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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www.isdrs2016.org

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

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 Ga_2O_3 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-Ga_2O_3 Field Effect Transistor with $I_{D,MAX}$ = 238 mA/mm

Sriram Krishnamoorthy
The Ohio State University

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 Optimizatoin 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 Al_2O_3 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 $Ge_2Sb_2Te_5$ 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 Electrodynamic 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 $Ge_2Sb_2Te_5$ Nanowires

Raihan Sayeed Khan

University of Connecticut

4:20 PM – 4:40 PM **FP4-03**

Pulse-mode Electrical Resistance Trimming of $Ge_2Sb_2Te_5$ 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

Chairs: Randy Tompkins, Akin Akturk

Meeting Room: ***Regency Ballroom I/II***

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 $Ni/Al_4C_3/4H\text{-}SiC$ Diodes

S. Kim
Kwangwoon University, Korea

WP9-9

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
Eskisehir 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

Rensselaer Polytechnic Institute

WP9-27

Design and Characterization of GaN p-i-n Diodes for Betavoltaic Devices

Muhammad R. Khan

University of Maryland/Naval Surface Warfare Center

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