ISDRS 2016
International Semiconductor Device Research Symposium 2016
December 7-9, 2016
Hyatt Regency Bethesda, One Bethesda Metro Center
(7400 Wisconsin Ave), Maryland, USA 20814

Technical Program
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Wednesday, December 7, 2016

12:00 PM - 4:00 PM Registration

WP1: Nanoelectronics I - 1:30 PM - 3:40 PM

Chair: Mario Dagenais

Meeting Room: Cabinet

1:30 PM – 2:00 PM WP1-01 Invited

Semiconductor Nanowires: Engineering Light at Nanoscale
Simarjeet Singh Saini,
University of Waterloo

2:00 PM – 2:30 PM WP1-02 Invited

Diamond Nanoscale Photonics and Mechanics
Marko Lončar
Harvard University

2:30 PM – 3:00 PM WP1-03 Invited

Emerging Applications of III-Nitride Nanowire Arrays: From Deep Ultraviolet Photonics to High Efficiency Artificial Photosynthesis
Zetian Mi, University of Michigan

3:00 PM – 3:20 PM WP1-04

Atomic Force Microscopy Based Mechanics for Nanoelectronics
Gheorghe Stan
National Institute of Standards and Technology, Gaithersburg

3:20 PM – 3:40 PM WP1-05

Growth and Characterization of Nanostructured Plasmonic Iron Oxide Films
Naresh Das
U.S. Army Research Laboratory

WP2: Stretchable/Flexible Electronics - 1:30 PM - 3:30 PM

Chair: Randy Tompkins

Meeting Room: Old Georgetown

1:30 PM – 2:00 PM WP2-01 Invited

High Performance Stretchable Power Electronics
Nathan Lazarus
U.S. Army Research Laboratory

2:00 PM – 2:30 PM WP2-02 Invited

Flexible and Stretchable Electronics for Wearable Sensing
Zhenyu Li  
The George Washington University

2:30 PM – 3:00 PM **WP2-03 Invited**  
A Bottom-Up Approach to AlGaN/GaN HEMT Development for Stretchable Electronics  
Fatemeh (Shadi) Shahedipour-Sandvik  
SUNY Polytechnic Institute

3:00 PM – 3:30 PM **WP2-04 Invited**  
Flexible III-N Heterostructures and Devices for Electronic and Photonic Applications  
Jae-Hyun Ryou  
University of Houston

3:20 PM – 3:45 PM Coffee Break

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**WP3: Nanophotonics I – 3:45 PM – 6:15 PM**

*Chair: Edo Waks*

*Meeting Room: Cabinet*

3:45 PM – 4:15 PM **WP3-01 Invited**  
Silicon Photonic Integrated Circuits  
Roger Helkey  
Univ. of California Santa Barbara

4:15 PM – 4:45 PM **WP3-02 Invited**  
Semiconductor Nanoplatelets: A New Colloidal System for Low-Threshold Lasers  
Matthew Pelton  
University of Maryland Baltimore County

4:45 PM – 5:15 PM **WP3-03 Invited**  
Cavity-enhanced Spontaneous Emission and Saturable Absorption of Colloidal Nanoplatelets  
Edo Waks  
University of Maryland Baltimore County

5:15 PM – 5:45 PM **WP3-04 Invited**  
Single-shot, Full Characterization of a Quantum Dot Single-photon State  
G. S. Solomon  
National Institute of Standards and Technology

5:45 PM – 6:15 PM **WP3-05 Invited**  
Nanophotonic Device Technologies for Integrated Quantum Photonics on a Silicon Platform  
Kartik Srinivasan  
National Institute of Standards and Technology
WP4: Wide Bandgap I – 3:45 PM – 5:45 PM

Chair: Robert Kaplar

Meeting Room: Old Georgetown

3:45 PM – 4:15 PM WP4-01 Invited
Extended Defects in SiC Epilayers and Methods for their Mitigation
Nadeemullah A. Mahadik
Naval Research Laboratory

4:15 PM – 4:45 PM WP4-02 Invited
Ultra-Wide-Bandgap Ga2O3 for Next Generation Power MOSFETs
Man Hoi Wong
National Institute of Information and Communications Technology, Japan

