ETRI 기관 특별세션

2020년 2월 13일(목), 09:00-10:45 / 컨벤션홀 W (5층)

ETRI와 국내 기업의 인공지능 프로세서: Architecture, Design and PoC Chips

09:00-09:25	**ETRI 40TFLOPS AB9 인공지능 추론 프로세서의 PPA 최적화 설계** 권영수 *ETRI*
09:25-09:50	**모바일 장치를 위한 뉴로모픽 시각지능 칩 기술** 이주현 *ETRI*
09:50-10:15	**Analog 회로 기술 기반 Spike Neural Network 연구** 오광일 *ETRI*
10:15-10:45	**Furiosa Renegade: High Performance Inference Chip for Datacenter** 백준호 *퓨리오사*

KAERI 기관 특별세션

2020년 2월 13일(목), 11:00-12:00 / 컨벤션홀 W (5층)

전자부품소재에 대한 방사선 영향 평가 동향

11:00-11:30

Soft Errors by Terrestrial Radiation in Semiconductor Devices

Mamoru Baba

Tohoku University, Sendai, Japan

Biography

- Graduation Tohoku University, Department of Physics: March 1967
- Leave PhD Course of Graduate School, Tohoku University, Nuclear Science: March 1970
- Research Associate of Tohoku University, Department of Nuclear Engineering: April 1970
- Assistant Professor of Tohoku University, Department of Nuclear Engineering: April 1986
- Professor of Tohoku University, Cyclotron & Radioisotope Center: October 1999
- Retirement from Tohoku University: March 2008
- Professor Emeritus: Tohoku University: May 2008~
- Visiting Professor of Cyclotron & Radioisotope Center, Tohoku University: April 2008~
- Professor of High Energy Accelerator Organization & Deputy Director of J-PARC Center: October 2013
- Retirement from Professor of High Energy Accelerator Organization & Deputy director of J-PARC Center: March 2015

Social Activity

- Research Adviser, Japan Atomic Energy Agency: 1985~2011
- Member of the Nuclear Science Committee, OECD/NEA: 1994-2007
- Guest Professor, High Energy Accelerator Organization: 2000~2008
- Guest lecturer, Nagoya University, Kyusyu University: 2000~2004
- Head of Accelerator Division, Atomic Energy Society, Japan: 2002-2003
- Head of Nuclear Data Division, Atomic Energy Society, Japan: 2004-2005
- Adviser, Ministry of Education, Culture & Sports (MEXT): 2006~2009
- President of Japan Society for Radiation Safety Management: 2006~2008
- Adviser of Japan Society for Radiation Safety Management: 2008 ~2013
- Expert member of Environment Restoration Plaza, Ministry of Environment: 2012~

11:30-12:00

Overview of KOMAC Facility and Neutron-Related Activities

Han-Sung Kim

Korea Multi-purpose Accelerator Complex, KAERI, Korea

Biography

Educational Background

- February, 1997 : BS from Seoul National University, Dep. Of Nuclear Eng.
- February, 1999 : MS from Seoul National University, Dep. Of Nuclear Eng.
- February, 2006 : Ph. D from Seoul National University, Dep. Of Nuclear Eng.

Work Experience

- December, 2006 – Present : Senior Researcher in Korea Atomic Energy Research Institute
- November, 2018 – Present : Head of Accelerator Development and Operation Division at KOMAC
- November, 2009 – Present : Associated Professor in University of Science and Technology

Activities

- 2007 – Present : Member of Korean Nuclear Society
- 2007 – Present : Member of Korean Physical Society

E. Compound Semiconductors 분과

2020년 2월 13일(목), 09:00-10:30 / Room A (에메랄드 I, 5층)

[TA1-E] Compound Semiconductor Technology I

: 교수 (경북대학교), 민병규 박사 (ETRI)

TA1-E-1 **09:00-09:15**	**AlGaN/GaN/AlN Double-hetero Structure High Electron Mobility Transistors Grown by HT-MOCVD** Uiho Choi, Donghyeop Jung, Minho Kim, Taehoon Jang, Yongjun Nam, Byeongchan So, Taemyung Kwak, and Okhyun Nam *Department of Nano-Optical Engineering, Korea Polytechnic University*
TA1-E-2 **09:15-09:30**	**Effective Current Collapse Reduction in GaN-based MISHFETs with Al_2O_3/AlN Passivation Layer** Jun-Hyeok Lee, M. Siva Pratap Reddy, Jeong-Gil Kim, Woo-Hyun Ahn, and Jung-Hee Lee *School of Electronics Engineering, Kyungpook National University*
TA1-E-3 **09:30-09:45**	**P-GaN 게이트 기반 AlGaN/GaN E-mode FET 제작을 위한 선택적 식각 공정 개발** Won-Ho Jang, Hyun-Seop Kim, Dac Duc Chu, and Ho-Young Cha *School of Electrical and Electronic Engineering, Hongik University*
TA1-E-4 **09:45-10:00**	**Leakage Reduction and Mobility Enhancement in InGaSb p-FET** SangHyeon Kim[1], Ilpyo Roh[2,3], JaeHoon Han[2], Dae-Myeong Geum[1], Seong Kwang Kim[1], Sooseok Kang[2], Hang-Kyu Kang[2], Woo Chul Lee[2], Seong Keun Kim[2], Do Kyung Hwang[2], Yun Heub Song[3], and Jindong Song[2] *[1]KAIST, [2]KIST, [3]Department of Electronics and Communications Engineering, Hanyang University*
TA1-E-5 **10:00-10:15**	**Remote Epitaxy of GaN Microrod Heterostructures for Deformable Light-emitting Diodes and Substrate Recycle** Junseok Jeong, Dae Kwon Jin, and Young Joon Hong *Sejong University*
TA1-E-6 **10:15-10:30**	**Epitaxial BeO Dielectric Based AlGaN/GaN Metal-oxide Semiconductor High-electron-mobility Transistors** Dohwan Jung[1,2], Seonno Yoon[1,2], and Jungwoo Oh[1,2] *[1]School of Integrated Technology, Yonsei University, [2]Yonsei Institute of Convergence Technology*

F. Silicon and Group-IV Devices and Integration Technology 분과

2020년 2월 13일(목), 09:00-10:30 / Room B (에메랄드 II+III, 5층)

[TB1-F] Emerging Device Technology I

: 교수 (아주대학교), 권대웅 교수 (인하대학교)

TB1-F-1 **09:00-09:30**	**[초청]** **Optimization of Spacer and Source/Channel Junction to Improve TFET Characteristics** Garam Kim[1] and Sangwan Kim[2] *[1]Myongji University, [2]Ajou University*
TB1-F-2 **09:30-09:45**	**Switching Characteristics Analysis of Tunnel Field-effect Transistor with Elevated Drain by Changing Drain Underlap Length** Changha Kim[1], Kitae Lee[1], Junil Lee[1], Ryoongbin Lee[1], Sihyun Kim[1], Hyun-min Kim[1], Sangwan Kim[2] and Byung-Gook Park[1] *[1]Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering, Seoul National University, [2]Department of Electrical and Computer Engineering, Ajou University*
TB1-F-3 **09:45-10:00**	**Digital Inverter with Positive Feedback Field Effect Transistor** Changhoon Lee and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TB1-F-4 **10:00-10:15**	**A Novel Gate-normal Hetero-gate-dielectric (GHG) Tunnel Field-effect Transistors (TFETs)** Jang Woo Lee and Woo Young Choi *Department of Electronic Engineering, Sogang University*
TB1-F-5 **10:15-10:30**	**Capacitorless Double-Gate PNPN TFET 1T DRAM with SiGe Channel** Jae Seung Woo and Woo Young Choi *Department of Electronic Engineering, Sogang University*

R. Semiconductor Software 분과

2020년 2월 13일(목), 09:00-10:30 / Room C (사파이어 I, 5층)

[TC1-R] Semiconductor Software Optimization

: 교수 (서울과학기술대학교), 김태석 교수 (광운대학교)

TC1-R-1 **09:00-09:15**	**Multi-Stream을 이용한 Garbage Collection 최적화 파일 시스템** Gunhee Choi, Jeyeon Lee, Sion Lee, and Jongmoo Choi *Department of Computer Science, Dankook University*
TC1-R-2 **09:15-09:30**	**FIAWI: Update-frequency- and Interval-aware Warm Data Identification Algorithm** Chan Hyeok Son and Se Jin Kwon *Department of Computer Engineering, Kangwon National University*
TC1-R-3 **09:30-09:45**	**Improving Application Launch Time with Host Memory Buffer of NVMe SSDs** Kyusik Kim, Seongmin Kim, and Taeseok Kim *Kwangwoon University*
TC1-R-4 **09:45-10:00**	**NVMe SSD를 위한 가중치 비례 입출력 스케줄러 구현** Suho Son and Sungyong Ahn *Pusan National University*
TC1-R-5 **10:00-10:30**	**[초청]** **Byte-addressable Non-Volatile Memory Based Storage Systems** Se Jin Kwon *Department of Computer Engineering, Kangwon National University*

G. Device & Process Modeling, Simulation and Reliability 분과

2020년 2월 13일(목), 09:00-10:30 / Room D (사파이어 II+III, 5층)

[TD1-G] Modeling of Semiconductor Devies

: 교수 (GIST), 이재우 교수 (고려대학교)

TD1-G-1 **09:00-09:15**	**Analysis of Grain Boundary Dependent Memory Characteristics in Poly-Si 1T-DRAM** SongYi Yoo[1], HyeonJeong Kim[1], In Man Kang[2], Seongjae Cho[3], Wookyung Sun[1], and Hyungsoon Shin[1] *[1]Department of Electronic and Electrical Engineering, Ewha Womans University, [2]School of Electronics Engineering, Kyungpook National University, [3]Department of Electronic Engineering, Gachon University*
TD1-G-2 **09:15-09:30**	**Formation of 2D Electron Gas in undoped Si/SiGe Layer: Exploring the Feasibility of Quantum Gate Designs with a Modeling Study** Ji-Hoon Kang[1], Chungheon Baek[2], Byung-Soo Choi[2], and Hoon Ryu[1] *[1]KISTI, [2]ETRI*
TD1-G-3 **09:30-09:45**	**Analog Activation Function for Non-linear Synaptic Device Based Neural Network** Myungjun Kim, Chuljun Lee, Yubin Song, and Daeseok Lee *Department of Electronic Materials Engineering, Kwangwoon University*
TD1-G-4 **09:45-10:00**	**Alternating Current-based Open Drain Method for Separate Extraction of Source and Drain Resistances in MOSFETs** Han Bin Yoo, Haesung Kim, Jintae Yu, Yoon Ju Park, Sung-Jin Choi, Dae Hwan Kim, and Dong Myong Kim *School of Electrical Engineering, Kookmin University*
TD1-G-5 **10:00-10:15**	**Gate-induced Drain Leakage Current Model of P-type Polycrystalline Silicon Thin Film Transistors Aged by Off-state Stress** Ki Hwan Kim[1,2], Hyo Jung Kim[1,3], Soon Kon Kim[1], Mi Seon Seo[2], Hyunguk Cho[2], Youngmi Cho[2], Yongjo Kim[2], and Byung Deog Choi[1] *[1]Department of Electrical and Computer Engineering, Sungkyunkwan University, [2]Computer Aided Engineering Team, Samsung Display Company, [3]Technology of Reliability, OLED Business Samsung Display*
TD1-G-6 **10:15-10:30**	**Characterization of Spatial Distribution of Traps across the Substrate in Metal-Insulator-Semiconductor Structures with Band Bending Effect** Jintae Yu, Han Bin Yoo, Haesung Kim, Yoon Ju Park, Sung-jin Choi, Dae Hwan Kim, and Dong Myong Kim *School of Electrical Engineering, Kookmin University*

L. Analog Design 분과

2020년 2월 13일(목), 09:00-10:30 / Room E (루비 II, 5층)

[TE1-L] Analog

: 교수 (아주대학교), 엄지용 교수 (한남대학교)

TE1-L-1 **09:00-09:15**	**A Low-Luminance Compensation Current Driver for AMOLED Displays** JeeHun Yeom, Minku Song, and Soo Youn Kim *Department of Semiconductor Science, Dongguk University*
TE1-L-2 **09:15-09:30**	**Shift Register for Depletion Mode a-IGZO TFTs Using Dual Pull-Down Structure** Jongsu Oh, Jungwoo Lee, Eun Kyo Jung, and Yong-Sang Kim[1] *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TE1-L-3 **09:30-09:45**	**A WLAN 2.45-GHz RF Energy Harvester with DC-DC Converter for Wireless Sensor Network** Chae-Hyun Kim and Hyungmin Lee *School of Electrical Engineering, Korea University*
TE1-L-4 **09:45-10:00**	**Design of Low-Loss, High-Efficiency Step-Up Hybrid Switched-Capacitor Converter for IoT Smart Nodes** Joonho Park and Jaeha Kim *Department of Electrical and Computer Engineering, Seoul National University*
TE1-L-5 **10:00-10:15**	**A Two-Step Coarse-Fine Time-to-Digital Conversion Technique Using Oscillation Collapse-Based Ring Oscillator** Wooryeol Kim and Jaeha Kim *Department of Electrical and Computer Engineering, Seoul National University*
TE1-L-6 **10:15-10:30**	**A 9-bit, 1st Order Noise Shaping SAR ADC with Embedded Passive Gain** Chang-Hyung Choi and Jong-Wook Lee *Department of Electronic Engineering, Kyung Hee University*

C. Material Growth & Characterization 분과

2020년 2월 13일(목), 09:00-10:30 / Room F (스페이드 I, 6층)

[TF1-C] 2D Materials

: 교수 (경희대학교), 이창석 박사 (삼성종합기술원)

TF1-C-1 **09:00-09:30**	**[초청]** **Heterointerface Engineering in Epitaxially-grown 2D Oxides and van der Waals Heterostructures** Gwan-Hyoung Lee *Seoul National University*
TF1-C-2 **09:30-09:45**	**Seamless WSe2 Homojunction Diode via Laser-induced Oxidation** 양수정, 김장혁, 김지현 *고려대학교 화공생명공학과*
TF1-C-3 **09:45-10:00**	**Wafer-Scale Formation of van der Waals (W,Mo)Te_2 Electrodes toward Barrier-Free Contact at the Schottky-Mott Limit** Seunguk Song[1], Yeoseon Sim[1], Se-Yang Kim[1], Jung Hwa Kim[1], Inseon Oh[1], Woong Ki Na[2], Do Hee Lee[1], Jaewon Wang[1], Jinsung Kwak[1], Hyeonsik Cheong[2], Jung-Woo Yoo[1], Zonghoon Lee[1], and Soon-Yong Kwon[1] *[1]School of Materials Science and Engineering and Low Dimensional Carbon Materials Center, UNIST, [2]Department of Physics, Sogang University*
TF1-C-4 **10:00-10:15**	**Broadband Heterojunction 2D-TMDs/Si Photodetectors Directly Grown onto Silicon Substrate** Jung-Min Choi[1], Min Hyuk Park[2], and Yonghun Kim[1] *[1]Department of Advanced Functional Thin Films, Materials Center for Energy Convergence, KIMS, [2]School of Materials Science and Engineering, Pusan National University*
TF1-C-5 **10:15-10:30**	**헤테로 반데르발스 에피택시 기법과 MOCVD 공법을 이용한 고품질의 단일층 MoS_2 성장** Suhee Jang, Su Han Kim, Sang Il Lee, Won Jun Chang, Wonyoung Choi, and Won Il Park *Division of Materials Science and Engineering, Hanyang University*

K. Memory (Design & Process Technology) 분과

2020년 2월 13일(목), 09:00-10:30 / Room G (스페이드 II+III, 6층)

[TG1-K] Devices for Neuromorphic Computing I

: 교수(서울시립대학교), 김성준 교수 (충북대학교)

TG1-K-1 **09:00-09:30**	[초청] **On-Chip Trainable Analog Phase Change Memory (PCM) Synaptic Array for Spiking Restricted Boltzmann Machine (RBM)** SangBum Kim *Department of Materials Science and Engineering, Seoul National University*
TG1-K-2 **09:30-09:45**	**Synaptic Device Failure Analysis of Array-Based Neuromorphic System Using Sigmoidal TS Neuron** Wooseok Choi, Donguk Lee, and Hyunsang Hwang *Center for Single Atom-based Semiconductor Device and the Department of MS&E, POSTECH*
TG1-K-3 **09:45-10:00**	**Influence of Al_2O_3 Insertion Layer on RS/Retention Characteristics in IGZO Memristor for Neuromorphic Application** Woo Sik Choi, Jun Tae Jang, Jungi Min, Donguk Kim, Sung-Jin Choi, Dong Myong Kim, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
TG1-K-4 **10:00-10:15**	**Training and Operation of an Artificial Neural Network in IGZO-based Crossbar Array** Jun Tae Jang, Jungi Min, Woo Sik Choi, Donguk Kim, Jingyu Park, Sung-Jin Choi, Dong Myong Kim, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
TG1-K-5 **10:15-10:30**	**MOSFET Compensated Synapse Device for Analog Neuromorphic System** Chuljun Lee, Myungjun Kim, Yubin Song, and Daeseok Lee *Department of Electronic Materials Engineering, Kwangwoon University*

N. VLSI CAD 분과

2020년 2월 13일(목), 09:00-10:30 / Room H (하트 I, 6층)

[TH1-N] System & Circuit Design Analysis and Optimization

: 교수 (POSTECH), 송대건 교수 (경북대학교)

TH1-N-1 **09:00-09:15**	**Loading-Effect-Aware Interface Model for SystemVerilog-SPICE Co-Simulation** Yanmei Li and Jaeha Kim *Department of Electrical and Computer Engineering, Seoul National University*
TH1-N-2 **09:15-09:30**	**Supply Voltage Analysis for Power Delay Optimization of Logic Design** Minju Kim, Daejeong Kim, and Hyunsun Mo *Department of Electronics Engineering, Kookmin University*
TH1-N-3 **09:30-09:45**	**Spike Counts Based Early Termination Scheme for Low Latency Neuromorphic Hardware** Geonho Kim, Taehwan Kimm, Seunghwan Bang, Hoyoung Tang, and Jongsun Park *Department of Electronic Engineering, Korea University*
TH1-N-4 **09:45-10:00**	**Spatial Correlation-aware Compression Algorithm for Energy-efficient CNN Accelerators** Yoonho Park, Yesung Kang, Sunghoon Kim, Eunji Kwon, and Seokhyeong Kang *Department of Electrical Engineering and Future IT Innovation Lab, POSTECH*
TH1-N-5 **10:00-10:15**	**2.5D Interposer Bus Routing for Multi-Flip Chip Designs** Sung-Yun Lee, Daeyeon Kim, Minhyuk Kweon, and Seokhyeong Kang *Department of Electrical Engineering, POSTECH*
TH1-N-6 **10:15-10:30**	**Designs of Converting Circuit between Binary and Ternary Logic** Seunghan Baek[1], Sunmean Kim[2], and Seokhyeong Kang[1] *[1]Department of Electrical Engineering, POSTECH, [2]Department of Electrical Engineering, UNIST*

S. Chip Design Contest 분과

2020년 2월 13일(목), 09:00-10:30 / Room I (하트 II, 6층)

[TI1-S] Selected Papers on Chip Design Contest

: 교수 (서울과학기술대학교), 고형호 교수 (충남대학교)

TI1-S-1 **09:00-09:15**	**A Synchronous Buck Converter Using a Voltage Buffer Compensator** Jun Tang and Jeongjin Roh *Department of Electronics and Communications Engineering, Hanyang University*
TI1-S-2 **09:15-09:30**	**Monolithic Three-dimensional (M3D) CMOS- Nanoelectromechanical (NEM) Single-tile Reconfigurable Logic (RL)** Hyug Su Kwon and Woo Young Choi *Department of Electronic Engineering, Sogang University*
TI1-S-3 **09:30-09:45**	**Ultra-small IoT Gas Sensor for Sensing Hazardous Gas** Seungjun Lee[1], Sein Oh[1], Younggyun Oh[1], Juyung Lee[1], Kihyun Kim[1], Joohwan Jin[1], and Hyung Il Chae[2] *[1]Department of Electronic Engineering, Kookmin University, [2]Department of Electronic Engineering, Konkuk University*
TI1-S-4 **09:45-10:00**	**Implementation of Low-Complexity Extended CCA Hardware Accelerator for Wearable Brain-Computer Interface SoC** Dokyun Kim[1], Wooseok Byun[2], Sung Yeon Kim[1], Hyunji Kim[3], Sunyoung Park[3], and Ji-Hoon Kim[3] *[1]SEOULTECH, [2]Chungnam National University, [3]Ewha Womans University*
TI1-S-5 **10:00-10:15**	**Low Noise, Low Power 5-Channel Sonar Signal Conditioning Receiver with 1.5 MS/s – 12.5 MS/s 16-bit Sigma-Delta ADC for Ocean Acoustic Measurements** Sang-Gyu Jeon, Tae-Young Yoon, Byeong-Gi Jang, and Kang-Yoon Lee *Sungkyunkwan University*
TI1-S-6 **10:15-10:30**	**용량형 센서용 저잡음 16 비트 2차 델타-시그마 커패시턴스-디지털 컨버터** 김형섭, 김재성, 한권상, 유동근, 허현우, 권용수, 고형호 *충남대학교 전자공학과*

M. RF and Wireless Design 분과

2020년 2월 13일(목), 09:00-10:30 / Room J (하트 III, 6층)

[TJ1-M] RF Design I

: 교수 (강원대학교), 권익진 교수 (아주대학교)

TJ1-M-1 **09:00-09:30**	[초청] **Low-Power Low-Noise CMOS Oscillator Design for IoT Sensor Nodes** Junghyup Lee *Information and Communication Engineering, DGIST*
TJ1-M-2 **09:30-10:00**	[초청] **A 25-Gb/s Clad Dielectric Waveguide Link Using a 73GHz Carrier Frequency with a Stochastic RF Phase Synchronization System in 28nm CMOS** Jinho Park Point2 Technology, Inc. San Jose, California, USA
TJ1-M-3 **10:00-10:30**	[초청] **Multiband Multimode Receiver for Legacy to LTE-A/Sub6G NR Systems** Hyungsun Lim *Samsung Electronics Co., Ltd.*

D. Thin Film Process Technology 분과

2020년 2월 13일(목), 09:00-10:30 / Room K (다이아몬드 I, 6층)

[TK1-D] Thin Film Process I

: 교수 (경희대학교), 김성근 교수 (KIST)

TK1-D-1 **09:00-09:30**	**[초청]** **Overview of Atomic Level Patterning Processes** Woo-Hee Kim *Department of Material Science and Chemical Engineering, Hanyang University*
TK1-D-2 **09:30-09:45**	**Atomic Layer Modulation for Multicomponent Thin Films** Chi Thang Nguyen[1], Bonwook Gu[1], Jeyung Ha[1], Bonggeun Shong[2], and Han-Bo-Ram Lee[1] *[1]Department of Materials Science and Engineering, Incheon National University, [2]Department of Chemical Engineering, Hongik University*
TK1-D-3 **09:45-10:00**	**Mechanistic Investigation on Atomic Layer Deposition of Group 13 Oxides** Abu Saad Ansari, Shimeles Shumi Raya, and Bonggeun Shong *Chemical Engineering, Hongik University*
TK1-D-4 **10:00-10:15**	**Effect of H_2O and O_3 Reactant Cross Exposure in HfO_2 by Atomic Layer Deposition** 고병국, 구본욱, 송세현, Sumaira Yasmeen, Mohammad Rizwan Khan, 이한보람 *인천대학교 신소재공학과*
TK1-D-5 **10:15-10:30**	**Effect of Hydrogen Introduction on Plasma Sulfurization of MoO3 at Low Temperature** Jeong-Hun Choi[1], Seung-Won Lee[2], Hyo-Bae Kim[2], and Ji-Hoon Ahn[1] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Electronic Material Engineering, Korea Maritime & Ocean University*

J. Nano-Science & Technology 분과

2020년 2월 13일(목), 09:00-10:30 / Room L (다이아몬드 II, 6층)

[TL1-J] 페로브스카이트 LED – I

: 교수 (서울대학교)

TL1-J-1 **09:00-09:30**	**[초청]** **Managing Exciton Species in Quantum Dot Electroluminescence Devices for Suppressed Efficiency Droop** Jaehoon Lim *Ajou University*
TL1-J-2 **09:30-10:00**	**[초청]** **Ligand Control of Quantum Dots for the Improvement of Efficiency and Stability of Photoluminescence and Electroluminescence** Hyungsuk Moon[1], Boram Kim[1], and Heeyeop Chae[1,2] *[1]School of Chemical Engineering, Sungkyunkwan University, [2]SKKU Advanced Institute of Nanotechnology, Sungkyunkwan University*
TL1-J-3 **10:00-10:15**	**Reducing Excessive Ligand for Efficient Perovskite Nanoparticle Light-Emitting Diodes** Sungjin Kim, Young-Hoon Kim, and Tae-Woo Lee *Department of Materials Science and Engineering and BK21 PLUS SNU Materials Division for Educating Creative Global Leaders and and Research Institute of Advanced Materials and Institute of Engineering Research and Nano System Institute (NSI), Seoul National University*
TL1-J-4 **10:15-10:30**	**High-Efficiency Perovskite Light-Emitting Diodes Using Polymeric Interlayer** Dong-Hyeok Kim, Young-Hoon Kim, and Tae-Woo Lee *Department of Materials Science and Engineering, Seoul National University*

E. Compound Semiconductors 분과

2020년 2월 13일(목), 10:45-12:45 / Room A (에메랄드 I, 5층)

[TA2-E] Compound Semiconductor Technology II

: 박사 (한국나노기술원), 장우진 박사 (ETRI)

TA2-E-1 **10:45-11:15**	**[초청]** **Design of Image Rejection Mixer using 0.1-μm GaAs pHEMT Process for W-band Radar Application** Jinho Jeong[1] and Wonseok Choe[2] *[1]Sogang University, [2]MMII Lab.*
TA2-E-2 **11:15-11:45**	**[초청]** **Performances of an S-band High Power Amplifier Using 0.4 μm GaN HEMT Devices** Ho-Sang Kwon[1], Gil-Wong Choi[2], Sang-Min Lee[3], and Dong-Wook Kim[4] *[1]Agency for Defense Development, [2]Hanwha Systems, [3]Wavice, [4]Chungnam National University*
TA2-E-3 **11:45-12:00**	**전류원을 이용한 AlGaN/GaN 이종접합 쇼트키 다이오드 기반 수소센서의 안정도 향상 연구** June-Heang Choi, Tuan Anh Vuong, Hyungtak Kim, and Ho-Young Cha *School of Electronic and Electrical Engineering, Hongik University*
TA2-E-4 **12:00-12:15**	**Investigation of Proton Irradiation Effect on AlGaN/GaN heterostructure** Dong-Seok Kim[1], Jae Sang Lee[1], Jeong-Gil Kim[2], Hyeon-Su Lee[2], and Jung-Hee Lee[2] *[1]Korea Multi-Purpose Accelerator Complex, KAERI, [2]School of Electronics Engineering, Kyungpook National University*
TA2-E-5 **12:15-12:30**	**산성 용액 내 InGaAs의 식각 특성에 미치는 결정면의 영향 연구** Jihoon Na and Sangwoo Lim *Department of Chemical and Biomolecular Engineering, Yonsei University*
TA2-E-6 **12:30-12:45**	**MBE Growth of InAs on (001) Si for Mid-Infrared Applications** Daehwan Jung, Geunhwan Ryu, Rafael Chu, Seungyeop Ahn, and Won Jun Choi *Center for Opto-electronic Materials and Devices, KIST*

F. Silicon and Group-IV Devices and Integration Technology 분과

2020년 2월 13일(목), 10:45-12:30 / Room B (에메랄드 II+III, 5층)

[TB2-F] New Applications of Silicon Technology

: 교수 (UNIST), 정성웅 연구위원 (SK하이닉스)

TB2-F-1 **10:45-11:15**	**[초청]** **New Generation of SOI Substrate Solutions for RF and Millimeter-wave Applications** Jean-Pierre Raskin *Université Catholique de Louvain*
TB2-F-2 **11:15-11:45**	**[초청]** **Challenges and Opportunities in Memristor-based Artificial Neural Network (ANN) Hardware** Shinhyun Choi *KAIST*
TB2-F-3 **11:45-12:00**	**Schottky Diode in 45-nm Embedded Flash Process for Power Management System** YongSeok Chung, ChangHyun Park, Changmin Jeon, Youngho Kim, Sangjin Lee, Yong Kyu Lee, Kichul Park, and Gitae Jeong *Foundry Business, Samsung Electronics Co., Ltd.*
TB2-F-4 **12:00-12:15**	**Ternary CMOS Technology based on 28-nm Foundry Process** Jae Won Jeong, Young Eun Choi, Woo-Seok Kim, and Kyung Rok Kim *School of Electrical and Computer Engineering, UNIST*
TB2-F-5 **12:15-12:30**	**Proposal and Simulation of a Low Loss, Highly Efficient Monolithic III-V/Si Optical Phase Shifter** SangHyeon Kim[1,2], Younghyun Kim[2], Yoojin Ban[2], Pantouvaki Marianna[2], and Joris Van Campenhout[2] *[1]School of Electrical Engineering, KAIST, [2]3D&Optical I/O, IMEC*

H. Display and Imaging Technologies 분과

2020년 2월 13일(목), 10:45-12:30 / Room C (사파이어 I, 5층)

[TC2-H] Image Engineering & Sensors

: 교수 (중앙대학교),오누리 교수 (한양대학교)

