International Workshop on Computational Electronics (IWCE – 10)

Purdue University, West Lafayette, IN

October 24 – 27, 2004

Program

Sunday, October 24, 2004

Conference Check in and Welcome Reception
6:00 pm to 9:00 pm East and West Faculty Lounges, Purdue Student Union

Monday, October 25, 2004

7:00 am	**Breakfast**	**West Entrance Stewart Center**
8:00 am	**Welcome, Mark Lundstrom**	**Fowler Hall, Stewart Center**
8:15 am	**Session 1: TCAD 1**	**Fowler Hall, Stewart Center**
10:15 am	**Coffee Break**	**West Entrance Stewart Center**
10:30 am	**Session 2: TCAD 2**	**Fowler Hall, Stewart Center**
12:15 pm	**Lunch**	**Purdue Memorial Union 250**
1:30 pm	**Session 3: Monte Carlo**	**Fowler Hall, Stewart Center**
3:30 pm	**Shotgun Poster Announcements**	**Fowler Hall, Stewart Center**
6:00 pm	**Session 4: Poster session 1 with wine tasting and finger foods**	**East and West Faculty Lounges, Purdue Student Union**

Tuesday, October 26, 2004

7:00 am	**Breakfast**	**West Entrance Stewart Center**
8:00 am	**Session 5: Quantum Transport 1**	**Fowler Hall, Stewart Center**
10:00 am	**Coffee Break**	**West Entrance Stewart Center**
10:15 am	**Session 6: Quantum Transport 2**	**Fowler Hall, Stewart Center**
12:00 pm	**Shotgun Poster Announcements**	**Fowler Hall, Stewart Center**
12:30 pm	**Session 7: Poster session 2 with lunch**	**Stewart Center, Rooms 302/306**
3:00 pm	**Session 8: Optical and MADFET**	**Fowler Hall, Stewart Center**
6:00 pm	**Banquet Dinner**	**Shivley**

Wednesday, October 27, 2004

7:00 am	**Breakfast**	**West Entrance Stewart Center**
8:00 am	**Session 9: Molecular Electronics**	**Fowler Hall, Stewart Center**
9:45 am	**Coffee Break**	**West Entrance Stewart Center**
10:00 am	**Session 10: Alternative Comp. Arch.**	**Fowler Hall, Stewart Center**
12:00 pm	**Lunch**	**Stewart Center, Room 214**
1:00 pm	**Session 11: *bio-nano***	**Fowler Hall, Stewart Center**
3:00 pm	**Workshop Adjourn**	

Monday, October 25, 2004

Breakfast 7:30 am to 8:00 am

Session 1: TCAD 1 8:15 am to 10:15 am

Chairperson: Asen Asenov

8:15 – 8:45 **Evolution of Current Transport Models for Engineering Applications**
A. Gehring and S. Selberherr (INVITED)
Institute for Microelectronics, TU Vienna, Gusshausstr

8:45 – 9:00 **A Legendre Polynomial Solver for the Langevin Boltzmann Equation**
C. Jungemann and B. Meinerzhagen
NST, TU Braunschweig

9:00 – 9:15 **Efficient Simulation of the Full Coulomb Interaction in Three Dimensions**
C. Heitzinger, C. Ringhofer, S. Ahmed, and D. Vasileska
Arizona State University

9:15 – 9:30 **A Physically-Based Analytic Model for Stress-Induced Hole Mobility Enhancement**
B. Obradovic, P. Matagne, L. Shifren, X. Wang, M. Stettler, J. He, and M.D. Giles
Intel TCAD and Intel PTD Q&R

9:30 – 9:45 **A Unified Modeling of NBTI and Hot Carrier Injection for MOSFET Reliability**
H. Kufluoglu and M.A. Alam
Purdue University

9:45 – 10:00 **Simulations of Sub-100nm Strained Si MOSFETs with High-κ Gate Stacks**
L. Yang, J. R. Watling, F. Adam-Lema, A. Asenov, and J.R. Barker
University of Glasgow

