PCSI-49 Program Overview

fRoom /Time	Ballroom South
SuA	PCSI-SuA: New Developments in Oxide Materials & Growth
SuE	PCSI-SuE: Probing Exotic Order Parameters with Photoemission Spectroscopy
MoM	PCSI-MoM1: Semiconductor Heterostructures (Growth, Nanostructures & Interfaces) I PCSI-MoM2: 2D Materials and Graphene I
MoA	PCSI-MoA1: Materials for Catalysis, Energy Storage, and Energy Harvesting PCSI-MoA2: Topological Materials & Interfaces I
MoE	PCSI-MoE: Topological Materials & Interfaces II
TuM	PCSI-TuM1: Magnetic Materials (2D, Monolayers, & Heterostructures) PCSI-TuM2: Organic and Hybrid Semiconductor Materials & Interfaces
TuE	PCSI-TuE: Point Defects for Quantum Information Applications
WeM	PCSI-WeM1: Ferroelectric & Neuromorphic Computing Materials PCSI-WeM2: Spin Transport and Spintronics
WeA	PCSI-WeA1: Characterization of Interfaces and Devices PCSI-WeA2: Semiconductor Heterostructures (Growth Nanostructures & Interfaces) II
ThM	PCSI-ThM1: Wide Bandgap Materials PCSI-ThM2: 2D Materials and Graphene II

PCSI
Room Ballroom South - Session PCSI-SuA
New Developments in Oxide Materials & Growth
Moderator: Alex Demkov, The University of Texas

4:00pm	**INVITED: PCSI-SuA-1** Crystal-Chemical Origins of the Ultrahigh Conductivity of Metallic Delafossites, ***Chris Leighton,*** University of Minnesota	
4:40pm	**INVITED: PCSI-SuA-9** Superconductivity and Magnetism in Infinite-Layer Nickelate Heterostructures, ***Jennifer Fowlie,*** SLAC National Lab	
5:20pm	**PCSI-SuA-17** The Redox Chemistry of Oxide Molecular Beam Epitaxy, ***Oliver Bierwagen,*** Paul-Drude-Institut für Festkörperelektronik Leibniz-Institut im Forschungsverbund Berlin, Germany	
5:25pm	**PCSI-SuA-18** Optical Phonon Modes in $LaInO_3$: Lattice Dynamics and Complete Polarization Analysis of Raman-Active Modes, ***Hans Tornatzky,*** Paul-Drude Institute for Solid State Electronics, Germany; *Z. Galazka,* Institut für Kristallzüchtung, Germany; *R. Gillen,* Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; *O. Brand, M. Ramsteiner, M. Wagner,* Paul-Drude Institute for Solid State Electronics, Germany	
5:30pm	**PCSI-SuA-19** Non-Trivial Electronic States in the EuO/$KTaO_3$ Interface Revealed by Quantum Oscillations in High Magnetic Fields, ***K. Rubi,*** Los Alamos National Laboratory; *M. Dumen, S. Chakraverty,* Institute of Nano Science and Technology, India; *S. Zeng, A. Ariando,* National University of Singapore; *M. Chan, N. Harrison,* Los Alamos National Laboratory	
5:35pm		

Sunday Evening, January 14, 2024

PCSI
Room Ballroom South - Session PCSI-SuE
Probing Exotic Order Parameters with Photoemission Spectroscopy
Moderator: Chris Leighton, University of Minnesota

7:30pm	**INVITED: PCSI-SuE-1** Searching for the Excitonic Insulator State in Quantum Materials, ***Edoardo Baldini,*** The University of Texas at Austin	
7:35pm		
7:40pm		
7:45pm		
7:50pm		
7:55pm		
8:00pm		
8:05pm		
8:10pm	**PCSI-SuE-9** Comparative Study on Non-Linear and Linear Least Square Analyses Applied to X-Ray Induced Auger Electron Spectroscopy Transitions, *A. Gagliardi,* CNRS, ILV, France*; N. Fairley,* Casa Software Ltd, UK*;* ***Solene Bechu,*** CNRS, ILV, France	
8:15pm	**PCSI-SuE-10** Probing Electrons and Light in Nanomaterials Using the Photoelectric Effect, ***Taisuke Ohta,*** *A. Boehm, S. Gennaro, C. Doiron, A. Kim, K. Thuermer, J. Sugar, C. Spataru,* Sandia National Laboratories*; J. Fonseca Vega, J. Robinson,* Naval Research Laboratory*; T. Beechem,* Purdue University*; M. Sinclair, I. Brener, R. Sarma,* Sandia National Laboratories	
8:20pm	**INVITED: PCSI-SuE-11** Layer-by-Layer Engineering and Deciphering of Topological Orders in Magnetic Topological Insulators, *W. Lee,* University of Chicago*; S. Fernandez-Mulligan,* Yale University*; H. Tan,* Weizmann Institute of Science, Israel*; C. Yan,* University of Chicago*; Y. Guan, S. Lee, R. Mei, C. Liu,* Pennsylvania State University*; B. Yan,* Weizmann Institute of Science, Israel*; Z. Mao,* Pennsylvania State University*;* ***Shuolong Yang,*** University of Chicago	
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Monday Morning, January 15, 2024