TC2-H-1 **10:45-11:15**	**[초청]** **Recent Technology Trends in Mobile Imaging Applications** Jae-kyu Lee, Min-Woong Seo, Tae-Yon Lee, Myunglae Chu, Hyunchul Kim, JungChak Ahn, and Ho-kyu Kang *Semiconductor R&D Center, Samsung Electronics Co., Ltd.*
TC2-H-2 **11:15-11:30**	**A Methodology for In-Fab Evaluation of Pinned Photodiode in CMOS Image Sensors** Dongseok Cho, Sungin Kim, Jonghyun Go, Hyunchul Kim, Jaekyu Lee, and Jungchak Ahn *Semiconductor R&D Center, Samsung Electronics Co., Ltd.*
TC2-H-3 **11:30-11:45**	**High-Sensitive And Transparent Strain Sensor Using Strain Engineered Substrate and Its Application For Human Motion Detection** Inki Hwang, Daesik Kim, Geonhee Kim, and Yongtaek Hong *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center (ISRC), Seoul National University*
TC2-H-4 **11:45-12:00**	**Advanced Optical Collimator for Large Area OLED Fingerprint Sensor** Ji Hun Ryu, Seung Hyun Moon, Chul Kim, Won Sang Park, and Bong-Hyun You *Samsung Display Co., Ltd*
TC2-H-5 **12:00-12:15**	**2 Dimensional van der Waals Heterojunction Diode for Multiband Photo Detection** Jongtae Ahn[1,2], Hyun-soo Ra[1], and Do Kyung Hwang[1] *[1]Center for Opto-electronic Materials and Devices, Post-silicon Semiconductor Institute, KIST, [2]Yonsei University*
TC2-H-6 **12:15-12:30**	**Pressure-Sensitive Thin-Film Transistors Using Capacitance Modulation via Multiscale Surface Morphology of Embedded AgNWs** Hayun Kim, Byeongmoon Lee, Hyunuk Oh, Hyunjun Yoo, Jaeyoung Yoon, and Yongtaek Hong *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center (ISRC), Seoul National University*

G. Device & Process Modeling, Simulation and Reliability 분과

2020년 2월 13일(목), 10:45-12:30 / Room D (사파이어 II+III, 5층)

[TD2-G] Atomistic Modeling

: 교수 (고려대학교), 우지용 선임연구원 (한국전자통신연구원)

TD2-G-1 **10:45-11:15**	**[초청]** **Atomistic Molecular Dynamics Simulation for Semiconductor Processes Using Neural Network Potentials** Dongheon Lee, Kyeongpung Lee, Wonseok Jeong, Kyuhyun Lee, Dongsun Yoo, and Seungwu Han *Department of Materials Science and Engineering, Seoul National University*
TD2-G-2 **11:15-11:30**	**Investigation into the Effects of Ag Insertion Layer in TiN/SiN_x/TiN ReRAM through Monte Carlo Simulation** Yeon-Joon Choi[1], Min-Hwi Kim[1], Suhyun Bang[1], Tae-Hyeon Kim[1], Dong Keun Lee[1], Chae Soo Kim[1], Kyungho Hong[1], Seongjae Cho[2], and Byung-Gook Park[1] *[1]Inter-University Semiconductor Research Center (ISRC) and the Department of Electrical and Computer Engineering, Seoul National University, [2]Department of Electronics Engineering, Gachon University*
TD2-G-3 **11:30-11:45**	**Atomistic Study on Electronic Structures of Perovskite Heterojunctions: Enhancing Optical Properties with Light-induced Phase Separation** Hoon Ryu *KISTI*
TD2-G-4 **11:45-12:00**	**Modeling of the Conductive Oxygen Vacancies in the HfO_2 Supercell based on the First Principles Calculation** Junsung Park and Sung-min Hong *School of Electrical Engineering and Computer Science, GIST*
TD2-G-5 **12:00-12:15**	**Intrinsic Limit of Contact Resistance in $PtSe_2$ Mono-Multilayer Heterostructure** Eun Yeong Yang, Jae Eun Seo, Dongwook Seo, and Jiwon Chang *UNIST*
TD2-G-6 **12:15-12:30**	**Tunneling Electroresistance Effect Enhanced by Polar Interface in Hafniabased Ferroelectric Tunnel Junction** Junbeom Seo and Mincheol Shin *School of Electrical Engineering, KAIST*

Special Session

2020년 2월 13일(목), 10:45-12:15 / Room E (루비 II, 5층)

[TE2-SS] Beyond 7-nm Technology

: 교수 (충남대학교), 송대건 교수 (경북대학교)

TE2-SS-1 **10:45-11:00**	파티클 오염으로 인한 극자외선 노광 기술용 펠리클의 열적 내구성 평가 Yong Ju Jang[1], Seong Ju Wi[2], Ha Neul Kim[2], and Jinho Ahn[1,2,3] *[1]Division of Nanoscale Semiconductor Engineering, Hanyang University, [2]Division of Materials Science and Engineering, Hanyang University, [3]Institute of Nano Science and Technology, Hanyang University*
TE2-SS-2 **11:00-11:15**	**Wafer-Scale, Conformal, and Low-Temperature Synthesis of Layered Tin Disulfides for Emerging Non-Planar and Flexible Electronics** Jung Joon Pyeon[1,2], In-Hwan Baek[1,3], Woo Chul Lee[1,3], Hansol Lee[4], Sung Ok Won[4], Ga-Yeon Lee[5], Taek-Mo Chung[5], Jeong Hwan Han[6], Chong-Yun Kang[1,2], and Seong Keun Kim[1] *[1]Center for Electronic Materials, KIST, [2]KU-KIST Graduate School of Converging Science and Technology, Korea University, [3]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [4]Advanced Analysis Center, KIST, [5]Division of Advanced Materials, KRICT, [6]Department of Materials Science and Engineering, SEOULTECH*
TE2-SS-3 **11:15-11:30**	**Machine-Learning-Based Device Optimization with TCAD** Bokyeom Kim and Mincheol Shin *School of Electrical Engineering, KAIST*
TE2-SS-4 **11:30-11:45**	**The Effect of Post Annealing for Atomic Layer Deposited P-type SnO Semiconductor** Su-hwan Choi[1], Jung-hoon Lee[2], Hyun-jun Jeong[2], Seok-goo Jeong[1], and Jin-seong Park[1,2] *[1]Division of Nanoscale of Semiconductor Engineering, Hanyang University, [2]Divison of Materials Science and Engineering, Hanyang University*
TE2-SS-5 **11:45-12:00**	**Sub-μA and 3-bit per Cell Operation of Self-rectifying Resistive Memory in a 1 Mb Crossbar Array Device** Kanghyeok Jeon[1,2], Jin Joo Ryu[1], Doo Seok Jeong[2], Min Kyu Yang[3], and Gun Hwan Kim[1] *[1]Division of Advanced Materials, KRICT, [2]Division of Materials Science and Engineering, Hanyang University, [3]Department of Computer Car Mechatronics, Sahmyook University*
TE2-SS-6 **12:00-12:15**	**Improved Measurement Accuracy with TSOM Image Registration at Sub-Pixel Level** Junhee Jeong, Youngmin Park, and Joonghwee Cho *Department of Embedded Systems Engineering, Incheon National University*

B. Patterning 분과

2020년 2월 13일(목), 10:45-12:00 / Room F (스페이드 I, 6층)

[TF2-B] Patterning Technology: Photolithography and Etch

: 교수 (한양대학교)

TF2-B-1 **10:45-11:00**	**Understanding the Exposure Process in the Extreme Ultra Violet Lithography** Sang-Kong Kim *Department of Science, Hongik University*
TF2-B-2 **11:00-11:30**	**[초청]** **EUV Patterning 시대에 대응하는 차세대 dry etching 기술의 준비** 박종철 *삼성전자*
TF2-B-3 **11:30-11:45**	**SiO_2 Etching Using Hydrofluroethers: The Use of Low Global Warming Potential Materials for Plasma Etching** Jun-Hyun Kim[1] and Chang-Koo Kim[2] *[1]Institute of NT-IT Fusion Technology, Ajou University, [2]Department of Chemical Engineering and Department of Energy Systems Research, Ajou University*
TF2-B-4 **11:45-12:00**	**Influence of Pulse-modulated RF Source Plasma on Etch Characteristic of Nanoscale Patterned Copper Thin Film Using CH_3COOH/Ar** Eun Taek Lim, Moon Hwan Cha, and Chee Won Chung *Department of Chemical Engineering, Inha University*

K. Memory (Design & Process Technology) 분과

2020년 2월 13일(목), 10:45-12:30 / Room G (스페이드 II+III, 6층)

[TG2-K] Emerging Memory I

: 교수 (한국교통대학교), 백승재 교수 (한경대학교)

TG2-K-1 **10:45-11:15**	**[초청]** **Future Outlook and Applications of Ferroelectric-based Memory Devices** Jae-Gil Lee, Dong-Ik Suh, and Seho Lee *SK Hynix Inc.*
TG2-K-2 **11:15-11:45**	**[초청]** **Ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ Thin Films** Si Joon Kim *Department of Electrical and Electronics Engineering, Kangwon National University*
TG2-K-3 **11:45-12:00**	**Highly Linear and Symmetric Synaptic Function of a Memristive Device for Spiking Neural Network System** Jin Joo Ryu[1,2], Kanghyeok Jeon[1], Min Kyu Yang[3], Chunjoong Kim[2], and Gun Hwan Kim[1] *[1]Division of Advanced Materials, KRICT, [2]Department of Materials Science and Engineering, Chungnam National University, [3]Division of IT Convergence Engineering, Sahmyook University*
TG2-K-4 **12:00-12:15**	**The Origin of Incremental Step Pulse Programming (ISPP) Slope Degradation in NAND Flash Memory** Kihoon Nam, Chanyang Park, Jun-Sik Yoon, Hyun-Dong Jang, and Rock-Hyun Baek *Department of Electrical Engineering, POSTECH*
TG2-K-5 **12:15-12:30**	**Effect of Interface Roughness on Program/Erase Efficiency for 3D Vertical NAND Flash Memory Applications** Yongjin Cho, Hyeongwan Oh, Gilsang Yoon, Jaeseok Jin, Donghyun Go, Jounghun Park, and Jeongsoo Lee *Department of Electrical Engineering, POSTECH*

J. Nano-Science & Technology 분과

2020년 2월 13일(목), 10:45-12:30 / Room H (하트 I, 6층)

[TH2-J] 뉴로모픽 소자 – I

: 교수 (한양대학교), 이태우 교수 (서울대학교)

TH2-J-1 **10:45-11:15**	**[초청]** **Manipulating Grain Boundaries of Metal Halide Perovskite Nanograins** Tae-hee Han *Division of Materials Science and Engineering, Hanyang University*
TH2-J-2 **11:15-11:45**	**[초청]** **Sensors, Memories and Displays with Nanostructured Ferroelectric** Cheolmin Park *Department of Materials Science & Engineering, Yonsei University*
TH2-J-3 **11:45-12:00**	**One-dimensional (1D) Artificial Multi-synapses based on Ferroelectric Organic Transistor for Wearable Neuromorphic Textile Applications** Seonggil Ham[1], Minji Kang[2], Seonghoon Jang[1], Jingon Jang[1], Sanghyeon choi[1], Twe-Wook Kim[3], and Gunuk Wang[1] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Functional Composite Materials Research Center and Institute of Advanced Composite Materials, KIST, [3]Department of Flexible and Printable Electronics, Jeonbuk National University*
TH2-J-4 **12:00-12:15**	**Implementing Novel Ionic Barrier Layer in Nanoionic Synaptic Transistor for Next Generation Neurocomputing** Krishn Gopal Rajput, Revannath Dnyandeo Nikam, Jongwon Lee, and Hyunsang Hwang *Center for Single Atom-based Semiconductor Device and Department of Material Science and Engineering, POSTECH*
TH2-J-5 **12:15-12:30**	**Sodium Ion Based Three-terminal Synapse Device with Near Ideal Synaptic Behavior and Improved Retention for Neuromorphic Systems** Kyumin Lee, Jongwon Lee, Revannath Dnyandeo Nikam, Seongjae Heo, and Hyunsang Hwang *Center for Single Atom-based Semiconductor Device, and also Department of Materials Science and Engineering, POSTECH*

A. Interconnect & Package 분과

2020년 2월 13일(목), 10:45-12:45 / Room I (하트 II, 6층)

[TI2-A] Interconnect & Packaging

: 교수 (서울과학기술대학교)

TI2-A-1 **10:45-11:15**	**[초청]** **Development of a Planar-type Thermoelectric Cooling Device for Mobile Electronic Products: Deposition, Device Fabrication Process, and Thermal Performance** Hoo-Jeong Lee[1], Hae-sun Shin[2], Chul Kim[3], and Young-chang Joo[3] *[1]Department of Advanced Materials Science and Engineering, Sungkyunkwan University, [2]Korea Research Institute of Chemical Technology, [3]Department of Materials Science and Engineering, Seoul National University*
TI2-A-2 **11:15-11:45**	**[초청]** **Thermo-Mechanical Reliability and Properties Evaluation for Advanced Electronic Packages** Tae-Ik Lee *KITECH*
TI2-A-3 **11:45-12:00**	**Laser-Assisted Bonding (LAB) – Versatile Enabling Technology for the 4th Industrial Revolutions** Kwang-Seong Choi, Jiho Joo, Ki-seok Jang, Gwang-Mun Choi, Ho-Gyeong Yun, Seok Hwan Moon, and Yong-Sung Eom *ICT Creative Laboratory, ETRI*
TI2-A-4 **12:00-12:15**	**Spin-Related Resistances in Ferromagnetic/Nikelate Bilayers** Se Yeob Jeong[1], Jongmin Lee[2], Nyun Jong Lee[1], Sanghan Lee[2], Tae Heon Kim[1], and Sanghoon Kim[1] *[1]Department of Physics, University of Ulsan, [2]School of Materials Science & Engineering, GIST*
TI2-A-5 **12:15-12:30**	**Density Functional Theory Study on the Atomic Layer Deposition of Tungsten by Using Tungsten Chloride** Yewon Kim[1], Romel Hidayat[1], Soo-Hyun Kim[2], and Won-Jun Lee[1] *[1]Department of Nanotechnology and Advanced Materials Engineering, Sejong University, [2]School of Materials Science and Engineering, Yeungnam University*
TI2-A-6 **12:30-12:45**	**Novel PCT Laminated Busbar for Enhanced Current Transfer Characteristics** Kyongdo Kim[1], Soonkon Kim[2], and Byoungdeog Choi[2] *[1]Jinyoung Global co,.LTD, [2]Department of Electrical and Computer Engineering, Sungkyunkwan University*

M. RF and Wireless Design 분과

2020년 2월 13일(목), 10:45-12:15 / Room J (하트 III, 6층)

[TJ2-M] RF Design II

: 교수 (아주대학교), 권구덕 교수 (강원대학교)

TJ2-M-1 **10:45-11:00**	**BLE Receiver Employing New Quadrature LNA for IoT Application** Beomyu Park and Kuduck Kwon *Department of Electronic Engineering, Kangwon National University*
TJ2-M-2 **11:00-11:15**	**CMOS Tunable High-Q Channel-Selection Low-Noise Amplifier Employing Frequency-Translated Poly-Phase Filter** Donggu Lee and Kuduck Kwon *Department of Electronic Engineering, Kangwon National University*
TJ2-M-3 **11:15-11:30**	**A +19.3-dBm OIP3 5G mm-Wave down-mixer with LO buffer in 65-nm CMOS technology** Yangji Jeon, Seungjik Lee, and Ilku Nam *Department of Electrical Engineering, Pusan National University*
TJ2-M-4 **11:30-11:45**	**35 W 3.4 – 3.8 GHz GaN HEMT 2-Stage Asymmetric Doherty Power Amplifier MMIC for 5G NR** Woojin Choi, Hyunuk Kang, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TJ2-M-5 **11:45-12:00**	**3-5GHz GaAs p-HEMT Linear Broadband Amplifier for 5G Sub-6 GHz Applications with Capacitive Neutralization** Yifei Chen, Sungjae Oh, Wooseok Lee, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TJ2-M-6 **12:00-12:15**	**High-Power and High-Efficiency 5.8 GHz GaN-HEMT Rectifier Using Time Reversal Duality for Microwave Power Transfer via Solar Power Satellites** Hyungmo Koo, Jongseok Bae, and Youngoo Yang *Sungkyunkwan University*

D. Thin Film Process Technology 분과

2020년 2월 13일(목), 10:45-12:30 / Room K (다이아몬드 I, 6층)

[TK2-D] Thin Film Process II

: 교수 (한양대학교), 한정환 교수 (서울과학기술대학교)

TK2-D-1 **10:45-11:15**	**[초청]** **Strategies for Stabilization of Metastable Phases in Atomic Layer Deposition** Seong Keun Kim *Center for Electronic Materials, KIST*
TK2-D-2 **11:15-11:30**	**Hollow Cathode Plasma Source를 이용한 고품질 SiN ALD 공정** Jae Chan Park[1], Dae Hyun Kim[2], Tae Jun Seok[1], Dae Woong Kim[1], Woo-Hee Kim[1], and Tae Joo Park[1,2] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Advanced Materials Engineering, Hanyang University*
TK2-D-3 **11:30-11:45**	**Low-temperature Atomic Layer Deposition of Silicon Nitride Film Using Silicon Halide Precursors** 신종우[1], 문찬희[1], 하제영[1], 유능경[2], 송봉근[2], 이한보람[1] *[1] 인천대학교 신소재공학과, [2] 홍익대학교 화학공학과*
TK2-D-4 **11:45-12:00**	**N_2H_4를 이용한 저온 Thermal ALD SiN 박막 공정** Jae Chan Park[1], Dae Hyun Kim[2], Tae Jun Seok[1], Dae Woong Kim[1], Woo-Hee Kim[1], and Tae Joo Park[1,2] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Materials Science and Chemical Engineering, Hanyang University*
TK2-D-5 **12:00-12:15**	**Growth Behavior and Properties of Ru Film by Electric Field/Potential Assisted Atomic Layer Deposition (EA-ALD)** Ji won Han and Tae Joo Park *Department of Materials Science and Chemical Engineering, Hanyang University*
TK2-D-6 **12:15-12:30**	**Improvement in the Surface Morphology of the Bottom Ru Electrode for DRAM Capacitor** Dae Seon Kwon, Dong Gun Kim, Junil Lim, Tae Kyun Kim, Haeng Ha Seo, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*

J. Nano-Science & Technology 분과

2020년 2월 13일(목), 10:45-12:15 / Room L (다이아몬드 II, 6층)

[TL2-J] 소자 적용 나노 소재

: 교수 (UNIST), 오승주 교수 (고려대학교)

TL2-J-1 **10:45-11:15**	[초청] **Ink Processing for Thermoelectric Materials and Devices** Jae Sung Son, Seungki Jo, Fredrick Kim, Seung Hwae Heo, Seungjun Choo, and Seong Eun Yang *School of Materials Science and Engineering, UNIST*
TL2-J-2 **11:15-11:30**	**Effect of Post Annealing Process on SiN_x-based RRAM Operation** Kyungho Hong, Min-Hwi Kim, Suhyun Bang, Tae-Hyeon Kim, Dong Keun Lee, Kyung Kyu Min, Yeon Joon Choi, Chae Soo Kim, and Byung-Gook Park *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TL2-J-3 **11:30-11:45**	**High-performance and Stretchable Electrode Using PEDOT:PSS-Ag Nanowires Hybrid Structure for Textile Electronics** Taehoon Kim[1], Sungjin Kim[1], Hyungsoo Yoon[2], Sujin Jeong[2], Yongtaek Hong[2], and Tae-Woo Lee[1] *[1]Department of Materials Science and Engineering, Institute of Engineering Research, Research Institute of Advanced Materials, Nano Systems Institute (NSI), BK21 PLUS SNU Materials Division for Educating Creative Global Leaders, Seoul National University, [2]Department of Electrical and Computer Engineering, Inter-University Semiconductor Research Center (ISRC), Seoul National University*
TL2-J-4 **11:45-12:00**	**A Multi-bit Pulse Width Based Memristive PUF (PWM-PUF) and Circuit Implementation** Seoyeon Choi, Dayoung Kim, Wookyung Sun, and Hyungsoon Shin *Department of Electronic and Electrical Engineering, Ewha Womans University*
TL2-J-5 **12:00-12:15**	**Molecular Adsorption and Doping of Hf and Zr Dichalcogenides** Shimeles Shumi Raya, Abu Saad Ansari, and Bonggeun Shong *Chemical Engineering, Hongik University*

[TP1] Poster Session I

2020년 2월 13일(목), 16:00-17:45 / 5층 로비 및 컨벤션홀 L

A. Interconnect & Package

심사위원: 이태익 박사 (한국생산기술연구원)

TP1-001	**탄화규소 기반의 1700V급 하프브릿지 전력모듈** 정동윤[1], 장현규[1], 박종문[1], 서동우[1], 배정환[2], 최윤화[3] *[1] 한국전자통신연구원, [2] ㈜큐아이티, [3] 제엠제코㈜*
TP1-002	**Spray EMI Shield PKG에서의 Contact Resistance 영향 인자 및 SE(Shield Effect) 상관 관계 연구** Gwanghyun Goh, Jongho Lee, Jaewook Lee, Byungkil Choi, Kangho Kim, and Hyunkyu Ryu *PKG Material Development, SK Hynix Inc.*
TP1-003	**Thick Al RDL Pads for Thermosonic Au Wire Bonding** Bokgyu Min, Jisun Kim, Taeho Lee, Taehoon Kim, Kyunghwan Cho, and Kangwon Lee *PKG Process Development, SK Hynix Inc.*
TP1-005	**Micro Bump 구조 및 조성에 따른 Solder의 고온 반응에 대한 연구** 김유선, 홍주완, 최재연, 박연지, 박민수, 현성호, 손재현, 이규제, 손호영, Jason Jang, 김남석 *Package Development, SK Hynix Inc.*
TP1-006	**EMC 점탄성 물성 측정 및 해석 반영을 통한 PKG Warpage 해석 정합성 개선 연구** 강민규, 이대웅, 손재현, Jason, 김남석 *Package Development, SK Hynix Inc.*
TP1-007	**Board 및 SMT 환경에 따른 BLR T/C 수명 영향성 연구** 이미정, 서현철, 이대웅, 손재현, Jason Jang, 김남석 *Package Development, SK Hynix Inc.*
TP1-008	**Plasma-enhanced Atomic Layer Deposition of Tungsten Films Using Metalorganic and Halide Precursor** Yujin Lee[1], Taewook Nam[1], Hyunho Lee[1], Seunggi Seo[1], Hwi Yoon[1], Sanghun Lee[1], Jin Hyung Seo[2], Jang Hyeon Seok[2], and Hyungjun Kim[1] *[1]School of Electrical and Electronics Engineering, Yonsei University, [2]Hansol Chemical*
TP1-009	**Study on the Angular Flux Distribution of Sputtered Ta Atoms in DC Magnetron Sputtering** Yu Jin Chang, Ju Yeong Jeong, Tae Ho Kim, and Hyun Chul Sohn *Department of Materials Science and Engineering, Yonsei University*
TP1-010	**FOWLP에서 폴리이미드 절연층의 기계적 평탄화** 유하빈[1], 이상원[1], 추혁진[1], 김현주[2], 김성동[1] *[1] 서울과학기술대학교 기계시스템디자인공학과, [2] 서울과학기술대학교 화공생명공학과*
TP1-011	**Redistribution Layer and Under Bump Metallization Process for the Next-generation Packaging Technology** Byeong Hwa Jeong[1,2], Do Hyun Oh[1], Dong Shin Kim[1], Sang Ho Lee[1], and Geun Young Yeom[2,3] *[1]ULVAC Korea, Ltd, [2]Sumgkyunkwan University, [3]SKKU Advanced Institute of Nano Technology (SAINT)*

TP1-012	**Finite Element Analysis for Bending or Twisting of Flexible Microelectronic System** Hyeonji Yun[1], Seung-Ho Seo[2], Byoung-Joon Kim[3], Jae-Hak Lee[4], Jun-Yeob Song[4], Won-Jun Lee[1] *[1]Department of Nanotechnology and Advanced Materials Engineering, Sejong University, [2]Research & Development Team, GO Element Ltd, [3]School of Materials Science and Engineering, Andong National University, [4] Advanced Manufacturing System Research Division, KIMM*
TP1-013	**Metal Circuits on Film for a Printed Fuse Device of Li-ion Battery Stack** Kyong Do Kim[1], You Jung Kang[2], Hyun Min Kim[2], Soon Kon Kim[3], Byung Doo Chin[2], and Byoung Deog Choi[3] *[1]Jinyoung Global Co, Ltd, [2]Department of Polymer Science and Engineering, Dankook University, [3]Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-014	**Elucidating Switching Behavior of Thin Chalcogenide Films via Electrostatic Force Microscopy and Conductive Atomic Force Microscopy** Deok-Jin Jeon, Jihye Lee, Sang-Heon Park, and Jong-Souk Yeo *[1]School of Integrated Technology, Yonsei University, [2]Yonsei Institute of Convergence Technology, Yonsei University, [3]Underwood International College, Yonsei University*
TP1-015	**110nm Barrier Metal 최적화를 통한 BEOL Electromigration 개선** 김동석, 백은정, 이맹, 한승현, 강동원, 권경욱, 유동헌, 남명희, 정영서, 박정수, 이상호, 이제희, 손동균 *SK하이닉스 시스템아이씨 연구개발센터*

B. Patterning

심사위원: 이헌 교수 (고려대학교), 채희엽 교수 (성균관대학교)

TP1-016	**Negative-Type Photopatternable System Using Cyclic Dithocarbonate to Create Multifunctional Patterns** Jieun Nam, Sol An, Youngjoo Song, and Myungwoong Kim *Department of Chemistry and Chemical Engineering, Inha University*
TP1-017	**Optimization of Inductively Coupled $SF_6/O_2/Ar$ Plasma Process Condition for Micro-trench Free 4H-SiC Etching and High SiC/SiO_2 Selectivity** Young-Jo Kim, Ogyun Seok, Jeong Hyun Moon, In Ho Kang, Hyoung Woo Kim, and Wook Bahng *Power Semiconductor Research Center, KERI*
TP1-018	**니켈 흡수체를 이용한 고개구수 극자외선 노광공정용 마스크 연구** 한윤종[1], 정동민[2], 안진호[1,2,3] *[1] 한양대학교 나노반도체공학과, [2] 한양대학교 신소재공학과, [3] 나노과학기술연구소*
TP1-019	**백금을 활용한 고개구수 극자외선 노광공정용 위상변위 마스크 연구** 정동민[1], 한윤종[2], 안진호[1,2,3] *[1] 한양대학교 신소재공학과, [2] 한양대학교 나노반도체공학과, [3] 나노과학기술연구소*

TP1-020	**Sub-10 nm Nanopattern Fabrication with High Flory-Huggins interaction parameter Block copolymer with Flash lamp in millisecond** Jang Hwan Kim, Hyeong Min Jin, Dae yong Park, Keon Jae Lee, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
TP1-021	**열처리에 따른 복합구조체 EUV 펠리클의 열적 특성 평가** 위성주[1], 장용주[2], 김하늘[1], 안진호[1,2,3] *[1] 한양대학교 신소재공학과, [2] 한양대학교 나노반도체공학과, [3] 나노과학기술연구소*
TP1-022	**$MoSi_2$ 복합구조체 EUV 펠리클의 광학적/열적 특성 평가** 김하늘[1], 장용주[2], 위성주[1], 안진호[1,2,3] *[1] 한양대학교 신소재공학과, [2] 한양대학교 나노반도체공학과, [3] 나노과학기술연구소*
TP1-023	**Directed Self-Assembly of Block Copolymer by Laser Assisted Thermal Field on Graphene Layer** Kyu Hyo Han[1], Hyeong Min Jin[2], and Sang Ouk Kim[1] *[1]Department of Materials Science and Engineering, KAIST, [2]KAERI*
TP1-024	**저지구온난화지수를 가진 CF_3I를 이용한 SiO_2의 Atomic Layer Etching** 김선용[1], 이태훈[1], 박인성[3], 안진호[1,2,4] *[1] 한양대학교 신소재공학과, [2] 한양대학교 나노반도체공학과, [3] 한양대학교 산학협력단, [4] 나노과학기술연구소*
TP1-025	**Sub- 10 nm Plasmonic Nanogap Array by Block Copolymer Self-Assembly for High-Sensitivity SERS** Heejae Choi, Hyeong Min Jin, Ju Young Kim, and Sang Ouk Kim *Department of Material Science & Engineering, KAIST*
TP1-026	**Block Copolymer Self-Assembly on 3D Substrate with Vapor Phase Deposited Neutral Adlayer** Geon Gug Yang[1], Junhwan Choi[2], Sung Gap Im[2], and Sang Ouk Kim[1] *[1]Department of Materials Science and Engineering, KAIST, [2]Department of Chemical and Biomolecular Engineering, KAIST*
TP1-027	**Edge Engineering of 2D Transition Metal Dichalcogenides by Block Copolymer Nanopatterning** Taeyeong Yun, Gang San Lee, and Sang Ouk Kim *Department of Materials Science & Engineering, KAIST*
TP1-028	**Nanometer-scale Etching of Copper Thin Films Using Inductively Coupled Plasma of Organic Chemicals and Alcohols** Moon Hwan Cha, Eun Tack Lim, Sung Yong Park, Ji Soo Lee, and Chee Won Chung *Department of Chemical Engineering, Inha University*
TP1-029	**3D Tailored Crumpling of Block-Copolymer Lithography on Chemically Modified Graphene** Young Kyu Ko, Ju Young Kim, and Sang Ouk Kim *Department of Material Science & Engineering, KAIST*

