel, R.: SS-TuM-14, 28
 Sekine, M.: PS1-MoA-1, 21; PS2-TuM-15, 31
 Sekora, D.: MI+2D+AC+TF-WeA-10, 51
 Selhuber-Unkel, C.: BI-ThP-10, 65; TF-WeA-5, 48
 Semproni, S.: AP+EM+PS+TF-MoM-13, 8
 Senapati, S.: BI1-TuM-5, **27**
 Senaratne, W.: SE-MoA-12, 22
 Senevirathna, M.: 2D+AP+EM+QS+SS+TF-TuM-7, 30
 Seo, B.: PS-ThA-5, **62**
 Seo, M.: VT-ThP-2, 69
 Serna-Sanchez, E.: SS-ThP-28, 68
 Serra, T.: PS+TF-FrM-7, 74
 Servando-Williams, D.: AC+MI-ThA-7, 62
 Sete, E.: QS-TuA-9, 39
 Setina, J.: VT2-MoA-8, **19**
 Seungwoo, L.: TF-ThP-22, 69
 Severing, A.: AC+MI-ThM-3, 57; AC+MI-ThM-7, **57**; LS-MoM-12, 10
 Shah, J.: EM+2D+AP+QS+TF-ThM-6, 53
 Shahsavar, A.: SS-WeM-4, 44
 Shallenberger, J.: 2D+EM+MN+TF-FrM-5, 73; 2D-ThM-13, 56
 Shan, A.: EL-ThP-1, 67
 Shang, A.: SS+2D-WeA-13, 50
 Shang, z.: SS+2D-WeA-13, 50
 Shannon, S.: PS2-MoM-15, 13; PS-ThA-3, 62
 Shao Chi, K.: NS1-MoA-5, 24
 Sharac, N.: QS-TuA-9, 39
 Sharan, J.: SE-MoM-14, 14
 Shard, A.: AS-ThP-13, 64; AS-ThP-4, 64; AS-WeM-6, 44
 Sharma, G.: TF-WeM-16, 42
 Sharma, I.: AP+PS+TF-TuA-14, 36
 Sharma, N.: EM+AIML+AP+QS+TF-WeM-1, 42
 Sharma, P.: MI+2D+AC+TF-WeA-3, 51; SS+2D-WeA-12, 50
 Sharma, R.: EM+2D+BI+QS+TF-TuA-11, 34; EM+2D+BI+QS+TF-TuA-9, 34
 Sharma, S.: PS-WeM-14, 46
 Sharp, M.: SS-ThP-22, 68
 Shavandi, R.: AS-WeA-9, **50**; CA-ThP-3, 65
 Shavorskiy, A.: LS-MoM-1, **10**
 Shaw, S.: 2D+EM+MN+TF-FrM-7, 73
 Shendokar, S.: 2D-ThP-1, 63
 Sheng, X.: SS+2D-WeA-13, **50**
 Sheppard, A.: CA-ThP-5, 65
 Sherazi, S.: SS-MoM-14, **10**
 Shevate, R.: AP2+EM+PS+TF-WeM-14, 43
 Shi, K.: SS-ThP-14, **68**; SS-TuA-4, 37; SS-TuM-13, 28; SS-TuM-4, 28; SS-TuM-5, **28**
 Shi, X.: PS-ThM-1, 57
 Shield, J.: TF-WeA-4, 48
 Shima, D.: EM-ThP-13, 65
 Shimizu, K.: SS-MoM-4, 10
 Shimizu, R.: SS-TuM-8, 28
 Shin, D.: TF1+AP-ThM-6, **54**
 Shin, H.: TF+EM-ThA-9, **58**
 Shin, J.: SS-MoA-6, 18
 Shin, Y.: 2D+EM+MN+TF-FrM-5, 73
 Shiratani, M.: PS2-MoA-11, 21
 Shirato, N.: NS1-MoA-9, **15**
 Shiri, D.: QS-TuM-16, 30
 Shirley, E.: EL-FrM-5, 71
 Shobha, H.: AP+EM+PS+TF-MoM-7, 8; PS1-MoM-2, 13
 Shong, B.: AP1+EM+PS+TF-TuM-4, 26; AP2+EM+PS+TF-MoA-11, **17**
 Shorubalko, I.: NS2-MoA-12, 15
 Shrestha, A.: MI+2D+AC+TF-WeA-4, **51**; MI+2D+AC+TF-WeM-7, 45; MI+2D+AC+TF-WeM-8, 45; MI-ThP-1, 66
 Shuchi, N.: EL-FrM-12, **71**
 Shuh, D.: AC+MI-ThA-6, **62**; AC+MI-ThA-7, 62
 Shul, R.: VT1-TuM-2, 29
 Shutthanandan, V.: AS-ThP-13, 64; CA-ThM-4, 56
 Shvilberg, L.: EM+AIML+AP+QS+TF-WeM-2, 42
 Sibener, S.: AS-TuA-13, 36; AS-WeA-15, 50
 Siddiqui, A.: MN1-TuM-5, 32
 Siepmann, J.: SS+2D-WeA-1, 50
 Sifat, I.: AP-ThP-5, 64; PS-ThP-13, 67
 Sikder, S.: CA-ThM-17, **56**; SS-ThP-20, 68
 Sikola, T.: CA-FrM-3, 72
 Siles-Brugge, O.: BI2-TuM-16, 27
 Silva Quinones, D.: 2D-ThP-13, **63**
 Silva, A.: TF2-FrM-12, 70
 Silva, H.: AP1+EM+PS+TF-WeM-1, 43; AP1+EM+PS+TF-WeM-4, 43
 Silverman, M.: PS-ThP-13, 67
 Simka, H.: AP+PS+TF-TuA-11, 36
 Simmonds, R.: QS-TuM-4, 30
 Simpson, R.: AS-ThM-2, **55**; EW-TuL-3, 33
 Singamaneni, S.: BI1-TuM-7, **27**
 Singh, H.: PS1-MoA-5, 21; PS1-TuM-3, 31; PS2-TuM-16, 31; TF2-TuA-12, 35
 Singh, J.: 2D-ThM-14, 56; BI1-TuM-5, 27
 Singh, S.: 2D+LS+NS+SS-TuA-3, 39; 2D-ThP-10, 63
 Sinic, J.: PS2-MoM-14, 13
 Sinno, T.: EM-ThP-13, 65
 Sinsheimer, J.: 2D+EM+MI+QS-WeM-7, 45