10:00 – 10:15 **Influence of Ballistic Effects in Ultra-Small MOSFETs**
J. Saint Martin, V. Aubry-Fortuna, A. Bournel, P. Dollfus, S. Galdin, and C. Chassat
Université Paris Sud

Coffee Break 10:15 am to 10:30 am

Session 2: TCAD 2 10:30 am to 12:15 pm

Chairperson : Chihiro Hamaguchi

10:30 – 11:00 **TCAD Process/Device Modeling Challenges and Opportunities for the Next Decade**
M.D. Giles (INVITED)
Intel Corporation

11:00 – 11:15 **A Non-Parabolic Six Moments Model for the Simulation of Sub-100nm Devices**
T. Grasser, R. Kosik, C. Jungemann, H. Kosina, B. Meinerzhagen and S. Selberherr
Institute for Microelectronics NST, TU Braunschweig and Institute for Microelectronics, TU Vienna

11:15 – 11:30 **Multi-Dimensional Tunneling in Density-Gradient Theory**
M.G. Ancona and K. Lilja
Naval Research Laboratory and Mixed Technology Associates, LLC

11:30 – 11:45 **TCAD Ready Density Gradient Calculation of Channel Charge for Strained Si/Strained $Si_{1-x}Ge_x$, Dual Channel pMOSFETs on (001) Relaxes $Si_{1-y}Ge_y$**
C.D. Nguyen, A.T. Pham, C. Jungemann, and B. Meinerzhagen
NST, TU Braunschweig

11:45 – 12:00 **Analytical and Numerical Investigation of Noise in Nanoscale Ballistic Field Effect Transistors**
G. Iannaccone
Università degli Studi di Pisa

12:00 – 12:15 **Intrinsic Parameter Fluctuations in Conventional MOSFET's at the Scaling Limit: A Statistical Study**
F. Adamu-Lema, G. Roy, A.R. Brown, A. Asenov, and S. Roy
University of Glasgow

Lunch Buffet 12:15 pm to 1:30 pm
East and West Faculty Lounges, Purdue Student Union

Session 3: Monte Carlo 1:30 pm to 3:30 pm

Chairperson: Carlo Jacoboni

1:30 – 2:00 **Thirty Years of Monte Carlo Simulations of Electronic Transport in Semiconductors: Their Relevance to Science and to Mainstream VLSI Technology**
M.V. Fischetti, S.E. Laux, P.M. Solomon, and A. Kumar (INVITED)
Thomas J. Watson Research Center

2:00 – 2:15 **Monte Carlo Simulation of Electron Velocity Overshoot in DGSOI MOSFETs**
F. Gamiz, A. Godoy, and C. Sampedro
Universidad de Granada

2:15 – 2:30 **Phonon-Limited Transport in Carbon Nanotubes Using the Monte Carlo Method**
G. Pennington, A. Akturk, and N. Goldsman
University of Maryland

2:30 – 2:45 **Quantum Corrected Full-Band Cellular Monte Carlo Simulation of AlGaN/GaN HEMTs**
S. Yamakawa, S.M. Goodnick, S. Aboud, and M. Saraniti
Arizona State University and Illinois Institute of Technology

2:45 – 3:00 **3D Monte Carlo Simulation of FinFET using FMM Algorithm**
H.R. Khan and D. Vasileska
Arizona State University

3:00 – 3:15 **A Self-Consistent Event Biasing Scheme for Statistical Enhancement**
M. Nedjalkov, S. Ahmed, and D. Vasileska
Arizona State University

3:15 – 3:30 **3D Monte Carlo Analysis of Discrete Dopant Effects on Electron Noise in Si Devices**
P. Dollfus, J.E. Velázquez, A. Bournel, and S. Galdin-Retailleau
Université Paris-Sud and Universidad de Salamanca

Shotgun Poster Announcements 3:30 pm to 4:10 pm

Chairperson: Mark Lundstrom

Poster Session (session 4) 6:00 pm to 9:00 pm
Wine Tasting and Finger Foods (Hammered Dulcimer as light entertainment)
East and West Faculty Lounges, Purdue Student Union

