

EMC Awards Ceremony & Plenary Session			Music Building, Lotte Lehmann
8:20 am			EMC Awards Ceremony
8:30 am	Darrell Schlom	*PL01	Suboxide Molecular-Beam Epitaxy
9:20 am			BREAK
A: Group III-Nitrides – Devices			Music Building, Lotte Lehmann
10:00 am	Yu-Hsin Chen	A01	(Student) High Electron Density AlN/GaN/AlGaN Quantum-Well HEMTs on Al-Polar Single-Crystal AlN Substrates
10:20 am	Joseph Dill	A02	(Student) Measurement of Hole Velocity vs. Electric Field in Polarization-Induced Two-Dimensional Hole Gases in GaN/AlN Heterojunctions
10:40 am	Abdullah Mamun	A03	Al _{0.64} Ga _{0.36} N Channel MOSHFET on Single Crystal Bulk AlN Substrate for Co-Designed Power Electronics
11:00 am	Jiahao Chen	A04	(Student) Record Low Sheet Resistivity (<250 Ω/■) in High Composition (>35%) and Thick (>30 nm) Crack-Free Strain Optimized Barrier AlGaIn/AlN/GaN HEMT on Sapphire
11:20 am	Thai-Son T. Nguyen	A05	(Student) Epitaxial Growth and Transport Properties of AlScN/GaN FerroHEMTs
11:40 am	Dawei Wang	A06	(Late News) Reliability Study and Analysis of Vertical GaN Power Devices
B: 2D Materials Properties and Interfaces			UC, Corwin East
10:00 am	Mingfei Xu	B01	(Student) Investigation of Dielectric Properties of h-BN/c-BN Nanocomposites
10:20 am	Shakir Bin Mujib	B02	Reliability of Electronics Containing 2D Materials
10:40 am	Suzanne Mohney	B03	Doping and Damage of MoS ₂ Monolayers from Metal Deposition
11:00 am	Zubaer Hossain	B04	Strain-Induced Magnetism in Defective Graphene
11:20 am	Quazi Deen Mohd Khosru	B05	Graphene-Polymer Mono Defect Based Octonacci Quasi-Photonic Dual Narrowband Absorber
11:40 am	Jennifer Elizabeth DeMell	B06	(Student) Temperature Dependent Spin Transport and Thermally Driven Quantum Phase Change in Graphene/Pb _{0.24} Sn _{0.76} Te Heterostructure Two-Dimensional Electron Gas
C: Photonic Devices			UC, Flying A Studios
10:00 am	James Bork	C01	(Student) (In)AlBiAs-Based Short-Wave Infrared Avalanche Photodiodes
10:20 am	Subhashree Seth	C02	(Student) Optically Pumped 1200 nm InAs Dot-in-Well (DWELL) Photonic Crystal Surface-Emitting Laser (PCSEL) by Molecular Beam Epitaxy
10:40 am	Jingze Zhao	C03	(Student) Long-Wave Infrared Beam Steering with InAsSb Phased Arrays
11:00 am	Aaron Engel	#C04	(Student) Molecular Beam Epitaxy of Strained Superlattice InAlGaAs/AlGaAs Spin-Polarized Photocathodes
11:20 am	Alexander Timothy Newell	C05	(Student) Sensitivity Optimization in Diffusion-Limited Infrared Detectors
11:40 am	Kevin Kucharczyk	C06	(Student) Development of GaAs Photodetector Arrays for Soft X-Ray Beam Position Monitoring
D: Nanoscale Characterization			UC, State Street
10:00 am	Andrey Krayev	D01	TERS Imaging—Unique Nanoscale Technique for Characterization of 2D Materials and Their Lateral/Vertical Heterostructures
10:20 am	Haoxue Yan	D02	Rapid Characterization of Threading Dislocations in Diamond via Coincident Cathodoluminescence and Electron Channeling Contrast Imaging
10:40 am	Carlo Requiao daCunha	D03	Estimating the Background Potential of Quantum Constrictions Using Scanning Gate Microscopy and Machine Learning
11:00 am	Stephen M. Bankson	D04	(Student) Characterization of Surface Morphology and Superconducting Performance of Thin Aluminum Films Deposited via Thermal Evaporation at Tilted Angles
11:20 am	Robert Stroud	D05	TESCAN TENSOR a 4D-STEM for Multimodal Characterization of Challenging and Interesting Specimens
11:40 am	Michael Evan Liao	D06	Investigation of Extended Defects in Single Crystal Calcite Substrates Using High Resolution X-Ray Topography
E: Hetero-Integration, Interconnects and Packaging			UC, Santa Barbara Harbor
10:00 am	Muhammad Bakir	E01	Heterogeneous Multi-Die Stitching Enabled by Compressible Microinterconnects (CMIs)
10:20 am	Bilal Azhar	E02	(Student) Quasi-2D Materials for Ultra-Low Resistance Electrical Interconnects
10:40 am	Gangtae Jin	E03	Dimensional Scaling of Topological Metal Nanowires for Interconnect
11:00 am	Kenny Huynh	E04	Stability of Interface Morphology and Thermal Boundary Conductance of Direct Wafer Bonded GaN/Si Heterojunction Interfaces Annealed at Growth and Annealing Temperatures
11:20 am	Bhargav Yelamanchili	E05	(Student) Superconducting Resonators with Closely Spaced Resonant Frequencies for Material Loss Measurements
11:40 am	Rohan Sengupta	E06	(Student, Late News) Improvement of Heterogeneously Integrated InGaAs/GaN Junctions via Post-Bonding Annealing for Next-Generation Transistors
F: Gallium Oxide Devices			MCC, MCC Theater
10:00 am	Sushovan Dhara	#F01	(Student) [100] and [010] Oriented β-Ga ₂ O ₃ Trench Schottky Barrier Diodes with Improved On-Resistance Using Low Damage Atomic Ga Etching
10:20 am	Nolan Hendricks	F02	(Student) Forward and Reverse Current Transport of (001) β-Ga ₂ O ₃ Schottky Barrier Diodes and TiO ₂ /β-Ga ₂ O ₃ Heterojunction Diodes with Various Schottky Metals
10:40 am	Esmat Farzana	F03	Vertical β-Ga ₂ O ₃ Diodes with High Barrier PtOx Contacts and High-k TiO ₂ Field Plate on Low-Doped Epitaxy for High Breakdown Voltage
11:00 am	Joseph Spencer	F04	(Student) Platinum Oxide Schottky Contacts to Highly-Doped (~201) β-Ga ₂ O ₃
11:20 am	Takumi Ohtsuki	F05	Application of (Al _x Ga _{1-x}) ₂ O ₃ as Back Barrier in Lateral Ga ₂ O ₃ Radio-Frequency Field-Effect Transistors
11:40 am	Taeyoung Kim	F06	(Student) Demonstration of Gallium Oxide Nano-Pillar Field Emitter Arrays

