IWCE 2012 PROGRAM

Registration	Monday:	8:00-1:00	Engineering Hall Lobby
	Tuesday:	3:00-5:00	Engineering Hall Lobby
		5:30-7:30	Union South, Varsity Lounge
	Wednesday:	8:00-1:00	Engineering Hall Lobby

Technical program will be held in 1800 Engineering Hall.

Breaks and lunch will be held in Engineering Hall Lobby.

Reception will be held on Tuesday, May 22, 6-9 pm in Union South Pavilion. In case of inclement weather, it will move to Union South Varsity Hall III. See maps in the back of the book.

Poster session will be held on Wednesday, May 23, 6-9 pm. in Engineering Centers Building Lobby. Refreshments and hors d'oeuvres will be served.

Banquet and Best Student Paper Award Ceremony will be held on Thursday, May 24, 6-9 pm, in Union South, Varsity Hall II and III.

Maps of Engineering Hall 1st floor, Union South (where the reception and banquet will be held) and the campus vicinity of Engineering Hall (with relevant buildings such as Union South and Engineering Centers Building) are in the back of this book.

TUESDAY, MAY 22

4:00-6:00 **Meeting of the Editorial Board of the Journal of Computational Electronics**
4610 Engineering Hall

6:00-9:00 **Reception and registration** (drinks and hors d'oeuvres)
Union South Pavilion (in case of rain, moving to Varsity Hall III)

WEDNESDAY, MAY 23

W0 **PLENARY SESSION**

Chair: Wolfgang Porod

8:00-8:15 Welcome and Opening Remarks

8:15-9:00 *Plenary talk*

Computational Electronics—Past, Present, and Future

D. K. Ferry

W1 **ELECTRONIC BANDSTRUCTURE AT THE NANOSCALE 1**

Chair: Eric Polizzi

9:00-9:20 **Band offsets: Nano is not bulk**

Y. M. Niquet and C. Deleruey

9:20-9:40 **FEAST for Complex Band Structure Problems**

S.E. Laux

9:40-10:00 *>>Student talk<<*

Full-band Study of Ultra-thin Si:P Nanowires

Hoon Ryu, Sunhee Lee, Bent Weber, Suddhasatta Mahapatra, Michelle Y. Simmons, Matthias Yui-Hong Tan, L. C. L. Holleberg, and Gerhard Klimeck

10:00-10:20 **Break** (Engineering Hall Lobby)

W2 **ENERGY HARVESTING & STORAGE (FOCUS SESSION)**

Chair: Jenny Nelson

10:20-10:50 *Invited talk*

Atomic-scale design of materials for solar energy storage and conversion

A.M. Kolpak and J.C. Grossman

10:50-11:20 *Invited talk*

Understanding Ionic Transport in Energy Storage Devices

Anton Van der Ven, Jishnu Bhattacharya, Anna Belak

11:20-11:50 *Invited talk*

Materials for Alternative Energies: Materials Discovery and Crystal Structure Prediction

Chris Wolverton

11:50: -12:50 **Lunch** (Engineering Hall Lobby)

Poster setup (Engineering Centers Building Lobby)

W3 **SIMULATION OF PHOTOVOLTAICS (FOCUS SESSION)**

Chair: Aldo di Carlo

12:50-1:20 *Invited talk*

Steady-state quantum-kinetic theory of nanostructure-based photovoltaic devices

U. Aeberhard

1:20-1:50 *Invited talk*

Computational modeling of organic photovoltaic materials and devices

Jenny Nelson, Jarvist M. Frost, Thomas Kirchartz, James Kirkpatrick, and Roderick C. I. MacKenzie

W4 **PHOTOVOLTAIC AND OPTOELECTRONICS STRUCTURES**

Chair: Stephen Goodnick

1:50-2:10 **Modeling and simulation Dye Solar Cells: extraction of parameters and trap states**

D. Gentilini, A. Gagliardi, M. Auf der Maur and A. Di Carlo

2:10-2:30 *>>Student talk<<*

Thermal Modeling of GaAs/$Al_{0.45}Ga0._{55}$As Quantum Cascade Lasers

Y. B. Shi, Z. Aksamija, and I. Knezevic

2:30-2:50 **Density matrix modelling of Ge/GeSi bound-to continuum terahertz quantum cascade lasers**