Tuesday, October 26, 2004

Breakfast **7:00 am to 8:00 am**

Session 5: Quantum Transport 1 **8:00 am to 10:00 am**

Chairperson: Roger Lake

8:00 – 8:30 **The NEGF Method: Capabilities and Challenges**
S. Datta (INVITED)
Purdue University

8:30 – 8:45 **Full Quantum Mechanical Simulation of Ultra-Small Silicon Devices in Three-Dimensions: Physics and Issues**
M.J. Gilbert and D.K. Ferry
Arizona State University

8:45 – 9:00 **A Quantum Many-Body Density Matrix Model for Sub-Femtosecond Transport in Mesoscopic Structures**
I. Knezevic and D.K. Ferry
University of Wisconsin - Madison and Arizona State University

9:00 – 9:15 **Numerical Parallel Algorithms for Large-Scale Nanoelectronics Simulations using NESSIE**
E. Polizzi and A. Sameh
Purdue University

9:15 – 9:30 **Modeling of Quantum Nanomechanics**
A.-P. Jauho, T. Novotny. A. Donarini, and C. Flindt
Technical University of Denmark

9:30 – 9:45 **Atomistic Simulation of Carbon Nanotube Field-Effect Transistors using Non-Equilibrium Green's Function Formalism**
J. Guo, S. Datta, M.P. Anantram, and M. Lundstom
Purdue University and NASA Ames Research Center

9:45 – 10:00 **Quantum Capacitance Effects in Carbon Nanotube Field-Effect Devices**
L. Latessa, A. Pecchia, A. Di Carlo, and P. Lugli
University of Rome and Technical University of Munich

Coffee Break **10:00 am to 10:15 am**

Session 6: Quantum Transport 2 10:15 am to 12:00 pm

Chairperson: Antti Pekka Jauho

10:15 – 10:45 **Arbitrary Crystallographic Orientation in QDAME with Ge 7.5 nm DGFET Examples**
S.E. Laux (INVITED)
T.J. Watson Research Center

10:45 – 11:15 **Self-Consistent Contact Block Reduction Method for Ballistic Nanodevices**
M. Sabathil, D. Mamaluy, and P. Vogl (INVITED)
Technische Universität München and Arizona State University

11:15 – 11:30 **Analysis of Strained-Si Device Including Quantum Effect**
R. Tanabe, T. Yamasaki, Y. Ashizawa, and H. Oka
Fujitsu Laboratories Ltd.

11:30 – 11:45 **Electronic Properties of Silicon Nanowires**
Y. Zheng, C. Rivas, R. Lake, K. Alam, T.B. Boykin, and G. Klimeck
University of California, University of Texas, University of Alabama in Huntsville, and Purdue University

11:45 – 12:00 **Treatment of Point Defects in Nanowire MOSFETs using the Nonequilibrium Green's Function Formalism**
M. Bescond, J.-L. Autran, N. Cavassilas, D. Munteanu, and M. Lannoo
Provence Materials and Microelectronics Laboratory and Institut Universitaire de France

Shotgun Poster Announcements 12:00 pm to 12:30 pm

Chairperson: David Ferry

Poster Session (session 7)/Lunch 12:30 pm to 3:00 pm
Stewart Rooms 302-306

Session 8: Optical and MADFET 3:00 pm to 5:00 pm

Chairperson: Massimo Fischetti

3:00 – 3:30 **Progress and Issues in the Simulation of Quantum Well Lasers**
Karl Hess (INVITED)
University of Illinois Urbana-Champaign

3:30 – 3:45 **Comprehensive Simulation of Vertical Cavity Surface Emiting Lasers**
B. Witzigmann, M. Streiff, S. Odermatt, M. Luisier, V. Laino, A. Witzig, D. Vez and P. Royo
Integrated Systems Laboratory, Integrated Systems Engineering AG, and Avalon Photonics

3:45 – 4:00 **A Self-Consistent Quantum Mechanical Simulation of P-Channel Strained SiGe MOSFETs**
S. Krishnan and D. Vasileska
Arizona State University