*Plenary Talk # Student Finalist for Oral Presentation

WEDNESDAY PM

G: Group III-Nitrides—Vertical Power Devices			Music Building, Lotte Lehmann
1:30 pm	Caleb Glaser	G01	(Student) Improving Electrical Performance of GaN-on-GaN MOS Devices Via Optimized Atomic Layer Deposition of Al ₂ O ₃ Gate Dielectrics
1:50 pm	Dawei Wang	G02	Design and Fabrication of AlGaIn/GaN Multiple P-Channel Schottky Barrier Diodes
2:10 pm	Md. Tahmidul Alam	G03	(Student) TCAD-Based Comprehensive Analysis of High Voltage (>600 V) Bidirectional AlGaIn/GaN HEMTs
2:30 pm	LeighAnn Sarah Larkin	G04	Alpha Radiation Damage Assessment in GaN by Time-Resolved Luminescence Spectroscopy
2:50 pm	Mina Moradnia	G05	(Student) Crack-Free III-N Epitaxial Growth on Si (111) Substrate Exceeding 1 μm in Thickness
3:10 pm			BREAK
3:30 pm	Zhiyu Xu	G06	(Student) 1.2kV Vertical GaN PIN Rectifiers with Nitrogen-Implanted Floating Guard Rings as Edge Termination and Breakdown Characteristics Correlation Study by Wafer-Level Photoluminescence Mapping
3:50 pm	Henryk Turski	G07	Exploiting Competition Between Built-in Polarization and P-N Junction Field in III-Nitride Heterostructures
4:10 pm	Mona Ebrish	G08	Contacting p-GaN Efficiently—Why the Same Metal Stacks Give Different Results?
4:30 pm	Christopher M. Matthews	G09	(Student) Electrical Characterization of AlN PN Diodes
4:50 pm	Ziyi He	G10	(Student) Effect of Impact Ionization Coefficients on High-Voltage Vertical AlN Power Devices
H: 2D Materials, Devices and Sensors			UC, Corwin East
1:30 pm	Juntae Jang	H01	(Student) Reduced Scattering in Remote Surface Charge Transfer Doped MoS ₂ Field Effect Transistors
1:50 pm	Ruixue Li	H02	(Student) Electrical Characterization and Contact Resistance to ALD-Deposited WNbS ₂ Thin Films
2:10 pm	Yun Ping Chiu	H03	(Student) Surface Polarization Engineering Design of 2D Janus MoSSe Complementary Field Effect Transistors
2:30 pm	Daniel Lewis	H04	(Student) Non-Conductive Electron Transport Through a Quasi-Freestanding Epitaxial Graphene-Insulator Heterostructure Towards a Vacuum-Independent X-Ray Source
2:50 pm	Ghanshyam Das Varma	H05	Humidity Tolerant Low Power-Consumption Flexible α-Fe ₂ O ₃ /rGO/PANI Ternary Nanocomposite for NO ₂ Gas Sensing at Room Temperature
3:10 pm			BREAK
3:30 pm	Saad Bhuiya	H06	(Student) Graphene/III-As Nanosheets—Self-Assembly, Electrical Transport and Potential for THz Generation
3:50 pm	Frances Camille Masim Wu	#H07	(Student) Control of Dark Exciton Dynamics in Suspended WSe ₂ Monolayer via Electrostatic Deflection
4:10 pm	Claire Ganski	H08	(Student) Effects of Strain and Local Topography on Electromechanical Coupling in Monolayer Transition Metal Dichalcogenides
4:30 pm	Ying-Chuan Chen	H09	(Student) Studies of 2D Material Resistive Random-Access Memory by Kinetic Monte Carlo Simulation
4:50 pm	Ramesh G. Mani	H10	Electrically Detected Spin Resonance in Graphene
I: Novel IR Detector Materials			UC, Flying A Studios
1:30 pm	Charles W. Tu	I01	The Effects of Strain Compensation in Type-II InGaAs/GaAsSb Quantum Wells Grown on GaAs(001) Substrates
1:50 pm	Jingze Zhao	I02	(Student) Minority Carrier Lifetime and Mobility in Bulk InAsSb for High Quantum Efficiency LWIR Detectors
2:10 pm	Rachel Corey White	I03	(Student) Optical and Structural Properties of InSb-Based Dilute-Bismide Alloys Grown by Molecular Beam Epitaxy
2:30 pm	Amberly Ricks	I04	(Student) Bismuth Incorporation in AlInSb for Wide-Bandgap Barriers on InSb
2:50 pm	Fatih Furkan Ince	I05	(Student) MBE Growth of InSb Quantum Well on InAs (100) Using AlInSb Buffer Layer
3:10 pm			BREAK
J: Novel Materials Epitaxy			UC, Flying A Studios
3:30 pm	Pooja Donthi Reddy	J01	(Student) Single-Phase Orthorhombic SnSe-PbSe Alloy Thin Films Stabilized on GaAs by Molecular Beam Epitaxy
3:50 pm	Morgan Bergthold	J02	(Student) Photoluminescence Efficiency and Minority Carrier Lifetime of Type-II Superlattices on GaAs Using an Interfacial Misfit Array
4:10 pm	Leland Joseph Nordin	J03	PbSe Mid-Infrared Light Emitting Diodes on III-V Substrates
4:30 pm	Zezhi Wu	J04	(Student) Monolithic III-V on LiNbO ₃ for Nonlinear Optics Application
4:50 pm	Jarod Meyer	J05	(Student) Room Temperature Photoluminescence at 3–8 μm in Epitaxial PbSe-SnSe Alloy Films on GaAs
K: Energy Materials and Devices			UC, State Street
1:50 pm	Etee Kawna Roy	K01	(Student) Photovoltaic Characteristics of PERC-Like CdTe Solar Cells
2:10 pm	Intuon Chatratin	K02	(Student) Compensation Centers in Group-V Doped CdTe
2:30 pm	Stephen Polly	K04	InGaAs/GaAsP Multiple Quantum Well Enhanced Multijunction Photovoltaics
2:50 pm	Jeffrey Lindemuth	K05	Improved AC Field Hall Measurements Using Hybrid Filters
3:10 pm			BREAK
3:30 pm	Navid Attarzadeh	K06	(Student) Doped Ternary and Quaternary Transition-Metal Chalcogenides Electrocatalyst for Efficient Water Splitting
3:50 pm	Rachael Richards	K07	Influence of Repeat Unit Structure on Exciton Transfer Between Semiconducting Polyelectrolytes
4:10 pm	Luis F. Hernandez Camas	K08	(Late News) Comparing the Effect of TiO ₂ and SnO ₂ on Efficiency of Perovskite Solar Cells and Development of Efficient Electron Transport Layer for Perovskite Solar Cell
4:30 pm	Doha Mahmoud Sayed Mohammed	K09	Optimized Lithography-Free Fabrication of Sub-100 nm Nb ₂ O ₅ Nanotube Films as Negative Supercapacitor Electrodes: Tuned Oxygen Vacancies and Cationic Intercalation

