

EDTM2020 - Preliminary Advance Program

As of January 29, 2020

Day 1 - Monday, March 16

08:00-08:30 Main Room (Matahari I, II, III)

Opening Remarks

Chair: Samar Saha

08:30-10:45 Main Room (Matahari I, II, III)

Plenary Session 1

Chair: Arokia Nathan

8:30	9:15	PL-1		The Forever Exponential? Moore's Law: Past, Present and Future	Kaizad Mistry	Intel Corporation
9:15	10:00	PL-2		Semiconductor Nanowires for Optoelectronics Applications	Chennupati Jagadish	The Australian National University
10:00	10:45	PL-3		Rapid Yield Improvement Using Intelligent Data Mining	Vivek Jain	Maxim Integrated

10:45-11:15 Main Room (Matahari I, II, III)

Exhibitors Presentation

Chair: Aabid Husain, Tahiruddin Haji Hamdan

11:15-12:15 Rooms Etoile and Grand Ballroom II

Lunch Break

12:15-14:20 Room A (Matahari I)

Session 1A

Focus Session 1: Thin-Film Transistor

Chairs: Naoto Horiguchi, Carlo Reita

12:15	12:40	1A-1	Invited	Co-Design Between Semiconductor, Low-Variation Fully-Additive Printed/Flexible Printing and Variation-Tolerant Digital Circuit Design	Joseph Chang	NTU
12:40	13:05	1A-2	Invited	Contact Printed ZnO Nanowires based FET for Large Area Electronics	Ravinder Dahiya	University of Glasgow
13:05	13:30	1A-3	Invited	Printable Low Power Organic Transistor for Highly Customizable IoT Devices	Xiaojun Guo	Shanghai Jiao Tong University
13:30	13:55	1A-4	Invited	Ultralow-Power All-Inkjet-Printed Organic Thin-Film Transistors for Wearables	Chen Jiang	University of Cambridge
13:55	14:20	1A-5	Invited	Systematic Defect Manipulation in Metal Oxide Semiconductors Towards High-Performance Thin-Film Transistors	Yuqing Zhang	Peking University Shenzhen

14:20-14:40 Authors' Interview / Poster Viewing / Coffee Break

12:15-14:20 Room B (Matahari III)

Session 1B

Nanotechnology Materials and Manufacturing

Chairs: Anupam Mitra, Bich-Yen Nguyen

12:15	12:40	1B-1	Invited	Engineering Nanomaterials and Nanostructures for Electronic Applications: A Case Study of Carbon Nanotubes for Memory Devices	Rahul Sen	Nantero, Inc.
12:40	13:05	1B-2	Invited	Manufacturing of Super Growth Carbon Nanotubes and Its Aqueous Solution for Electronic Devices	Shigemi Murakawa	Zeon Corporation
13:05	13:30	1B-3		Performance and Reliability Improvement in Ge nMOSFETs with Different Surface Orientations Through Channel Flattening Process	Wen Hsin Chang	National Institute of Advanced Industrial Science and Technology (AIST)
13:30	13:55	1B-4	Invited	Atomic Layer Defect-free Top-down Process for Future Nano-devices	Seiji Samukawa	Tohoku University
13:55	14:20	1B-5		Back Gate Tunable Thin Film a-Si Nanowire BioFET for pH Detection by Compatible CMOS Fabrication Process	Nawaz Shafi	Malaviya National Institute of Technology Jaipur

14:20-14:40 Authors' Interview / Poster Viewing / Coffee Break

12:15-14:20 Room C (Grand Ballroom I)

Session 1C

Density Functional Theory-Based Simulation

Chairs: Risho Koh, Dipankar Pramanik

12:15	12:40	1C-1	Invited	RSDFT-NEGF Quantum Transport Simulation of Ultra-Small Field-Effect Transistors	Nobuya Mori	Osaka University
12:40	13:05	1C-2	Invited	Engineering Atom Scale Defects in Materials for Future Electronic Devices	Dipankar Pramanik	DSPAN Solutions
13:05	13:30	1C-3	Invited	Superlattice Based Optoelectronic Analogs for Spintronic Applications	Bhaskaran Muralidharan	IIT Bombay
13:30	13:55	1C-4		Ab-initio Tight Binding Study on Defects in Armchair Silicene Nanoribbon Double Gate Field Effect Transistor	Rajesh Junghare	Visvasvaraya National Institute Of Technology
13:55	14:20	1C-5		Impact of Interface Traps Induced Degradation on Negative Capacitance FinFET	Om Prakash	Karlsruhe Institute of Technology

14:20-14:40 Authors' Interview / Poster Viewing / Coffee Break

12:15-14:20 Room D (Grand Ballroom III)

