PCSI-47 Program Key

Conference Topics

PCSI PCSI

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with all acronyms (e.g. **AC+EM+SS**), then a number to indicate simultaneous sessions sponsored by the same topic(s) (e.g. SS1, SS2), then a dash followed by the first two characters of the day of the week:

Monday, **Tu**esday, **We**dnesday, **Th**ursday, **Fr**iday, then a single letter for **M**orning, **A**fternoon, **E**vening, **P**oster, and finally a number indicating the starting time slot for the paper. Example: SS1-MoM9 (Surface Science, Monday morning, 11:00 am).

Program Key 41

PCSI-47 Program Overview

Room /Time	Canyon/Sugarloaf
SuA	PCSI-1SuA: 2D Heterostructure Design PCSI-2SuA: Epitaxial Growth of Quantum Materials and Structures
SuE	PSCI-SuE: Single Photon Detectors
MoM	PCSI-1MoM: Oxides PCSI-2MoM: Hybrid Materials
МоА	PCSI-1MoA: Catalysis/Nanowires PCSI-2MoA: Dopants in Semiconductors
MoE	PCSI-MoE: Superconductivity I
TuM	PCSI-1TuM: Magnetism PCSI-2TuA: Superconductivity II
TuE	PCSI-TuE: The Future of PV
WeM	PCSI-1WeM: Optical Properties of 2D Materials PCSI-2WeM: Material Modification and Self Assembly
WeA	PCSI-1WeA: Devices and Contacts PCSI-2WeA: Synthesis of Materials for Devices
ThM	PCSI-1ThM: 2D Materials - Strain and Heterostructures PCSI-2ThM: Material for Storage

Program Overview 42

Sunday Afternoon, January 19, 2020

	Room Canyon/Sugarloaf	
2:30pm		PCSI
2:35pm	INVITED: PCSI-1SuA2 Metals at the Atomic Limit, Joshua Robinson, Penn State University	Session PCSI-1SuA 2D Heterostructure Design
2:40pm	Invited talk continues.	
2:45pm	Invited talk continues.	
2:50pm	Invited talk continues.	
2:55pm	Invited talk continues.	
3:00pm	Invited talk continues.	
3:05pm	Invited talk continues.	
3:10pm	Invited talk continues.	
3:15pm	INVITED: PCSI-1SuA10 Berryogenesis: Spontaneous Out-of-Equilibrium Plasmonic Magnetism, <i>Justin Song</i> , Nanyang Technological University Singapore, Singapore	
3:20pm	Invited talk continues.	
3:25pm	Invited talk continues.	
3:30pm	Invited talk continues.	
3:35pm	Invited talk continues.	
3:40pm	Invited talk continues.	
3:45pm	Invited talk continues.	
3:50pm	Invited talk continues.	
3:55pm	PCSI-1SuA18 Investigation of Graphene/Ge(110) Interface, <i>Miriam Galbiati</i> , Technical University of Denmark, Denmark	
4:00pm	Upgraded Talk continues.	
4:05pm	Upgraded Talk continues.	
4:10pm	Upgraded Talk continues.	
4:15pm	Break	
4:20pm	Break	
4:25pm	Break	
4:30pm	PCSI-2SuA25 Epitaxial Growth and Electronic Characterization of GdSb, Hadass Inbar, S. Chatterjee, M. Pendharkar, Y. Chang, M. Bocheff, T. Guo, T. Brown-Heft, University of California, Santa Barbara; A. Fedorov, Lawrence Livermore National Laboratory; D. Read, Cardiff University; C.J. Palmstrom, University of California, Santa Barbara	PCSI Session PCSI-2SuA Epitaxial Growth of Quantum Materials and
4:35pm	Upgraded Talk continues.	Structures
4:40pm	Upgraded Talk continues.	
4:45pm	Upgraded Talk continues.	
4:50pm	PCSI-2SuA29 MBE Growth of Zn _x Cd _{1-x} Te on Cd ₃ As ₂ , <i>Anthony Rice, K. Alberi</i> , National Renewable Energy Laboratory	
4:55pm	PCSI-2SuA30 Interfaces and Growth of NbTiN-AlN Heterostructures on Sapphire as Epitaxial Josephson Junctions, <i>Chris Richardson</i> , <i>A. Thomas</i> , <i>A. Alexander</i> , <i>C. Weddle</i> , Laboratory for Physical Sciences; <i>B. Arey</i> , <i>M. Olszta</i> , PNNL	
5:00pm	PCSI-2SuA31 Growth of AIN Barriers in Al/AIN/AI SIS Josephson Junctions by Low Temperature Atomic Layer Epitaxy, <i>Charles R. Eddy, Jr.</i> , U.S. Naval Research Laboratory; <i>D.J. Pennachio, J.S. Lee, A. McFadden</i> , University of California, Santa Barbara; <i>S.G. Rosenberg</i> , U.S. Naval Research Laboratory; <i>Y. Chang, C.J. Palmstrom</i> , University of California, Santa Barbara	