	Room Ballroom South	
8:30am	**INVITED: PCSI-MoM1-1** Mechanisms and Applications for Remote Epitaxy of Heusler Compounds, ***Jason Kawasaki,*** University of Wisconsin - Madison	**PCSI** **Session PCSI-MoM1** **Semiconductor Heterostructures (Growth, Nanostructures & Interfaces) I** **Moderator:** **Kirstin Alberi**, National Renewable Energy Laboratory
9:10am	**PCSI-MoM1-9 UPGRADED:** High-Mobility Two-Dimensional Electron Gas with Quantized States in Polar-Discontinuity Doped $LaInO_3/BaSnO_3$ Heterostructure Grown by Molecular Beam Epitaxy, *G. Hoffmann,* Paul-Drude-Institut für Festkörperelektronik Leibniz-Institut im Forschungsverbund Berlin, Germany; *A. Hartl,* Paul Scherrer Institut, Switzerland; *M. Zupancic,* Leibniz-Institut für Kristallzüchtung, Germany; *A. Riaz,* University College London, UK; *V. Strocov,* Paul Scherrer Institut, Switzerland; *M. Albrecht,* Leibniz-Institut für Kristallzüchtung, Germany; *A. Regoutz,* University College London, UK; ***Oliver Bierwagen,*** Paul-Drude-Institut für Festkörperelektronik Leibniz-Institut im Forschungsverbund Berlin, Germany	
9:30am	**PCSI-MoM1-13** Enabling Direct-Write Fabrication of Low Dimensional Micro- and Nanostructures on Supported and Suspended Substrates, ***Irma Kuljanishvili,*** Saint Louis University	
9:35am	**PCSI-MoM1-14** Silicon (111) - Aluminum (111) - Amorphous Alumina: Asymmetric Quantum Well and Band Alignment, ***Hanran Jin,*** University of Texas at Austin, China; *A. Demkov,* University of Texas at Austin	
9:40am	**PCSI-MoM1-15** Silicene Ribbons: Synthesis, Electronic and Geometric Structure at the Atomic Scale, *A. Costine,* University of Virginia; *Z. Gai,* Orak Ridge National Laboratory; ***Petra Reinke,*** University of Virginia	
9:45am	**PCSI-MoM1-16** Spontaneous Growth of Silver on Si(001) Tuned by Substrate Temperature, ***Xiaohang Huang,*** *K. Huang,* Guangdong Technion - Israel Institute of Technology, China	
9:50am	**Coffee Break & Poster Viewing**	
11:00am	**INVITED: PCSI-MoM2-31** Interplay of Valley Polarized Dark Trion and Dark Exciton-Polaron in Monolayer WSe_2, ***Xiao-Xiao Zhang,*** University of Florida	**PCSI** **Session PCSI-MoM2** **2D Materials and Graphene I** **Moderator:** **Kunal Mukherjee**, Stanford University
11:40am	**PCSI-MoM2-39** Evidence of Single Photon Emitters from 1L WSe_2 under Electrostatically Induced Strain, ***Frances Camille Wu,*** *S. Wu, B. Fang, X. Li, J. Incorvia, E. Yu,* The University of Texas at Austin	
11:45am	**PCSI-MoM2-40** Comprehensive Study of Interface Chemistry and Electrical Property of Metal Contacts on TMDs, *S. Kim,* ***Joy Roy,*** *X. Wang, R. Wallace,* University of Texas at Dallas	
11:50am	**PCSI-MoM2-41** Transport Anisotropy in One-dimensional Graphene Superlattice in the High Kronig-Penney Potential Limit, ***Tianlin Li,*** *H. Chen, K. Wang, Y. Hao, L. Zhang,* University of Nebraska - Lincoln; *K. Watanabe, T. Taniguchi,* National Institute for Materials Science, Japan; *X. Hong,* University of Nebraska - Lincoln	
11:55am	**PCSI-MoM2-42** Terahertz Emission Spectroscopy Revealing Nanoscale Vectorial Photocurrents in Symmetry-Broken Optoelectronic Metasurfaces, *J. Pettine, P. Padmanabhan,* Los Alamos National Laboratory; *L. Gingras, R. Holzwarth,* Menlo Systems, Germany; *R. Prasankumar, A. Taylor, S. Lin,* Los Alamos National Laboratory; ***Hou-Tong Chen,*** Los Alamos National Laboratory	
12:00pm	**PCSI-MoM2-43** Excitons, Electrons, and Holes in Monolayer Semiconductors: Insights from Spectroscopy in (Really) High Magnetic Fields, ***Scott Crooker,*** National High Magnetic Field Lab	