T. V. Dinh, A. Valavanis, L. J. M. Lever, Z. Ikonic, and R. W. Kelsall

2:50-3:20 **Break**

W5 **QUANTUM TRANSPORT 1: STEADY-STATE SIMULATION**

Chair: Gerhard Klimeck

3:20-3:50 *Invited talk*

Device modeling from atomistic first principles

Eric Zhu, J. Maassen, F. Zahid, L. Zhang, M. Chan, J. Wang, Hong Guo

3:50-4:20 *Invited talk*

Theory and first principles calculations of current-induced atomic dynamics

Mads Brandbyge, Jing-Tao Lu, Tue Gunst, Per Hedegård

4:20-4:40 **Magnetoresistance and negative differential resistance in Ni|Graphene|Ni junctions driven by finite bias voltage: A first-principles study**

Kamal K. Saha, Anders Blom, Kristian S. Thygeseny, Branislav K. Nikolic

4:40-5:00 **Inelastic Scattering in Nanodevices: Conserving low-order approximation**

H. Mera, N. Cavassilas, M. Bescond, M. Lannoo

W6 **ADVANCES IN NUMERICAL ALGORITHMS FOR TRANSPORT SIMULATION**

Chair: Tomas Gonzalez

5:00-5:20 *>>Student talk<<*

Efficient solution algorithm of non-equilibrium Green's functions in atomistic tight binding representation

Yu He, Lang Zeng, Tillmann Kubis, Michael Povolotskyi, and Gerhard Klimeck

5:20-5:40 *>>Student talk<<*

A High Polynomial-Order Wavelet Method for Semiconductor Transport Equations

V. Peikert and A. Schenk

5:40-6:00 *>>Student talk<<*

Cellular Monte Carlo Study of DC and RF Performance Enhancement Through Access Region Scaling

R. Soligo, D. Guerra, D. K. Ferry, S. Goodnick, and M. Saraniti

6:00 - 9:00 **POSTER SESSION**

Engineering Centers Building Lobby (with drinks and hors d' oeuvres). See map in back.

7:30-10:00 **Dinner for the advisory and program committees in downtown Madison**

Bus leaving at 7:15

THURSDAY, MAY 24

R1 **QUANTUM TRANSPORT 2: TIME-DEPENDENT SIMULATION**

Chair: Max Fischetti

8:00-8:30 *Invited talk*

Atomistic quantum mechanical simulation of transient currents through nano-structures and multiscale simulation of junctionless transistor

GuanHua Chen

8:30-9:00 *Invited talk*

Multi-time measurement and displacement current in time-dependent quantum transport

X.Oriols, F.L.Traversa, G.Albareda, A.Benali, A. Alarcón, S. M. Yaro, X.Cartoixà

9:00-9:20 *>>Student talk<<*

Modeling Transients in Nanostructures

B. Novakovic and I. Knezevic (University of Wisconsin-Madison, USA)

R2 **MULTISCALE TRANSPORT SIMULATION**

Chair: David Ferry

9:20-9:40 **Coupling length-scales from drift-diffusion to non equilibrium Green's functions**

A. Pecchia and M. Auf der Maur and A. Di Carlo

9:40-10:00 **Role of the physical scales on the transport regime**

M. Nedjalkov, P. Schwaha, S. Selberherr, D.K. Ferry, D. Vasileska, P. Dollfus, and D. Querlioz (Univ. Paris-sud, France)

10-10:30 **Break** (Engineering Hall Lobby)

R3 **GRAPHENE ELECTRONIC PROPERTIES**

Chair: Vincent Meunier

10:30-11:00 *Invited talk*

Electronic transport in graphene and bilayer graphene

E. Rossi

11:00-11:30 *Invited talk*

Graphene switches: electronics to electron 'optics'

R. Sajjad, F. Tseng and A. W. Ghosh

11:30-11:50 *>>Student talk<<*

Simulation of high-frequency carrier dynamics in graphene

N. Sule, K. J. Willis, S. C. Hagness, and I. Knezevic

11:50-12:40 **Lunch** (Engineering Hall Lobby)

R4 **ELECTRONIC BANDSTRUCTURE AT THE NANOSCALE 2**

Chair: Steve Laux

12:40-1:00 *>>Student talk<<*

Full band electron band structure calculation with empirical tight binding for topological insulators and broken gap devices