 Sirard, S.: AIML-WeM-15, 47; PS1-WeA-5, 52
 Sirdhar, S.: PS-WeM-6, 46
 Sirenko, A.: EL-FrM-10, **71**
 Siribaddana, C.: SS-ThP-17, **68**
 Sitaram, R.: EM+2D+AP+QS+TF-ThM-4, 53
 Slaets, R.: 2D+EM+MI+QS-WeM-4, 45
 Slagle, I.: TF-WeA-13, 48
 Sloboda, T.: CA-ThP-6, 65; SS+AS+CA+LS-FrM-8, **72**
 Smalley, D.: TF1-TuM-8, 25
 Šmejkal, L.: MI+2D+AC+TF-WeM-5, **45**
 Smieszek, N.: PS1-MoA-3, 21
 Smit, M.: BI-MoA-1, 18
 Smith III, C.: VT2-MoA-5, 19; VT2-TuA-4, 38
 Smith, A.: MI+2D+AC+TF-WeA-4, 51; MI+2D+AC+TF-WeM-7, **45**; MI+2D+AC+TF-WeM-8, 45; MI-ThP-1, 66
 Smith, C.: SS-TuA-12, 37; VT2-TuA-5, 38
 Smith, G.: QS-TuA-1, 39
 Smith, J.: AC+MI-ThM-15, 57; AP1+EM+PS+TF-MoA-5, 17
 Smith, L.: VT4-TuM-16, 29
 Smith, R.: PS-ThP-17, **67**
 Smith, T.: AP+PS+TF-TuA-13, **36**; AP1+EM+PS+TF-TuM-7, 26
 Smyth, C.: 2D-ThM-6, 56; CA-FrM-6, 72
 Snyders, R.: PS-TuA-10, 40; PS-TuA-4, 40
 Sobell, Z.: AP1+EM+PS+TF-WeM-7, 43
 Sobczak, C.: AS-ThA-4, 60
 Soderberg, K.: AQS-SuA-1, **4**
 Sohn, M.: EL-FrM-5, 71
 Sohngen, L.: TF2-TuM-17, 25

Author Index

- Sokolowski-Tinten, K.: SS+AS+CA+LS-FrM-5, 72
- Soldano, G.: SS-TuM-6, 28
- Solmaz, E.: PS-WeM-16, **46**
- Solodovnyk, A.: CA-FrM-4, **72**
- Soltner, H.: NS-ThP-3, 66
- Sombut, P.: SS-MoA-1, 18
- Son, J.: PS1-TuM-2, 31
- Sone, A.: QS2-MoM-13, **12**
- Song, G.: AP-ThP-6, 64
- Song, H.: VT-ThP-2, **69**
- Song, K.: PS+TF-FrM-8, 74
- Song, S.: EM+AIML+AP+QS+TF-WeM-17, **42**; QS-TuA-12, 39
- Song, Z.: EL-FrM-4, 71
- Sonoda, Y.: AP+PS+TF-TuA-10, 36
- Soomary, L.: 2D+LS+NS+SS-TuA-4, 39; AS-WeA-6, **50**
- Sorensen, P.: EL-FrM-3, **71**
- Sorenson, P.: EL-ThP-5, 67
- Sorger, V.: CPS-MoM-7, **11**
- Soulie, J.: QS2+PS-MoA-13, 20
- Souriau, L.: PS1-MoM-6, 13
- Sovinec, C.: QS-TuA-11, 39
- Spagna, S.: AS-ThA-2, 60
- Spanopoulos, I.: 2D-WeA-13, 51
- Spataru, C.: 2D+LS+NS+SS-TuA-11, 39
- Speck, J.: EL-FrM-3, 71
- Spejo, L.: NS1-MoA-5, 24
- Spencer, B.: AC+MI-ThA-1, 62
- Spillmann, C.: BI-MoA-5, 18
- Sprague, M.: 2D-ThP-9, 63; AC-ThP-4, 63; AS-ThP-17, 64; AS-TuA-3, 36; AS-TuA-5, **36**
- Sprueill, H.: AIML-WeM-5, 47
- Sridhar, S.: AS-TuA-12, 36; PS1-WeA-1, 52; SS+AS+CA+LS-FrM-11, 72
- Srikanth, H.: MI+2D+AC+TF-WeA-5, **51**
- Stacchiola, D.: CA-ThA-8, 61; SS-MoA-7, **18**; SS-ThP-26, 68
- Stach, E.: EM+AIML+AP+QS+TF-WeM-1, 42
- Stackawitz, J.: EM+2D+BI+QS+TF-TuA-11, 34
- Stafford, N.: PS1-TuM-8, 31; PS-ThP-10, 67
- Stan, G.: NS2-TuM-16, **24**
- Stanishev, V.: EL-FrM-3, 71
- Steele, J.: AP2+EM+PS+TF-TuM-15, 26
- Steinberg, Y.: AS-WeA-14, 50
- Steinrück, H.: SS-ThP-29, 50
- Stejskal, O.: AC+MI-ThM-17, 57
- Stelmacovich, G.: AS-WeA-3, 50; AS-WeA-4, **50**
- Štěpanovská, E.: TF-ThP-10, **68**
- Stevens, T.: VT1-TuM-2, 29
- Stevenson, M.: TF2-MoM-15, 7
- Stevenson, T.: CA-ThP-5, 65
- Stewart, D.: EM+AIML+AP+QS+TF-WeM-15, 42; TF1-TuA-3, 35; TF1-TuA-5, 35
- stewart, G.: AC+MI-FrM-11, **73**
- Stickle, W.: AS-WeM-5, 44
- Stiehl, G.: QS-TuA-9, 39
- Stiff-Roberts, A.: TF-WeA-3, 48
- Stinson, W.: SS-TuA-10, 37
- Stockbridge, K.: NS2-MoM-14, **6**
- Stockbrodage, K.: QS-WeM-1, 46
- Stokey, M.: EL-FrM-3, 71; EL-ThP-7, 67
- Stoll, M.: EM-ThP-15, 65
- Stowell, M.: PS+TF-FrM-3, 74; PS-ThM-8, 57
- Straccia, A.: AS-WeA-10, 50
- Strange, L.: AS-ThP-13, **64**; SS-WeM-17, 44
- Stratton, S.: SS-MoM-3, 10
