### **Program Overview**

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Room /Time	Ballroom South
SuA	PCSI-SuA: The Future of Computing
SuE	PCSI-SuE: III-V Growth
MoM	PCSI-1MoM: 2D Plasmonics PCSI-2MoM: Atomic Layer Deposition & Etching I PCSI-3MoM: Topological Materials PCSI-4MoM: Surface Characterization
MoA	PCSI-1MoA: Device Interface Characterization PCSI-2MoA: Spectroscopy of 2D Materials PCSI-3MoA: Magnetism in 2D Materials and Interfaces PCSI-4MoA: Oxide Growth and Properties
MoE	PCSI-MoE: 2D Materials Characterization and Devices
TuM	PCSI-1TuM: Quantum Emitters and Excitations PCSI-2TuM: Atomic Scale Characterization PCSI-3TuM: 2D Materials and Heterostructure Growth
TuE	PCSI-TuE: Quantum Materials?
WeM	PCSI-1WeM: Hybrid and Mixed-Dimensional Interfaces I PCSI-2WeM: Topological Materials II PCSI-3WeM: Exploiting Ions in Devices
WeA	PCSI-1WeA: Atomic Layer Deposition & Etching II PCSI-2WeA: Applications of 2D Defects and Interfaces
ThM	PCSI-ThM: Hybrid and Mixed-Dimensional Interfaces II

# **Special Events Sunday**

#### **Special Events Sunday**

#### 6:00 PM Welcome Reception/La Terraza

# Sunday Afternoon, January 13, 2019

ktopen   HVTED: PCS-Sub-1 Chraitronics: Christ Domain Wall and Anti- symmer Data Songe Elements for High Performance Recertack symmer back continues.     310pn   Invited talk continues.     313pn   Invited talk continues.     40pn   Invited talk continues.     413pn   Invited talk continues.     413pn   Invited talk continues.     413pn   Iak continues.     413pn   Iak continues.     413pn <td< th=""><th></th><th>PCSI Room Ballroom South - Session PCSI-SuA The Future of Computing Moderator: Christopher Palmstrøm, University of California, Santa Barbara</th><th></th></td<>		PCSI Room Ballroom South - Session PCSI-SuA The Future of Computing Moderator: Christopher Palmstrøm, University of California, Santa Barbara	
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	4:50pm	Talk continues.	
5:00pm Talk continues.	4:55pm	Talk continues.	
	5:00pm	Talk continues.	

# Sunday Evening, January 13, 2019

	PCSI Room Ballroom South - Session PCSI-SuE III-V Growth Moderator: Lincoln J. Lauhon, Northwestern University	
7:30pm	<b>INVITED: PCSI-SuE-1</b> Understanding the Kinetics of III-V Semiconductor Nanowire Growth using <i>in-situ</i> TEM, <i>C Maliakkal, D Jacobsson, M Tornberg, A</i> <i>Persson, J Johansson, R Wallenberg, Kimberly Thelander</i> , Lund University, Sweden	
7:35pm	Invited talk continues.	
7:40pm	Invited talk continues.	
7:45pm	Invited talk continues.	
7:50pm	Invited talk continues.	
7:55pm	Invited talk continues.	
8:00pm	PCSI-SuE-7 In situ Studies of Surface Morphological Evolution During Indium Nitride Growth by Atomic Layer Epitaxy, <i>Charles R. Eddy, Jr., N</i> <i>Nepal</i> , U.S. Naval Research Laboratory; <i>S Rosenberg</i> , American Association for Engineering Education; <i>V Anderson</i> , Sotera Defense Solutions; <i>J Woodward</i> , American Society for Engineering Education; <i>C Wagenbach</i> , Boston University; <i>A Kozen</i> , Amerian Society for Engineering Education; <i>Z Robinson</i> , College at Brockport SUNY; <i>L Nyakiti</i> , Texas A&M University; <i>S Qadri</i> , U.S. Naval Research Laboratory; <i>M Mehl</i> , U.S. Naval Academy; <i>K Ludwig</i> , Boston University; <i>J Hite</i> , U.S. Naval Research Laboratory	
8:05pm	PCSI-SuE-8 Growth Strategies for Modifying Heterovalent Interfaces, Kirstin Alberi, K Park, National Renewable Energy Laboratory	
8:10pm	PCSI-SuE-9 InAs QD Formation on GaAs(110) by Bi-surfactants, W Martyanov, Technische Universität Berlin, Germany; R Lewis, Paul-Drude-Institut für Festkörperelektronik, Germany; H Janssen, P Farin, R Zielinski, C Schulze, A Lenz, Technische Universität Berlin, Germany; L Geelhaar, Paul-Drude-Institut für Festkörperelektronik, Germany; Holger Eisele, Technische Universität Berlin, Germany	
8:15pm	PCSI-SuE-10 Total Tomography of Nonplanar III-As Heterostructures, <i>L</i> Lähnemann, 1Paul-Drude-Institut fu <sup>-</sup> r Festko <sup>-</sup> rperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany; <i>M Hill</i> , Northwestern University; <i>J</i> <i>Herranz</i> , 1Paul-Drude-Institut fu <sup>-</sup> r Festko <sup>-</sup> rperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany; <i>O Marquardt</i> , Weierstraß-Institut fur Angewandte Analysis und Stochastik, Germany; <i>A Al Hassan, A Davtyan,</i> Naturwissenschaftlich-Technische Fakultat der Universitat Siegen, Germany; <i>O</i> <i>Hruszkewycz, M Holt</i> , Argonne National Laboratory; <i>C Huang</i> , Northwestern University; <i>U Jahn</i> , Paul-Drude-Institut fur Festkoperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany; <i>U Pietsch</i> , Naturwissenschaftlich- Technische Fakultat der Universitat Siegen, Germany; <i>Lincoln J. Lauhon,</i> Northwestern University; <i>L Geelhaar</i> , Paul-Drude-Institut für Festkörperelektronik, Germany	
8:20pm	INVITED: PCSI-SuE-11 Superconducting Proximity Effect in Two- Dimensional Semiconductor-Superconductor Structures, Javad Shabani, New York University	
8:25pm	Invited talk continues.	
3:30pm	Invited talk continues.	
8:35pm	Invited talk continues.	
8:40pm	Invited talk continues.	
. 45	Invited talk continues.	

