Program Overview

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

PCSI
Room Ballroom South - Session PCSI-SuA
The Future of Computing
Moderator: Christopher Palmstrøm, University of California, Santa Barbara

3:00pm	**INVITED: PCSI-SuA-1** Chiraltronics: Chiral Domain Wall and Anti-skyrmion Data Storage Elements for High Performance Racetrack Memories, ***Stuart Parkin,*** Max Planck Institute, Germany	
3:05pm	Invited talk continues.	
3:10pm	Invited talk continues.	
3:15pm	Invited talk continues.	
3:20pm	Invited talk continues.	
3:25pm	Invited talk continues.	
3:30pm	Invited talk continues.	
3:35pm	Invited talk continues.	
3:40pm	**INVITED: PCSI-SuA-9** Neuromorphic Computing, ***Angel Yanguas-Gil,*** Argonne National Laboratory	
3:45pm	Invited talk continues.	
3:50pm	Invited talk continues.	
3:55pm	Invited talk continues.	
4:00pm	Invited talk continues.	
4:05pm	Invited talk continues.	
4:10pm		
4:15pm		
4:20pm	**PCSI-SuA-17** Panel Discussion I,	
4:25pm	Talk continues.	
4:30pm	Talk continues.	
4:35pm	Talk continues.	
4:40pm	Talk continues.	
4:45pm	Talk continues.	
4:50pm	Talk continues.	
4:55pm	Talk continues.	
5:00pm	Talk continues.	

PCSI
Room Ballroom South - Session PCSI-SuE
III-V Growth
Moderator: Lincoln J. Lauhon, Northwestern University

7:30pm	**INVITED: PCSI-SuE-1** Understanding the Kinetics of III-V Semiconductor Nanowire Growth using *in-situ* TEM*, C Maliakkal, D Jacobsson, M Tornberg, A Persson, J Johansson, R Wallenberg,* ***Kimberly Thelander,*** 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*,* ***Charles R. Eddy, Jr.****, N Nepal,* U.S. Naval Research Laboratory*; S Rosenberg,* American Association for Engineering Education*; V Anderson,* Sotera Defense Solutions*; J Woodward,* American Society for Engineering Education*; C Wagenbach,* Boston University*; A Kozen,* Amerian Society for Engineering Education*; Z Robinson,* College at Brockport SUNY*; L Nyakiti,* Texas A&M University*; S Qadri,* U.S. Naval Research Laboratory*; M Mehl,* U.S. Naval Academy*; K Ludwig,* Boston University*; J Hite,* 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*, L Lähnemann,* 1Paul-Drude-Institut fu¨ r Festko¨rperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany*; M Hill,* Northwestern University*; J Herranz,* 1Paul-Drude-Institut fu¨ r Festko¨rperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany*; O Marquardt,* Weierstraß-Institut fur Angewandte Analysis und Stochastik, Germany*; A Al Hassan, A Davtyan,* Naturwissenschaftlich-Technische Fakultat der Universitat Siegen, Germany*; O Hruszkewycz, M Holt,* Argonne National Laboratory*; C Huang,* Northwestern University*; U Jahn,* Paul-Drude-Institut fur Festkoperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Germany*; U Pietsch,* Naturwissenschaftlich-Technische Fakultat der Universitat Siegen, Germany*;* ***Lincoln J. Lauhon****,* Northwestern University*; L Geelhaar,* 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.	
8:30pm	Invited talk continues.	
8:35pm	Invited talk continues.	
8:40pm	Invited talk continues.	
8:45pm	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** **2D Plasmonics** **Moderator:** Anders Mikkelsen, Lund University, Sweden
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.	
9:00am	Invited talk continues.	
9:05am	**PCSI-1MoM-8** An Optical transformer-based Campanile Near-field Probe on an AFM Cantilever, *K Le,* aBeam Technologies*; S Bilent,* Lawrence Berkeley National Lab*; C Pina-Hernandez,* aBeam Technologies*; S Cabrini,* Lawrence Berkeley National Lab*;* ***Keiko Munechika,*** aBeam Technologies	
9:10am	**PCSI-1MoM-9** Localized Surface Curvature Artifacts in Gap-mode Tip-enhanced Nanospectroscopy, ***Darya Stepanichsheva,*** Tomsk Polytechnic University, Russia	
9:15am	**INVITED: PCSI-2MoM-10** How Chemistry Drives Microstructure: Probing the Structure of sub-nm ALD Materials using *in-situ* FTIR and Synchrotron Techniques, ***Angel Yanguas-Gil,*** Argonne National Laboratory	**PCSI** **Session PCSI-2MoM** **Atomic Layer Deposition & Etching I** **Moderator:** Anders Mikkelsen, Lund University, Sweden
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	**PCSI-2MoM-16** Mechanism of Hydrogen Plasma Modified ALD Growth of Metal-enriched Oxides Studied by *In-Situ* Mass Spectrometry, ***Thomas Larrabee****, S Prokes,* Naval Research Laboratory	
9:50am	**PCSI-2MoM-17** *In Situ* Investigation of Doping of 2D Semiconductors During Atomic Layer Deposition of Dielectrics, ***Michael Moody****, J Shang, J Chen, A Henning, T Lohr, T Marks, L Lauhon,* Northwestern University	
9:55am	**PCSI-2MoM-18** 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 $SrTiO_3$ Films, ***Sang Hyeon Kim,*** Seoul National University, Republic of Korea*; W Lee,* Northwestern University*; C An, D Kwon, D Kim, S Cha, S Cho, C Hwang,* 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**	
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-3MoM-31** Topological Heterostructures by Molecular Beam Epitaxy, ***Susanne Stemmer,*** University of California, Santa Barbara	**PCSI** **Session PCSI-3MoM** **Topological Materials** **Moderator:** Javad Shabani, New York University
11:05am	Invited talk continues.	
11:10am	Invited talk continues.	
11:15am	Invited talk continues.	
11:20am	Invited talk continues.	
11:25am	Invited talk continues.	