Monday Afternoon, January 15, 2024

	Room Ballroom South	
2:00pm	**INVITED: PCSI-MoA1-1** Interface Control of III-Nitride Semiconductors: From High Efficiency Artificial Photosynthesis to Ferroelectric Switching, ***Zetian Mi***, University of Michigan, Ann Arbor	**PCSI** **Session PCSI-MoA1** **Materials for Catalysis, Energy Storage, and Energy Harvesting** **Moderator: Edward Yu**, The University of Texas at Austin
2:40pm	**PCSI-MoA1-9 UPGRADED:** Wafer-Scale Si-Based Metal-Insulator-Semiconductor Photoanodes for Water Oxidation Fabricated Using Thin Film Reactions and Electrodeposition, ***Shang-Hsuan Wu***, *S. Lee, Y. Choi, E. Yu,* The University of Texas at Austin	
3:00pm	**PCSI-MoA1-13 UPGRADED:** Field-Assisted Oxidation of a Fe Single Nanoparticle, Nanoscale Observations by Operando Atom Probe, ***Sten V Lambeets***, Pacific Northwest National Laboratory*; N. Cardwell, I. Onyango,* Washington State University*; T. Visart de Bocarmé,* Université Libre de Bruxelles, Belgium*; J. McEwen,* Washington State University*; D. Perea,* Pacific Northwest National Laboratory	
3:20pm	**Coffee Break & Poster Viewing**	
4:30pm	**INVITED: PCSI-MoA2-31** Crystalline Materials with Anisotropic Conduction Polarities, ***Joshua Goldberger***, The Ohio State University	**PCSI** **Session PCSI-MoA2** **Topological Materials & Interfaces I** **Moderator:** **Jun Sung Kim**, Pohang University of Science and Technology (POSTECH), Republic of Korea
5:10pm	**PCSI-MoA2-39** Weyl Semimetals and the Interface: Surface State Transport Probed via Weak Antilocalization in Ultrathin Taas Films, ***Ian Leahy***, *A. Rice, C. Jiang, G. Paul, K. Alberi,* National Renewable Energy Laboratory*; J. Nelson,* National Renewable Energy Laboratory	
5:15pm	**PCSI-MoA2-40** Topological Hall Effect in Dirac Semimetal, ***Saurav Islam***, *E. Steinebronn,* Pennsylvania State University*; B. Neupane,* University of North Texas*; K. Yang,* Pennsylvania State University*; Y. Wang,* University of North Texas*; C. Liu,* Pennsylvania State University*; S. Ghosh,* University of Minnesota*; K. Mkhoyan,* University of Minho, Portugal*; J. Chamorro, T. McQueen,* Johns Hopkins University*; N. Samarth,* Pennsylvania State University	
5:20pm	**PCSI-MoA2-41** Helical Dislocations in 2D Materials and the Connection to Transport in Topological Insulators, *T. Rakib, M. Choi, E. Ertekin,* University of Illinois at Urbana-Champaign*; P. Pochet,* Universite Grenoble-Alpes, France*;* ***Harley Johnson***, University of Illinois at Urbana-Champaign	
5:25pm	**PCSI-MoA2-42** Layer-dependent Optical Conductivity of MBE-grown $ZrTe_2$, *E. Houser,* ***Frank Peiris***, Kenyon College*; A. Richardella, M. Stanley, N. Samarth,* Pennsylvania State University	
5:30pm	**PCSI-MoA2-43** Surface Dependent Doping Efficiency in Te:Cd_3As_2 Thin Films, ***Anthony Rice***, *I. Leahy,* National Renewable Energy Laboratory*; K. Alberi,* National Renewable Energy Laboratory	
5:35pm	**PCSI-MoA2-44** Investigating the Structural and Electronic Properties of FeSn on $LaAlO_3$ (111) Grown by Molecular Beam Epitaxy, *T. Erickson,* ***Sneha Upadhyay***, *A. Shrestha, A. Abbas, H. Hall, D. Ingram, S. Kaya, A. Smith,* Ohio University	
5:40pm	**PCSI-MoA2-45** Ultra-quantum Limit Magnetotransport in the Topological Pentatellurides, ***Johanna Palmstrom***, *C. Ribeiro, C. Mizzi, L. Winter, S. Thomas,* Los Alamos National Laboratory*; J. Liu, L. Jauregui,* University of California Irvine*; J. Mutch, Q. Jiang, J. Ayres-Sims, J. Chu,* University of Washington*; E. Peterson, J. Zhu,* Los Alamos National Laboratory	