### **Special Events Monday**

#### **Special Events Monday**

- 7:30 AM Continental Breakfast/Ballroom North
- 10:00 AM Coffee Break and Poster Viewing/Ballroom North
- 12:00 PM Lunch and Poster Viewing/Ballroom North
- 3:30 PM Coffee Break and Poster Viewing/Ballroom North
- 6:00 PM Dinner/La Terraza

# Monday Morning, January 14, 2019

	Room Ballroom South		
8:30am	INVITED: PCSI-1MoM-1 Controlling Light at the Atomic Scale with 2D Polaritons, Javier García de Abajo, ICFO-Institut de Ciencies Fotoniques, Av. Carl F. Gauss 3, 08860 Castelldefels (Barcelona), Spain	PCSI Session PCSI-1MoM	
8:35am	Invited talk continues.	<b>2D Plasmonics</b> <b>Moderator:</b> Anders Mikkelsen, Lund University, Sweden	
8:40am	Invited talk continues.	Moderator. Anders Mikkelsen, Lund University, Sweden	
8:45am	Invited talk continues.		
8:50am	Invited talk continues.		
8:55am	Invited talk continues.		
9:00am	Invited talk continues.		
9:05am	PCSI-1MoM-8 An Optical transformer-based Campanile Near-field Probe on an AFM Cantilever, <i>K Le</i> , aBeam Technologies; <i>S Bilent</i> , Lawrence Berkeley National Lab; <i>C Pina-Hernandez</i> , aBeam Technologies; <i>S Cabrini</i> , Lawrence Berkeley National Lab; <i>Keiko Munechika</i> , aBeam Technologies		
9:10am	PCSI-1MoM-9 Localized Surface Curvature Artifacts in Gap-mode Tip-enhanced Nanospectroscopy, <i>Darya Stepanichsheva</i> , Tomsk Polytechnic University, Russia		
9:15am	INVITED: PCSI-2MoM-10 How Chemistry Drives Microstructure: Probing the Structure of sub-nm ALD Materials using <i>in-situ</i> FTIR and Synchrotron Techniques, <i>Angel Yanguas-Gil</i> , Argonne National Laboratory	PCSI Session PCSI-2MoM	
9:20am	Invited talk continues.	Atomic Layer Deposition & Etching I Moderator: Anders Mikkelsen, Lund University, Sweden	
9:25am	Invited talk continues.	, , , , , , , , , , , , , , , , , , , ,	
9:30am	Invited talk continues.		
9:35am	Invited talk continues.		
9:40am	Invited talk continues.		
9:45am	<b>PCSI-2MoM-16</b> Mechanism of Hydrogen Plasma Modified ALD Growth of Metal- enriched Oxides Studied by <i>In-Situ</i> Mass Spectrometry, <i>Thomas Larrabee</i> , <i>S Prokes</i> , Naval Research Laboratory		
9:50am	<b>PCSI-2MoM-17</b> <i>In Situ</i> Investigation of Doping of 2D Semiconductors During Atomic Layer Deposition of Dielectrics, <i>Michael Moody, J Shang, J Chen, A Henning, T Lohr, T Marks, L Lauhon,</i> Northwestern University		
	<b>PCSI-2MoM-18</b> The Impact of the Annealing Temperature of the Seed Layer on the Growth and the Electrical Properties of the Main Layer in Atomic Layer Deposition of SrTiO <sub>3</sub> Films, <i>Sang Hyeon Kim</i> , Seoul National University, Republic of Korea; <i>W Lee</i> , Northwestern University; <i>C An</i> , <i>D Kwon</i> , <i>D Kim</i> , <i>S Cha</i> , <i>S Cho</i> , <i>C Hwang</i> , Seoul National University, Republic of Korea		
10:00am	Coffee Break & Poster Viewing		
10:05am	Coffee Break & Poster Viewing		
10:10am	Coffee Break & Poster Viewing		
10:15am	Coffee Break & Poster Viewing		
10:20am	Coffee Break & Poster Viewing		
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10:35am			
10:40am	Coffee Break & Poster Viewing		
10:45am	Coffee Break & Poster Viewing		
10:50am			
10:55am	Coffee Break & Poster Viewing		
11:00am	INVITED: PCSI-3MoM-31 Topological Heterostructures by Molecular Beam Epitaxy, <i>Susanne Stemmer</i> , University of California, Santa Barbara	PCSI Session PCSI-3MoM	
11:05am	Invited talk continues.	Topological Materials	
11:10am	Invited talk continues.	Moderator: Javad Shabani, New York University	
11:15am	Invited talk continues.		
11:20am	Invited talk continues.		
11:25am	Invited talk continues.		

