2013 IEEE 5th International Nanoelectronics Conference

(INEC 2013)

Singapore
2 – 4 January 2013

IEEE Catalog Number: CFP13625-PRT
ISBN: 978-1-4673-4840-9

Technical Program

Session 1A	Nanofabrication for Electronic Devices I
Chairs	Sivashankar Krishnamoorthy and Goutam Dalapati

ZnO Nanowires Lift-Off From Silicon Substrate Embedded in Flexible Films
Ray-Hua Horng, Hung-I Lin and Dong-Sing Wuu

The Influence of Titanium Nitride Barrier Layer on the Properties of CNT Bundles
Chin Chong Yap, Dunlin Tan, Christophe Brun, Hong Li, Edwin Hang Tong Teo, Baillargeat Dominique and Beng Kang Tay

Low Temperature ISSG Oxidation and Its Application in SSRW for 20nm and Below Semiconductor Devices
Weihua Tong, Really Kim, Zhao Lun, Henry Lim and Sung Kim

Nanoscale Tri Gate MOSFET for Ultra Low Power Applications Using High-k Dielectrics
D. Nirmal, P. Vijay Kumar, Doreen Joy, Binola K Jebalin and N. Mohan Kumar

Session 1B	Advanced CMOS Devices I
Chairs	Che-Sheng Chung and Ye Peide

Near Flatband Mode Currents Evaluated by One-Particle Self-Consistent Calculations
Che-Sheng Chung and Sheng-Lyang Jang

Optimizing Nanoscale MOSFET Architecture for Low Power Analog/RF Applications
Dipankar Ghosh, Mukta Singh Parihar and Abhinav Kranti

High Performance Gadolinium Oxide Nanocrystal Memory with Optimized Charge Storage and Blocking Dielectric Thickness
Chih-Ting Lin, Chi-Feng Chang, Yu-Ren Yen, Chin-Hsiang Liao, Po-Wei Huang and Jer-Chyi Wang

Threshold Voltage of Nanoscale Si Gate-All-Around MOSFET: Short-Channel, Quantum, and Volume Effects
Min-Chul Sun, Hyun Woo Kim, Sang Wan Kim, Jung Han Lee, Hyungjin Kim and Byung-Gook Park

Session 1C	Nanophotonics I
Chairs	Degiron Aloyse and Chan Cheting

Enhancement of Angular CCT by Hybrid Phosphor Structure in White Light-Emitting Diodes
Kuo-Ju Chen, Hsin-Chu Chen, Min-Hsiung Shih, Chao Hsun Wang, Shih-Hsuan Chien, Hsin-Han Tsai, Chien-Chung Lin and Hao-Chung Kuo

Cu-Insulator-Si Hybrid Plasmonic Waveguide Based CMOS-Compatible Nanophotonic Devices
Shiyang Zhu, G. Q. Lo and D. L. Kwong

Session 1D	Nano Physics and Chemistry
Chairs	Su Haibin and Fan Hongjin

Electrical Probing of Multi-Ions Solution by Using Graphene-Based Sensor
Kuan-I Ho, Jia-Hong Liao, Chi-Hsien Huang, Ching-Yuan Su and Chao-Sung Lai

ZnO Nanorods Based Ultra Sensitive and Selective Explosive Sensor
Rashi Nathawat, M. Patel, P. Ray, N. A. Gilda, M. S. Vinchurkar and V. Ramgopal Rao

Patterning Metallic Films to Enhance Plasmonic Modes for mRNA Detection
Ping Bai, Lin Wu and Er Ping Li

Session 2A	Investigating Properties at the Nanoscale
Chairs	Chao-Sung Lai and Gregory Guisbiers

Fabrication of Highly Ordered Hollow Oxide Nanostructures Based on Nanoscale Kirkendall Effect and Ostwald Ripening
Abdel-Aziz El Mel, Marie Buffière, Pierre-Yves Tessier, Wei Xu, Ke Du, Chang-Hwan Choi, Stephanos Konstantinidis, Carla Bittencourt and Rony Snyders

Microstructure and Piezoelectric Properties of c-BN Nano-Films Deposited on Si by RF Sputtering for Piezoelectric Devices
Wang Fang, Yang Baohe, Wei Jun and Zhang Kailiang

Investigation of the Dynamics of Carbon Nanotube Deposition in Dielectrophoresis
Ali Kashefian Naieni and Alireza Nojeh

Investigation of Rock-Salt CrTe Thin Film Grown by Molecular Beam Epitaxy Toward Half-Metal
Lu Hui and Teo Kie Leong

Session 2B	Advanced CMOS Devices II
Chairs	Ma JG and Abhinav Kranti

Status Overview: Fabrication, Characterization and Modeling of Flexible RF/Microwave Nanoelectronics
Guoxuan Qin, Tianhao Cai, Zhenqiang Ma and Jianguo Ma

Characterization of MIM Diodes Based on Nb/ Nb_2O_5
Islam E. Hashem, Nadia H. Rafat and Ezzeldin A. Soliman

