

제22회 한국반도체학술대회

2015년 2월 10일(화) - 12일(목), 인천 송도컨벤시아

[WP1] 포스터세션 1

Room F

1F / 114+115 호

2015년 2월 11일(수) 10:40-12:00

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|-------|-------------|---|
| WP1-1 | 10:40-12:00 | Packaging Completed Ultrathin Si-based Flexible NAND-Type Flash Memory
Dohyun Kim and Keonjae Lee
Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology |
| WP1-2 | 10:40-12:00 | Liquid Cooling System with TSV for High Power 3D Packages
Manseok Park ¹ , Soojung Baek ¹ , Sungdong Kim ² , and Sarah Eunkyung Kim ¹
¹ Graduate School of NID Fusion Technology, Seoul Technology, ² Department of Mechanical System Design Engineering, Seoul Technology |
| WP1-3 | 10:40-12:00 | 3D IC Thermal Management using Cu Filled TSVs
Yunhwan Shin ¹ , Junsung Ma ² , Sungdong Kim ¹ , Sarah Eunkyung Kim ²
¹ Department of Mechanical System Design Engineering, Seoul Tech, ² Graduate School of NID Fusion Technology, Seoul Tech |
| WP1-4 | 10:40-12:00 | The Roughness Reduction Methods using Layer-by-Layer Laminar Structures on TSV Sidewall
Daekyun Jeong, Heechul Yang, Pil-Ryung Cha, and Jaegab Lee
Department of Advanced Materials Engineering, Kookmin University |
| WP1-5 | 10:40-12:00 | Micro Solder Bump에서의 Ag Contents에 따른 영향성 검증
이승엽, 이미선, 박진경, 김종훈, 이웅선, 서민석, 김남석
SK Hynix Inc. |
| WP1-6 | 10:40-12:00 | 새로운 구조의 Ground를 이용한 Crosstalk 저감 연구
박유순, 김문정
공주대학교 전기전자제어공학부 |
| WP1-7 | 10:40-12:00 | A Study of RDL Reliability Improvement with Developing New UBM Etchant
Min Ki Son, Sung Won Yoon, Jae Yong An, Il Hwan Cho, Jae Myun Kim, and Nam Seok Kim
SK Hynix Inc. |
| WP1-8 | 10:40-12:00 | Investigation of the Effect of Plasma Treatment on Electrical Contacts of Graphene
Dewu Yue, Chang-Ho Ra, Xiaochi Liu, Daeyeong Lee, and Won Jong Yoo
SKKU Advanced Institute of Nano-Technology (SAINT), Samsung-SKKU Graphene Center (SSGC), Sungkyunkwan University |

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- WP1-9 10:40-12:00 Thickness Control of MoS₂ by using O₂ Plasma**
Suhhyun Kim, Deshun Qu, Changho Ra, and Won Jong Yoo
SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University
- WP1-10 10:40-12:00 Wet Etching Process를 통한 Free-Standing EUV Pellicle Membrane 제작**
김정환¹, 이재욱¹, 홍성철¹, 이승민¹, 김정식², 송현민², 안진호^{1,2}
¹한양대학교 신소재공학과, ²한양대학교 나노반도체공학과
- WP1-11 10:40-12:00 TaN/Mo 기반의 극자외선 리소그래피 용 위상 변위 마스크 제작**
송현민¹, 이재욱², 홍성철², 이승민², 김정식¹, 김정환², 안진호^{1,2}
¹한양대학교 나노반도체공학과, ²한양대학교 신소재공학과
- WP1-12 10:40-12:00 Hybrid Input-Output (HIO) 알고리즘을 사용한 마스크 패턴의 이미지 재구성 연구**
이승민¹, 이재욱¹, 홍성철¹, 김정식², 김정환¹, 송현민², 안진호^{1,2}
¹한양대학교 신소재공학과, ²한양대학교 나노반도체공학과
- WP1-13 10:40-12:00 Plasma Etching to forming One-Dimensional Electrical Contact to Molybdenum Disulfide**
Zheng Yang, Xiaochi Liu, Min Sup Choi, Faisal Ahmed, Chang Ho Ra, and Won Jong Yoo
SKKU Advanced Institute of Nano-Technology (SAINT), Samsung-SKKU Graphene Center (SSGC), Sungkyunkwan University
- WP1-14 10:40-12:00 Etch Characteristics of Magnetic Tunnel Junction Materials using Substrate Heating in Pulse-biased Inductively Coupled Plasma**
Hyunwoo Sung¹, Yangkyung Chae², Minhwan Jeon¹, Kyungnam Kim², and Geunyoung Yeom^{1,2}
¹SKKU Advanced Institute of Nano Technology(SAINT), Sungkyunkwan University, ²Department of Materials Science and Engineering, Sungkyunkwan University
- WP1-15 10:40-12:00 RF Plasma Dielectric Etching Endpoint Detection using Optical Emission Spectroscopy with Real-Time Density Based Cluster Analysis**
Hakseung Lee¹, Haegy Jang², and Heeyeop Chae^{1,2}
¹School of Chemical Engineering, Sungkyunkwan University, ²SKKU Advanced Institute of Nanotechnology, Sungkyunkwan University
- WP1-16 10:40-12:00 Etch Characteristic of Si₃N₄ Layer by Pulse-Biased Capacitively-Coupled Plasmas for Nano-Scale Patterning of Multi-Level Resist Structures**
Gyuhyun Choi¹, Sechan Kim¹, Heeyeop Chae², and Nae-Eung Lee^{1,3,4}
¹Department of Advanced Materials Science & Engineering, Sungkyunkwan University (SKKU), ²School of chemical engineering, Sungkyunkwan University (SKKU), ³SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan

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- University (SKKU), ⁴Samsung Advanced Institute for Health Sciences and Technology (SAIHST), Sungkyunkwan University (SKKU)
- WP1-17 10:40-12:00 Pulse-Biased Etching of SiO₂ Layer in Capacitively-Coupled Plasmas for Nano-Scale Patterning of Multi-level Resist Structures**
Sechan Kim¹, Gyuhyun Choi¹, Heeyeop Chae², and Nae-Eung Lee^{1,3,4}
¹Department of Advanced Materials Science & Engineering, Sungkyunkwan University (SKKU), ²School of chemical engineering, Sungkyunkwan University (SKKU), Suwon, ³SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University (SKKU), ⁴Samsung Advanced Institute for Health Sciences and Technology (SAIHST), Sungkyunkwan University (SKKU)
- WP1-18 10:40-12:00 Pt Nanoparticles Generated from Plasma-Sputtered Pt Films and their Use in Enhancement of Sensing Characteristics in SnO₂ Nanowires**
Hyoun Woo Kim, Han Gil Na, Yong Jung Kwon, and Hong Yeon Cho
Division of Materials Science and Engineering, Hanyang University
- WP1-19 10:40-12:00 Inductively Coupled Plasma Reactive Ion Etching of Ru Thin Films Using CH₄/O₂/Ar Gas Mixture**
Su Min Hwang, Adrian Adalberto Garay, and Chee Won Chung
Department of Chemistry and Chemical Engineering, Center for Design and Applications of Molecular Catalysts, Inha University
- WP1-20 10:40-12:00 Inductively Coupled Plasma Reactive Ion Etching of Nanometer-Size Patterned Magnetic Tunnel Junction Stacks using C, H, O Containing Gases**
Adrian Adalberto Garay Dixon, Su Min Hwang, Ji Hyun Choi, and Chee Won Chung
Department of Chemistry and Chemical Engineering, Center for Design and Applications of molecular Catalysts, Inha University
- WP1-21 10:40-12:00 The Transition from Ion Flux Limited to Neutral Flux Limited Process Regime in High Aspect Ratio Contact Etching**
Hyun Woo Lee, Ken Tokashiki, Sung-Il Cho, Seok Hyun Lim, Young Sik Seo, and Seok Woo Nam
Semiconductor R&D Center Process Development Team, Samsung Electronics Co., Ltd.
- WP1-22 10:40-12:00 Variation of Bottom Critical Dimension Induced by Reactive Ion Etching Lag in High Aspect Ratio Contact Etching Process**
Hyun Sung Kim, Sang Wuk Park, Suji Sunwoo, Hyun Jin Cho, Ho Gil Jung, Dae Young Im, Byung Jae Park, Jin Kwan Lee, Du Hyun Cho, Sung il Cho, Kyung Sub Shin, Ki Hyun Hwang, and Ho Kyu Kang
Semiconductor R&D Center Process Development Team, Samsung Electronics