Sunday Evening, January 19, 2020

	PCSI	
	Room Canyon/Sugarloaf - Session PSCI-SuE	
	Single Photon Detectors	
7:30pm	INVITED: PSCI-SuE1 Theory of Single Photon Detection by a Photoreceptive Molecule and a Quantum Coherent Spin Center, N. Harmon, University of Evansville; Michael Flatté, University of Iowa	
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	Invited talk continues.	
8:05pm	Invited talk continues.	
8:10pm	INVITED: PSCI-SuE9 From Dark Matter Detection to Artificial Intelligence: Uses for Superconducting Nanowire Single Photon Detectors, <i>Sae Woo Nam</i> , National Institute of Standards and Technology, UUSA	
8:15pm	Invited talk continues.	
8:20pm	Invited talk continues.	
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.	
8:50pm		
8:55pm		

Monday Morning, January 20, 2020

8:30am	INVITED: PCSI-1MoM1 MOCVD Epitaxy and Doping for β-Ga ₂ O ₃ and (Al _x Ga ₁₋	PCSI
	x)2O ₃ , Hongping Zhao , The Ohio State University	Session PCSI-1MoM
8:35am	Invited talk continues.	Oxides
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-1MoM9 Atomic Structure and Electronic Properties of the Non-Polar In_2O_3 and β- $Ga_2O_3(100)$ Surfaces, C. Schulze, R. Zielinski, J. Hofmann, C. Bruckmann, Technische Universität Berlin, Germany; Z. Galazka, Leibniz-Institut für Kristallzüchtung Berlin, Germany; Holger Eisele, Technische Universität Berlin, Germany	
9:15am	PCSI-1MoM10 Growth and Structures of Metal Dopant-Ceria Mixed Oxide Interfaces, <i>E. Ginting, L. Du, Jing Zhou</i> , University of Wyoming	
9:20am	INVITED: PCSI-1MoM11 Freestanding Crystalline Oxide Membranes and Heterostructures, Seung Sae Hong, Stanford University	
9:25am	Invited talk continues.	
9:30am	Invited talk continues.	
	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
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	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	INVITED: PCSI-2MoM31 Hybrid Perovskite-Based High Energy Photon Detectors, Wanyi Nie, Los Alamos National Laboratory	PCSI Session PCSI-2MoM
	Invited talk continues.	Hybrid Materials
	Invited talk continues.	
11:15am	Invited talk continues.	
	Invited talk continues.	
11:25am	Invited talk continues.	
11:30am	Invited talk continues.	
11:35am	Invited talk continues.	
11:40am	PCSI-2MoM39 Pb-based Metal-Organic Frameworks for Efficient Perovskites Light-emitting Diodes Applications, <i>Hsinhan Tsai</i> , <i>W. Nie</i> , Los Alamos National Laboratory	
11:45am	PCSI-2MoM40 Arrangement and Electronic Properties of Cobalt Phthalocyanine Molecules on B-Si(111)-V3 \times V3 R 30°, Susi Lindner , M. Franz, M. Kubicki, S. Appelfeller, M. Dähne, H. Eisele, Technische Universität Berlin, Germany	
L1:50am	PCSI-2MoM41 Amino-Acids Detection with Modulation Doped and Surface Nanoengineered GaAs Schottky Diodes, T. Alkhidir, M. Abi Jaoude, KUST, United Arab Emirates; D. Gater, University College London, United Kingdom; C. Alpha, Cornell University; Abdel Isakovic, Colgate University	
11:55am	PCSI-2MoM42 Carrier Collection and Transport at Interface of Lead-FreeHalide Perovskites (FA,MA)SnI ₃ Solar Cells, <i>William Jo</i> , Ewha Womans University, Republic of Korea	