4:45 PM – 5:05 PM WP4-03
Silicon Carbide Device Fabrication and Product Line Development
Brendan Cusack
CoolCAD Electronics LLC

5:05 PM – 5:25 PM WP4-04
SiC Power MOSFETSs Ruggedness due to Short-Channel Fault Conditions
Ron Green
U.S. Army Research Laboratory

5:25 PM – 5:45 PM WP4-05
Temporal and Voltage Stress Stability of High-Performance Indium-Zinc-Oxide Thin Film Transistors
Yang Song
Brown University

6:15 PM – 7:45 PM Welcome Reception and Poster Session

Meeting Room: Regency Ballroom I/II
Thursday, December 8, 2016

7:00 AM - 8:00 AM Continental Breakfast: Regency Ballroom I/II

8:00 AM - 4:00 PM Registration: Regency Ballroom Foyer

8:00 AM - 9:45 AM Plenary Session I & Plenary Session II

Meeting Room: Regency Ballroom III

Chair: Agis Iliadis, Randy Tompkins

I. Prof. Manijeh Razeghi (Northwestern University): “The Wonder of Nanotechnology”

II. Dr. Jay Lewis (DARPA): “Advanced EO/IR Technologies at DARPA-MTO”

Coffee Break 9:45 – 10:00

TA1: Modeling I - 10:00 AM - 12:10 PM

Chair: Seth Hubbard

Meeting Room: Cabinet

10:00 AM – 10:30 AM TA1-01 Invited
    Ultimate Response Speed of Two-Dimensional Electrons
    Michael Shur
    Rensselaer Polytechnic Institute

10:30 AM – 10:50 AM TA1-02
    Finite Element Analysis of Grain Boundary Effects in Phase Change Materials via Laser Annealing
    Jake Scoggin
    University of Connecticut

10:50 AM – 11:10 AM TA1-03
    Design Strategies for Ultralow Power 10 nm FINFETS
    Abhijeet Walke
    Rochester Institute of Technology
11:10 AM – 11:30 AM **TA1-04**
Dynamic Modeling of PQQ-GDH Bioanode of Self-Powered Biosensing System
Z. Ghassemi
University of Maryland Baltimore County

11:30 AM – 11:50 AM **TA1-05**
Giant Inverse Plasmonic Faraday Effect in Nanoring
V. Yu. Kachorovskii
Rensselaer Polytechnic Institute

11:50 AM – 12:10 PM **TA1-06**
On the General Solution of Cartesian and Cylindrical Poisson’s Equation for Emerging Nanowire and Nanoshell MOSFETs
James B. Kuo/C. Hong
National Taiwan University/Peking University

**TA2: Wide Bandgap II - 10:00 AM - 12:10 PM**

*Chair: Marko Tadjer*

*Meeting Room: Old Georgetown*

10:00 AM – 10:30 AM **TA2-01 Invited**
Ultra-Wide-Bandgap Aluminum Gallium Nitride Power Electronic Devices
Robert Kaplar
Sandia National Laboratories

10:30 AM – 11:00 AM **TA2-02 Invited**
Material Considerations for the Development of Power Schottky Diodes based on GaN and AlN Surfaces
Ramon Collazo
North Carolina State University

11:00 AM – 11:30 AM **TA2-03 Invited**
650 V GaN-on-Si Power Transistors with Established Reliability and CMOS-compatible Manufacturability
Likun Shen
Transphorm Inc.

11:30 AM – 11:50 AM **TA2-04**
Microstructure and Thermal Properties of CVD Diamond for Integration with GaN
Mark W. Holtz
Texas State University

11:50 AM – 12:10 AM **TA2-05**
Integration of ZrO$_2$ Dielectrics with Wide and Ultra-wide Bandgap Semiconductors and Devices
David I. Shahin
University of Maryland, College Park
TA3: Nanophotonics II - 10:00 AM - 12:20 AM

Chair: Alexander Zakhidov
Meeting Room: Judiciary

10:00 AM – 10:30 AM **TA3-01 Invited**
Nonpolar and Semipolar GaN/InGaN Core-Shell Nanostructure LEDs Grown With Selective-Area MOCVD
Daniel Feezell
University of New Mexico