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- Co., Ltd.
- WP1-23 10:40-12:00 Low Afterpulse Noise Single-Photon Detector with Detrap Schemers**
Minki Woo, Sang Wook Han, and Sung Moon
Korea Institute of Science and Technology
- WP1-24 10:40-12:00 민감도 향상을 위한 NDIR [CO]₂ Sensor 연구**
Minki Woo, Sang Wook Han, and Sung Moon
Korea Institute of Science and Technology
- WP1-25 10:40-12:00 프렌슨 간섭계의 비대칭성을 이용한 두-광자 간섭 특성 분석**
권오성, 김용수, 한상욱, 문성욱
Center for nano & quantum information research, KIST
- WP1-26 10:40-12:00 Observation of Two-Photon Interference with Continuous-Wave Operating Coherent Light**
Yong-Su Kim
Center for nano & quantum information research, KIST
- WP1-27 10:40-12:00 Characteristics of Strained InGaAs Quantum Well Infrared Photodetector for Gas Sensor Applications**
Dong-Hwan Jun¹, Youngjo Kim¹, Won-Kyu Park¹, Sang Wook Han², Sung Moon², and Young Min Song³
¹ Korea Advanced Nano-Fab Center, ² Korea Institute of Science and Technology, ³ Pusan National University
- WP1-28 10:40-12:00 Detection of Hepatitis B Surface Antigen using Dual-Gate EGFET**
In-Kyu Lee, Cheol-Min Im, and Won-Ju Cho
Department of Electronic Materials Engineering, Kwangwoon University
- WP1-29 10:40-12:00 Detection of HBs Auto-Antibody using Extended-Gate Field-Effect Transistors**
Sung-Wan Moon and Won-Ju Cho
Department of Electronic Materials Engineering, Kwangwoon University
- WP1-30 10:40-12:00 Sensitivity Enhancement of Dual Gate EGFET by Control of Channel Thickness of SOI Transistor**
Cheol-Min Lim, In-Kyu Lee, and Won-Ju Cho
Kwangwoon University
- WP1-31 10:40-12:00 Development of Interdigitated Ring Electrode Array for Electric Cell Impedance Sensing**
Jinsoo Park¹ and Sungbo Cho¹
Department of Biomedical Engineering, Gachon University
- WP1-32 10:40-12:00 Dependence of Hydrophilic Microchannel Length by O₂ Plasma Treatment on Microchannel Width and Entrance Hole Diameter of PDMS Mask**

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Yuntae Kim and Sungbo Cho

Department of Biomedical Engineering, Gachon University

WP1-33 10:40-12:00 Arbitrary Vibration Driven Piezoelectric Energy Harvester using Curled and Elongated Cantilever

Hyunok Cho, Jongcheol Park, and Jae Yeong Park

Department of Electronic Engineering, Kwangwoon University

WP1-34 10:40-12:00 Dielectrophoretic On-Chip for Simultaneous Detection of Live Cell Responses to Small Molecule Drugs

In Soo Park¹, Kwan Hwi Ko¹, Seungyeop Choi¹, Dae Sung Yoon², Sei-Young Lee¹, and Sang Woo Lee¹

¹Department of Biomedical Engineering, Yonsei University, ²School of Biomedical Engineering, Korea University

WP1-35 10:40-12:00 Direct Measurement of Frequency-Dependent Dielectrophoresis Force in Various Medium Condition

Seungyeop Choi¹, Min Hyung Kim¹, Myeonggu Son¹, Sei-Young Lee¹, Dae Sung Yoon², and Sang Woo Lee¹

¹Department of Biomedical Engineering, Yonsei University, ²Department of Biomedical Engineering, Korea University

WP1-36 10:40-12:00 Fabrication of Micro-Probe Sensor Array using Copper TGV(Through Glass Via)

Young-Min Shin¹, Yong-Kweon Kim¹, Seung-Ki Lee², and Jae-Hyoung Park²

¹Department of Electrical Engineering and Computer Science, Seoul National University, ²Department of Electronics and Electrical Engineering, Dankook University

WP1-37 10:40-12:00 Surface Potential Characterization of Original and Regrown Amyloid Fibrils

Wonseok Lee¹, Hyungbeen Lee¹, Myeonggu Son¹, Gyudo Lee¹, Sang Woo Lee¹, and Dae Sung Yoon²

¹Department of Biomedical Engineering, Yonsei University, ²School of Biomedical Engineering, Korea University

WP1-38 10:40-12:00 Characterization of DNA- Gold Nanoparticle Conjugates Surface Potential with Various Substrates via Kelvin Probe Force Microscopy

Hyungbeen Lee¹, Wonseok Lee¹, Sang Won Lee¹, Sang Woo Lee¹, and Dae Sung Yoon²

¹Department of Biomedical Engineering, Yonsei University, ²Department of Biomedical Engineering, Korea University

WP1-39 10:40-12:00 Influence of Reduced Graphene Oxide-Nanoparticle Layers on Indium Tin Oxide Electrode in Electrical Cell-Substrate Impedance Sensing

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Yonghyun Choi, Ajay Kumar Yagati, and Sungbo Cho