TP1-030	**Thermal Shock Induced Dry Transfer Printing and its Potential Applications** Hohyun Keum[1], Seung Kyoung Heo[2], and Kyung-In Jang[2] *[1]Display Research Division, LG Display, [2]DGIST*
TP1-031	**Density Functional Theory Study on the Gas-phase Etching of SiO_2 Using HF and NH_4F** Romel Hidayat[1], Tanzia Chowdhury[1], Hye-Lee Kim[1], Tirta Rona Mayangsari[2], Seongjae Cho[3], Sangjoon Park[4], Jongwan Jung[1], and Won-Jun Lee[1] *[1]Department of Nanotechnology and Advanced Materials Engineering, Sejong University, [2]Department of Chemistry, Universitas Pertamina, [3]Department of Electronics Engineering and the Graduate School of IT Convergence Engineering, Gachon University, [4]Wonik IPS*
TP1-032	**Thermal Atomic Layer Etching of SiO_2 for Surface Cleaning with CF_4/NH_3 Plasma** Yegeun Cho[1], Yongjae Kim[2], Dahee Shim[1], and Heeyeop Chae[1,2] *[1]School of Chemical Engineering, Sungkyunkwan University, [2]SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University*
TP1-033	**Characteristics of Nano-Trench Sidewall Etching Residue after $HBr+Cl_2$ Plasma Etching** Jaemin Lee[1], Hyun Woo Lee[2], and Kwang-Ho Kwon[1] *[1]Department of Control and Instrumentation Engineering, Korea University, [2]Department of Aeronautic Computer Engineering, Hanseo University*
TP1-034	**Low - Global Warming Potential Fluoroether and Fluoroalcohol Compounds for Plasma Etching of SiO_2 and Si_3N_4 Films** Seoeun Kim[1], Yongjae Kim[2], Hojin Kang[1], and Heeyeop Chae[1,2] *[1]School of Chemical Engineering, Sungkyunkwan University, [2]SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University*
TP1-035	**Plasma Treatments on the Two-dimensional Multi-gate Stack of Graphene Encapsulated by Hexagonal Boron Nitride** Sungwon Lee[1], Kyung Joon Han[2], and Won Jong Yoo[1] *[1]SKKU Advanced Institute of Nano-Technology (SAINT), Sungkyunkwan University, [2]Palogen Inc. Palo Alto, USA*
TP1-036	**The Formation of Nanopores Using Electron Beam Lithography for Biosensing Application** Kwangro Lee[1], Sungwon Lee[1], Kyung Joon Han[2], and Won Jong Yoo[1] *[1]SKKU Advanced Institute of Nano-Technology (SAINT), Sungkyunkwan University, [2]Palogen Inc. Palo Alto, CA*

C. Material Growth & Characterization

심사위원: 권순용 교수 (UNIST), 백승협 박사 (KIST)

TP1-037	**Enhanced Chemical Stability of Ni Foam by 3D Graphene Coating** Yeoseon Sim[1], Jinsung Kwak[1], Se-Yang Kim[1], Yongsu Jo[1], Seunghyun Kim[2], Sung Youb Kim[2], Ji Hyun Kim[2], Chi-Seung Lee[3], Jang Ho Jo[3], and Soon-Yong Kwon[1,2] *[1]School of Materials Science and Engineering & Low-Dimensional Carbon Material Center, UNIST, [2]School of Mechanical, Aerospace, and Nuclear Engineering, UNIST, [3]Fuel Cell Technology Development Team, Eco Technology Center, R&D Division, Hyundai Motor Group*
TP1-038	**Formation of Graphene-Inserted PEDOT:PSS/Colorless Polyimide Composites for High Performance Flexible Transparent Electrodes** Do Hee Lee, Hyung Duk Yun, Eui Dae Jung, Jae Hwan Chu, Yun Seok Nam, Seunguk Song, Shi-Hyun Seok, Myung Hoon Song, and Soon-Yong Kwon *School of Materials Science and Engineering, UNIST*
TP1-039	**Probing the Water Impermeability Discrepancy in CVD-Grown Graphene** Jinsung Kwak[1], Se-Yang Kim[1], Yongsu Jo[1], Na Yeon Kim[1], Sung Youb Kim[2], Zonghoon Lee[1], and Soon-Yong Kwon[1] *[1]School of Materials Science and Engineering and Low Dimensional Carbon Materials Center, UNIST, [2]School of Mechanical, Aerospace and Nuclear Engineering, UNIST*
TP1-040	**Partial Oxidation Behavior of Diverse Intrinsic Graphene Defects in Graphene-Grown Copper** Yongsu Jo[1], Jinsung Kwak[1], Soon-Dong Park[2], Na Yeon Kim[1], Se-Yang Kim[1], Hyung-Joon Shin[1], Zonghoon Lee[1], Sung Youb Kim[2], and Soon-Yong Kwon[1,2] *[1]School of Materials Science and Engineering & Low-Dimensional Carbon Materials Center, UNIST, [2]School of Mechanical and Nuclear Engineering, UNIST*
TP1-041	**Sintering 조건이 유리질내 OH 함량분포에 미치는 영향** 김대영, 오성국 *대한광통신주식회사*
TP1-042	**비정질 탄소층과 급속 열처리 방법을 이용한 그래핀 성장** 조철희, 김장혁, 김지현 *고려대학교 화공생명공학과*
TP1-043	**Hydrodynamic Transport Tesla Valve in Graphene** Jea Jung Lee[1], Dongjea Seo[2], Hakseong Kim[3], Heeyeon Lee[1], Young Dong Kim[1], Keon Ho Yoo[1], Youngwoo Nam[4], Heon-Jin Choi[3], Young Duck Kim[1] *[1]Department of Physics, Kyung Hee University, [2]Department of Materials Science and Engineering, Yonsei University, [3]KRISS, [4]Department of Physics, Gyeongsang National University*
TP1-044	**Unconventional Electrical Transport of Graphene on Charge Density Waves of 1T-TaS_2** Minseong Kwon[1], Dongjea Seo[2], Jea Jung Lee[1], Heeyeon Lee[1], Wooseob Kim[1], Young Dong Kim[1], Keon-Ho Yoo[1], Heon-jin Choi[2], Jehwang Ryu[1], Young Duck Kim[1] *[1]Department of Physics, Kyung Hee University, [2]Department of Materials Science and Engineering, Yonsei University*

TP1-045	**Thermal Radiation Control With Graphene/hBN Heterostructure PCC** 조민현[1], 김규진[1,2], 서동제[3], 최헌진[3], 김영동[1], 유건호[1], 한일기[2], 김영덕[1] *[1] 경희대학교 물리학과, [2] 한국과학기술원 나노포토닉스연구센터, [3] 연세대학교 신소재공학과*
TP1-046	**Near Ultraviolet Emitting Device With Graphene / Hexagonal Boron Nitride / Graphene Tunneling Structure** Seungmin Park[1], Dongjae Seo[2], Keon Ho Yoo[1], Young Dong Kim[1], and Young Duck Kin[1] *[1]Kyung Hee University, [2]Yonsei University*
TP1-047	**Atomic Layer Deposition of SnTe for High-Density, Fast Phase Change Memory** Yoon Kyeung Lee, Eui-Sang Park, Chanyoung Yoo, Woohyun Kim, Manick Ha, Jeong Woo Jeon, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-048	**Spontaneous Hybridization of Organic-Inorganic Perovskite with Nitrogen doped Carbon Nanotubes** Daewon Kim, Gil Yong Lee, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
TP1-049	**화학적 도핑 방법을 이용한 그래핀 일함수 조율의 전기적 특성 분석** 김승모, 김소영, 이호인, 이용수, 유태진, 김시현, 황현준, 이병훈 *Center for Emerging Electric Devices and Systems, School of Material Science and Engineering, GIST*
TP1-050	**Investigation Of Dopant Behavior In Epitaxially Grown Ge On III-V Compounds** Hansung Kim[1,2], Yun Joong Lee[2,3], Hyeong-Rak Lim[2,4], Young-Hun Shin[2,4], SangHyeon Kim[5], Hyung-jun Kim[2,3] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Center for Spintronics, KIST, [3]Division of Nano & Information Technology, KIST School, Korea University of Science & Technology, [4]School of Electrical Engineering, Korea University, [5]School of Electrical Engineering, KAIST*
TP1-051	**The Strain Relaxation Mechanism Of $In_{0.2}Ga_{0.8}As$ On GaAs (110) Grown By Molecular Beam Epitaxy** Yun Joong Lee[1,2], Young-Hun Shin[1,4], Han-Sung Kim[1,3], Hyeong-Rak Lim[1,4], Sang-Hyeon Kim[5], and Hyung-jun Kim[1,2] *[1]Center for Spintronics, KIST, [2]Division of Nano & Information Technology, University of Science & Technology, [3]KU-KIST Graduate School of Converging Science and Technology, Korea University, [4]School of Electrical Engineering, Korea University, [5]School of Electrical Engineering, KAIST*
TP1-052	**Synthesis of Solution-Processed Two-Dimensional Transition Metal Carbide (MXene) Using Highly Purified Precursors for Ink Applications** Shi-Hyun Seok, Seungjun Choo, Hye-Jin Ju, Jinsung Kwak, Woo-Seok Kang, Se-Yang Kim, Do Hee Lee, Jungsoo Lee, Ju-Hyoung Han, Jaewon Wang, Wook Jo, Han Gi Chae, Jae Sung Son, and Soon-Yong Kwon *School of Materials Science and Engineering, UNIST*

TP1-053	**Heteroepitaxial Growth of β-Ga_2O_3 Thin Films by PVD Method** Hyung-Jin Choi and Seung-Hyub Baek *Center for Electronic Materials, KIST*
TP1-054	**Characteristics Of ß-Ga_2O_3 TFTs With Nitrogen Atom Doping By Plasma Assisted Pulsed Laser Deposition** Sang Ha Jeong, Thi Kim Oanh Vu, and Eun Kyu Kim *Department of Physics, Hanyang University*
TP1-055	**Study of p-GaN Nanocrystals Grown on InGaN/GaN Nanowire Heterostructures** Dae-Young Um[1], Yong-Ho Ra[2], Dae-Han Jung[1], and Cheul-Ro Lee[1] *[1]Semiconductor Materials Process Laboratory, School of Advanced Materials Engineering, Engineering College, Research Center for Advanced Materials Development (RCAMD), Jeonbuk National University, [2]Optic & Electronic Component Material Center, KICET*
TP1-056	**Study on Fabrication of Coaxial InN QDs Grown on n-GaN NW by MOCVD System for Optoelectronics Devices** Dong-Hun Yoo, Dae-Young Um, Ga Eun Hong, Suel Lee, and Cheul-Ro Lee *Semiconductor Materials Process Laboratory, School of Advanced Materials Engineering, Engineering College, Research Center for Advanced Materials Development (RCAMD), Jeonbuk National University*
TP1-057	**AlN Growth on Etched Diamond (100) Substrate for Ultra-wide Bandgap Hybrid Semiconductor Structure by High Temperature Metal Organic Chemical Vapor Deposition** Changheon Cheon[1], Byeongchan So[1], Taemyung Kwak[1], Geunho Yoo[1], Seong-woo Kim[2], and Okhyun Nam[1] *[1]Department of Nano-Optical Engineering, Korea Polytechnic University, [2]Adamant Namiki Precision Jewel Co. Ltd.*
TP1-058	**Atomic Layer Deposition of Highly Stoichiometric Cu_2SnS_3 Films as Absorber Materials for Photovoltaic Cells** Raphael Edem Agbenyeke[1,2], Bo Keun Park[1,2], Taek-Mo Chung[1,2], Jeong Hwan Han[3], Young Kuk Lee[1,2], and Chang Gyoun Kim[1,2] *[1]Division of Advanced Materials, KRICT, [2]Department of Chemical Convergence Materials, University of Science and Technology, [3]Department of Materials Science and Engineering, SEOULTECH*
TP1-059	**Novel Synthetic Route for InP Nanocrystals Using Triphenyl Phosphite** Dongkyu Lee and Doh C. Lee *Department of Chemical and Biomolecular Engineering, KAIST*
TP1-060	**Characterization of Si-doped InAs Nanowire on InP(111)B Substrate** Minwoo Kong[1,2], Hyunchul Jang[2], Sangtae Lee[2], Changhun Song[2], Hyeong-Ho Park[2], Chang Zoo Kim[2], Sanghyun Jung[2], Chan-Soo Shin[2], and Kwangseok Seo[1] *[1]Department of Electrical and Computer Engineering, Inter-university Semiconductor Research Center, Seoul National University, [2]KANC*

TP1-061	**Growth of Nanoparticle-free High-Quality Hexagonal Boron Nitride Using Chemical Vapor Deposition** Hyunwoo Jang, Juhun Lee, Taemyung Kwak, and Okhyun Nam *Korea Polytechnic University*
TP1-062	**Ge Solar Cells with Micro-rod Arrays: Structural and Optical Properties** Yeojun Yun[1], Kangho Kim[1], Minhyung Lee[1], Yujeong Jang[1], Sang Hyun Jung[2], Chang Zoo Kim[2], Ho Kwan Kang[2], and Jaejin Lee[1] *[1]Department of Electrical and Computer Engineering, Ajou University, [2]KANC*
TP1-063	**The Effect of Initial Stage Strain during Te-doped InGaAs Layer Growth on InAlAs Buffer by a MOCVD Method** Sangtae Lee[1], Hyunchul Jang[1], Minwoo Kong[1,2], Changhun Song[1], Chang Zoo Kim[1], Hyeong-Ho Park[1], Sanghyun Jung[1], and Chan-Soo Shin[1] *[1]KANC, [2]Department of Electrical and Computer Engineering, Inter-University Semiconductor Research Center, Seoul National University*
TP1-064	**Pressure-induced Wavelength Variable InGaN/GaN Light Emitting Crystal** Dong Won Yang, Jae Hyung Lee, Jae Hyeok Shin, Min Joo Kim, and Won Il Park *Division of Materials Science and Engineering, Hanyang University*
TP1-065	**CVD Synthesis of Continuous ReS_2 Film with Seed Layer** Jinho Lim, Dasom Jeon, and Seunghyun Lee *Department of Electrical Engineering, Kyung Hee University*
TP1-066	**Thermal Boundary Resistance Extraction of GaN-on-Diamond Substrate from TLM Pattern Using Micro-Raman Spectroscopy and Thermal Simulation** Ra-Seong Ki[1], Kwang-Seok Seo[1], and Ho-Young Cha[2] *[1]Department of Electrical Engineering and Computer Science, Seoul National University, [2]Department of Electronic and Electrical Engineering, Hongik University*
TP1-067	**Interface Engineering by Oxygen Vacancy Modification on Hafnium-based Ferroelectric Capacitor** Joonbong Lee[1], Myeongseop Song[2], Woosung Jang[3], Jinho Byun[5], Hojin Lee[1], Jongwan Jung[1], Minhyuk Park[5], Jaekwang Lee[5], Youngmin Kim[3,4], Seungchul Chae[2], and Taekjib Choi[1] *[1]Hybrid Materials Research Center and Department of Nanotechnology and Advanced Materials Engineering, Sejong University, [2]Department of Physics Education, Seoul National University, [3]Department of Energy Science, Sungkyunkwan University, [4] Center of Integrated Nanostructure Physics, Institute for Basic Science (IBS), [5]Department of Physics, Pusan National University*
TP1-068	**표면 처리를 통한 바나듐 이산화물 단결정 나노빔의 Metal-Insulator-Transition 전기적 특성 변화 연구** 고민환[1], 이상연[1], 강현우[1], 박주철[2], 서형탁[1,3] *[1]아주대학교 에너지시스템학과[2] 경북과학기술진흥센터, 구미전자정보기술원, [3]아주대학교 신소재공학과*
TP1-069	**Atomistic Understanding on the Growth and Stacking-Fault of GaAs Nanowires Grown by Noncatalytic Method** In Won Yeu[1,2], Gyuseung Han[1,2], Cheol Seong Hwang[2], and Jung-Hae Choi[1] *[1]Center for Electronic Materials, KIST, [2]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*

F. Silicon and Group-IV Devices and Integration Technology

심사위원 : 김경록 교수 (UNIST), 김가람 교수 (명지대학교)

TP1-070	**투명 전극을 이용한 피드백 소자의 전기적 특성 연구** 임두혁, 김상식 *고려대학교 전기전자공학과*
TP1-071	**Implementation of Homeostasis Functionality Using Active Leaky Path of Membrane Potential in STDP-based Spiking Neural Network** Jangsaeng Kim, Sung Yun Woo, Won-Mook Kang, Byung-Gook Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering, Inter-University Semiconductor Research Center, Seoul National University*
TP1-072	**Analysis of CMOS Logic Inverter Based on Polycrystalline Silicon Layer in Gate-all-around Junctionless Field-effect-transistor** Hye Jin Mun, Min Su Cho, Won Douk Jang, Jun Hyeok Jang, Sang Ho Lee, Jaewon Jang, Jin-Hyuk Bae, and In Man Kang *School of Electronics Engineering, Kyungpook National University*
TP1-073	**Superior Carrier Mobility of Ge MOSFETs Depending on Channel Orientation with EOT of 0.57 nm Using Y-ZrO_2/GeO_x/Ge Stack** Tae In Lee[1], Min Ju Kim[1], Hyun Jun Ahn[1], Eui Joong Shin[1], Sung Won Shin[1], Seung Hwan Lee[1], Wan Sik Hwang[2], Hyun-Young Yu[3], and Byung Jin Cho[1] *[1]School of Electrical Engineering, KAIST, [2]School of Electrical Engineering, Korea University, [3]Department of Materials Engineering, Korea Aerospace University*
TP1-074	**Stacked-gate-all-around Structured Tunneling-based Ternary CMOS** Sihyun Kim, Kitae Lee, Munhyeon Kim, and Byung-Gook Park *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University*
TP1-075	**Design of Capacitorless DRAM based on Ultra-thin Polycrystalline Silicon Junctionless Field-effect Transistor with Dual Gate** Sang Ho Lee, Min Su Cho, Jun Hyeok Jung, Won Douk Jang, Hye Jin Mun, Jae Won Jang, Jin Hyeok Bae, and In Man Kang *School of Electronics Engineering, Kyungpook National University*
TP1-076	**피드백 전계효과 트랜지스터의 latch-up 현상 이용한 인버터 특성 연구** 박영수, 우솔아, 임두혁, 김상식 *고려대학교 전기전자공학과*
TP1-077	**Microwave Annealing for Ni Silicide Formation and Schottky Barrier SOI-MOSFET Fabrication** Dong-Hee Lee, Je-Hyeon Kim, Sung-Hyun Jo, Yoon-Sub Shin, and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
TP1-078	**Minimized Series Resistance in Silicon Fin-Based High Electron Mobility Transistor** Sung-Ho Kim, Jong Yul Park, Jiwon Chang, and Kyung Rok Kim *School of Electrical and Computer Engineering, UNIST*

TP1-079	**3D V-NAND의 고선택적 Si_3N_4 식각 중 나타나는 산화물 재성장 현상 분석** 김태현, 손창진, 박태건, 임상우 *Department of Chemical and Biomolecular Engineering, Yonsei University*
TP1-080	**Investigation of Interface Trap Density by Low Frequency Noise and Subthreshold Slope** Seungjun Moon and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-081	**첨가제를 이용한 고온 인산 용액의 Si_3N_4/SiO_2 식각 반응 거동 연구** 박태건, 손창진, 김태현, 임상우 *Department of Chemical and Biomolecular Engineering, Yonsei University*
TP1-082	**T-CMOS 컴팩 모델을 이용한 삼진 Quantizer 동작 시뮬레이션 검증** 최영은, 정재원, 김우석, 김경록 *울산과학기술원 전기전자컴퓨터공학부*
TP1-083	**Harware-based Neural Networks Using Multiple NAND Flash Cells for a Synaptic Device** Sung-Tae Lee, Dongseok Kwon, Hyeong-Su Kim, Byung-Gook Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering and ISRC, Seoul National University*
TP1-084	**Tunneling-based Ternary CMOS with Ferroelectric Gate Dielectric** Kitae Lee, Sihyun Kim, Munhyeon Kim, and Byung-Gook Park *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University*
TP1-085	**Energy-delay Sensitivity Analysis of NEM Relay Using Negative Capacitance** Chankeun Yoon and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-086	**Analysis of Work Function Variation in Negative Capacitance Gate-all-around Junctionless Nanowire FET** Yejoo Choi and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-087	**Regression Model for Investigating the Impact of Line-edge-roughness (LER)** Sangho Yu and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-088	**Analysis of Parasitic Capacitance Effect on Nanowire Negative Capacitance Field-effect Transistor (NW-NCFET)** Jae Yeon Park, Hyun-Ho Ahn, Seungwon Go, and Sangwan Kim *Department of Electrical and Computer Engineering, Ajou University*
TP1-089	**FBFET-based Ring Oscillators for Neuromorphic Computing** Gwon Kim, Changhoon Lee, and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*

TP1-090	**Investigation of Bio Sensor based on Feedback Field Effect Transistor** Mingi Pae[1], Ryun Hwa Lee[1], Inyoung Lee[1], Hyo Jin Park[1], Dong-Wook Park[2], Cherhyun Jeong[3], and Il Hwan Cho[1] *[1]Department of Electronic Engineering, Myongji University, [2]School of Electrical and Computer Engineering, University of Seoul, [3]Biomedical Research Institute, KIST*
TP1-091	**Analysis of Split-gate Positive Feedback Device for Neuron Circuit at Variable Temperatures** Sung Yun Woo, Won-Mook Kang, Nagyong Choi, Young-Tak Seo, Soochang Lee, Seongbin Oh, Jangsaeng Kim, Byung-Gook Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-092	**Influence of Ar Plasma Treatment on Metal-insulator-semiconductor (MIS) Contact Resistivity** SeokJung Kang, Seong Soo Shin, and Sangwan Kim *Department of Electrical and Computer Engineering, Ajou University*
TP1-093	**A Novel Strategy for Ge-rich $Si_{1-x}Ge_x$ Layer** Un-Hyun Im, Seok Jung Kang, and Sangwan Kim *Department of Electrical and Computer Engineering, Ajou University*
TP1-094	**SOSA(SIP Based Optical Sub Assembly) and Its Application to the Optical Interconnect** Young June Park[1,2], Seongwook Choi[2], David D. Park[2], and Yoonyoung Bae[2] *[1]Seoul National University, [2]Giparang, Inc.*
TP1-095	**Machine-learning Model for Predicting the Effect of Line Edge Roughness on Device Performance** Shinick Han and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-096	**Observation of Negative Capacitance Effect by Phase Field Simulation** Taegeon Kim and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-097	**알루미늄을 이용한 저온 직접 증착 실리콘의 결정화율 증가** 장석진, 송영웅, 최대환, 윤정현, 권장연 *연세대학교*
TP1-098	**Doping into Ge Epilayer on Si by Ex-situ Phosphorus Diffusion for Ge-on-Si Laser Application** Mingjun Jiang[1], Chanhyuck Park[1], Motoki Yakao[2], Yasuhiko Ishikawa[2], Kazumi Wada[3], and Donghwan Ahn[1] *[1]School of Materials Science and Engineering, Kookmin University, [2]Department of Materials Engineering, The University of Tokyo, [3]Department of Materials Science and Engineering, Massachusetts Institute of Technology*
TP1-099	**Ge_xTe_{1-x} Ovonic Threshold Switching Device Model based on Chalcogenide Material Composition** Yoongu Lee[1,2], Sang-Heon Park[1,2], Jeongun Choe[1,2], Jihye Lee[1,2], and Jong-Souk Yeo[2] *[1]College of Engineering, Yonsei University, [2]Yonsei Institute of Convergence Technology, Yonsei University*
TP1-100	**Loading Effects Analysis by Advanced Compact Model for Real-time THz Imaging System** Sang Hyo Ahn, Min Woo Ryu, E-San Jang, and Kyung Rok Kim *Department of Electronic Engineering, UNIST*

TP1-101	**Gate First Negative Capacitance FET with Self-aligned Nickel-silicide Source and Drain** Sihyun Kim, Kitae Lee, Byung-Gook Park, and Daewoong Kwon *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University, [2]Department of Electrical Engineering, Inha University*
TP1-102	**T-CAD Platform for Ternary CMOS Design based on Physical Parameter Analysis** Woo-Seok Kim, Jae Won Jeong, Young-Eun Choi, and Kyung Rok Kim *School of Electrical Engineering, UNIST*
TP1-103	**Synapse Function of ZnSnO-based Memristor Device** Jun-hyeok Choi[1], Ji-Ho Ryu[1], Sungjun Kim[1], and Teresa Oh[2] *[1]School of Electronics Engineering, Chungbuk National University, [2]School of Semiconductor Engineering, Cheongju University*
TP1-104	**Bipolar Resistive Switching with Self-selection in SiN/HfO_2 Bilayer Device** Hyojong Cho[1], Kyungho Hong[2], Sungjun Kim[1], Byung-Gook Park[2] *[1]School of Electronics Engineering, Chungbuk National University, [2]Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center (ISRC), Seoul National University*
TP1-105	**High Uniformity of THz Detectors based on Monolithic Trantenna for Multi-pixel Array THz Imaging System** Min Woo Ryu, E-San Jang, Sang Hyo Ahn, Jong Yul Park, Ramesh Patel, and Kyung Rok Kim *Department of Electrical Engineering, UNIST*
TP1-106	**A Study on Intrinsic and Parasitic Capacitance Effects for High-performance Non-resonant Plasmonic THz Detector based on Si-FET** E-San Jang, Sang Hyo Ahn, Min Woo Ryu, and Kyung Rok Kim *Department of Electrical Engineering, UNIST*
TP1-107	**An Ultrasharp Visible-light Band Rejection Filter based on Si/SiO_2 Distributed Bragg Reflector for On-chip Si Photonics** Yung Hun Jung[1] and Seongjae Cho[1,2] *[1]Graduate School of IT Convergence Engineering, Gachon University, [2]Department of Electronics Engineering, Gachon University*
TP1-108	**A Recent Study on $Ge_{1-x}Sn_x$ through Material-device Cooperative Design by *Ab Initio* Calculation and Device Simulation** Seongjae Cho[1,2] *[1]Graduate School of IT Convergence Engineering, Gachon University, [2]Department of Electronics Engineering, Gachon University*
TP1-109	**Si/SiGe Heterostructure Synaptic Transistor and Pattern Recognition** Eunseon Yu[1] and Seongjae Cho[2,3] *[1]Department of Electrical and Computer Engineering, Purdue University, [2]Department of Electronics Engineering, Gachon University, [3]Graduate School of IT Convergence Engineering, Gachon University*

K : Memory (Design & Process Technology)	
	심사위원: 김수길 박사 (SK하이닉스), 김형진 교수 (영남대학교)
TP1-110	**The Effect of Li and Ag Intercalation to MoS_2 for Memory Device.** Min Seok Kim and Woo jong Yu *College of information and Communication Engineering, Sungkyunkwan University*
TP1-111	**Anti-ferroelectric Tunnel Junction Using Asymmetric Work Function Electrodes and Fixed Oxide Charge** Youngin Goh and Sanghun Jeon *KAIST*
TP1-112	**Oxygen Vacancy Controlled Hafnia Ferroelectric with RuO_2 Electrode** Youngin Goh and Sanghun Jeon *School of Electrical Engineering, KAIST*
TP1-113	**Leakage Current Improvement of Antiferroelectric Capacitor with Bottom Electrode Annealing** Seung Hwan Lee, Seong Ho Kim, Hyun Jun Ahn, Tae Ho Kim, Sung Won Shin, and Byung Jin Cho *School of Electrical Engineering, KAIST*
TP1-114	**The Effect of High Pressure Annealing on the Performance of Ferroelectric Tunnel Junction** Jeong Hyeon Hwang, Youngin Goh, and Sanghun Jeon[1] *School of Electrical Engineering, KAIST*
TP1-115	**Effect of V_T Window and Variation of Organic Synaptic Transistor** Jeong Hoon Jeon[1], Juhyun Lee[1], Jonghyuk Yoon[1], Yeongjin Hwang[1], Felix Sunjoo Kim[2], and Hyungjin Kim[1] *[1]Department of Electronic Engineering, Yeungnam University, [2]School of Chemical Engineering and Materials Science, Chung-Ang University*
TP1-116	**Effect of Nitrogen Doping on Synaptic Characteristics of Indium-gallium-zinc Oxide Thin-film Transistor** Keonwon Beom, Minju Kim, Hyerin Lee, and Tae-Sik Yoon *Department of Materials Science and Engineering, Myongji University*
TP1-117	**A Novel Volatile-Memristor-Based True Random Number Generator** Kyung Seok Woo and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-118	**Investigation of the Retention Performance of an Ultra-thin HfO_2 Resistance Switching Layer in an Integrated Memory Device** Gil Seop Kim[1], Tae Hyung Park[1], Hae Jin Kim[1], Tae Jung Ha[2], Woo Young Park[2], Soo Gil Kim[2], and Cheol Seong Hwang[1] *[1]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [2]SK Hynix Inc.*
TP1-119	**Kernel Application of the Stacked Crossbar Array Composed of Self-Reectifying Resistive Switching Memory for Convolutional Neural Network** Yumin Kim, Jihun Kim, Seung Soo Kim, Young Jae Kwon, Gil Seop Kim, Jeong Woo Jeon, Dae Eun Kwon, Jung Ho Yoon, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*