UTBB with Ground-Plane Dopant-Segregated Schottky Barrier SOI MOSFET for Thermally Efficient Low- Variability Nanoscale CMOS Circuits
S. Qureshi and Ganesh C. Patil

A Study on Gate-All-Around (GAA) Polycrystalline Silicon Channel SONOS Flash Memory
Joo Yun Seo, Sang-Ho Lee, Yoon Kim, Se Hwan Park, Wandong Kim, Do-Bin Kim and Byung-Gook Park

Single Transistor Latch Phenomena in Junctionless Nanotransistors
Mukta Singh Parihar, Dipankar Ghosh, G. Alastair Armstrong and Abhinav Kranti

Session 2C	Nanophotonics II
Chairs	Czyszanowski Tomasz and Chen Rui

Modeling and Analysis of 1.3 μm InAs/GaAs Self-Assembled Quantum Dot Lasers with Rate Equation
C. Y. Liu, H. Wang and Q. Q. Meng

Session 2D	Nano Fabrication Synthesis
Chairs	Teo Hang Tong Edwin and Mallick Govind

Formation of Thick Textured Carbon Film Using Filtered Cathodic Vacuum Arc Technique
Naiyun Xu, Siu Hon Tsang, Edwin Hang Tong Teo and Beng Kang Tay

Effects of Carbon Loading on the Performance of Functionalized Carbon Nanotube Polymer Heat Sink for Ultra High Power Light-Emitting Diode
S. H. Chen, C. M. Tan, E. Tan and J. Kong

Session 3A	Novel Nanofabrication Strategies I
Chairs	Beomjoon Kim and Alireza Nojeh

Session 3B	Advanced CMOS Devices III
Chairs	Y. Y. Chia and Sunghun Jung

A Neural Network Approach to Classify Inversion Regions of High Mobility Ultralong Channel Single Walled Carbon Nanotube Field-Effect Transistors for Sensing Applications
S. V. Hari Krishna, Jianing An and Lianxi Zheng

Impact of Stress Induced by Stressors on Hot Carrier Reliability of Strained nMOSFETs
H. W. Hsu, H. S. Huang, S. Y. Chen, M. C. Wang, K. C. Li, K. C. Lin and C. H. Liu

Capture Cross Section Analysis of Four-level Random-Telegraph-Noise in Gate-Induced Drain Leakage Current
Seulki Park, Sungwon Yoo and Hyungcheol Shin

Self-Consistent Quasi Static CV Characterization of In_xGa_{1-x} Sb Buried Channel n-MOSFET
Muhammad Shaffatul Islam, Md. Nur Kutubul Alam and Md. Rafiqul Islam

Investigation of Conduction Mechanism in Ti/Si_3N_4/p-Si Stacked RRAM
Sunghun Jung, Sungjun Kim, Jeong-Hoon Oh, Kyung-Chang Ryoo, Jong-Ho Lee, Hyungcheol Shin and Byung-Gook Park

Session 3C	Nanophotonics Materials and Structures I
Chair	Xiong Qihua

Experimental Demonstration of Fano Resonance in Microfabricated Phononic Crystal Resonators Based on Two–Dimensional Silicon Slab
Nan Wang, Fu-Li Hsiao, J. M. Tsai, Moorthi Palaniapan, Dim-Lee Kwong and Chengkuo Lee

ZnS/ZnO/ZnS Core/Shell/Shell Hollow Spheres and its Optical Properties
Yi-Ting Hung and Shih-Shou Lo

Session 3D	Nano Technology Characterization and Application
Chairs	Peng Huisheng and Ke-Qin Zhang

Selenium Surface Energy Determination From Size-Dependent Considerations
G. Guisbiers, S. Arscott, M. Gaudet, A. Belfiore and R. Snyders

Facile Nanometer Thick Native Oxide Based Passivation of Silicon for High Efficiency Photovoltaics
Nazir P. Kherani and Zahidur R. Chowdhury

Various Size Images Mapping Technique to Analyze Trap-Assisted Non-Radiative Recombination Mechanism Using Cathodo- and Electro- Luminescences Measurement in GaN-Based LEDs
Euyhwan Park, Garam Kim, Janghyun Kim, Donghoon Kang, Joong-Kon Son and Byung-Gook Park

The Temperature Dependent TCAD and SPICE Modeling of AlGaN/GaN HEMTs
Li Yuan, Weizhu Wang, Kean Boon Lee, Haifeng Sun, Susai Lawrence Selvaraj, Xing Zhou and Guo-Qiang Lo

Session 4A	Tools for Fabrication, Measurement and Quality Control
Chairs	Vijila Chellappan and Jordi Arbiol

SOI CMOS Integrated Zinc Oxide Nanowire for Toluene Detection
S. Santra, P. K. Guha, S. K. Ray, F. Udrea and J. W. Gardner

Critical Thickness of Diamond-Like Carbon Study Using X-Ray Photoelectron Spectroscopy Depth Profiling
Nattaporn Khamnaulthong, Krisda Siangchaew and Pichet Limsuwan

