

SCHEDULE AT A GLANCE

Monday	Tuesday	Wednesday	Thursday
	0830 Keynote 1100 Opto 1	0830 Digital + Bioelectronics	0830 High Frequency
	Lunch Buffet	Lunch Buffet	Lunch Buffet: Closing and Awards
	1330 Opto 2	1300 Power	
1700 Registration and Reception	1700 Poster Session 1930 Women in Engineering	1800 Banquet Buse departs from conference venue	

	MONDAY, AUG 1 Room 101 STEPS Building
1700- 1900	REGISTRATION AND RECEPTION

	TUESDAY, AUG 2 MORNING: Room 101 STEP Building Session TueAM1 – Keynote Session Chairs: Grace Xing and Siddharth Rajan
0800	Registration opens
0830	Introduction - Grace Xing, Siddharth Rajan, James Hwang Welcome to Lehigh – Nelson Tansu, Director, Center for Photonics and Nanoelectronics, Lehigh University
0900	Keynote: III-V Nanowire FETs on Si for RF Applications, Lars Erik Wernersson, Lund University, Sweden
0945	Keynote: The New World of Lighting: Solid-State Lighting and Beyond, Jeff Tsao, Sandia National Laboratory
1030	Break
	TUESDAY, AUG 2 MORNING: Room 101 STEPS Building Session TueAM2: Optoelectronics I: Session Chair: Jonathan Wierer
1100	Invited: Mid-Infrared Photonic Detectors and Focal Plane Arrays Using Antimonides, Sanjay Krishna, University of New Mexico
1130	Dual-color bidirectional terahertz quantum cascade lasers based on shallow heterostructures, Sudeep Khanal, Lehigh University [STUDENT]
1145	Optimization of High-Speed CMOS Optical Modulators with Interleaved Junctions, Dinis Cheian, Massachusetts Institute of Technology [STUDENT]
1200	LUNCH BUFFET– David Radulescu - Recent Trends in US Patent Litigation

	TUESDAY, AUG 2 AFTERNOON: Room 101 STEPS Building Session TuePM: Optoelectronics 2 Chairs: Jonathan Wierer and Sanjay Krishna
1330	Invited: High-Performance III-V Multijunction Solar Cells, John Geisz, National Renewable Energy Laboratory
1400	Invited: Chemically and Mechanically Exfoliated MoS ₂ for Electronic & Optoelectronic Devices, Anupama Kaul, University of Texas – El Paso
1430	Band Gap Engineering in GaN-Based Semiconductor with Dilute-Anion Incorporation for Visible Light Emitters, Chee-Keong Tan, Lehigh University [STUDENT]
1445	Room temperature CW operation of GaN-based VCSELs, Kenjo Matsui, Meijo University [STUDENT]
1500	BREAK
1530	Invited: High Al-content Al _x Ga _{1-x} N Heterojunctions for Devices in the Deep Ultraviolet Part of The Spectrum, Asif Khan, University of South Carolina
1600	Graded p-AlGa _n superlattice for reduced electron overflow in tunneling injected UVC LEDs, Yuewei Zhang, The Ohio State University [STUDENT]
1615	Polarization induced holes for ultraviolet emitting devices, Toshiki Yasuda, Meijo University [STUDENT]
1630	Pseudomorphic LEDs on AlN Substrates Emitting at 235nm, Leo Schowalter, Crystal IS
1700-1900	POSTER SESSION AND RECEPTION
1930	Women in Engineering Emeril's Fish House, Sands Casino, 77 Sands Blvd., Bethlehem, PA 18015

POSTER SESSION: 5 PM, Tuesday Aug 2
Room102 STEPS Building

P1 A Model for Dual-Gated Monolayer MoS₂ Transistor Characteristics Featuring Intrinsic and Gate-Dependent Contact Resistance, Phuoc Tran, International University, Vietnam

P2 Monte Carlo Modeling of Ultra-Fast Operating BDT based Logical Device, Jean-François Millithaler, UMASS LOWELL

P3 High Frequency N-Polar GaN Planar MIS-HEMTs on Sapphire with High Breakdown and Low Dispersion, Xun Zheng, University of California Santa Barbara [STUDENT]

P4 Cross sectional observation of slant field plates integrated to InAlAs/InGaAs HEMTs, Tomotaka Hosotani, Research Institute of Electrical Communication, Tohoku University [STUDENT]

P5 Growth and Characterization of Single Crystalline InN Grown on GaN by RF Sputtering for Robust Schottky Contacts, Vache Harootyan, UC-Davis [STUDENT]