PCSI
Room Ballroom South - Session PCSI-MoE
Topological Materials & Interfaces II
Moderator: Joshua Goldberger, The Ohio State University

7:30pm	**INVITED: PCSI-MoE-1** Large Magnetotransport Responses and Spintronic Functionalities of Topological van der Waals Ferromagnets, ***Jun Sung Kim***, Pohang University of Science and Technology (POSTECH), Republic of Korea	
8:10pm	**PCSI-MoE-9** Tuning the Curie Temperature of a 2D Magnet/Topological Insulator Heterostructure to Above Room Temperature by Epitaxial Growth, ***Wenyi Zhou***, *A. Bishop,* The Ohio State University*; X. Zhang*, Cornell University*; K. Robinson, I. Lyalin, Z. Li, R. Bailey-Crandell,* The Ohio State University*; T. Cham,* Cornell University*; S. Cheng,* The Ohio State University*; Y. Luo,* University of Southern California*; D. Ralph, D. Muller,* Cornell University*; R. Kawakami,* The Ohio State University	
8:15pm	**PCSI-MoE-10** Kagome Antiferromagnetic Mn_3GaN grown on MgO(001) using Molecular Beam Epitaxy, *A. Abbas*, *A. Smith,* ***Ashok Shrestha***, *S. Upadhyay, T. Erickson,* Ohio University*; K. Sun,* University of Michigan*; D. Ingram,* Ohio University	
8:20pm	**PCSI-MoE-11** Investigation of Smooth Epitaxial Growth of Mn_3Sn Films on *C*-Plane GaN Using Molecular Beam Epitaxy, ***Sneha Upadhyay***, *H. Hall, C. D'Mello,* Ohio University*; J. Hernandez,* Universidad Autonoma de Puebla, Mexico*; T. Erickson,* Ohio University*; K. Sun,* The University of Michigan, Ann Arbor*; G. Cocoletzi,* Universidad Autonoma de Puebla, Mexico*; N. Takeuchi,* Universidad Nacional Autónoma de México*; A. Smith,* Ohio University	
8:25pm	**PCSI-MoE-12** Symmetry Constraints on Topological Invariants, ***Jing Zhang***, Imperial College London, UK	
8:30pm	**PCSI-MoE-13 UPGRADED:** Epitaxial Kagome Thin Films as a Platform for Topological Flat Bands and Dirac Cones, *S. Cheng, M. Nrisimhamurty,* Ohio State University*; T. Zhou,* University at Buffalo*; N. Bagues, W. Zhou, A. Bishop, I. Lyalin,* Ohio State University*; C. Jozwiak, A. Bostwick, E. Rotenberg,* Advanced Light Source, Lawrence Berkeley National Laboratory*; D. McComb,* Ohio State University*; I. Zutic,* University at Buffalo*;* ***Roland Kawakami***, Ohio State University	