11:30am	**PCSI-3MoM-37** Structural Distortions and Surface/Bulk Competition in Quasi-2D SnSe-$TiSe_2$ Nanolayered Heterostructures, ***Sage Bauers***, National Renewable Energy Laboratory; *D Hamann, D Merrill, J Ditto, M Esters,* University of Oregon; *D Roberts,* 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., ***Patrick Strohbeen***, *D Du, C Zhang, E Shourov,* University of Wisconsin-Madison; *F Rodolakis, J McChesney,* Argonne National Laboratory; *P Voyles, J Kawasaki,* University of Wisconsin-Madison	
11:40am	**PCSI-3MoM-39** MBE Growth of Cd_3As_2 on GaAs(001) Substrates, ***Anthony Rice***, *K Alberi,* National Renewable Energy Laboratory	
11:45am	**PCSI-4MoM-40** The Direct Band Gap of α-Sn Investigated by Infrared Ellipsometry, ***Rigo Carrasco***, *C Zamarripa, S Zollner,* New Mexico State University; *J Menendez,* Arizona State University	**PCSI** **Session PCSI-4MoM** **Surface Characterization** **Moderator:** Javad Shabani, New York University
11:50am	**PCSI-4MoM-41** Advanced ARPES Analyzer and Momentum Microscope KREIOS 150 – Concepts and First Results on Layered Materials and Topological Insulators, ***Thomas Schulmeyer***, 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