Impact of Source Pupil Shapes on Process Windows in EUV Lithography
Hung-Fei Kuo

Session 4B	Advanced CMOS Devices IV
Chairs	H. K. S. V. Mohan and Jiandong Ye

Technology Options for Reducing Contact Resistances in Nanoscale Metal-Oxide-Semiconductor Field-Effect Transistors
Yee-Chia Yeo

Impact of Atomic-Scale Structural Design on Ultra-Short Channel (3 nm) MOSFETs
Shinji Migita, Yukinori Morita, Meishoku Masahara and Hiroyuki Ota

Improved Resistance Memory Characteristics and Switching Mechanism Using TiN Electrode on TaO_x/W Structure
A. Prakash and S. Maikap

Session 4C	Nanophotonics III
Chairs	Mohsen Rahmani and Zhang Qinyuan

A Single-Walled Carbon Nanotube Wall Paper as an Absorber for Simultaneously Achieving Passively Mode-Locked and Q-Switched Yb-Doped Fiber Lasers
Xiaohui Li, Yonggang Wang, Yishan Wang, Qijie Wang, Wei Zhao, Yongzhe Zhang, Xia Ya and Ying Zhang

Simulation of Grading Double Hetero-Junction Non-Polar InGaN Solar Cell
Hsun-Wen Wang, Pei-Chen Yu, Hau-Vei Han, Chien-Chung Lin, Hao-Chung Kuo and Shiuan-Huei Lin

Optical Properties of Si/SiO2 and GaAs/AlOx Sub-Wavelength HCG Mirrors on GaAs Substrate and an Impact of Structural Imperfections on Their Performance
Marcin Gebski, Maciej Dems, Jian Chen, Wang Qijie, Zhang Dao Hua and Tomasz Czyszanowski

Enhance Current Density and Light Trapping Effect in A-Si Thin Film Solar Cells by Flexible Textured PDMS Film
H. V. Han, H. C. Chen, Y. L. Tsai, C. C. Lin, H. C. Kuo and P. Yu

Session 4D	Nano Technology Procession
Chairs	Gregory Guisbiers and Philippe Coquet

A Sustainable Approach to Individualized Disease Treatment: The Engineering of a Multiple Use MEMS Drug Delivery Device
Danny Jian Hang Tng, Peiyi Song, Rui Hu, Guimiao Lin and Ken-Tye Yong

Microfluidic Device Optimization for Cell Growth
Vibha Jayaraj, Pramod. P. Wangikar and Sameer Jadhav

Poster 1	Nanofabrication (NF)

Stoichiometric Amorphous Hydrogenated Silicon Carbide Thin Film Synthesis Using DC-Saddle Plasma Enhanced Chemical Vapour Deposition
Behzad Jazizadeh Karimi, Ali B. Alamin Dow and Nazir P. Kherani

Realization and Application of Nanometer E-Beam Lithography System
Wei Shuhua, Dai Lan and Zhang Jing

Oxide Thin Film Transistors with Ink-Jet Printed In-Ga-Zn Oxide Channel Layer and ITO/IZO Source/Drain Contacts
Y. Wang, X. W. Sun, S. W. Liu, A. K. K. Kyaw and J. L. Zhao

Enhancement of Nanoelectronic Sensor Performance with Microfluidic Device
Kyungsup Han, Yong-Jin Yoon, Jack Sheng Kee and Mi Kyoung Park

A Novel Density Control of Carbon Nanotubes by Partial Oxidation of Catalyst Metal and its Field Emission Enhancement
Chuan-Ping Juan, Chia-Tsung Chang, Jyh-Liang Wang and Chuan-Chou Hwang

Magnetic and Leakage Current Properties of Bi_{1-x} Gd_x FeO_3 Thin Films
Ming-Cheng Kao, Hone-Zern Chen and San-Lin Young

A Novel Synthesis Approach of Gold Nanoparticles by Amino Acids
Cheng-Sheng Wu, Hong-Huei Huang, Fu-Ken Liu and Ching-Chich Leu

The Studies of Poly (Amino Acid) Assisted Synthesis of Gold Nanoparticles
Ying-Hui Hsu, Jen-Hau Yeh, Jeng-Shiung Jan and Ching-Chich Leu

Memory property of APTMS-Mediated Au-SiO_2 Core-Shell Nanocrystal Memory
Sheng-Fu Huang, An-Ching Hsiao, Fu-Ken Liu and Ching-Chich Leu

Optimization of Al-doped Zinc Oxide Grown on Sapphire Using Dual-Plasma-Enhanced Metal Organic Chemical Vapor Deposition for InGaN/GaN Light-emitting Diodes
Po-Hsun Lei, Chia-Ming Hsu, Chia-Te Lin, Yu-Siang Fan and Sheng-Jhan Ye