TP1-120	**Process-dependent Synaptic and Nonvolatile Memory Characteristics in Thin-film Transistors with HfOx Gate Insulator and ZnO Channel Layer** Hyerin Lee, Keonwon Beom, Minju Kim, and Tae-Sik Yoon *Department of Materials Science and Engineering, Myongji University*
TP1-121	**Embedded Circuit for Polyfuse Resistance Measurement** Liyan Jin, Jieon Kim, JaeHyung Lee, Heon Park, Eun Sang Jo, and Joon Tae Jang *TE DS Team, DB HiTek*
TP1-122	**Ta_2O_5-based Resistive Switching Devices for Improved Endurance and Reliable Multi-bit Operation** Min Kyu Yang *Department of IT Convergence Engineering, Sahmyook University*
TP1-123	**IGZO:Al NPs Synaptic Transistor Enabling Precise Modulation of Synaptic Plasticity** Ojun Kwon, Jeehoon Kim, Tae Hyeon Kim, Se Young Oh, Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
TP1-124	**Enhancement of Operation Efficiency in Charge Trap Memory Using Anti-ferroelectric $HfZrO_2$** Sung Won Shin, Eui Joong Shin, Seung Hwan Lee, Tae In Lee, Min Ju Kim, Hyun Jun Ahn, and Byung Jin Cho *School of Electrical Engineering, KAIST*
TP1-125	**Forming Free and Self-rectifying Resistive-switching Memory based on IGZO Bi-layer with Different Oxygen Concentration.** Taekwang Kim[2], Minho Song[1,2], Jung-Hwa Cha[2], Junseo Kim[2], Hyeon-Jun Lee[2], Hee Yeon Noh[2], Sunae Seo[1], and Myoung-Jae Lee[2] *[1]Research Institute, DGIST, [2]Department of Physics, Sejong University*
TP1-126	**Flexible Cross Point Phase Change Memory Array via Interfacial Physical Lift-Off** Tae Jin Kim[1], Do Hyun Kim[1], Han Eol Lee[1], Sung Beom Cho[2], and Keon Jae Lee[1] *[1]Department of Material Science and Engineering, Korea Advanced Institute of Science and Engineering, [2]Technology Convergence Division, KICET*
TP1-127	**Characterization of Hafnia for Ferroelectric Tunnel Junction** Sang Hyun Sung, Do Hyun Kim, and Keon Jae Lee *Department of Materials Sciences and Engineering, KAIST*
TP1-128	**The Effect of Sn Doping on the Crystallization of Atomic Layer Deposited Nanocrystalline-$Ge_2Sb_2Te_5$** Woohyun Kim, Chanyoung Yoo, Eui-sang Park, Manick Ha, Jeong Woo Jeon, Yoon Kyeung Lee, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-129	**Analysis of Multi-bit Resistive Switching of W/HfO_2/TiN Memristor based on Electronic Bipolar Resistive Switching Mechanism** Yoon Ho Jang, Ji Hun Kim, Jae Hyun Kim, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*

TP1-130	**Vertically Stackable Phase-change Memory with Recessed Heater Structure** Jeong Woo Jeon, Yoon Kyeung Lee, Chanyoung Yoo, Eui-sang Park, Woohyun Kim, Manick Ha, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-131	**DE/FE Bilayers Effect on Ferroelectric Properties of MFM Capacitors at Lower Temperature** Venkateswarlu Gaddam, Dipjyoti Das, and Saghun Jeon *KAIST*
TP1-132	**Stack Gate Profile Control based on PCA-EPD** Dongwook Choi, Hikaru Kokura, and Woojoong Kim *Memory Etch Technology Team, Samsung Electronics Co., Ltd*
TP1-133	**Doped ZrO_2 Antiferroelectric Field Effect Transistor with HfO_2 Based Fixed Charge Layer** Batzorig Buyantogtokh and Sanghun Jeon *KAIST*
TP1-134	**Negative Capacitance in the Hf-Zr-Al-O/$Hf_{0.5}Zr_{0.5}O_2$ Bilayer System** Dipjyoti Das, Taeho Kim, Venkateswarlu Gaddam, and Sanghun Jeon *School of Electrical Engineering, KAIST*
TP1-135	**Investigation of Gradual Conductance Behavior in the Reset Operation based on a GeTe/Sb_2Te_3 Superlattice Structure** Shin Young Kang and Yun Heub Song *Department of Electronic and Computer Engineering, Hanyang University*
TP1-136	**Parallel Programming of Self-limited Analog Switching for an Array-level Weight Update in Memristive Neural Network** Hanchan Song and Kyung Min Kim *Department of Materials Science and Engineering, KAIST*
TP1-137	**High Quality Tuning Oxide Deposition and Characteristic Evaluation based on High Temperature ALD** Geon-Ho Baek[1], Min-Jung Kim[1], Hye-Mi Kim[2], Seung-Hwan Lee[2], Yusung Jin[3], Hyung Soon Park[3], and Jin-Seong Park[1,2] *[1]Division of Nanoscale Semiconductor Engineering, Hanyang University, [2]Division of Materials Science and Engineering, Hanyang University, [3]Materials Development White Team, SK Hynix Inc.*
TP1-138	**Modeling and Design of Low Power MRAM for Neuromorphic Computing** Yongjun Yoo, Sungmin Jang, Hyeonjun Kim, and Jaeyoung Park *School of Computer Science and Electrical Engineering, Handong Global University*
TP1-139	**Effect of Lithium Doping on the Physical Properties of Nickel Oxide Thin Films Formed by Metal Organic Decomposition** Ingwan Lee, Taeho Kim, Yu Jin Chang, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*

TP1-140	**Threshold Switching Characteristics of Electrochemical Metallization Selectors According to Crystallinity of Ga_2Te_3 Electrolyte** Jae Yeon Kim, Taeho Kim, Dayoon Lee, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
TP1-141	**Electrical Characteristics in TiN/Si:HfO_2/SiON/Si (MFIS) Ferroelectric Tunnel Junction Memory** Yoseop Lee, Seunghyeon Hong, Dante Ahn, Woori Ham, Sungmun Song, and Seung-Eon Ahn *Department of Nano-Optical Engineering, Korea Polytechnic University*
TP1-142	**High Performance ReRAMs Fabricated by Using Microwave-Assisted Nitridation of IGZO Resistive Switching Layer** Shin-yi Min, Jin-gi Min, Hyo-young Kim, Hyeong-un Jeon, and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
TP1-143	**Occasional Conductance Update without Re-write Method for SiNx-based Analog Synaptic Device** Boram Kim, Hyun-Seok Choi, Ji-Hoon Ahn, and Yoon Kim *Department of Electrical and Computer Engineering, University of Seoul*
TP1-144	**Design of EEPROM IP Switches Considering High Voltage Stress for Reliability** Heon Park, Jae-hyung Lee, Eun-sang Jo, and Joon-tae Jang *TE DS Team, DB HiTek*
TP1-145	**3-D AND-type Flash Memory with High-*k* Gate Dielectric for Synaptic Devices** Young-Tak Seo[1], Yoo-hyun Noh[2], Sung Yun Woo[1], Byung-Gook Park[1], and Jong-Ho Lee[1] *[1]Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University, [2]R&D Division, SK Hynix Inc.*
TP1-146	**Plasma Charging Effect on Endurance Characteristics of Embedded Flash in 110nm Logic Technology Node** 차재한, 유유신, 김명석, 김유정, 남명희, 박정수, 이제희, 손동균 *SK Hynix 연구개발센터*
TP1-147	**전하 트랩 플래시 메모리 셀의 전하 손실률 모델링** 김건웅, 김광민, 유제승, 함동현, 백승재 *Department of Electrical and Electronic and Control Engineering, Hankyong National University*
TP1-148	**전하 트랩이 있는 박막의 정전용량 측정 방법** 심건호, 송도헌, 함동현, 공동호, 백지훈, 백승재 *Department of Electrical and Electronic and Control Engineering, Hankyong National University*
TP1-149	**3T-2R Non-Volatile TCAM Using Diode Connected NMOS Transistor** Won-young Chang, Seung-kwang Hong, and Kee-won Kwon *College of Information and Communication Engineering, Sungkyunkwan University*

TP1-150	**Multi-Sub-Block Erase Scheme Using Dummy WL in 3D NAND Flash Memory** Ilsik Ham, Youngseok Jeong, and Myounggon Kang *Department of Electronic Engineering, Korea National University of Transportation*
TP1-151	**The Scaling Trend with Crystallinity Study of the Forming-less NbO_2 Selector** Jimin Lee, Jaeyeon Kim, Taeho Kim, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
TP1-152	**Laser-induced Redox Reactions at ZnO / Al Interface for the Application of the Al / ZnO / Al RRAM** Chul Jin Park, Seung Woo Han, and Moo Whan Shin *School of Integrated Technology and Yonsei Institute of Convergence Technology, Yonsei University*
TP1-153	**The Study of Forming-Free Resistive Switching Devices in Nickel Oxide deposited by Reactive RF Magnetron Sputtering Method** Daewoo Kim, Inwoo Kim, Ingwan Lee, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
TP1-154	**산화물 트랜지스터를 기반으로 한 인공시냅스 시스템** 최대환, 송민규, 장석진, 권장연 *School of Integrated Technology, Yonsei University*
TP1-155	**Study of Nanoplate FET according to Total Ionizing Dose(TID) Effect** Sangwoo Han and Myounggon Kang *Department of Electronic Engineering, Korea National University of Transportation*
TP1-156	**GIDL Current Modulation in a CMOS-Compatible Synaptic Device with High-κ Gate Insulator Stack** Min Kyu Park, Jong-Ho Bae, Young-Tak Seo, and Jong-Ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
TP1-157	**MoS_2 기반 저항변화 메모리의 산소 열처리 효과** 송영웅, 송민규, 권장연 *연세대학교 글로벌융합공학부*
TP1-158	**Nonlinear and Self-selection Switching Characteristics of Bilayer SiN/BN Memristor** Sobia Ali Khan[1], Sungjun Kim[1], and Changhwan Choi[2] *[1]School of Electronics Engineering, Chungbuk National University, [2]Division of Materials Science and Engineering, Hanyang University*
TP1-159	**Self-rectifying Artificial Synaptic Characteristics of TiO_2/HfO_2 Memristor** Ji-Ho Ryu, Sobia Khan Ali, and Sungjun Kim *School of Electronics Engineering, Chungbuk National University*
TP1-160	**PEALD SiO_2 as Diffusion Limit Layer in $Cu/SiO_2/ZrO_2/Pt$ Synaptic Device** Dohee Lee, Andrey S. Sokolov, Boncheol Ku, Yu-Rim Jeon, Haider Abbas, and Changhwan Choi *Division of Materials Science and Engineering, Hanyang University*

TP1-161	**Flash Memory Characteristics of Thin Film Transistor (TFT) Using C-Axis Aligned Crystalline IGZO (CAAC-IGZO) Channel Material** Soonoh Jeong, Wang Xuan, Hoonhee Han, and Changhwan Choi *Division of Materials Science & Engineering, Hanyang University*
TP1-162	**절연막 수명 분석 위한 Monte Carlo기반 Percolation Path 생성 모델** 손권주, 박기론, 전종욱 *Department of Electrical and Electronic Engineering, Konkuk University*
TP1-163	**3차원 수직 NAND Cell의 단일 Grain Boundary로 인한 산포 특성 연구** 김수원, 김종민, 선윤근, 전종욱 *Department of Electrical and Electronic Engineering, Konkuk University*
TP1-164	**하프늄알루미나 유전막의 조성에 따른 전기전도 및 유전특성 평가** 백지훈, 공동호, 백승재 *Department of Electrical, Electronic, and Control Engineering, Hankyong National University*
TP1-165	**Non-Linearity in Ferroelectric Tunnel Junction** Hojin Lee[1], Joonbong Lee[1], Jinho Byun[2], Yesul Choi[2], Jaekwang Lee[2], Sungkyun Park[2], and Taekjib Choi[1] *[1]Department of Nano and Advanced Materials Engineering, Sejong University, [2]Department of Physics, Pusan National University*
TP1-166	**A Proposal for Topology-based Novel Spin Memory** Ji-Seok Yang, Jun-Ho Kang, Taek-Hyeon Lee, and Kab-Jin Kim *Department of Physics, KAIST*

L. Analog Design

심사위원: 지동우 교수 (아주대학교), 엄지용 교수 (한남대학교)

TP1-167	**고속 통신용 아날로그 디지털 변환기** Younggyun Oh[1], Sein Oh[1], Seungjun Lee[1], Juyung Lee[1], Kihyun Kim[1], Joohwan Jin[1], and Hyung Il Chae[2] *[1]Department of Electronic Engineering, Kookmin University, [2]Department of Electronic Engineering, Konkuk University*
TP1-168	**A 340nW 11-bit 100-kS/s SAR ADC with Even/Odd Comparator for Biomedical Implant Devices** Jin-Young Son and Hyouk-Kyu Cha *SEOULTECH*
TP1-169	**Low-power Bidirectional Wireless Data Telemetry for Inductively-powered Devices** Min-Jae Kim and Hyung-Min Lee *School of Electrical Engineering, Korea University*

TP1-170	**Readout Integrated Circuit(ROIC) for High-sensitivity Gas Sensor** Seungjun Lee[1], Sein Oh[1], Younggyun Oh[1], Juyong Lee[1], Kihyun Kim[1], Joohwan Jin[1], and Hyung Il Chae[2] *[1]Department of Electronic Engineering, Kookmin University, [2]Department of Electronic Engineering, Konkuk University*
TP1-171	**IO Gate Tracking Circuit for High Voltage Tolerant Input** Sangmok Lee, Seunghoo Kim, Jaeah Cha, Hyunsub Jung, and Joontae Jang *TE DS team, DB HiTek*
TP1-172	**출력 전압의 고조파 감소를 위한 분수 위상동기루프 기반의 벅 컨버터 설계** kyoung-Tae Min[1], In-chul Hwang[1], and Dong-Soon Jung[2] *[1]Departent of Electrical and Electronics Engineering, Kangwon National University, [2]RaonTech*
TP1-173	**Low Ripple Switched Capacitor DC-DC Converter Using Capacitance Modulation** Kanghoo Kim, Mingyu Jeong, and Changsik Yoo *Department of Electronic and Computer and Communication Engineering, Hanyang University*
TP1-174	**Glitch-Free Multi-Modulus Divider with Wide Frequency Division Range** Goo-Han Ko, Kwang-Il Oh, Jae Gyeong Park, and Donghyun Baek *Department of Electrical and Electronics Engineering, Chung-Ang University*
TP1-175	**CMOS 센서 신호 증폭기의 최적화 설계** Donghee Lee and Young-Jae Min *Department of Electric and Electronic Engineering, Halla University*
TP1-176	**Active Phase Shifter for Fractional Frequency Divider** Si Keuk Ryu, Gwang Sub Kim, Jun Young Park, and Donghyun Baek *Department of Electrical and Electronics Engineering, Chung-Ang University*
TP1-177	**Analog Front-End Design for 6.4-to-32 Gb/s Wireline Receiver** Minkyo Shim, Kwanseo Park, and Deog-kyoon Jeong *Department of Electrical and Computer Engineering, Seoul National University*
TP1-178	**10-13.6Gb/s Referenceless Clock and Data Recovery Only Use Phase Detector** Hyunbae Lee, Changzhi Yu, Hanseul Kim, Hyeokjoon Yang, Jin An, and Jinwook Burm *Department of Electronic Engineering, Sogang University*
TP1-179	**Bias Quenching Circuit Using Correcting Calibration Technique for Single Photon Avalanche Diodes** Jin An, Hanseul Kim, Hyeokjoon Yang, Hyunbae Lee, and Jinwook Burm *Department of Electronic Engineering, Sogang University*

TP1-180	**센서 응용을 위한 2차 Integrating Sigma-Delta ADC** Taekyoung Jung, Kibaek Kwon, Seungwoo Shing, Chankyu Bae, Jiteck Jung, Minsu Park, and Joongho Choi *University of Seoul*
TP1-181	**스플릿 구조를 이용하여 면적을 줄인 SAR-CDC** 신현삼, 김정호, 이상호, 양병도 *Department of Electronics Engineering, Chungbuk National University*
TP1-182	**Energy-Harvesting을 위한 디지털-카운터 MPPT** 김정호, 신현삼, 이상호, 양병도 *Department of Electronics Engineering, Chungbuk National University*
TP1-183	**Design of 4-bit Thermometer-to-Binary Decoder Utilizing 2-Stage Pipelining for High-Speed Flash ADC** Chan-Ho Kye and Deog-Kyoon Jeong *Department of Electrical and Computer Engineering, Seoul National University*
TP1-184	**듀티-사이클 보정 기능을 내장한 완전-디지털 고속 DLL** 김태연, 김종선 *홍익대학교 전자전기공학과*
TP1-185	**A Phase Noise Analysis of CMOS Ring Oscillator** Heejin Yang and Deog-Kyoon Jeong *Department of Electrical and Computer Engineering, Seoul National University*
TP1-186	**A Variable Stage and Frequency Charge Pump for ISPP** Sang-Won Kim and Kee-Won Kwon *Department of Semiconductor and Display Engineering, Sungkyunkwan University*
TP1-187	**기생 인덕턴스를 이용한 SiC MOSFETs 단락보호회로** Seungjik Lee[1,2], Kihyun Kim[1], Minseob Shim[1], and I. Nam[2] *[1]KERI, [2]Pusan National University*
TP1-188	**Capacitor Ratio-Independent and OP-Amp. Gain-Insensitive 9N-Clk Algorithmic ADC for CMOS Image Sensor** Jaemin Hong, Daejeong Kim, and Hyunsun Mo *Department of Electronics Engineering, Kookmin University*
TP1-189	**신호 변/복조 기능을 이용한 노이즈 둔감 신호절연회로** Minseob Shim, Kyoungho Lee, Jonghyun Kim, Kilsoo Seo, Youngju Park, and Kihyun Kim *KERI*

M. RF and Wireless Design	
	심사위원: 권익진 교수 (아주대학교), 권구덕 교수 (강원대학교)
TP1-190	**Design and Analysis of RF ESD Protection Using Gated Diode and Bridged T-Coil Circuit** Sungmin Jang, Yongjun Yoo, Jaeok Jung, and Jaeyoung Park *School of Computer Science and Electrical Engineering, Handong Global University*
TP1-191	**K-Band Transceiver in 65nm CMOS** Chang-Kyun Noh, Ha-Neul Jung, Tea-Hyun Kim, Sang-Hwan Lee, and Young-Jin Kim *Korea Aerospace University*
TP1-192	**트랜지스터 기생성분이 포함된 출력 정합 네트워크를 이용한 광대역 Doherty 전력 증폭기** Sooncheol Bae, Hyunuk Kang, Hansik Oh, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-193	**간단한 부하 회로를 가진 대역 개선 Doherty 전력증폭기 설계** Eunjoo Yoo, Hyunuk Kang, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-194	**24.0-30.5 GHz 2-Stage GaAs pHEMT Power Amplifier Integrated Circuit** Youngkuk Park, Jaekyung Shin, Eunjoo Yoo, Sooncheol Bae, and Youngoo Yang *Department of Electronic and Electrical Engineering, Sungkyunkwan University*
TP1-195	**3.4–3.8 GHz GaN MMIC Single-stage Doherty Power Amplifier with Frequency Dependent Impedance Compensation Network** Youngchan Choi, Woojin Choi, Hyunuk Kang, and Youngoo Yang *Department of Electronic and Electrical Engineering, Sungkyunkwan University*
TP1-196	**5.3–6.3 GHz CMOS 5-Bit Differential Phase Shifter for Microwave Power Transfer System** Jongyun Na, Sooncheol Bae, Jaekyong Shin, Hyungmo Koo, Jongseok Bae, and Youngoo Yang *Department of Electronic and Electrical Engineering, Sungkyunkwan University*
TP1-197	**RF 에너지 하베스팅 응용을 위한 저전력 UWB 송신기** 김준태, 권익진 *아주대학교 전자공학과*
TP1-198	**RF 에너지 하베스팅을 위한 다중 대역 RF 정류기** 허보람, 권익진 *아주대학교 전자공학과*

N. VLSI CAD	
	심사위원: 강석형 교수 (POSTECH), 송대건 교수 (경북대학교)
TP1-199	**The Construction of Look-Up Table (LUT) based on Machine Learning for Static Timing Analysis** Ho Suk Yoo, Sung Kwon Kim, Deok Keun Oh, and Ju Ho Kim *Department of Computer Science and Engineering, Sogang University*
TP1-200	**An Event-Driven Simulation Methodology for Boost-type Battery Charger IC with Frequency-Sweeping Input Voltage Monitor** Chan Young Park and Jaeha Kim *Department of Electrical and Computer Engineering, Seoul National University*

R. Semiconductor Software	
	심사위원: 안성용 교수 (부산대학교), 권세진 교수 (강원대학교)
TP1-201	**스토리지 벤치마킹 시스템 설계** 최도진[1], 박송희[1], 박수빈[1], 신보경[1], 백연희[1], 이소민[1], 최재용[1], 임종태[1], 복경수[2], 유재수[1] *[1]충북대학교, [2]원광대학교*
TP1-202	**Open-Channel SSD 특성을 고려한 Key-Value Store 시스템** Kwanghee Lee, Gunhee Choi, and Jongmoo Choi *Department of Computer Science, Dankook University*
TP1-203	**Open-channel SSD를 위한 선택적 매핑 테이블 적재 기법 구현** Gijun Oh, Daon Park, and Sungyong Ahn *Pusan National University*
TP1-204	**Smart-WRR Scheme to Reduce I/O Latency in NVMe based on Workload Prediction** Seongmin Kim and Taeseok Kim *Kwangwoon University*
TP1-205	**SDReplayer: Storing and Replaying Reference Stream with Stack Distance Histogram** Choulseung Hyun and Donghee Lee *Department of Computer Science, University of Seoul*

S. Chip Design Contest	
	심사위원: 채형일 교수(건국대학교), 이승은 교수 (서울과학기술대학교)
TP1-206	**A 200Mb/s ~ 3.2Gb/s Referenceless Clock and Data Recovery Circuit with Bidirectional Frequency Detector** Nguyen Huu Tho, Bong-Kyu Kim, and Jin-Ku Kang *Department of Electronic Engineering, Inha University*

TP1-207	**A Signal-Counting Based Eye-Opening Monitor for EQ Coefficient Adjustment and Sampling Point Control** Sanghun Baek, Kyungsub Son, Namyong Kim, and Jinku Kang *Department of Electronic Engineering, Inha University*
TP1-208	**A Packet Based Overhead-Reduced Coding Technique for High-Speed Serial Interface** Jae-Pil Park, Namyong Kim, and Jin-Ku Kang *Department of Electronic Engineering, Inha University*
TP1-209	**발진기를 결합한 테라헤르츠 온-칩 배열 패치 안테나** 이창민, 최원석, 정진호 *서강대학교 전자공학과*
TP1-210	**A Multi-Channel Neural Recording Front-End System with Adaptive Channel Selection** Han-Sol Lee and Hyung-Min Lee *School of Electrical Engineering, Korea University*
TP1-211	**A Radiation-hardened SAR-based Analog-to-digital Converter IC for Sensor Readout Systems** Duck-Hoon Ro, Kyung-soo Jeong, and Hyung-Min Lee *School of Electrical Engineering, Korea University*
TP1-212	**A Radiation-Hardened Instrumentation Amplifier for Sensor Readout Integrated Circuits in Nuclear Fusion Applications** KyungSoo Jeong, Duckhoon Ro, and Hyung-Min Lee *Department of Electrical Engineering, Korea University*
TP1-213	**A 12.8-V Output Fully-Integrated High-Voltage Charge Pump IC for Implantable Devices** Myeong-Gyu Song[1,2], Geri Paksi[2], and Hyouk-Kyu Cha[2] *[1]Hideep, Inc., [2]SEOULTECH*
TP1-214	**A DC-DC Converter with Voltage-Mode PWM Control** Jinwoo Jeon[1] and Chulwoo Kim[2] *[1]Department of Semiconductor System Engineering, Korea University, [2]School of Electrical Engineering, Korea University*
TP1-215	**Addressable Microstimulator Circuit for Neural Prosthesis** Ah-Hyoung Lee, Jung Woo Jang, Chae-Eun Lee, and Yoon-Kyu Song *Department of Nano Science and Technology, Seoul National University*
TP1-216	**A Negative Voltage Converter with Wide Operating Voltage Range for Energy Harvesting Applications** Hyun Im, Hyeong-Sun Lee, Tae-Kyung Lee, and Chong-Gun Yu *Department of Electronics Engineering, Incheon National University*

TP1-217	**A Near-Threshold Voltage Digital Library for High-Energy Efficiency** Jaegeun Song and Chulwoo Kim *Korea University*
TP1-218	**A 0.5 V 10-bit 3 MS/s SAR ADC Using NTV-optimized Design Technique** Jaegeun Song and Chulwoo Kim *Korea University*
TP1-219	**A Power Supply Rejection Compensated External Capacitor-Less Low Drop-Out Regulator** Tian Guo, Jiho Moon, and Jeongjin Roh *Department of Electronic Engineering, Hanyang University*
TP1-220	**기능 안전을 고려한 차량용 CAN 컨트롤러** Tae-Wook Kang, Jong-Bae Lee, and Seongsoo Lee *Department of Electronic Engineering, Soongsil University*
TP1-221	**A 1.3 V – 1.8 V, 21.66 nV/√Hz, 77.48 uA Analog Front End for Low-Voltage Resistive Bridge Sensor** Yo Han Choi and Chulwoo Kim *Department of Electrical Engineering, Korea University*
TP1-222	**Current Bleeding 기법을 이용한 고 이득 Mixer** 방성현[1], 최수영[1], 임창우[1], 윤태열[2] *[1] 한양대학교 전자컴퓨터통신공학과, [2] 한양대학교 융합전자공학부*
TP1-223	**Ku-band SPDT Switch Using Overlapped Inductor** Hye-min Im, Hayeon Jung, Jaeyoung Lee, and Changkun Park *Department of Electronic Engineering, Soongsil University*
TP1-224	**3차 이산-시간 델타-시그마 모듈레이터** 홍승기, 신화성, 노정진 *한양대학교 전자공학과*
TP1-225	**Switched Capacitor DC-DC Converter for Near-Threshold Voltage** Juhyun Park and Seong-Ook Jung *Yonsei University*
TP1-226	**Bitline Charge-recycling SRAM Write Assist Circuit** Kiryong Kim and Seong-Ook Jung *Yonsei University*
TP1-227	**Photodiode Based Capacitive-feedback Integrator and CMOS Image Sensor Design for Photodiode Characteristic Verification** Hosung Kang[1] and Jungsuk Kim[2] *[1]Korea University, [2]Gachon University*

TP1-228	**저조도 응답개선을 위한 전류거울회로를 이용한 CMOS 이미지 센서회로** Sang-Hyun Ahn, You-Jun Sang, and Kyoung-Rok Cho *Department of Communication Circuit and System Design Engineering, Chungbuk University*
TP1-229	**가변 정밀도를 가지는 재구성 가능한 곱셈기 설계** Sang-Hyun Ahn[1], Seungbum Baek[2], and Kyoung-Rok Cho *[1]Department of Communication Circuit and System Design Engineering, Chungbuk National University*
TP1-230	**높은 효율을 위한 2.4 GHz CMOS 전력증폭기 설계** 박성규, 김성진, 유진호, 박창근 *숭실대학교 전자공학과*
TP1-231	**높은 이득을 위한 5.8 GHz CMOS 전력증폭기 설계** 박성규, 유진호, 박창근 *숭실대학교 전자공학과*
TP1-232	**Sigma-Delta ADC for ECG Read-out with Feedforward DC Cancellation** Kyoung-Jun Roh, Ye-Dam Kim, and Seung-Tak Ryu *KAIST*
TP1-233	**An On-die Oscilloscope for System-Level ESD Noise Monitoring** Wooryong Lee[1], Junsik Park[1], Chunghyun Ryu[2], Jongsung Lee[3], Bonggyu Kang[2], Bumhee Bae[2], and Jingook Kim[1] *[1]School of ECE, UNIST, [2]Global Technology Center, Samsung Electronics Co., Ltd.,* *[3]Solution Development Team, Samsung Electronics Co., Ltd.*
TP1-234	**A Continuous-Time Delta-Sigma Modulator for High Speed Signal Processing** Seokjae Song and Jeongjin Roh *Division of Electrical Engineering, Hanyang University*
TP1-235	**A Low-Quiescent Current Low-Dropout Regulator with Additional Output OTA** Inho Jeon and Jeongjin Roh *Department of Electronic Engineering, Hanyang University*
TP1-236	**Class-AB Amplifier with Slew-Rate Enhancement Technique for High Speed Delta-Sigma Modulator** Seokjae Song and Jeongjin Roh *Division of Electrical Engineering, Hanyang University*
TP1-237	**A Hybrid Delta-Sigma Modulator for High Resolution Analog Front Ends** Seokjae Song and Jeongjin Roh *Division of Electrical Engineering, Hanyang University*
TP1-238	**ASIC Design of Digital Neuron Circuits Supporting Various Neurons** Hunjun Lee and Jangwoo Kim *Department of Electrical and Computer Engineering, Seoul National University*