- Strelcov, E.: CA-ThP-4, 65
- Strunskus, T.: BI-ThP-10, 65; EM-ThP-12, 65; TF-WeA-15, 48; TF-WeA-5, 48
- Strzemechny, Y.: BI-MoA-1, **18**
- Sturm, C.: EL-FrM-1, **71**
- Stutzman, M.: VT4-TuM-15, **29**
- Subedi, A.: SS+2D-WeA-6, **50**
- Subramanian, A.: TF-WeA-12, 48
- Suda, R.: PS2-TuM-15, 31
- Sudarshan, C.: SS-MoA-6, 18
- Sugar, J.: 2D+LS+NS+SS-TuA-11, 39
- Suh, D.: EM+AP+TF-WeA-6, **48**
- Sukotjo, C.: BI-MoA-3, 18; BI-ThP-7, 64
- Suleiman, H.: PS-ThP-2, 66
- Sultana, M.: MN-ThP-4, **66**
- Sun, N.: MI+2D+AC+TF-WeA-3, 51; MN-ThP-1, 66
- Sun, R.: CA-ThA-3, 61
- Sun, Y.: 2D-WeA-6, **51**
- Sundaram, K.: TF1-TuM-8, 25
- Sunday, D.: EL-FrM-5, 71
- Sundermann, M.: AC+MI-ThM-3, 57; AC+MI-ThM-7, 57; LS-MoM-12, **10**
- Sundqvist, J.: AP+PS+TF-TuA-14, 36
- Surendran, M.: TF1-TuM-5, **25**; TF2+EM-ThM-16, 54
- Surman, D.: 2D+LS+NS+SS-TuA-4, 39; AS-WeA-6, 50
- Sutter, E.: 2D+EM+MI+QS-WeM-1, 45
- Sutter, P.: 2D+EM+MI+QS-WeM-1, **45**
- Suu, K.: AS-WeA-13, 50
- Suyatin, D.: AP+PS+TF-TuA-14, 36
- Suzer, S.: CA-ThM-6, **56**; CA-ThP-9, **65**
- Suzuki, H.: SS-TuA-13, 37
- Suzuki, T.: SS+2D-WeA-2, **50**; TF-ThP-12, 68; TF-ThP-16, 68
- Svanidze, E.: AC+MI-ThM-14, **57**
- Swart, H.: TF2-MoM-12, **7**; TF2-MoM-14, 7; TF2-TuA-11, 35
- Swarup, J.: TF1+AP-ThM-3, 54
- Sweeney, S.: AS-WeM-13, 44
- Swinney, T.: VT3-MoA-15, **19**
- Sydorenko, D.: PS-ThP-11, 67; PS-WeM-14, 46; PS-WeM-7, 46
- Sykes, C.: SS-MoA-2, 44; SS-ThM-15, **55**
- Sykes, E.: SS-MoM-3, 10; SS-ThP-2, 67
- Sykes, M.: EM+2D+BI+QS+TF-TuA-11, 34
- Szuczewski, G.: TF-WeM-15, **42**
- T —
- T. Lee, D.: SS+2D-WeA-1, 50
- Taale, M.: BI-ThP-10, 65; TF-WeA-5, 48
- Tabassum, N.: PS-ThA-3, **62**
- Tae, H.: PS-ThP-2, 66
- Tahara, S.: PS1-MoA-3, 21
- Tait, S.: SS-ThP-23, 68
- Tajv, M.: BI-ThP-12, 65
- Tajvidi, M.: BI-ThP-11, 65
- Tak, H.: PS1-TuM-1, **31**; PS1-TuM-7, 31
- Takahashi, N.: PS-ThP-5, **66**
- Takahashi, Y.: CA-ThA-5, 61
- Takakusagi, S.: SS-MoM-4, **10**
- Takei, Y.: VT2-MoA-9, **19**
- Takeyasu, K.: SS-TuA-13, **37**; SS-TuM-8, 28
- Takoudis, C.: BI-MoA-3, 18; BI-ThP-7, 64
- Talin, A.: NS1-MoM-1, **6**
- Tallarek, E.: TF-ThP-2, **68**
- Tan, C.: 2D-WeA-11, **51**
- Tanabe, S.: 2D+AP+EM+QS+SS+TF-TuM-3, **30**
- Tanaka, K.: SE-MoM-3, 14
- Tanaka, M.: AP+PS+TF-TuA-10, 36
- Tanaka, S.: PS1-WeA-2, **52**
- Tancredi, G.: QS-TuM-16, 30
- Taniguchi, T.: NS2-TuM-13, 24
- Tao, C.: MI+2D+AC+TF-WeM-3, 45
- Tapia-Aracayo, L.: TF1-TuA-5, 35
- Tapily, K.: AP1+EM+PS+TF-MoA-5, **17**; TF-WeM-8, 42
- Tarazona, A.: VT2-TuA-8, 38
- Tatsumi, T.: PS1-MoA-4, 21
- Tautz, S.: 2D-WeA-12, 51; NS-ThP-3, 66
- Tavazohi, P.: MI+2D+AC+TF-WeM-4, 45
- Tebyanian, H.: QS2-MoM-14, **12**
- Temperton, R.: LS-MoM-1, 10
- Tenney, S.: SS+2D-WeA-1, 50
- Tenorio, J.: 2D-ThP-4, **63**
- Teplyakov, A.: AP+EM+PS+TF-MoM-8, **8**; AP-ThP-1, 64; AP-ThP-2, 64; AP-ThP-3, 64; SS-ThP-12, 68; SS-ThP-8, 67
- Terblans, J.: TF2-MoM-14, **7**
- Tercero, J.: AP2+EM+PS+TF-MoA-16, **17**
- Tereshina-Chitrova, E.: AC+MI-ThM-16, **57**
- Terlier, T.: AS-ThM-15, **55**
- Ter-Petrosyan, A.: AIML-WeM-5, 47
- Terry, J.: AS-ThA-6, **60**; AS-ThM-3, 55; AS-ThP-1, 64; AS-WeM-1, **44**
- Tesfamariam, Y.: PS1-MoM-8, 13; TF-ThP-8, 68
- Tetard, L.: NS-ThP-8, 66