10:30 AM – 11:00 AM **TA3-02 Invited**
Orthogonal Physics Enabled Nanophotonics (OPEN): Attojoule Optoelectronics, Fundamental Scaling Laws, and Analogue Optical Compute Engines
Volker Sorger
The George Washington University

11:00 AM – 11:30 AM **TA3-03 Invited**
Role of Plasmonics in Future Integrated Circuits
Jacob B Khurgin
John Hopkins University

11:30 AM – 11:50 AM **TA3-04**
High-efficiency Germanium Quantum Dot Photodetectors: Noise Performance and Operating Temperature Effects
Stylianos Siontas
Brown University

11:50 AM – 12:20 AM **TA3-05 Invited**
Enabling Single Phase InGaN over the Entire Composition Range by using Low Temperatures and Rapid MBE Growth
William Alan Doolittle
Georgia Tech

12:10 PM – 1:30 PM Lunch Break

TP1: Optoelectronics I - 1:30 PM - 3:40 PM

Chair: Jeremy Munday
Meeting Room: Cabinet

1:30 PM – 2:00 PM **TP1-01 Invited**
Reliability of Perovskite Solar Cells
Alex Zakhidov
Texas State University
2:00 PM – 2:30 PM **TP1-02 Invited**
Bandgap Engineering and Radiation Effects in Nanostructured Multijunction Solar Cells
*Seth M. Hubbard*
*Rochester Institute of Technology*

2:30 PM – 3:00 PM **TP1-03 Invited**
Hot Carrier Photodetectors
*Jeremy N. Munday*
*University of Maryland, College Park*

3:00 PM – 3:20 PM **TP1-04**
Small Pitch Dual-band Long-wavelength Infrared Photodetectors based on InAs/GaSb/AlAsb Type-II Superlattices
*Romain Chevallier*
*Northwestern University*

3:20 PM – 3:40 PM **TP1-05**
Germanium Mesa Photodiode Development and Readout Circuit
*Brendan Cusack*
*CoolCAD Electronics LLC*

**TP2: Device Fabrication and Manufacturing - 1:30 PM - 4:10 PM**

*Chair: Joshua Pomeroy*

*Meeting Room: Old Georgetown*

1:30 PM – 2:00 PM **TP2-01 Invited**
Additive Manufacturing, Enabling a New Age of Semiconductor Integration
*Benjamin S. Cook*
*Kilby Labs, Texas Instruments*

2:00 PM – 2:30 PM **TP2-02 Invited**
Atomically Precise Device Fabrication
*Joseph A. Hagmann*
*National Institute of Standards and Technology*

2:30 PM – 3:00 PM **TP2-03 Invited**
Direct-Write Printing Methods for the Fabrication of Printed Hybrid Electronics
*D.R. Hines*
*Laboratory for Physics Sciences, College Park*

3:00 PM – 3:30 PM **TP2-04 Invited**
Tunneling Field Effect Transistors – Is There Hope?
*Alexander Zaslavsky*
*Brown University*

3:30 PM – 3:50 PM **TP2-05**
High Volume Manufacturing Methods for Transition Metal Dichalcogenide Deposition
James E. Maslar
National Institute of Standards and Technology

3:50 PM – 4:10 PM TP2-06
Fabrication and Characterization of Au/ZnO/ITO/Au Heterojunctions
Malik Kaya
Eskisehir Osmangazi University

3:45 PM – 4:15 PM Coffee Break

TP3a: Graphene – 3:45 PM – 4:55 PM
Chair: Gymama Slaughter
Meeting Room: Cabinet

3:45 PM – 4:15 PM TP3-01 Invited
Plasmon Enhanced Nonlinear Optics in Graphene
Thomas H. Murphy
University of Maryland, College Park

4:15 PM – 4:35 PM TP3-02
Mechanisms of Hydrogen Intercalation in Epitaxial Graphene
Kevin Michael Daniels
U.S. Naval Research Laboratory

4:35 PM – 4:55 PM TP3-03
Controlling Quantum Hall Edge State Interaction in Graphene PN Junction via Device Geometry Modification
Son T. Le
National Institute of Standards and Technology

TP3b: Wide Bandgap III - 4:55 PM - 5:35 PM
Chair: Fatemeh (Shadi) Shahedipour-Sandvik
Meeting Room: Cabinet

