

EDTM2020 - Preliminary Advance Program

As of January 29, 2020

Day 2 - Tuesday, March 17

07:30-08:30 Room C (Grand Ballroom I)

Women in Engineering / Young Professional Event

08:30-10:00 Main Room (Matahari I, II, III)

Plenary Session 2

Chair: Samar Saha

8:30	9:15	PL-4		Critical Feature Size of Device Manufacturing for Dominating MOSFET Evolutions	Digh Hisamoto	Hitachi, Ltd.
9:15	10:00	PL-5		Research Toward Monolithic Three-Dimensional Ics	Lance Li	Taiwan Semiconductor Manufacturing Company (TSMC)

10:00-10:15 Main Room (Matahari I, II, III)

Short Break

10:15-12:20 Main Room (Matahari I, II, III)

Session 4M

Focus Session 2: Reliability and DTCO

Chairs: Souvik Mahapatra, Muhammad A Alam

10:15	10:40	4M-1	Invited	Hot Carrier Degradation in Classical and Emerging Logic and Power Electronic Devices: Rethinking Reliability for Next Generation Electronics	Muhammad A Alam	Purdue University, West Lafayette
10:40	11:05	4M-2	Invited	A Model for Hole Trapping-Detrapping Kinetics During NBTI in p-Channel FETs	Souvik Mahapatra	Indian Institute of Technology Bombay
11:05	11:30	4M-3	Invited	Logic Block Level Design-Technology Co-Optimization is the New Moore's Law (Invited)	Victor Moroz	Synopsys
11:30	11:55	4M-4	Invited	Reliability of Advanced FinFET Technology Nodes Beyond Planar	Hyun Chul Sagong	Foundry Business, Samsung Electronics
11:55	12:20	4M-5	Invited	3D-NAND Reliability: Review of key mechanisms and mitigations	Shyam Raghunathan	Micron Technology

12:20-13:20 Authors' Interview / Lunch Break (Rooms Etoile and Grand BR II)

10:15-12:20 Room C (Grand Ballroom I)

Session 4C

Novel Photodetectors

Chairs: Kasturi Saha, Meenatchi Sundram

10:15	10:40	4C-1	Invited	High Gain Optical Sensors Enabled by Subthreshold Operation of Photodiode-Gated Transistors	Kai Wang	Sun Yet-sen University
10:40	11:05	4C-2	Invited	Optimization of PMMA:PCBM Interlayer for MAPbI ₃ /IGZO Phototransistor	Hang Zhou	Peking University
11:05	11:30	4C-3		TiO ₂ Nanowire /RGO Thin-Film Based Hybrid White Light Photodetector	Jay Chandra Dhar	National Institute of Technology Nagaland
11:30	11:55	4C-4		Fabrication and Characterization of SnO ₂ /CH ₃ NH ₃ PbI ₃ Based Photodetector	Rishibrind Kumar Upadhyay	Indian Institute of Technology (BHU), Varanasi
11:55	12:20	4C-5	Invited	Implantable Fluorescent CMOS Imaging Device	Kiyotaka Sasagawa	Nara Institute of Science and Technology

12:20-13:20 Authors' Interview / Lunch Break (Rooms Etoile and Grand BR II)

10:15-12:20 Room D (Grand Ballroom III)

Session 4D

Materials for Novel Devices

Chairs: Pei-Wen Li, Paul Berger

10:15	10:40	4D-1		Organic Semiconductor Based Nitric Oxide Detector with Modulated Sensitivity and Selectivity	Govindasamy Madhaiyan	National Chiao Tung University
10:40	11:05	4D-2	Invited	Biopolymer Based Gate Dielectrics for High Performance Organic Thin Film Transistors	Wei Lin Leong	Nanyang Technological University
11:05	11:30	4D-3		Design and Fabrication of Self-Organized Ge Gate/SiO ₂ /Si _{1-x} Ge _x Nanoshell with Raised Source/Drain for Advanced Transistors	I Hsiang Wang	National Chiao Tung University
11:30	11:55	4D-4	Invited	Effect of High Pressure Annealing Temperature on the Ferroelectric Properties of TiN/Hf _{0.25} Zr _{0.75} O ₂ /TiN Capacitors	Sanghun Jeon	Korea Advanced Institute of Science and Technology
11:55	12:20	4D-5	Invited	Applying Viscous Shear Stress to Align Single-Walled Carbon Nanotubes	Min Zhang	Peking University Shenzhen