- Tezsevin, I.: AP+EM+PS+TF-MoM-10, 8; AP+EM+PS+TF-MoM-12, 8; AP+EM+PS+TF-MoM-13, 8; AP+EM+PS+TF-MoM-14, 8
- Thakral, A.: EM+AP+TF-WeA-5, **48**
- Than, L.: TF-WeM-5, **42**
- Thangaraj, K.: AS-ThP-16, **64**; CA-ThM-4, 56
- Thareja, E.: MI-ThP-3, 66; QS1+EM+MN+PS-MoA-3, **20**
- Tharpe, T.: EM+AIML+AP+QS+TF-WeM-6, **42**
- Theiss, J.: PS-WeM-8, 46
- Thelven, J.: AP1+EM+PS+TF-MoA-9, **17**
- Thimsen, E.: PS2-MoA-14, 21
- Thissen, A.: EW-TuL-6, 33; TF2-FrM-11, 70
- Thissen, P.: AS-ThP-19, 64; AS-WeA-16, **50**
- Thomas, C.: PS-WeM-16, 46
- Thompson, C.: AS-TuA-13, 36
- Thompson, J.: QS-TuA-5, **39**
- Thompson, L.: EM+2D+AP+QS+TF-ThM-6, 53
- Thuermer, K.: 2D+LS+NS+SS-TuA-11, 39
- Thum, M.: BI1-MoM-4, 9
- Thupakula, U.: NS1-MoA-8, **24**
- Tian, Y.: SS-MoA-5, 18
- Timm, R.: LS-MoM-15, 10
- Timmermans, M.: 2D+EM+MI+QS-WeM-4, 45
- Tinacba, E.: PS1-TuM-2, 31
- Tippens, J.: VT2-TuA-4, **38**
- Tiris, Z.: BI-ThP-4, 64
- Titze, M.: CA-FrM-6, 72
- Tiwale, N.: TF-WeA-12, 48
- Tiwari, A.: 2D-ThP-10, **63**
- Tiwari, S.: MN1-TuM-5, 32
- Tjeng, L.: AC+MI-ThM-3, **57**; AC+MI-ThM-7, 57; LS-MoM-12, 10
- Tkacik, S.: MI-ThP-3, **66**
- Tobin, J.: AC+MI-ThA-9, **62**
- Tochigi, H.: PS+TF-FrM-1, 74
- Tohara, T.: PS-ThM-15, 57
- Takei, Z.: QS2+PS-MoA-13, 20
- Toma, A.: NS2-MoA-16, **13**
- Tomar, L.: UN-ThP-4, **69**
- Tong, X.: SS+2D-WeA-1, 50
- Tonner Zeck, R.: AP+EM+PS+TF-MoM-15, 8
- Topasna, D.: BI-ThP-13, **65**
- TORRES AVILA, I.: 2D-ThP-7, **63**
- Torres Ochoa, J.: AS-ThP-3, 64; AS-WeM-16, 44
- Torres-Ochoa, J.: AS-ThP-1, 64; AS-WeM-1, 44
- Torrisi, F.: 2D+EM+QS-ThA-3, 61
- Tran, M.: TF1-MoM-4, 7
- Tranchida, G.: 2D+EM+QS-ThA-2, 61
- Transtrum, M.: AS-WeA-15, 50
- Traouli, Y.: AP1+EM+PS+TF-WeM-3, **43**; PS-ThP-18, **67**
- Trask, N.: AIML-WeM-8, 47
- Treglia, A.: TF-ThP-25, 69
- Trenary, M.: SS+AS+CA+LS-FrM-1, **72**; SS-ThM-3, **55**; SS-ThP-3, 67; SS-ThP-4, 67
- Tringides, M.: NS1-MoA-3, 24

Author Index

- Trinh, N.: TF+EM-ThA-1, **58**
 Tröger, J.: TF-ThP-2, **68**
 Troha, J.: VT1-TuM-3, **29**
 Troop, G.: PS-ThP-15, **67**
 Trought, M.: AS-WeA-10, **50**
 Truhart, E.: 2D-ThM-5, **56**; 2D-ThM-6, **56**
 Trützschler, A.: QS1+VT-MoM-4, **12**; VT3-TuM-6, **29**
 Tsai, Y.: PS-WeM-1, **46**; PS-WeM-16, **46**
 Tsapatsis, M.: SS+2D-WeA-1, **50**
 Tsaturyan, Y.: AP2+EM+PS+TF-TuM-16, **26**
 Tschurl, M.: VT2-TuM-4, **29**
 Tseng, H.: EW-TuL-3, **33**
 Tsu, D.: SE-ThP-6, **63**
 Tsuboi, R.: PS-ThP-4, **66**
 Tsuchikawa, R.: 2D-WeA-4, **51**
 Tsutsumi, T.: PS1-MoA-1, **21**
 Tu, Q.: 2D-WeA-13, **51**
 Tuck, S.: BI1-MoM-4, **9**; BI-MoA-4, **18**
 Tukhtaev, A.: EM-ThP-1, **65**; TF-ThP-1, **68**
 Tumbelaka, R.: SS-ThP-15, **68**
 Turchanin, A.: 2D+AP+EM+QS+SS+TF-TuM-1, **30**; 2D+AP+EM+QS+SS+TF-TuM-5, **30**
 Turkowski, V.: 2D+AP+EM+QS+SS+TF-TuM-4, **30**
 Turner, G.: SS-MoM-5, **10**
 Tutuncuoglu, G.: EM-ThP-17, **65**
 Tzeng, P.: TF2+EM-ThM-16, **54**
— U —
 Uda, S.: PS-WeM-16, **46**
 Uddi, M.: SE-MoM-5, **14**
 Uhl, I.: AS-WeM-15, **44**
 Ullah, A.: MI+2D+AC+TF-WeA-10, **51**
 Ulstrup, S.: 2D+LS+NS+SS-TuA-3, **39**
 Ünzelmann, M.: MI+2D+AC+TF-WeM-1, **45**; MI-ThP-4, **66**
 Upadhyay, S.: MI+2D+AC+TF-WeM-7, **45**; MI-ThP-1, **66**
 Urabe, K.: PS1-MoA-7, **21**; PS-ThA-4, **62**
 Urban, F.: EL2-ThA-8, **59**; EL-ThP-2, **67**