4:00 – 4:15 **Three-Dimensional Quantum Transport Simulation of Ultra-Small FinFETs**
H. Takeda and N. Mori
Osaka University

4:15 – 4:30 **Comparison of Non-Equilibrium Green's Function and Quantum-Corrected Monte Carlo Approaches in Nano MOS Simulation**
H. Tsuchiya, A. Svizhenko, M.P. Anantram, M. Ogawa, and T. Miyoshi
Kobe University and NASA Ames Research Center

4:30 – 4:45 **Comparison of Monte Carlo and NEGF Simulations of Double Gate MOSFETs**
R. Ravishankar, G. Kathawala, U. Ravaioli, S. Hasan, and M. Lundstrom
University of Illinois at Urbana-Champaign and Purdue University

4:45 – 5:00 **Full-Band Particle-Based Analysis of Device Scaling for 3D Tri-Gate FETs**
P. Chiney, J. Branlard, S. Aboud, M. Saraniti, and S. Goodnick
Illinois Institute of Technology, Rush University, and Arizona State University

Banquet Dinner 6:00 pm
String Quartet as light entertainment
Speaker: Eric Jakobsson
Shively

Wednesday, October 27, 2004

Breakfast **7:00 am to 8:00 am**

Session 9: Molecular Electronics **8:00 am to 9:45 am**

Chairperson: Supriyo Datta

8:00 – 8:30 **The Simulation of Molecular and Organic Devices: A Critical Review and a Look at Future Development**
P. Lugli, G. Csaba, C. Erlen, S. Harrer, and G. Scarpa (INVITED)

8:30 – 8:45 **Huckel I-V 3.0: A Self-Consistent Model for Molecular Transport and its Applications**
F. Zahid, M. Paulsson, E. Polizzi, A.W. Ghosh, L. Siddiqui and S. Datta
Purdue University

8:45 – 9:00 **Atomistic Simulation of the Electronic Transport in Organic Nanostructures: Electron-Phonon and Electron-Electron Interactions**
A. Pecchia, A. Gagliardi, T. Niehaus, T. Frauenheim, A. Di Carlo, and P. Lugli
Università di Roma Tor Vergata, University of Paderborn, and Technical University of Munich

9:00 – 9:15 **First-Principles Modeling of Molecular I-Vs and Calibration to Experiments**
T. Rakshit, P. Damle, A. Ghosh, G.-C. Liang, and S. Datta
Purdue University and Intel

9:15 – 9:30 **Numerical Investigation of a Molecular Switch Based on Conformational Change, with the Inclusion of Contacts**
M. Girlanda, I. Cacelli, A. Ferretti, and M. Macucci
Università degli Studi di Pisa and Istituto per i Processi Chimico Fisici del CNR

9:30 – 9:45 **Acoustic and Optical Phonons in Nanotubes**
A. Raichura, M.A. Stroscio, and M. Dutta
University of Illinois at Chicago

Coffee Break **9:45 am to 10:00 am**

Session 10: Alternative Comp. Arch. 10:00 am to 12:00 pm

Chairperson: Craig Lent

10:00 – 10:30 **Simulation of Power Gain and Dissipation in Field-Coupled Nanomagnets**
G. Csaba, P. Lugli, A. Csurgay, and W. Porod (INVITED)
Institute for Nanoelectronics, Technical University of Munich, Arcisstrasse, Munich, Germany
University of Notre Dame

10:30 – 10:45 **Electron Exchange Interaction in Electronically Confined Si Quantum Dots**
S. Lee, P. von Allmen, F. Oyafuso, G. Klimeck, T.B. Boykin, S.N. Coppersmith, M. Friesen, and M.A. Erikson
California Institute of Technology, Purdue University, University of Alabama, and University of Wisconsin

10:45 – 11:00 **Simulation and Optimization of Spin-Qubit Quantum Dot Circuit with Integrated Quantum Point Contact Read-Out**
L. Zhang, D. Melnikov. J.-P. Leburton
University of Illinois at Urbana-Champaign