Monday Afternoon, January 20, 2020

	Room Canyon/Sugarloaf	
2:00pm	INVITED: PCSI-1MoA1 Engineering Active and Stable Semiconductor	PCSI
	Photoelectrodes by Atomic Layer Deposition, <i>Ian Sharp</i> , Walter Schottky Institut/Technische Universität München, Germany	Session PCSI-1MoA
2:05pm	Invited talk continues.	Catalysis/Nanowires
2:10pm	Invited talk continues.	
2:15pm	Invited talk continues.	
2:20pm	Invited talk continues.	
2:25pm	Invited talk continues.	
2:30pm	Invited talk continues.	
2:35pm	Invited talk continues.	
2:40pm		
	AlGaN/GaN Heterostructures, <i>Monu Mishra</i> , Indian Institute of Technology Delhi; <i>G. Gupta</i> , National Physical Laboratory, India	
2:45pm	PCSI-1MoA10 Cu ₂ O Nanoparticles for Ennhancing Gas Phase Photocatalysis over Metal Oxide Semiconductor Nanostructures, <i>Hikaru Masegi</i> , Keio University, Japan	
2:50pm	PCSI-1MoA11 Dynamic Metal/ Metal Oxide Interface Affects PdAg Reactivity, Tobias Egle, C. Friend, Harvard University	
2:55pm	PCSI-1MoA12 Self-Selective Formation of 1D and 2D GaBi Structures on GaAs, Y. Liu, Lund University, Sweden; S. Benter, J. Knutsson, S. Lehmann, Lund University; E. Young, N. Wilson, C.J. Palmstrom, University of California, Santa Barbara; A. Mikkelsen, Rainer Timm, Lund University, Sweden	
3:00pm	Upgraded Talk continues.	
3:05pm	Upgraded Talk continues.	
3:10pm		
3:15pm	PCSI-1MoA16 Iuliacumite: A Novel Two-Dimensional Chemical Short Range Order in a Wurtzite Single Monolayer InA51,xSbx Shell on InAs Nanowires, Michael Schnedler, Forschungszentrum Jülich, Germany; T. Xu, I. Lefebvre, JP. Nys, Université Lille, CNRS, Centrale Lille, ISEN, Université Valenciennes, France; S. Plissard, Université Lille, CNRS, Centrale Lille, ISEN, Université Valenciennes, Germany; M. Berthe, Université Lille, CNRS, Centrale Lille, ISEN, Université Valenciennes, France; H. Eisele, Technische Universität Berlin, Germany; R. Dunin-Borkowski, P. Ebert, Forschungszentrum Jülich, Germany; B. Grandidier, Université Lille, CNRS, Centrale Lille, ISEN, Université Valenciennes, France	
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	Coffee Break & Poster Viewing	
4:20pm	INVITED: PCSI-2MoA29 Control of Spin-Orbit Coupling in Single Acceptor States in Silicon, <i>Sven Rogge</i> , University of New South Wales, Australia	PCSI Session PCSI-2MoA
4:25pm		Dopants in Semiconductors
4:30pm		
4:35pm		
4:40pm	Invited talk continues.	
	Invited talk continues.	
4:50pm	Invited talk continues.	
4:55pm	Invited talk continues.	