### Monday Morning, January 14, 2019

11:30am	PCSI-3MoM-37 Structural Distortions and Surface/Bulk Competition in Quasi-2D	
	SnSe-TiSe <sub>2</sub> Nanolayered Heterostructures, <i>Sage Bauers</i> , National Renewable Energy Laboratory; <i>D Hamann</i> , <i>D Merrill</i> , <i>J Ditto</i> , <i>M Esters</i> , University of Oregon; <i>D Roberts</i> , University of Oregon; <i>D Roberts</i> ,	
	University of Colorado at Boulder; A Zakutayev, National Renewable Energy Laboratory; D Johnson, University of Oregon	
11:35am	PCSI-3MoM-38 Gold-gold Dimer Buckling and Electronic Structure of Epitaxial	
	LaAuSb Films., <i>Patrick Strohbeen</i> , <i>D Du</i> , <i>C Zhang</i> , <i>E Shourov</i> , University of Wisconsin- Madison; <i>F Rodolakis, J McChesney</i> , Argonne National Laboratory; <i>P Voyles, J Kawasaki</i> , University of Wisconsin-Madison	
11:40am	<b>PCSI-3MoM-39</b> MBE Growth of Cd <sub>3</sub> As <sub>2</sub> on GaAs(001) Substrates, <i>Anthony Rice, K</i> <i>Alberi</i> , National Renewable Energy Laboratory	
11:45am	<b>PCSI-4MoM-40</b> The Direct Band Gap of $\alpha$ -Sn Investigated by Infrared	PCSI
	Ellipsometry, <i>Rigo Carrasco, C Zamarripa, S Zollner,</i> New Mexico State University; J Menendez, Arizona State University	Session PCSI-4MoM
11.50am		Surface Characterization
11.504111	PCSI-4MoM-41 Advanced ARPES Analyzer and Momentum Microscope KREIOS 150 – Concepts and First Results on Layered Materials and Topological	Moderator: Javad Shabani, New York University
	Insulators, <i>Thomas Schulmeyer</i> , SPECS-TII, Inc.	
11:55am	PCSI-4MoM-42 Investigating Relative Binding Strengths of Various Dye	
	Attachment Chemistries at the Titania-Dye Interface in Dye-Sensitized Solar	
	Cells, Gregory Smith, B Harvey, J Placzek, Angelo State University	

# Monday Afternoon, January 14, 2019

2:00pm	INVITED: PCSI-1MoA-1 Sequential and In-Situ Atom Probe Tomography and	PCSI
	Optical Spectroscopy on Single Luminescent Nanoscale Objects, Lorenzo Rigutti,	Session PCSI-1MoA
	University of Rouen Normandie, France	Device Interface Characterization
2:05pm	Invited talk continues.	Moderator: Kimberly Thelander, Lund University
2:10pm	Invited talk continues.	
2:15pm	Invited talk continues.	
2:20pm	Invited talk continues.	
2:25pm	Invited talk continues.	
2:30pm	<b>PCSI-1MoA-7</b> The Three-dimensional Shape of Antiphase Domains in GaP on Si(001), <i>Pascal Farin</i> , Technische Universität Berlin, Germany	
2:35pm	<b>PCSI-1MoA-8</b> Atom Probe Tomography of GaN Vertical Power Diodes: Impurity Distribution near Regrowth Interfaces, <i>Alexander Chang</i> , Northwestern University; <i>M Nami</i> , <i>B Li</i> , <i>J Han</i> , Yale University; <i>L Lauhon</i> , Northwestern University	
2:40pm	PCSI-1MoA-9 Surface/Subsurface Identification and Control of Ga <sub>2</sub> O <sub>3</sub> Native Point Defects, <i>Hantian Gao</i> , <i>S Muralidharan</i> , <i>N Pronin</i> , <i>M Karim</i> , <i>S White</i> , <i>T Asel</i> , <i>G Foster</i> , <i>S Krishnamoorthy</i> , <i>S Rajan</i> , <i>L Cao</i> , The Ohio State University; <i>M Higashiwaki</i> , National Institute of Information Communications Technology, Japan; <i>H Von Wenckstern</i> , <i>M</i> <i>Grundmann</i> , Universität Leipzig, Germany; <i>H Zhao</i> , The Ohio State University; <i>D Look</i> , Wright State University; <i>L Brillson</i> , The Ohio State University	
2:45pm	<b>PCSI-1MoA-10</b> Electrically Detected Magnetic Resonance Study of Leakage Currents in a-SiN:H, <i>Ryan Waskiewicz</i> , <i>P Lenahan</i> , Pennsylvania State University; <i>S King</i> , Intel Corp.	
2:50pm	<b>PCSI-1MoA-11</b> Internal Mechanical Stresses Relaxation in the Si-SiO <sub>2</sub> System and its Influence on the Interface Properties, <i>Daniel Kropman, V Seeman</i> , Tartu University, Estonia; <i>A Medvids, P Onufrievs,</i> Riga Technical University, Latvia	
2:55pm	INVITED: PCSI-2MoA-12 Light Matter Interaction in Tunable 2D Materials and Artificial van der Waals Solids, Ursula Wurstbauer, University of Münster, Germany	PCSI
3:00pm	Invited talk continues.	Session PCSI-2MoA
		Spectroscopy of 2D Materials Moderator: Kimberly Thelander, Lund University
3:05pm	Invited talk continues.	wouerator. Kindeny melander, Lund Oniversity
3:10pm	Invited talk continues.	
3:15pm	Invited talk continues.	
3:20pm	Invited talk continues.	
3:25pm	<b>PCSI-2MoA-18</b> Ultrafast Enhancement of Interfacial Exchange Coupling in Ferromagnetic Co <sub>2</sub> FeAl/(Ga,Mn)As Bilayer, <i>Gunter Luepke</i> , College of William & Mary	-
3:30pm	Coffee Break & Poster Viewing	
3:35pm	Coffee Break & Poster Viewing	
3:40pm	Coffee Break & Poster Viewing	
3:45pm	Coffee Break & Poster Viewing	
3:50pm	Coffee Break & Poster Viewing	
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4:00pm	Coffee Break & Poster Viewing	
4:05pm	Coffee Break & Poster Viewing	
4:10pm	Coffee Break & Poster Viewing	
4:15pm	Coffee Break & Poster Viewing	
4:20pm	Coffee Break & Poster Viewing	
4:25pm	Coffee Break & Poster Viewing	
4:30pm	INVITED: PCSI-3MoA-31 Magnetism in Monolayer Transition Metal Dichalcogenides, <i>Matthias Batzill</i> , University of South Florida	PCSI
4:35pm	Invited talk continues.	Session PCSI-3MoA Magnetism in 2D Materials and Interfaces
4:40pm	Invited talk continues.	Moderator: Anders Mikkelsen, Lund University, Swede
4:45pm	Invited talk continues.	
4:50pm	Invited talk continues.	