L: Organic and Hybrid Materials for Optoelectronic Devices			UC, Lobero
1:30 pm	Mohammad Ashif Hossain Chowdhury	L01	(Student) Monitoring Stability of Metal-Halide Perovskites Under Combined Stressors of Ion-Beam and Heat
1:50 pm	Jonghoon Lee	L02	(Student) Bulk Incorporation of Organic Molecular Dopants into Two-Dimensional Ruddlesden-Popper Hybrid Perovskite Structures
2:10 pm	Yongsup Park	L03	Direct Measurements of HOMO–LUMO Transport Gaps at the Surface and Interface of Organic Semiconductor Materials Using Direct and Inverse Photoemission Spectroscopies (UPS & IPES)
2:30 pm	Andrew Herzing	L04	(Late News) Structural and Morphological Characterization of Organic Electrochemical Transistors via Four-Dimensional (4D) Scanning Transmission Electron Microscopy
2:50 pm	Shang-Hsuan Wu	L05	(Student, Late News) Climate-Adaptive Thermochromic Perovskite Smart Window Structures
3:10 pm			BREAK
M: Group III-Nitrides—Optical Emitters			UC, Santa Barbara Harbor
1:30 pm	Shigefusa F. Chichibu	M01	Short-Term Degradation Mechanisms of 275-nm-Band AlGaIn-Based Deep-Ultraviolet Light Emitting Diodes Fabricated on a Sapphire Substrate
1:50 pm	Agnes Maneesha Dominic Merwin Xavier	M02	(Student) Demonstration of AlGaIn Tunnel Junction p-Down UV Light Emitting Diodes
2:10 pm	Yuto Ando	M03	Non-Planar Growth of Crack-Free High Al-Mole-Fraction AlGaIn Heterostructures on Patterned GaIn Substrates for Ultraviolet Light Emitting Diodes and Laser Diodes
2:30 pm	Matt Brubaker	M04	Shadowing Effects in Core-Shell InGaIn Quantum Wells Grown on N-Polar GaIn Nanowire Arrays by Molecular Beam Epitaxy
2:50 pm	Anand Ithepalli	M05	(Student) Fabrication and Characterization of Epitaxially Grown and Lifted off AlN Membranes
3:10 pm			BREAK
3:30 pm	Mateusz Hajdel	#M06	(Student) III-Nitride Laser Diodes with Wide Quantum Wells: Influence of Built-In Electric Fields on the Light Generation Process
3:50 pm	Gordon Schmidt	M07	Advanced Cathodoluminescence Microscopy of a Cascaded InGaIn/GaIn LED
4:10 pm	Guangying Wang	M08	(Student) MOCVD of a Novel InGaIn/GaIn/AlGaIn Active Region Design for Ultraviolet Light-Emitting Diodes
4:30 pm	Greg Muziol	M09	Critical Thickness of InGaIn Grown by Plasma-Assisted Molecular Beam Epitaxy
4:50 pm	James Loveless	M10	(Student) Demystifying Light Extraction Efficiency in AlGaIn Based UV LEDs
N: Characterization of Gallium Oxide-Based Materials and Devices I			MCC, MCC Theater
1:30 pm	Hemant Jagannath Ghadi	N01	Evidence of Electron and Hole Photoemission During DLOS Characterization of Nitrogen Implanted β -Ga ₂ O ₃
1:50 pm	Makoto Kasu	N02	Killer Defects Responsible for Leakage Current in HVPE (001) β -Ga ₂ O ₃ SBD Observed by Emission Microscopy and Synchrotron X-Ray Topography
2:10 pm	Takuya Maeda	N03	Photocurrent Induced by Franz-Keldysh Effect in β -Ga ₂ O ₃ Schottky Barrier Diode Under High Reverse Bias Voltage
2:30 pm	Dinusha Herath Mudiyansele	N04	(Student) Anisotropic Electronic Properties of NiOx/ β -Ga ₂ O ₃ p-n Heterojunctions on (-201), (001), and (010) β -Ga ₂ O ₃ Substrates
2:50 pm	Joe F. McGlone	N05	Impact of Radiation Damage and Buffer Charge on Si δ -Doped β -Ga ₂ O ₃ MESFETs
3:10 pm			BREAK
3:30 pm	Kenny Huynh	N06	Origin of Surface Defects in Homoepitaxially Grown (010) β -Ga ₂ O ₃ Films
3:50 pm	Hsien-Lien Huang	#N07	(Student) Atomic Scale Defect Formation and Phase Transformation in Si Implanted β -Ga ₂ O ₃
4:10 pm	Michael Scarpulla	N08	Measuring Diffusion of Al, Sn, and Fe in Ga ₂ O ₃ Using β -(Al,Ga) ₂ O ₃ /Ga ₂ O ₃ Superlattices
4:30 pm	Minhan Lou	N09	Linearly Polarized UV, Blue and IR Photoluminescence from β -Ga ₂ O ₃
4:50 pm	Cassandra Remple	N10	(Student) Photoluminescence Spectroscopy of Cr ³⁺ in β -Ga ₂ O ₃ and (Al _{0.1} Ga _{0.9}) ₂ O ₃
Student Finalists for Oral Presentation Award—Part A (5:10 pm—6:10 pm)			UC, State Street
	Frances Camille Masim Wu	#H07	(Student) Control of Dark Exciton Dynamics in Suspended WSe ₂ Monolayer via Electrostatic Deflection
	Sushovan Dhara	#F01	(Student) [100] and [010] Oriented β -Ga ₂ O ₃ Trench Schottky Barrier Diodes with Improved On-Resistance Using Low Damage Atomic Ga Etching
	Ryoya Ishikawa	#S01	(Student) Anisotropic Electron and Hole Mobilities in 4H-SiC Bulk Crystals
	Ashlee Garcia	#GG03	(Student) SiO ₂ Surface Planarization for Molecular Beam Epitaxy Selective Area Regrowth of High Aspect Ratio Microstructures
	Hsien-Lien Huang	#N07	(Student) Atomic Scale Defect Formation and Phase Transformation in Si Implanted β -Ga ₂ O ₃
Student Finalists for Oral Presentation Award—Part B (5:10 pm—6:10 pm)			UC, Lobero
	Jingxian Li	#Z01	(Student) Origins of Nonvolatility in Resistive Switching Memory
	Aaron Engel	#C04	(Student) Molecular Beam Epitaxy of Strained Superlattice InAlGaAs/AlGaAs Spin-Polarized Photocathodes
	Thomas Leonard	#Z06	(Student) Multi-Weight Magnetic Artificial Synapses with Geometry-Dependent Neuromorphic Functionality
	Mateusz Hajdel	#M06	(Student) III-Nitride Laser Diodes with Wide Quantum Wells—Influence of Built-In Electric Fields on the Light Generation Process
	Saurav Roy	#DD02	(Student) Enhancing the Dielectric Performance of Al ₂ O ₃ on β -Ga ₂ O ₃ Using Temperature Modulated <i>In Situ</i> Dielectric Deposition

POSTER SESSION

WEDNESDAY PM | LAGOON PLAZA

General Viewing

Wednesday
3:10 pm – 3:30 pm

Poster Session
6:00 pm – 8:00 pm

Thursday
10:00 am – 10:20 am
3:10 pm – 3:30 pm

Poster Set-up

Wednesday, 9:30 am – 3:00 pm

Poster Tear Down

Thursday, no later than 5:30 pm

Remaining posters will be discarded.

Poster presenters should be standing with their poster.

Student poster presenters must attend from 6:00 pm to 8:00 pm to present poster and answer questions to be eligible for the Best Student Poster Presentation Award.

Presenter	Paper #	Title
Durga Paudyal	PS01	Distinguishing Erbium Dopants in Y_2O_3 by Site Symmetry— <i>Ab Initio</i> Theory of Two Spin-Photon Interfaces
Andrew Christopher Grizzle	PS02	(Student) Molecule Spin State and Molecular Structure Impact on Molecular Spintronics Device Properties
Sanghun Lee	PS03	Fabrication of Ohmic Contact on Sulfurized Copper-Doped ZnS
Macarena Maria Santillan	PS04	(Student) Persistent Photoconductivity of Potassium Tantalate $KTaO_3$
Yoshitha Hettige	PS05	(Student) Optical Constants and Lattice Vibrations of Bulk $SrTiO_3$ and $BaSnO_3$ Using Spectroscopic Ellipsometry from 0.03-6.5 eV
Wen-Chang Huang	PS06	Impact of Oxygen Addition on Enhancing Electrochromic Performance of Vanadium Pentoxide Film by Sputtering
Wen-Chang Huang	PS07	Effect of Cu Doping on ZnO Based Thin-Film Sensor for Hydrogen Sensing
M. Jasim Uddin	PS08	Surface Modified $ZnSnO_3$ Hollow Nanorod/PDMS Based Piezoelectric Nano-Generator for Harvesting Mechanical Energy
Efracio Mamani Flores	PS09	Thermoelectric Properties Study on the Ferroelectric Materials $BiFeO_3$ and Bi_2FeCrO_6 via First Principles
Omid Dadras-Toussi	PS10	3D-Printing of Organic Bioelectronics and Biosensors
Wen-Shiung Lour	PS11	Layered Processes for InGaP/GaAs Heterojunction Bipolar Transistors with a Buried-Base Contact
Takashi Tsukasaki	PS12	Suppression of Nitrogen Composition Fluctuation by Beryllium Doping in GaAsN Ternary Alloys
Zinah M Alsaad	PS13	(Student) Optimization of the Event-Based Sensor's Photoreceptor Circuit for Mid-Wave Infrared Photodetection
Enbo Yang	PS14	(Student) Mass Spectroscopic Investigation on Reactions of Tin Tetrachloride and Germane for SiGeSn Chemical Vapor Deposition Growth
Geonwook Yoo	PS15	Reactive-Sputtering and Ferroelectric Switching of Aluminum Scandium Nitride on $(-201)\beta\text{-Ga}_2\text{O}_3$ Substrates
Min-Yeong Kim	PS16	(Student) Imaging Ga_2O_3 Defects and Determining Its Influence on Electrical Properties
Paul Gaurav G. Nalam	PS17	Fabrication and Characterization of High Quality Rutile-Phase GeO_2 Films on MgO(100) for Application in Optoelectronics
Francelia Sanchez Escobar	PS18	Growth Optimization of Sn-Doped Gallium Oxide Thin Films on Sapphire for Deep UV Photodetectors with Ultrafast Response
Sameer Kumar Mallik	PS19	(Student) Thermally-Driven Multi-Level Non-Volatile Memory in Monolayer MoS_2 Field-Effect Transistors
Ramesh G. Mani	PS20	The Effect of Current Annealing on the Transport Properties of CVD Graphene
Changkai Yu	PS21	(Student) Two-Dimensional Hole Gases in N-Polar AlGaIn/GaN Heterostructures Grown on GaN Bulk Substrates
Mihee Ji	PS22	Dependence of Compositional Inhomogeneity and Thermal Conductivity on Growth Conditions of High-Al-Content AlGaIn Alloys Grown by High Temperature Plasma-Assisted Molecular Beam Epitaxy
Hirandeep Reddy Kuchoor	PS23	Axial Configured GaAsSb Ensemble Nanowire-Based p-i-n photodetectors up to 1.1 μm
Tae Kyoung Kim	PS24	Impact of Current Stress on the Optoelectronic Performances in GaN-Based Micro-LEDs
Nobuo Sasaki	PS25	Motion of a Void Induced by Agglomeration at the Solid-Liquid Interface in the Continuous-Wave Laser Crystallization
Yura Seo	PS26	(Student) Effect of the Atomic Arrangement at the Apex of Tip on AFM Atomic Lattice Images
Dominique Newell	PS27	(Student) Wavelength Dependence of the Verdet Constant Using Visible LEDs and a Modified Pulsed Magnet Station
Jialin Wang	PS28	(Late News) Design and Fabrication of a Fully Epitaxially Grown AlScN FBAR
Rahima Nasrin	PS29	Influence of Cobalt Doping on Surface Morphology, Structural and Optical Behavior of ZnO Nanoparticles Synthesized by CBD Technique
Madison Suzanne King	PS30	(Student) High Dielectric Microdroplet Whispering Gallery Mode Resonators for Opto-Electronics
Pius Suh	PS31	Covalently Connected Single-Molecule Magnets on the Exposed Edges of a Nickel Ferromagnetic Electrode-Based Magnetic Tunnel Junction
Nurdan Mese	PS33	(Student) Electrochemical and Morphological Properties of PEDOT with Various Boron-Containing Dopants