Monday Afternoon, January 20, 2020

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5:00pm	PCSI-2MoA37 Low-Temperature Epitaxial Silicon Growth and Confinement of
	Delta Doped Si:P Nanostructures, <i>Scott Schmucker</i> , E. Anderson, J. Lucero, E.
	Bussmann, P. Lu, A. Katzenmeyer, T. Luk, T. Beechem, L. Tracy, TM. Lu, A. Grine, D. Ward,
	D. Campbell, P. Gamache, M. Gunter, S. Misra, Sandia National Laboratories
5:05pm	Upgraded Talk continues.
5:10pm	Upgraded Talk continues.
5:15pm	Upgraded Talk continues.
5:20pm	INVITED: PCSI-2MoA41 The Electronic Bandstructure of Atomically Sharp
	Dopant Structures in Silicon, <i>Justin Wells</i> , Norwegian University of Science and
	Technology, Norway
5:25pm	Invited talk continues.
5:30pm	Invited talk continues.
5:35pm	Invited talk continues.
5:40pm	Invited talk continues.
5:45pm	Invited talk continues.
5:50pm	Invited talk continues.
5:55pm	Invited talk continues.

Monday Evening, January 20, 2020

	PCSI	
	Room Canyon/Sugarloaf - Session PCSI-MoE	
	Superconductivity I	
7:30pm	INVITED: PCSI-MoE1 Fluctuating High Temperature Superconductivity in Monolayer FeSe / SrTiO ₃ , <i>Kyle Shen</i> , <i>B. Faeth</i> , <i>S. Yang</i> , <i>D. Schlom</i> , Cornell University	
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	Invited talk continues.	
8:05pm	Invited talk continues.	
	PCSI-MoE9 Advances and Possibilities of the Materials Innovation Platform with Examples from Spin-ARPES, <i>Daniel Beaton</i> , Scienta Omicron Inc.	
	INVITED: PCSI-MoE10 Superconductivity at Surfaces Studied by Scanning Tunneling Microscopy, <i>Yukio Hasegawa</i> , The University of Tokyo, Japan	
8:20pm	Invited talk continues.	
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.	
8:50pm	Invited talk continues.	
8:55pm	Late News	

Tuesday Morning, January 21, 2020

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0.00	Room Canyon/Sugarloaf	I
8:30am	INVITED: PCSI-1TuM1 Invited - Christian Degen, Christian Degen, MIT	PCSI
8:35am	Invited talk continues.	Session PCSI-1TuM
8:40am	Invited talk continues.	Magnetism
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-1TuM9 Mechanical Control of Valley Magnetization and Berry Curvature Dipole in Monolayer MoS ₂ , <i>Joolee Son</i> , Ajou University, Republic of Korea; K.H. Kim, Pohang University of Science and Technology, Republic of Korea; Y.H. Ahn, Ajou University, Republic of Korea; H.W. Lee, Pohang University of Science and Technology, Republic of Korea; J. Lee, Ajou University, Republic of Korea	
9:15am	Upgraded Talk continues.	
9:20am	Upgraded Talk continues.	
9:25am	Upgraded Talk continues.	
9:30am	PCSI-1TuM13 Room Temperature Ferromagnetic Monolayer MnGaN-2D Investigated by Spin-polarized Scanning Tunneling Microscopy/ Spectroscopy and First-principles Density Functional Theory, Y. Ma, T. Erickson, Nanoscale & Quantum Phenomena Institute; K.Y. Meng, FY. Yang, The Ohio State University; D. Hunt, A. Barral, V. Ferrari, CAC-CNEA, Argentina; A.R. Smith, Nanoscale & Quantum Phenomena Institute	
9:35am	PCSI-1TuM14 Local Exchange Resonance in DC Magnetoresistance of Spin-Polarized Current Through a Dopant, <i>Stephen McMillan</i> , University of Iowa; <i>N. Harmon</i> , University of Evansville; <i>M. Flatté</i> , University of Iowa	
9:40am	Upgraded Talk continues.	
9:45am	Upgraded Talk continues.	
9:50am	Upgraded Talk continues.	
9:55am	PCSI-1TuM18 Room Temperature Ferromagnetism in GaSb Thin Films Doped with Mn, A.O. Pulzara Mora, Camilo Andres Pulzara Mora, Universidad Nacional de Colombia, Colombia	
10:00am	PCSI-1TuM19 Magnetotransport Studies in Hybrid 2D/OD Nanostructures, Ethel Perez-Hoyos, Y. Luo, A. Dehankar, J. Xu, D. Pharis, J. Winter, R. Kawakami, E. Johnston-Halperin, The Ohio State University	
10:05am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
10:15am	Coffee Break & Poster Viewing	
10:20am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
10:30am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
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	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	INVITED: PCSI-2TuA31 Fabrication of High Coherence Superconducting Qubits, J. Long, H.S. Ku, X. Wu, NIST; R. Lake, BlueFors; David Pappas, NIST	PCSI Session PCSI-2TuA
11:05am	Invited talk continues.	Superconductivity II
	Invited talk continues.	
	PCSI-2TuA39 Interface Chemistry and Decoherence Processes in Superconducting Quantum Circuits, <i>D. Frank Ogletree</i> , Lawrence Berkeley National Lab; <i>V. Altoe, X. Liu, A. Minor, S. Cabrini, S. Griffin</i> , Molecular Foundry, LBNL; <i>A. Bannerjee</i> , Lawrence Berkeley National Lab; <i>J.M. Kriekebaum</i> , <i>I. Siddiqi</i> , University of California, Berkeley	
11:45am	Late News	
11:50am	Late News	
11:55am	Late News	
	-	