 Urdaneta, G.: SE-MoM-5, **14**
 Utz, A.: SS-ThM-5, **55**
— V —
 V. Sokolov, A.: EM+2D+BI+QS+TF-TuA-5, **34**
 Vaesen, I.: AS-WeM-3, **44**
 Vahabzadeh, S.: BI-ThP-7, **64**
 Vaida, M.: SS-MoM-5, **10**; SS-ThP-19, **68**; SS-TuA-12, **37**
 Valadez, N.: 2D-ThP-9, **63**; AC-ThP-4, **63**; AS-ThP-17, **64**; AS-TuA-3, **36**; AS-TuA-5, **36**
 Valdez, N.: MI+2D+AC+TF-WeA-3, **51**
 Valencia García, K.: SE-MoM-12, **14**
 Valera, L.: NS1-MoA-1, **24**
 Valizadeh, R.: VT4-TuM-16, **29**
 Vallat, R.: PS1-MoM-11, **13**; PS1-MoM-6, **13**
 Vallee, C.: PS1-MoA-3, **21**; PS1-MoM-7, **13**; TF-WeM-8, **42**
 Vallée, C.: PS1-MoM-10, **13**
 Vallejo, K.: AC+MI-FrM-15, **73**; TF1+EM-FrM-6, **70**
 Valtiner, M.: AS-ThA-1, **60**; AS-ThP-15, **64**; BI2-TuM-15, **27**
 van Bommel, C.: VT1-TuM-1, **29**
 van den Biggelaar, T.: PS-ThM-14, **57**
 van den Bosch, F.: SS-MoM-1, **10**
 Van der Plas, G.: MS-FrM-4, **71**
 Van Duinen, M.: AS-TuA-13, **36**
 van Eijk, L.: AS-WeA-3, **50**; AS-WeA-4, **50**
 van Gurp, M.: PS-ThM-14, **57**
 van Helden, J.: PS-ThM-17, **57**
 van Helvoirt, C.: VT1-TuM-1, **29**
 van Schijndel, T.: QS-TuM-4, **30**
 van Uittert, F.: VT1-TuM-1, **29**
 Van Voorhis, T.: AP1+EM+PS+TF-TuM-5, **26**
 VanDevender, B.: QS-ThP-1, **67**
 Vanfleet, R.: MN-ThP-2, **66**; MN-ThP-3, **66**; NS2-MoM-12, **6**; TF1+AP-ThM-8, **54**; TF-ThP-19, **69**
 Vang Lauritsen, J.: SS-MoM-13, **10**
 Vangoidsenhoven, D.: QS2+PS-MoA-12, **20**
 Vanleenhove, A.: AS-ThP-11, **64**; AS-WeM-3, **44**
 VARGAS LÓPEZ, M.: 2D-ThP-7, **63**
 Varshney, S.: EM+2D+AP+QS+TF-ThM-6, **53**
 Vasileiadou, E.: 2D-WeA-13, **51**
 Vasudevan, R.: AIML-WeM-16, **47**; AIML-WeM-17, **47**; MI+2D+AC+TF-WeM-3, **45**
 Vavassori, D.: SE-MoA-7, **72**; SE-ThP-5, **63**
 Vawdrey, J.: TF2-FrM-10, **20**
 Vazquez, S.: EL-FrM-15, **71**
 Vazquez-Lepe, M.: AS-ThP-18, **64**
 Vazquez-Miranda, S.: EL1-ThA-4, **59**
 Vekhter, I.: QS1+EM+MN+PS-MoA-3, **20**
 Veld, Y.: 2D+LS+NS+SS-TuA-3, **39**
 Vella, J.: AP+PS+TF-TuA-8, **36**
 Ventzek, P.: AS-TuA-12, **36**; PS1-WeA-1, **52**; PS-WeM-6, **46**; SS+AS+CA+LS-FrM-11, **72**; TF+EM-ThA-8, **58**; TF1+EM-FrM-8, **70**
 Vergason, G.: VT1-MoA-1, **19**
 Verheijen, M.: QS2+PS-MoA-11, **20**
 Verma, A.: PS-ThM-1, **57**; PS-ThM-6, **57**; PS-WeM-15, **46**; PS-WeM-2, **46**
 Verma, K.: AMS2-WeA-9, **49**
 Vieira, G.: TF2-FrM-12, **70**
 Viernes, C.: 2D+EM+MN+TF-FrM-8, **73**
 Vihervaara, A.: TF+AP-MoA-5, **16**
 Villafana, W.: PS-ThP-11, **67**; PS-WeM-14, **46**
 Villarrubia, J.: CA-ThP-4, **65**
 Viola, W.: TF2-TuA-8, **35**
 Visart de Bocarmé, T.: AMS1-WeA-1, **49**
 Vishal, K.: 2D+EM+MN+TF-FrM-3, **73**; EM-ThP-8, **65**
 Vishnoi, N.: PS-ThM-5, **57**
 Vivas Gomez, J.: MN-ThP-4, **66**
 Vlasak, P.: AS-ThP-7, **64**
 Vlassioux, I.: 2D+AP+EM+QS+SS+TF-TuM-8, **30**
 Voevodin, A.: SE-MoA-9, **22**
 Vogler, L.: BI-ThP-9, **65**
 Vogt, V.: AP2+EM+PS+TF-MoA-13, **17**
 Voigtländer, B.: 2D-WeA-12, **51**; NS-ThP-3, **66**
 Volakis, J.: SE-MoM-13, **14**
 von Gerichten, J.: BI-ThP-8, **65**
 Vora, G.: BI-MoA-4, **18**
 Voronin, S.: PS1-MoA-3, **21**
 Vovk, E.: SS+2D-WeA-9, **50**
 Vrtoch, L.: TF-ThP-10, **68**
— W —
 W. Elam, J.: TF-ThP-15, **68**
 Wade, C.: QS-TuM-6, **30**