4:55 PM – 5:15 PM TP3-06
Development of Novel Wide Bandgap Crystals: Low Temperature Growth of 2H-SiC and β-Gallium Oxide
N. B. Singh
University of Maryland Baltimore County

5:15 PM – 5:35 PM TP3-07
Delta-doped β-Ga2O3 Field Effect Transistor with \( I_{D,\text{MAX}} = 238 \text{ mA/mm} \)
TP4: Optoelectronics II – 3:45 PM – 5:55 PM

Chair: Mark Holtz

Meeting Room: Judiciary

3:45 PM – 4:15 PM TP4-01 Invited
Expanding the Spectral Range and Functionality of Ultraviolet Optoelectronic Materials and Devices for Army Applications
Michael Wraback
U.S. Army Research Laboratory

4:15 PM – 4:45 PM TP4-02 Invited
Processes and Prospects for Cu(In,Ga)Se$_2$-based Thin Film Photovoltaics
William Shafarman
University of Delaware

4:45 PM – 5:15 PM TP4-03 Invited
Hyperbolic Metamaterials: Novel Physics and Applications
Igor I. Smolyaninov
University of Maryland, College Park

5:15 PM – 5:35 PM TP4-04
Improving the Deep Ultraviolet Performance of Silicon Carbide Avalanche Photodiodes
Anand V. Sampath
U.S. Army Research Laboratory

5:35 PM – 5:55 PM TP4-05
Monolithically, Widely Tunable Quantum Cascade Lasers
Wenjia Zhou
Northwestern University

6:30 PM – 9:30 PM Symposium Awards Banquet

Meeting Room: Regency Ballroom III/IV

Chairs: Agis Iliadis, Randy Tompkins

Professor Tsu-Jae King Liu is the ISDRS 2016 Aldert van der Ziel Awardee
Friday, December 9, 2016

7:00 AM - 8:00AM Continental Breakfast: Regency Ballroom I/II

FA1: Modeling II – 8:00 AM - 10:10 AM
Chair: Akin Akturk
Meeting Room: Cabinet

8:00 AM – 8:30 AM FA1-01 Invited
Neuromorphic Computing – Today, Tomorrow, and Beyond
David J. Mountain
Univ of Maryland Baltimore Campus

8:30 AM – 8:50 AM FA1-02
New Model of Portable Transcranial Magnetic Stimulation Apparatus
Hanmin Qian
University of Maryland Baltimore County

8:50 AM – 9:10 AM FA1-03
Computational Analysis Framework to Include the Effect of Generation-Transport-Recombination of Minority Carriers in Semiconductors
Sadid Muneer
University of Connecticut

9:10 AM – 9:30 AM FA1-04
On the Applicability of the Natori Formula to Realistic Multi-Layer Quantum Well III-V FETs
A.Gili
National Technical University of Athens, Greece

9:30 AM – 9:50 AM FA1-05
Can an Electron-Hole Bilayer TFET be realized using Junction-less concept: An Investigation
Vivek Asthana
Indian Institute of Technology

9:50 AM – 10:10 AM FA1-06
Analysis and Optimization of RC Delay According to Parameter Characteristics in Vertical FET
Changbeom Woo
Seoul National University

FA2a: Silicon Devices and Fabrication – 8:00 AM - 10:10 AM
Chair: Manos M. Tentzeris
Meeting Room: Old Georgetown

8:00 AM – 8:30 AM FA2-01 Invited
Spectral Dependence of Charge Carrier Lifetimes in Silicon
Behrang H. Hamadani
National Institute of Standards and Technology

8:30 AM – 9:00 AM FA2-02 Invited
Silicon on Insulator (SOI): the Enabling Technology for the IoT Era
Dimitris E. Ioannou
George Mason University

9:00 AM – 9:30 AM FA2-03 Invited
Enriching and Purifying Silicon Epilayers for Quantum Information
Joshua Pomeroy
National Institute of Standards and Technology

9:30AM – 9:50 AM FA2-04
High-Performance Single-Crystal-Like Si and Ge Thin-Film Transistors on Flexible Tapes
Jae-Hyun Ryou
University of Houston