Tuesday Evening, January 21, 2020

	PCSI	
	Room Canyon/Sugarloaf - Session PCSI-TuE	
	The Future of PV	
	Moderator: Kirstin Alberi, National Renewable Energy	
	Laboratory	
7:00pm	INVITED: PCSI-TuE1 Progress in Hybrid Perovskite Photovoltaics and	
	Optoelectronics, <i>Joseph Berry</i> , National Renewable Energy Laboratory	
7:05pm	Invited talk continues.	
7:10pm	Invited talk continues.	
7:15nm	Invited talk continues.	
7.13pm	invited talk continues.	
7:20pm	Invited talk continues.	
7:25pm	Invited talk continues.	
7:30pm	Invited talk continues.	
7:35nm	Invited talk continues.	
7.55pm	invited talk continues.	
7:40pm	INVITED: PCSI-TuE9 On the Path Towards Tandem Junction Nanowire	
	Based Solar Cells, <i>Magnus Borgström</i> , Lund University, Sweden	
7:45pm	Invited talk continues.	
7:50nm	Invited talk continues.	
7.50pm	milited talk continues.	
7:55pm	Invited talk continues.	
8:00pm	Invited talk continues.	
8:05nm	Invited talk continues.	
5.55	milited talk continues.	
8:10pm	Invited talk continues.	
8:15pm	Invited talk continues.	
8:20pm	Discussion on the future of PV technology	
p	Discussion on the future of FV technology	
8:25pm	Discussion	
8:30pm	Discussion	
8·35nm	Discussion	
3.33piii	DISCUSSION	