12:20-13:20 Authors' Interview / Lunch Break (Rooms Etoile and Grand BR II)

13:20-15:00 Room A (Matahari I)

Session 5A

Reliability 1

Chairs: Mahadeva Iyer Natarajan, Fernando Guarin

13:20	13:45	5A-1	Invited	New Challenges of Design for Reliability in Advanced Technology Node	Changze Liu	Hisilicon
13:45	14:10	5A-2		First Time Enablement of RF Reliability Simulation Using Cadence Relxpert	Rajat Vishnoi	GlobalFoundries India
14:10	14:35	5A-3		Compact Model of Read Disturbance by Hot Carrier Injection in 3D NAND Flash Memory	Jae Yeol Park	Seoul National University
14:35	15:00	5A-4		Reliability Analysis of Gate-All-Around Floating Gate (GAA-FG) with Variable Oxide Thickness for Flash Memory Cell	Nurul Ezaila Alias	Universiti Teknologi Malaysia

15:00-15:20 Authors' Interview / Poster Viewing / Coffee Break

13:20-15:00 Room B (Matahari III)

Session 5B

Compact Modeling

Chairs: Slobodan Mijalkovic, Shahed Reza

13:20	13:45	5B-1		BSIM-IMG: Advanced Model for FDSOI Transistors with Back Channel Inversion	Harshit Agarwal	Indian Institute of Technology Jodhpur
13:45	14:10	5B-2		A Complete Model of Gate Controlled Lateral PNP Devices in CMOS Technology Valid in All Regions of Operation	Wei Zheng Tan	Silterra Malaysia Sdn. Bhd.
14:10	14:35	5B-3	Invited	Tolerance Bound Calculation for Compact Model Calibration Using Functional Data Analysis	Shahed Reza	Sandia National Laboratories
14:35	15:00	5B-4		Compact Modeling of Surface Potential and Drain Current in Multi-layered MoS ₂ FETs	Keshari Nandan	IIT-Kanpur