9:50AM – 10:10 AM FA2-05
Optimizing Silicon Locking Layer Overgrowth for High-quality Phosphorus-doped Delta Layers
Xiqiao Wang
National Institute of Standards and Technology

FA2b: Quantum Transport – 10:10 AM - 10:50 AM
Chair: John Xanthakis

Meeting Room: Old Georgetown

10:10AM – 10:30 AM FA2-06
Complementary Spatial Wave-function Switched (SWS) FETs and Circuits
Bander Saman
University of Connecticut

10:30AM – 10:50 AM FA2-07
Evaluation of Aluminum Selectivity on Bare and Hydrogen Passivated Si(100) for Fabrication of Hole based Nano-devices using STM Lithography
Hyun Soo Kim
National Institute of Standards and Technology

10:20 AM – 10:50 AM Coffee Break
FA3: Novel Transistors – 10:50 AM - 12:00 PM

Chair: John Xanthakis

Meeting Room: Judiciary

10:50 AM – 11:20 AM FA3-01 Invited
Temperature and Electric Field Induced Metal-Insulator Transition in Atomic Layer Deposited VO$_2$ Thin Films
Marko J. Tadjer
U.S. Naval Research Laboratory

11:20 AM – 11:40 AM FA3-02
Development of Single-electron Transistors with High-Quality Plasma-oxidized Tunable Tunnel Barriers
Yanxue Hong
National Institute of Standards and Technology

11:40 AM – 12:00 PM FA3-03
Analysis of Self-Heating Effects on vertical FET according to Shallow Trench Isolation (STI)
Ilho Myeong
Seoul National University

FA4: Sensors – 10:50 AM - 1:00 PM

Chair: Agis Iliadis

Meeting Room: Old Georgetown

10:50 AM – 11:20 AM FA4-01 Invited
Atomic Color Centers in Wide-Bandgap Semiconductors: Applications as Quantum Memories, Sensors, and Single Photon Sources
Dirk Englund, Gabriele Grosso
Massachusetts Institute of Technology

11:20 AM – 11:50 AM FA4-02 Invited
State-of-the-Art Additively Manufactured Flexible & Origami Reconfigurable RF Modules for Sensing, Energy Harvesting and Communication Applications
Manos M. Tentzeris
Georgia Tech University

11:50 AM – 12:20 PM FA4-03 Invited
Simultaneous Glucose Sensing and Powering of Glucometer
Gymama Slaughter
University of Maryland Baltimore County

12:20 PM – 12:40 PM FA4-04
Biocompatibility of a Novel Quad-Shank Neural Probe
J. Tyson
University of Maryland Baltimore County

12:40 PM – 1:00 PM FA4-05
Graphene-based Chemical Vapor Sensors
Eric C. Nallon
George Mason University

12:30 PM – 1:30 PM Lunch Break

FP1a: Devices for RF and High Power Electronics – 1:30 PM - 3:10 PM
Chair: Fow-Sen Choa
Meeting Room: Cabinet

1:30 PM – 1:50 PM FP1-01
AlGaN/GaN HEMT on Si and Al₂O₃ by Magnetron Sputtering
Roman Garcia-Perez
The University of Texas Rio Grande Valley

1:50 PM – 2:10 PM FP1-02
Application of Insulated Gate Bipolar Transistor in Transcranial Magnetic Stimulation System Development
Qinglei Meng
University of Maryland Baltimore County

2:10 PM – 2:30 PM FP1-03
Neutral Beam Process in AlGaN/GaN HEMTs: Impact on Current Collapse
Fuyumi Hemmi
Tohoku University, Japan

FP1b: Thermoelectrics – 2:30 PM - 3:10 PM
Chair: Fow-Sen Choa
Meeting Room: Cabinet

2:30 PM – 2:50 PM FP1-04
Characterization of Seebeck Coefficient and Electrical Resistivity of Ge₂Sb₂Te₅ Thin Films
Lhacene Adnane
University of Connecticut

2:50 PM – 3:10 PM FP1-05
Efficiency Enhancement of μ- Thermoelectric Energy Generators via Minority Carrier Extraction

Nicholas Williams
University of Connecticut

FP2a: 2D Materials and Devices – 1:30 PM - 3:10 PM

Chair: Dimitris Ioannou

Meeting Room: Old Georgetown

1:30 PM – 2:00 PM FP2-01 Invited
Intriguing Prospects of 2D Atomic Sheets for Flexible/Wearable Nanoelectronics
Li Tao
The University of Texas at Austin