Parijat Sengupta, Tillmann Kubis, Michael Povolotskyi, and Gerhard Klimeck

1:00-1:20 *>>Student talk<<*

Competing Effects of Piezoelectric and Pyroelectric Polarization in GaN/AlN Quantum Dots: Multimillion-Atom $sp^3d^5s^*$ Tight-Binding Simulations

S. Sundaresan, K. Yalavarthi, and S. Ahmed

1:20-1:40 *>>Student talk<<*

Generation of Empirical Tight Binding Parameters from ab-initio simulations

Yaohua P. Tan, Michael Povolotskyi, Tillmann Kubis, Timothy B. Boykin, and Gerhard Klimeck

R5 **PHONON DYNAMICS IN NANOSTRUCTURES**

Chair: Zlatan Aksamija

1:40-2:00 **Anharmonic Phonon Decay in Si Nanowires**

Mathieu Luisier

2:00-2:20 *>>Student talk<<*

Monte Carlo Simulation of Phonon Transport in Silicon Thin films Including Realistic Dispersion Relation

Kentaro Kukita and Yoshinari Kamakura

2:20-2:40 **Finite-element modeling of quasi-ballistic heat transport in nanostructured materials**

G. Romano, A. Di Carlo, and Jeffrey C. Grossman

2:40-3:00 **Break** (Engineering Hall Lobby)

R6 **NANOSTRUCTURED THERMOELECTRICS**

Chair: Mathieu Luisier

3:00-3:30 *Invited talk*

Thermoelectric Power Factor of Ultra-Narrow Silicon Nanowires

N. Neophytou and H. Kosina

3:30-3:50 *>>Student talk<<*

GaN Nanowires for Thermoelectric Applications

A. Davoody, E. B. Ramayya, and I. Knezevic

3:50-4:10 *>>Student talk<<*

Layered dichalcogenides as efficient Thermoelectric Materials

Darshana Wickramaratne, Ferdows Zahid, and Roger K. Lake

R7 **GRAPHENE THERMOELECTRICS**

Chair: Philippe Dollfus

4:10-4:30 *>>Student talk<<*

Thermoelectric properties of finite graphene antidot lattices

T. Gunst, T. Markussen, A. P. Jauho and M. Brandbyge

4:30-4:50 *>>Student talk<<*

Edge currents in zigzag graphene nanoribbons and graphene-based topological insulator nanowires as a route toward high- ZT thermoelectrics

Po-Hao Chang and Branislav K. Nikolic

4:50-5:10 *>>Student talk<<*

Engineering the Thermoelectric Power Factor of Metallic Graphene Nanoribbons

H. Karamitaheri, N. Neophytou, M. Pourfath, and H. Kosina

R8 **ELECTROTHERMAL SIMULATION**

Chair: Rob Kelsall

5:10-5:30 **Self-Heating and Current Degradation in 25 nm FD SOI Devices with (100) and (110) Crystallographic Orientation**

K. Raleva, D. Vasileska, and S. M. Goodnick

5:30-5:50 **Electro-Thermo-Mechanical Simulation of AlGaN/GaN HEMTs**

M. Auf der Maur, G. Romano and A. Di Carlo

6:00-9:00 **Banquet and Best Student Paper Award ceremony**

Union South, Varsity Hall II and III

FRIDAY, MAY 25

F1 **SPIN DYNAMICS (FOCUS SESSION)**

Chair: Avik Ghosh

8:00-8:30 *Invited talk*

Computational Spintronics

A. Droghetti, N. Baadji, A. Hurley, I. Rungger and S. Sanvito

8:30-9:00 *Invited talk*

Semiconductor Spin-Lasers

I. Zutic, J. Lee, R. Oszwaldowski, C. Gothgen, G. Boeris, and K. Vyborny

9:00-9:30 *Invited talk*

Single-Shot Readout of Spin States in Si/SiGe Gated Quantum Dots

Mark A. Eriksson, Jon R. Prance, Zhan Shi, C. B. Simmons, John King Gamble, Teck Seng Koh, D. E. Savage, and M. G. Lagally, L. R. Schreiber and L. M. K. Vandersypen, Mark Friesen, Robert Joynt, and S. N. Coppersmith

