

Wednesday, Sept 9**Plenary I****8:30 AM****Welcome****Neil Goldsman****8:50 AM****Keynote: Drift-Diffusion and Computational Electronics: Still Going Strong after 40 Years!****Mark S. Lundstrom****9:50 AM****Invited: TCAD Modeling Challenges for 14 nm Fully Depleted SOI Technology Performance Assessment****Clement Tavernier****10:30 AM****break (20 minutes)****Paper Session 1: New Approaches****Paper Session 2: Bandstructure Effects****10:50 AM****Bozidar****Novakovic**

Atomistic quantum transport approach to time-resolved device simulations

Paul**Ellinghaus**

Improved Drive-Current for Nanoscaled Channels using Electrostatic Lenses

11:10 AM**Hong-Hyun****Park**

Multiscale strain simulation for semiconductor devices base on the valence force field and the finite element methods

Gabriel**Mugny**

Empirical full-zone k.p model parametrization for GaAs and InAs.

11:30 AM**Mauro****Calderara**

SplitSolve: A Fast Solver For Wave Function Based Quantum Transport Simulations On Accelerators

Tue**Gunst**

Mobility and bulk electron-phonon interaction in two-dimensional materials

11:50 AM**Dino****Ruic**

Small Signal and Microscopic Noise Simulation of an nMOSFET by a Self-Consistent, Semi-Classical and Deterministic Approach

Anne**Ziegler**

A computationally efficient non-parabolic bandstructure model for quantum transport simulations

12:10 PM**lunch (1 hr, 20 minutes)****Paper Session 3: *ab initio* and DFT****Paper Session 4: Power, Sensor, and Solar Devices****1:30 PM****Stanislav****Markov**

Atomic Level Simulation of Permittivity of Oxidised Ultra-thin Si Channels

Prateek**Sharma**

An Analytic Model for Hot-Carrier Degradation in LDMOS Devices

1:50 PM**Yannick****Wimmer**

A Density-Functional Study of Defect Volatility in Amorphous Silicon Dioxide

Atsushi**Sakai**Impacts of the 4H-SiC/SiO₂ Interface States on the Switching Operation of Power MOSFETs**2:10 PM****Devanarayanan****Ettisserry**

Modeling of Oxygen-Vacancy Hole Trap Activation in 4H-SiC MOSFETs using Density Functional Theory and Rate Equation Analysis

Ming-Yi**Lee**

Numerical Simulation of Highly Periodical Ge/Si Quantum Dot Array for Intermediate-Band Solar Cell Applications

2:30 PM**Anders****Blom**

First-Principles Simulations of Nanoscale Transistors

Alexander**Philippou**

Automated Vertical Design Optimization of a 1200V IGBT

2:50 PM**Qing****Shi**

Dielectric Material for Monolayer Black Phosphorus Transistors: A First-Principles Investigation

Tatsuya**Kunikiyo**

Investigation of leakage current in pinned photodiode CMOS imager pixel with negative transfer-gate bias operation

3:10 PM**break (20 minutes)**

	Plenary II
3:30 PM	<u>Invited:</u> <i>Challenges and Responses for Virtual Silicon</i> Keun-Ho Lee
4:10 PM	Poster Session
6:00 PM	