TP1-239	**N형 폴리 저항 기반의 시간영역 CMOS 스마트 온도센서** 허지위, 변상진 *동국대학교 전자전기공학부*
TP1-240	**DTLS Support Crypto Chip(Improved Area)** Haeyoung Kim, Janghyun Ji, and Jinjae Lee *Department of Electrical Electronic Computer Engineering, Pusan National University*
TP1-241	**DTLS Support Crypto Chip(Improved Speed and Area)** Haeyoung Kim, Janghyun Ji, and Jinjae Lee *Department of Electrical Electronic Computer Engineering, Pusan National University*
TP1-242	**Electromagnetic Compatibility Modeling of Integrated Circuits** Wooryong Lee[1], Yin Sun[2], Jingook Kim[1], and Chulsoon Hwang[2] *[1]UNIST, [2]Missouri S&T*
TP1-243	**Low Cost Ternary Content Addressable Memory Using Adaptive Matchline Discharging Scheme** Jinho Jeong, Kyeongho Lee, Yunho Jang, and Jongsun Park *School of Electrical Engineering, Korea University*
TP1-244	**3-level DSS Modulator Using the 3-level Switch for the CMOS RF PA IC** Jaekyung Shin, Sungjae Oh, Hansik Oh, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-245	**Envelope Tracking Power Amplifier Integrated Circuit with Efficiency Enhanced Supply Modulator Using CMOS 65 nm Process** Hansik Oh, Sungjae Oh, Jaekyung Shin, Yifei Chen, Eunjoo Yoo, Sooncheol Bae, and Youngoo Yang *Department of Electrical and Computer Engineering, Sungkyunkwan University*
TP1-246	**Embedded 2-Transistor Non-Volatile Memory for Security of IoT Device Applications** Kang-Un Choi, Gi-Beom Son, and Jong-Phil Hong *Department of Electrical Engineering, Chungbuk National University*
TP1-247	**A 900MHz CMOS Power Amplifier for LTE Application** Jinho Yoo, Changhyun Lee, Sungkyu Park, and Changkun Park *Department of Information and Electronic Engineering, Soongsil University*
TP1-248	**A WLAN RF LDMOS Power Amplifier for 802.11n Application** Jinho Yoo, Changhyun Lee, Sungkyu Park, and Changkun Park *Department of Information and Electronic Engineering, Soongsil University*
TP1-249	**An On-Chip Inverter-Based RC Oscillator with Phase Noise Suppression Technique by Inverter Switching Voltage Control** Junsoo Ko and Minjae Lee *School of Electrical Engineering and Computer Science, GIST*

TP1-250	**Time Based MPPT Algorithm for Photovoltaic Cells in 018μm Process** Van-Thai Dang, Kitae Yoo, Jaesoub Han, and Kwang-Hyun Baek *School of Electrical and Electronics Engineering, Chung-Ang University*
TP1-251	**Robust Sensing Circuit Study on OTS Vth Distribution and Array Leakage for PRAM** Seongbeom Kim[1], Jun Young Kweon[2], and Yun-Heub Song[1] *[1]Department of Electronics and Computer Engineering, Hanyang University, [2]Division of Nanoscale Semiconductor Engineering, Hanyang University*
TP1-252	**A Multiphase Synchronous Buck Converter with Low-swing Gate Driver** Jun Tang, Tian Guo, and Jeongjin Roh *Department of Electronics and Communications Engineering, Hanyang University*
TP1-253	**Selection Line Optimization of Nanoelectromechanical (NEM) Memory Switches for Stress Relief** Min Hee Kang, Hyun Chan Jo, Hyug Su Kwon, and Woo Young Choi *Department of Electronic Engineering, Sogang University*
TP1-254	**Implementation of Low-Power SSVEP-based Wearable Brain-Computer Interface SoC** Dokyun Kim[1], Wooseok Byun[2], Sung Yeon Kim[1], Hyunji Kim[3], Sunyoung Park[3], and Ji-Hoon Kim[3] *[1]SEOULTECH, [2]Chungnam National University, [3]Ewha Womans University*
TP1-255	**CMOS 이미지센서의 RTS 잡음 평가를 위한 테스트 패턴 고안** 송형섭, Eadi Sunil Babu, 송현동, 최현웅, 김성현, 신현진, 신철규, 이희덕 *충남대학교 전자공학과*
TP1-256	**CMOS 이미지센서내 픽셀 단위 저주파 잡음 평가를 위한 테스트 패턴 고안** 송형섭, Eadi Sunil Babu, 송현동, 최현웅, 김성현, 신현진, 신철규, 이희덕 *충남대학교 전자공학과*
TP1-257	**Two Type of Wake-Up Receivers Analysis** ChangHwan Kim and Tae Wook Kim *Yonsei University*
TP1-258	**IR-UWB Correlation Based Transceiver** Sung Young Lee and Tae Wook Kim *Yonsei University*
TP1-259	**Latched Comparator with Reduced Kickback Noise for Analog-to-Digital Converters** Gang-Nyeong Lee, Woo-young Lim, and Seong-Ik Cho *Jeonbuk National University*
TP1-260	**A Study on High Power Efficiency PWM Mode Buck Converter for Portable Devices** Bo-Gyeong Kang, AlaaDdin Al-Shidaifat, Jin-Seon Gu, Seon-A Kim, and Han-Jung Song *Inje University*

TP1-261	**The Key Generator based on Chaotic TRNG for IoT Secure Communication Applications** Chamindra Jayawickrama, AlaaDdin Al-Shidaifat, Song Won Ju, Bogyeong Gang, and Hanjung Song *Department of Nanoscience and Engineering, Inje University*
TP1-262	**Dynamic Power Reduction of TCAM Using Selective Precharging of Match Lines** Seung-kwang Hong, Won-young Chang, and Kee-won Kwon *College of Information and Communication Engineering, Sungkyunkwan University*
TP1-263	**Mm-Wave PLL Using Self Mixing VCO** 임창우[1], 방성현[1], 윤태열[2] *[1] 한양대학교 전자컴퓨터통신공학과, [2] 한양대학교 융합전자공학부*
TP1-264	**2.4GHz Ultra-low Power Direct Active RF Detection Wake-up Receiver** Myunghun Lee and Kuduck Kwon *Department of Electronic Engineering, Kangwon National University*
TP1-265	**마이크로파 CMOS 음의 군지연 회로 설계** Wang Qi, 이대한, 정용채 *전북대학교*
TP1-266	**10.07uW Multi-Mode Baseband Transceiver for Encrypted Capsule Endoscopy** JungHyun Bae, Chan Hwangbo, Useok Lee, and Myung Hoon Sunwoo *Ajou University*
TP1-267	**Ka-Band CMOS Absorptive SP4T Switch with One-Third Miniaturization** Bosung Suh and Byung-Wook Min *Yonsei University*
TP1-268	**Retinomorphic Vision System with Dynamic Feedback** AlaaDdin Al-Shidaifat[1], Chamindra Jayawickrama[1], Bogyeong Kang[1], Shubhro Chakrabartty[1], Yong Su Park[2], and Hanjung Song[1] *[1]Department of Nanoscience and Engineering, Inje University, [2]Department of Electrical Electronic Engineering, Chungcheong University*
TP1-269	**폐루프 쵸퍼 안정화 기법을 활용한 용량형 센서용 델타-시그마 커패시턴스-디지털 컨버터** 권용수, 김형섭, 김재성, 한권상, 유동근, 허현우, 고형호 *충남대학교 전자공학과*
TP1-270	**28-GHz CMOS SP4T Absorptive Switch Based Reconfigurable Switch Network for a Switched Beam System with a Butler Matrix** Bosung Suh and Byung-Wook Min *Yonsei University*
TP1-271	**Design of Variable Gain Amplifier Using 65-nm CMOS Process** Jong-Hoon Myeong and Byung-Wook Min *Yonsei University*

TP1-272	**Design of Power Amplifier Using 65-nm CMOS Process** Jong-Hoon Myeong and Byung-Wook Min *Yonsei University*
TP1-273	**A 10-bit Noise Shaping SAR ADC with Dual Interleaved FIR Filter** Chang-Hyung Choi, Van Nhan Nguyen, and Jong-Wook Lee *Department of Electronic Engineering, Kyung Hee University*
TP1-274	**A 2.4GHz Quadrature Local Oscillator Buffer for IoT Application** Eunju Song and Kuduck Kwon *Department of Electronic Engineering, Kangwon National University*
TP1-275	**A Clock and Data Strobe Aligner for Write Leveling in DRAM** Chae-Young Jung, Dong-Wan Ko, and Won-Young Lee *SEOULTECH*
TP1-276	**A Novel Low Power Phase and Frequency Detector with Zero Dead Zone in 65-nm CMOS** Waseem Abbas and Munkyo Seo *School of Electronic and Electrical Engineering, Sungkyunkwan University*
TP1-277	**A Bandwidth Enhancement Technique for Injection Locked Frequency Divider in 65-nm CMOS** Waseem Abbas and Munkyo Seo *School of Electronic and Electrical Engineering, Sungkyunkwan University*
TP1-278	**Near-threshold Dual-mode CIS with 3T Pixels** Seongrim Choi, Yongkuen Park, and Byeong-Gyu Nam *Department of Computer Science & Engineering, Chungnam National University*
TP1-279	**Subthreshold SRAM with Disturb-free 10T Bitcells** Seongrim Choi, Yongkuen Park, and Byeong-Gyu Nam *Department of Computer Science & Engineering, Chungnam National University*
TP1-280	**A Low-Power Real-Time Hidden Markov Model Accelerator for Gesture User Interface on Wearable Devices** Seongrim Choi, Yongkuen Park, and Byeong-Gyu Nam *Department of Computer Science & Engineering, Chungnam National University*
TP1-281	**A 450-μW 8-bit PLL-based Frequency-to-Digital Converter for Digital Sensors with 1k-to-1MHz Input Frequency Range in 65nm CMOS Process** Jaeho Lee, Yunha Kang, Seungah Choi, and Junyoung Song *Department of Electronics Engineering, Incheon National University*
TP1-282	**7GHz, 6.365mW Cascaded Phase Locked Loop (PLL) with Sub-Sampling PLL and Charge-pump PLL** Jongchan An, Wooyoung Choi, Jungmo An, and Junyoung Song *Department of Electronics Engineering Incheon National University*

TP1-283	**Microminiaturized Wireless Neural Signal Monitoring System for Brain Machine Interface** Jung Woo Jang, Chae Eun Lee, Jong-Hyun Park, and Yoon-Kyu Song *Department of Nano Science and Technology, Seoul National University*
TP1-284	**Wireless Data and Power Transmission Module by Using Chip Coil Antenna for Brain Insertion** Younginha Jung, Jungwoo Jang, Chae Eun Lee, Dayoung Lee, and Yoon-Kyu Song *Department of Nano Science and Technology, Seoul National University*
TP1-285	**Optimized 8-Channel Biphasic Retinal Prosthesis** Chae-Eun Lee, Jung-Woo Jang, Seok-Won Joo, and Yun-Kyu Song *Department of Nano Science and Technology, Graduate School of Convergence Science and Technology, Seoul National University*
TP1-286	**Hardware Implementation of HEVC CABAC Decoder** Jin-hyuk Choi[1] and Seong-soo Lee[2] *[1]Electronic Engineering, [2]Soongsil University*
TP1-287	**A Novel EMI Reduction Technique Using Power On-time Modulation for Automotive SoC** Chan-Koo Lee[1] and Seongsoo Lee[2] *[1]Electronic Engineering, [2]Soongsil University*
TP1-288	**Bang-Bang 데이터 클럭 복원 회로를 위한 패턴 둔감성 Semi-Rotational 주파수 검출(SRFD) 알고리즘** Soon-Won Kwon and Hyeon-Min Bae *KAIST*
TP1-289	**Analog Front End with High Linearity and Low Noise for Automotive Pressure Sensors in 0.18 μm CMOS** Tae-Young Yoon, Sang-Gyu Jeon, Byeong-Gi Jang, and Kang-Yoon Lee *Sungkyunkwan University*
TP1-290	**A Low Noise Front End for Hearing Aid Devices** Hoon-Ju Chung[1] and Sungyong Jung[2] *[1]School of Electronic Engineering, Kumoh National Institute of Technology,* *[2]Department of Electrical Engineering, UT Arlington*
TP1-291	**차량용 비접촉식 생체신호 전송을 위한 24GHz 수신 Front-end 설계** Yangji Jeon, Geonwoo Park, Jinman Myeong, and Ilku Nam *Department of Electrical Engineering, Pusan National University*
TP1-292	**Design of Frequency Multiplier Using 65-nm CMOS Technology** Ki hwan Sung, Dong wook Kim, and Byung Sung Kim *RF Microelectronic Design Lab, Sungkyunkwan University*
TP1-293	**Design of 4 Channel W-band Receiver Using 65-nm CMOS Technology** Jae hyun Park, Jun seong Kim, and Byung Sung Kim *RF Microelectronic Design Lab., Sungkyunkwan University*

TP1-294	**A 94-GHz Low-Phase-Noise Power-Efficient Transformer-based VCO in 65-nm CMOS** Junghwan Yoo, Doyoon Kim, and Jae-Sung Rieh *School of Electrical Engineering, Korea University*
TP1-295	**65 nm CMOS 공정 기반 290 GHz 헤테로다인 이미징 검출기** Jungsoo Kim, Junghwan Yoo, Doyoon Kim, and Jae-Sung Rieh *Department of Electronic Engineering, Korea University*
TP1-296	**A 600 GHz 6x6 Imaging Detector Array in 65-nm CMOS** Doyoon Kim, Kiryong Song, Heekang Son, and Jae-Sung Rieh *School of Electrical Engineering, Korea University*
TP1-297	**Impact of Total Ionizing Dose in Nanometer SRAM** Dang Le Dinh Trang, Trinh Dinh Linh, Nguyen Thanh Dat, Chang Hong Min, Hyun Cheol Jun, and IK Joon Chang *Department of Electronics Engineering, Kyung Hee University*
TP1-298	**RF 에너지 하베스팅 센서를 위한 무선 주입 잠금 링 발진기** 허보람, 권익진 *아주대학교 전자공학과*
TP1-299	**Design of Highly Integrated Power Supply for Wearable AMOLED Display** Jin-Won Kim, Seung-Ki Jeon, Hui-Jin Lee, and Ho-Yong Choi *Department of Semiconductor Engineering, Chungbuk National Univertsity*
TP1-300	**2-Channel DC-DC Converter with Boost Converter-Charge Pump for Wearable AMOLED Displays** Jin-Won Kim, Chan-You Kim, Tae-Un Kim, and Ho-Yong Choi *Department of Semiconductor Engineering, Chungbuk National University*
TP1-301	**2 Stage Opamp Design for Biomedical Applications** Jin-Woo Kim and Joon-Yup Kim *Sejong University*
TP1-302	**RISC-V Based Secure SoC with Hidden Bus Interconnection** Sung Yeon Kim[1], Wooseok Byun[2], Hyunji Kim[3], Sunyoung Park[3], and Ji-Hoon Kim[3] *[1]SEOULTECH, [2]Chungnam National University, [3]Ewha Womans University*
TP1-303	**350 nm 공정 기반의 위상 천이기 설계 및 구현** 윤홍선, 박영철 *한국외국어대학교*
TP1-304	**180 nm 공정 기반의 Spiral 인덕터 설계 및 구현** 윤홍선, 박영철 *한국외국어대학교*
TP1-305	**Design of Wireless Inductive-Coupled Power & Data Link with New Charge Detector for Deep Brain Stimulator** Jang-Woo Park, Seongho Kim, and Jin-Ku Kang *Department of Electronics Engineering, Inha University*

E. Compound Semiconductors 분과

2020년 2월 14일(금), 09:00-10:30 / Room A (에메랄드 I, 5층)

[FA1-E] Compound Semiconductor Technology III

: 교수 (홍익대학교)

FA1-E-1 **09:00-09:30**	[초청] **Global Trend of Multi-kV ß-Ga_2O_3 MOSFETs** Jae Kyoung Mun, Kyujun Cho, Woojin Chang, and Hyun-Wook Jung *RF/Power Components R&D Group, ETRI*
FA1-E-2 **09:30-10:00**	[초청] **Meal Oxide Semiconductors and Their Applications** You Seung Rim *School of Intelligent Mechatronics Engineering, Sejong University*
FA1-E-3 **10:00-10:30**	[초청] **Design and Fabrication of 1.2kV 4H-SiC Power Devices** In Ho Kang, Ogyun Seok, Jeong Hyun Moon, Moon Kyong Na, H. W. Kim, Sang Cheol Kim, Wook Bahng, Nam Kyun Kim, and Young-Jo Kim *Power Semiconductor Research Center, KERI*

F. Silicon and Group-IV Devices and Integration Technology 분과

2020년 2월 14일(금), 09:00-10:30 / Room B (에메랄드 II+III, 5층)

[FB1-F] Emerging Device Technology II

: 교수 (UNIST), 신창환 교수 (성균관대학교)

FB1-F-1 **09:00-09:30**	[초청] **Static Negative Capacitance nFETs with 1nm Effective Oxide Thickness Gate Stack** Daewoong Kwon *Electrical Engineering, Inha University*
FB1-F-2 **09:30-09:45**	**Sensitivity Analysis of NCFET-based 6-T SRAM** Yuri Hong and Changhwan Shin *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FB1-F-3 **09:45-10:00**	**Precise Spectroscopic Analysis on Ultrathin Oxide Layer and Interfaces for Device Reliability Characterization** Hyungtak Seo[1,2], Hyunwoo Kang[2], and Shaid Iqbal[2] *[1]Department of Materials Science and Engineering, Ajou University, [2]Department of Energy Systems Research, Ajou University*
FB1-F-4 **10:00-10:15**	**Si Resonant Plasma-wave Transistor for Terahertz Detection** Jong Yul Park, Min Woo Ryu, Sung-Ho Kim, and Kyung Rok Kim *School of Electrical and Computer Engineering, UNIST*
FB1-F-5 **10:15-10:30**	**Impact of Bottom-Gate Biasing on Implant-free Junctionless Ge-on-Insulator n-MOSFETs** Hyeong-Rak Lim[1,2,3], Seong Kwang Kim[3], Jae-Hoon Han[1], Hansung Kim[1], Dae-Myeong Geum[3], Yun-Joong Lee[1], Young-Hun shin[1], Byeong-Kwon Ju[2], Hyung-Jun Kim[1], and Sanghyeon Kim[3] *[1]KIST, [2]School of Electrical Engineering, Korea University, [3]School of Electrical Engineering, KAIST*

H. Display and Imaging Technologies 분과

2020년 2월 14일(금), 09:00-10:30 / Room C (사파이어 I, 5층)

[FC1-H] OLED & Display Technology

: 교수 (한양대학교), 진성훈 교수 (인천대학교)

FC1-H-1 **09:00-09:30**	[초청] **Transparent Graphene Neural Electrodes for Next-Generation Bioelectronics** Dong-wook Park *School of Electrical and Computer Engineering, University of Seoul*
FC1-H-2 **09:30-09:45**	**A Novel Prediction Algorithm for Accurate Mura Compensation in OLED** Hyunseuk Yoo, Hyesang Park, Heechul Hwang, and Bonghyun You *Samsung Display Co., Ltd.*
FC1-H-3 **09:45-10:00**	**Analysis of Transient Body Effect Model for LTPS TFT on Plastic Substrate** Yunyeong Choi[1], Jisun Park[1], Taekyeong Lee[2], and Hyungsoon Shin[1] *[1]Departent of Electronic and Electrical Engineering, Ewha Womans University,* *[2]Display Laboratory, CTO, LG Display Co., Ltd.*
FC1-H-4 **10:00-10:15**	**Image Sticking Prevention Algorithm Using Deep Learning for OLED** Byungki Chun, Youngwook Yoo, Kukhwan Ahn, Jungyu Lee, and Bonghyun You *Samsung Display Co., Ltd.*
FC1-H-5 **10:15-10:30**	**Strategy for the Fabrication of High-resolution Micro-LED Displays by DBR-engineered Vertical Stacking and Surface Passivation** Dae-myeong Geum[1], Seong Kwang Kim[1], Chang-mo Kang[2], Seung-hyun Moon[2], Jihoon Kyhm[3], Jae Hoon Han[4], Dong-seon Lee[2], and Sang Hyeon Kim[1] *[1]KAIST, [2]GIST, [3]Dongguk University, [4]KIST*

G. Device & Process Modeling, Simulation and Reliability 분과

2020년 2월 14일(금), 09:00-10:30 / Room D (사파이어 II+III, 5층)

[FD1-G] Characterization of Semiconductor Devices

: 교수 (POSTECH), 김성호 교수 (세종대학교)

FD1-G-1 **09:00-09:15**	**Tunnel Oxide 내 Nitrogen Profile 에 따른 NAND Cell 동작 메커니즘 분석** 이현슬, 양형준, 권은미, 이봉훈, 이석규, 김진국 *Research and Development Division, SK Hynix Inc.*
FD1-G-2 **09:15-09:30**	**Modeling and Characterization of the Photovoltaic and Photoconductive Effects in Field Effect Transistors under Optical Illumination** Han Bin Yoo, Yoon Ju Park, Jintae Yu, Haesung Kim, Sung-Jin Choi, Dae Hwan Kim, and Dong Myong Kim *School of Electrical Engineering, Kookmin University*
FD1-G-3 **09:30-09:45**	**반도체 Integration 제작에서의 기계적 Stress 문제 해석 및 대응** 김민수, 서지웅, 김성동, 이석규, 김진국 *Research and Development Division, SK Hynix Inc.*
FD1-G-4 **09:45-10:00**	**Relationship between the Gate Bias and Stretched-exponential Function Model on the Positive Bias Stress-induced Charge Trapping in IGZO TFTs** Jae-hyuck Kim, Sungju Choi, YoungJin Seo, Jingyu Park, Ga Won Yang, In Seok Chae, Dong Myong Kim, Sung-jin Choi, and Dae Hwan Kim *School of Electrical Engineering, Kookmin Univresity*
FD1-G-5 **10:00-10:15**	**Extraction Method of Flat-band Voltage by Using Multi Frequency Capacitance-Voltage of a-IGZO Thin Film Transistors** In-seok Chae, Sungju Choi, YoungJin Seo, Jingyu Park, Jungi Min, Jae-hyuck Kim, Dong Myong Kim, Sung-jin Choi, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
FD1-G-6 **10:15-10:30**	**VNAND Cell 온도 의존성 원인 분석을 위한 Polycrystalline Silicon Channel Trap 성분 추출법** 장호균[1], 임준영[1], 이현슬[1], 노일표[1], Nguyen MC[2], 최리노[2], 권은미[1], 이석규[1], 김진국[1] *[1]Research and Development Division, SK Hynix Inc., [2]Department of Materials Science and Engineering, Inha University*

I. MEMS & Sensor Systems 분과

2020년 2월 14일(금), 09:00-10:30 / Room E (루비 II, 5층)

[FE1-I] Gas Sensing Technology

: 교수 (광운대학교)

FE1-I-1 **09:00-09:30**	**[초청]** **Fabrication of Heterogeneous Metal Oxide Nanostructure Array for Gas Mixture Sensors** Daejong Yang, Seungmun Jeon, Bumjoo Kim, Dahoon Ahn, and Jung-hoon Yun *Kongju National University*
FE1-I-2 **09:30-09:45**	**Effects of Body Bias and Operation Region on Gas Response in FET-type Gas Sensor having Horizontal Floating-Gate.** Jinwoo Park, Seongbin Hong, Yujeong Jeong, Gyuweon Jung, Wonjun Shin, Dongkyu Jang, and Jong-ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center (ISRC), Seoul National University*
FE1-I-3 **09:45-10:00**	**Highly Sensitive and Selective Gas Sensing Performance in MOSFET-Based Gas Sensor Using Facile Metal Nanoparticle Agglomeration Process** Seongbin Hong, Yujeong Jeong, Gyuweon Jung, Wonjun Shin, Jinwoo Park, Jung-Kyu Lee, Dongkyu Jang, and Jong-Ho Lee *Department of Electrical and Computer Engineering, and Inter-University Semiconductor Research Center, Seoul National University*
FE1-I-4 **10:00-10:15**	**Comparatively Properties of Hydrogen Gas Sensor Pd/Ta2O5and Pd/TiO2 Schottky Diode based on Si And SiC Substrates** Muhammad Hussain[1], Sajjad Hussain[1], Asif Ali[2], Syed Hassan Abbas Jaffery[1], and Jongwan Jung[1] *[1]Graphene Research Institute, Sejong University, [2]Department of Nanotechnology & Advanced Materials Engineering and Graphene Research Institute, Sejong University*
FE1-I-5 **10:15-10:30**	**Effect of Resistor-type Gas Sensor Scaling on Sensing and Low frequency Noise Characteristics** Wonjun Shin, Gyuweon Jung, Seongbin Hong, Yujeong Jeong, Jinwoo Park, Dongkyu Jang, and Jong-Ho Lee *School of ECE and ISRC, Seoul National University*

C. Material Growth & Characterization 분과

2020년 2월 14일(금), 09:00-10:30 / Room F (스페이드 I, 6층)

[FF1-C] Wide Bandgap Materials I (Ga2O3 & etc)

: 교수 (서울과학기술대학교), 이형우 교수 (아주대학교)

FF1-C-1 **09:00-09:30**	[초청] **Development of Ultra Wide Bandgap Ga_2O_3 Materials for Next Generation Power Electronics Applications** Youngboo Moon[1], Woosik Lee[1], Daejang Lee[1], and Jun-Seok Ha[2] *[1]UJL, [2]School of Applied Chemical Engineering, Chonnam National University*
FF1-C-2 **09:30-10:00**	[초청] **Heteroepitaxial Growth of α-Ga_2O_3 Film on Sapphire Substrate by Hydride Vapor Phase Epitaxy** Dae-Woo Jeon *KICET*
FF1-C-3 **10:00-10:15**	**Hetero Epitaxial Thin Film Growth on a New Substrate of High Quality $BaZrO_3$ Single Crystal** Daehwan Park[1], Nguyen Xuan Duong[2], Gye-Hyeon Kim[3], Ki-Bog Park[1,3], Changhee Sohn[1,3], Tae Heon Kim[2], and Yoon Seok Oh[1,3] *[1]Department of Physics, UNIST, [2]Department of Physics and Energy Harvest Storage Research Center (EHSRC), University of Ulsan, [3]School of Natural Science, UNIST*
FF1-C-4 **10:15-10:30**	**Tuning of Metal-to-Insulator Transition in Epitaxial Bilayer Nickelate Thin Films through Sub-layer Thickness Control** Jongmin Lee[1], Seyeop Jeong[6], Byeong-Gwan Cho[2], Tae Kwon Lee[3], Jiwoong Kim[4], Sangmo Kim[5], Chung Wung Bark[5], Sungkyun Park[4], Jong Hoon Jung[3], Tae Young Koo[2], Sanghoon Kim[6], Tae Heon Kim[6], and Sanghan Lee[1] *[1]School of Materials Science and Engineering, GIST, [2]Pohang Accelerator Laboratory, [3]Department of Physics, Inha University, [4]Department of Physics, Pusan National University, [5]Department of Electrical Engineering, Gachon University, [6]Department of Physics, University of Ulsan*

K. Memory (Design & Process Technology) 분과

2020년 2월 14일(금), 09:00-10:30 / Room G (스페이드 II+III, 6층)

[FG1-K] Emerging Memory II

: 교수(서울시립대학교), 강명곤 교수(한국교통대학교)

FG1-K-1 **09:00-09:30**	[초청] **Memristor Crossbar Array with CMOS-compatible Etching-Down Fabrication Method and Its Applications** Hyungjin Kim *Department of Electronic Engineering, Yeungnam University*
FG1-K-2 **09:30-09:45**	**Characteristics of a-IGZO Synaptic Transistor Having Extended Gate with Al_2O_3 Gate Insulator by Low Temperature ALD** Dongyeon Kang, Jun Tae Jang, Shinyoung Park, Dong Myong Kim, Sung-Jin Choi, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
FG1-K-3 **09:45-10:00**	**The Influence of High Pressure Annealing on $Hf_{0.5}Zr_{0.5}O_2$ for Memory and Logic Applications** Taeho Kim and Sanghun Jeon *School of Electrical Engineering, KAIST*
FG1-K-4 **10:00-10:15**	**Threshold Switching Phenomenon in 2D MXene Material for Electronic Synapse Applications** Andrey S. Sokolov, Yu-Rim Jeon, Haider Abbas, and Changhwan Choi *Division of Materials Science and Engineering, Hanyang University*
FG1-K-5 **10:15-10:30**	**Combination-Encoding Content-Addressable Memory with High Content Density** Guhyun Kim[1], Cheol Seong Hwang[1], and Doo Seok Jeong[2] *[1]Seoul National University, [2]Hanyang University*

Q. Metrology, Inspection, and Yield Enhancement 분과

2020년 2월 14일(금), 09:00-10:30 / Room H (하트 I, 6층)

[FH1-Q] Nanoanalysis and Characterization

: 박사 (SK하이닉스), 조용재 박사 (한국표준과학연구원)

FH1-Q-1 **09:00-09:30**	[초청] **Spectroscopic Ellipsometric Study on Temperature Dependence Dielectric Functions and Critical Point Energies for 2D Materials** Tae Jung Kim[1], Hoang Tung Nguyen[1], Van Long Le[1], Xuan Au Nguyen[1], Do Hyoung Koo[2], Chul-Ho Lee[2], Farman Ullah[3], Yong Soo Kim[3], and Young Dong Kim[1] *[1]Department of Physics, Kyung Hee University, [2]KU-KIST Graduate School of Converging Science & Technology, Korea University, [3]Department of Physics and Energy Harvest Storage Research Center (EHSRC), University of Ulsan*
FH1-Q-2 **09:30-10:00**	[초청] **Redefinition of kg Using Kibble Balance and its Application in Semiconductor Metrology** Dongmin Kim *KRISS*
FH1-Q-3 **10:00-10:30**	[초청] **Confocal Thermo-Reflectance Microscope and Applications** Ki Soo Chang[1], Dong Uk Kim[1], Chan Bae Jeong[1], Ilkyu Han[1], Jung Dae Kim[1], Hyun Hwangbo[1], Seung-Woo Lee[2], and Byung-Seon Chun[2] *[1]Division of Scientific Instrumentation, KBSI, [2]Nanoscope Systems, Inc.*

P. Device for Energy (Solar Cell, Power Device, Battery, etc.) 분과

2020년 2월 14일(금), 09:00-10:30 / Room I (하트 II, 6층)

[FI1-P] Low Dimensional Materials: Peorperties and Energy Device Applications

: 교수 (GIST), 류학기 교수 (아주대학교)