9:30-9:50 **Micromagnetic simulations of coupled out-of-plane spin-torque oscillators**

G. Csaba, M. Pufall, and W. Porod

9:50-10:20 **Break** (Engineering Hall Lobby)

F2 **GRAPHENE NANOSTRUCTURES AND DEVICES**

Chair: Hans Kosina

10:20-10:50 *Invited talk*

Integrating simulations and experiments to study graphene nanoribbons and their derivatives

V. Meunier

10:50-11:10 **Electron-Phonon Interactions in Graphene and Nanoribbons from Density Functional Theory**

S.J. Aboud, M. Saraniti, S.M. Goodnick, M. V. Fischetti

11:10-11:30 **Negative differential conductance and chiral effects in graphene field-effect transistors**

A. Alarcon, V. Hung Nguyen, J. Saint-Martin, A. Bournel, and P. Dollfus

11:30-11:50 **Electron-hole transport asymmetry in Boron-doped Graphene Field Effect Transistors**

P. Marconcini, A. Cresti, F. Triozon, G. Fiori, B. Biel, Y.-M. Niquet, M. Macucci, and S. Rochek

11:50-12:10 **Hexagonal BN/graphene heterostructures as a technological option for next-generation devices**

G. Fiori, S. Bruzzone, G. Iannaccone

12:10-12:30 **Effect of Remote Phonon Scattering on Graphene-Based Devices**

Z.-Y. Ong and M. V. Fischetti

12:30-1:30 **Lunch** (Engineering Hall Lobby)

F4 NANOWIRES AND NANORIBBONS

Chair: Marc Bescond

1:30-1:50 **Exchange-correlation effects in ballistic and dissipative transport in GAA Si nanowire transistors**

A. Martinez, M. Aldegunde, K. Kalna, and J. R. Barker

1:50-2:10 **Impact of Discrete Dopant in Source and Drain Extensions on Characteristics of Nanowire Transistors: KMC and NEGF Study**

N. Mori, M. Uematsu, H. Minari, G. Mil'nikov, and K. M. Itoh

2:10-2:30 **Electronic properties of armchair and zigzag sp^3-hybridized silicane nanoribbons**
Jiseok Kim, Shela Aboud, and Massimo V. Fischetti

F5 **ADVANCES IN SEMICLASSICAL TRANSPORT SIMULATION**
Chair: Dragica Vasileska

2:30-2:50 **Inclusion of Carrier-Carrier-Scattering Into Arbitrary-Order Spherical Harmonics Expansions of the Boltzmann Transport Equation**
K. Rupp, P.W. Lagger, and T. Grasser

2:50-3:10 **Scattering in a Fermi Kinetics Transport Model**
Matt Grupen

3:10-3:30 **3D Dynamic RTN Simulation of a 25nm MOSFET: The Importance of Variability in Reliability Evaluation of Decananometer Devices**
S. M. Amoroso, F. Adamu-Lema, S. Markov, L. Gerrer, and A. Asenov

3:30 **Conference adjourn**, followed by refreshments in Engineering Hall Lobby

POSTERS

Poster Session: Wednesday, May 23, 6-9 pm, Engineering Centers Building Lobby

P1. **On the calculation of phonon-assisted band-to-band tunneling currents in Si nanowires**
H. Carrillo-Nunez, W. Magnus, W. Vandenberghe, B. Soree, and F. Peeters

P2. **Models of Decoherence and Dissipation in QCA Systems**
E.P. Blair and C.S. Lent

P3. **Piezoelectric Fields in Quantum Wires**
Banani Sen, M. A. Stroscio, and M. Dutta

P4. **Conductive Polymer and Semiconducting Quantum Dots Nanocomposite Systems**
S. Biswas, Nanzhu Zhang, M. A. Stroscio, and M. Dutta

P5. **Modeling Electronic Detection of Molecular Switching**
Grant Morgan and Craig S. Lent

P6. **Multi-subband Monte Carlo Simulations of Hole Mobility in Silicon Nanowire FETs**
Hoon Ryu, Ju-Young Jung, and Mincheol Shin

P7. **Simulation of a double-gate MOSFET by a non parabolic energy-transport subband model based on MEP including surface roughness scattering**
V.D. Camiola, G. Mascali, and V. Romano

