Session Topic 6 -- Computation/Modeling and Simulation

Chairs: Anant Anantram, University of Waterloo
Ram Mohan, North Carolina A&T
Bobby Sumpter, Oak Ridge National Lab
Amit Verma
Irena Knezevic

TUESDAY, Room M6

Paper ID	Time	Title	Authors & Affiliations
10:00 - 12:00 Session Chair: M. P. Anantram			
	10:00 - 10:45	*Multiscale atomistic simulations of high-k MOSFETs (Invited)*	Aldo DiCarlo, Univ. of Rome "Tor Vergata", Italy
PID598476	10:45 - 11:10	*High-field hole transport in small diameter silicon nanowires*	Amit Verma, Texas A&M University-Kingsville, USA; Andrei Buin, University of Waterloo, Canada; M. P. Anantram, University of Waterloo, Canada; and Reza Nekovei, Texas A&M University-Kingsville, USA
PID595689	11:10 - 11:35	*Thermoelectric properties of silicon nanowires*	Edwin Ramayya, University of Wisconsin - Madison, USA; Dragica Vasileska, Arizona State University, USA; Stephen Goodnick, Arizona State University, USA; and Irena Knezevic, University of Wisconsin - Madison, USA
PID594907	11:35 - 12:00	*On the Impact Ionization of Double-Gate MOSFET Using Full Band Monte Carlo Method*	Ping Bai, Institute of High Performance Computing, Singapore; Ken Kai-fu Chang, Institute of High Performance Computing, Singapore; Kajen R.S, Institute of High Performance Computing, Singapore; Ganesh Samudra, National University of Singapore, Singapore; and Erping Li, Institute of High Performance Computing, Singapore
	12:00 - 2:00	***Lunch***	
2:00 - 5:00 Session Chair: Bobby Sumpter			
PID621398	2:00 - 2:45	*On the design of low dimensional devices using atomistic computational approaches (Invited)*	Vincent Meunier, Oak Ridge National Laboratory, USA
	2:45 - 3:00	***Break***	
PID595732	3:00 - 3:30	*Investigation of Strain Effects on the Band-structure of Si Nanowires using TB and DFT Methods*	Daryoush Shiri, University of Waterloo, Canada; Yifan Kong, University of Waterloo, Canada; Andrei Buin, University of Waterloo, Canada; and M. P. Anantram, University of Waterloo, Canada
PID593522	3:30 - 4:00	*Structure Dependence of Nanoconductor Current in a Tight-Binding Microcanonical Model*	Ilke Ercan, University of Massachusetts, USA; and Neal G. Anderson, University of Massachusetts, USA
PID551802	4:00 - 4:30	*Control of Charge Carriers in Molecular Devices*	Sergey Lyshevski, RIT, USA; and Akhouri Sinha, Purdue University, USA
PID590084	4:30 - 5:00	*The guiding mechanism of nonradiative Surface Plasmon (SP) energy transfer along the metallic nanowire*	Pinaki Mazumder, University of Michigan/NSF, USA; and Kyunyung Song, University of Michigan, Korea
WEDNESDAY, Room M6			
9:00 - 12:00 Session Chair: Ram Mohan			
PID660707	9:00 - 9:45	*Currrent Status and Future Perspectives of Carbon Nanotube Interconnects (Invited)*	Kaustav Banerjee, University of California Santa Barbara
	9:45 - 10:00	***Break***	
PID548686	10:00 - 10:30	*Equivalent Single Conductor Modeling of Carbon Nanotube Bundles for Transient Analysis of High-Speed Interconnects*	Marcello D'Amore, Sapienza University of Rome, Italy; Mauro Ricci, Sapienza University of Rome, Italy; and Alessio Tamburrano, Sapienza University of Rome, Italy