 Wagner, C.: NS-ThP-3, **66**
 Wagoner, C.: PS-WeM-3, **46**
 Wajda, C.: TF-WeM-8, **42**
 Waleska-Wellenhofer, N.: SS-ThP-29, **50**
 Walke, A.: QS2+PS-MoA-12, **20**
 Walker, A.: AP+EM+PS+TF-MoM-5, **8**; AS-ThM-7, **55**; TF1-MoM-8, **7**
 Walker, B.: MN1-TuA-3, **41**
 Walker, R.: PS2-MoM-15, **13**
 Wallace, R.: TF1-MoM-3, **7**
 Walraven, J.: MN2-TuM-16, **32**
 Walter, M.: EL-FrM-12, **71**
 Walton, S.: AP1+EM+PS+TF-WeM-2, **43**; AP1+EM+PS+TF-WeM-5, **43**; AP2+EM+PS+TF-MoA-14, **17**; AP2+EM+PS+TF-WeM-17, **43**; PS+TF-FrM-5, **74**
 Wan, H.: AS-ThP-5, **64**; EM+AP+TF-WeA-11, **48**; EM+AP+TF-WeA-9, **48**; EM-ThP-7, **65**
 Wang, C.: AIML-WeM-6, **47**; CA-ThM-3, **56**; QS-TuM-13, **30**; SS-MoA-1, **18**
 Wang, D.: SS+2D-WeA-9, **50**
 Wang, G.: AC+MI-FrM-1, **73**; AC+MI-FrM-14, **73**; AS-ThA-7, **60**
 Wang, H.: 2D-ThP-13, **63**; SS+2D-WeA-13, **50**
 Wang, J.: MI+2D+AC+TF-WeM-14, **45**; QS-TuA-12, **39**
 Wang, K.: 2D+EM+MN+TF-FrM-5, **73**
 Wang, M.: 2D+EM+MN+TF-FrM-5, **73**; PS1-MoA-5, **21**; PS2-TuM-16, **31**; TF2-TuA-12, **35**
 Wang, Q.: NS1+2D+QS-TuM-5, **15**; PS1-MoA-3, **21**; PS1-WeA-1, **52**; PS-WeM-6, **46**
 Wang, T.: AP2+EM+PS+TF-MoA-15, **17**; SS-TuA-12, **37**
 Wang, W.: LS-MoM-1, **10**; TF-ThP-24, **69**
 Wang, X.: AQS-SuA-10, **4**; BI-ThP-14, **65**; CA-ThA-5, **61**; EM+2D+AP+QS+TF-ThM-4, **53**; PS1-MoA-5, **21**; QS-TuA-9, **39**; SS-MoA-8, **18**; TF-ThP-1, **68**
 Wang, Y.: 2D+EM+MN+TF-FrM-4, **73**; 2D+EM+MN+TF-FrM-6, **73**; MN2-TuA-10, **41**; QS1+EM+MN+PS-MoA-4, **20**; TF1-TuA-2, **35**
 Wang, Z.: 2D+EM+MI+QS-WeM-4, **45**; 2D-WeA-12, **51**
 Wanka, R.: BI-ThP-3, **64**
 Waqar, M.: SS-TuA-10, **37**
 Warashina, H.: 2D+AP+EM+QS+SS+TF-TuM-3, **30**
 Ward, J.: AC+MI-ThA-6, **62**
 Ware, S.: AS-WeA-4, **50**
 Ware, W.: AC-ThP-3, **63**
 Warner, M.: QS1+VT-MoM-4, **12**; QS-ThP-1, **67**
 Warren, M.: AS-ThP-1, **64**; AS-WeM-1, **44**
 Wasik, P.: 2D+EM+MI+QS-WeM-7, **45**
 Watanabe, K.: NS2-TuM-13, **24**
 Watkins, O.: AP+PS+TF-TuA-11, **36**
 Watson, D.: AS-WeM-2, **44**
 Weatherup, R.: AS-ThM-1, **55**
 Weaver, J.: SS-MoA-12, **18**; SS-MoA-3, **18**; SS-MoA-6, **18**; SS-MoA-9, **18**; SS-ThA-1, **60**
 Webb, R.: NS2-MoM-14, **6**
 Weidner, T.: BP-SuA-10, **4**
 Weigandt, K.: NS2-MoM-15, **6**
 Weiland, C.: AS-ThP-18, **64**
 Weiss, A.: AC-ThP-1, **63**; AC-ThP-2, **63**
 Weiss, L.: QS-TuA-1, **39**
 Weissman, H.: AS-WeA-14, **50**
 Wellington-Johnson, J.: TF1+EM-FrM-7, **70**
 Weltmann, K.: PS-ThM-17, **57**
 Wen, J.: EM+2D+AP+QS+TF-ThM-6, **53**; TF+EM-ThA-4, **58**
 Wen, Y.: AMS2-WeA-9, **49**
 Wenger, T.: TF2-TuM-13, **25**
 Werbrouck, A.: AP1+EM+PS+TF-MoA-7, **17**
 Werner, G.: PS-WeM-8, **46**
 Westly, D.: NS2-MoA-15, **15**
 Westover, T.: MN-ThP-2, **66**
 Whalen, M.: AP-ThP-2, **64**
 Wheeler, V.: AP1+EM+PS+TF-WeM-2, **43**; AP1+EM+PS+TF-WeM-5, **43**; AP2+EM+PS+TF-MoA-14, **17**; AP2+EM+PS+TF-WeM-17, **43**; PS+TF-FrM-5, **74**; TF1+EM-FrM-3, **70**
 White, B.: EM-ThP-14, **65**
 White, D.: PS-ThM-16, **57**
 White, L.: BI-ThP-2, **64**
 White, R.: AS-WeM-13, **44**
 White, S.: EM+2D+AP+QS+TF-ThM-3, **53**
 Whitten, A.: AMS2-WeA-12, **49**
 Wiedeman, D.: EM+2D+BI+QS+TF-TuA-11, **34**; EM+2D+BI+QS+TF-TuA-9, **34**
 Wieland, S.: QS1+VT-MoM-4, **12**