Wednesday Morning, January 22, 2020

	Room Canyon/Sugarloaf	
8:30am	INVITED: PCSI-1WeM1 Optical Properties of Semiconducting Moiré Crystals,	PCSI
8:35am	Xiaoqin Elaine Li, Univ of Texas at Austin Invited talk continues.	Session PCSI-1WeM
8:40am	Invited talk continues.	Optical Properties of 2D Materials
	Invited talk continues.	
	Invited talk continues.	
8:55am	Invited talk continues.	
9:00am	Invited talk continues.	
9:05am	Invited talk continues.	
9:10am	PCSI-1WeM9 Tuning the Spontaneous Emission of Monolayer Wse ₂ by Optical	
	Environment Control – Cavity Coupling and Substrate Manipulation, <i>Hyunseung Lee</i> , Ajou University, Republic of Korea	
9:15am	PCSI-1WeM10 First Principles Study on Optical Properties of Monolayer Bismuthene under an Electric Field, <i>Wei-Chieh Liu</i> , L.L. Xu, M.C. Lin, Hanyang University, South Korea; T.C. Leung, H.Y. Hsu, National Taipei University of Technology, Republic of China	
9:20am	PCSI-1WeM11 Formation of Coherent Phase Domain Heterojunctions in Single Layer MoS₂ on Au(111), <i>F. Wu, Z. Liu,</i> Texas A&M University; <i>M. Chandross,</i> Sandia National Laboratories; <i>Q. Moore,</i> Texas A&M University; <i>N. Argibay, J. Curry,</i> Sandia National Laboratories; <i>James Batteas,</i> Texas A&M University	
9:25am	PCSI-1WeM12 Effects of Electromechanical Coupling in Locally Strained Monolayer MoS ₂ , <i>Alex De Palma</i> , <i>G. Cossio, K. Jones, J. Quan,</i> The University of Texas at Austin; <i>X.E Li,</i> Univ of Texas at Austin; <i>E. Yu,</i> The University of Texas at Austin	
9:30am	Upgraded Talk continues.	
9:35am	Upgraded Talk continues.	
9:40am	Upgraded Talk continues.	
9:45am	Late News	
9:50am	Late News	
9:55am	Late News	
10:00am	Coffee Break & Poster Viewing	
10:05am	Coffee Break & Poster Viewing	
10:10am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
10:20am	Coffee Break & Poster Viewing	
10:25am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
10:35am	Coffee Break & Poster Viewing	
10:40am	Coffee Break & Poster Viewing	
10:45am	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
	Coffee Break & Poster Viewing	
11:00am	INVITED: PCSI-2WeM31 Neuromorphic Computing with the Redox Transistor, Alec Talin, Sandia National Laboratories	PCSI
11:05am	Invited talk continues.	Session PCSI-2WeM
11:10am	Invited talk continues.	Material Modification and Self Assembly
	Invited talk continues.	
11:20am	Invited talk continues.	
11:25am	Invited talk continues.	
11:30am	Invited talk continues.	
11:35am	Invited talk continues.	
11:45am	PCSI-2WeM40 Globally Aligned Single-Wall Carbon Nanotube Films through Electrostatic Ordering, <i>Joshua Walker</i> , University of Wyoming; <i>J. Fagan</i> , National Institute of Standards and Technology	
11:50am	PCSI-2WeM41 Defining Insulating Regions on TiO ₂ Thin Films by Laser Heating, <i>S. Ahmed, J. Ritter, Matt McCluskey,</i> Washington State University	
11:55am	Late News	