Session 1D

Power and RF Devices

Chairs: Saptarshi Das, Chun-Jung Su

12:15	12:40	1D-1	Invited	Applications of Oxygen Inserted Silicon Devices in Power and RF	Robert J Mears	Atomera Incorporated
12:40	13:05	1D-2		3-Dimensional 4H-SiC MOSFETs for Harsh Environment Electronics	Muhammad Idzihar Bin Idris	FKEKK
13:05	13:30	1D-3	Invited	Growth-Microstructure-Device Performance Correlations for III-nitride Optoelectronic and Power Devices on Sapphire and Silicon	Srinivasan Raghavan	Indian Institute of Science & Centre for Nano Science and Engineering
13:30	13:55	1D-4		The Benefits of Using SiN as a Buried Oxide in Germanium-On-Insulator Substrate	Sethavut Duangchan	King Mongkut's University of Technology North Bangkok
13:55	14:20	1D-5	Invited	A Microscopic "Toy" Model of Ferroelectric Negative Capacitance	Michael Hoffmann	NaMLab gGmbH/TU Dresden

14:20-14:40 Authors' Interview / Poster Viewing / Coffee Break

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14:40-16:45							Room A (Matahari I)	
Session 2A							GaN and III-V Devices	
Chairs: Tian-Li Wu, Kejun Xia								
14:40	15:05	2A-1		Low Leakage Mg-compensated GaN Schottky Diodes on Free-Standing GaN Substrate for High Energy Alpha-Particle Detection	Abhinay Sandupatla	Nanyang Technological University		
15:05	15:30	2A-2		Low Interface Trap Density in AlGaIn/GaN Metal-Insulator-Semiconductor High-Electron-Mobility Transistors on CVD-Diamond	Kumud Ranjan	Nanyang Technological University		
15:30	15:55	2A-3		Change of High-Voltage Conduction Mechanism in Vertical GaN-on-GaN Schottky Diodes at Elevated Temperatures	Abhinay Sandupatla	Nanyang Technological University		
15:55	16:20	2A-4		Modeling and Characterization of InAs Quantum-Well Metal-Oxide-Semiconductor Field Effect Transistors on Quartz for 1.0 THz Wave Detection	Tanemasa Asano	Kyushu University		
16:20	16:45	2A-5		Compact Modeling of Negative Capacitance Nanosheet FET Including Quasi-Ballistic Transport	Amol Gaidhane	IIT Kanpur		
16:45-17:05							Authors' Interview / Poster Viewing / Coffee Break	
14:40-16:45							Room B (Matahari III)	
Session 2B							Large Area and Flexible Electronics	
Chairs: Xiaojun Guo, Yao Jen Lee								
14:40	15:05	2B-1	Invited	Performances of Self-Aligned Top-Gate a-IGZO TFTs with Ultrathin PECVD SiO ₂ Gate Dielectric	Yuqing Zhang	Peking University Shenzhen		
15:05	15:30	2B-2	Invited	High Performance Printed Electronics on Large Area Flexible Substrates	Mahesh Soni	University of Glasgow		
15:30	15:55	2B-3	Invited	Fully Printed Vertical Transport Edge FETs for High Power Oxide Electronics	Subho Dasgupta	Indian Institute of Science (IISc), Bangalore		
15:55	16:20	2B-4		Printing Quasi-1D Nanomaterials for Large-Area Flexible UV Photodetectors	Fengyuan Liu	University of Glasgow		
16:20	16:45	2B-5		Self-Healing Interconnects for Flexible Electronics	Virendra Parab	Indian Institute of Science		
16:45-17:05							Authors' Interview / Poster Viewing / Coffee Break	
14:40-16:45							Room C (Grand Ballroom I)	
Session 2C							TCAD-1	
Chairs: Yogesh Singh Chauhan, Nobuya Mori								
14:40	15:05	2C-1	Invited	Particle-based Device Modeling	Sima Dimitrijevic	Griffith University		
15:05	15:30	2C-2		Growth and Kinetics of Elemental and Binary Semiconducting Nanowires	Dhayalan Shakthivel	University of Glasgow		
15:30	15:55	2C-3		Significance of L-valley Charges and a Method to Include It in Electrostatic Model of III-V GAA FETs	Mohit Ganeriwala	Indian Institute of Technology Gandhinagar		
15:55	16:20	2C-4		Virtual Process-Based Spacer & Junction Optimization for an Inverter Circuit	Sofiane Guissi	Regional Technical Group of Lam Reserach & Lam Research		
16:20	16:45	2C-5	Invited	Electromigration Behavior of First-level Interconnection: Copper Pillar and Copper Stud	Christine Hau-Riege	Qualcomm Technologies, Inc.		
16:45-17:05							Authors' Interview / Poster Viewing / Coffee Break	
14:40-16:45							Room D (Grand Ballroom III)	
Session 2D							Design and Technology	
Chairs: William (Bill) Nehrer, Tomasz Brozek								
14:40	15:05	2D-1	Invited	Technology and Manufacturing Challenges for Si and 2D Material Based Nano-scale Devices and Systems	Irfan Saadat	Khalifa University		
15:05	15:30	2D-2		Near Threshold Design Technology Optimization in 12LP Process	Navneet Jain	GlobalFoundries, Inc.		
15:30	15:55	2D-3	Invited	An agile and scalable manufacturing model to support 5G growth	Luis Andia	Soitec Microelectronics Singapore Pte. Ltd.		
15:55	16:20	2D-4		Yield Estimation of NCFET-based 6-T SRAM	Yuri Hong	Sungkyunkwan University		
16:20	16:45	2D-5	Invited	Design Thinking Underlying Fully Integrated Systems	Mitsuhiro Nagata	Azbil Corporation		
16:45-17:05							Authors' Interview / Poster Viewing / Coffee Break	