P8. **Molecular electronics of DNA double helices using second order tight-binding modeling**
Sadeq Malakooti, Eric R. Hedin, and Yong S. Joe

P9. **Benchmarking of Atomistic Ab initio Model for nanoFET Device Simulations**
F. Zahid, L. Zhang, J. Maassen, E. Zhu, M. Chan, J. Wang, and H. Guo

P10. **Monte Carlo Analysis of Plasma Enhanced Terahertz Detection in InGaAs HEMTs**
J. Mateos and T. González

P11. **Efficient solution algorithm of non-equilibrium Green's functions in effective mass approximation**
L. Zeng, Y. He, T. Kubis, M. Povolotskyi, X. Y. Liu, and G. Klimeck

P12. **Electronic transport in GAA silicon nanowire MOSFETs: from Kubo-Greenwood mobility including screening remote coulomb scattering to analytical backscattering coefficient**
J. Dura, F. Triozon, D. Munteanu, S. Barraud, S. Martinie, and J.L. Autran

P13. **WKB approximation based formula for tunneling probability through a multi-layer potential barrier**
A. Mazurak and B. Majkusiak

P14. **Towards a Free Open Source Process and Device Simulation Framework**
J. Weinbub, K. Rupp, L. Filipovic, A. Makarov, and S. Selberherr

P15. **Archimedes, the Free MC simulator**
J.M.D. Sellier and G. Klimeck

P16. **Ascertaining the Limitations of Low Mobility on Organic Solar Cell Performance**
B.M. Savoie, S. Tan, J.W. Jerome, and C.W.Shu

P17. **Thermal-driven nanofuses based on organometallic mechanical actuators**
Antonio J. Mota, Luis Álvarez de Cienfuegos, Ana Martín-Lasanta, Sara P. Morcillo, Noelia Fuentes, Salvador Rodríguez-Bolívar, Francisco M. Gómez Campos, and Juan M. Cuerva

P18. **Quantum transport simulation of a graphene field effect transistor**
Kurt Stokbro

P19. **Plasma Instability of Two-Dimensional Electron Gas in Double-Grating-Gate Transistor Structure**
A. Satou, H. Shida, and T. Otsuji, and V. V. Popov

P20. **Characterization of the Hot-Carrier Effects in a High-Voltage SOI LDMOS Transistor Based on Full Band Monte Carlo Simulations**
Kang Liang Wei, Jieyu Qin, Gang Du, and Xiaoyan Liu

P21. **Universal Transport Properties of Random Nanowires**
G. Mil'nikov, N. Mori, and Y. Kamakura

P22. **Particles storage in locally deformed nanolayers**
S.I.Popov, M.I. Gavrilov, I.V. Blinova, and I.Yu.Popov

P23. **Capping and core layer-dependent carrier dynamics on Ge/Si NC memory**
M.R. Neupane, R. Rahman, H. Zhou, J. Liu,and R.K. Lake

P24. **Ionic dynamics at porous alumina surfaces**
Shinnosuke Hattori, Rajiv K. Kalia, Aiichiro Nakano,Ken-ichi Nomura, and Priya Vashishta

P25. **Electronic and Thermal Transport in Sinusoidal Semiconductor Nanowires**
Kyeong-hyun Park, Pierre N. Martin, and Umberto Ravaioli

P26. **Effects of vacancy and magnetic field on thermoelectric properties of straight and kinked graphene nanoribbons**
Wen Huang and Gengchiau Liang

P27. **TCAD Assessment of Gate-Geometric Multiple Gate Nano-scale $In_{0.52}Al_{0.48}As$-$In_{0.53}Ga_{0.47}As$ HEMT for High Breakdown Voltage**
Servin Rathi, R.S. Gupta, Mridula Gupta, and D. Biswas

P28. **Ab-initio study of the effects of defects on the electronic mobility in 4H-SiC**
Ashutosh Kumar, Oscar D. Restrepo, and Wolfgang Windl

P29. **TCAD modeling of SiC alpha-particle radiation detectors**
Timothy R. Garcia, Ashutosh Kumar, Alexandra Zelaski, Ben Reinke, Thomas E. Blue, and Wolfgang Windl