Characterization and Photocurrent Study of Al, Mg-Doped ZnO Transparent Thin Films Prepared by Sol-Gel Route
W. Techitdheera, K. Chongsri and W. Pecharapa

Titanium Dioxide/Vanadium Oxide Nanocomposites Synthesized Via Sonochemical and Hydrothermal Process for Energy Storage Application
C. Kahattha, W. Techitdheera, N. Vittayakorn and W. Pecharapa

Poster 2 **Nanoelectronics (NE)**

$In_xGa_{1-x}Sb$ n-Channel MOSFET: Effect of Interface States on C-V Characteristics
Muhammad Shaffatul Islam, Md. Nur Kutubul Alam and Md. Rafiqul Islam

Growth Control of CuO Nanowires on Copper Thin Films: Toward the Development of pn Nanojunction Arrays
A. A. El Mel, M. Buffière, N. Bouts, E. Gautron, C. Bittencourt, P. Guttmann, P. Y. Tessier, S. Konstantinidis and R. Snyders

Growth, Structure and Optical Properties of GaSb Quantum Dot by LPE Technique
F. Qiu, Y. Zhang, Y.F. Lv, J. H. Guo, G. J. Hu, Sun, H. Y. Deng, S. H. Hu, N. Dai, Q. D. Zhuang, M. Yin, A. Krier and Z. Zhao

Design and Growth Optimization by Dual Ion Beam Sputtering of ZnO-Based High-Efficiency Multiple Quantum Well Green Light Emitting Diode
Sushil Kumar Pandey, Saurabh Kumar Pandey and Shaibal Mukherjee

Accurate Numerical Model for Surface Scattering, Grain Boundary Scattering and Anomalous Skin Effect of Copper Wires
Elhameh Abbaspour, Reza Sarvari, Alireza Akbarzadeh and Melika Rostami

Conduction Mechanism of Single-Electron Transistors Fabricated by Field-Emission-Induced Electromigration
Shunsuke Akimoto, Ryutaro Suda, Mitsuki Ito, Masazumi Ando and Jun-ichi Shirakashi

Structural and Magnetic Properties of Fe_2CrSi Heusler Alloy and Tunneling MagnetoResistance of Its Magnetic Tunneling Junctions
Yu-Pu Wang, Jin-Jun Qiu, Hui Lu, Qi-Jia Yap, Wen-Hong Wang, Gu-Chang Han, Duc-The Ngo and Kie-Leong Teo

The Effect of Intrinsic Defects on Resistive Switching Based on p-n Heterojunction
K. Zheng, X. W. Sun and K. L. Teo

Ink-Jet Printed In-Ga-Zn Oxide Nonvolatile TFT Memory Utilizing Silicon Nanocrystals Embedded in SiO_2 Gate Dielectric
Y. Wang, T. P. Chen, X. W. Sun, J. I. Wong, H. Y. Yang and J. L. Zhao

Ultimate Performance Projection of Ballistic III-V Ultra-Thin-Body MOSFET
Yan Guo, Kai-Tak Lam, Yee-Chia Yeo and Gengchiau Liang

Fully CMOS Compatible 1T1R Integration of Vertical Nanopillar GAA Transistor and Oxide Based RRAM Cell for High Density Nonvolatile Memory Application
Z. Fang, X. P. Wang, B. B. Weng, Z. X. Chen, A. Kamath, G. Q. Lo and D. L. Kwong

Ultra-low Turn-on Field and Ultra-high Field Emission Current Density From Pillar Array Design of Carbon Nanotubes with Optimum R/H Ratio
Chuan-Ping Juan and Jun-Han Lin

Trap Exploration of ZnO-Based Resistance Switching Memory Devices
Fu-Chien Chiu, Wen-Yuan Chang, Peng-Wei Li, Chih-Chi Chen and Wen-Ping Chiang

Superior Resistive Switching Characteristics of Cu-TiO_2 Based RRAM Cell
Yu-Chih Huang, Huan-Min Lin and Huang-Chung Cheng

Investigation into the Performance of CNT Interconnects by Spin Coating Technique
Wei-Chih Chiu and Bing-Yue Tsui

Promising N-Type FinFET Devices without or with Cobalt-Silicide Applied to the Gate
Hsin-Chia Yang, Jing-Zong Jhang, Wen-Shiang Liao, Chong-Kuan Du, Yi-Hong Lee, Sung-Ching Chi, Quan-Hao Shen, Mu-Chun Wang and Shea-Jue Wang

The Side Effects and the Effects of Thickness of Source/Drain Fin on P-Type FinFET Devices
Hsin-Chia Yang, Wei-Yen Peng, Wen-Shiang Liao, Guo-Wei Wu, Cheng-Yu Tsai, Mu-Chun Wang, Sung-Ching Chi and Shea-Jue Wang

The Adjustment of Threshold Voltage on P-Type FinFET Devices
Hsin-Chia Yang, Yi-Hong Lee, Wen-Shiang Liao, Chong-Kuan Du, Jing-Zong Jhang, Sung-Ching Chi, Mu-Chun Wang and Shea-Jue Wang