Author Index

- Wilcoxson, M.: PS1-TuM-3, 31
 Wild, C.: TF2-TuM-17, 25
 Wilde, S.: VT4-TuM-16, 29
 Wilker, J.: BP-SuA-6, 4
 Willcole, A.: MI+2D+AC+TF-WeA-3, 51
 Williams, D.: QS-TuA-8, 39
 Williams, M.: 2D+AP+EM+QS+SS+TF-TuM-7, 30
 Willis, B.: AP1+EM+PS+TF-WeM-1, 43; AP1+EM+PS+TF-WeM-4, 43
 Willson, S.: AS-TuA-13, 36; AS-WeA-15, 50
 Wilson, D.: TF2-TuM-13, 25
 Wimer, S.: EL-ThP-6, 67
 Windl, W.: AMS1-WeA-5, 49
 Winiberg, F.: TF2-TuM-13, 25
 WINKLER, A.: MN-ThP-1, 66
 Winkler, D.: AS-ThM-5, 55; CA-ThA-3, 61
 Winter, B.: SS-TuM-14, 28
 Winter, C.: TF2+EM-ThM-13, 54
 Winter, L.: TF1+AP-ThM-4, 54
 Wisman, D.: SS-ThP-23, 68
 Witsell, S.: AP1+EM+PS+TF-WeM-8, 43; TF1-TuM-6, 25
 Witting Larsen, E.: PS1-MoM-5, 13
 Wolf, C.: NS2-MoM-15, 6
 Wollack, E.: AP1+EM+PS+TF-WeM-5, 43; AP2+EM+PS+TF-WeM-17, 43
 Wollmershauser, J.: AP2+EM+PS+TF-WeM-15, 43
 Wolszczak, W.: EM+2D+BI+QS+TF-TuA-10, 34
 Wong, E.: AP+EM+PS+TF-MoM-14, 8
 Wong, K.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Wong, S.: CA-ThA-3, 61
 Woo, J.: AP-ThP-6, 64
 Woo, S.: VT-ThP-2, 69
 Wood, A.: AC+MI-ThA-1, 62
 Woods, R.: SS-TuM-14, 28
 Woodward, J.: AP2+EM+PS+TF-MoA-14, 17
 Woojin, J.: TF-ThP-22, 69
 Woolard, R.: TF1-MoM-8, 7
 Woryk, L.: AC-ThP-5, 63
 Wright, E.: 2D+AP+EM+QS+SS+TF-TuM-7, 30
 Wright, K.: AS-ThM-3, 55; AS-ThM-4, 55; UN-ThP-1, 69
 Wu, C.: TF2+EM-ThM-16, 54
 WU, F.: SE-MoM-4, 14
 Wu, X.: QS-TuA-9, 39
 Wubs, J.: PS-ThM-17, 57
 Wucher, A.: SS+AS+CA+LS-FrM-5, 72
 Wüest, M.: VT2-MoA-3, 19
 Wyndaele, P.: 2D+EM+MI+QS-WeM-4, 45
- X —
- Xherahi, B.: TF-ThP-23, 69
 Xia, X.: EM+AP+TF-WeA-11, 48
 Xia, Y.: NS1-MoM-7, 6
 Xiao, J.: AP-ThP-2, 64; NS2-TuM-13, 24
 Xiao, K.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; 2D+AP+EM+QS+SS+TF-TuM-8, 30; AIML-WeM-16, 47
 Xiao, Z.: QS-TuM-5, 30
 Xie, S.: SS-MoM-14, 10; UN-ThP-4, 69
 Xing, H.: AP2+EM+PS+TF-TuM-15, 26
 Xu, D.: PS1-MoA-6, 21
 Xu, J.: TF1+AP-ThM-7, 54
 Xu, K.: 2D-WeA-1, 51
 Xu, L.: PS-WeM-7, 46
 Xu, X.: SS+2D-WeA-6, 50
 Xu, Y.: CA-ThM-3, 56
- Y —
- Yadav, A.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Yadav, R.: LS-MoM-15, 10
 Yadav, S.: EM-ThP-16, 65
 Yadavalli, K.: QS-TuA-9, 39
 Yahalom, N.: AS-WeA-14, 50
 Yamada, M.: PS1-MoA-8, 21
 Yamazaki, M.: PS-WeM-16, 46
 Yamazawa, Y.: PS-WeM-16, 46
 Yan, D.: PS1-MoM-2, 13
 Yan, M.: SS-TuA-13, 37
 Yan, Y.: EL-FrM-4, 71
 Yáñez-Parreño, W.: QS-TuM-4, 30
 Yáñez-Soto, B.: 2D+EM+QS-ThA-1, 61
 Yang, D.: SS+2D-WeA-6, 50
 Yang, F.: 2D-ThP-12, 63; MI+2D+AC+TF-WeM-8, 45; MI-ThP-1, 66
 Yang, J.: PS+TF-FrM-8, 74; PS-TuA-3, 40
 Yang, K.: TF+EM-ThA-1, 58
 Yang, P.: AC+MI-FrM-1, 73; AC+MI-FrM-14, 73; AS-ThA-7, 60
 Yang, R.: TF-WeM-3, 42
 Yang, T.: TF1+EM-FrM-8, 70
 Yang, W.: CA-ThA-6, 61
 Yang, Y.: 2D+EM+QS-ThA-5, 61; CA-FrM-1, 72; SS+2D-WeA-9, 50
 Yang, Z.: EM+2D+AP+QS+TF-ThM-6, 53; TF+EM-ThA-4, 58
 Yanguas-Gil, A.: TF-ThP-15, 68
 Yano, J.: EM+2D+BI+QS+TF-TuA-4, 34
 Yao, F.: 2D+AP+EM+QS+SS+TF-TuM-6, 30; 2D-ThP-11, 63
 Yao, J.: AC-ThP-6, 63; SS-WeM-17, 44
 Yao, S.: AC+MI-FrM-14, 73
 Yao, Y.: 2D-WeA-12, 51; AP+EM+PS+TF-MoM-7, 8; SS+AS+CA+LS-FrM-5, 72
 Yasin, U.: 2D+EM+QS-ThA-3, 61
 Yates, L.: MN2-TuM-16, 32
 Yatom, S.: PS-ThP-9, 67
 Yavas, H.: LS-MoM-12, 10
 Ye, K.: SS-MoM-14, 10; UN-ThP-4, 69
 Yee, B.: PS-WeM-5, 46