P30. **Graphene-based FET Structure: Modeling FET Characteristics for an Aptamer-based Analyte Sensor**
Ke Xu, Jun Qian, Pitamber Shukla, Mitra Dutta, and Michael A. Stroscio

P31. **Parameter Optimization of NanoWire FET's using Taguchi method**
S.P.Venu Madhava Rao, EVLN Ranga Charyulu, K. Lal Kishore

P32. **Particle-grid techniques for semiclassical and quantum transport simulations**
P. Schwaha, M. Nedjalkov, S. Selberherr, and I. Dimov

P33. **Transmission through Multiple Nanoscale AB-Rings with Zeeman-split Quantum Dots**
James B. Cutright, Yong S. Joe, Eric R. Hedin

P34. **Hydrodynamic transport in Silicon Nano Wire devices**
O. Muscato and V. Di Stefano

P35. **An efficient lattice heating evaluation with electrothermal Monte Carlo device simulations**
O. Muscato, W. Wagner, and V. Di Stefano

P36. **Drift Velocity and Mobility Calculation in Bulk Silicon Using Analytical Dispersion Models for Acoustic and Optical Phonons**
M. L. Gada, D. Vasileska, K. Raleva, and S. M. Goodnick

P37. **OPTODET: Modeling of HgCdTe Photodetectors in the LWIR and MWIR region**
Pradyumna Muralidharan, Dragica Vasileska, Priyalal S. Wijewarnasuriya

P38. **Photon Absorption in Regimented Quantum Dot Arrays**
A. Luque Rodríguez, S. Rodríguez-Bolívar, and F.M. Gómez-Campos

P39. **Accurate Yet Efficient Modelling of Inelastic Hole-Acoustic Phonon Scattering in Monte Carlo Transport Simulations**
J.R. Watling, C. Riddet, and A. Asenov

P40. **The QCAD Framework for Quantum Device Modeling**
X. Gao, E. Nielsen, R. Young, A. Salinger, and R. P. Muller

P41. **Impact of surrounding force on the performance of vertical-stacked (110) Ge-MC-NWFETs**
Jingjie Zhang, Jieyu Qin, Xiaoyan Liu, and Gang Du

P42. **Electron transport in SiGe alloy nanowires in the ballistic regime from first-principles**
M. Amato, S. Ossicini, and R. Rurali

P43. **Band-offset driven efficiency of the doping of SiGe core-shell nanowires**
M. Amato, S. Ossicini, and R. Rurali

P44. **ND-map based quantum transport simulation technique application to 2D structures analysis**
L.I. Goncharov and A.V. Zubkova

P45. **Influence of strains on the electron and hole mobility in silicon nanowires**
Y. M. Niquet and C. Delerue

P46. **Reducing dopant variability in nano-devices**
Jesse Maassen and Hong Guo

P47. **Computational analysis of the emission of ZnO nanowires and coreshell CdSe/ZnS quantum dots deposited on different substrates**
S. Farid, M. Purahmad, M. A. Stroscio, and M. Dutta

P48. **A Numerical Analysis on the Effect of Piezoelectric Charges on the Surface Depletion Layer of ZnO Nanowires**
M. Purahmad, M. A. Stroscio, and M. Dutta

P49. **Monte Carlo Analysis of Transient Response for MSM photodetector**
Y. Amiri and M.Soroosh

P50. **Importance of ionized impurity scattering on resistivity of Si nanowires**
Jung Hyun Oh, Mincheol Shin, and Seok-Hee Lee

P51. **Monte Carlo simulations of inverse channel versus implant free $In_{0.3}Ga_{0.7}As$ MOSFETs**
K. Kalna and J. S. Ayubi-Moak

P52. **A Theoretical Study of BN-Confined Graphene Nanoribbon Based Resonant Tunneling Diodes**
H. Nematian, M. Moradinasab, M. Noei, M. Pourfath, M. Fathipour, and H. Kosina

P53. **Spatial Dependence of the Phonon-Limited Mobility in Arbitrarily Oriented Si-Nanowires**
I.M. Tienda-Luna, F.G. Ruiz, A. Godoy, E. Gonzalez-Marın, and F. Gamiz

P54. **High Frequency Performance of Graphene Nanoribbon TFETs with Phonon Scattering**
Kai-Tak Lam, Vijayashree Parsi Sreenivas, and Gengchiau Liang