Department of Biomedical Engineering, Gachon University

- WP1-40 10:40-12:00 A Pressure Driven Flow Control Apparatus for Microfluidic Application**
Tae Gyu Park^{1,2}, Geunyoung Kim², Kwang Kyu Park², and Dong-Chul Han²
¹Korea Bio-IT Foundry Center, IAMC, Seoul National University, ²AMED Inc.
- WP1-41 10:40-12:00 Structure Optimization of THz Modulator based on a Uniform Graphene**
허형준, 김명환, 김상인
Department of Electrical and Computer Engineering, Ajou University
- WP1-42 10:40-12:00 Plasmon-Induced Transparency in a Graphene Grating**
김명환, 허형준, 김상인
Department of Electrical and Computer Engineering, Ajou University
- WP1-43 10:40-12:00 Taste Sensor based on Cascoded Compatible Lateral Bipolar Transistor (C-CLBT) for Detection of Sweetness**
Jin-Bum Kwon, Hyun-Min Jeong, Sang-Won Lee, Jae-Sung Lee, Hyurk-Choon Kwon, and Shin-Won Kang
School of Electronics Engineering, College of IT Engineering, Kyungpook National University
- WP1-44 10:40-12:00 Fabrication of Silicon Microlens Array on Flexible Substrates using a Transfer Printing**
Hyungi Park, Myunggyu Shin, and Young Min Song
Department of Electronic Engineering, Pusan National University
- WP1-45 10:40-12:00 Electrical Determination of NT-proBNP Utilizin the Competitive Assay Method for Biosensor Application**
Hoseok Lee¹, Jaeheung Lim¹, Seok Hyang Kim¹, Junho Chung², and Young June Park¹
¹Department of electrical and computer engineering, Seoul National University, ²Department of Biochemistry and Molecular Biology & Cancer Research Institute, Seoul National University College of Medicine
- WP1-46 10:40-12:00 Detection of E-Coli in Solution by using Quartz Crystal Microbalance**
Hyunseok Lee and Sungbo Cho
Department of Biomedical Engineering, Gachon University
- WP1-47 10:40-12:00 Edge Contacts of Graphene Formed by Using Controlled Plasma Treatment**
Dewu Yue, Chang-Ho Ra, Xiaochi Liu, Daeyeong Lee, and Won Jong Yoo
SKKU Advanced Institute of Nano-Technology (SAINT), Samsung-SKKU Graphene Center (SSGC), Sungkyunkwan University
- WP1-48 10:40-12:00 Synthesis of SnS Nanomaterials in Aqueous Solution and their Morphology Control**

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Heeseung Yang, Yuho Min, and Unyong Jeong

Department of Materials Science and Engineering, Yonsei University

WP1-49 10:40-12:00 Highly Effective Piezoelectric Nanogenerator and Self-Powered Pressure Sensor using Micro-Patterned Film

Hong-Joon Yoon¹, Ju-Hyuck Lee², and Sang-Woo Kim^{1,2}

¹School of Advanced Materials Science and Engineering, Sungkyunkwan University, ²SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University

WP1-50 10:40-12:00 Flexible One Diode-One Block Copolymer Incorporated Phase Change Memories Array on Plastic Substrates

Beom Ho Mun, Byoung Kuk You, Se Ryeun Yang, Hyeon GyunYoo, Myunghwan Byun, Yeon Sik Jung, and Keon Jae Lee

Department of Materials Science and Engineering, KAIST

WP1-51 10:40-12:00 A Study of Passivation affecting Power Output of Zinc Oxide Based Piezoelectric Nanogenerators

H. Ryu¹, D. Kim², and S.-W. Kim^{1,2}

¹Sungkyunkwan University, ²SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University

WP1-52 10:40-12:00 Development of Real-Time Resynchronization System for Plug and Play Quantum Key Distribution

박병권, 이민수, 우민기, 김용수, 한상욱, 문성욱

한국과학기술원 나노양자정보연구센터

WP1-53 10:40-12:00 플러그 앤 플레이 측정 장비 무관 양자키분배 실험

김용수¹, 최유준^{1,2}, 권오성¹, 한상욱¹, 문성욱¹

¹한국과학기술연구원 나노양자정보연구센터, ²연세대학교 물리학과

WP1-54 10:40-12:00 Quick Chemical Synthesis of Molybdenum Disulphide Nanosheets, Microplates and Thin Films

Anupam Giri and Unyong Jeong

Department of Materials Science and Engineering, Yonsei University

WP1-55 10:40-12:00 Graphene/Hexagonal Boron Nitride Heterostructure-Based Transparent Flexible Microheater