Tuesday Morning, January 16, 2024

	Room Ballroom South	
8:30am	**INVITED: PCSI-TuM1-1** Efficient Control of 2D Magnets, ***Cheng Gong,*** University of Maryland, College Park	**PCSI** **Session PCSI-TuM1** **Magnetic Materials (2D, Monolayers, & Heterostructures)** **Moderator:** **Xiao-Xiao Zhang**, University of Florida
9:10am	**INVITED: PCSI-TuM1-9** Surface-Bulk Difference in van der Waals Magnets, ***Liuyan Zhao,*** University of Michigan, Ann Arbor	
9:50am	**PCSI-TuM1-17** Surface Investigation of Hexagonal Non-Collinear $D0_{19}$-Mn_3Ga Thin Film on Gan(0001) Substrate, ***Ashok Shrestha,*** *A. Abbas, D. Ingram, A. Smith,* Ohio University	
9:55am	**PCSI-TuM1-18** Enhancement of Microwave to Optical Spin-Based Quantum Transduction via a Magnon Mode, ***Tharnier O. Puel,*** Department of Physics and Astronomy, University of Iowa; *A. T. Turflinger, S. P. Horvath, J. D. Thompson,* Department of Electrical Engineering, Princeton University; *M. E. Flatté,* Department of Physics and Astronomy, University of Iowa, Department of Applied Physics, Eindhoven University of Technology, Eindhoven, The Netherlands	
10:00am	**PCSI-TuM1-19** Magnetic Modulation and Large Magnetoresistance in Cr_5Te_8, *M. Vaninger, S. Kelley,* University of Missouri; *F. Ye,* Oak Ridge Natinal Laboratory; *X. Zhang,* Nanjing University, China; *T. Heitmann,* University of Missouri; *A. Mazza,* Los Alamos National Laboratory; *Y. Hor, A. Sarikhani,* Missouri S&T; *G. Bian,* ***Paul Miceli,*** University of Missouri	
10:05am	**Coffee Break & Poster Viewing**	
11:00am	**PCSI-TuM2-31** Development of Surface Chemistry on-Top of Organic Semiconductor Thin Films to Improve Optoelectronic Devices, ***Jacob W. Ciszek,*** Loyola University Chicago	**PCSI** **Session PCSI-TuM2** **Organic and Hybrid Semiconductor Materials & Interfaces** **Moderator:** **Wanyi Nie**, Los Alamos National Laboratory
11:05am	**PCSI-TuM2-32** Characterizing Nanopattern Formation of Polymer Thin Films on Silicon Substrates with Ion Beam Sputtering, ***Jocelyn Zhang,*** Boston University, Del Norte High School; *G. Pettis,* Oregon State University, Boston University; *B. Jiang,* Boston University, Turkey; *N. Baker,* Boston University; *E. Guney,* Sabanci University, Turkey; *G. Ince,* Sabanci University IICEC, Turkey; *K. Ludwig, Jr.,* Boston University	
11:10am	**PCSI-TuM2-33** Functionalizing Organic Semiconductors with Dipole Monolayers, ***Matthew Williams,*** Loyola University Chicago	
11:15am		

PCSI
Room Ballroom South - Session PCSI-TuE
Point Defects for Quantum Information Applications
Moderator: Roland Kawakami, The Ohio State University

7:00pm	**INVITED: PCSI-TuE-1** Rare Earth Doped Oxide Thin Films on Silicon for Chip Scale Quantum Emitters and Memories, ***Supratik Guha,*** *D. Awschalom,* University of Chicago, Argonne National Laboratory*; C. Ji, G. Grant, S. Seth, I. Masiulionis,* University of Chicago*; A. Dibos, J. Zjang,* Argonne National Laboratory*; S. Chattaraj,* University of Chicago*; M. Singh,* University of Chicago, memQ*; J. Wen,* Argonne National Laboratory	
7:40pm	**INVITED: PCSI-TuE-9** Erbium sites in Silicon for Quantum Information Processing, ***Sven Rogge,*** University of New South Wales, Australia	