11:00 - 11:15 **Theoretical Study of Molecular Quantum Dot Cellular Automata**
Y. Lu and C.S. Lent
University of Notre Dame

11:15 – 11:30 **Bennett and Landauer Clocking in Quantum-Dot Cellular Automata**
M. Liu and C.S. Lent
University of Notre Dame

11:30 – 11:45 **Circuit Modeling of Carbon Nanotube Interconnects and Their Performance Estimation in VLSI Design**
A. Raychowdhury and K. Roy
Purdue University

11:45 – 12:00 **Search for Optimum and Scalable COSMOS**
S. Kaya and A. Al-Ahmadi
Ohio University

Boxed Lunches 12:00 pm to 1:00 pm

Session 11: *bio-nano* **1:00 pm to 3:00 pm**

Chairperson: Eric Jakobson

1:00 – 1:30 **Hierarchical Multiscale Computations of Ion Transport in Synthetic Nanopores**
S. Joseph, A.N. Chatterjee, and N. R. Aluru (INVITED)
University of Illinois at Urbana Champaign

1:30 – 1:45 **An Application of Shockley's Recombination and Generation Theory to Biological Ion Channels**
S. Hu and K. Hess
University of Illinios

1:45 – 2:00 **Simulation of Ion Conduction in the *ompF* Porin Channel using BioMOCA**
K.-I. Lee, T.A. van der Straaten, G. Kathawala, Y.J. Park, and U. Ravaioli
Seoul National University and University of Illinois at Urbana-Champaign

2:00 – 2:15 **Screening of Water Dipoles Inside Finite-Length Armchair Carbon Nanotubes**
Y. Li, D. Lu, S.V. Rotkin, K. Schulten, and U. Ravaioli
University of Illinois at Urbana-Champaign

2:15 – 2:30 **A Coupled 3-D PNP/ECP Model for Ion Transport in Biological Ion Channels**
Z. Yang, T.A. van der Straaten, and U. Ravaioli
University of Illinois at Urbana-Champaign

2:30 – 2:45 **A Simulative Method for the Analysis of Conduction Properties of Ion Channels Based on First-Principle Approaches**
F. Affinito, A. Bigiani, R. Brunetti, P. Carloni, C. Jacoboni, E. Piccinini, and M. Rudan
UniMoRe, Scuola Internazionale Superiore di Studi Avanzati, and Informatica e Sistemistica UniBo

2:45 – 3:00 **The Role of Long-Range Forces in Porin Channel Conduction**
S. Aboud, D. Marreiro, M. Saraniti, and R. Eisenberg
Rush University and Illinois institute of Technology

Poster Sessions

Monday October 25, 2004 6:00 pm to 9:00 pm
Wine Tasting and Finger Foods (Hammered Dulcimer as light entertainment)
East and West Faculty Lounges, Purdue Student Union

Poster Session 1

Poster Session 1: TCAD

01 **Random Doping Fluctuations of Small-Signal Parameters in Nanoscale Semiconductor Devices**
P. Andrei and I. Mayergoyz
University of Maryland

02 **Modeling of Transport through Semiconductor Quantum Dots: An Approach Based on the Direct Solution of the Coupled Poisson-Boltzmann Equations**
D. Csontos and S. Ulloa
Ohio University

03 **Simulation of Schottky Barrier Diodes with a Direct Solver for the Boltzmann-Poisson System**
A. Domaingo and F. Schürrer
Institute of Theoretical and Computational Physics

04 **Scaling pFET Hot-Electron Injection**
C. Duffy and P. Hassler
Georgia Institute of Technology

05 **Robust Computational Models of Quantum Transport in Electronic Devices**
A. Fedoseyev, A. Przekwas, M. Turowski, M.S. Wartak
CFD Research and Wilfrid Laurier University

06 **Accurate Deterministic Numerical Simulation of p-n Junctions**
A. Godoy, P. González, J.A. Carrillo, and F. Gámiz
University of Granada