Presenter	Paper #	Title
Julia Isidora Salas Toledo	PS34	(Student) Energy Harvesting with Thermoplastic Polyurethane Nanofiber Mat Integrated with Functionalized Multiwalled Carbon Nanotubes
Hyerin Jo	PS35	(Student) ZnO TFTs Property with Photoelectric Synaptic Devices
Shea Tonkinson	PS36	(Student) Synthesis and Characterization of CsPbBr ₃ Perovskites for Radiation Detection Applications
Nolan T. Herbort	PS37	(Student) Synthesis and Characterization of Pulsed-Laser Deposited Ba(Fe _{0.7} Ta _{0.3})O _{3-δ} Thin Films
Eyasu Ajebe	PS39	Synergistic Effect of Combining UIO-66 and Mxene Nanosheets in Pebax Mixed Matrix Membranes for CO ₂ Capture and Separation
Sherman Peek	PS40	(Student) Femtosecond Laser Processing on Bulk Materials with Water-Assisted Debris Removal
Jeonghum Woo	PS41	Micro Probe System for <i>In Situ</i> X-Ray Scattering
Mehrdad Jalali	PS42	Information Visualization in Materials Science through Social Networks Modeling
Seoyeo Park	PS43	(Student, Late News) Metallic Fusion-Induced Flexible Nanocrystal Thin Films for High-Performance Electromagnetic Interference Shielding Materials
Hansel Hobbie	PS44	(Student, Late News) Zirconium Oxide Dielectric Thin Films Fabricated by Water-only Aerosol Jet Printing
Takumi Ikenoue	PS45	(Late News) Epitaxial Growth of Lattice-Matched NiMgZnO Films on MgO Substrate via Mist Chemical Vapor Deposition
Shisong Luo	PS46	(Student, Late News) High-Performance hBN/Graphene/AlGaIn/GaN Hot Electron Transistors
Brittany Smith	PS47	(Student, Late News) Realizing 3D Microstructures from Graphene Using Aerosol Jet Printing
Ji-Hyuk Choi	PS48	(Late News) Designing Surface Chemistry of Semiconductor Nanocrystals for High-Performance Thin-Film Transistors
Yi-Kuan Chen	PS49	(Student, Late News) Pyridine-Carbonitriles-Based Thermally Activated Delayed Fluorescence Emitters for High Performance OLEDs
Stephanie Rouamba	PS51	(Student, Late News) Modeling Effect of Perovskite Layer on Efficiency and Development of Efficient and Stable Perovskite Layer
Shadi Omranpour	PS52	(Student) Photocathode Characteristics Dependency on Mg Incorporation in (N-polar) Semi-Polar and Non-Polar 3D Microstructures by Selective Area Epitaxy

Journal of Electronic Materials

A special issue of the *Journal of Electronic Materials (JEM)** will be published with peer-reviewed papers from the 65th Electronic Materials Conference.

- Article submission date is **September 30, 2023 at 11:59 pm (ET)**
- Contact the 2023 Special Issue Editors listed below.

The *Journal of Electronic Materials* reports monthly on the science and technology of electronic materials, while examining new applications for semiconductors, magnetic alloys, dielectrics, nanoscale materials and photonic materials. The *Journal* welcomes articles on methods for preparing and evaluating the chemical, physical, electronic and optical properties of these materials. Specific areas of interest are materials for state-of-the-art transistors, nanotechnology, electronic packaging, detectors, emitters, metallization, superconductivity and energy applications. Review papers on current topics enable individuals in the field of electronics to keep abreast of activities in areas peripheral to their own.

Manuscripts for the EMC 2023 collection will be evaluated according to the same high standards as would be applied to any article submitted to the *Journal*. Authors are encouraged to read carefully and comply with the "Instructions for Authors" on springer.com/journal/11664. Submission of a manuscript implies that the work described has not been previously published and is not under consideration for publication elsewhere.

Questions?

Contact the 2023 Special Issue Editors:

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THURSDAY AM

O: Group III-Nitrides—Novel Nitride Growth			Music Building, Lotte Lehmann
8:20 am	Matthew Hardy	O01	Epitaxial Growth of High ScN Fraction ScAlN on NbN/SiC and SiC
8:40 am	Ding Wang	O02	Epitaxial Ferroelectric ScAlN—Thickness Scaling to the Nanometer Scale
9:00 am	Naomi Pieczulewski	O03	(Student) Atomic Structure of β -Nb ₂ N/AlN/ β -Nb ₂ N Epitaxial Josephson Junction
9:20 am	Swarnav Mukhopadhyay	O04	(Student) First Demonstration of C-Doped Semi-Insulating N-Polar GaN Using Propane Precursor
9:40 am	Vincent E. Meyers	O05	(Late News) Growth of High-Quality Ga-Polar GaN Growth on Mixed-Polarity AlN
10:00 am			BREAK
10:20 am	Alexander Austin Chaney	O06	Metal Modulated Epitaxy Growth of AlN/GaN Short Period Superlattices with Individual Layer Thicknesses Less Than 2 nm
10:40 am	Christopher M. Matthews	O07	(Student) Surface Oxide Removal on AlN Substrates via Low Temperature Aluminum Flashing
11:00 am	Mohammad Hussain	O08	High Figure of Merit Extreme Bandgap Al _{0.87} Ga _{0.13} N-Al _{0.64} Ga _{0.36} N Heterostructures Over Bulk AlN Substrates
11:20 am	Clarence Y. Chan	O09	(Student) Mechanism of hv-MacEtch in GaN and III-Nitrides Heterojunctions
11:40 am	Chandrashekar Prakash Savant	O10	(Student) MBE Growth, Characterization of BAlN Films and 2D Electron Gas in Epitaxial BAlN/GaN Heterojunction
P: 2D Materials Synthesis and Characterization			UC, Corwin East
8:20 am	Thomas Virgil McKnight	P01	(Student) Spectroscopic Ellipsometry for <i>In Situ</i> Monitoring of MoS ₂ Growth at the Sub-Monolayer Limit
8:40 am	Chen Chen	P02	Effects of Growth Temperature on the Properties of Wafer-Scale Epitaxial MoS ₂ Monolayers Grown by Metalorganic Chemical Vapor Deposition
9:00 am	Meghan Leger	P03	(Student) MOCVD Growth and Characterization of MoSe ₂ Nanodots within a WSe ₂ Monolayer Matrix
9:20 am	Ramesh G. Mani	P04	Study of Single Crystal Graphene Grown by Chemical Vapor Deposition on Copper
9:40 am	Yeoseon Sim	P05	(Late News) Oxidation Mechanism of 2H-MoTe ₂ at the Atomic Scale
10:00 am			BREAK
10:20 am	Michael Pedowitz	P06	(Student) Transformation to Alkali Birnessites via Simple Intercalation of Electrochemically Grown 2D-Layered H-Type Manganese Dioxide on Epitaxial Graphene
10:40 am	Shigefusa Chichibu	P07	Ultraviolet Luminescence Dynamics of Hexagonal BN Epilayers Grown by Chemical Vapor Deposition Using Carbon-Free Precursors
11:00 am	Shubham Mondal	P08	(Student) Epitaxial Growth of Wafer-Scale Monolayer Hexagonal Boron Nitride (hBN)
Q: Optical Materials on Si			UC, Flying A Studios
8:20 am	Ellie Yilien Wang	Q01	(Student) Growth and Characterization of Al _x In _{1-x} As _y Sb _{1-y} Digital Alloys on InP on Si
8:40 am	Alexandria Ragsdale	Q02	(Student) Synthesis and Characterization of AlSb for Growth on Si and Integrated Circuit Based Radiation Detection
9:00 am	Hyun Uk Chae	Q03	(Student) Defect Filtering at the Interface of MOCVD/TLP Heterogenous Epitaxial III-V on Silicon
9:20 am	Joshua Cooper	Q04	Mechanisms for Solute Incorporation in Highly Mismatched Ge _{1-x-y} Sn _x C _y Alloys
9:40 am	Amanda N. Lemire	Q05	(Student) Doping and Surfactant Behavior of Antimony in Molecular Beam Epitaxy Grown Germanium-Tin
10:00 am			BREAK
R: Epitaxial Materials Design and Properties			UC, Flying A Studios
10:40 am	Rithvik Ramesh	R01	(Student) Engineering of the Interband Second Order Optical Nonlinearity with Asymmetric Coupled Quantum Wells
11:00 am	Qian Meng	R02	(Student) Atom Rearrangement in BGa(In)As Alloys Under Annealing
11:20 am	Subha Prakash Mallick	R04	(Student) The Effect of Group-V “Blow-by” on the Structural and Optical Properties of Al _x In _{1-x} As _y Sb _{1-y} Digital Alloys Grown by Molecular Beam Epitaxy
11:40 am	Mina Moradnia	R05	(Student) Composition Control of Ternary Group-IIIa-IIIb-Nitride Alloy by Hybrid Chemical Vapor Deposition—A Thermodynamic Analysis

Student Finalist for Oral Presentation

CONFERENCE BADGE

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S: SiC Material Characterization, Processing and Devices			UC, State Street
8:20 am	Ryoya Ishikawa	#S01	(Student) Anisotropic Electron and Hole Mobilities in 4H-SiC Bulk Crystals
8:40 am	Zeyu Chen	S02	(Student) Ray Tracing Simulation of Defects of 4H-SiC in 22-4 16 Reflection of Synchrotron Monochromatic Beam X-Ray Topography in Grazing Incident Geometry
9:00 am	Qianyu Cheng	S03	Analysis of Distribution of Threading Edge Dislocation Low Angle Grain Boundaries in 4H-SiC Wafers through Synchrotron X-Ray Topography
9:20 am	Shanshan Hu	S04	Investigation of Defect Formation During Initial Stage of PVT-Grown 4H-SiC Crystals
9:40 am	Scott Galen Criswell	S05	(Student) Nanoscale Spectroscopy of Extended Defects in 4H Silicon Carbide
10:00 am			BREAK
10:20 am	Michael Evan Liao	S06	Mitigation of Basal Plane Dislocation Faulting in 4H-SiC Buffer Layers Using Channeled Vanadium Implantation
10:40 am	Suman Das	S08	Study of Dopant Activation and Ionization for Phosphorus in 4H-SiC
11:00 am	Jiashu Qian	S09	(Student) A Comparison of Body Diode Degradation in Commercial 1.2 kV SiC Power MOSFETs with the Planar and Trench Structure
11:20 am	Nadeemullah Mahadik	S10	Reliability of Room Temperature vs High Temperature Implantation in 3.3kV SiC MOSFETs
11:40 am	Ludovico Megalini	S07	Advanced Carbon Film as a Superior C- Cap for SiC devices
T: Organic Devices and Molecular Electronics			UC, Lobero
8:20 am	Pawan Tyagi	T01	Single-Molecule Magnet (SMM) Internal Atomic Configuration Impact of Ferromagnetic Layers of Magnetic Tunnel Junction—A Monte Carlo Study
8:40 am	Brian S. Rolczynski	T02	Understanding Electronic Energy Transport in DNA-Scaffolded Molecular Networks Using Machine-Learning Methods
9:00 am	Libin Liang	T03	(Student) Strain-Enhanced Formation of 1D Coherent Exciton-Polaron States in Small Molecule Semiconductors
9:20 am	Jung Sun Eo	T04	(Student) Effect of Molecular Tilt Configuration in Molecular Heterojunction with Two-Dimensional Semiconductor
9:40 am	Phong Nguyen	T05	(Student) Surface-Confined Brønsted Acidic Doping of Conjugated Polymers Thin Films
10:00 am			BREAK
10:20 am	Chankeun Yoon	T07	(Student) Advantages of Adding a Weak Second Gate in Sub-Micron Bottom-Contact Organic Thin-Film Transistors
10:40 am	Ramin Karimi Azari	T08	(Student) Effect of Thickness and Molecular Weight of Poly (3-hexylthiophene) Film on Ion-Gated Transistor Response Time and Synaptic Functions
11:00 am	Amrita Chakraborty	T09	(Student) Manufacturing of Highly Conductive Organic PEDOT:PSS Films for Electronic Devices
11:20 am	Sarah L. Swisher	T10	(Late News) Transparent, Inkjet-Printed PEDOT:PSS Electrode Arrays for Large-Area Multimodal Neural Interfaces
U: Group III-Nitrides—Contacts and Special Topics			UC, Santa Barbara Harbor
8:20 am	Shivali Agrawal	U01	(Student) Ohmic Contacts to Homoepitaxial Ultrawide Bandgap n-AlGaIn Grown on Bulk AlN Substrates
8:40 am	Amit P. Shah	U02	Evolution of Surface Microstructure of Re-Al-Ni-Au Based Ohmic Contacts on N-Type GaN
9:00 am	Mafruda Rahman	U03	(Student) Ultrawide Bandgap Optoelectronic Properties of Single Crystal Bulk AlN and Sapphire/AlN Templates
9:20 am	Haotian Xue	U04	Structural and Optical Characterization of Thin AlInN Films on c-Plane GaN Substrates
9:40 am	Juergen Christen	U05	Nano-Scale Correlation of Real Structure, Band Bending and Local Electric Fields in the Narrow pn ⁺ Regions of a GaN Superjunction Using Highly Spatially Resolved STEM-CL Characterization
10:00 am			BREAK
10:20 am	Alireza Lanjani	U06	(Student) Design and Optimization of Room Temperature AlGaIn/GaN Multi Quantum Well Infrared Photodetector by MOCVD for Near IR Range
10:40 am	Guangying Wang	U07	(Student) InGaIn Films on Crystalline ScAlMgO ₄ on Al ₂ O ₃ Substrates by MOCVD with up to 123 nm PL Redshift
11:00 am	Geoffrey Foster	U08	Characterization of Optically Modulated Semi-Insulating GaN Photoconductive Semiconductor Switches
11:20 am	Nam-In Kim	U09	Piezoelectric Sensing in Extreme Environments Using Flexible Ultrawide Bandgap III-N Thin Films
11:40 am	Yinxuan Zhu	U10	(Student, Late News) Demonstration of 0.7 Ω.mm MOCVD-Grown Reverse Graded Contacts on Al _{0.85} Ga _{0.15} N Channel
V: Growth of Gallium Oxide and Other Ultrawide-Bandgap Oxides			MCC, MCC Theater
8:20 am	Zhuoqun Wen	V01	(Student) Si Doping of β-Ga ₂ O ₃ by Disilane via Hybrid Plasma-Assisted Molecular Beam Epitaxy
8:40 am	Jacob Steele	V02	(Student) Epitaxial Growth of α-(Al _x Ga _{1-x}) ₂ O ₃ by Suboxide Molecular-Beam Epitaxy at 1 μm/h
9:00 am	Brenton A. Noesges	V03	Optimizing Si Dopant Control in n-type β-Gallium Oxide
9:20 am	Abishek Katta	V04	Demonstration of MOCVD Based <i>In Situ</i> Ga Etching of β-Ga ₂ O ₃ Using TEGa
9:40 am	Fikadu Alema	V05	Controllable Doping of MOCVD Ga ₂ O ₃ with Nitrogen Using Ammonia Precursor
10:00 am			BREAK
10:20 am	Debabrata Das	V06	Vertically Aligned β-Ga _{2-x} W _x O ₃ Nanocomposites for Ultrafast Deep-UV Photodetectors
10:40 am	Tianchen Yang	V07	(Student) Investigation of Phase Transition and Bandgap Engineering in (Mg _x Ga _{1-x}) ₂ O ₃ Thin Films Grown by Molecular Beam Epitaxy
11:00 am	Chengyun Shou	V08	(Student) Improving Quality of β-Phase MgGaO Thin Films by Using Low-Temperature Homo-Buffer Layer
11:20 am	Ahmad Matar Abed	V09	(Student) Effect of Post-Deposition Annealing on Crystal Structure of RF Magnetron Sputtered Germanium Dioxide Thin Films