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17:05-18:45							Room A (Matahari I)	
Session 3A							GaN Power Devices	
Chairs: Shreepad Karmalkar, Wai Tung Ng								
17:05	17:30	3A-1	Invited	Vertical Gallium Oxide Transistors with Current Aperture Formed Using Nitrogen-Ion Implantation Process	Masataka Higashiwaki	National Institute of Information and Communications Technology		
17:30	17:55	3A-2		Quasi-Normally-Off AlGaIn/GaN HEMTs with Strained Comb Gate for Power Electronics Applications	Weichih Cheng	Hong Kong University of Science and Technology		
17:55	18:20	3A-3		Study on the Optimization of Off-State Breakdown Performance of p-GaN HEMTs	Fanming Zeng	Southern University of Science and Technology		
18:20	18:45	3A-4	Invited	Simulation and Design of Step-Etched Junction Termination Extensions for GaN Power Diodes	Jeremy Dickerson	Sandia National Laboratories		
18:45-19:00							Authors' Interview	
17:05-18:45							Room B (Matahari III)	
Session 3B							2.5/3D Integration	
Chairs: Saad Mekhilef, Navab Singh								
17:05	17:30	3B-1	Invited	Low Temperature SmartCut™ Enabling 3D Integration	Walter Schwarzenbach	Soitec		
17:30	17:55	3B-2	Invited	Advanced Layer Transfer Technology of post-Si Materials for Heterogeneous Integration	Tatsuro Maeda	National Institute of Advanced Industrial Science and Technology (AIST)		
17:55	18:20	3B-3		Backstepping Position Control of High Frequency Piezoelectric Actuator Used in Ultrasonically Assisted Manufacturing	Mohammad Salah	The Hashemite University		
18:20	18:45	3B-4		The Investigation of Material Modification for SiO ₂ , Si ₃ N ₄ Film and Photo-resist Using High-Dose Ion Implantation Technique	Ryota Wada	Nissin Ion Equipment Co., Ltd.		
18:45-19:00							Authors' Interview	
17:05-18:45							Room C (Grand Ballroom I)	
Session 3C							TCAD-2	
Chairs: Albert Wang, Victor Moroz								
17:05	17:30	3C-1	Invited	Comprehensive Design Solutions for Wide Bandgap Power Electronics	Tao Sun	Singapore & Silvaco SG		
17:30	17:55	3C-2		Modeling Thermal Behavior in Multi-layered GaN HEMT-like Structures	K. Nidhin	Indian Institute of Technology Madras		
17:55	18:20	3C-3	Invited	Misconception with Pad-Based CDM ESD Protection	Albert Wang	University of California, Riverside		
18:20	18:45	3C-4		Simulation and Device Characterization of the P+PN+P Junction Type Pinned Photodiode and Schottky Barrier Photodiode	Yoshiaki Hagiwara	AIPS		
18:45-19:00							Authors' Interview	
17:05-18:45							Room D (Grand Ballroom III)	
Session 3D							Advanced Photovoltaic Devices and Detectors	
Chairs: Juzar Vasi, Hang Zhou								
17:05	17:30	3D-1		Optimization of Electron Transport Layers for High Performance Perovskite Solar Cells	Annie Ng	Nazarbayev University		
17:30	17:55	3D-2		Performance Enhancement of Double Quantum Well Solar Cell by Strain-Modulated Piezo-Phototronics Effect	Soumya Ranjan Routray	SRM Institute of Science and Technology		
17:55	18:20	3D-3	Invited	S-shape Current-Voltage Characteristics in Quantum Dot Integrated Multi-layer Organic Solar Cells	Upendra Verma	Indian Institute of Technology Roorkee		
18:20	18:45	3D-4		A Spectrum-Tunable and Flexible Light-Emitting Device with Ultra-Wide Wavelength Range	Guangya Jiang	Tsinghua University		
18:45-19:00							Authors' Interview	
19:00-21:00							Equatorial	
Poolside Reception								