PID595915	10:30 - 11:00	*Design and Modeling of Electrode Geometry for Intelligent Manufacturing and Assembly of CNT-Based Nano Devices*	Uchechukwu Wejinya, University of Arkansas, United States of America; Ning Xi, Michigan State University, United States of America; King Wai Chiu Lai, Michigan State University, United States of America; and Jiangbo Zhang, Michigan State University, USA
PID552584	11:00 - 11:30	*Reliability of a QCA Array Multiplier*	Ismo Hänninen, Tampere University of Technology, Finland; and Jarmo Takala, Tampere University of Technology, Finland
PID591225	11:30 - 12:00	*Quantum Mechanical Simulation of QCA with a Reduced Hamiltonian Model*	Faizal Karim, UBC, Canada; Aryan Navabi, UBC, Canada; Konrad Walus, UBC, Canada; and Andre Ivanov, UBC, Canada
	12:00 - 2:00	***Lunch***	
2:00 - 2:45 Session Chair: Irena Knezevic			
PID542465	2:00 - 2:45	*Frequency Response of Nanoelectromechanical Cantilevers Operating in Fluid (Invited)*	Michael Martin, Naval Research Laboratory, USA; and Brian Houston, Naval Research Laboratory, USA
	2:45 - 3:00	***Break***	
PID598394	3:00 - 3:30	*Prediction of Material Properties of Single Walled Carbon Nanotube using MD Simulations*	Ajit Kelkar, North Carolina A&T State University, USA; Gautam Chandekar, North Carolina A&T State University, USA; and Ram Mohan, North Carolina A&T State University, USA
PID553187	3:30 - 4:00	*A fundamental Analysis of Nano-Crossbars with Non-Linear Switching Materials and its Impact on TiO2 as a Resistive Layer*	Alexander Flocke, RWTH Aachen University, Germany; Carsten Kügeler, Research Center Juelich, Germany; Christian Nauenheim, Research Center Juelich, Germany; Tobias Noll, RWTH Aachen University, Germany; and Rainer Waser, Research Center Juelich, Germany
PID596462	4:00 - 4:30	*Building Blocks for Fluctuation Based Calculation in Single Electron Tunneling Technology*	Saleh Safiruddin, Delft University of Technology; Sorin Cotofana, Delft University of Technology; Ferdinand Peper, National Institute of Information and Communication Technology; and Jia Lee, Celartem Technology Inc.
PID598393	4:30 - 5:00	*Molecular Dynamics Simulations of Flexural Deformation of Nickel Nanowires*	Ram Mohan, North Carolina A&T State University, USA; and Yu Liang, North Carolina A&T State University, USA
THURSDAY Chair: Amit Verma			
PID595544	9:00 - 9:45	*Efficient Algorithms for Protein-Based Associative Processors and Volumetric Memories (Invited)*	Sanguthevar Rajasekaran, University of Connecticut, USA; Vipin Kumar, Univ. of Minnesota, USA; Sartaj Sahni, Univ. of Florida, USA; and Robert Birge, University of Connecticut, USA
	9:45 - 10:00	***Break***	
PID595613	10:00 - 10:30	*nanoHUB.org – online simulation and more serving annually over 60,000 users (Invited)*	Gerhard Klimeck, Purdue University, USA; Michael McLennan, Purdue University, USA; Mark Lundstrom, Purdue University, USA; and George B. Adams, III, Purdue University, USA
PID596816	10:30 - 11:00	*Effect of contacts on quantum transport in nanostructures (Invited)*	Bozidar Novakovic, University of Wisconsin - Madison, USA; and Irena Knezevic, University of Wisconsin - Madison, USA
PID596320	11:00 - 11:30	*OMEN an atomistic and full-band quantum transport simulator for post-CMOS nanodevices*	Mathieu Luisier, Network for Computational Nanotechnology, USA; and Gerhard Klimeck, Network for Computational Nanotechnology, USA
PID596087	11:30 - 12:00	*Structure Effect of Cylindrical-Shaped GeSbTe Alloy on Phase Transition in Phase Change Memory*	Yiming Li, National Chiao Tung University, Taiwan; Chih-Hong Hwang, National Chiao Tung University, Taiwan; Yi-Ting Kuo, National Chiao Tung University, Taiwan; and Hui-Wen Cheng, National Chiao Tung University, Taiwan
	12:00 - 2:00	***Lunch***	
	2:00 - 2:45	***Poster Session***	
Poster Session (Thursday 2:00 - 2:45 pm)			
	2:00 - 2:45	**Presentations for Poster session (3 minute oral indroduction to poster)**	
PID543923	Poster	*Modeling Reliability for Single-Electron Tunneling Logic Gates*	Yanjie Mao, University of Windsor, Canada; and Chunhong Chen, University of Windsor, Canada