### Monday Afternoon, January 14, 2019

	Monuay Micrinoon, jan	aary 11, 2017
5:00pm	<b>PCSI-3MoA-37</b> Epitaxial Growth and STM Characterization of 2D Magnet MnSe <sub>2</sub> and VSe <sub>2</sub> , <i>Tiancong Zhu</i> , The Ohio State University; <i>D O'Hara</i> , University of California, Riverside; <i>J Repicky</i> , <i>J Cobbert</i> , <i>J Gupta</i> , The Ohio State University; <i>R Kawakami</i> , Ohio State University-Columbus	
5:05pm	<b>PCSI-3MoA-38</b> Investigation of Low-Energy Ion-Implanted Multilayer Epitaxial Graphene, <i>P Miceli, Alessandro Mazza</i> , University of Missouri	
5:10pm	<b>PCSI-3MoA-39</b> Large Positive Linear Magnetoresistance in the Two-dimensional $t_{2g}$ Electron Gas at the EuO/SrTiO <sub>3</sub> Interface, <i>Alexander Demkov</i> , The University of Texas	
5:15pm	INVITED: PCSI-4MoA-40 Invited Speaker, Bharat Jalan, University of Minnesota	PCSI
5:20pm	Invited talk continues.	Session PCSI-4MoA Oxide Growth and Properties
5:25pm	Invited talk continues.	Moderator: Anders Mikkelsen, Lund University, Sweden
5:30pm	Invited talk continues.	
5:35pm	Invited talk continues.	
5:40pm	Invited talk continues.	
5:45pm	PCSI-4MoA-46 Strain Enhancement of the Electro-optical Response in Semiconductor-integrated Perovskites, <i>Alexander Demkov</i> , The University of Texas	
5:50pm	PCSI-4MoA-47 Synthesis of Large Area Single-crystalline Freestanding Oxide Membranes, <i>Prastuti Singh, A Swartz, D Lu, S Hong,</i> Stanford University; <i>K Nishio,</i> Geballe Laboratory for Advanced Materials; <i>Y Hikita,</i> Stanford Institute for Materials and Energy Sciences; <i>H Hwang,</i> Stanford University	