2:00 PM – 2:30 PM FP2-02 Invited
Novel 2D Semimetal WTe$_2$: From Microscopic Study to Devices
Minghu Pan
Huazhong University of Science and Technology, China

2:30 PM – 2:50 PM FP2-03
Elucidating the Electronic Properties of Colloidally-Synthesized 2D Nanoelectronic Device Components
Adam J. Biacchi
National Institute of Standards and Technologies

2:50 PM – 3:10 PM FP2-04
Forming Gas Anneal Investigation for Improved Top-Gate MoS$_2$ transistors with HfO$_2$ Gate Dielectrics
P. Zhao
University of Texas at Dallas

FP2b: Modeling III – 3:10 PM - 4:10 PM

Chair: Akin Akturk

Meeting Room: Old Georgetown

3:10 PM – 3:30 PM FP2-05
Poisson-Schroedinger-Continuity Two-Dimensional Analysis of Both Short (Ballistic) and Long (Drift-Diffusion) III-V FETs
A. Gili
National Technical University of Athens, Greece
3:30 PM – 3:50 PM **FP2-06**
Impact ionization characteristics and Avalanche breakdown model for Tunnel FET
Vivek Asthana
*Indian Institute of Technology*

3:50 PM – 4:10 PM **FP2-07**
Modeling of Channel Electrodynastic Behavior in Multi-Structure/Junction Si Devices
Based on Variational Principles and Maxwell’s Equations
N.G. Gunther
*Santa Clara University*

3:20 PM – 3:40 PM Coffee Break

**FP3: Organic Materials and Devices – 3:40 PM - 4:50 PM**

*Chair: Daniel Hines*

*Meeting Room: Cabinet*

3:40 PM – 4:10 PM **FP3-01 Invited**
Complications in Organic Transistor Characterization
Emily G. Bittle
*National Institute of Standards and Technology*

4:10 PM – 4:30 PM **FP3-02**
Photo-Induced Magnetic Field Effects in Single Crystalline Tetracene Field-Effect Transistors
Hyuk-Jae Jang
*National Institute of Standards and Technology*

4:30 PM – 4:50 PM **FP3-03**
A simple method to prove ferroelectric switching for polymer ferroelectric memory
Vasileia Georgiou
*National Institute of Standards and Technology*

**FP4: Nanoelectronics II – 3:40 PM - 5:20 PM**

*Chair: Randy Tompkins*

*Meeting Room: Judiciary*

3:40 PM – 4:00 PM **FP4-01**
Nanoengineered Alloy Composites for High-Q Inductors
N.B. Singh
*University of Maryland Baltimore County*

4:00 PM – 4:20 PM **FP4-02**
A Study on Stochasticity in Hexagonal Close Packed Ge$_2$Sb$_2$Te$_5$ Nanowires

*Raihan Sayeed Khan*
*University of Connecticut*

4:20 PM – 4:40 PM **FP4-03**
Pulse-mode Electrical Resistance Trimming of Ge$_2$Sb$_2$Te$_5$ Phase Change Memory (PCM) Line Cells

*Nafisa Noor*
*University of Connecticut*

4:40 PM – 5:00 PM **FP4-04**
$I_{on}/I_{off}$ Ratio Enhancement of Gate-All-Around Nanowire Negative-Capacitance FET with Ferroelectric HfO$_2$

*Kyungmin Jang*
*University of Tokyo, Japan*

5:00 PM – 5:20 PM **FP4-05**
Investigation of Dual-k Spacer with Different Materials for Nanowire-FET Performance

*Hyungwoo Ko*
*Seoul National University, Korea*
Wednesday, December 7, 2016 – Poster Session

6:15 PM – 7:45 PM Welcome Reception and Poster Session

*Chair*: Randy Tompkins, Akin Akturk

*Meeting Room*: Regency Ballroom I/II

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**WP9-01**

Spot-size of Electron Beams Emitted from a Nano-metric Electron Gun: a Theoretical Calculation Beyond the Traditional Fowler-Nordheim Theory