Tae-Ho Kim¹, Usman Khan², Kang Hyuck Lee¹, Christian Falconi², and Sang-Woo Kim¹

¹School of Advanced Materials Science and Engineering, Sungkyunkwan University, ²Department of Electronic Engineering, University of Tor Vergata, Italy

WP1-56 10:40-12:00 Photoresponse Characteristics of MoS₂ Field Effect Transistors under Gate-Bias Stress Conditions

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- Kyungjune Cho, Tae-Young Kim, Woanseo Park, and Takhee Lee
Department of Physics and Astronomy, Seoul National University
- WP1-57 10:40-12:00 Modulating the Energy-Band Structure of Hybrid Heterojunctions with Self-Organized P(VDF-TrFE) Nanomatrices**
Kyung-Sik Shin, Sanghyun Kim, and Sang-Woo Kim
School of Advanced Materials Science and Engineering, Sungkyunkwan University
- WP1-58 10:40-12:00 Neutralization Effect of Acceptor Dopants on the Enhanced Piezoelectric Potential of ZnO Nanowires**
Tae Yun Kim¹ and Sang-Woo Kim^{1,2}
¹Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University,
²School of Advanced Materials Science & Engineering, Sungkyunkwan University
- WP1-59 10:40-12:00 Transparent, Flexible Graphene Triboelectric Nanogenerators**
Seongsu Kim, Keun Young Lee, and Sang-Woo Kim
School of Advanced Materials Science and Engineering, Sungkyunkwan University
- WP1-60 10:40-12:00 Air 및 Argon 분위기에 따른 2차원 물질 n-type 도핑**
류정진, 이대영, 최민섭, 유원종
Department of Mechanical Engineering, Sungkyunkwan University
- WP1-61 10:40-12:00 Vertical Stacking Methods for Two-Dimensional Heterostructures**
Jun-Young Kwon and Gwan-Hyoung Lee
Department of Material Science & Engineering, Yonsei University
- WP1-62 10:40-12:00 Top Gate Graphene FET의 Fermi level과 계면결함 밀도의 상관관계 연구**
정욱진, 김윤지, 김용훈, 김소영, 이병훈
Center for Emerging Electric Devices and Systems, School of Material Science and Engineering, Gwangju Institute of Science and Technology
- WP1-63 10:40-12:00 Influence of Surfactant-Treated PEDOT:PSS on Graphene Electrode**
Jae-Bok Lee¹, Kuldeep Rana¹, Byung Hwa Seo¹, Jin Young Oh², Unyong Jeong², and Jong-Hyun Ahn¹
¹Department of Electrical & Electronic Engineering, Yonsei University,
²Department of Material Science and Engineering, Yonsei University
- WP1-64 10:40-12:00 High-Speed Baseband Modem for 60 GHz Proximity Wireless Communications**
Ik-Jae Chun¹, Hoo-Sung Lee¹, Moon-Sik Lee¹, and Ji-Hoon Kim²
¹Wireless Proximity Communications Research Section, ETRI, ²Division of Electrical and Information Technology Engineering, Chungnam National University

The 22nd Korean Conference on Semiconductors (KCS 2015)

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- WP1-65** **10:40-12:00** **Hardware Implementation of a Real-time Central Point Detection for Motion Recognition System**
Hosang Cho, Geun-Jun Kim, Changhun Kim, and Bongsoon Kang
Department of Electronic Engineering, Dong-A University
- WP1-66** **10:40-12:00** **A Noise-Resilient and Ditherless Lock Detection Scheme for Bang-Bang Controlled Calibration Loops**
Seuk Son and Jaeha Kim
Department of Electrical and Computer Engineering, Seoul National University
- WP1-67** **10:40-12:00** **Adaptive Voltage Scaling in the Near-Threshold Voltage Regime Using Current Sensing Completion Detection**
Pierre Nicolas-Nicolas and Kiyoung Choi
Department of ECE, Seoul National University
- WP1-68** **10:40-12:00** **Sensorless BLDC Motor Drive in Methods of Sliding Mode Observer with Resistance Estimation in FPGA**
Jimin Oh, Minki Kim, Sewan Heo, Jung-Hee Suk, and Yilsuk Yang
Electronics and Telecommunications Research Institute
- WP1-69** **10:40-12:00** **High Performance Memory Controller Processing Multiple Requests**
Chanho Lee and Gilhwan Kim
School of Electronic Enigneering, Soongsil University
- WP1-70** **10:40-12:00** **The Fabrication of Nanocrystal based Metamaterial by Nanoimprinting**
Sung-Hoon Hong ^{1,2} and In-Kyu You¹
¹Components & Materials Research Laboratory, Electronics and Telecommunication Research Institute (ETRI), ²Department of Advanced Device Technology, UST