P55. **Infrared Antenna-Coupled Thermocouple**
Peter M. Krenz, Glenn D. Boreman, and Wolfgang Porod

P56. **Micromagnetic Simulations of an MTJ with a Composite Free Layer for High-Speed Spin Transfer Torque RAM**
A. Makarov, V. Sverdlov, and S. Selberherr

P57. **Shot noise behavior in single-electron quantum dot-based structures**
V. Talbo, S. Galdin-Retailleau, D. Querlioz, and P. Dollfus

P58. **Reduction of Surface Roughness Induced Spin Relaxation in MOSFETs by Strain**
D. Osintsev, O. Baumgartner, Z. Stanojevic, V. Sverdlov, S. Selberherr

P59. **Study of the Role of Different Phonon Scattering Mechanisms on the Performance of a GAA Silicon Nanowire Transistor**
M. Aldegunde and A. Martinez

P60. **Numerical simulations of scanning gate spectroscopy on bilayer graphene in the Quantum Hall regime**
D. Logoteta, P. Marconcini, M. R. Connolly, C. G. Smith, and M. Macucci

P61. **Thermoelectric optimization of nanostructured graphene ribbons using Green's function method**
F. Mazzamuto, Y. Apertet, V. Hung Nguyen, J. Saint-Martin, and P. Dollfus

P62. **A fast approach to Discontinuous Galerkin solvers to Boltzmann-Poisson transport systems for full electronic bands and phonon scattering**
Irene M. Gamba, Armando Majorana, Jose A. Morales, and Chi-Wang Shu

P63. **Screening and RC-limited Mobility in HK-FDSOI Devices**
D. Rideau, D. Garetto, F. Monsieur, S. Puget, C. Tavernier, and H. Jaouen

P64. **Full-band self-consistent modeling study of the electrostatic in FDSOI technology**
D. Rideau, D. Garetto, A. Soussou, F. Monsieur, C. Tavernier, and H. Jaouen

P65. **State Drift Optimization of Memristive Stateful IMP Logic Gates**
H. Mahmoudi, V. Sverdlov, and S. Selberherr

P66. **Parallel Simulation of Nanowire Field-Effect Transistors**
S. Baumgartner, M. Vasicek, C. Heitzinger

P67. **Localization of Electron and Hole Gas in Hexagonal Core-Multishell Nanowires**
Andrea Bertoni, Miquel Royo, and Guido Goldoni

P68. **Edge Roughness Effects on the Optical Properties of Zigzag Graphene Nanoribbons: A First Principles Study**
M. Moradinasab, H. Nematian, M. Noei, M. Pourfath, M. Fathipour, and H. Kosina

P69. **A Numerical Study of Amplification of Space Charge Waves in n-GaN Films**
Abel García-Barrientos, Felipe Coyotl-Mixcoatl, and Volodymyr Grimalsky

P70. **Reliability of GaN/AlGaN/AlN/GaN HEMTs: Current Degradation**
Balaji Padmanabhan, Dragica Vasileska, and Stephen M. Goodnick

P71. **Monte Carlo modelling of Ge/Si single-photon detectors**
N. J. Pilgrim, Z. Ikonic, and R. W. Kelsall

P72. **Multiband Tight-Binding Model for Strained and Bilayer Graphene from DFT Calculations**
T. B. Boykin, M. Luisier, N. Kharche, X. Jiang, S. K. Nayak, A. Martini, G. Klimeck

P73. **Diffusion based Memristor Compact Model**
Isaac Abraham, Savas Kaya, and Gary Pennington

P74. **Simulation of domain-wall assisted magnetic ordering**
G. Csaba, Á. Papp, Á. Csurgay, and W. Porod

P75. **Design of a Systolic Pattern Matcher for Nanomagnet Logic**
X. Ju, M.T. Niemier, M. Becherer, W. Porod, P. Lugli, and G. Csaba

P76. **Computational Study of Domain-Wall-Induced Switching of Co/Pt Multilayer**
X. Ju, J. Kiermaier, M. Becherer, S. Breitkreutz, D. Schmitt-Landsiedel, W. Porod, P. Lugli, and G. Csaba

P77. **Bandstructure calculations of strained nanostructures via atomistic pseudopotential methods**
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