FI1-P-1 **09:00-09:15**	**Improved Thermoelectric Properties of Silicon Nanowire with Silicide Layer** Hyeongseok Yoo[1], Seungho Lee[2], and Chang-Ki Baek[1,2] *[1]Department of Creative IT Engineering, POSTECH, [2]Department of Electronic Engineering, POSTECH*
FI1-P-2 **09:15-09:30**	**Conversion of WO_3 Thin Film into Self-crosslinked Nanorods for Large Scale Ultra-violet Detector** Youngho Kim and Hak Ki Yu *Department of Materials Science and Engineering & Department of Energy Systems Research, Ajou University*
FI1-P-3 **09:30-10:00**	**[초청]** **Multifaceted Role of Graphene as the Transparent Flexible Conductor** Donghwan Koo, Gyujeong Jeong, Sungwoo Jung, Jihyung Seo, Yunseong Choi, Junghyun Lee, Sang Myeon Lee, Yongjoon Cho, Mingyu Jeong, Jungho Lee, Jiyeon Oh, Changduk Yang, and Hyesung Park *UNIST*
FI1-P-4 **10:00-10:30**	**[초청]** **Electrical Properties of 2D Materials Van der Waals Heterostructures** Young-Jun Yu *Chungnam National University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 09:00-10:30 / Room J (하트 III, 6층)

[FJ1-D] 2-dimensional System I

: 교수 (한양대학교), 엄태용 박사 (한국화학연구원)

FJ1-D-1 **09:00-09:30**	**[초청]** **Versatile Applications of 2-dimensional Materials: A Synthetic Perspective** Ji-Hoon Ahn *Department of Materials Science and Chemical Engineering, Hanyang University*
FJ1-D-2 **09:30-09:45**	**Cation-Regulated Transformation Process for 2-D Tin Monosulfide Thin Film Deposition** In-Hwan Baek[1,2], Jung Joon Pyeon[1,3], Ga-Yeon Lee[5], Young Geun Song[1], Han sol Lee[4], Sung Ok Won[4], Taek-Mo Chung[5], Jeong Hwan Han[6], Chong-Yun Kang[1,3], Cheol Seong Hwang[2], and Seong Keun Kim[1] *[1]Center for Electronic Materials, KIST, [2]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [3]KU-KIST Graduate School of Converging Science and Technology, Korea University, [4]Advanced Analysis Center, KIST, [5]Division of Advanced Materials, KRICT, [6]Department of Materials Science and Engineering, SEOULTECH*
FJ1-D-3 **09:45-10:00**	**Gate-Dependent Rectification Behavior in GeSe Based FET** Syed Hassan Abbas Jaffery, Muhammad Hussain, Asif Ali, Sajjad Hussain, and Jong Wan Jung *Department of Nanotechnology & Advanced Materials Engineering and Graphene Research Institute, Sejong University*
FJ1-D-4 **10:00-10:15**	**Synthesis of $Mo_{1-x}W_xS_2$ by Atomic Layer Deposition for Atomically Thin Gas Sensor** Inkyu Sohn, Youngjun Kim, Minjoo Lee, Jusang Park, and Hyungjun Kim *School of Electrical and Electronic Engineering, Yonsei University*
FJ1-D-5 **10:15-10:30**	**Carrier Type Control of WSe2 Field Effect Transistor with Interfacial Oxide Layer** Dain Kang, Taekwang Kim, Somyeong Shin, Hyewon Du, Minho Song, Seonyeong Kim, Hansung Kim, and Sunae Seo *Department of Physics, Sejong University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 09:00-10:30 / Room K (다이아몬드 I, 6층)

[FK1-D] Ferroelectric Materials

: 박사 (화학연구원), 송봉근 교수 (홍익대학교)

FK1-D-1 **09:00-09:15**	**A Study on the Ferroelectric Phase Formation in Doped Hafnia Thin Films based on Classical Nucleation Theory** Min Hyuk Park[1], Young Hwan Lee[2], and Cheol Seong Hwang[2] *[1]School of Materials Science and Engineering, Pusan National University, [2]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, College of Engineering, Seoul National University*
FK1-D-2 **09:15-09:30**	**Numerical Comparisons in Switching Kinetics of $Hf_{0.5}Zr_{0.5}O_2$ Thin Films between the KAI and NLS Model Analyses** Tae-Hyun Ryu, Dae-Hong Min, and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FK1-D-3 **09:30-09:45**	**Effects of High-pressure Hydrogen Annealing on the Ferroelectric Properties of W/Al:HfO_2/W Stacks** Seungyeol Oh, In Keong Yoo, and Hyunsang Hwang *Department of Materials Science and Engineering, POSTECH*
FK1-D-4 **09:45-10:00**	**Oxygen Partial Pressure Control during Sputtering Process on Ferroelectric Properties of $Hf_{0.5}Zr_{0.5}O_2$ and Device Operations of Memory Transistors** Dae-Hong Min[1], Tae-Hyun Ryu[1], Seung Eon Moon[2], and Sung-Min Yoon[1] *[1]Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, [2]ETRI*
FK1-D-5 **10:00-10:15**	**A Comparative Study on the Ferroelectric Performances in Atomic Layer Deposited $Hf_{0.5}Zr_{0.5}O_2$ Thin Films Using Tetrakis(ethylmethylamino) and Tetrakis(dimethylamino) Precursors** Seung Dam Hyun[1], Baek Su Kim[1], Min Hyuk Park[2], and Cheol Seong Hwang[1] *[1]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [2]School of Materials Science and Engineering, Pusan National University*
FK1-D-6 **10:15-10:30**	**Synaptic Plasticity Modulation of Ferroelectric Field-Effect Synapse Transistor Using Al-doped HfO_2 Thin Film for Neuromorphic Applications** So-Jung Yoon[1], Dae-Hong Min[1], Seung Eon Moon[2], and Sung-Min Yoon[1] *[1]Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, [2]ETRI*

J. Nano-Science & Technology 분과

2020년 2월 14일(금), 09:00-10:30 / Room L (다이아몬드 II, 6층)

[FL1-J] 페로브스카이트 양자점

: 교수 (POSTECH), 김진영 교수 (UNIST)

FL1-J-1 **09:00-09:30**	[초청] **Multi-Dimensional Liquid Phase TEM for Studying Nanomaterials** Jungwon Park[1,2] *[1]School of Chemical and Biological Engineering, Seoul National University, [2]Center for Nanoparticle Research, IBS*
FL1-J-2 **09:30-10:00**	[초청] 불참 **Synthesis of Perovskite Quantum Dots for Optoelectronic Application via Surface Engineering** Jongnam Park *School of Energy and Chemical Engineering, UNIST* *아래 발표로 대체됨* **Transition metal dichalcogenides for optoelectronic devices** Soo Young Kim *Department of Materials Science and Engineering, Korea University*
FL1-J-3 **10:00-10:15**	불참 **Exploiting the Moisture Assisted Passivation of Organo-Metal Hybrid Perovskite Nanocrystals** Huanyu Zhou, Jinwoo Park, Yeongjun Lee, Joo Sung Kim, and Tae-Woo Lee *Department of Materials Science and Engineering, Seoul National University*
FL1-J-4 **10:15-10:30**	**Ligand Engineering of Metal Halide Perovskite Nanoparticles for Optoelectronic Devices** Seung-Hyeon Jo[1], Soyeong Ahn[3], and Tae-Woo Lee[1,2] *[1]Department of Materials Science and Engineering, Seoul National University, [2]Department of Materials Science and Engineering, Institute of Engineering Research, Research Institute of Advanced Materials, Nano System Institute (NSI), BK21 PLUS SNU Materials for Educating Creative Global Leaders, Seoul National University, [3]Department of Materials Science and Engineering, POSTECH*

O. System LSI Design 분과

2020년 2월 14일(금), 10:45-12:30 / Room A (에메랄드 I, 5층)

[FA2-O] Artificial Intelligent Circuits and Systems

: 교수 (홍익대학교), 김지훈 교수 (이화여자대학교)

FA2-O-1 **10:45-11:00**	**인공 신경망 기반 고성능 LDPC 복호화 기법** 최정원, 이영주 *POSTECH 전자전기공학과*
FA2-O-2 **11:00-11:15**	**Design of an Always-on Computer Vision Sensor for Face Recognition** Jaihyuk Choi, Minkyu Song, and Soo Youn Kim *Department of Semiconductor Science, Dongguk University*
FA2-O-3 **11:15-11:30**	**Analysis of the Effect of Pruning on Convolutional Neural Network** Dohyun Kim, Yeong-kyo Kim, and Shiho Kim *School of Integrated Technology, Yonsei University*
FA2-O-4 **11:30-11:45**	**Self-timed Spiking Neural Network Chip Design with Efficient Spike Delay Control** JungYeon Lee, Daehu Park, Malik Summair Asghar, JiUn Hong, and HyungWon kim *Department of Electronic Engineering, Chungbuk National University*
FA2-O-5 **11:45-12:00**	**TS-EFA: Resource-efficient High-precision Approximation of Exponential Functions based on Template-scaling Method** Jeeson Kim, Vladimir Kornijcuk, and Doo Seok Jeong *Division of Materials Science and Engineering, Hanyang University*
FA2-O-6 **12:00-12:15**	**강화학습을 위한 이진화된 컨벌루션 신경망 가속 프로세서** 최경찬, 박윤성, 김태환 *한국항공대학교 항공전자정보공학부*
FA2-O-7 **12:15-12:30**	**High Speed Convolutional Neural Network Architecture with Convolution Accelerator based on Massive Parallel Memory Access** Hyun-Wook Son, Dong-Yeong Lee, Mohammed E. Elbtity, and HyungWon Kim *Department of Electronics, Chungbuk National University*

F. Silicon and Group-IV Devices and Integration Technology 분과

2020년 2월 14일(금), 10:45-12:30 / Room B (에메랄드 II+III, 5층)

[FB2-F] Neuromorphic Technology

: 교수 (UNIST), 최신현 교수 (KAIST)

FB2-F-1 **10:45-11:00**	**Classification Methods Using Additional Output Neurons to Increase Inference Accuracy in Hardware-based Binarized Neural Network** Hyeongsu Kim, Sung-Tae Lee, Dongseok Kwon, Byung-Gook Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
FB2-F-2 **11:00-11:15**	**Improved Neuron Circuit Using Ni/SiN_x/n^+-Si RRAM as Synaptic Devices** Yeonwoo Kim, Chae Soo Kim, Myung-Hyun Baek, and Byung-Gook Park *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering, Seoul National University*
FB2-F-3 **11:15-11:30**	**Novel NOR Type Synapse Array Using Additional N-well for Weight Update Method** Jonghyuk Park, Myung-Hyun Baek, Suhyeon Kim, Young Suh Song, and Byung-Gook Park *Department of Electrical and Computer Engineering, Seoul National University*
FB2-F-4 **11:30-11:45**	**Investigation on Extremely-thin-body Polysilicon-based Synaptic Transistor** Junsu Yu, Myung-Hyun Baek, Kyung Kyu Min, Kyungchul Park, Young Suh Song, and Byung-Gook Park *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering, Seoul National University*
FB2-F-5 **11:45-12:00**	**Relationship Between Threshold Voltage and Membrane Capacitance of Integrate and Fire Neuron in SNN System** Gyuho Yeom, Dongseok Kwon, Min Kyu Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
FB2-F-6 **12:00-12:15**	**Non-linearity Effect of Current Mirror due to High Fan-in on Spiking Neural Network** Bosung Jeon, Sungmin Hwang, Kyungchul Park, Jong-Ho Lee, and Byung-Gook Park *Department of Electrical and Computer Engineering, Seoul National University*
FB2-F-7 **12:15-12:30**	**Effect of Weight Loss of Synaptic Devices on Inference Accuracy** Ho-Nam Yoo, Hyeong-Su Kim, and Jong-Ho Lee *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University*

H. Display and Imaging Technologies 분과

2020년 2월 14일(금), 10:45-12:30 / Room C (사파이어 I, 5층)

[FC2-H] Oxide Thin-Film Transistors

: 교수 (경희대학교), 임유승 교수 (세종대학교)

FC2-H-1 **10:45-11:15**	**[초청]** **Optoelectronics based on the Quantum-dots and Oxide Semiconductors** Seong Jun Kang *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FC2-H-2 **11:15-11:30**	**Impact of Oxidants on Formation of HfO_2 Gate Insulator Prepared by Atomic-layer Deposition for In-Ga-Zn-O Thin Film Transistor** Se-na Choi and Sung-min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FC2-H-3 **11:30-11:45**	**Thin Film Transistor Characteristics of In-Sn-Ga-O Semiconductor at Low Temperature.** Changyong Oh and Bo Sung Kim *Department of Applied Physics, Korea University*
FC2-H-4 **11:45-12:00**	**Effects of Lateral Carrier Diffusion and Source-Drain Parasitic Resistance in Self-Aligned Top-Gate Coplanar InGaZnO Thin-Film Transistors** Dae-hwan Kim[1], Sae-young Hong[1], Hee-joong Kim[1], Ha-yun Jeong[1], Sang-hun Song[1], In-tak Cho[2], Jiyong Noh[2], Hyun Soo Shin[2], Kwon-shik Park[2], Hyun Chul Choi[2], In Byeong Kang[2], and Hyuck-in Kwon[1] *[1]School of Electrical and Electronics Engineering, Chung-Ang University,* *[2]Research and Development Center, LG Display Co., Ltd.*
FC2-H-5 **12:00-12:15**	**The Electrical Performance Difference of TFTs Using SiO_x Gate Insulator Deposited by PECVD and PEALD with DIPAS Precursor** Seokgoo Jeong[1], Wanho Choi[2], Hyun-jun Jeong[2], Kyungrok Kim[2], Hyun-mo Lee[2], Suhwan Choi[1], and Jin-seong Park[1,2] *[1]Division of Nanoscale of Semiconductor Engineering, Hanyang University,* *[2]Divison of Materials Science and Engineering, Hanyang University*
FC2-H-6 **12:15-12:30**	**Importance of Substrate Thickness Control on Electrical and Mechanical Operation Robustness of Flexible InGaZnO Thin Film Transistors** Hye-won Jang and Sung-min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*

G. Device & Process Modeling, Simulation and Reliability 분과

2020년 2월 14일(금), 10:45-12:30 / Room D (사파이어 II+III, 5층)

[FD2-G] TCAD Simulation and Beyond

: 교수 (국민대학교), 김성호 교수 (세종대학교)

FD2-G-1 **10:45-11:00**	**Power, Performance and Area Analysis of Source/Drain Patterning n/p FinFETs Based 6T-SRAM Cell for 3-nm Technology Node** Jun-Jong Lee, Jun-Sik Yoon, Seunghwan Lee, Jinsu Jeong, and Rock-Hyun Baek *Department of Electrical Engineering, POSTECH*
FD2-G-2 **11:00-11:15**	**Prediction of the Electrostatic Potential Profile of a Semiconductor Device at Non-equilibrium by Using Deep Neural Networks** Seung-cheol Han and Sung-min Hong *School of EECS, GIST*
FD2-G-3 **11:15-11:30**	**High-voltage DeFinFET with a High-k Dielectric Field Plate** Hyangwoo Kim, Hyeonsu Cho, and Chang-Ki Baek *Department of Creative IT Engineering, POSTECH*
FD2-G-4 **11:30-11:45**	**채널 물질에 따른 Gate-all-around (GAA) Field Effect Transistor (FET) 의 Random Telegraph Noise (RTN) 특성 분석** Geunsoo Yang[1], Dong Hyun Kim[1], Dong Geun Park[1], Jungchun Kim[1], Sae Yan Choi[1], Sylvain Barraud[2], Laurent Bervard[2], and Jae Woo Lee[1] *[1]ICT Convergence Technology for Health & Safety and Department of Electronics and Information Engineering, Korea University, [2]University of Grenoble Alpes, CEA-LETI*
FD2-G-5 **11:45-12:00**	**Effects of the Gate Offset on Performance of Double-Gate Negative Capacitance Field-Effect Transistors** Hyeongu Lee, Junbeom Seo, and Mincheol Shin *Department of Electrical Engineering, KAIST*
FD2-G-6 **12:00-12:15**	**Study of Gallium Based Devices Using Multi-Subband Boltzmann Transport Equation Solver** Suhyeong Cha and Sung-min Hong *School of Electrical Engineering and Computer Science, GIST*
FD2-G-7 **12:15-12:30**	**Spacer Engineering of Double Gate MOSFET: Performance Study based on Quantum Transport Simulations** Jihun Byun, Hyeongu Lee, and Mincheol Shin *School of Electrical Engineering, KAIST*

I. MEMS & Sensor Systems 분과

2020년 2월 14일(금), 10:45-12:30 /Room E (루비 II, 5층)

[FE2-I] Chemical and Biological Sensors

: 교수 (서울시립대학교), 김정현 교수 (광운대학교)

FE2-I-1 **10:45-11:15**	**[초청]** **A Fully Packaged Portable Thin Film Transistor Biosensor for Electrical Detection of Colon Cancer Secreted Protein-2** Minhong Jeun[1,2], Hyo Jeong Lee[3], Sungwook Park[2], Eun-ju Do[3], Jaewon Choi[2], Sang-yeob Kim[3], Dong-hee Kim[3], Ja Young Kang[3], Kwan Hyi Lee[2], and Seung-jae Myung[3] *[1]BISTEP, [2]KIST, [3]Asan Institute for Life Sciences, Asan Medical Center*
FE2-I-2 **11:15-11:30**	**Carbon Nanotube Field-effect Transistor with Sodium-selective Membrane for Sodium Sensing** Sang-chan Park[1], Hee June Jeong[2], Min Heo[2], Jae Ho Sin[2], and Jae-hyuk Ahn[1] *[1]Department of Electronic Engineering, Kwangwoon University, [2]Department of Chemistry, Kwangwoon University*
FE2-I-3 **11:30-11:45**	**Highly Accurate Fluoride ion Detection in Tap Water with Diluted Buffer Solution** Hyeon-tak Kwak[1], Hyeonsu Cho[2], and Chang-ki Baek[2] *[1]Department of Electrical Engineering, POSTECH, [2]Department of Creative IT Engineering, POSTECH*
FE2-I-4 **11:45-12:00**	**Ultra High Sensitivity Biosensors Using Silicon Nanowires Dual Gate Field Effect Transistors Fabricated by Electrospun PVP Nanofiber Template Pattern Transfer** Seong-kun Cho and Won-ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FE2-I-5 **12:00-12:30**	**[초청]** **Plasmonic Hybrid Structures for Sensing, Imaging, and Delivery** Inhee Choi *University of Seoul*

C. Material Growth & Characterization 분과

2020년 2월 14일(금), 10:45-12:30 / Room F (스페이드 I, 6층)

[FF2-C] Wide Bandgap Materials II (SiC, diamond & etc)

: 박사 (삼성종합기술원)

FF2-C-1 **10:45-11:15**	**[초청]** **Development Status of SiC Single Crystal Substrate for Power Device Application** Won Jae Lee *Department of Advanced Materials Engineering, Dong-Eui University*
FF2-C-2 **11:15-11:45**	**[초청]** **Process Design of Bulk Crystal Growth of SiC and Other Wide Bandgap Semiconductors** Seong-Min Jeong *KICET*
FF2-C-3 **11:45-12:00**	**Overgrowth of Single Crystal CVD Diamond Using Defect-selective Etching Technique** Jonggeon Lee[1], Taemyung Kwak[1], Geunho Yoo[1], Seong-woo Kim[2], and Okhyun Nam[1] *[1]Department of Nano-Optical Engineering, Korea Polytechnic University, [2]Adamant Namiki Precision Jewel Co. Ltd.*
FF2-C-4 **12:00-12:15**	**Boron-doping of Single Crystal Diamond Semiconductor Using Microwave Plasma Chemical Vapor Deposition** Taemyung Kwak[1], Geunho Yoo[1], Jonggun Lee[1], Uiho Choi[1], Byeongchan So[1], Seong-woo Kim[2], and Okhyun Nam[1] *[1]Department of Nano-Optical Engineering, Korea Polytechnic University, [2]Adamant Namiki Precision Jewel Co. Ltd*
FF2-C-5 **12:15-12:30**	**Theoretical Understanding and Design of High Dielectric Constant (Be,Mg)O Solid Solution** Gyuseung Han[1,2], In Won Yeu[1,2], Cheol Seong Hwang[2], and Jung-Hae Choi[1] *[1]Center for Electronic Materials, KIST, [2]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*

K. Memory (Design & Process Technology) 분과

2020년 2월 14일(금), 10:45-12:15 / Room G (스페이드 II+III, 6층)

[FG2-K] Devices for Neuromorphic Computing II

: 교수 (한양대학교), 김윤 교수 (서울시립대학교)

FG2-K-1 **10:45-11:15**	[초청] **Neural Networks with Memristor Crossbar Network** YeonJoo Jeong *KIST*
FG2-K-2 **11:15-11:30**	**Performance Improvement of InGaZnO-based RRAM with Al_2O_3 Inserting Tunneling Barrier Layer** Jingyu Park, Jun Tae Jang, Geumho Ahn, Jungi Min, Sung-Jin Choi, Dong Myong Kim, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
FG2-K-3 **11:30-11:45**	**Multilevel Resistive Switching Characteristics in Bioinspired Solid Polymer Electrolyte Chitosan-based Memristors** Shin-yi Min and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FG2-K-4 **11:45-12:00**	**Variation Effect on Stateful Logic Gates and Practical Memristive System** Young Seok Kim, Myeong Won Son, Hanchan Song, Juseong Park, Jangho An, Jae Bum Jeon, Geun Young Kim, Seoil Son, and Kyung Min Kim *Department of Materials Science and Engineering, KAIST*
FG2-K-5 **12:00-12:15**	**Introduction of New APBM Stateful Logics based on Two Antiparallel Bipolar Memristors** Nuo Xu[1,2], Tae Gyun Park[2], Hae Jin Kim[2], Xinglong Shao[2], Kyung Jean Yoon[2], Tae Hyung Park[2], Liang Fang[1], Kyung Min Kim[3], and Cheol Seong Hwang[2] *[1]National University of Defense Technology, [2]Seoul National University, [3]KAIST*

Q. Metrology, Inspection, and Yield Enhancement 분과

2020년 2월 14일(금), 10:45-12:30 / Room H (하트 I, 6층)

[FH2-Q] Metrology, Inspection, and Yield Enhancement

: 박사 (한국표준과학연구원), 양준모 박사 (나노종합기술원)

FH2-Q-1 **10:45-11:15**	[초청] **High-Resolution Inspection System based on Field Emission X-Ray Source for Non-Destructive Testing** Jehwang Ryu[1], Amar Prasad Gupta[1], Wooseob Kim[1], Han Gyeol Park[2], Seung Jun Yeo[2], Jaekyu Jang[2], Jaeik Jung[2], Jung Sun Ahn[1], and Seung Hoon Kim[3] *[1]Kyung Hee University, [2]CAT Beam Tech Co., Ltd., [3]Asan Medical Center*
FH2-Q-2 **11:15-11:45**	[초청] **MAPS(Multi-axis Absolute Position-posture Sensor) and Smart Stage** Jae Wan Kim[1] and Jong-Ahn Kim[2] *[1]Batugem Co., Ltd., [2]KRISS*
FH2-Q-3 **11:45-12:00**	**변형거울을 이용한 Standalone TSOM 광학계 개발** 유병건, 이대열, 박준성, 이준호 *Department of Optical Engineering, Kongju National University*
FH2-Q-4 **12:00-12:15**	**Deep Learning Based Wafer Edge Defect Detection System** Gil-Jun Lee[1,2], Jee-Hyong Lee[3], and Simon S. Woo[2] *[1]MEMC Korea Co., Department of Applied Data Science, Sungkyunkwan University, [2]Department of Applied Data Science, Sungkyunkwan University, [3]Department of Computer Science, Sungkyunkwan University*
FH2-Q-5 **12:15-12:30**	**EUV Ptychography Microscope를 이용한 Through Pellicle 이미징 연구** 김영웅[1], 우동곤[1], 장용주[2], 위성주[1], 안진호[1,2,3] *[1] 한양대학교 신소재공학과, [2] 한양대학교 나노반도체공학과, [3] 나노과학기술연구소*

P. Device for Energy (Solar Cell, Power Device, Battery, etc.) 분과

2020년 2월 14일(금), 10:45-12:30 / Room I (하트 II, 6층)

[FI2-P] Next Generation Battery Devices

: 교수 (GIST), 류학기 교수 (아주대학교)

FI2-P-1 **10:45-11:15**	[초청] **Sodium Metal Batteries for Grid-Scale Energy Storage** Young Soo Yun *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FI2-P-2 **11:15-11:45**	[초청] **Design of High-performance Li-Chalcogen (Sulfur/Selenium) Batteries Using in situ Electrochemical Surface Treatment Techniques** Seungmin Lee, Hwon-gi Lee, Haeun Lee, and KwangSup Eom *School of Materials Science & Engineering, GIST*
FI2-P-3 **11:45-12:00**	**Atomic-Layer-Deposited LiC_oO_2 and LiV_2O_5 Thin Film Cathodes on 3D Structure for High Power Density Micro-Batteries** Kyu Moon Kwon, Dae Woong Kim, Minji Lee, Seong Hwan Hong, and Tae Joo Park *Department of Materials Science and Chemical Engineering, Hanyang University*
FI2-P-4 **12:00-12:15**	**Ultra-thin Li-La-Zr-O Coating on NCM Powder for All-solid-state Battery via Atomic Layer Deposition with Specially Designed Rotary Reactor** Minji Lee, Dae Woong Kim, Kyu Moon Kwon, Seong Hwan Hong, and Tae Joo Park *Department of Materials Science and Chemical Engineering, Hanyang University*
FI2-P-5 **12:15-12:30**	**Atomic-layer-deposited LiPON Thin Film Electrolytes for High Power Density All-solid-state Batteries** Seong Hwan Hong, Dae Woong Kim, Minji Lee, Kyu Moon Kwon, and Tae Joo Park *Department of Materials Science and Chemical Engineering, Hanyang University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 10:45-12:30 / Room J (하트 III, 6층)

[FJ2-D] 2-dimensional System II

: 교수 (명지대학교), 김우희 교수 (한양대학교)

FJ2-D-1 **10:45-11:15**	**[초청]** **Epitaxial Oxide Thin Films for Novel Electronics** Seung-Hyub Baek *Center for Electronics Materials, KIST*
FJ2-D-2 **11:15-11:30**	***In-situ* Observation of Two-Dimensional Electron Gas Creation at the Interface of an Atomic-Layer-Deposited Al_2O_3/TiO_2 Thin Film Heterostructure** Tae Jun Seok[1], Yuhang Liu[1], Ji Hyeon Choi[1], Hye Ju Kim[2], Dae Hyun Kim[3], Seong Hwan Kim[2], Jae Hyuck Jang[4], Deok-Yong Cho[5], Sang Woon Lee[2], and Tae Joo Park[1,3] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Energy Systems Research and Department of Physics, Ajou University, [3]Department of Advanced Materials Engineering, Hanyang University, [4]Electron Microscopy Research Center, KBSI, [5]IPIT and Department of Physics, Jeonbuk National University*
FJ2-D-3 **11:30-11:45**	**Tailoring of Two-dimensional Electron Gas Density in Thin Film Oxide Heterostructure and its Application to Electronic Devices** Seong Hwan Kim, Hye Ju Kim, Chang Hee Ko, and Sang Woon Lee *Department of Energy Systems Research and Department of Physics, Ajou University*
FJ2-D-4 **11:45-12:00**	**Chemical Mechanism of Formation of the 2-Dimensional Electron Gas at the Al_2O_3/TiO_2 Interface by Atomic Layer Deposition** Jeongwoo Park[1], Jae Hyuck Jang[2], Sang Woon Lee[3], Tae Joo Park[4], and Bonggeun Shong[1] *[1]Chemical Engineering, Hongik University, [2]Center for Scientific Instruments, KBSI, [3]Department of Energy Systems Research and Department of Physics, Ajou University, [4]Materials Science and Chemical Engineering, Hanyang University*
FJ2-D-5 **12:00-12:15**	**Two-Dimensional Electron Gas in Thin Film Oxide Heterostructures** Hye Ju Kim[1], Seong Hwan Kim[1], Tae Jun Seok[1], Tae Joo Park[2], and Sang Woon Lee[1] *[1]Department of Energy Systems Research and Department of Physics, Ajou University, [2]Department of Materials Science and Chemical Engineering, Hanyang University*
FJ2-D-6 **12:15-12:30**	**Improved Two-Dimensional Electron Gas at the Interface of ZnO-Based Ultra-Thin Film Heterostructures** Tae Jun Seok[1], Yuhang Liu[1], Ji Hyeon Choi[1], Sang Woon Lee[2], and Tae Joo Park[1] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Energy Systems Research and Department of Physics, Ajou University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 10:45-12:30 / Room K (다이아몬드 I, 6층)

[FK2-D] Thin Film Process III

: 교수 (한양대학교), 권세훈 교수 (부산대학교)