PID547137	Poster	*Equivalent circuit model of MWCNT nanointerconnects*	Maria Sabrina Sarto, Univ. of Rome Sapienza, Italy; and Alessio Tamburrano, Univ. of Rome Sapienza, Italy
PID575673	Poster	*Modeling of Carbon Nanotube Schottky Diode Based on Coaxial Geometry*	Alireza Kargar, Shiraz University, Iran
PID554417	Poster	*Compact Model of a Dual Gate CNTFET: Description and Circuit Application*	Johnny Goguet, IMS laboratory, France; Sébastien Frégonèse, IMS laboratory, France; Cristell Maneux, IMS laboratory, France; and Thomas Zimmer, IMS laboratory, France
PID554025	Poster	*Investigation on the Impact Ionization Breakdown Onset of Double-Gate MOSFET structure with Optimized Hydrodynamic Model via Full-band Monte Carlo Method*	Ken Chang, IHPC, Singapore
PID596503	Poster	*Image Processing Algorithm for Analyzing Chirality in Carbon Nanotubes*	Benjamin Bunes, Union College, USA; Palma Catravas, Union College, USA; and Michael Hagerman, Union College, USA
PID595841	Poster	*An investigation of energy bandgap of monolayer and bilayer graphene nanoribbon based on different basis sets*	Kai-Tak Lam, National University of Singapore, Singapore; and GENGCHIAU LIANG, National University of Singapore, Singapore
PID596339	Poster	*Simulations for Vertically Coupled Wave-functions of Electrons on the Multiple Lens-shaped InAs/In(Ga)As Quantum Dot Layers with Dependences of GaAs Spacing Layer*	Shiang-Feng Tang, Chung-Shan Institute of Science and Technology , Taiwan, R.O.C; Xin Nong Yang, Chung Cheng Institute of Technology, Taiwan, R.O.C; Xin-Yuan Tu, National Taiwan University, Taiwan, R.O.C; Tzu-Chiang Chen, Chung Cheng Institute of Technology, National Defense University, Taiwan, R.O.C; Sun-Tai Ping, Graduate Institute of Technology, National Chi-Nan University, Taiwan, R.O.C; and Cheng-Der Chiang, Chung-Shan Institute of Science and Technology , Taiwan, R.O.C
PID592321	Poster	*On the global dynamic behavior of trapped ions in a thermal environment*	Michele Bonnin, Politecnico di Torino, Italy; Pier Paolo Civalleri, Politecnico di Torino, Italy; and Marco Gilli, Politecnico di Torino, Italy
PID595773	Poster	*Interaction in the Concurrently Running Replication and Self-assembly Processes*	Stefan Wegrzyn, The Institute of Theoretical and Applied Informatics of the Polish Academy of Sciences, Poland; and Lech Znamirowski, Silesian University of Technology, Poland
PID652223	Poster	*Micro/Nano X-Ray Tomography ReconstructionTuning Using SEM Images for PEMFC Gas Diffusion Layers*	Hossein Ostadi, University of Birmingham, United Kingdom; Kyle Jiang, University of Birmingham, United Kingdom; and Phil Prewett, University of Birmingham, United Kingdom
PID595906	Poster	*Fast Algorithm for Blind Estimation of Tip Shape for Atomic Force Microscope*	Shuai Yuan, Shenyang Institute of Automation,Chinese Academy of Sciences , China; Ning Xi, Michigan State University, USA; Zaili Dong, Shenyang Institute of Automation, Chinese Academy of Sciences, China; Lei Miao, Shenyang Institute of Automation, Chinese Academy of Sciences, China; and Yuechao Wang, Shenyang Institute of Automation, Chinese Academy of Sciences, China
PID596093	Poster	*Integrated 3-D Simulation Tool for Micro and Nano Fabrication*	Guangyi Sun, Nankai University, P. R. China; Xin Zhao, Nankai University, P. R. China; Haixia (Alice) Zhang, Peking University, P. R. China; and Guizhang Lu, Nankai University, P. R. China