# Monday Evening, January 14, 2019

	PCSI	
	Room Ballroom South - Session PCSI-MoE	
	2D Materials Characterization and Devices	
	Moderator: Ursula Wurstbauer, University of Münster	
7:45pm	<b>PCSI-MoE-1</b> Determining Chirality of Non-Centrosymmetric FeGe and MnGe with Spin-polarized Imaging of MnGe Spin Spirals via STM, J. P. Corbett, J Repicky, T Zhu, A Ahmed, R Bennet, The Ohio State University; J Guerrero-Sanchez, Universidad Nacional Autonoma de Mexico, Mexico; R Kawakami, Ohio State University-Columbus; J Gupta, The Ohio State University	
7:50pm	Talk continues.	
7:55pm	Talk continues.	
8:00pm	<b>PCSI-MoE-4</b> Ultrafast Spin and Charge Transfer in Monolayer WSe <sub>2</sub> - Graphene Heterostructure Devices, <i>Michael Newburger</i> , <i>K Luo</i> , Ohio State University-Columbus; <i>K McCreary</i> , Naval Research Laboratory; <i>I Martin, E</i> <i>McCormick</i> , Ohio State University-Columbus; <i>B Jonker</i> , Naval Research Laboratory; <i>R Kawakami</i> , Ohio State University-Columbus	
8:05pm	<b>PCSI-MoE-5</b> Probing Quantum Hall and Quantum Valley Hall Effect in Bilayer Graphene Nanostructures, <i>Jing Li</i> , Los Alamos National Laboratory; <i>J Zhu</i> , The Pennsylvania State University	
8:10pm	PCSI-MoE-6 Optoelectronic Modulation in 2D Mo <sub>1-x</sub> W <sub>x</sub> Te <sub>2</sub> Monolayers, Zakaria Al Balushi, UC Berkeley	
8:15pm	<b>PCSI-MoE-7</b> Pressure-controlled Photoluminescence and Identification of an Electronic State in Hydrated Methyl-Terminated Germanane, <b>B.A. Noesges</b> , T Asel, W Huey, S Jiang, K Krymowski, Y Wang, W Windl, J Goldberger, L Brillson, The Ohio State University	
8:20pm	<b>PCSI-MoE-8</b> Ultrafast Hot Electron Dynamics in InAs Nanowires with Variable Crystal Phases Investigated by Time-resolved Photoelectron Emission Microscopy, <i>L Wittenbecher, J Vogelsang, S Lehmann, K Thelander, D Zigmantas, Anders Mikkelsen</i> , Lund University, Sweden	
8:25pm	INVITED: PCSI-MoE-9 Van der Waals Integration beyond 2D Materials, Xiangfeng Duan, UCLA	
8:30pm	Invited talk continues.	
8:35pm	Invited talk continues.	
8:40pm	Invited talk continues.	
8:45pm	Invited talk continues.	
8:50pm	Invited talk continues.	

## **Special Events Tuesday**

#### **Special Events Tuesday**

- 7:30 AM Continental Breakfast/Ballroom North
- 9:55 AM Coffee Break and Poster Viewing/Ballroom North

# **Tuesday Morning, January 15, 2019**

	Room Ballroom South	
8:30am	INVITED: PCSI-1TuM-1 The NV Center in Diamond: A Versatile Quantum	PCSI
	Technology, <i>Ania Bleszynski Jayich</i> , University of California, Santa Barabara; <i>A Jenkins</i> , <i>D Bluvstein</i> , <i>S Meynell</i> , <i>S Baumann</i> , <i>Z Zhang</i> , University of California, Santa Barbara	Session PCSI-1TuM
8:35am	Invited talk continues.	Quantum Emitters and Excitations
8:40am	Invited talk continues.	<b>Moderator:</b> Javier García de Abajo, ICFO-Institut de Ciencies Fotoniques
8:45am	Invited talk continues.	
8:50am	Invited talk continues.	
8:55am	Invited talk continues.	
9:00am	Invited talk continues.	
9:05am	PCSI-1TuM-8 Stark Tuning of Single Photon Emitters in Hexagonal Boron Nitride, G Noh, D Choi, Ajou University, Korea; J Kim, D Im, Y Kim, POSTECH, Korea; H Seo, Jieun Lee, Ajou University, Korea	
9:10am	Talk continues.	
9:15am	Talk continues.	
9:20am	PCSI-1TuM-11 Quantum Magnonics in V[TCNE] <sub>2</sub> , <i>Ezekiel Johnston-Halperin</i> , The Ohio State University	
9:25am	PCSI-2TuM-12 Surface Potential and Hydrophilicity Measurements on Titanium Dioxide before and after Ultraviolet Irradiation, <i>Takuya Furukawa, K Noda</i> , Keio	PCSI
0.20	University, Japan	Session PCSI-2TuM Atomic Scale Characterization
9:30am	<b>PCSI-2TuM-13</b> Atomic-scale Observations of Reduced Graphene Oxide Nanosheets Dispersed on HOPG Substrates, <i>Shaoxian Li, T Hirano, K Kawai, K</i> <i>Yamamura, K Arima,</i> Osaka University, Japan	<b>Moderator:</b> Javier García de Abajo, ICFO-Institut de Ciencies Fotoniques
9:35am	PCSI-2TuM-14 Diamond Coated Tips for Scanning Tunneling Microscopy, J Owen, Zyvex Labs; Ben Stein, O Auciello, University of Texas at Dallas	
9:40am	<b>PCSI-2TuM-15</b> Surface Physical and Chemical Processes with an Optical Scanning Tunneling Microscope, <i>Shaowei Li</i> , University of California, Irvine; <i>W Ho</i> , Northwestern University	
9:45am	Talk continues.	
9:50am	Talk continues.	
9:55am	Coffee Break & Poster Viewing	
10:00am	Coffee Break & Poster Viewing	
10:05am	Coffee Break & Poster Viewing	
10:10am	Coffee Break & Poster Viewing	
10:15am	Coffee Break & Poster Viewing	
10:20am	Coffee Break & Poster Viewing	
10:25am	Coffee Break & Poster Viewing	
10:30am	Coffee Break & Poster Viewing	
10:35am	Coffee Break & Poster Viewing	
10:40am	Coffee Break & Poster Viewing	
10:45am	Coffee Break & Poster Viewing	
10:50am	Coffee Break & Poster Viewing	
10:55am	Coffee Break & Poster Viewing	
11:00am	INVITED: PCSI-3TuM-31 Chemically and Atomically Ordered States in 2D Crystal Alloys, <i>Nasim Alem</i> , Penn State University	PCSI Session PCSI-3TuM
11:05am	Invited talk continues.	2D Materials and Heterostructure Growth
11:10am	Invited talk continues.	Moderator: Susanne Stemmer, University of California,
11:15am	Invited talk continues.	Santa Barbara
11:20am	Invited talk continues.	
11:25am	Invited talk continues.	
11:30am	PCSI-3TuM-37 Defect-Assisted Heteroepitaxial Growth of Monolayer Tungsten Diselenide Films with Preferential Orientation on Hexagonal Boron Nitride, Xiaotian Zhang, F Zhang, Y Wang, D Schulman, T Zhang, A Bansal, N Alem, S Das, V Crespi, M Terrones, J Redwing, The Pennsylvania State University	
11:35am	PCSI-3TuM-38 Novel Sulfide Heterostructures from Designed Precursors, D Roberts, University of Colorado at Boulder; Sage Bauers, J Perkins, National Renewable Energy Laboratory; C Stoldt, University of Colorado at Boulder; A Zakutayev, National Renewable Energy Laboratory	
11:40am	PCSI-3TuM-39 Rotational Alignment of Epitaxially-grown hBN on Macrostepped Graphene/SiC(0001) Single-Crystal Substrates, <i>Daniel Pennachio</i> , University of California, Santa Barbara; <i>C Ornelas-Skarin</i> , University of California, Irvine; <i>N Wilson</i> , <i>E</i> <i>Young</i> , <i>A McFadden</i> , <i>T Brown-Heft</i> , University of California, Santa Barbara; <i>K Daniels</i> , <i>R</i> <i>Myers-Ward</i> , <i>K Gaskill</i> , <i>C Eddy</i> , <i>Jr.</i> , U.S. Naval Research Laboratory; <i>C Palmstrom</i> , University of California, Santa Barbara	