Wednesday Morning, January 17, 2024

	Room Ballroom South	
8:30am	**INVITED: PCSI-WeM1-1** Emergent Phenomena at Ferroelectric/van der Waals Heterointerfaces, ***Xia Hong***, University of Nebraska - Lincoln	**PCSI** **Session PCSI-WeM1** **Ferroelectric & Neuromorphic Computing Materials** **Moderator:** **Alec Talin**, Sandia National Laboratories
9:10am	**PCSI-WeM1-9** Impact of High-Power Impulse Magnetron Sputtering Pulse Width on the Nucleation, Crystallization, Microstructure, and Ferroelectric Properties of Hafnium Oxide Thin Films, ***Samantha Jaszewski***, Sandia National Laboratories	
9:15am	**PCSI-WeM1-10** Fabrication and Gamma Radiation Effects on Endurance of Ferroelectric Hafnium Zirconium Oxide Capacitors, ***M. David Henry***, Sandia National Laboratories; *M. Lenox,* University of Virginia; *A. Hillsman,* North Carolina State University; *S. Jaszewski, G. Esteves,* Sandia National Laboratories, USA; *J. Jones,* North Carolina State University; *J. Ihlefeld,* University of Virginia	
9:20am	**INVITED: PCSI-WeM1-11** Design of Memristive Devices Towards Neuromorphic Computing, ***Aiping Chen***, Los Alamos National Laboratory	
10:00am		
10:05am	**PCSI-WeM1-20** Neuromorphic Memristors with TiO_2 and a-IGZO Bilayer Structure, ***Jae-Yun Lee***, College of Electrical and Computer Engineering, Chungbuk National University, South Korea; *H. Zhao, X. Wang, S. Shi,* College of Electrical and Computer Engineering, Chungbuk National University, South Korea, China; *B. Lee, S. Kim,* College of Electrical and Computer Engineering, Chungbuk National University, South Korea	
10:10am	**PCSI-WeM1-21** Origin of Large Electro-Optic Response in Ferroelectrics, ***Alex Demkov***, *I. Kim, T. Paoletta, S. Apte,* The University of Texas at Austin	
10:15am	**Coffee Break & Poster Viewing**	
11:00am	**INVITED: PCSI-WeM2-31** Direct Visualization of Electronic Transport in a Quantum Anomalous Hall Insulator, ***Katja Nowack***, Cornell University	**PCSI** **Session PCSI-WeM2** **Spin Transport and Spintronics** **Moderator: Ezekiel Johnston-Halperin**, The Ohio State University
11:40am	**PCSI-WeM2-39** Magneto-Optical Detection of the Orbital Hall Effect in Chromium, ***Igor Lyalin***, *R. Kawakami,* The Ohio State University	
11:45am	**PCSI-WeM2-40** Temperature Dependent Study of Na_xSi_{136} Type II Si Clathrate Spin Dynamics, ***Joseph Briggs***, *Y. Liu, S. Saiter, A. Faricy, C. Burns, C. Taylor, M. Singh, R. Collins, C. Koh,* Colorado School of Mines	
11:50am	**PCSI-WeM2-41** Spin-orbit coupling in InGaAs random and digital alloy quantum wells, ***Jason Dong***, University of California at Santa Barbara; *Y. Gul,* University College London, UK; *A. Engel, C. Dempsey,* University of California at Santa Barbara; *T. van Schijndel,* University of California Santa Barbara; *M. Pepper,* University College London, UK; *C. Palmstrøm,* University of California at Santa Barbara	
11:55am	**PCSI-WeM2-42** Screw Dislocations-Based Spin Valves, ***Finley Haines***, *E. Renteria, M. Debasu, F. Cavallo,* University of New Mexico	