 Yehuda-Zada, Y.: AC-ThP-1, 63; AC-ThP-2, 63
 Yeom, G.: PS1-TuM-1, 31; PS1-TuM-7, 31
 Yeom, J.: TF2-TuA-10, 35
 Yi, F.: CA-FrM-8, 72
 Yimam, D.: 2D+AP+EM+QS+SS+TF-TuM-8, 30
 Yingling, Y.: BI1-MoM-1, 9
 Yokoi, M.: PS2-TuM-15, 31
 Yongjoo, P.: TF-ThP-22, 69
 Yoo, H.: TF+EM-ThA-9, 58
 Yoo, K.: AP-ThP-6, 64
 Yoo, S.: TF-ThP-20, 69
 Yook, Y.: PS2-TuM-17, 31
 Yoon, D.: TF+EM-ThA-9, 58
 Yoona, C.: TF-ThP-22, 69
 York, S.: SS-ThP-18, 68
 Yoshida, H.: VT2-MoA-9, 19
 Yoskowitz, J.: VT4-TuM-15, 29
 Yost, A.: SS+AS+CA+LS-FrM-8, 72
 Young, B.: MN2-TuM-16, 32
 Young, C.: AS-WeM-5, 44
 Young, J.: AS-WeA-4, 50
 Young, M.: AP1+EM+PS+TF-MoA-7, 17; TF+AP-MoA-7, 16; TF-ThP-13, 68; TF-WeM-17, 42; TF-WeM-6, 42
 Yousef, S.: 2D+EM+MN+TF-FrM-6, 73; 2D+EM+MN+TF-FrM-7, 73; MN2-TuA-10, 41
 Yu, J.: SE-MoA-5, 22
 Yu, L.: 2D+EM+QS-ThA-5, 61
 Yu, M.: 2D+AP+EM+QS+SS+TF-TuM-15, 30
 Yu, P.: AP+EM+PS+TF-MoM-10, 8; AP+EM+PS+TF-MoM-12, 8
 Yu, S.: TF+EM-ThA-2, 58
 Yu, X.: BI-MoA-2, 18; CA-ThM-5, 56; CA-ThP-3, 65
 Yu, Y.: 2D+AP+EM+QS+SS+TF-TuM-4, 30; 2D-WeA-9, 51
 Yubero, F.: SS-ThP-11, 68
- Yun, J.: SS-MoA-12, 18; SS-MoA-3, 18; SS-MoA-9, 18; TF-ThP-21, 69
 Yun, S.: AIML-WeM-16, 47
 Yusuf, H.: QS-TuM-6, 30
- Z —
- Zaccarine, S.: AS-WeA-13, 50; SS-ThP-16, 68
 Zachman, M.: 2D+EM+QS-ThA-5, 61
 Zaera, F.: SS-ThP-13, 68; TF1+AP-ThM-1, 54; TF1+AP-ThM-4, 54
 Zafar, A.: PS-ThA-3, 62
 Zahangir, M.: TF-ThP-24, 69
 Zahir, R.: TF1-TuM-8, 25
 Zahl, P.: NS1-MoA-2, 24
 Zahra, K.: 2D+LS+NS+SS-TuA-4, 39; AS-WeA-6, 50
 Zahradník, M.: EL-FrM-15, 71
 Zaiats, N.: EM-ThP-4, 65; NS2-MoA-11, 15
 Zakharov, A.: SS+2D-WeA-11, 50
 Zang, Y.: SS-TuA-10, 37
 Zechmann, B.: SS+AS+CA+LS-FrM-6, 72
 Zeebregts, J.: VT1-TuM-1, 29
 Zeng, H.: 2D+AP+EM+QS+SS+TF-TuM-6, 30
 Zhang, D.: CA-ThA-1, 61; PS-WeM-1, 46; PS-WeM-16, 46
 Zhang, F.: AS-WeA-3, 50; AS-WeA-4, 50
 Zhang, K.: SS-TuM-14, 28
 Zhang, L.: TF-WeA-16, 48
 Zhang, T.: 2D-ThM-7, 56
 Zhang, W.: EM+2D+BI+QS+TF-TuA-5, 34
 Zhang, X.: 2D+EM+MN+TF-FrM-6, 73; AS-ThP-16, 64; SS+2D-WeA-13, 50; SS+AS+CA+LS-FrM-8, 72
 Zhang, Y.: EL-FrM-3, 71; PS+TF-FrM-8, 74
 Zhang, Z.: EM+2D+BI+QS+TF-TuA-5, 34; SS+AS+CA+LS-FrM-6, 72; SS-TuA-5, 37
 Zhao, F.: PS+TF-FrM-4, 74
 Zhao, H.: TF-ThP-1, 68
 Zhao, J.: TF+AP-MoA-3, 16; TF+EM-ThA-8, 58; TF1+EM-FrM-8, 70
 Zhao, K.: SS-MoM-8, 10
 Zhao, S.: 2D+EM+MI+QS-WeM-7, 45
 Zhao, X.: CA-ThM-7, 56; CA-ThP-1, 65
 Zheng, D.: AS-WeM-5, 44
 Zheng, H.: LS-MoM-13, 10
 Zheng, R.: 2D+EM+MN+TF-FrM-8, 73
 Zhirnov, V.: CPS-MoM-3, 11
 Zhou, C.: EM+AIML+AP+QS+TF-WeM-2, 42; QS-ThP-1, 67
 Zhou, L.: AQS-SuA-10, 4
 Zhou, X.: AP2+EM+PS+TF-WeM-14, 43
 Zhu, H.: SS-TuA-5, 37
 Zhu, J.: SS-WeM-1, 44
 Zhu, Q.: NS1-MoA-7, 24
 Zhu, S.: QS-TuM-7, 30
 Zhu, T.: 2D+LS+NS+SS-TuA-8, 39
 Zhu, Z.: BI-MoA-2, 18; CA-ThM-3, 56; SS-WeM-17, 44
 Zhuang, Y.: 2D+EM+MN+TF-FrM-3, 73; EM-ThP-8, 65
 Ziatdinov, M.: AIML-WeM-17, 47
 Ziemba, T.: PS-ThM-7, 57; PS-ThP-6, 66; PS-ThP-7, 66
 Zier, S.: BI2-MoM-11, 9; BI-ThP-6, 64
 Zoha, S.: AP+EM+PS+TF-MoM-15, 8
 Zollner, S.: EL-FrM-15, 71; EL-FrM-8, 71; EL-ThP-7, 67; EM-ThP-16, 65
 Zondiner, U.: NS2-TuM-13, 24
 Zope, B.: AP+EM+PS+TF-MoM-4, 8
 Zorman, C.: MN1-TuA-5, 41
 Zuhlke, C.: TF-WeA-4, 48
 Zulqarnain, S.: PS-ThM-7, 57; PS-WeM-3, 46
 Zveny, J.: PS+TF-FrM-7, 74
 Zwicknagl, G.: AC+MI-ThM-13, 57