The Enhancement of MOSFET Electric Performance Through Strain Engineering by Refilled SiGe as Source and Drain
Hsin-Chia Yang,Chao-Wang Li, Wen-Shiang Liao, Chong-Kuan Du, Mu-Chun Wang, Jie-Min Yang, Chun-Wei Lian and Chuan-Hsi Liu

Temperature Dependence Carrier Transport Behavior of Transparent ZnO:Y Nanocrystalline Films
S. L. Young, C. Y. Kung, H. Z. Chen, M. C. Kao, T. T. Lin, M. C. Chang, H. H. Lin, J. H. Lin, S. H. Chin and C. R. Ou

Multiferroic and Structural Transition Properties of $Bi_{1-x}Pr_x$ Fe 0.95 Mn 0.05 O_3 Thin Films
Hone-Zern Chen, Ming-Cheng Kao and San-Lin Young

High Sensing Performance of Fluorinated HfO_2 Membrane by Low Damage CF_4 Plasma Treatment for K^+ Detections
Chi-Hsien Huang, I-Shun Wang, Kuan-I Ho, Tzu-Wen Chiang, Chien Chou, Chu-Fa Chang and Chao-Sung Lai

Investigation of the Random Dopant Fluctuations in 20-nm Bulk MOSFETs and Silicon-On-Insulator FinFETs by Ion Implantation Monte Carlo Simulation
Keng-Ming Liu and Cheng-Kuei Lee

Microscopic Study of Random Dopant Fluctuation in Silicon Nanowire Transistors Using 3D Simulation
Chun-Yu Chen, Jyi-Tsong Lin and Meng-Hsueh Chiang

Characteristics and Hot-Carrier Effects of Strained pMOSFETs with SiGe Channel and Embedded SiGe Source/Drain Stressor
Min-Ru Peng, Mu-Chun Wang, Liang-Ru Ji, Heng-Sheng Huang, Shuang-Yuan Chen, Shea-Jue Wang, Hong-Wen Hsu and Wen-Shiang Liao

Structural and Optical Properties of Cu-Doped ZnO Nanoparticles Synthesized by Co-Precipitation Method for Solar Energy Harvesting Application
N. Thaweesaeng, S. Suphankij, W. Pecharapa and W. Techitdheera

Self-Organized Hybrid Nanostructures Composed of the Array of Vertically Aligned Carbon Nanotubes and Planar Graphite Layer
V. Labunov, A. Prudnikava, B. Shulitski, B. K. Tay, X. Wang, A. Basaev, V. Galperin and Y. Shaman

Session 5A	**Novel Nanofabrication Strategies II**
Chair	Li Chaoyang

Synthesis of Continuous Graphene on Metal Foil for Flexible Transparent Electrode Application
Golap Kalita, Koichi Wakita, Masayoshi Umeno, Yasuhiko Hayashi and Masaki Tanemura

Nanoscale Mechanical Scratching of Graphene Using Scanning Probe Microscopy
Ryutaro Suda, Takanari Saito, Ampere A. Tseng and Jun-ichi Shirakashi

Session 5B	Carbon-related I
Chairs	Fu Yunyi and Rao VR

Retention Behavior of Graphene Oxide Resistive Switching Memory on Flexible Substrate
Fang Yuan, Yu-Ren Ye, Jer-Chyi Wang, Zhigang Zhang, Liyang Pan, Jun Xu and Chao-Sung Lai

A Zigbee-Based Wireless Wearable Electronic Nose Using Flexible Printed Sensor Array
Panida Lorwongtragool, Reinhard R. Baumann, Enrico Sowade, Natthapol Watthanawisuth and Teerakiat Kerdcharoen

Session 5C	Modeling and Simulation
Chairs	Jr-Hau He and Shih-Yen Lin

Nonlinear Modeling of Compliant Mechanism
Raisuddin Khan, Md. Masum Billah and Mitsuru Watanabe

Doped Group-IV Semiconductor Nanocrystals
Latha Nataraj, Aaron Jackson, Lily Giri, Clifford Hubbard and Mark Bundy

Session 5D	Advanced Memory
Chairs	Kulkarni G. U. and Siddheswar Maikap

Robust Nitrogen Plasma Immersion Ion Implantation Treatment on Gadolinium Oxide Resistive Switching Random Access Memory
Yu-Ren Ye, Ying-Huei Wu, Jer-Chyi Wang and Chao-Sung Lai

Bipolar Resistive Switching Characteristics in Si_3N_4-Based RRAM with MIS (Metal-Insulator-Silicon) Structure
Sungjun Kim, Sunghun Jung, Jeong-Hoon Oh, Kyung-Chang Ryoo and Byung-Gook Park

Simulation Study of Dimensional Effect on Bipolar Resistive Random Access Memory (RRAM)
Liu Kai, Zhang Kailiang, Wang Fang, Zhao Jinshi and Wei Jun