# **Tuesday Evening, January 15, 2019**

	PCSI	
	Room Ballroom South - Session PCSI-TuE	
	Quantum Materials?	
	Moderator: Debdeep Jena, Cornell University	ſ
7:00pm	INVITED: PCSI-TuE-1 Magnetic Weyl Semimetals!, <i>Claudia Felser, J Gooth, K Manna, E Lui, Y Sun,</i> Max Planck Institute, Germany	
	Wunnu, E Lui, F Sun, Max Planck Institute, Germany	
7:05pm	Invited talk continues.	
7:10pm	Invited talk continues.	
7:15pm	Invited talk continues.	
7:20pm	Invited talk continues.	
7:25pm	Invited talk continues.	
	INVITED: PCSI-TuE-7 Status of Purity for Bulk Samples and Implications	
	for Quantum States, Arthur Ramirez, University of California Santa Cruz	
7:35pm	Invited talk continues.	
7:40pm	Invited talk continues.	
7:40pm	Invited talk continues.	
7:40pm	Invited talk continues.	
	Invited talk continues. Invited talk continues.	
7:45pm	Invited talk continues.	
7:45pm		
7:45pm	Invited talk continues.	
7:45pm	Invited talk continues.	
7:45pm 7:50pm	Invited talk continues. Invited talk continues.	
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7:45pm 7:50pm	Invited talk continues. Invited talk continues.	
7:45pm 7:50pm 7:55pm	Invited talk continues. Invited talk continues. Invited talk continues.	
7:45pm 7:50pm 7:55pm	Invited talk continues. Invited talk continues.	
7:45pm 7:50pm 7:55pm	Invited talk continues. Invited talk continues. Invited talk continues.	
7:45pm 7:50pm 7:55pm	Invited talk continues. Invited talk continues. Invited talk continues.	

### **Special Events Wednesday**

#### **Special Events Wednesday**

- 7:30 AM Continental Breakfast/Ballroom North
- 9:50 AM Coffee Break and Poster Viewing/Ballroom North
- 11:55 AM Lunch and Poster Viewing/Ballroom North
- 3:05 PM Coffee Break and Poster Viewing/Ballroom North
- 6:00 PM Conference Banquet Dinner/La Terraza