*A. Chatziafratis*

National Technical University of Athens, Greece

**WP9-02**

Study on Characteristics of Amorphous Carbon Layer by Wafer Temperature in PE-CVD

*J. Lee*

Sungkyunkwan University, Korea

**WP9-03**

Finite Difference Simulation of SiC Power Trench MOS with Density Functional Theory (DFT)-Based Atomic Roughness Mobility

*C. Darmody*

University of Maryland College Park

**WP9-04**

Memory Performance of MOS Structure Embedded with Laser Annealed Gold NCs

*L. Kastanis*

National Technical University of Athens, Greece

**WP9-05**

AlGaN Surface and Elemental Characterization by Magnetron Sputtering

*R. Garcia-Perez*

The University of Texas Rio Grande Valley

**WP9-06**

Recovery Behavior in Neutron Irradiated 4H-SiC MOSFETs

*T. Lee*

Kwangwoon University, Korea

**WP9-07**

SiC Nanopowders-Incorporated Dual-Channel TiZnSnO/ZnSnO Thin Film Transistors on Electrical Properties

*S. Park*

Kwangwoon University, Korea
WP9-08
The Properties of Ni/Al_{4}C_{3}/4H-SiC Diodes
S. Kim
Kwangwoon University, Korea

WP9-09
Gate Dielectric Dependence of Negative Bias Temperature Instability (NBTI) in 4H-SiC MOSFETs
S. Jung
Kwangwoon University, Korea

WP9-10
Study on Thermal Uniformity for Vertical Wafer Transport System in Furnace
K. Kim
Sungkyunkwan, Korea

WP9-11
Tunneling Currents between Carbon Nanotubes inside the 3-Dimensional Potential of a Dielectric Matrix
M.S. Tsagarakis
National Technical University of Athens, Greece

WP9-12
Life Prediction of Power Electronic Modules with Si/SiC/GaN-based Devices Based on Particle Filter
Y. Lu
University of Maryland College Park

WP9-13
Mechanical Modeling and Electrical Characterization of AlGaN/GaN HEMTs in Stretchable Geometries
R. Tompkins
U.S. Army Research Laboratory

WP9-14
Big Data Mining for Correction of Lithography-based MEMS Probe Card Probing Positions
S. Lee
Sungkyunkwan University

WP9-15
Silicon-based UV Photodetectors
J. Castillo
The University of Texas Rio Grande Valley

WP9-16
Growth and Characterization of Gallium Oxide
J. Castillo
The University of Texas Rio Grande Valley
WP9-17
GaN MISFET Simulation on Threshold Voltage’s Dependence on Gate Insulator Material Type and Thickness, and Body Doping Concentration
Z. Xiao
University of Maryland College Park

WP9-18
Monte Carlo Simulation of 2DEG of GaN/AlGaN Heterostructure
Z. Xiao
University of Maryland College Park

WP9-19
EMI Vulnerability in FinFETs with New FEM Poisson Solver
C. Darmody
University of Maryland College Park

WP9-20
Fabrication and Characterization of Au/CdS/Au Contacts
M. Kaya
Eskişehir Osmangazi University, Turkey

WP9-21
X Band AlGaN/GaN HEMT with LPCVD SiN Passivation
W. Weike
Chinese Academy of Sciences, China

WP9-22
AlGaN/GaN High Electron Mobility Transistors: Recent Advances and Key Reliability Issues
F.L. Nouketcha
University of Maryland College Park

WP9-23
Threshold Voltage Stability of SiC MOSFETs with Barium Interface Passivation
D. Habersat
U.S. Army Research Laboratory

WP9-24
Resistive Switching in Metal-Insulator-Metal Device with γ-APTES as the Insulator Layer
J. Lin
National Chi Nan University, Taiwan

WP9-25
An X-band High Power 22.5° Phase Shifter Based on GaN HEMT
W. Luo
Chinese Academy of Sciences, China

WP9-26
Strong Helicity-Driven Plasmonic Ratchet Effect in Graphene
M. Shur
WP9-27
Design and Characterization of GaN p-i-n Diodes for Betavoltaic Devices

Muhammad R. Khan
University of Maryland/Naval Surface Warfare Center

ISDRS 2016
International Semiconductor Device Research Symposium

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