On Pairing Bipolar RRAM Memory Element with Novel Punch-Through Diode Based Selector: Compact Modeling to Array Performance
R. Mandapati, A. Borkar, V. S. S. Srinivasan, P. Bafna P. Karkare, S. Lodha and U. Ganguly

Session 6A	Nanofabrication for Electronic Devices II
Chair	Heiko Wolf

NEMS Meets Bio-sensing; *There're Plenty of Things to Do in the Middle*
Beomjoon Kim

Novel Quantum Effect Devices Realized by Fusion of Bio-Template and Defect-Free Neutral Beam Etching
Seiji Samukawa

On Controlling EBL Parameters for Nanoelectromechanical Resonators Fabricated on Insulating/Semiconducting Structures
Ali B. Alamin Dow, H. Lin, C. Popov, U. Schmid and Nazir P. Kherani

Session 6B	Carbon-related II
Chairs	T. Masaki and Zhao Jianhua

Performance Analysis and Simulation of Two Different Architectures of (6:3) and (7:3) Compressors Based on Carbon Nano-Tube Field Effect Transistors
Shima Mehrabi, Keivan Navi and Omid Hashemipour

One-Step Formation of Atomic-Layered Transistor by Selective Fluorination of Graphene Film
Kuan-I Ho, Jia-Hong Liao, Chi-Hsien Huang, Chang-Lung Hsu, Lain-Jong Li, Chao-Sung Lai and Ching-Yuan Su

Analysis of CNT Electronics Structure to Design CNTFET
Soheli Farhana, Ahm Zahirul Alam, Sma Motakabber and Sheroz Khan

Session 6C	Nanophotonics IV
Chair	Alireza Nojeh

Long-Wavelength III-V Quantum-Dot Lasers Monolithically Grown on Si Substrates
Qi Jiang, Andrew Lee, Mingchu Tang, Alwyn Seeds and Huiyun Liu

Development of a High Sensitivity Photodetector Using Amorphous Selenium and Diamond Cold Cathode
K. Okano, T. Masuzawa, M. Onishi, I. Saito, A. T. T. Koh, D. H. C. Chua and T. Yamada

Fabrication and Characterization of Uni-Traveling-Carrier Photodetectors (UTC-PDs) with Dipole-Doped Structure at InGaAs/InP Interface
Q. Q. Meng, C. Y. Liu, H. Wang, K. S Ang, K. Manoj and T. X. Guo

6.5 nm-Thick Al_2O_3 Surface Passivated Layer Grown on Two Stacks of 10-Period InGaAs and GaAs-Capped InAs Quantum Dot Infrared Photodetector Focal Plane Arrays for High Temperature Operation
Shiang-Feng Tang, Tzu-Chiang Chen, Wen-Jen Lin and Shih-Yen Lin

Session 6D	MEMS and Solar Cells
Chairs	Chellappan Vijila and Teo Kie Leong

Influence of Trap Depth on Charge Transport in Inverted Bulk Heterojunction Solar Cells Employing ZnO as Electron Transport Layer
Naveen Kumar Elumalai Chellappan Vijila, Arthi Sridhar and Seeram Ramakrishna

A Dual-Silicon-Nanowire Based Nanoelectromechanical Switch
You Qian, Liang Lou, Vincent Pott, Minglin Julius Tsai and Chengkuo Lee

Device Modeling and Optimization of High-Performance Thin Film CIGS Solar Cell with $Mg_xZn_{1-x}O$ Buffer Layer
Saurabh Kumar Pandey and Shaibal Mukherjee

Session 7A	Terahertz and TFETs
Chairs	Sanjeev K. Manhas and Sun C. Q.

A One-Way Terahertz Plasmonic Waveguide Based on Surface Magneto Plasmons in a Metal-Dielectric-Semiconductor Structure
Bin Hu, Qi Jie Wang and Ying Zhang

High Frequency SAW Nanotransducer Utilizing Ultrananocrystalline Diamond/ AlN Bimorph Architecture
Ali B. Alamin Dow, H. Lin, C. Popov, U. Schmid and Nazir P. Kherani

Hump Phenomenon in Transfer Characteristics of Double-Gated Thin-Body Tunneling Field-Effect Transistor (TFET) with Gate/Source Overlap
Hyun Woo Kim, Min-Chul Sun, Sang Wan Kim and Byung-Gook Park

Epi Defined (ED) FinFET: An Alternate Device Architecture for High Mobility Ge Channel Integration in PMOSFET
S. Mittal, S. Gupta, A. Nainani, M. C. Abraham, K. Schuegraf, S. Lodha and U. Ganguly

FinFET Device Capacitances: Impact of Input Transition Time and Output Load
Archana Pandey, Swati Raycha, S. Maheshwaram, S. K. Manhas, S. Dasgupta, A. K. Saxena and Bulusu Anand

Droplet Based Lab-On-Chip Microfluidic Microsystems Integrated Nanostructured Surfaces for High Sensitive Mass Spectrometry Analysis
Guillaume Perry, Florian Lapierre, Yannick Coffinier, Vincent Thomy, Rabah Boukherroub, CongXiang Lu, Siu Hon Tsang, Beng Kang Tay and Philippe Coquet