# Wednesday Morning, January 16, 2019

0.20	Room Ballroom South	
8:30am	INVITED: PCSI-1WeM-1 Nanoimaging and Spectroscopy of Emerging Photovoltaic, <i>Marina Leite</i> , University of Maryland	PCSI Session PCSI-1WeM
8:35am	Invited talk continues.	Hybrid and Mixed-Dimensional Interfaces I
8:40am	Invited talk continues.	Moderator: A. Alec Talin, Sandia National Laboratories
8:45am	Invited talk continues.	
8:50am	Invited talk continues.	
8:55am	Invited talk continues.	
9:00am	Invited talk continues.	
9:05am	<b>PCSI-1WeM-8</b> Electronic Charge Transport in Solution-processed Vertically Stacked 2D Perovskite Quantum Wells, <i>H Tsai</i> , Rice University; <i>R Asadpour</i> , Purdue University; <i>M Kanatzidis</i> , Northwestern University; <i>M Alam</i> , Purdue University; <i>A Mohite</i> , Rice University; <i>Wanyi Nie</i> , Los Alamos National Laboratory	
9:10am	<b>PCSI-1WeM-9</b> N-type Doping in Organic Semiconductor Thin Films by using a Dendritic Oligoarylamine-substituted Benzimidazole Dopant, <i>Yuji Yoshihashi</i> , Keio University, Japan	
9:15am	INVITED: PCSI-1WeM-10 Multi-scale Modeling of Molecule-Surface Interactions for Improved Charge Transfer across Photoelectrochemical Interfaces, <i>A Iyer, K</i> <i>Kearney</i> , University of Illinois at Urbana-Champaign; <i>A Rockett</i> , Colorado School of Mines; <i>Elif Ertekin</i> , University of Illinois at Urbana-Champaign	
9:20am	Invited talk continues.	
9:25am	Invited talk continues.	
9:30am	Invited talk continues.	
9:35am	Invited talk continues.	
9:40am	Invited talk continues.	
9:45am	<b>PCSI-1WeM-16</b> Scanning Electrochemical Microscopy of Graphene-based Hybrids: Insights into Physicochemical Interfacial Processes and Electroactive Site Density Distribution, <i>Sanju Gupta</i> , Western Kentucky University	
9:50am	Coffee Break & Poster Viewing	
9:55am	Coffee Break & Poster Viewing	
10:00am	Coffee Break & Poster Viewing	
10:05am	Coffee Break & Poster Viewing	
10:10am	Coffee Break & Poster Viewing	
10:15am	Coffee Break & Poster Viewing	
10:20am	Coffee Break & Poster Viewing	
10:25am	Coffee Break & Poster Viewing	
10:30am	Coffee Break & Poster Viewing	
10:35am	Coffee Break & Poster Viewing	
10:40am	Coffee Break & Poster Viewing	
10:45am	Coffee Break & Poster Viewing	
10:50am	Coffee Break & Poster Viewing	
10:55am	Coffee Break & Poster Viewing	
11:00am	INVITED: PCSI-2WeM-31 Epitaxial Nitride Semiconductor/Superconductor	PCSI
11:05am	Heterostructures, <i>Debdeep Jena</i> , Cornell University Invited talk continues.	Session PCSI-2WeM
11:10am	Invited talk continues.	Topological Materials II Moderator: Lincoln J. Lauhon, Northwestern Universit
11:15am		
11.1301()	Invited talk continues.	
11:20am	Invited talk continues.	

### Wednesday Morning, January 16, 2019

11:30am	PCSI-2WeM-37 Wafer Bonding Approach for Epitaxial Al/GaAs(001)/Al Tri-	
	layers, Anthony McFadden, M Seas, University of California, Santa Barbara; C McRae, R Lake, National Institute of Standards and Technology; J Wen, J Wang, I Arslan, Argonne National Laboratory; D Pappas, National Institute of Standards and Technology; C Palmstrøm, University of California, Santa Barbara	
11:35am	<b>PCSI-2WeM-38</b> Growth and Nucleation of Low-Loss Titanium Nitride Superconductors on Silicon (111) using Plasma Assisted MBE, <i>Chris Richardson</i> , A <i>Alexander, C Weddle</i> , University of Maryland; <i>B Arey, M Olszta</i> , Pacific Northwest National Laboratory	
11:40am	PCSI-3WeM-39 Non-volatile Redox Memory for Brain Inspired Computing, <i>Elliot</i> <i>Fuller</i> , Sandia National Laboratories; <i>S Keene</i> , <i>A Melianas</i> , Stanford University; <i>Z Wang</i> , University of Massachusetts Amherst; <i>S Agarwal</i> , <i>Y Li</i> , Sandia National Laboratories; <i>Y</i> <i>Tuchman</i> , Stanford University; <i>C James</i> , <i>M Marinella</i> , Sandia National Laboratories; <i>J Yang</i> , University of Massachusetts Amherst; <i>A Salleo</i> , Stanford University; <i>A Talin</i> , Sandia National Laboratories	PCSI Session PCSI-3WeM Exploiting Ions in Devices Moderator: Lincoln J. Lauhon, Northwestern University
11:45am	PCSI-3WeM-40 Non-volatile Electrochemical Memory Operating near the Thermal Voltage Limit, <i>Yiyang Li, E Fuller, S Agarwal, A Talin,</i> Sandia National Laboratories	
11:50am	<b>PCSI-3WeM-41</b> Simultaneous Topographical and Electrochemical Mapping using Scanning Ion Conductance Microscopy – Scanning Electrochemical Miscrosocpy (SICM-SECM), <i>W Shi, Byong Kim, K Lee,</i> Park Systems; <i>G Mendoza,</i> Park Systems, Mexico	