FK2-D-1 **10:45-11:15**	**[초청]** **Atomic Layer Deposition Assisted Double Patterning Lithography** Se-Hun Kwon *School of Materials Science and Engineering, Pusan National University*
FK2-D-2 **11:15-11:30**	**Chemical and Electrical Properties of Atomic Layer Deposited HfO_2 Using $Hf(N(CH_3)_2)_4$ and $CpHf(N(CH_3)_2)_3$ Precursors** Sungmin Park[1], Bo-Eun Park[1], Hwi Yoon[1], Sanghun Lee[1], Taewook Nam[1], Taehoon Cheon[2], Soo-Hyun Kim[2], and Hyungjun Kim[1] *[1]School of Electrical and Electronics Engineering, Yonsei University, [2]School of Materials Science and Engineering, Yeungnam University*
FK2-D-3 **11:30-11:45**	**Carbon Nanotube Network Transistors Constructed from the Reuse of Semiconducting Carbon Nanotube Solution** Ju Won Jeon[1], Yongwoo Lee[1], Jinsu Yoon[1], Hyo-Jin Kim[1], Geon-Hwi Park[1], Dong Myong Kim[1], Dae Hwan Kim[1], Min-Ho Kang[2], and Sung-Jin Choi[1] *[1]School of Electrical Engineering, Kookmin University, [2]Department of Nano-process, National Nanofab Center(NNFC)*
FK2-D-4 **11:45-12:00**	**Diffusion of Vanadium and Yttrium is Responsible for the Degradation of Vanadium Oxide Films Deposited on Y-stabilized ZrO_2 Above 500°C** Songhee Choi[1], J. Oh[2], J.-H. Lee[2], J. H. Jang[2], and Shinbuhm Lee[1] *[1]DGIST, [2]KBSI*
FK2-D-5 **12:00-12:15**	**Atomic Layer Deposition of $GeTe/Sb_2Te_3$ Superlattice for Phase Change Memory** Chanyoung Yoo, Woohyun Kim, Eui-sang Park, Manick Ha, Jeong Woo Jeon, Yoon Kyeung Lee, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University*
FK2-D-6 **12:15-12:30**	**Tunable Diode Characteristics of Graphene via DUV Irradiations** Asif Ali, Muhammad Hussain, Syed Hassan Abbas Jaffery, and Jung Jongwan *Department of Nanotechnology & Advanced Materials Engineering and Graphene Research Institute, Sejong University*

J. Nano-Science & Technology 분과

2020년 2월 14일(금), 10:45-12:45 / Room L (다이아몬드 II, 6층)

[FL2-J] 페로브스카이트 LED – II

: 교수 (한양대학교)

FL2-J-1 **10:45-11:15**	[초청] **Doped Semiconductor Magic Size Clusters to Colloidal Quantum Dots** Sungjee Kim *Department of Chemistry, POSTECH*
FL2-J-2 **11:15-11:45**	[초청] **Reversible, Full-Color Luminescence by Post-treatment of Perovskite Nanocrystals** Yung Jin Yoon[1], Gi-Hwan Kim[2], and Jin Young Kim[1] *[1]UNIST, [2]KOPTI*
FL2-J-3 **11:45-12:00**	**Inkjet Printed Metal-Halide Perovskite Microarray for High Definition Light-Emitting Diodes** Hyeon-Dong Lee[1], Jiseok Seo[2], Hui Jae Choi[3], Sungjin Kim[1], Zhou Huanyu[1], Young-Hoon Kim[1], Byung Doo Chin[3], Yongtaek Hong[2], and Tae-Woo Lee[1] *[1]Department of Materials Science and Engineering, Seoul National University, [2]Department of Electrical and Computer Engineering, Inter-University Semiconductor Research Center (ISRC), Seoul National University, [3]Department of Polymer Science and Engineering, Dankook University*
FL2-J-4 **12:00-12:15**	**Fabricating Ruddlesden-Popper Perovskite Light Emitting Diodes with Supplementary Capping Ligands and Hole Transfer Layer Insertion** E. -J. Yoon, J. S. Kim, J.-M. Heo, and T.-W. Lee *Department of Materials Science and Engineering, Seoul National University*
FL2-J-5 **12:15-12:.30**	**Two-dimensional and Transparent Layered Double Hydroxide for Unipolar Switching Memory Application** Haein Cho[1], Chan-Woo Jeon[2], Jingon Jang[1], Sanghyeon Choi[1], Il-Kyu Park[2], and Gunuk Wang[1] *[1]Korea University, [2]SEOULTECH*
FL2-J-6 **12:30-12:45**	**One-Step Solution-Processable Organo-Metal Halide Perovskite Resistive Memory in a Cross-Bar Array** Heebeom Ahn, Keehoon Kang, Woocheol Lee, Junwoo Kim, Youngrok Kim, Daekyoung Yoo, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*

O. System LSI Design 분과

2020년 2월 14일(금), 15:45-17:30 / Room A (에메랄드 I, 5층)

[FA3-O] VLSI System Design and Application

: 교수 (홍익대학교), 김지훈 교수 (이화여자대학교)

FA3-O-1 **15:45-16:00**	**Under 1μV/sqrt(Hz) Ultra Low Noise Analog Amplifier for Sensor Systems** Yeun-Jin Choi, Sung-Jun Jo, Dong-Gyu Kim, and Kang-Yoon Lee *Sungkyunkwan University*
FA3-O-2 **16:00-16:15**	**A Design of 5.8GHz DSRC Transceiver Analog Baseband with ASK Demodulator** Mu-Geun Shin, Sung-Jun JO, Sung-Jin Kim, and Kang Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FA3-O-3 **16:15-16:30**	**6- μA Quiescent Current and Low Inrush Current Applied Pre-charging Method on-chip LDO for Ultra Low Power RX IoT Circuit** Yong Deok Ahn, Su Jin Oh, Sung Jin Kim, and Kang Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FA3-O-4 **16:30-16:45**	**Implementation on True Random Number Generator (TRNG) Using CMOS Process for Security of IoT Applications** Kang-Un Choi, Gi-Beom Son, and Jong-Phil Hong *Department of Electronic Engineering, Chungbuk National University*
FA3-O-5 **16:45-17:00**	**High Speed HIGHT Block Cipher Hardware Design** Byungjun Choi, Bohun Kim, Junghoon Cho, and Jongsun Park *Department of Electronic Engineering, Korea University*
FA3-O-6 **17:00-17:15**	**Broadband Bandwidth LNA for TVWS** Young-Uk Kim, Dong-Gyu Kim, Sung-jin Kim, and Kang-Yoon Lee *College of Information and Communication Engineering, Sungkyunkwan University*
FA3-O-7 **17:15-17:30**	**Dead Time Controller in 3-ch DC-DC Converter for AMOLED Display** 김태운, 김찬유, 최호용 *Department of Semiconductor Engineering, Chungbuk National University*

F. Silicon and Group-IV Devices and Integration Technology 분과

2020년 2월 14일(금), 15:45-17:30 / Room B (에메랄드 II+III, 5층)

[FB3-F] Nano-electromechanical and 3D Integration Technology

: 교수 (인하대학교), 김가람 교수 (명지대학교)

FB3-F-1 **15:45-16:00**	**Island-style Monolithic Three-dimensional (M3D) CMOS–NEM Reconfigurable Logic (RL) Circuits** Hyug Su Kwon, Ji Wang Ko, and Woo Young Choi *Department of Electronic Engineering, Sogang University*
FB3-F-2 **16:00-16:15**	**Novel Release Mechanism of Nanoelectromechanical Memory Switches** Gwangryeol Baek and Woo Young Choi *Department of Electronic Engineering, Sogang University*
FB3-F-3 **16:15-16:30**	**Dynamic Slingshot Pull-in Operation of Nanoelectromechanical (NEM) Memory Switches for Low Operating Voltage** Min Hee Kang and Woo Young Choi *Department of Electronic Engineering, Sogang University*
FB3-F-4 **16:30-16:45**	**Low-power Nanoelectromechanical (NEM) Device with HfO_2-based Ferroelectric Capacitor** Shinhee Kim[1], Jae Yeon Park[1], Hyug Su Kwon[2], Woo Young Choi[2], and Sangwan Kim[1] *[1]Department of Electrical and Computer Engineering, Ajou University,* *[2]Department of Electrical Engineering, Sogang University*
FB3-F-5 **16:45-17:00**	**피드백 전계 효과 트랜지스터를 활용한 적층형 3차원 집적회로 특성 관찰** Jong Hyeok Oh and Yun Seop Yu *Department of Electrical, Electronic and Control Engineering, Hankyong National University*
FB3-F-6 **17:00-17:15**	**3D NAND 제작을 위한 비인산계 식각액의 선택적 Si_3N_4 식각 공정** 손창진, 임상우 *Department of Chemical and Biomolecular Engineering, Yonsei University*
FB3-F-7 **17:15-17:30**	**Interface Charge Effects of Monolithic 3D JLFET Inverter** Tae Jun Ahn[1,2], Young Baek Kim[2], and YunSeop Yu[1] *[1]Department of Electrical, Electronic and Control Engineering, Hankyong National University,* *[2]Group for Nano-photonics Convergence Technology, KITECH*

H. Display and Imaging Technologies 분과

2020년 2월 14일(금), 15:45-17:30 / Room C (사파이어 I, 5층)

[FC3-H] TFTs & Display Technology

: 박사 (KIST), 전우진 교수 (경희대학교)

FC3-H-1 **15:45-16:15**	[초청] **Low Dimensional Semiconductors Based Optoelectronic Applications** Do Kyung Hwang *Center of Opto-electronic Materials and Devices, Post-silicon Semiconductor Institute, KIST*
FC3-H-2 **16:15-16:30**	**Photosensitive Complementary Inverters Comprised of n-channel ReS_2 and p-channel CNT Field Effect Transistors** Jinheon Jeong, Seung Gi Seo, Seung Yeob Kim, Ajit Kumar, Mishra Dhananjay, and Sung Hun Jin *Department of Electronic Engineering, Incheon National University*
FC3-H-3 **16:30-16:45**	**Electrochromic Device Based Novel Spatial Light Modulator (SLM)** Yubin Song, Myungjun Kim, Chuljun Lee, Youngho Seo, and Daeseok Lee *Department of Electronic Materials Engineering, Kwangwoon University*
FC3-H-4 **16:45-17:00**	**Understanding NBIS Mechanism of a-IGZO TFTs by Pulsed Stress Measurements Using Various Voltage and Light Pulse Widths** Youngjoon Choi, Kihwan Kim, Suhyun Kim, and Saeroonter Oh *Department of Electrical Engineering, Hanyang University*
FC3-H-5 **17:00-17:15**	**Bias Stress Instability in Multi-layered $MoTe_2$ Field Effect Transistors under Pulse Mode Operation** Seung Gi Seo, Woong Jin Noh, Hyeon Bin Ahn, Minwoo Park, and Sung Hun Jin *Department of Electronic Engineering, Incheon National University*
FC3-H-6 **17:15-17:30**	**Gate Induced Drain Leakage Current (GIDL) Behaviors in Multi-layered $MoTe_2$ Field Effect Transistors** Seung Gi Seo, Youngho Park, Sungha Kim, Young Eun Sim, and Sung Hun Jin *Department of Electronic Engineering, Incheon National University*

G. Device & Process Modeling, Simulation and Reliability 분과

2020년 2월 14일(금), 15:45-17:15 / Room D (사파이어 II+III, 5층)

[FD3-G] Compact Modeling

: 교수 (GIST), 나현철 상무 (DB하이텍)

FD3-G-1 **15:45-16:00**	**Physics-based PcRAM Compact Model and Its Application to the SPICE Transient Simulation Considering the Ratio of Vertical/Lateral Crystal Growth Rate** Donguk Kim[1], Jun Tae Jang[1], Woo Sik Choi[1], Seojong Baek[1], Dong Myong Kim[1], Sung-jin Choi[1], Sanghyun Ban[2], Minchul Shin[2], Hanwool Lee[2], Hyungdong Lee[2], Hyun-sun Mo[1], and Dae hwan Kim[1] *[1]School of Electrical Engineering, Kookmin University, [2]SK Hynix Inc.*
FD3-G-2 **16:00-16:15**	**Compact Charge Model for Cylindrical Gate-All-Around MOSFETs Considering the Density-Gradient Equation** Kwang-woon Lee and Sung-min Hong *School of Electrical Engineering and Computer Science, GIST*
FD3-G-3 **16:15-16:30**	**New Large-signal Modeling for RF Kink Effect in Body Contacted PD-SOI nMOSFETs** Kiahn Lee and Seonghearn Lee *Department of Electronics Engineering, Hankuk University of Foreign Studies*
FD3-G-4 **16:30-16:45**	**Stretched Exponential Function-based SPICE Simulation Considering the Bias Stress Instability of IGZO TFTs** Youngjin Seo, Jun Tae Jang, Shinyoung Park, Jae-hyuck Kim, Dongyeon Kang, Sungju Choi, Jingyu Park, Dong Myong Kim, Sung-jin Choi, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
FD3-G-5 **16:45-17:00**	**Accurate Modeling Methodology of LDMOS Leakage Current for ESD Protection Circuit Design** Jun Hyeok Kim *TE Modeling Team, DB HiTek*
FD3-G-6 **17:00-17:15**	**Negative Capacitance를 적용한 Gate-All-Around 트랜지스터의 동작 영역별 전류 모델** 배다현, 선윤근, 전종욱 *Department of Electrical and Electronic Engineering, Konkuk University*

I. MEMS & Sensor Systems 분과

2020년 2월 14일(금), 15:45-17:30 / Room E (루비 II, 5층)

[FE3-I] MEMS and Sensor Systems for Biomedical Applications

: 교수 (DGIST), 이병철 박사 (KIST)

FE3-I-1 **15:45-16:15**	**[초청]** **실시간 건강진단을 위한 웨어러블 디바이스** Kyung In Jang *DGIST*
FE3-I-2 **16:15-16:30**	**High-performance Transient Dopamine Sensors based on Bioabsorbable Si Nanomembranes and Phase-engineered MoS2 with Fe-based Nanoparticle Catalyst** Seung Min Yang, Jae Hyung Shim, Tae-min Jang, Chul-ho Lee, and Suk-won Hwang *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FE3-I-3 **16:30-16:45**	**Multi-Layer Pyramid Structured Flexible Dual Mode Sensor with Enhanced Detection Range for Soft Electronics** Minhyun Jung and Sanghun Jeon[1] *School of Electrical Engineering, KAIST*
FE3-I-4 **16:45-17:00**	**Fully-wireless Wearable Pulse Oximeter in the Form of a Finger Band** Minsu Song, Sunggu Kang, and Jeonghyun Kim *Department of Electronic Convergence Engineering, Kwangwoon University*
FE3-I-5 **17:00-17:15**	**Amorphous Metal for Flexible Bimodal Sensor in Wearable Electronics** Minhyun Jung[1], Changjin Yun[2], Kungwon Rhie[2], and Sanghun Jeon[1] *[1]School of Electrical Engineering, KAIST, [2]Department of Applied Physics, Korea University*
FE3-I-6 **17:15-17:30**	**Microparticles Analysis (Sorting and Counting) Microfluidic Chip based on Viscoelastic Fluid and Resistive Pulse Sensing Method** Yu Seong Kim, Dong Geon Jung, Soon Yeol Kwon, Young Chan Choi, Jae Yong Lee, Seung Deok Kim, Seong Mo Koo, and Seong Ho Kong *School of Electronics Engineering, Kyungpook National University*

C. Material Growth & Characterization 분과

2020년 2월 14일(금), 15:45-17:15 / Room F (스페이드 I, 6층)

[FF3-C] Wide Bandgap Materials III (Oxide & Nitride)

: 박사 (KIST), 김태헌 교수 (울산대학교)

FF3-C-1 **15:45-16:15**	**[초청]** **Two-dimensional Transport Phenomena in Complex Oxide Heterostructures** Hyungwoo Lee *Department of Physics, Ajou University*
FF3-C-2 **16:15-16:45**	**[초청]** **Domain Switching Dynamics in Ferroelectric Doped-HfO_2 Capacitors** Sang Mo Yang *Sookmyung Women's University*
FF3-C-3 **16:45-17:00**	**Characterization of Selectively Grown $In_xGa_{1-x}As$ Nanowire on InP(111)B by MOCVD** Hyunchul Jang[1,2], Changhun Song[1,2], Minwoo Kong[2,3], Sangtae Lee[1], Hyeong-Ho Park[1], Chang Zoo Kim[1], Sanghyun Jung[1], Youngsu Choi[1], Dae-Hong Ko[2], and Chan-Soo Shin[1] *[1]KANC, [2]Department of Material Science and Engineering, Yonsei University, [3]Department of Electrical and Computer Engineering, Seoul National University*
FF3-C-4 **17:00-17:15**	**Highly-ordered Lead-free Double Perovskite Halides** Chang Won Ahn[1], Jae Hun Jo[1], Jong Chan Kim[2], Hamid Ullah[1], Sangkyun Ryu[3], Young Hun Hwang[4], Jin San Choi[1], Jongmin Lee[5], Sanghan Lee[5], Hyoungjeen Jeen[3], Young-Han Shin[1], Hu Young Jeong[2], Ill Won Kim[1], and Tae Heon Kim[1] *[1]Department of Physics and Energy Harvest Storage Research Center (EHSRC), University of Ulsan, [2]UNIST Central Research Facilities (UCRF) & School of Materials Science and Engineering, UNIST, [3]Department of Physics, Pusan National University, [4] School of Electrical and Electronics Engineering, Ulsan College, [5]School of Materials Science and Engineering, GIST*

K. Memory (Design & Process Technology) 분과

2020년 2월 14일(금), 15:45-17:30 / Room G (스페이드 II+III, 6층)

[FG3-K] Emerging Memory III

: 교수 (충북대학교), 김형진 교수 (영남대학교)

FG3-K-1 **15:45-16:15**	**[초청]** **Principle, Materials, Process and Applications of Hafnia Ferroelectric Tunnel Junction Device** Sanghun Jeon *School of Electrical Engineering, KAIST*
FG3-K-2 **16:15-16:45**	**[초청]** **CMOS Compatible Silicon Nitride Resistive Switching Memory** Sungjun Kim *School of Electronics Engineering, Chungbuk National University*
FG3-K-3 **16:45-17:00**	**Improved Switching Speed Characteristics of Ag-doped HfO_2 Atomic Switch Devices** Seongjae Heo, Jaehyuk Park, Jongmyung Yoo, Seokjae Lim, Sangmin Lee, and Hyunsang Hwang *Center for Single Atom-based Semiconductor Device and also Department of Materials Science and Engineering, POSTECH*
FG3-K-4 **17:00-17:15**	**Electric Characteristics Of Z^2-FET with Positive Feedback Mechanism** Sehyun Kwon[1], Yong Tae Kim[2], and Jinho Ahn[1] *[1]Hanyang University, [2]KIST*
FG3-K-5 **17:15-17:30**	**열/전기 모델과 상장 모델의 통합 해석을 통한 상변화메모리의 Reset Pulse Falling Time에 따른 재결정화도 연구** 이환욱, 권용우 *홍익대학교 신소재공학과*

J. Nano-Science & Technology 분과

2020년 2월 14일(금), 15:45-17:30 / Room H (하트 I, 6층)

[FH3-J] 양자점 & 뉴로모픽 소자 – II

: 교수 (한양대학교)

FH3-J-1 **15:45-16:15**	[초청] **Surface Engineering of Nanocrystals to Design High Performance Devices and Wearable Sensors** Soong Ju Oh *Department of Materials Science and Engineering, Korea University*
FH3-J-2 **16:15-16:45**	[초청] 불참 **Colloidal II-VI Semiconductor Nanorods: Growth and Assembly Controlled by Surface Ligands** Doh C. Lee *KAIST* *아래 발표로 대체됨* **Strategies for highly efficient hybrid perovskite nanoparticle light-emitting diodes** Young-Hoon Kim1, Sungjin Kim1, Jinwoo Park1, Seung-Hyun Jo1, Hengxing Xu2, Yong-Hee Lee1, Laura Martínez-Sarti3, Henk J. Bolink3, Young-Woon Kim1, Bin-Hu2, and Tae-Woo Lee1 *1Department of Materials Science and Engineering, Institute of Engineering Research, Research Institute of Advanced Materials, Nano Systems Institute (NSI), BK21 PLUS SNU Materials Division for Educating Creative Global Leaders, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 08826, Republic of Korea* *2Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN 37996 , USA* *3Instituto de Ciencia Molecular (ICMol), Universidad de Valencia, Catedrático José Beltrán, 2, 46980 Paterna, Spain*
FH3-J-3 **16:45-17:00**	**In-Situ Modulation of Exposure to UV Light with UV-Selective Photonic Synapse** Hea-lim Park and Tae-woo Lee *Department of Materials Science and Engineering, Seoul National University*
FH3-J-4 **17:00-17:15**	**SiO_x Memristor Synapse Inspired by the Visual System for Neuromorphic Computing** Sanghyeon Choi[1], Jae-wan Choi[1], Jaeho Shin[1], Seonghoon Jang[1], Nam-dong Kim[2], Jeehyun Kwag[3], and Gunuk Wang[1] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Functional Composite Materials Research Center, KIST, [3]Department of Brain and Cognitive Engineering, Korea University*
FH3-J-5 **17:15-17:30**	**Achievement of Uniform Passive Matrix Synaptic Array Device Architecture toward Superb Neuromorphic Calculating System** Jingon Jang, Sanghyeon Choi, Seonghoon Jang, Seonggil Ham, and Gunuk Wang *KU-KIST Graduate School of Converging Science and Technology, Korea University*

P. Device for Energy (Solar Cell, Power Device, Battery, etc.) 분과

2020년 2월 14일(금), 15:45-17:30 / Room I (하트 II, 6층)

[FI3-P] Photo-Catalytic Mateirlas for Energy Devices

: 교수 (아주대학교)

FI3-P-1 **15:45-16:15**	[초청] **BiVO4 Epitaxial Heterostructure Photoanode for Solar Water Splitting** Sanghan Lee *School of Materials Science and Engineering, GIST*
FI3-P-2 **16:15-16:45**	[초청] **Two Dimensional Material Interface Engineering for Energy Efficient Nanoelectronics** Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
FI3-P-3 **16:45-17:00**	**Simultaneous Improvement of Absorption and Separation Efficiencies of Nanopatterned Mo:$BiVO_4$ Photoanodes via Direct Printing** Sucheol Ju, Junho Jun, Wonjoong Kim, Hangyu Lim, and Heon Lee *Department of Materials Science and Engineering, Korea University*
FI3-P-4 **17:00-17:15**	**Large-scale 2D Heterojunction Catalyst on a p-type Silicon for Efficient Photoelectrochemical Hydrogen Evolution** Hee Seong Kang, Jae Yoon Lee, and Chul-Ho Lee *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FI3-P-5 **17:15-17:30**	**Multidimensional Single-Crystalline 2D Mo_2C Sheets for pH-universal Hydrogen Evolution Reaction** Jangwon Bang, In Kyu Moon, Keorock Choi, and Jungwoo Oh *School of Integrated Technology, Yonsei Institute of Convergence Technology, Yonsei University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 15:45-17:30 / Room J (하트 III, 6층)

[FJ3-D] Memory Devices

: 교수 (삼육대학교), 이웅규 교수 (명지대학교)

FJ3-D-1 **15:45-16:15**	**[초청]** **Three-Terminal Memristor** Hong-Sub Lee *Kangwon National University*
FJ3-D-2 **16:15-16:45**	**[초청]** **Atomic Layer Deposition of $SrTiO_3$ Thin Films for Dynamic Random Acess Memory Capacitors** Woongkyu Lee *Department of Electrical Engineering, Myongji University*
FJ3-D-3 **16:45-17:00**	**CVD $NbSe_2$ Buffer Layer to Control Active Metal Ions in Ag/$NbSe_2$/HfO_2/Pt Device for Stable Synaptic Functions** Yu-Rim Jeon[1], Yonghun Kim[2], and Changhwan Choi[1] *[1]Division of Materials Science and Engineering, Hanyang University, [2]Surface Technology Division, KIMS*
FJ3-D-4 **17:00-17:15**	**Synaptic and Nonvolatile Memory Characteristics in Ag/HfO_2/Pt Structured Conductive Bridge Random Access Memory Devices** Haider Abbas and Changhwan Choi *Division of Materials Science and Engineering, Hanyang University*
FJ3-D-5 **17:15-17:30**	**Mechanically Stretchable Charge-Trap Memory Transistors Fabricated on Ultra-Thin Polyimide Film with Wavy Dimensional Structures** Hyo-Eun Kim, Hye-Won Jang, and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*

D. Thin Film Process Technology 분과

2020년 2월 14일(금), 15:45-17:30 / Room K (다이아몬드 I, 6층)

[FK3-D] Thin Film Transistors

: 교수 (한양대학교), 박민혁 교수 (부산대학교)

FK3-D-1 **15:45-16:15**	[초청] **Geometrically Adaptive Atomically Thin Films** Joonki Suh *School of Materials Science and Engineering, UNIST*
FK3-D-2 **16:15-16:30**	불참 용액 공정 기반의 이중 게이트 전극 구조의 산화물 **Indium-gallium-zinc-oxide TFT**의 제작 및 분석 Jeongmin Kim and Jaewook Jeong *School of Information and Communication Engineering, Chungbuk National University*
FK3-D-3 **16:30-16:45**	**High-Performance ZnO-based Thin Film Transistors with Thin ITO Inserting Layers Suitable for Low Temperature Processing** Man-ho Cho and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FK3-D-4 **16:45-17:00**	**Mechanically Flexible Vertical-Channel Charge-Trap Memory Thin Film Transistors Using Atomic Layer Deposited Oxide Semiconductors** Hyeong-Rae Kim and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FK3-D-5 **17:00-17:15**	**Fabrication and Characterization of Nanoscale In-Ga-Zn-O Vertical-Channel Thin-Film-Transistors with Sub-130 nm Channel Length** Hyun-Joo Ryoo and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FK3-D-6 **17:15-17:30**	**Annealing Effect on IGZO-Metal Interface** Eun Seong Yu, Seok Jun Kang, Jae Geun Woo, In Hye Kang, and Byung Seong Bae *School of Electronics and Display Engineering, Hoseo University*

J. Nano-Science & Technology 분과

2020년 2월 14일(금), 15:45-17:30 / Room L (다이아몬드 II, 6층)

[FL3-J] 이차원 물질

: 교수 (아주대학교), 김수영 교수 (고려대학교)

FL3-J-1 **15:45-16:15**	[초청] **Directed Self-Assembly of Block Copolymers on Chemically Modified Graphene** Hyeong Min Jin[1,2], Sang Ouk Kim[1] *[1]National Creative Research Initiative Center for Multi-Dimensional Directed Nanoscale Assembly Department of Materials Science & Engineering, KAIST, [2]Neutron Science Center, KAERI*
FL3-J-2 **16:15-16:45**	[초청] **Interface and Surface Control of MoS_2-based Nanoelectronic Devices: Proton Beam Irradiation and Molecular Treatment** Takhee Lee *Department of Physics and Astronomy, Seoul National University*
FL3-J-3 **16:45-17:00**	**Investigation of Ambipolar Avalanche Breakdown in WSe_2 Field-Effect Transistors** Jaeyoung Kim, Jinsu Pak, Kyungjune Cho, Jae-Keun Kim, Jiwon Shin, Woocheol Lee, Keehoon Kang, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*
FL3-J-4 **17:00-17:15**	**Highly Tunable Molecular Rectifier Realized by Interfacial Design in Molecular Heterojunction with Two-Dimensional Materials** Jaeho Shin[1], Seunghoon Yang[1], Yeonsik Jang[2], Tae-wook Kim[3], Takhee Lee[2], Chul-ho Lee[1], and Gunuk Wang[1] *[1]KU-KIST Graduate School of Converging Science & Technology, Korea University, [2]Department of Physics and Astronomy, and Institute of Applied Physics, Seoul National University, [3]Functional Composite Materials Research Center, Institute of Advanced Composite Materials, KIST*
FL3-J-5 **17:15-17:30**	**Unidirectional Behavior of Photoswitching Diarylethene Molecular Junctions with Multilayer Graphene Electrode** Yeonsik Jang, Jeongmin Koo, Wang-Taek Hwang, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*

Poster Session II

2020년 2월 14일(금), 14:00-15:30 / 5층 로비 및 컨벤션홀 L

D. Thin Film Process Technology

심사위원: 김건환 박사 (한국화학연구원), 김우희 교수 (한양대학교), 박민혁 교수 (부산대학교), 박태주 교수 (한양대학교), 안지훈 교수 (한양대학교), 한정환 교수 (서울과학기술대학교)

FP1-001	**Analysis of Switching Kinetics of (Hf, Zr)O2 Thin Films made by RF Sputtering Deposition Method** S. E. Moon[1,2], Y. Kim[1,3], J. Y. Woo[1], J. H. Kim[1], J. P. Im[1], S. Im[1], and S. M. Yoon[3] *[1]Emerging Materials Research Section, ETRI, [2]Department of Advanced Engineering, UST, [3]Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FP1-002	**The Growth and Characteristics of $SrRuO_3$ thin films for electrodes on SiO_2 substrates by RF-Sputtering** Hyun Min Kim[1], Hong Seong Kim[1], and Ji-Hoon Ahn[2] *[1]Department of Electronic Material Engineering, Korea Maritime & Ocean University, [2]Department of Materials Science and Chemical Engineering, Hanyang University*
FP1-003	**Low Temperature Fabrication of Membrane Gate Field-effect-transistor Using Sacrificial Layer Release for a Versatile Sensor Platform** Nam-Hun Kim[1], Yeongcheol Seok[1], Jinhyun Kim[1], Manh Cuong Nguyen[1], An Hoang Thuy Nguyen[1], Jiyeon Yoon[1], Hyewon Kim[1], Sangwoo Kim[1], SeongYong Cho[1], Byung Chul Lee[2], and Rino Choi[1] *[1]Inha University, [2]KIST*
FP1-004	**Interface Dipole Modulation Device: The New Candidate of Non-Volatile Memory** Giuk Kim and Sanghun Jeon *School of Electrical Engineering, KAIST*
FP1-005	**유연기판에 제작한 a-ITGZO 박막트랜지스터의 전기적 특성 연구** 이호상, 조경아, 김상식 *고려대학교 전기전자공학과*
FP1-006	**ZnO 기반 삼진 로직 소자의 중간 전류 레벨 조절 연구** 김소영, 김소륜, 이호인, 이용수, 김기영, 이해원, 김채은, 황현준, 이병훈 *School of Material Science and Engineering, GIST*
FP1-007	**Elucidating Underlying Mechanism of Performance Enhancement of an IGZO TFTs with Al_2O_3 Interlayer** Tae Hyeon Kim, Woojin park, and Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
FP1-008	**Dual Band IGZO Phototransistor Implemented by an Al_2O_3 Interlayer** Jaeun Kim, Woojin park, and Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*