Impact of Metal Contact on the Performance of Cupric Oxide Based Thin Film Solar Cells
S. Masudy-Panah, V. Kumar, C. C. Tan, K. Radhakrishnan, D. Z. Chi and G. K. Dalapati

Through-Silicon Via Fabrication with Pulse-Reverse Electroplating for High Density Nanoelectronics
Nay Lin and Jianmin Miao

Session 7B	**Electron Emission**
Chairs	Tseng Tseung-Yuen and Milne William

Designing a Display Unit to Drive the 8x8 LED Dot-Matrix Displays
Wan-Fu Huang

Physical/Process Parameter Dependence of Gate Capacitance and Ballistic Performance of $InAs_y$ Sb_{1-y} Quantum Well Field Effect Transistors
Iftikhar Ahmad Niaz, Md. Hasibul Alam, Imtiaz Ahmed, Zubair Al Azim, Nadim Chowdhury and Quazi Deen Mohd Khosru

Session 7C	**Nanophotonic Materials and Structures II**
Chair	Qi Jiang

Metal-Polymer Nanocomposite Films with Ordered Vertically-Aligned Metal Cylinders for Optical Application
Linda Y. L. Wu, B. Leng, W. He, A. Bisht and C. C. Wong

Ag-Doped SiO_2/TiO_2 Hybrid Optical Sensitive Thin Films with Visible Absorption Enhancement for Diffractive Optical Element Application
P. Junlabhut, S. Boonruang and W. Pecharapa

Study of Optical Radiation Efficiency of Nanoparticles
Hasan Sarwar and Md. Mydul Islam

Nano-Needle Pressure Sensor Integrated with Printed Organic Transistors
Jiseok Kim, Tse Nga Ng and Woo Soo Kim

Resonant Cavity Far Infrared Photo-detector based on Self-Assembled InAs/GaAs Quantum Dots
C. M. S. Negi, Dharmendra Kumar, Saral K. Gupta and Jitendra Kumar

Horizontally Suspended Carbon Nanotube Bundles Patterned on Silicon Trench Sidewalls
Jingyu Lu and Jianmin Miao

Session 7D	Spintronics
Chairs	Feng Yuanping and Chen Weimin

Poster 3	Nanophotonics (NP)

Enhanced Conversion Efficiency of Cu(In,Ga)Se_2 Solar Cells with Periodic Nanosphere Arrays
Ming-Yang Hsieh, Shou-Yi Kuo, Fang-I Lai, Hau-Vei Han, Tsung-Yeh Chuang and Hao-Chung Kuo

Sensitivity Improved Surface Plasmon Resonance Sensor Based on Graphene and Gold Nanorods
Shuwen Zeng, Mathieu Sylvain Bergont, Aurelien Olivier, Xuan-Quyen Dinh, Xia Yu and Ken-Tye Yong

Thickness Effect of Sputtered ZnO Seed Layer on the Electrical Properties of Li-Doped ZnO Nanorods and Application on the UV Photodetector
C. Y. Kung, S. L. Young, M. C. Kao, H. Z. Chen, J. H. Lin, H. H. Lin, Lance Horng and Y. T. Shih

Selective Enhancement of Red Upconvesion Luminescence of Er^{3+} by Doping with Mn^{2+} Ions
En-Hai Song, Fen Xiao, Shi Ye and Qin-Yuan Zhang

Indium Phosphide (InP) Colloidal Quantum Dot Based Light-Emitting Diodes Designed on Flexible PEN Substrate
Yohan Kim, Tonino Greco, Christian Ippen, Armin Wedel and Jiwan Kim

Modeling of the Nipip HIT Structure with the Hole Thermionic Emission Mechanism
H. T. Hsiao, T. Y. Kuo and C. H. Lin

Design Guidelines for (111) Si Inclined Nanohole Arrays in Thin Film Solar Cells
Lei Hong, Rusli, Xincai Wang, Hongyu Zheng, Hao Wang and HongYu Yu

Design Guidelines for Periodic Nanowire Arrays in Thin-Film Silicon/Organic Hybrid Solar Cell
Hao Wang, Lei Hong, Lining He and Rusli

Electronic Structure of Ge/$Si_xSn_yGe_{1-x-y}$ Quantum Dots
J. Chen, W. J. Fan, D. H. Zhang, Q. Xu and X. W. Zhang

Copper Oxide Based Low Cost Thin Film Solar Cells
Vinay. Kumar, S. Masudy-Panah, C. C. Tan, T. K. S. Wong, D. Z. Chi and G. K. Dalapati

Manipulating Surface Plasmon Polaritons on the Meta-Surface
Zhengji Xu, Dao Hua Zhang, Tao Li, Changchun Yan, Dongdong Li, Yueke Wang and Fei Qin