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THURSDAY PM

W: Group III-Nitrides—Late News			Music Building, Lotte Lehmann
1:50 pm	Emma Rocco	W01	(Late News) Impact of Cap Layer Thickness on Ga- and N-Polar Microstructure Photocathodes
2:10 pm	Md. Irfan Khan	W02	(Student, Late News) Investigation of Si Doping in N-Polar AlN by Plasma Assisted Molecular Beam Epitaxy
2:30 pm	Georgios Doundoulakis	W03	(Late News) Nanometer-Resolution Piezoelectric Probing for Vertical Top-Down GaN Nanowire Field Emitter Devices with Integrated Leveling
2:50 pm	Holger Eisele	W04	(Late News) Characterization of the Space-Charge Region of a GaN <i>pn</i> -Junction and <i>pin</i> -Drift-Diode Using EBIC and CL
3:10 pm			BREAK
X: Group III-Nitrides—Growth and Characterization			UC, Corwin East
1:30 pm	Siddha Pimputkar	X01	Computational Fluid Dynamics Modeling of a Novel High-Pressure Spatial Chemical Vapor Deposition Reactor (HPS-CVD) Design for Growth of Indium-Containing Nitrides
1:50 pm	Yafei Liu	X02	Characterization of Growth Sectors in Patterned HVPE Gallium Nitride Substrate Wafers
2:10 pm	Jack Almeter	X03	(Student) Wing Tilt in ELO-Grown GaN
2:30 pm	Keisuke Motoki	X04	(Student) Structural Analysis and Observation of Tilts, Twists and Crystallographic Orientation of High-Quality, Metal Rich Grown $Sc_{0.2}Al_{0.8}N$
2:50 pm	Andrew J. Winchester	X05	Microscale Surface Electronic Properties of Defects in Gallium Nitride Epitaxial Layers
3:10 pm			BREAK
3:30 pm	Kohei Shima	X06	Luminescence Studies of Bulk GaN Crystals Grown by the Low-Pressure Acidic Ammonothermal Method
3:50 pm	Seokje Lee	X07	(Student) Pulsed-Mode Metalorganic Vapor-Phase Epitaxial Growth of GaN on Graphene/c-Sapphire for Freestanding GaN Thin Films
4:10 pm	Shubham Mondal	X08	(Student, Late News) Molecular Beam Epitaxy and Characterization of N-Polar AlGaIn on C-Face 4H-SiC
4:30 pm	Oguz Odabasi	X09	(Student) N-Polar GaN Deep Recess HEMTs with ALD HfO ₂ as Gate Dielectric
4:50 pm	Liang Qi	X10	Mechanisms for Polytype Selection During the Growth of Self-Catalyzed GaN Nanowires
Y: Plasmonics, Photonics for Detection and Emission			UC, Flying A Studios
1:30 pm	S. Maryam Vaghefi Esfidani	Y01	Critical Coupling in Phonon Polariton Organ Pipe Resonance for Infrared Sensing
1:50 pm	Alexander Ware	Y02	(Student) Decoupling Mid-Wave Infrared Absorption and Long-Wave Infrared Radiative Cooling in Bolometric Elements
2:10 pm	Minho Choi	Y03	Massively Degenerate Coherent Perfect Absorber Using a Single Optic
2:30 pm	Wilder Acuna	Y04	(Student) Property Control of ErAs:InGaAlBiAs Materials for Terahertz Emitters and Detectors Pumped at 1550 nm
2:50 pm	Brandon Swartz	Y05	(Student) Large-Scale Inversely Designed Metasurfaces for Broadband LWIR Optical Edge Detection
3:10 pm			BREAK
3:30 pm	Zizwe Chase	Y06	Flexible Metastructure Graded-Index Lens as a Quantum Algorithm Emulator
3:50 pm	Haonan Ling	Y07	(Student) Taming Mid-IR Resonances with Hexagonal Boron Nitride
4:10 pm	Madeline Brown	Y08	(Student) Topological Spin-Valley Coupling in 2D Photonic Crystals
4:30 pm	Abhilasha Kamboj	Y09	(Late News) Localized Phonon Polariton Modes in GaN/AlN Nanowires
4:50 pm	Md. Toriqlul Islam	Y10	(Student, Late News) Prospects of Dilute Bismuth in InGaBiAs Alloys for e-SWIR Photodetectors
Z: Emergent Materials and Devices for Microelectronics			UC, State Street
1:30 pm	Jingxian Li	#Z01	(Student) Origins of Nonvolatility in Resistive Switching Memory
1:50 pm	Ramin Karimi Azari	Z02	(Student) Controlling Response Time and Synaptic Behavior of Ion-Gated Transistors Through Modulating Different Aspects of Input Biases
2:10 pm	Solomon Amsalu Chekol	Z03	(Student) Effect of the Counter Electrode Material on the SET Kinetics of Ag/HfO ₂ -Based Diffusive Memristors
2:30 pm	Nithil Harris Manimaran	Z04	(Student) Realizing a Linear Synaptic Weight Update in Electric-Double-Layer Gated Transistors for Achieving Spike-Timing-Dependent Plasticity in Neuromorphic Computing
2:50 pm	Mousam Charan Sahu	Z05	(Student) Highly Stable and Controllable Quantum Conductance States up to 100 GΩ in TiO ₂ Memristor
3:10 pm			BREAK
3:30 pm	Thomas Leonard	#Z06	(Student) Multi-Weight Magnetic Artificial Synapses with Geometry-Dependent Neuromorphic Functionality
3:50 pm	Marzieh Savadkoohi	Z07	(Student) Impact of Single Molecule Magnets (SMM) on Magnetic Properties of a Cross-Junction-Shaped Magnetic Tunnel Junction
4:10 pm	Finley Haines	Z08	(Student) Vertical Spin Valves Architectures Based on Screw Dislocations in Semiconductor Nanomembranes
4:30 pm	Amrita Chakraborty	Z09	(Student) Methodology for Mitigation of the Reliability of a Resistive RAM Memory Array Caused by Thermal Cross-Talk Between the Memory Cells
4:50 pm	Kuan-Hao Chiao	Z10	(Student) Micromagnetic Simulations for Deterministic Switching in SOT-MRAM Cell with Additional Heavy Metal Capping Strip