	Room Ballroom South	
2:00pm	**INVITED: PCSI-1MoA-1** Sequential and In-Situ Atom Probe Tomography and Optical Spectroscopy on Single Luminescent Nanoscale Objects, ***Lorenzo Rigutti***, University of Rouen Normandie, France	**PCSI** **Session PCSI-1MoA** **Device Interface Characterization** **Moderator:** Kimberly Thelander, Lund University
2:05pm	Invited talk continues.	
2:10pm	Invited talk continues.	
2:15pm	Invited talk continues.	
2:20pm	Invited talk continues.	
2:25pm	Invited talk continues.	
2:30pm	**PCSI-1MoA-7** The Three-dimensional Shape of Antiphase Domains in GaP on Si(001), ***Pascal Farin***, Technische Universität Berlin, Germany	
2:35pm	**PCSI-1MoA-8** Atom Probe Tomography of GaN Vertical Power Diodes: Impurity Distribution near Regrowth Interfaces, ***Alexander Chang***, Northwestern University; *M Nami, B Li, J Han,* Yale University; *L Lauhon,* Northwestern University	
2:40pm	**PCSI-1MoA-9** Surface/Subsurface Identification and Control of Ga_2O_3 Native Point Defects, ***Hantian Gao***, *S Muralidharan, N Pronin, M Karim, S White, T Asel, G Foster, S Krishnamoorthy, S Rajan, L Cao,* The Ohio State University; *M Higashiwaki,* National Institute of Information Communications Technology, Japan; *H Von Wenckstern, M Grundmann,* Universität Leipzig, Germany; *H Zhao,* The Ohio State University; *D Look,* Wright State University; *L Brillson,* The Ohio State University	
2:45pm	**PCSI-1MoA-10** Electrically Detected Magnetic Resonance Study of Leakage Currents in a-SiN:H, ***Ryan Waskiewicz***, *P Lenahan,* Pennsylvania State University; *S King,* Intel Corp.	
2:50pm	**PCSI-1MoA-11** Internal Mechanical Stresses Relaxation in the Si-SiO_2 System and its Influence on the Interface Properties, ***Daniel Kropman***, *V Seeman,* Tartu University, Estonia; *A Medvids, P Onufrievs,* 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** **Session PCSI-2MoA** **Spectroscopy of 2D Materials** **Moderator:** Kimberly Thelander, Lund University
3:00pm	Invited talk continues.	
3:05pm	Invited talk continues.	
3:10pm	Invited talk continues.	
3:15pm	Invited talk continues.	
3:20pm	Invited talk continues.	
3:25pm	**PCSI-2MoA-18** Ultrafast Enhancement of Interfacial Exchange Coupling in Ferromagnetic Co_2FeAl/(Ga,Mn)As Bilayer, ***Gunter Luepke***, 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**	
3:55pm	**Coffee Break & Poster Viewing**	
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, ***Matthias Batzill***, University of South Florida	**PCSI** **Session PCSI-3MoA** **Magnetism in 2D Materials and Interfaces** **Moderator:** Anders Mikkelsen, Lund University, Sweden
4:35pm	Invited talk continues.	
4:40pm	Invited talk continues.	
4:45pm	Invited talk continues.	
4:50pm	Invited talk continues.	
4:55pm	Invited talk continues.	

5:00pm	**PCSI-3MoA-37** Epitaxial Growth and STM Characterization of 2D Magnet $MnSe_2$ and VSe_2, ***Tiancong Zhu,*** The Ohio State University*; D O'Hara,* University of California, Riverside*; J Repicky, J Cobbert, J Gupta,* The Ohio State University*; R Kawakami,* Ohio State University-Columbus	
5:05pm	**PCSI-3MoA-38** Investigation of Low-Energy Ion-Implanted Multilayer Epitaxial Graphene*, P Miceli,* ***Alessandro Mazza,*** University of Missouri	
5:10pm	**PCSI-3MoA-39** Large Positive Linear Magnetoresistance in the Two-dimensional t_{2g} Electron Gas at the EuO/$SrTiO_3$ Interface*,* ***Alexander Demkov,*** The University of Texas	
5:15pm	**INVITED: PCSI-4MoA-40** Invited Speaker*,* ***Bharat Jalan,*** University of Minnesota	**PCSI** **Session PCSI-4MoA** **Oxide Growth and Properties** **Moderator:** Anders Mikkelsen, Lund University, Sweden
5:20pm	Invited talk continues.	
5:25pm	Invited talk continues.	
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*,* ***Alexander Demkov,*** The University of Texas	
5:50pm	**PCSI-4MoA-47** Synthesis of Large Area Single-crystalline Freestanding Oxide Membranes*,* ***Prastuti Singh,*** *A Swartz, D Lu, S Hong,* Stanford University*; K Nishio,* Geballe Laboratory for Advanced Materials*; Y Hikita,* Stanford Institute for Materials and Energy Sciences*; H Hwang,* Stanford University	

PCSI
Room Ballroom South - Session PCSI-MoE
2D Materials Characterization and Devices
Moderator: Ursula Wurstbauer, University of Münster