Wednesday Afternoon, January 17, 2024

	Room Ballroom South	
2:00pm	**INVITED: PCSI-WeA1-1** Imaging the Properties of Atoms and Fields at the Picometer Scale inside Materialsand Devices, ***David Muller***, Cornell University	**PCSI** **Session PCSI-WeA1** **Characterization of Interfaces and Devices** **Moderator: Paul M. Koenraad**, Eindhoven University of Technology, Netherlands
2:40pm		
2:45pm	**PCSI-WeA1-10** Cryogenic Growth and *in-Situ* Fabrication of Superconducting Tantalum Devices, ***Teun van Schijndel***, UC Santa Barbara; *A. McFadden,* NIST-Boulder; *A. Engel, J. Dong, S. Chatterjee,* UC Santa Barbara; *R. Simmonds,* NIST-Boulder; *C. Palmstrøm,* UC Santa Barbara	
2:50pm	**PCSI-WeA1-11** Multi-Technique Characterization of GaN-Based Devices: A Powerful Tool to Probe the in-Depth Chemistry, ***Kirène Gaffar***, CNRS, Université Paris-Sud, France; *S. Béchu, G. Patriarche, M. Bouttemy,* CNRS, France	
2:55pm	**PCSI-WeA1-12** Mo-SiN_x Granular Metal High-pass Filters, ***Laura Biedermann***, *M. McGarry, S. Gilbert, W. Bachman, M. Meyerson, L. Yates, P. Sharma, J. Flicker, P. Kotula, M. Siegal,* Sandia National Laboratories	
3:00pm	**PCSI-WeA1-13** Restructuring Cracks in Rutile TiO_2 with Radiolysis-Driven Rolling of Octahedral Units, ***Silu Guo***, *H. Yun, S. Nair, B. Jalan, K. Mkhoyan,* University of Minnesota, USA	
3:05pm	**PCSI-WeA1-14 UPGRADED:** Growth and Angle-Resolved Photoemission of Strain- and Thickness- Tuned Epitaxial α-Sn Thin Films, ***Aaron Engel***, *H. Inbar,* University of California, Santa Barabara; *P. Corbae, C. Dempsey, S. Nishihaya, Y. Chang,* University of California, Santa Barbara; *A. Fedorov,* Advanced Light Source, Lawrence Berkeley National Laboratory; *M. Hashimoto, D. Lu,* SLAC National Accelerator Laboratory; *C. Palmstrøm,* University of California, Santa Barbara	
3:25pm	**PCSI-WeA1-18** Characterization of Buffer Layers for Remote Plasma-Enhanced Chemical Vapor Deposition of Germanium-Tin Epitaxial Layers, ***Stefan Zollner***, *C. Armenta,* New Mexico State University; *B. Rogers,* Vanderbilt University; *G. Grzybowski, B. Claflin,* Air Force Research Laboratory	
3:30pm	**PCSI-WeA1-19** Near Zero-Field Magnetoresistance and Defects in GaN pn Junctions, *M. Elko, A. Higgins, D. Hassenmayer,* ***Patrick Lenahan***, Pennsylvania State University; *M. Flatte, D. Fehr,* University of Iowa; T.D. Larsen, M.D. Craven, NexGen Power Systems	
3:35pm	**Coffee Break & Poster Viewing**	
4:30pm	**INVITED: PCSI-WeA2-31** Heteroepitaxy of PbSe-SnSe Semiconductors on GaAs for Infrared Optoelectronics, ***Kunal Mukherjee***, Stanford University	**PCSI** **Session PCSI-WeA2** **Semiconductor Heterostructures (Growth Nanostructures & Interfaces) II** **Moderator: Jason Kawasaki**, University of Wisconsin - Madison
5:10pm	**PCSI-WeA2-39** Investigation of Localized Electric Fields of InAs/GaAs Quantum Dot Interfaces, *T.I. Kang*, ***Jong Su Kim***, Department of Physics, Yeungnam University; *S. Lee,* Division of Convergence Technology, Korea Research Institute of Standards and Science	
5:15pm	**PCSI-WeA2-40** X-STM Study of Interlayer Effects on InAs Quantum Dots in InP, ***Edoardo Guido Banfi***, Eindhoven University of Technology, Netherlands; *E. Sala,* Sheffield University, UK; *R. Gajjela,* Eindhoven University of Technology, Netherlands; *J. Heffernan,* Sheffield University, UK; *P. Koenraad,* Eindhoven University of Technology, Netherlands	
5:20pm	**PCSI-WeA2-41 UPGRADED:** Atomic Scale Analysis of N Dopants in InAs, *T. Verstijnen, D. Tjeertes, E. Banfi,* Eindhoven University of Technology, Netherlands; *Q. Zhuang,* Lancaster University, UK; ***Paul Koenraad***, Eindhoven University of Technology, Netherlands	
5:40pm	**PCSI-WeA2-45** Direct Wafer Bonding of GaN on AlN Through the Optimization of Chemical Mechanical Polishing, ***Kaicheng Pan***, *K. Huynh, M. Li, Y. Ge, T. Fisher, Y. Hu, M. Goorsky,* UCLA	
5:45pm	**PCSI-WeA2-46** Strategies for Analyzing Non-Common-Atom Heterovalent Interfaces: The Case of CdTe-on-InSb, ***Esperanza Luna***, *A. Trampert,* Paul-Drude-Institut für Festkörperelektronik Leibniz-Institut im Forschungsverbund Berlin, Germany; *J. Lu, T. Aoki, Y. Zhang, M. McCartney, D. Smith,* Arizona State University	
5:50pm	**PCSI-WeA2-47** Multi-Material Deposition for Spatial Atomic Layer Deposition Process, ***Simone Santucci***, *M. Baraket, A. Varga, M. Carnoy, M. Plakhotnyuk, I. Kundrata,* ATLANT 3D, Denmark; *J. Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany	