07 **Modeling and Simulation of Electron Injection during Programming in Twin Flash™ Devices Based on Energy Transport and the Non-Local Lucky Electron Concept**
R. Hagenbeck, S. Decker, J.M. Fisher, M. Isler, F. Lau, T. Mikolajick, G. Tempel, and P. Haibach
Infineon Technologies

08 **Subthreshold Mobility Extraction for SOI-MESFETs**
T. Khan, D. Vasileska, and T.J. Thornton
Arizona State University

Poster Session 1: TCAD (continued)

09 **RTS Amplitudes in Decanano n-MOSFETS with Conventional and High-k Gate Stacks**
A. Lee, A.R. Brown, A. Asenov, and S. Roy
University of Glasgow

10 **Silicon-Germanium Structure in Surrounding-Gate Strained Silicon Nanowire FETs**
J.-W. Lee and Y. Li
National Chiao Tung University

11 **Investigation of Electrostatic Discharge Characteristics on Low Temperature Polycrystalline Silicon Thin Film Transistors**
J.-W. Lee, Y. Li, and H.Y. Lin
National Chiao Tung University and Toppoly Optoelectronics Corp.

12 **Simulation of Three-Dimensional Copper-Low-κ Interconnections with Different Shapes**
Y. Li , J.-W. Lee, and H.M. Chou
National Chiao Tung University

13 **A Novel Approach to Compact Model Parameter Extraction for Excimer Laser Annealed Complementary Thin Film Transistors**
Y. Li and S.-M. Yu
National Chiao Tung University

13B **Local Discontinuous Galerkin Methods for Moment Models in Device Simulations: Formulation and One Dimensional Results**
Y. Liu and C. W. Shu
Brown University and Shandong University

14 **RF Performance of Strained SiGe pMOSFETs: Linearity and Gain**
W. Ma and S. Kaya
Ohio University

15 **Strain-Dependent Hole Masses and Piezoresistive Properties of Silicon**
K. Matsuda
Naruto University of Education

16 **Electrostatics of 3D Carbon Nanotube Field-Effect Transistors**
N. Neophytou, J. Guo, and M. Lundstrom
Purdue University

17 **Effective Mass Approach for n-MOSFETs on Arbitrarily Oriented Wafers**
A. Rahman, M. Lundstrom, and A. Ghosh
Purdue University

18 **A Computational Intelligent Optical Proximity Correction for Process Distortion Compensation of Layout Mask in Subwavelength Era**
S.-M Yu and Y. Li
National Chiao Tung University

Poster Session 1: Monte Carlo

19 **Smart-Dust: Monte Carlo Simulation of Self-Organised Transport**
J. Barker and A. Barmpoutis
University of Glasgow

20 **Efficient Memory Management for Cellular Monte Carlo Algorithm**
J. Branlard, S. Aboud, S. Goodnick, and M. Saraniti
Illinois Institute of Technology, Rush University, and Arizona State University

21 **Simulation of Si and Ge UTB MOSFETs using Monte Carlo Method Based on the Quantum Boltzmann Equation**
G. Du, X. Liu, Z. Xia, and R. Han
Peking University

22 **An Improved Monte Carlo Algorithm for Ionized Impurity Scattering in Bands with Warping, Non-parabolicity and Degeneracy**
F.M. Gómez-Campos, S. Rodríguez-Bolívar and J.E. Carceller
Universidad de Granada

23 **Monte-Carlo Simulation of Carbon Nanotube Devices**
S. Hasan, J. Guo, M. Vaidyanathan, M.A. Alam, and M. Lundstrom
Purdue University

24 **Monte Carlo Simulations of Phonon Transport in Silicon**
A. Asokan and R.W. Kelsall
The University of Leeds

25 **Scattering from Body Thickness Fluctuations in Double Gate MOSFETs. An *ab initio* Monte Carlo Simulation Study**
C. Riddet, A. Brown, C. Alexander, J.R. Watling, S. Roy, and A. Asenov
University of Glasgow

26 **The Effective Conduction-Band Edge Method of Quantum Correction to the Monte Carlo Device Simulation**
B. Wu and T.-W Tang
University of Massachusetts