P6 Full-wave Hydrodynamic Modeling of Terahertz Plasma-wave HEMT Emitters, Shubhendu Bhardwaj, Electrical and Computer Engineering, The Ohio State University [STUDENT]

P7 Simulation of Power Gain at THz Frequencies Employing Grating-gate RTD-gated HEMTs, Hugo Condori, University of Utah [STUDENT]

P8 Uncertainty quantification and the role of non-parabolicity in shaping the nature of the electron transport processes within zinc oxide, Stephen O'Leary, The University of British Columbia

P9 Low Frequency Noise Characteristics of ZnO Nanowire Field Effect Transistors, Hao Xue, The Ohio State University [STUDENT]

P10 Low Frequency Noise in Few Layer MoS₂, Junao Cheng, Ohio State University [STUDENT]

P11 Single Junction GaAs Solar Cells Grown by Hydride Vapor Phase Epitaxy, John Simon, NREL

P12 Integration of site-controlled InAs quantum dots in nanowire architectures towards building efficient data networks, Ayesha Jamil, COMSATS Institute of Information Technology

P13 Electrochemical photoconversion in micro/nanostructured GaN and InN grown on silicon, Vijay Parameshwaran, U.S. Army Research Laboratory

P14 Crystalline rare earth alloys as a solution for integrated III-V photonics on silicon, Andrew Clark, Translucent

P15 Polarization-Dependent Optical Properties of AlGaIn Nanowire Deep Ultraviolet Light-Emitting Diodes, Yu Kee Ooi, Rochester Institute of Technology [STUDENT]

**POSTER SESSION: 5 PM, Tuesday Aug 2 (contd.)
Room102 STEPS Building**

P16 Understanding the Current Injection Efficiency in Rare-Earth Doped GaN:Eu Red-Emitting Light Emitting Diodes, Ioannis Fragkos, Lehigh University [STUDENT]

P17 Miniband Engineering in III-Nitride Digital Alloy for Broadband Device Applications, Wei Sun, Lehigh University [STUDENT]

P18 A High Responsivity SnO₂ Hollow Nanospheres Based Ultraviolet Photodetector, Prachi Sharma, Rensselaer Polytechnic Institute [STUDENT]

P19 Characterization of a Molybdenum Disulfide Photodetector at Cryogenic Temperatures, GA Lara Saenz, University of Texas at El Paso [STUDENT]

P20 Relating Silicon Carbide Avalanche Breakdown Diode Design Parameters to Pulsed Energy Capability, Damian Urciuoli, U.S. Army Research Laboratory

P21 Electrical Characterization of Atomic Layer Deposited SiO₂/Al₂O₃ Interface, Ke Zeng, Electrical Engineering Department, University at Buffalo (SUNY) [STUDENT]

P22 Pulsed Power Evaluation and Simulation of High Voltage 4H-SiC P-Type SGTOs, Aderinto Ogunniyi, U.S. Army Research Laboratory [STUDENT]

P23 Thermal Breakdown of III-N HEMTs on different substrates, Michael Shur, Rensselaer Polytechnic Institute [STUDENT]

P24 Asymmetric Self-Heating in AlGaIn/GaN HEMTs and Its Implication on Device Reliability, Sukwon Choi, The Pennsylvania State University [STUDENT]

P25 Determination of Al₂O₃/Al₂O₃ Interface Trap Densities Dit Through Photo-Assisted C-V Method, H Zhou, Purdue University [STUDENT]

	WEDNESDAY, AUG 3 MORNING Room 101 STEPS Building Session WedAM: Digital and Bio Electronics Chairs: Shriram Shivaraman and James Hwang
0800	Registration opens
0830	Invited: Negative Capacitance Transistors, Sayeef Salahuddin, UC Berkeley
0900	Invited: New Materials to Push the Limits of Moore's Law, Tomas Palacios, MIT
0930	Overcoming Heterogeneity, Alignment, and Contact Challenges to Realize High-Conductance Carbon Nanotube Array Field-Effect Transistors, Michael Arnold, University of Wisconsin-Madison
0945	Experimental approach for feasibility of superlattice FET, Yasuyuki Miyamoto, Tokyo Tech
1000	BREAK
1030	Invited: Thin-Film Transistors for Flat-Panel Display Backplanes, John Wager, Oregon State University
1100	Low-Temperature Characteristics of $\text{In}_{0.7}\text{Ga}_{0.3}\text{As}$ PHEMTs, Dae-Hyun Kim, Kyungpook National University, [STUDENT]
1115	Preliminary Results for Broadband Electrical Detection of Bacteria, X. Du, Lehigh University
1130	Solution dispersed 2D Layered Materials for in vivo Biosensing Applications, Ridwan Hossain, University of Texas El Paso [STUDENT]
1200	LUNCH BUFFET