7:45pm	**PCSI-MoE-1** 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	**PCSI-MoE-4** Ultrafast Spin and Charge Transfer in Monolayer WSe_2-Graphene Heterostructure Devices, ***Michael Newburger,*** *K Luo,* Ohio State University-Columbus*; K McCreary,* Naval Research Laboratory*; I Martin, E McCormick,* Ohio State University-Columbus*; B Jonker,* Naval Research Laboratory*; R Kawakami,* Ohio State University-Columbus	
8:05pm	**PCSI-MoE-5** Probing Quantum Hall and Quantum Valley Hall Effect in Bilayer Graphene Nanostructures, ***Jing Li,*** Los Alamos National Laboratory*; J Zhu,* The Pennsylvania State University	
8:10pm	**PCSI-MoE-6** Optoelectronic Modulation in 2D $Mo_{1-x}W_xTe_2$ Monolayers, ***Zakaria Al Balushi,*** UC Berkeley	
8:15pm	**PCSI-MoE-7** Pressure-controlled Photoluminescence and Identification of an Electronic State in Hydrated Methyl-Terminated Germanane, ***B.A. Noesges,*** *T Asel, W Huey, S Jiang, K Krymowski, Y Wang, W Windl, J Goldberger, L Brillson,* The Ohio State University	
8:20pm	**PCSI-MoE-8** Ultrafast Hot Electron Dynamics in InAs Nanowires with Variable Crystal Phases Investigated by Time-resolved Photoelectron Emission Microscopy, *L Wittenbecher, J Vogelsang, S Lehmann, K Thelander, D Zigmantas,* ***Anders Mikkelsen,*** 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 Technology, ***Ania Bleszynski Jayich,*** University of California, Santa Barabara*; A Jenkins, D Bluvstein, S Meynell, S Baumann, Z Zhang,* University of California, Santa Barbara	**PCSI** **Session PCSI-1TuM** **Quantum Emitters and Excitations** **Moderator:** Javier García de Abajo, ICFO-Institut de Ciencies Fotoniques
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.	
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 $V[TCNE]_2$, ***Ezekiel Johnston-Halperin,*** The Ohio State University	
9:25am	**PCSI-2TuM-12** Surface Potential and Hydrophilicity Measurements on Titanium Dioxide before and after Ultraviolet Irradiation*,* ***Takuya Furukawa****, K Noda,* Keio University, Japan	**PCSI** **Session PCSI-2TuM** **Atomic Scale Characterization** **Moderator:** Javier García de Abajo, ICFO-Institut de Ciencies Fotoniques
9:30am	**PCSI-2TuM-13** Atomic-scale Observations of Reduced Graphene Oxide Nanosheets Dispersed on HOPG Substrates*,* ***Shaoxian Li****, T Hirano, K Kawai, K Yamamura, K Arima,* Osaka University, Japan	
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	**PCSI-2TuM-15** Surface Physical and Chemical Processes with an Optical Scanning Tunneling Microscope*,* ***Shaowei Li****,* University of California, Irvine*; W Ho,* 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*,* ***Nasim Alem****,* Penn State University	**PCSI** **Session PCSI-3TuM** **2D Materials and Heterostructure Growth** **Moderator:** Susanne Stemmer, University of California, Santa Barbara
11:05am	Invited talk continues.	
11:10am	Invited talk continues.	
11:15am	Invited talk continues.	
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*,* ***Daniel Pennachio****,* University of California, Santa Barbara*; C Ornelas-Skarin,* University of California, Irvine*; N Wilson, E Young, A McFadden, T Brown-Heft,* University of California, Santa Barbara*; K Daniels, R Myers-Ward, K Gaskill, C Eddy, Jr.,* U.S. Naval Research Laboratory*; C Palmstrom,* University of California, Santa Barbara	

Tuesday Evening, January 15, 2019

PCSI
Room Ballroom South - Session PCSI-TuE
Quantum Materials?
Moderator: Debdeep Jena, Cornell University

7:00pm	**INVITED: PCSI-TuE-1** Magnetic Weyl Semimetals!, ***Claudia Felser***, *J Gooth, K Manna, E Lui, Y 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.	
7:30pm	**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.	
7:45pm	Invited talk continues.	
7:50pm	Invited talk continues.	
7:55pm	Invited talk continues.	
8:00pm	**PCSI-TuE-13** Rump Session,	