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AA: Semiconducting Oxide Thin Films and Transistors			UC, Lobero
1:50 pm	Farida Selim	AA02	Atomic Layer Deposition of Highly Conductive Highly Transparent Indium Gallium Doped Zinc Oxide Thin Films
2:10 pm	Camilo Velez Cuervo	AA03	Atomic Layer Deposition (ALD) and Sol-Gel Techniques Comparison from the Perspective of TiO ₂ Thin-Films Fabrication
2:30 pm	Eli Powell	AA04	(Student) Donor Activation in Boron and Phosphorus Implanted Self-Aligned Bottom-Gate IGZO TFTs
2:50 pm	Dong Hyuk Kim	AA05	(Student, Late News) Optimized Heterojunction Metal-Oxide Semiconductor Structures for High Performance Indium-Tin-Oxide TFTs
3:10 pm			BREAK
3:30 pm	Yuchen Zhou	AA06	(Student) Accurate Field-Effect Mobility Estimation with Gate Voltage-Dependent Mobility in Linear Region for IGZO Thin-Film Transistors
3:50 pm	Hongseok Oh	AA07	IGZO Synaptic Thin-Film Transistors Using Embedded AlO _x Charge-Trapping Layer
4:10 pm	Reem Alshanbari	AA08	(Student) Tuning Threshold Voltage in Ultrathin Channel Flexible Amorphous InGaZnO _x TFTs
4:30 pm	Guoduan Liu	AA09	(Student) Improved Electrical Performance of InGaZnO ₄ Thin-Film Transistors with UV Ozone Treatment
4:50 pm	William J. Scheideler	AA10	Continuous Liquid Metal Printing of High-Performance 2D Oxide Heterostructures
BB: Group III-Nitrides – P-Type Doping and Characterization			UC, Santa Barbara Harbor
1:30 pm	Shashwat Rathkanthiwar	BB01	Achieving Technologically Relevant P-Type Conductivity in Al-Rich (>70% Al) AlGaN Using Impurity Band Conduction
1:50 pm	Cristyan E. Quiñones García	BB02	(Student) Modelling Self-Compensation in Heavily Mg-Doped GaN
2:10 pm	Benjamin McEwen	BB03	MOCVD GaN Co-Doped with Mg and Be
2:30 pm	Masahiro Kamiyama	BB04	(Student) Compensation Mechanism in Mg-Doped N-Polar GaN
2:50 pm	Jia Wang	BB05	Observation of Spontaneous Intercalation of Interstitial Mg into GaN
3:10 pm			BREAK
3:30 pm	Emma Rocco	BB06	Investigation of Diffusion of Be and Mg Acceptor Dopant Implanted in GaN and the Impact of Annealing Method and Temperature
3:50 pm	Chandan Joishi	BB09	(Late News) Tunnel Junction Enabled AlGaN/GaN Heterojunction Bipolar Transistor with All n-Type Contacts
4:10 pm	Kenny Huynh	BB08	Dissolution of Mg Segregated Defects in Mg-Implanted GaN After Ultra-High-Pressure Annealing
CC: Characterization of Gallium Oxide-Based Materials and Devices II			MCC, MCC Theater
1:30 pm	Khandakar Aaditta Arnab	CC01	(Student) Temperature-Dependent Calculations of β -Ga ₂ O ₃ Defect Concentrations for Equilibrium, Full Quenching and Generalized Quenching Scenarios
1:50 pm	Kunyao Jiang	CC02	Phase Transformation of β -Ga ₂ O ₃ to Ga ₂ O ₃ -Based γ -Phase Spinel on (100) MgAl ₂ O ₄ Substrate
2:10 pm	Jacqueline Cooke	CC03	Characterization Analysis of Extended Defects in β -Ga ₂ O ₃ and AGO
2:30 pm	Ariful Islam	CC04	(Student) Temperature Dependence of Bandgap and Anisotropy in Urbach Tails in β -Ga ₂ O ₃
2:50 pm	Kenny Huynh	CC05	Crack Formation in Strained β -(Al _x Ga _{1-x}) ₂ O ₃ Films Grown on (010) β -Ga ₂ O ₃ Substrates
3:10 pm			BREAK
DD: Gallium Oxide Materials Processing			MCC, MCC Theater
3:30 pm	Zhenwei Wang	DD01	Improvement of Ga ₂ O ₃ Schottky Barrier Diode Characteristics by Nitrogen Radical Treatment
3:50 pm	Saurav Roy	#DD02	(Student) Enhancing the Dielectric Performance of Al ₂ O ₃ on β -Ga ₂ O ₃ Using Temperature Modulated <i>In Situ</i> Dielectric Deposition
4:10 pm	Cameron Anthony Gorsak	DD03	(Student) SIMS Study of the Accumulation of Si on the Surface of Gallium Oxide and Its Mitigation
4:30 pm	Katie Gann	DD04	(Student) Optimizing Si Implantation and Annealing in β -Ga ₂ O ₃
4:50 pm	Alan G. Jacobs	DD05	Silicon Ion Implant Activation in β -Al _{0.4} Ga _{1.6} O ₃