	WEDNESDAY, AUG 3 AFTERNOON Room 101 STEPS Building Session WedPM: Power Devices Chairs: Rongming Chu and Travis Anderson
1300	Invited: Electrical and Thermal Properties of Field-Plated Ga ₂ O ₃ MOSFETs with High Breakdown Voltage, Man-Hoi Wong, National Institute of Communication Technology, Japan
1330	Invited: Diamond: an Ultra Wide Bandgap Semiconductor for Power Electronics and Energy Conversion, Robert Nemanich, Arizona State University
1400	Diamond Based Schottky PIN Diodes with Breakdown Voltage > 750V, Maitreya Datta, Arizona State University [STUDENT]
1415	Towards the High Voltage Operating Potential of \hat{I}^2 -Ga ₂ O ₃ MOSFETs, Neil Moser, George Mason University [STUDENT]
1430	Effect of Carrier Lifetime Enhancement on the Performance of Ultra-High Voltage 4H-SiC PiN Diodes, Sauvik Chowdhury, Rensselaer Polytechnic Institute [STUDENT]
1445	BREAK
1515	Invited: Current Status of Vertical GaN Power Devices on GaN Substrates, Tohru Oka, Toyoda Gosei, Japan
1545	Comparison between GaN trench MOSFETs with (11 $\bar{2}$ 0) a-plane and (10 $\bar{1}$ 0) m-plane sidewalls, Chirag Gupta, University of California Santa Barbara [STUDENT]
1600	Experimental Realization of GaN PolarMOSH: SiC versus GaN substrates, Mingda Zhu, Cornell University [STUDENT]
1615	Heterostructure-Engineered Ohmics-based UBWG Al _{0.75} Ga _{0.25} N Channel MISFET, Sanyam Bajaj, The Ohio State University [STUDENT]
1630	Device Characteristics of AlN/Al _{0.85} Ga _{0.15} N High Electron Mobility Transistor with Regrown Ohmic Contact, Albert Baca, Sandia National Laboratories
1645	Keynote: Anant Agarwal, US Department of Energy
1730	END SESSION
1800	BANQUET: Wood Dining Room, 2nd Floor, Iacocca Hall, Mountaintop Campus, Lehigh University

	THURSDAY, AUG 4 MORNING Room 101 STEPS Building Session ThuAM: High Frequency Devices Chairs: Keisuke Shinohara and Yasuki Miyamoto
0800	Registration opens
0830	Invited: Demonstration of Amplifier Circuit Gain at 1THz with 25nm InP HEMT TMIC Process, Gerry Mei, Northrop Grumman
0900	Invited: InAlGa _N /Ga _N -HEMT Device Technologies for W-band High-Power Amplifier, Kozo Makiyama, Fujitsu
0930	Effect of Gate Sidewall Capacitance on N-Polar Ga _N Cap MISHEMT Performance, Steven Wienecke, University of California - Santa Barbara [STUDENT]
0945	Current Gain Above 10 in III-Nitride Tunneling Hot Electron Transistor, Zhichao Yang, The Ohio State University [STUDENT]
1000	Towards AlN/SiC platform high performance Ga _N QW HEMTs, SM Islam, Cornell University
1015	First Observation of Repeatable Room Temperature Negative Differential Resistance in Ga _N Resonant Tunneling Diodes, Jimmy Encomendero, Cornell University [STUDENT]
1030	BREAK
1100	Invited: The European DOTSEVEN (0.7 THz SiGe HBT) project: Technology, modeling and applications, Micheal Schroter, Technical University Dresden
1130	Plasmonic Detection of Short Terahertz Pulses, Michael Shur, Rensselaer Polytechnic Institute
1145	Low-dispersion 180° Phase Shifter Using Two Synchronized MEMS Switches, Vahid Gholizadeh, Lehigh University [STUDENT]
1200	BaSnO ₃ Based Transistors for High Frequency Applications, Zhanbo Xia, The Ohio State University [STUDENT]
1215-0130	LUNCH BUFFET - AWARD ANNOUNCEMENTS CONFERENCE CLOSING REMARKS