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

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

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	**PCSI-2WeM-38** Growth and Nucleation of Low-Loss Titanium Nitride Superconductors on Silicon (111) using Plasma Assisted MBE, ***Chris Richardson***, *A Alexander, C Weddle,* University of Maryland*; B Arey, M Olszta,* Pacific Northwest National Laboratory	
11:40am	**PCSI-3WeM-39** Non-volatile Redox Memory for Brain Inspired Computing, ***Elliot Fuller***, Sandia National Laboratories*; S Keene, A Melianas,* Stanford University*; Z Wang,* University of Massachusetts Amherst*; S Agarwal, Y Li,* Sandia National Laboratories*; Y Tuchman,* Stanford University*; C James, M Marinella,* Sandia National Laboratories*; J Yang,* University of Massachusetts Amherst*; A Salleo,* Stanford University*; A Talin,* 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, ***Yiyang Li***, *E Fuller, S Agarwal, A Talin,* Sandia National Laboratories	
11:50am	**PCSI-3WeM-41** Simultaneous Topographical and Electrochemical Mapping using Scanning Ion Conductance Microscopy – Scanning Electrochemical Miscrosocpy (SICM-SECM), *W Shi,* ***Byong Kim****, K Lee,* Park Systems*; G Mendoza,* 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 Oxidation and "Conversion-Etch" Mechanism, ***Steven M. George***, *A Abdulagatov,* University of Colorado at Boulder	**PCSI** **Session PCSI-1WeA** **Atomic Layer Deposition & Etching II** **Moderator:** Angel Yanguas-Gil, Argonne National Lab
2:05pm	Invited talk continues.	
2:10pm	Invited talk continues.	
2:15pm	Invited talk continues.	
2:20pm	Invited talk continues.	
2:25pm	Invited talk continues.	
2:30pm	**PCSI-1WeA-7** Fundamental Properties for Enhanced Etching of Ge Surfaces in Water Assisted by Single Sheets of Reduced Graphene Oxide, ***Tomoki Hirano***, *Y Nakata, H Yamashita, S Li, K Kawai, K Yamamura, K Arima,* Osaka University, Japan	
2:35pm	**PCSI-1WeA-8** Laser-patterning of Graphene Oxide Beyond the Diffraction Limit, ***Maksim Fatkullin,*** Tomsk Polytechnic University, Russia	
2:40pm	**PCSI-1WeA-9** Maskless Si Nano-wall Formation by Wet-etching Process using a Femtosecond Laser Irradiation, *S Lee,* Pusan National University, South Korea; ***Hyun Hwi Lee,*** Pohang Accelerator Laboratory, South Korea; *H Kim,* Pusan National University, South Korea	
2:45pm	**PCSI-1WeA-10** Epitaxial $(Bi,Sb)_2Te_3$/Graphene/2D-Ga Heterostructures Towards Topological Superconductivity, ***Brian Bersch***, *N Briggs, J Jiang, Y Zhao, Y Chuang, C Li, Y Wang,* The Pennsylvania State University; *M Fu, Q Zou, Z Gai, A Li,* Oak Ridge National Laboratory; *M Chan, C Chang, V Crespi, J Zhu, J Robinson,* 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	**Coffee Break & Poster Viewing**	
3:25pm	**Coffee Break & Poster Viewing**	
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**	
4:00pm	**Coffee Break & Poster Viewing**	
4:05pm	**Coffee Break & Poster Viewing**	
4:10pm	**Coffee Break & Poster Viewing**	
4:15pm	**INVITED: PCSI-2WeA-28** Hexagonal Boron Nitride for Quantum and Nonlinear Optics, ***Alexander Solntsev***, *I Aharonovich,* University of Technology Sydney, Australia	**PCSI** **Session PCSI-2WeA** **Applications of 2D Defects and Interfaces** **Moderator:** Ania Bleszynski Jayich, University of California, Santa Barabara
4:20pm	Invited talk continues.	
4:25pm	Invited talk continues.	
4:30pm	Invited talk continues.	
4:35pm	Invited talk continues.	
4:40pm	Invited talk continues.	
4:45pm	**PCSI-2WeA-34** Detection of Thermodynamic "Valley Noise" in Monolayer Semiconductors: Access to Intrinsic Valley Relaxation Timescales, ***Mateusz Goryca***, National High Magnetic Field Laboratory; *N Wilson,* University of Washington; *P Dey,* National High Magnetic Field Laboratory; *X Xu,* University of Washington; *S Crooker,* National High Magnetic Field Laboratory	
4:50pm	Talk continues.	
4:55pm	Talk continues.	
5:00pm	**INVITED: PCSI-2WeA-37** The Electronic Structure of 2D Materials, ***Justin Wells***, 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.	
5:25pm	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
Moderator: Marina Leite, University of Maryland

8:30am	**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.	
9:00am	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.	
9:55am	Talk continues.	

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