Thursday, Sept 10

Thursday, Sept 10							
Paper Session 5: Carbon Nanotubes				Paper Session 6: Thermal Modeling			
8:30 AM	Jingtian	Fang	Transistors performance in the sub-1 nm technology node based on one-dimensional nanomaterials	Benoît	Mathieu	Thermal Simulation of Nanosecond Laser Annealing of 3D Sequential VLSI Structures	
8:50 AM	Ken	Suzuki	Change in Electronic Properties of Carbon Nanotubes Caused by Local Distortion under Axial Compressive Strain	Hamed	Kamrani	Electrothermal Simulation of SiGe HBTs and Investigation of Experimental Extraction Methods for Junction Temperature	
9:10 AM	Sven	Mothes	Toward RF-linearity for planar local back-gate SB-CNTFETs	Liping	Wang	3D Electro-Thermal Simulations of Bulk FinFETs with Statistical Variations	
9:30 AM	Amirhossein	Davoody	Simulation of Resonance Energy Transfer in Carbon Nanotube Composites for Photovoltaic Applications	Aleš	Chvála	Advanced Methodology for Fast 3-D TCAD Electrothermal Simulation of Power HEMTs Including Package	
9:50 AM	Simone	Colasanti	3D Self-Consistent Modeling of Carbon Nanotubes Networks	Jerome	Saint Martin	Electrothermal simulation of ultra-scale MOSFET	
10:10 AM	break (20 minutes)						
Paper Session 7: Organic and Novel Material Devices				Paper Session 8: Reliability			
10:30 AM	Xian	Wu	Theoretical Study of the Spontaneous Electron-Hole Exciton Condensates between n and p-type MoS2 Monolayers, toward beyond CMOS Applications	Gerhard	Rzepa	Microscopic Oxide Defects Causing BTI, RTN, and SILC on High-K FinFETs	
10:50 AM	Luca	Lucci	Full-Quantum Study of AlGaIn/GaN HEMTs with InAlN Back-Barrier	Yun	Li	3D KMC Reliability Simulation of Nano-Scaled HKMG nMOSFET with Multiple Traps Coupling	
11:10 AM	Wei	Wang	Monte Carlo Simulation of the Dynamic Charge Hopping Transport in Organic Thin Film Transistors	Razaidi	Hussin	Reliability aware Simulation Flow: from TCAD Calibration to Circuit Level Analysis	
11:30 AM	Weifeng	Zhou	Simulation of Bipolar Organic Semiconductor Devices based on the Master Equation including Generation and Recombination	Kuiyuan	Zhang	Analysis of the Soft Error Rates on 65-nm SOTB and 28-nm UTBB FD-SOI Structures by a PHITS-TCAD Based Simulation Tool	
11:50 AM	Guangwei	Xu	Origin of Mobility Degeneration at High Gate Bias in Organic Thin Film Transistors Based on Carriers' Freeze to Surface Charges	Fikru	Adamu-Lema	Comprehensive 'Atomistic' Simulation of Statistical Variability and Reliability in 14 nm Generation FinFETs	
12:10 PM	lunch (1 hr, 20 minutes)						
Paper Session 9: Graphene Devices				Paper Session 10: Novel TCAD Applications			
1:30 PM	Mario	Ancona	Coupled 2D/3D Transport: Analysis of Graphene-SiC Devices	Thanh Viet	Dinh	RF Technology Optimization by a Fast Method for Linearity Determination	

1:50 PM	Shaloo	Rakheja	Engineering Plasmons in Graphene Nanostructures in THz Frequencies: Compact Modeling & Performance Analysis for On-chip Interconnects	Harald	Demel	Expanding TCAD Simulations from Grid to Cloud
2:10 PM	Philippe	Dollfus	High thermoelectric figure of merit in vertical devices made of stacked graphene layers	Tapas Kumar	Maiti	Modeling of Electrostatically Actuated Fluid Flow System for Mixed-Domain Simulation
2:30 PM	Wenshen	Li	Computational Study of Graphene FETs (GFETs) as Room-Temperature Terahertz Emitter	Hajdin	Ceric	Impact of Microstructure and Current Crowding on Electromigration: A TCAD Study
2:50 PM	Fan	Chen	Achieving a higher ON/OFF ratio in Bilayer Graphene FET -- Strain Engineering	Christian	Kernstock	Layout-Based TCAD Device Model Generation
3:10 PM	<i>break (20 minutes)</i>					
	Paper Session 11: Silicon Devices			Paper Session 12: Contacts and Interconnects		
3:30 PM	Oskar	Baumgartner	Efficient Modeling of Source/Drain Tunneling in Ultra-Scaled Transistors	Kristof	Moors	Modeling and Tackling Resistivity Scaling in Metal Nanowires
3:50 PM	Anouar	Idrissi-El Oudrhiri	Mechanical Simulation of Stress Engineering Solutions in Highly Strained p-type FDSOI MOSFETs for 14-nm Node and beyond	Jiseok	Kim	ab-initio study on Schottky-barrier modulation in NiSi ₂ /Si interface
4:10 PM	Juncheng	Wang	Monte Carlo Investigation of Silicon MOSFET for Terahertz Detection	Amithraj	Valsaraj	Substitutional Doping of Metal Contact for Monolayer Transition Metal Dichalcogenides: a Density Functional based Study
4:30 PM	Carlos	Sampedro	Impact of S/D tunneling in Ultrascaled Devices, a Multi-Subband Ensemble Monte Carlo Study	Jiseok	Kim	Specific contact resistivity of n-type Si and Ge M-S and M-I-S contacts
4:50 PM	Alex	Burenkov	Simulation of plasma immersion ion implantation into silicon	Peijie	Feng	Contact Model Based on TCAD-Experimental Interactive Algorithm
6:30 PM	Conference Dinner					