Beam Focusing by an Anisotropic Metal-Dielectric Multilayer Structure
Dongdong Li, Dao Hua Zhang, Yueke Wang, Zhengji Xu, Jun Wang, Fei Qin and Wenjuan Wang

Performance Improvement of Triple-Junctions GaAs-Based Solar Cell Using SiO_2-Nanopillars/SiO_2/TiO_2 Graded-Index Anti-Reflection Coating
Jheng-Jie Liu, Wen-Jeng Ho, Jhih-Kai Syu, Yi-Yu Lee, Ching-Fuh Lin and Hung-Pin Shiao

Tunable Subwavelength Terahertz Plasmonic Stub Waveguide Filters
Jin Tao, Qi Jie Wang, Bin Hu, Xiao Yong He and Ying Zhang

Poster 4	Nanoscience (NS)

Luminescence Properties of Cerium Doped Silicon Nitride with MgO Additive
Y. Y. Ma, F. Xiao, S. Ye and Q. Y. Zhang

Field Effect Transport Properties of Electrochemically Prepared Graphene Quantum Dots
Hemen Kalita, V. Harikrishnan and M. Aslam

In-Situ Observation of Temperature Distribution of Microheaters Using Near-Infrared CCD Imaging System
Takanari Saito, Weichih Lin, Ibuki Atsumo and Jun-ichi Shirakashi

Characterization of a-Se p-n Junction Fabricated Using Electrolysis in NaCl *aq*
M. Onishi, K. Komiyama, K. Takeno, I. Saito, W. Miyazaki, T. Masuzawa, A. T. T. Koh, D. H. C. Chua, T. Yamada, N. Sano and K. Okano

Investigation of Work Function and Surface Energy of Aluminum: An AB-Initio Study
Shuguang Cheng, Tianqi Deng, Feifei He, Shuai Zhang, Haibin Su and Cherming Tan

Multicolored Cell Imaging with Bioconjugated Fluorescent Quantum Dots
YuchengWang, Rui Hu, Guimiao Lin and Ken-Tye Yong

Nano-IGZO Layer for EGFET in pH Sensing Characteristics
Chia-Ming Yang, Jer-Chyi Wang, Tzu-Wen Chiang, Yi-Ting Lin, Teng-Wei Juan, Tsung-Cheng Chen, Ming-Yang Shih, Cheng-En Lue and Chao-Sung Lai

The Side Effects on N-Type FinFET Devices
Hsin-Chia Yang, Chong-Kuan Du, Wen-Shiang Liao, Jing-Zong Jhang, Yi-Hong Lee, Tsao-Yeh Chen, Ko-Fan Liao, Mu-Chun Wang, Sungching Chi and Shea-Jue Wang

Next Promising P-Type FinFET Devices without or with Cobalt-Silicide Applied to the Gate
Hsin-Chia Yang, Guo-Wei Wu, Wen-Shiang Liao, Wei-Yen Peng, Sung-Ching Chi, Mu-Chun Wang and Shea-Jue Wang

The Improvement of MOSFET Electric Characteristics Through Strain Engineering by Refilled SiGe as Source and Drain
Hsin-Chia Yang, Jie-Min Yang, Wen-Shiang Liao, Mu-Chun Wang, Shea-Jue Wang, Chun-Wei Lian, Chao-Wang Li and Chong-Kuan Du

Study of Surfactant Modified MWNT/Polyimide Composites by In-Situ Polymerization
Hung-Han Ko, Yao-Yi Cheng and Ching-Wei Wang

A Novel InGaAs Photodiode Fabrication and Its Application
Chii-Wen Chen, Wen-Chin Lee, Meng-Chyi Wu, Chong-Long Ho, Chia-Hao Chuang and Dong-Ying Hsieh

Study on the Characterizations and Applications of the pH-Sensor with GZO/Glass Extended-Gate FET
Jung-Lung Chiang and Chia-Yu Kuo

Characteristics of Al-Doped ZnO Nanorods Synthesized by the Hydrothermal Process at Low Temperature
Jung-Lung Chiang and Sui-Chu Tsai

Inspecting the Effects of Post-Annealing on ZnO Nanorods by Optical Second Harmonic Generation
Chung-Wei Liu, Shoou-Jinn Chang, Chun-Chu Liu, Ruei-Jie Huang, Yan-Shen Lin, Min-Chia Su, Peng-Han Wang and Kuang-Yao Lo

Development of Networked Electronic Nose Based on Multi-Walled Carbon Nanotubes/Polymer Composite Gas Sensor Array
Mario Lutz, Chatchawal Wongchoosuk, Adisorn Tuantranont, Supab Choopun, Pisith Singjai and Teerakiat Kerdcharoen

Current Matched Improving of Triple-Junctions GaAs-Based Solar Cell Using Periodic Patterns Incorporated with Indium Nanoparticle Plasmonics
Yi-Yu Lee, Wen-Jeng Ho, Cheng-Ming Yu, Jheng-Jie Liu, Ching-Fuh Lin and Hung-Pin Shiao