Student Finalist for Oral Presentation

FRIDAY AM

EE: Diamond and Related Materials				UC, Corwin East
8:20 am	Dmitry Shinyavskiy	EE01	(Student) Synthesis of Free-Standing Polycrystalline Diamond Nanomembrane	
8:40 am	Makoto Kasu	EE02	Characterization of Inch-Sized Diamond Wafer Grown on Misoriented Sapphire	
9:00 am	Kaicheng Pan	EE03	(Student) Chemical Mechanical Polishing of Polycrystalline Diamond Films for Integration as High Thermal Conductivity Layers	
9:20 am	Michael Spencer	EE04	Electronic and Optical Characterization of Bulk and Epitaxial Single Crystals of Cubic Boron Nitride (cBN)	
9:40 am	Lillian Barrett Hughes	EE05	(Student) Two-Dimensional Spin Systems in PECVD-Grown Diamond with Tunable Density and Long Coherence for Enhanced Quantum Sensing and Simulation	
10:00 am			BREAK	
FF: Group III-Nitrides – Thermal Transport				UC, Corwin East
10:20 am	MVS Chandrashekhar	FF01	Thermal Considerations in Co-Designed III-Nitride Transistors	
10:40 am	James Spencer Lundh	FF02	Thermal Mapping of AlGaIn/GaN High Electron Mobility Transistors Using Mechanically Exfoliated MoS ₂ Flakes	
11:00 am	Khush Mahendrakumar Gohel	FF03	(Student) Understanding of Multi-Way Heat Extraction Using Peripheral Diamond in AlGaIn/GaN HEMT by Electrothermal Simulations	
11:20 am	Luke Yates	FF04	Visualizing and Quantifying Thermal Conductance and Strain at Compression Bonded GaN-Diamond Interfaces via Optical Methods	
GG: Epitaxy of Structured and Quantum Materials				UC, Flying A Studios
8:20 am	Alec Mason Skipper	GG01	(Student) Dark Current Reduction by MBE Selective Area Growth in III-V Semiconductor PIN Photodetectors	
8:40 am	Yiteng Wang	GG02	(Student) InP Lateral Epitaxial Overgrowth by Solid-Source Molecular Beam Epitaxy	
9:00 am	Ashlee Garcia	#GG03	(Student) SiO ₂ Surface Planarization for Molecular Beam Epitaxy Selective Area Regrowth of High Aspect Ratio Microstructures	
9:20 am	Mikolaj Chlipala	GG04	(Student) Light-Emitter/Superconducting Stack Within the Nitride Family	
9:40 am	J. Andrew McArthur	GG05	(Student) Manipulating the Opto-Electronic Properties of Al _x In _{1-x} As _y Sb _{1-y} Digital Alloys by Adjusting the Period Thickness	
10:00 am			BREAK	
10:20 am	Brendan Jordan	GG06	(Student) Growth and Characterization of Multigrain Smb ₆ Thin Films by Chemical Vapor Deposition	
10:40 am	Yuxing Ren	GG07	(Student) Quasi van der Waals Epitaxy of Magnetic Topological Insulator on a GaAs (111) Substrate	
11:00 am	Tri Nguyen	GG08	(Student) Electrical and Optical Properties of Sputtered SnTe	
11:20 am	Rohit Yadav	GG09	(Student) Self-Limiting Formation of Bismuth-Induced Nanostructures on the InSb(111) Surface	
11:40 am	Binghao Guo	GG10	(Student) Magnetotransport Studies of Two-Dimensional Cd ₃ As ₂ Heterostructures	
HH: Materials Processing and Integration				UC, State Street
8:20 am	Archit Shah	HH01	(Student) Fabrication of SU-8 Microstructures on Bulk Molybdenum Substrates for Cryogenic Applications	
8:40 am	Florence A. Nugera	HH02	Growth of Patterned Diamond Using High Seeding Density and Hot-Filament Chemical Vapor Deposition (HFCVD)	
9:00 am	Christopher Bishop	HH03	Experimental Characterization and Modification of Silicon Nitride Crystallization Reaction Kinetics for Microelectronics Applications	
9:20 am	Eric Blanton	HH04	Investigation of Bonded GaN-Si p-n Junction Interface Properties	
9:40 am	Lezii Matto	HH05	(Student) Thin-Film Layer Transfer of 128° Y-Cut LiNbO ₃ on (0001) Al ₂ O ₃ Through Ion Implantation and Exfoliation	
10:00 am			BREAK	
10:20 am	Lukas Leonard Janavicius	HH06	(Student) Realization of Vapor-Phase MacEtch: Mechanism, Programmability and Scalability	
10:40 am	Abhilasha Kamboj	HH07	(Late News) Substrate-Removed GaAs Photovoltaic Cells for Microscale Energy Harvesting	
11:00 am	William J. Scheideler	HH08	(Late News) Anionic Engineering and 3D Integration of 2D Ti ₃ C ₂ T _x MXene for Electrocatalysis and Energy Storage	
11:20 am	B. Garfield	HH09	(Student, Late News) Development of Sustainable Non-Toxic TiO ₂ /Sb ₂ Se ₃ Solar Cells for Renewable Energy Applications	
11:40 am	Jared Mitchell	HH10	(Student, Late News) Probing Nonstoichiometry and Local Atomic Environments in GaAs _{1-x} N _x Bi _y Alloys	

Student Finalist for Oral Presentation

II: Flexible, Printed and Wearable Electronics and Sensors			UC, Lobero
8:20 am	Jung-Bin Ahn	II01	3D Printable Polymer Matrix Synthesis with UV-curable Polyurethane for Wearable Electronics
8:40 am	Annatoma Arif	II02	(Student) Characterization and Fabrication of 3D Inkjet Printed Flexible Copper Electrodes
9:00 am	Jee Young Kwak	II03	(Student, Late News) Carbon Based Omnidirectional Wearable Strain Sensor Arrays with Optimized Multi-Output Neural Networks
9:20 am	Nam-In Kim	II04	Highly Sensitive and Selective Cortisol Detection from Sweat Using Piezoelectric Single-Crystalline Flexible GaN Thin-Film Sensor
9:40 am	Lauren Kelly	II05	(Student) Electrochemical Detection of the LuxR Protein Using the Metabolic Activity of <i>Shewanella oneidensis</i> MR-1 for the Development of a Modular Bioelectronic Interface
10:00 am			BREAK
10:20 am	Andrew Bourhis	II06	(Student) Optimizing Dual-Gate IGZO TFTs for Long-Term Flexible Neural Interfaces
10:40 am	Jing Gu	II07	(Student) Integration of ZnO Thin-Film Transistor Array with Surgical Forceps for Minimally Invasive Robotic Surgery
11:00 am	Haein Cho	II08	(Student) Ultrathin Skin-Attachable TiO ₂ Synaptic Array Integrated with an Organic Proximity Sensor for Finger Gesture Recognition
11:20 am	Kaori Yamamoto	II09	(Late News) Integrated Graphene FET Array for High Sensitive Detection of New Corona Virus with Automated Solution Exchange System
JJ: Low-Dimensional Structures—Quantum Dots, Wires and Wells			UC, Santa Barbara Harbor
8:20 am	Frank Bertram	JJ01	Carrier Capture into Individual InP Quantum Dots Directly Imaged by Nanoscale Cathodoluminescence Microscopy
8:40 am	Ruiqi Hu	JJ02	(Student) Electronic and Structural Properties of Rare-Earth Mono-Pnictide (RE-V) Nanoparticles in III-V Matrices
9:00 am	Yuanchang Zhang	JJ03	MBE Growth for Wafer Scale Uniformity in Low Density InAs Quantum Dots
9:20 am	Chen Shang	JJ04	Quantum Dot Morphology and Defect Configuration Anisotropy for III-V Laser Material Grown on Patterned Si Photonic Wafers
9:40 am	Eamonn T. Hughes	JJ05	(Student) Gradual Degradation via Dislocation Microloop Formation in InAs Quantum Dot Lasers on Si and GaAs
10:00 am			BREAK
KK: Micro-LEDs			UC, Santa Barbara Harbor
10:20 am	Sheikh Ifatur Rahman	KK01	(Student) Impact of Barrier Thickness and Doping on the Carrier Transport in MQW P-Down Green LEDs
10:40 am	Xuefeng Li	KK02	(Student) Carrier Dynamics in Blue, Cyan, and Green Commercial InGaN/GaN LEDs Measured by Small-Signal Electroluminescence
11:00 am	Xuefeng Li	KK03	(Student) Trap-Assisted Auger Recombination in Commercial Green InGaN/GaN LEDs
11:20 am	Seonghoon Lee	KK04	The Role of Zn-Precursor in the Formation of Environment-Friendly Highly Luminescent Colloidal Quantum Dots and R/G/B QLEDs with Inverted Structure
11:40 am	Tanay Tak	KK05	(Student, Late News) Electron Emission Microscopy of an Electrically Driven III-Nitride-Based LED: Evidence of Lateral Electron Injection at V-Defect Sidewalls
LL: Dielectrics, Ferroelectrics and Multifunctional Oxides			MCC, MCC Theater
9:00 am	Rainer Timm	LL02	Semiconductor-Oxide Interfaces of InAs-Based Ferroelectric and RRAM Devices
9:20 am	Harish Kumarasubramanian	LL03	(Student) Pushing the Limits of Switching Voltage, Leakage in Ultrathin BaTiO ₃ Thin Films
9:40 am	Michael Patrick McGarry	LL04	Frequency-Dependent Conductivity of Mo-SiN _x Granular Metals
10:00 am			BREAK
10:20 am	Nicholas C. Strandwitz	LL05	Porous Dielectric Thin Films for Advanced Dielectrics Using Molecular and Atomic Layer Deposition
10:40 am	Subhajt Mohanty	LL08	(Student, Late News) Effect of HfO ₂ Dielectric Thickness on the DC-RF Dispersion in N-Polar GaN HEMTs
11:00 am	Pius Suh	LL09	(Late News) Magnetic Tunnel Junction Molecular Spintronics Based Chemical Sensing Device

Student Finalist for Oral Presentation