	Room Ballroom South	
8:30am	**INVITED: PCSI-ThM1-1** Surface Transfer - Modulation Doping at a Diamond-Dielectric Interface, ***Robert Nemanich,*** Arizona State University	**PCSI** **Session PCSI-ThM1** **Wide Bandgap Materials** **Moderator: Christopher Palmstrøm**, University of California, Santa Barbara
9:10am	**INVITED: PCSI-ThM1-9** Operation-Induced Short-Term Degradation Mechanisms of 275-Nm-Band AlGaN-Based Deep-Ultraviolet Light-Emitting Diodes Fabricated on a Sapphire Substrate, ***Shigefusa Chichibu,*** Tohoku University, Japan; *K. Okuno, M. Oya, Y. Saito, H. Ishiguro,* Toyoda Gosei Co. Ltd., Japan; *T. Takeuchi,* Meijo University, Japan; *K. Shima,* Tohoku University, Japan	
9:50am	**PCSI-ThM1-17** Impact of Interfacial Defects and Lattice Strain on NbN_x Films for Integration with Wide Bandgap Semiconductors, ***Annaliese Drechsler,*** University of Maryland College Park; *P. Shea,* Northrop Grumman; *A. Christou,* University of Maryland College Park	
9:55am	**PCSI-ThM1-18** Impact of Unintentional Boron Supply on Sapphire Nitridation Process for GaN Growth by Rf-MBE, ***Tohru Honda,*** *K. Yajima, T. Yayama, T. Onuma, T. Yamaguchi,* Kogakuin University, Japan	
10:00am	**PCSI-ThM1-19** Photoluminescence Maps of Surface Defects in β-Ga_2O_3, ***Matthew McCluskey,*** Washington State University; *J. Huso,* Klar Scientific; *C. Remple, J. McCloy,* Washington State University; *S. Rebollo, S. Krishnamoorthy, J. Speck,* University of California at Santa Barbara	
10:05am	**PCSI-ThM1-20 UPGRADED:** Epitaxial Growth and Properties of Wide Bandgap *P*-Type $NiGa_2O_4$ on *β*-Ga_2O_3 for High Voltage *P-N* Heterojunctions with Superior Performance at Elevated Temperatures, ***Kingsley Egbo,*** *B. Tellekamp, W. Callahan, A. Zakutayev,* National Renewable Energy Laboratory	
10:25am	**PCSI-ThM1-24** Quantum Oscillations in GaN/AlN 2D Hole Gas and Extraction of Light Hole Effective Mass, ***Chuan Chang,*** *J. Dill, Z. Zhang,* Cornell University; *S. Crooker, O. Valenzuela, R. McDonald,* Los Alamos National Laboratory; *D. Jena, G. Xing,* Cornell University	
10:30am	**Coffee Break & Poster Viewing**	
11:00am	**PCSI-ThM2-31 UPGRADED:** Reduced Metal Contact Resistances for Moire MoS_2 Interfaces, ***John Robertson,*** Cambridge University, UK	**PCSI** **Session PCSI-ThM2** **2D Materials and Graphene II** **Moderator: Scott Crooker**, Los Alamos National Laboratory
11:20am	**PCSI-ThM2-35 UPGRADED:** A Generalized and Modular Approach to Tunnel-Junction Spectroscopy for Quantum Systems, *M. Kavand, Z. Phillips, M. Hamilton, E. Perez-Hoyos,* The Ohio State University; *D. Freedman,* Massachusetts Institute of Technology; *M. Flatté,* University of Iowa; *J. Gupta,* ***Ezekiel Johnston-Halperin,*** The Ohio	

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