15:00-15:20 Authors' Interview / Poster Viewing / Coffee Break

Day 2 - Tuesday, March 17

13:20-15:00							Room C (Grand Ballroom I)	
Session 5C							Sensors and Inductors	
Chairs: Roger Booth, Chen Jiang								
13:20	13:45	5C-1	Invited	Integration of Gas Sensors with CMOS Technology	Siegfried Selberherr	Institute for Microelectronics, TU Wien		
13:45	14:10	5C-2		High Performance and Wireless Graphene Earphone Towards Practical Applications	Yuhong Wei	Tsinghua University		
14:10	14:35	5C-3		CMOS Low Power Current Source Based Tunable Inductor for IoT Devices	Selvakumar Mariappan	Universiti Sains Malaysia		
14:35	15:00	5C-4	Invited	Overview of Recent Advances in Flexible Highly Compliant Magneto-electronics	Denys Makarov	Institute of Ion Beam Physics and Materials Research		
15:00-15:20							Authors' Interview / Poster Viewing / Coffee Break	
13:20-15:00							Room D (Grand Ballroom III)	
Session 5D							Materials for Manufacturing	
Chairs: Asrul Nizam, Pei-Wen Li								
13:20	13:45	5D-1		Patterning Platinum by Selective Wet Etching of Sacrificial Pt-Al Alloy	Sebastian Meier	Texas Instruments Incorporated & Technische Universitaet Muenchen		
13:45	14:10	5D-2		Carbon Nanotubes to Enable Advanced Lithography	Marina Y. Timmermans	imec		
14:10	14:35	5D-3	Invited	Printed Graphene Aerosol Gel Micro-Supercapacitors: Towards Flexible Energy Storage Devices	Suprem Das	Kansas State University		
14:35	15:00	5D-4		SnO Thin Films Prepared by Reactive Sputtering for Ambipolar Thin-Film Transistor Applications	Jingyong Huo	Fudan University		
15:00-15:20							Authors' Interview / Poster Viewing / Coffee Break	
15:20-17:00							Room A (Matahari I)	
Session 6A							Reliability 2	
Chairs: Norhayati Binti Soin, Durga Misra								
15:20	15:45	6A-1		Impact and Quantization of Short-Term Relaxation Effect in Analog RRAM	Yue Xi	Tsinghua University		
15:45	16:10	6A-2		Reliability of 2DEG Diamond FET by Harsh-Continuous Stress Voltage Approach	Mohd Syamsul	Institute of Nano Optoelectronics Research and Technology (INOR), USM &		
16:10	16:35	6A-3		Analysis and Failure Modes of Highly Degraded PV Modules Inspected During the 2018 All India Survey of PV Module Reliability	Juzer Vasi	IIT Bombay		
16:35	17:00	6A-4		Hydrogen Proton Induced HTRB Reliability Degradation	David Goh	STMicroelectronics Asia Pacific Pte Ltd		
17:00-17:15							Authors' Interview	
15:20-17:00							Room B (Matahari III)	
Session 6B							Memory Modeling and Interface Trap Modeling	
Chairs: Dondee Navarro, Takeshi Naito								
15:20	15:45	6B-1		Perpendicular STT-MRAM Switching at Fixed Voltage and at Fixed Current	Simone Fiorentini	CDL NOVOMEMLOG, Institute for Microelectronics, TU Wien		
15:45	16:10	6B-2		Extraction of Mobility in 3-D NAND Flash Memory with Poly-Si Based Macaroni Structure	Hyungjun Jo	Seoul National University		
16:10	16:35	6B-3		Improved Lumped Element Model for GaN-based MIS-HEMT Gate Stack in the Spill-Over Regime	Narendra Suresh Rai	Indian Institute of Technology Bombay		
16:35	17:00	6B-4		Impact of Interface Traps and Zn Diffusion on Performance of Lateral Hybrid III-V/Si Photodetectors	Qian Ding	ETH Zurich		
17:00-17:15							Authors' Interview	
15:20-17:00							Room C (Grand Ballroom I)	
Session 6C							Neural Network and NVM 1	
Chairs: Nor Ashidi Mat Isa, Fabrice Meriaudeau								
15:20	15:45	6C-1	Invited	Material Innovation in the Era of Artificial Intelligence - A Case Study of Hf-Zr Systems	Dina H. Triyoso	TEL Technology Center, America, LLC		
15:45	16:10	6C-2	Invited	Enabling High-Performance DNN Inference Accelerators Using Non-Volatile Analog Memory (Invited)	An Chen	IBM Research		
16:10	16:35	6C-3	Invited	A Low Computational Cost Visual Tracking Algorithm Designed for a Multiple Mode Brain-Machine-Interface	Xuecheng Wang	Tsinghua University		
16:35	17:00	6C-4		Resistive Switching Behaviour of PVP/HfOx Hybrid RRAM on Flexible Substrate	Ishan Varun	Indian Institute of Technology Jodhpur		
17:00-17:15							Authors' Interview	
15:20-17:00							Room D (Grand Ballroom III)	
Session 6D							SiC-Power Devices	
Chairs: Qing Zhang, Robert Pan								
15:20	15:45	6D-1		Gen-3 PRESiCE Technology for Manufacturing SiC Power Devices in a 6-Inch Commercial Foundry	Bantval Jayant Baliga	North Carolina State University		
15:45	16:10	6D-2		Charge Sheet Super Junction in 4H-Silicon Carbide	Akshay K	IIT Madras		
16:10	16:35	6D-3		A Novel Snapback-Free Reverse-Conducting IGBT with Si/SiC Heterojunction	Jinping Zhang	University of Electronic Science and Technology of China		
16:35	17:00	6D-4	Invited	Roles of Semiconductor Junctions in Mechanical-Electrical Power Conversion	Qing Zhang	Nanyang Technological University		
17:00-17:15							Authors' Interview	