Friday, Sept 11

Friday, Sept 11							
Paper Session 13: Finfets				Paper Session 14: Tunneling and Spin Devices			
8:30 AM	Munkang	Choi	Extending Drift-Diffusion Paradigm into the Era of FinFETs and Nanowires	Pinaki	Mazumder	Modeling of temperature dependency of magnetization in straintronics memory devices	
8:50 AM	Vihar	Georgiev	Interplay between quantum mechanical effects and a discrete trap position in ultra-scaled FinFETs	Ram Krishna	Ghosh	Heterojunction Resonant Tunneling Diode at the Atomic Limit	
9:10 AM	Dax	Crum	Impact of Gate Oxide Complex Band Structure on n-Channel III-V FinFETs	Hesameddin	Ilatikhameneh	Atomistic Simulation of Electrically Doped WTe ₂ Tunnel Transistor	
9:30 AM	Lee	Smith	FinFET to Nanowire Transition at 5nm Design Rules	Cem	Alper	Modeling the Imaginary Branch in III-V Tunneling Devices: Effective Mass vs k-p	
9:50 AM	Markus	Karner	Hierarchical TCAD Device Simulation of FinFETs	Joydeep	Ghosh	Injection Direction Sensitive Spin Lifetime Model in a Strained Thin Silicon Film	
10:10 AM	break (20 minutes)						
Paper Session 15: Memory Devices				Paper Session 16: Compact Models			
10:30 AM	Sanchit	Deshmukh	Thermal Modeling of Metal Oxides for Highly Scaled Nanoscale RRAM	Yasuhiro	Okada	Compact Modeling of GaN HEMT Based on Device-Internal Potential Distribution	
10:50 AM	Yudi	Zhao	Simulation of TaOX-RRAM with Ta ₂ O ₅ -X/TaO ₂ -X Stack Engineering	Jing	Wang	A Generic Approach for Capturing Process Variations in Lookup-Table-Based FET Models	
11:10 AM	Aravinthan	Athmanathan	A Finite-element Thermo-electric model for Phase-Change Memory devices	Sebastien	Martinie	A physics-based compact model for Fully-Depleted Tunnel Field Effect Transistor	
11:30 AM	Elhameh	Abbaspour	The Role of the Interface Reactions in the Electroforming of Redox-based Resistive Switching Devices Using KMC Simulations	Peng	Wu	Channel-Potential Based Compact Model of Double-Gate Tunneling FETs Considering Channel-Length Scaling	
11:50 AM	Astrid	Marchewka	Physical Simulation of Dynamic Resistive Switching in Metal Oxides Using a Schottky Contact Barrier Model	Vaibhav	Ostwal	A Circuit Model for a Si-based Biomimetic Synaptic Time-keeping Device	
12:10 PM	Olga	Cueto	Coupling the Phase Field Method with an Electrothermal Solver to Simulate Phase Change Mechanisms in PCRAM Cells	Xingsheng	Wang	Hierarchical Variability-Aware Compact Models of 20nm Bulk CMOS	
12:30 PM	lunch (1 hr)						
1:30 PM	Tutorial 1 <i>QuantumWise: Demonstration of the ATK software package for atomistic simulations</i>						
2:30 PM	Tutorial 2						