27 **Monte Carlo Hole Mobility Calculations with a First Principles Alloy Scattering Approach**
B. Zorman, S. Krishnan, D. Vasileska, J. Xu, and M. Van Schilfgaarde
Arizona State University

Poster Session 1: Bio-Nano

28 **A Comparative Study of Numerical Algorithms in Calculating Eigenpairs of the Master Equation for Protein Folding Kinetics**
Y. Li
National Chiao Tung University

29 **Error Analysis of the Poisson P^3M Force Field Scheme for Particle-Based Simulations of Biological Systems**
D. Marreiro, S. Aboud, M. Saraniti, and R. Eisenberg
Illinois Institute of Technology and Rush University

30 **Tracking the Propagation of Individual Ions through Ion Channels with Nano-MOSFETs**
C. Millar, A. Asenov, A.R. Brown, and S. Roy
Glasgow University

31 **Electro-Chemical Modeling Challenges of Biological Ion Pumps**
R.F. Rakowski and S. Kaya
Ohio University

Tuesday, October 26, 2004 12:30 pm to 3:00 pm
Lunch
Stewart Rooms 302-306

Poster Session 2

Poster Session 2: Quantum Transport

01 **Simulation Schemes in 2D Nanoscale MOSFET's: WKB Based Method**
N.B. Abdallah, C. Negulescu, M. Mouis, and E. Polizzi
Universitè Paul Sabatier

02 **Quantum Potential Approach to Modeling Nano-MOSFETs**
S.S. Ahmed, C. Ringhofer, and D. Vasileska
Arizona State University

03 **Vortex Flows in Semiconductor Device Quantum Channels: Time-Dependent Simulation**
J. Barker and A. Martinez
University of Glasgow

04 **Simulation of Entanglement Dynamics for a Scattering between a Free and a Bound Carrier in a Quantum Wire**
P. Bordone, A. Bertoni, and C. Jacoboni
Università di Modena e Reggio Emilia

05 **Wigner Function for Identical Particles**
E. Cancellieri, P. Bordone, A. Bertoni, G. Ferrari, and C. Jacoboni
Università di Modena e Reggio Emilia

06 **Spectral Element Method for the Schrödinger-Poisson System**
C. Cheng, Q.H. Liu, and H.Z. Massoud
Duke University

07 **Code for the 3D Simulation of Nanoscale Semiconductor Devices, including Drift-Diffusion and Ballistic Transport in 1D and 2D Subbands, and 3D Tunneling**
G. Fiori and G. Iannaccone
Università degli studi di Pisa

08 **Modeling of Inelastic Transport in One-Dimensional Metallic Atomic Wires**
T. Frederiksen, M. Brandbyge, N. Lorente, and A.-P. Jauho
Technical University of Denmark and Université Paul Sabatier

09 **Wigner-Function Based Simulation of Classic and Ballistic Transport in Scaled DG-MOSFETs using the Monte Carlo Method**
A. Gehring and H. Kosina
Institute of Microelectronics

10 **On the Electrostatics of Double-Gate and Cylindrical Nanowire MOSFETs**
E. Gnani, S. Reggiani, M. Rudan, and G. Baccarani
University of Bologna

Poster Session 2: Quantum Transport (continued)

11 **High-Resolution Numerical Study of Conductance and Noise Imaging of Mesoscopic Devices**
M. Macucci and P. Macroncini
Università degli Studi di Pisa

12 **A Critical Examination of the Basis of Macroscopic Quantum Transport Approaches**
V. Narayanan and E.C. Kan
Cornell University

13 **Numerical Simulation for Direct Tunneling Current in Poly-Si-Gate MOS Capacitors**
M. Okamoto and N. Mori
Osaka University

14 **Numerical Analysis of Coaxial Double Gate Schotttky Barrier Carbon Nanotube Field Effect Transistors**
M. Pourfath, E. Ungersboeck, A. Gehring, W.J. Park, B.H Cheong, H. Kosina, and S. Selberherr
Institute of Microelectronics and Samsung Advanced Institute of Technology