Wednesday Afternoon, January 22, 2020

	Room Canyon/Sugarloaf	
2:00pm	INVITED: PCSI-1WeA1 Towards Fermi Level De-pinning at Contacts, John Robertson, Cambridge University, UK; Y. Guo, Wuhan University, China; Z. Zhang,	PCSI
	Cambridge University, UK	Session PCSI-1WeA
2:05pm	Invited talk continues.	Devices and Contacts
2:10pm	Invited talk continues.	
2:15pm	Invited talk continues.	
2:20pm	Invited talk continues.	
2:25pm	Invited talk continues.	
2:30pm	Invited talk continues.	
2:35pm	Invited talk continues.	
2:40pm	PCSI-1WeA9 Observation, Characterization, and Mitigation of the Internal <i>p-n</i> Junction in Pyrite FeS ₂ , a Potential Low-cost Solar Absorber, <i>Bryan Voigt</i> , <i>W. Moore</i> , <i>J. Walter</i> , <i>B. Das</i> , <i>M. Maiti</i> , <i>M. Manno</i> , University of Minnesota; <i>E. Aydil</i> , New York University; <i>C. Leighton</i> , University of Minnesota	
	PCSI-1WeA10 Photo-Driven Dipole Reordering: Key to Carrier Separation in Metalorganic Halide Provskites, <i>Philipp Ebert</i> , Forschungszentrum Jülich, Germany; <i>HC. Hsu</i> , National Taiwan University, Republic of China; <i>BC. Huang</i> , Academia Sinica, Republic of China; <i>SC. Chin</i> , National Taiwan University, Republic of China; <i>CR. Hsing</i> , <i>DL. Nguyen</i> , Academia Sinica, Republic of China; <i>M. Schnedler</i> , Forschungszentrum Jülich, Germany; <i>R. Sankar</i> , Academia Sinica, Republic of China; <i>R. Dunin-Borkowski</i> , Forschungszentrum Jülich, Germany; <i>CM. Wei</i> , Academia Sinica, Republic of China; <i>CW. Chen</i> , <i>YP. Chiu</i> , National Taiwan University, Republic of China Upgraded Talk continues.	
·	Upgraded Talk continues.	
-		
-	Upgraded Talk continues.	
3.03pm	PCSI-1WeA14 Characterization of Solid Devices using Quadrupole SIMS, <i>Nimer Wehbe</i> , King Abdullah University of Science & Technology (KAUST), Saudi Arabia	
3:10pm	PCSI-1WeA15 First Principles Study on Electronic Properties of Graphene Nanostructures for High Current Density Cathode, <i>Nan Zhao</i> , <i>L.L. Xu, M.C. Lin,</i> Hanyang University, South Korea; <i>T.C. Leung,</i> National Chung Cheng University, Republic of China; <i>H.Y. Hsu,</i> National Taipei University of Technology, Republic of China	
3:15pm	PCSI-1WeA16 Band Offset Modulation in Si-EuO Heterostructures <i>via</i> Controlled Interface Formation, <i>W. Li, A. Posadas,</i> The University of Texas at Austin; <i>Alex Demkov,</i> The University of Texas	
	PCSI-1WeA17 First Principles Study on Electronic Properties of Magnetite for Spin Polarized Emission under an Electric Field, <i>Liang liang Xu</i> , <i>N. Zhao, M.C. Lin</i> , Hanyang University, South Korea; <i>T.C. Leung</i> , National Chung Cheng University, Republic of China; <i>H.Y. Hsu</i> , National Taipei University of Technology, Republic of China	
3:25pm	PCSI-1WeA18 Work Functions of Alkali and Alkaline Earth Metal Surfaces under Electric Fields based on First-Principles Calculations, <i>Y. Wang, L.L. Xu, Ming-Chieh Lin,</i> Hanyang University, South Korea; <i>T.C. Leung,</i> National Chung Cheng University, Republic of China; <i>H.Y. Hsu,</i> National Taipei University of Technology, Republic of China	
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	
	INVITED: PCSI-2WeA31 Nitrogen Doping of Gallium Oxide by Ion Implantation and its Application to Vertical Transistors, <i>Masataka Higashiwaki</i> , National Institute of Information and Communications Technology, Japan; M.H. Wong, National Institute of Information and Communications Technology; K. Goto, H. Murakami, Y. Kumagai, Tokyo	PCSI Session PCSI-2WeA Synthesis of Materials for Devices

Wednesday Afternoon, January 22, 2020

	Wednesday Afternoon, Jai	nuary 22, 2020
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	Invited talk continues.	
5:05pm	Invited talk continues.	
5:10pm	PCSI-2WeA39 Studying the Nucleation of GaP on v-Grooved Si for III-V/Si Device Integration, <i>Emily Warren</i> , National Renewable Energy Laboratory; <i>T. Saenz</i> , Colorado School of Mines; <i>A. Norman</i> , National Renewable Energy Laboratory; <i>J. Zimmerman</i> , Colorado School of Mines	
5:15pm	PCSI-2WeA40 Improving Heterointerfaces in Rapidly Grown III-V Electronic Devices using Dynamic Hydride Vapor Phase Epitaxy (D-HVPE), Dennice Roberts, J. Simon, K. Schulte, A. Ptak, National Renewable Energy Laboratory	
5:20pm	PCSI-2WeA41 Real-Time Optical Monitoring of the Epitaxial Growth of Zincblende Semiconductors, <i>Alfonso Lastras-Martinez</i> , Universidad Autónoma de San Luis Potosi, México	
5:25pm	PCSI-2WeA42 Pulsed Laser Deposition of Epitaxial $Sr_3Al_2O_6$ as a Water-Soluble Sacrificial Layer for GaAs Deposition, <i>Imran Khan, B. McMahon, A. Norman, A. Zakutayev</i> , National Renewable Energy Laboratory	
5:30pm	PCSI-2WeA43 On the Theory of the Energetic Spectrum of Vicinal Superlattices: The Role of Crystal Potential, <i>Victor Petrov</i> , Russian Academy of Sciences, Russian Federation	
5:35pm	PCSI-2WeA44 Epitaxial Relationship of Cu3N Grown on YSZ(001) Substrate by Mist CVD Method, <i>Nao Wakabayashi</i> , Kogakuin University, Japan	
5:40pm	PCSI-2WeA45 Halogen Surface Chemistries for Atomically Precise Manufacturing on Si(100), <i>Kevin Dwyer</i> , <i>M. Dreyer</i> , <i>K. Gaskell</i> , University of Maryland; <i>R. Butera</i> , Laboratory for Physical Sciences	
5:45pm	Upgraded Talk continues.	
5:50pm	Upgraded Talk continues.	
5:55pm	Upgraded Talk continues.	
6:00pm	PCSI-2WeA49 Novel Growth Mechanisms in van der Waals Epitaxy: 3D Morphologies of Bi ₂ Se ₃ , <i>Theresa Ginley</i> , <i>S. Law</i> , University of Delaware	
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Thursday Morning, January 23, 2020