## Wednesday Afternoon, January 16, 2019

	Room Ballroom South		
2:00pm	INVITED: PCSI-1WeA-1 Thermal Atomic Layer Etching of Silicon Using an	PCSI	
	Oxidation and "Conversion-Etch" Mechanism, Steven M. George, A Abdulagatov,	Session PCSI-1WeA	
	University of Colorado at Boulder	Atomic Layer Deposition & Etching II	
2:05pm	Invited talk continues.	Moderator: Angel Yanguas-Gil, Argonne National Lab	
2:10pm	Invited talk continues.		
2:15pm	Invited talk continues.		
2:20pm	Invited talk continues.		
2:25pm	Invited talk continues.		
2:30pm	<b>PCSI-1WeA-7</b> Fundamental Properties for Enhanced Etching of Ge Surfaces in Water Assisted by Single Sheets of Reduced Graphene Oxide, <i>Tomoki Hirano, Y Nakata, H Yamashita, S Li, K Kawai, K Yamamura, K Arima,</i> Osaka University, Japan		
2:35pm	<b>PCSI-1WeA-8</b> Laser-patterning of Graphene Oxide Beyond the Diffraction Limit, <i>Maksim Fatkullin</i> , Tomsk Polytechnic University, Russia		
2:40pm	PCSI-1WeA-9 Maskless Si Nano-wall Formation by Wet-etching Process using a Femtosecond Laser Irradiation, <i>S Lee</i> , Pusan National University, South Korea; <i>Hyun Hwi Lee</i> , Pohang Accelerator Laboratory, South Korea; <i>H Kim</i> , Pusan National University, South Korea		
2:45pm	<b>PCSI-1WeA-10</b> Epitaxial (Bi,Sb) <sub>2</sub> Te <sub>3</sub> /Graphene/2D-Ga Heterostructures Towards Topological Superconductivity, <i>Brian Bersch</i> , <i>N Briggs</i> , <i>J Jiang</i> , <i>Y Zhao</i> , <i>Y Chuang</i> , <i>C Li</i> , <i>Y Wang</i> , The Pennsylvania State University; <i>M Fu</i> , <i>Q Zou</i> , <i>Z Gai</i> , <i>A Li</i> , Oak Ridge National Laboratory; <i>M Chan</i> , <i>C Chang</i> , <i>V Crespi</i> , <i>J Zhu</i> , <i>J Robinson</i> , The Pennsylvania State University		
2:50pm	Talk continues.		
2:55pm	Talk continues.		
3:00pm	PCSI-1WeA-13 Tracking Defects through Ultra-Thin Layered Complex Oxides, B.A. Noesges, The Ohio State University; J Lee, C Eom, University of Wisconsin-Madison; L Brillson, The Ohio State University		
3:05pm	Coffee Break & Poster Viewing		
3:10pm	Coffee Break & Poster Viewing		
3:15pm	Coffee Break & Poster Viewing		
3:20pm	-		
3:25pm	-		
3:30pm	Coffee Break & Poster Viewing		
3:35pm	Coffee Break & Poster Viewing		
3:40pm	Coffee Break & Poster Viewing		
3:45pm	Coffee Break & Poster Viewing		
3:50pm			
-	Coffee Break & Poster Viewing		
3:55pm	Coffee Break & Poster Viewing		
	0		
4:05pm	Coffee Break & Poster Viewing		
4:10pm	Coffee Break & Poster Viewing		
4:15pm		PCSI	
	Optics, Alexander Solntsev, I Aharonovich, University of Technology Sydney, Australia	Session PCSI-2WeA	
4:20pm	Invited talk continues.	Applications of 2D Defects and Interfaces	
4:25pm	Invited talk continues.	Moderator: Ania Bleszynski Jayich, University of	
4:30pm	Invited talk continues.	California, Santa Barabara	
4:35pm	Invited talk continues.		
4:40pm	Invited talk continues.		
4:45pm	<b>PCSI-2WeA-34</b> Detection of Thermodynamic "Valley Noise" in Monolayer Semiconductors: Access to Intrinsic Valley Relaxation Timescales, <i>Mateusz Goryca</i> , National High Magnetic Field Laboratory; <i>N Wilson</i> , University of Washington; <i>P Dey</i> , National High Magnetic Field Laboratory; <i>X Xu</i> , University of Washington; <i>S Crooker</i> , National High Magnetic Field Laboratory		
4:50pm	Talk continues.		
4:55pm	Talk continues.		
5:00pm	<b>INVITED: PCSI-2WeA-37</b> The Electronic Structure of 2D Materials, <i>Justin Wells</i> , Norwegian University of Science and Technology, Norway		
5:05pm	Invited talk continues.		
5:10pm	Invited talk continues.		
5:15pm	Invited talk continues.		
5:20pm	Invited talk continues.		

## **Special Events Thursday**

#### Special Events Thursday

- 7:30 AM Continental Breakfast/Ballroom North
- 9:55 AM Coffee Break and Poster Viewing/Ballroom North

# Thursday Morning, January 17, 2019

	PCSI	
	Room Ballroom South - Session PCSI-ThM Hybrid and Mixed-Dimensional Interfaces II	
8:30am	Moderator: Marina Leite, University of Maryland       INVITED: PCSI-ThM-1 Excitons and Exciton Confinement in Organic       Heterojunctions, Stephen Forrest, University of Michigan	
8:35am	Invited talk continues.	
8:40am	Invited talk continues.	
8:45am	Invited talk continues.	
8:50am	Invited talk continues.	
8:55am	Invited talk continues.	
	Invited talk continues.	
9:05am	Invited talk continues.	
9:10am	PCSI-ThM-9 Panel Discussion II - Forrest, Leite, Ertekin,	
9:15am	Talk continues.	
9:20am	Talk continues.	
9:25am	Talk continues.	
9:30am	Talk continues.	
9:35am	Talk continues.	
9:40am	Talk continues.	
9:45am	Talk continues.	
9:50am	Talk continues.	
	Talk continues.	
5.55411	Taix continues.	

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