15 **Examination of Boundary Effects of Resonant Tunneling Structures using Lattice Weyl-Wigner Transport Simulations**
G. Recine, B. Rossen, and H.L. Cui
Stevens Institute of Technology

16 **Single Electron Transport and Entanglement Induced by a Surface Acoustic Waves versus Free Ballistic Propagation in Coupled Quantum Wires**
M. Rosini, A. Bertoni, P. Bordone, and C. Jacoboni
Dipartimento di Ingegneria dell'Innovazione, INFM-S3 Research Centre, and Università di Modena e Reggio Emilia

17 **Quantum Lattice-Gas Automata Simulation of Electronic Wave Propagation in Nanostructures**
A. Sakai, Y. Kamakura, and K. Taniguchi
Osaka University

18 **From Wave-Functions to Current-Voltage Characteristics in Silicon Single Nanocyrstal Coulomb Blockade Devices**
J. Sée, P. Dollfus, S. Galdin, and P. Hesto
Université Paris-Sud

19 **A High Order Local Solver for Wigner Equation**
J. Shi and I.M. Gamba
The University of Texas at Austin

20 **A Microscopic Quantum Simulation of Si/SiO_2 Interface Roughness Scattering in Silicon Nanowire Transistors**
J. Wang, E. Polizzi, A. Ghosh, S. Datta, and M. Lundstrom
Purdue University

Poster Session 2: Molecular/Organic

21 **Atomistic Treatment of Nanotube-Metal Interfaces**
D. Kienle, A. Ghosh, and M. Lundstrom
Purdue University

22 **Electronic Transport in Discotic Liquid Crystal Columns**
L. Lever, R.J. Bushby, and R.W. Kelsall
University of Leeds

23 **Hybrid- Basis Modeling of Electron Transport through Molecules on Silicon**
G. Liang, A Ghosh, T. Rakshit, and S. Datta
Purdue University

Poster Session 2: Alternative Computing Arch/ Misc.

24 **Theoretical Evidence of Spontaneous Spin Polarization in GaAs/AlGaAs Split- Gate Heterostructures**
A. Ashok, R. Akis, D. Vasileska, and D.K. Ferry
Arizona Sate University

25 **Fano Resonances through Quantum Dots in Tunable Aharonov-Bohm Rings**
Y.S Joe, J.S., Kim E.R. Hedin, R.M. Cosby, and A.M. Satanin
Ball State University

26 **Computer Simulation of Magnetization for Vertically Coupled Nanoscaole Quantum Rings**
Y. Li.
National Chiao Tung University

27 **Modeling of the Electrostatic (Plasmon) Resonances In Metallic and Semiconductor Nanoparticles**
I.D. Mayergoyz and Z. Zhang
University of Maryland

28 **Resonance Spin Filter**
B.S. Pavlov and A.M. Yafyasov
St. Petersburg State University and University of Auckland

29 **Hilbert Graph: An Expandable Interconnection for Clusters**
F.R. Salazar and J.R. Barker
University of Glasgow

30 **Manipulating of Resonances in Conductance of an Electron Waveguide with Antidots**
A.M Satanin and Y.S. Joe
Ball State University

Poster Session 2: Optical

31 **On the Formation of Periodic Electric Field Domains in p-Si/SiGe Quantum Dots in Cascade Structures**
Z. Ikonic, P. Harrison, and R.W. Kelsall
University of Leeds

32 **Three-Dimensional Finite-Difference Time-Domain Simulation of Facet Reflection through Parallel Computing**
D. Labukhin and X. Li
McMaster University

33 **Tunable Optical Properties of Colloidal Quantum Dots in Electrolytic Environments**
M.A. Stroscio, M. Dutta, D.Ramadurai, B. Kohanpour, D. Alexson, P. Shi, A. Sethuraman, Y. Li, and V. Saini
University of Illinois at Chicago

34 **Electronic Structure and Optical Transitions in InAsSb/InGaAs Quantum Dots**
P. von Allmen, S. Lee, and F. Oyafuso
California Institute of Technology