	Room Canyon/Sugarloaf	
8:30am	INVITED: PCSI-1ThM1 Electron Transport in Strain-Engineered Graphene, Nadya	PCSI
8:35am	Mason, University of Illinois at Urbana Champaign Invited talk continues.	Session PCSI-1ThM
8:40am	Invited talk continues.	2D Materials - Strain and Heterostructures
	Invited talk continues.	
	Invited talk continues.	
9:00am	Invited talk continues.	
	Invited talk continues.	
	Invited talk continues.	
9:10am	PCSI-1ThM9 Revealing Exciton Masses and Dielectric Properties of Monolayer Semiconductors with High Magnetic Fields, <i>Mateusz Goryca</i> , <i>J. Li, A.V. Stier</i> , Los Alamos National Laboratory; <i>T. Taniguchi, K. Watanabe</i> , National Institute for Materials Science, Japan; <i>E. Courtade</i> , <i>S. Shree</i> , <i>C. Robert</i> , <i>B. Urbaszek</i> , <i>X. Marie</i> , Universite de Toulouse, INSA-CNRS-UPS, LPCNO, France; <i>S.A. Crooker</i> , Los Alamos National Laboratory	
9:15am	Upgraded Talk continues.	
9:20am	Upgraded Talk continues.	
9:25am	Upgraded Talk continues.	
9:30am	PCSI-1ThM13 Optical Determination of Ice-Induced Interfacial Strain on Single-Layer Graphene, <i>Subash Kattel</i> , <i>J. Murphy</i> , <i>S. Pasco</i> , <i>J. Ackerman</i> , <i>V. Alvarado</i> , <i>W.D. Rice</i> , University of Wyoming	
9:35am	PCSI-1ThM14 Electron Pairing by Remote-Phonon Scattering in Oxide-	
	Supported Graphene, D. Shin, The University of Texas; M. Fischetti, The University of Texas at Dallas; Alex Demkov, The University of Texas	
9:40am	Upgraded Talk continues.	
9:45am	Upgraded Talk continues.	
9:50am	Upgraded Talk continues.	
9:55am	Late News	
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	
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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-2ThM31 Modeling of Interfaces in All-Solid-State Li-ion Batteries, <i>Yue Qi</i> , Michigan State University	PCSI Session PCSI-2ThM
11:05am	Invited talk continues.	Material for Storage
11:10am	Invited talk continues.	
	Invited talk continues.	
11:20am	Invited talk continues.	
11:25am	Invited talk continues.	
11:30am	Invited talk continues.	
	Invited talk continues.	
	PCSI-2ThM39 Computational Predictions of Electronic Properties for Graphene Hybrids Interfaces using Density Functional Theory Relevant for Energy Storage and Generation, <i>Sanju Gupta</i> , Western Kentucky University; <i>N. Dimakis</i> , The University of Texas-Rio Grande Valley	
11:45am	PCSI-2ThM40 Properties of Two-Dimensional Titanium Carbide ($Ti_3C_2T_x$) MXene for Energy Conversion: Effects of Interlayer Spacing, Flake Size and Electrochemical Environment, <i>Sanju Gupta</i> , <i>W. Ringo</i> , Western Kentucky University; <i>M. Hu, X. Wang</i> , Chinese Academy of Sciences, China	
11:50am	Late News	
11:55am	Late News	

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