FP1-009	**Development of Space Divided PE-ALD System and Process Design for Gap-fill Process in Advanced Memory Devices** Baek-Ju Lee, Dong-Won Seo, Jae-Soon Hwang, and Jae-Wook Choi *Machinery R&D Center, Hanwha Corporation*
FP1-010	**2-Dimensional Perovskite Oxide Thin Films Deposited by Atomic Layer Deposition for High-k Application** Seung Won Lee[1], Hyo Bae Kim[1], Jeong-Hun Choi[2], and Ji-Hoon Ahn[2] *[1]Department of Electronic Material Engineering, Korea Maritime and Ocean University, [2]Department of Materials Science and Chemical Engineering, Hanyang University*
FP1-011	**Atomic Layer Deposition of HfO_2 Thin Films on Graphene Surface** Jin Ha Hwang, Hyeok Jae Lee, and Sang Woon Lee *Department of Physics and Department of Energy Systems Research, Ajou University*
FP1-012	**Initial Growth Behavior of Atomic Layer Deposited TiO_2 Thin Film Depending on the Chemistry of Ru Substrate** Eui Young Jung[1], Jeongil Bang[2], Haeryong Kim[2], Dong Hee Han[1], and Woojin Jeon[1] *[1]Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, [2]Nano Electronics Laboratory, Samsung Advanced Institute of Technology*
FP1-013	**Atomic-Layer-Deposited Tin Monoxide Channel for p-Type Oxide Thin-Film Transistors** Younjin Jang[1], In Won Yeu[1,2], Jun Shik Kim[1], Sukin Kang[1], Yonghee Lee[1], Kwangmin Kim[3], Whayoung Kim[1], Jeong Hwan Han[4], Jung-Hae Choi[2], and Cheol Seong Hwang[1,3] *[1]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [2]Center for Electronic Materials, KIST, [3]Graduate School of Engineering Practice, Seoul National University, [4]Department of Materials Science and Engineering, SEOULTECH*
FP1-014	**삼진상보보완회로를 위한 그래핀 기반의 P-type 삼진 로직 소자** 이용수, 김채은, 김소영, 김시현, 이호인, 김승모, 김기영, 이해원, 황현준, 이병훈 *School of Material Science and Engineering, GIST*
FP1-015	**Understanding Steric Hindrance Effect of Inhibitor and Precursor in AreaSelective Atomic Layer Deposition Using Monte-Carlo Simulation** 구본욱, Chi Thang Nguyen, 김현구, 이한보람 *인천대학교 신소재공학과*
FP1-016	**Demetallization of Molecular Layer Deposited Organic-Inorganic Hybrid Indicone Thin Films by Thermal Annealing** Miso Kim[1], Tran Thi Ngoc Van[1], Seunghwan Lee[2], Geon Ho Baek[3], Jung-Hoon Lee[2], Jin-Seong Park[2,3], and Bonggeun Shong[1] *[1]Chemical Engineering, Hongik University, [2]Materials Science and Engineering, Hanyang University, [3]Nano-Scale Semiconductor Engineering, Hanyang University*

FP1-017	**Atomic Layer Deposition of High Reliable Hafnium Oxide Thin Films Using a Novel Hf Metallorganic Precursor** Seungmin Yeo[1,2], Ga Yeon Lee[1,4], Haneul Yang[1], Taeyong Eom[1], Gun Hwan Kim[1], Bo Keun Park[1], Jeong Hwan Kim[3], Hyungjun Kim[2], and Taek-Mo Chung[1] *[1]Division of Advanced Materials, KRICT, [2]School of Electrical and Electronic Engineering, Yonsei University, [3]Department of Advanced Materials Engineering, Hanbat National University, [4]Department of Chemistry, Sungkyunkwan University*
FP1-018	**Plasma Diagnosis Using Optical Emission Spectrometry Analysis of Metal Film Fabricated by DC Magnetron Sputter** Jae-Eun Huh[1], Ki-Yeon Ryu[1], Chang-Min Jeong[1], Do-Hyun Oh[1], Johji Hiroishi[2], Eun-Kyoung Ma[1], Byeong-Hwa Jeong[1], and Eung-Joon Lee[1] *[1]ULVAC Korea, Ltd., [2]ULVAC Inc.*
FP1-019	**Enhancing the Growth Rate of ALD-grown TiO_2 Thin Film by Modulating the Chemisorption Characteristic Using Physisorbed H_2O** Byung Seok Kim, Ye Won Kim, Ae Jin Lee, jenam Kim, and Woojin Jeon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FP1-020	**Effect of Oxygen Plasma Treatment on Electrical of Amorphous Indium Gallium Zinc Oxide Thin-Film Transistor** Han-Sang Kim[1], Jae-Yun Lee[1], Fei Shan[1], Hong-Bo Guo[1], Hao-Zhou Sun[1], Anvar Tukhtaev[1], Sherali Jaynarov[1], Erdene Oyu Erdenebat[1], Eundo Kim[2], Geunho Kim[2], and Sung-Jin Kim[1] *[1]College of Electrical and Computer Engineering, Chungbuk National University, [2]R&D Center, TheONE SCIENCE*
FP1-021	**Ultrafast Recrystallization of Perovskite by Inducing Flash for Flexible Light-emitting Diodes** Chobi Kim, Dong Hun Jung, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
FP1-022	**Morphological Difference in Amorphous Indium Gallium Zinc Oxide Thin-Films based on the Oxygen Plasma Treatment** Han-Sang Kim[1], Jae-Yun Lee[1], Fei Shan[1], Hong-Bo Guo[1], Hao-Zhou Sun[1], Anvar Tukhtaev[1], Sherali Jaynarov [1], Erdene Oyu Erdenebat[1], Hyeon-Su Mun[1], U-Ju Choe[2], and Sung-Jin Kim[1] *[1]College of Electrical and Computer Engineering, Chungbuk National University, [2]College of Agriculture, Life & Environment Sciences, Chungbuk National University*
FP1-023	**Study on the Vacuum Post-vacuum Annealing Process for Improving IZO Channel Layer-based Transistor Electrical Performance** Jae-Yun Lee[1], Han-Sang Kim[1], Fei Shan[1], Hong-Bo Guo[1], Hao-Zhou Sun[1], Anvar Tukhtaev[1], Sherali Jaynarov[1], Erdene Oyu Erdenebat[1], and Sung-Jin Kim[1] *[1]College of Electrical and Computer Engineering, Chungbuk National University*
FP1-024	**Optimizing the TiO_2-ZrO_2 Dielectric Structure Using Atomic Layer Deposition Technique for the DRAM Capacitor Application** Dong Hee Han, Eui Young Jung, and Woojin Jeon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*

FP1-025	**Oxidation Mechanism of WS_2 by Water and Alcohol** Sungmin Lee[1], Yo Han Choi[1], Seunggi Seo[2], Hyungjun Kim[2], and Bonggeun Shong[1] *[1]Chemical Engineering, Hongik University, [2]Electrical and Electronic Engineering, Yonsei University*
FP1-026	**Implementation of Pseudo n-type Ternary Analog to Digital Converter Using ZnO Nanosheet Stack Channel Field-effect-transistor** Ho-In Lee, So-Young Kim, Seung-Mo Kim, Yongsu Lee, Hyeon Jun Hwang, and Byoung Hun Lee *School of Material Science and Engineering, GIST*
FP1-027	**Threshold Switching Characteristics of Amorphous Ga_2Te_3 Thin Film Deposited by RF Sputtering** Dayoon Lee, Taeho Kim, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
FP1-028	**Effect of Rapid Thermal Annealing on Forming Voltage Reduction in Ge-As-Te Selector Devices** Taeho Kim, Dayoon Lee, Jimin Lee, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
FP1-029	**Conductivity Dependence on Thickness of LaNiO3 Thin Film Deposited by RF Co-Sputtering System** Inwoo Kim, Taeho Kim, Youlee Song, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
FP1-030	**A Comparative Study on the Adsorption of Silicon Tetrahalides toward Low-temperature Thermal Atomic Layer Deposition of Silicon Nitride** Neung-Kyung Yu[1], Jong Woo Shin[2], Chan Hui Moon[2], Han-Bo-Ram Lee[2], and Bonggeun Shong[1] *[1]Chemical Engineering, Hongik University, [2]Materials Science and Engineering, Incheon National University*
FP1-031	**Computational Screening for Metal Oxide Precursors toward Area-selective Atomic Layer Deposition (AS-ALD)** Tran Thi Ngoc Van, Miso Kim, Yo Han Choi, and Bonggeun Shong *Chemical Engineering, Hongik University*
FP1-032	**은-페이스트 전극의 표면처리 및 특성변화** 김성완, 라만 셰이크 압둘, 양윤숙, 김우영 *제주대학교 전자공학과*
FP1-033	**ALD를 이용하여 증착한 ZrO_2에서의 O3 pulse Duration에 따른 Antiferro Polarization 특성 연구** 소남우, 정주영, 한유근, 손현철 *연세대학교 공과대학 신소재공학과*

FP1-034	**Flexible Deep-Ultraviolet-Selective Photodetector Using Amorphous GaOx Thin Films Grown by Atomic Layer Deposition** Se Eun Kim, Kang min Lee, Heung yoon Choi, and Sang Woon Lee *Ajou University*
FP1-035	**Atomic Layer Deposition of Ru Thin Films Using Novel Ru(II) Precursor** Hanuel Yang, Jungmin Hwang, Seungmin Yeo, Taeyong Eom, Gun Hwan Kim, Bo Keun Park, and Taek-Mo Chung *Division of Advanced Materials, KRICT*
FP1-036	**TEM 을 활용한 고유전 게이트 절연막의 소자 특성 분석 및 신뢰성 평가** 이상길, 유승조, 이지현, 장재혁 *한국기초과학지원연구원 연구장비운영부*
FP1-037	**Fabrication of Highly Integrated a-IGZO BEOL Logic Devices Using Single Type Channel and Channel Offset** Min-Soo Kang, Sung-Hun Kim, and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-038	**Improvement of Field-Effect Transistors and Inverters based on IGZO Nanofiber Channels by O_2 Plasma Treatment** Sung-Hun Kim and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-039	**Oxide Semiconductor Based Photonic Memristors by Atomic Layer Deposition** Chae Rim Lee, Hee Ju Yun, Jeong Hwan Han, and Byung Joon Choi *Department of Materials Science and Engineering, SEOULTECH*
FP1-040	**Effects of Carrier Gas Flow Rate on Properties of SiCOH Low Dielectric Constant Films in Plasma Enhanced Chemical Vapor Deposition Process Using the Octamethylcyclotetrasiloxane Precursor** Yoonsoo Park[1], Hyuna Lim[1], Namwuk Baek[1], Seunghun Park[1], Sungwoo Lee[2], Jeayoung Yang[2], and Donggeun Jung[1] *[1]Department of Physics, Sungkyunkwan University, [2]Advanced Research Laboratory, TES Co., Ltd.*
FP1-041	**Effect of Low-Frequency Plasma on Polymerized SiCOH Low-*k* Films in 13.56 MHz and 370 kHz Dual-Frequency Inductively Coupled Plasma System Using the Octamethylcyclotetrasiloxane Precursor** Hyuna Lim[1], Yoonsoo Park[1], Namwuk Baek[1], So-Yeon Jun[1], Sungwoo Lee[2], Jeayoung Yang[2], and Donggeun Jung[1] *[1]Department of Physics, Sungkyunkwan University, [2]Advanced Research Laboratory, TES CO. Ltd.*
FP1-042	**Highly Improved Growth and Electrical Properties of Pt Thin Films by Atomic Layer Deposition Using Dimethyl(N,N-Dimethyl-3-Buten-1Amine-N) Platinumand O_2 Reactant** Woo-Jae Lee, Susanta Bera, and Se-Hun Kwon *School of Materials Science and Engineering, Pusan National University*

FP1-043	**Thickness Dependent Work Function Variation of Pt-Ru Bimetallic Alloy prepared via Atomic Layer Deposition** Hyun Gu Kim[1,2], Chang-Min Kim[2], Jihu Baek[2], and Se-Hun Kwon[2] *[1]National Core Research Center for Hybrid Materials Solution, Pusan National University, [2]School of Materials Science and Engineering, Pusan National University*
FP1-044	**Electrical and Optical Properties of Ti-ZnO Films Grown on Glass Substrate by Atomic Layer Deposition** Eun-Kyong Koh and Se-Hun Kwon *School of Materials Science and Engineering, Pusan National University*
FP1-045	**Layer-Controlled Spalling Technique for Selective Interface Separation of Epitaxial Structures** Heungsup Won, Honghwi Park, Chang-Ju Lee, Jaedong Jung, and Hongsik Park *School of Electronics Engineering, Kyungpook National University*
FP1-046	**Investigation of Electrical Characteristics of Flexible CMOS Devices Fabricated with Thickness-Controlled Spalling Process** Honghwi Park, Changhee Lim, Yeho Noh, and Hongsik Park *School of Electronics Engineering, Kyungpook National University*
FP1-047	**Potassium Disulfitopalladate(II)-coated Polyester Fabric-based Carbon Monoxide Colorimetric Sensor** Junyeop Lee[1,2], Jae Keon Kim[1,2], Namgon Do[1,2], Yeong Sam Kim[1], Hee Kyung An[1], Seong Ho Kong[2], and Daewoong Jung[1] *[1]KITECH, [2]School of Electronics Engineering, Kyungpook National University*
FP1-048	**Polarization Switching and Discharging Behaviors of Hafnium Zirconium Oxide Based Ferroelectric Capacitors Connected with Paraelectric Capacitors** Yong Bin Lee, Hyeon Woo Park, Young Hwan Lee, Seung Dam Hyun, Bum Yong Kim, Hyun Ho Kim, and Cheol Seong Hwang *Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, College of Engineering, Seoul National University*
FP1-049	**Effect of Post Annealing on the Crystallinity and Polarization of Ga-doped HfO_2 Films, Deposited by ALD** Ju-young Jeong, Yoogeun Han, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
FP1-050	**Ferroelectricity in Ge Doped HfO_2 Thin Films Deposited by ALD** Yoogeun Han, Ju-Young Jeong, and Hyunchul Sohn *Department of Materials Science and Engineering, Yonsei University*
FP1-051	**Optoelectronic Properties of the Transparent and Flexible IGZO Thin Film Transistors for Deep Ultraviolet (DUV) Sensing** Jongwon Yoon[1], Ga-Young Bae[2], Seonggwang Yoo[2], Jung Il Yoo[2], Woong-Ki Hong[1], and Heung Cho Ko[2] *[1]Jeonju Center, KBSI, [2]GIST*

FP1-052	**Low Temperature Microwave Anneal for Monolithic 3-D Integration** Jiyeon Yoon, Manh Cuong Nguyen, An Hoang Thuy Nguyen, Nam-Hun Kim, Yeongcheol Seok, Hyewon Kim, Sangwoo Kim, Seong Yong Cho, and Rino Choi *Department of Materials Science and Engineering, Inha University*
FP1-053	**Effect of Annealing Ambient on Solution-processed $AlZrO_X$ Gate Dielectric for a-IGZO TFTs** Kyoung-Rae Kim, Jonsu Oh, Kyung-Mo Jung, and Yong-Sang Kim *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-054	**Area-Selective Atomic Layer Deposition of Ru Thin Films Using a Vapor-Phase Surface Moderator** Jeong-Min Lee, Ji Won Han, Tae Joo Park, and Woo-Hee Kim *Department of Material Science and Chemical Engineering, Hanyang University*
FP1-055	**Electrical Properties of AlGaN Thin Films Grown by Thermal Atomic Layer Deposition** Seok Choi, Hee Ju Yun, Won Hee Jeong, Jeong Hwan Han, and Byung Joon Choi *Department of Materials Science and Engineering, SEOULTECH*
FP1-056	**Coating Characteristics on the Thermoelectric Powder Materials by Two Types of Atomic Layer Deposition Reactor** Jae Wook Lee[1], Myeong Jun Jung[1], Seung Chul Shin[1], Ju-Yeon Han[1], Myeong Jun Ji[1], Seung Hee Ko[2], Jong Min Byun[1,3], Jeong Hwan Han[1,3], Young-In Lee[1,3], Doh-Hyung Riu[1,2], Sung-Tag Oh[1,3], and Byung Joon Choi[1,3] *[1]Department of Material Science and Engineering, SEOULTECH, [2]The Research Institute for Future Convergence Materials, SEOULTECH, [3]The Institute of Powder Technology, SEOULTECH*
FP1-057	**Synthesis of a Hybrid Nanostructure of ZnO-Decorated MoS_2 by Atomic Layer Deposition** Jinseon Lee[1], Il-Kwon Oh[2,3], Bonggeun Shong[4], Stacey F. Bent[2,3], and Woo-Hee Kim[1,2] *[1]Department of Materials Science and Chemical Engineering, Hanyang University, [2]Department of Chemical Engineering, Stanford University, [3]School of Electrical and Electronic Engineering, Yonsei University, [4]Department of Chemical Engineering, Hongik University*
FP1-058	**Comparative Study of $(Me_5Cp)Ti(OMe)_3$ and $CpTi(OMe)_3$ as the Ti Precursors for the High-temperature Atomic Layer Deposition of TiO_2** Yeongchan Choi, Jaemin Kim, Hye-Lee Kim, Jongwan Jung, and Won-Jun Lee *Department of Nanotechnology and Advanced Materials Engineering, Sejong University*
FP1-059	**상압플라즈마 화학 기상 증착법의 고속 증착 특성 원인 탐구** 박형규[1], 심건호[1], 송창훈[2], 오훈정[2], 백승재[1] *[1]Department of Electrical, Electronic, and Control Engineering, Hankyong National University, [2]Yonsei University*
FP1-060	**Effect of Insertion Layer on the Electrical Characteristics of Phase Change Memory** Hee Ju Yun, Seok Choi, Ha Young Lee, and Byung Joon Choi *Department of Materials Science and Engineering, SEOULTECH*

FP1-061	**The Effect of Oxygen Defects in Plasma-Enhanced ALD Hafnia on Electrical Properties of a-IGZO Thin-Film Transistors** Cheol Hee Choi, Min Hoe Cho, Min Jae Kim, and Jae Kyeong Jeong *Department of Electronic Engineering, Hanyang University*
FP1-062	**Properties of Beryllium Oxide Thin Films Prepared by Plasma-enhanced Atomic Layer Deposition** Yoonseo Jang[1], Seung Min Lee[1], Jung Hwan Yum[2], Eric S. Larsen[2,3], Christopher W. Bielawski[2,3], and Jungwoo Oh[1] *[1]School of Integrated Technology, Yonsei Institute of Convergence Technology, Yonsei University, [2]Center for Multidimensional Carbon Material, IBS, [3]Department of Chemistry, UNIST*
FP1-063	**Solution-Processed PMMA-ZrA Hybrid Gate Dielectric for Low Temperature, High Performance In-Ga-Sn-O Thin-Film Transistors** Jae Min Jung, Hyeon A Kim, Jae Seok Hur, Jeong Oh Kim, and Jae Kyeong Jeong *Department of Electronic Engineering, Hanyang University*
FP1-064	**Characterization on Mechanical Flexibility of the Memory Transistors Using Organic Ferroelectric Gate Insulator on Ultra-Thin Polyimide Film** Jin-Ju Kim, Hye-Won Jang, So-Jung Yoon, and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FP1-065	**Effects of Sputtered-TiN Electrode on Ferroelectric HfO_2 Thin Film in MFM Capacitors** Hyun-Seop Kim[1], Min-Woo Kong[2], Su-Keun Eom[2], Myoung-Jin Kang[2], Kwang-Seok Seo[2], and Ho-Young Cha[1] *[1]School of Electronic and Electrical Engineering, Hongik University,* *[2]Department of Electrical Engineering and Computer Science, Seoul National University*
FP1-066	**Plasma Processing Method for Enhanced Low-Temperature SiON Film** Minwoo Park, Suin Kim, Chang Gyu Song, Young Chul Choi, and Young Soo Kwon *WONIK IPS Co., Ltd.*
FP1-067	**Tunnel Electroresistance Variations in Ferroelectric Tunnel Junctions Using Atomic-Layer-Deposited Al-doped HfO_2 Thin Films** Soo-Hyun Bae, So-Jung Yoon, Dae-Hong Min, and Sung-Min Yoon *Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University*
FP1-068	**Defect Curing Effects on High-k Gate Stack ($Al/Al_2O_3/Si$-sub) by Using H_2 Plasma Treatment and Rapid Thermal Anneal** Jehyun An[1], Kyeong-keun Choi[2], Bohyeon Kang[1], and Rock-Hyun Baek[1] *[1]Department of Electrical Engineering, POSTECH, [2]NINT, POSTECH*

FP1-069	**Study on Channel Length Modulation of Low Temperature Poly-Si TFT** Jungmin Park[1,2] and Byoungdeog Choi[2] *[1]Yield Enhancement team, Foundry Business, Samsung Electronics Co., Ltd. [2]Department of Semiconductor and Display Engineering, Sungkyunkwan University*
FP1-070	**Investigation of Phases and Chemical States of Tin Titanate Films Grown by Atomic Layer Deposition** Hong Keun Chung[1,2], Jung Joon Pyeon[1,3], In-Hwan Baek[1,4], Ga-Yeon Lee[5], Hansol Lee[6], Sung Ok Won[6], Jeong Hwan Han[7], Taek-Mo Chung[5], Tae Joo Park[2], and Seong Keun Kim[1] *[1]Center for Electronic Materials, KIST, [2]Department of Materials Science and Chemical Engineering, Hanyang University, [3]KU-KIST Graduate School of Converging Science and Technology, Korea University, [4]Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, [5]Division of Advanced Materials, KRICT, [6]Advanced Analysis Center, KIST, [7]Department of Materials Science and Engineering, SEOULTECH*
FP1-071	**비정질 산화물 반도체 박막 트렌지스터의 X-ray 조사 영향** 박솔아[1,2], 권장연[1,2] *[1]School of Integrated Technology, Yonsei University, [2]Yonsei Institute of Convergence Technology*
FP1-072	**Demonstration of TiO_2 Based Ultra High-k (k=30) MIS Capacitor and Its Electrical Properties** Bohyeon Kang[1], Kyeong-keun Choi[2], Jehyun An[1], and Rock-Hyun Baek[1] *[1]Department of Electrical Engineering, POSTECH, [2]NINT, POSTECH*
FP1-073	**Low Energy Ion Beam Treatment for the Removal of Native Oxide Layers** Jung Hyuk Kim, Keunyong Lim, Hong-Hee Kim, and Donghee Park *GCenter for Opto-Electronic Materials, KIST*
FP1-074	**Electrical Characteristics of Multi-Stacked $Al_2O_3/TiO_2/Al_2O_3$ Films Depending on Annealing Temperature** Bohyeon Jeon and Byoungdeog Choi *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-075	**Plasma-Enhanced Atomic Layer Deposition of Artificially-Designed $(Hf,Si)O_2$ Thin Films** Jiwon Oh, Jaehwan Kim, Heesu Hwang, Hyunbae Lee, and Jin-Ha Hwang *Department of Materials Science and Engineering, Hongik University*
FP1-076	**Analysis of Electrical Properties of Poly-Si TFT by Implant Energy for Channel Doping** Hyojung Kim[1,2], Jungmin Park[2], Soonkon Kim[3], JangKun Song[3], and Byoungdeog Choi[3] *[1]Technology Reliability, OLED Business Samsung Display Co., Ltd., [2]Department of Semiconductor and Display Engineering, Sungkyunkwan University, [3]Department of Electrical and Computer Engineering, Sungkyunkwan University*

FP1-077	**Impacts of Film Thickness and Rapid Thermal Annealing on the Ferroelectric Properties of Nano-Laminated ALD $Hf_xZr_{1-x}O_2$ Thin Film** Youngjun Lee, Boncheol Ku, Ma Yue, Yuncheol Shin, and Changhwan Choi *Division of Materials Science and Engineering, Hanyang University*
FP1-078	**Improvement in Carrier Mobility of ZnON Transistor by Tantalum Encapsulation** 김민재, 정재경 *Department of Electronic Engineering, Hanyang University*
FP1-079	**The Impact of Hydrogen Peroxide and Stirring Temperature of Solution Processed $LaZrO_x$ Gate Dielectric on Low Voltage Operated IGO Thin Film Transistors** Su Eon Lee and Jae Kyeong Jeong *Department of Electronics and Computer Engineering, Hanyang University*
FP1-080	**Effective Work Function Modulation of ALD TaN/HfO_2 MOS Devices with Different Capping Materials** Minhyuk Kim, Moonsuk Choi, Juhyeon Lee, Jin Wei Nan, and Changhwan Choi *Division of Materials Science and Engineering, Hanyang University*
FP1-081	**Influence of Plasma Treated Al_2O_3 Dielectric on Sol-gel IGZO Transistor Performance** Seyoung Oh and Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
FP1-082	**Effect of Contact Barrier Engineering on Off-state Leakage of Amorphous Indium-Gallium-Zinc-Oxide thin-film Transistors** Sunjin Kim[1], Gunwoo Lee[2], Hyoungbeen Ju[2], Jiyoung Bang[2], Onejae Sul[3], Jae-Kyeong Jeong[1,2], and Seung-Beck Lee[1,2,3] *[1]Department of Electronic Engineering, Hanyang University, [2]Department of Nanoscale Semiconductor Engineering, Hanyang University, [3]INST, Hanyang University*
FP1-083	**Fabrication of Nanoscale ALD SnS_2 FETs** Jiyoung Bang[1], Gunwoo Lee[1], Hyoungbeen Ju[1], Sunjin Kin[2], Namgue Lee[1], Onejae Sul[4], Hyeongtag Jeon[1,3], and Seung-Beck Lee[1,2,4] *[1]Department of Nanoscale Semiconductor Engineering, Hanyang University, [2]Department of Electronic Engineering, Hanyang University, [3]Division of Materials Science and Engineering, Hanyang University, [4]INST, Hanyang University*
FP1-084	**Switching Characteristics of Nanoscale IGZO Thin Film Transistor** Hyoungbeen Ju[1], Gunwoo Lee[1], Sunjin Kim[2], Jiyoung Bang[1], Onejae Sul[3], Jae-Kyeong Jeong[1,2], and Seung-Beck Lee[1,2,3] *[1]Department of Nanoscale Semiconductor Engineering, Hanyang University, [2]Department of Electronic Engineering, Hanyang University, [3]INST, Hanyang University*

E. Compound Semiconductors

심사위원: 안호균 박사 (ETRI), 장우진 박사 (ETRI)

FP1-085	**The Effect of the Anode Voltage on the UV A Light Source by Cathodeluminescence** Minhyuk Lee, Nakwon Jang[1], SangKyun Shim[2,3], June Mo Park[3], and June Key Lee[2] *[1]Korea Maritime and Ocean University, [2]Chonnam National University, [3]SBK Materials Co.*
FP1-086	**Thermal Behavior of AlGaN/GaN-based Schottky Barrier Diode on Diamond and Silicon Substrate** Zin-Sig Kim, Hyung-Seok Lee, Sung-Bum Bae, Hokyun Ahn, Sang-Heung Lee, Jong-Won Lim, and Dong Min Kang *ICT Materials & Components & Research Laboratory, ETRI*
FP1-087	**고속 스위칭용 탄화규소 기반 전력모듈의 기생 인덕턴스 측정 방법** 정동윤[1], 장현규[1], 박종문[1], 서동우[1], 배정환[2], 최윤화[3] *[1] 한국전자통신연구원, [2] ㈜큐아이티, [3] 제엠제코㈜*
FP1-088	철회
FP1-089	**W-band Image Rejection Mixer Using GaAs 0.1 μm MHEMT Process** Woojin Chang, Byoung-Gue Min, Sungjae Chang, Hyun-Wook Jung, Hyung-Sup Yoon, Jong-Min Lee, and Dong-Min Kang *ETRI*
FP1-090	**InGaAs CMP 공정 중 발생하는 오염물 제거를 위한 Post-CMP 세정 용액 연구** 이준우, 임상우 *Department of Chemical and Biomolecular Engineering, Yonsei University*
FP1-091	**Wet Passivation을 통한 InGaAs Wafer 표면 산화 억제 및 Defect 저감 기술 연구** 이진훈, 나지훈, 임상우 *연세대학교 화공생명공학과*
FP1-092	**X-band Microstrip Isolator for Aircraft/Ship Radar Application** Ho-Kyun Ahn[1], Dong-Young Kim[1], Hyun-Wook Jung[1], Haecheon Kim[1], Sung-Il Kim[1], Jong-Won Lim[1], Jung-Gu Lim[2], Oh-Gon Chun[2], and Dong-Min Kang[1] *[1]ICT Creative Research Laboratory, ETRI, [2]ADMOTECH*
FP1-093	**Ohmic Contacts with Recess-etched and TMAH-treated Nanometer-scale Patterns for Improved Performance and Reliability in AlGaN/GaN HEMTs** Hyun-Wook Jung[1], Jae-Won Do[2], Sung-Jae Chang[1], Ho-Kyun Ahn[1], Haecheon Kim[1], Jong-Won Lim[1], and Dong-Min Kang[1] *[1]RF/Power Component Research Group, ETRI, [2]Company K Partners Limited*

FP1-094	**75~110 GHz Resistive Mixer MMIC with 6.5~7.5 dB Conversion Loss** Woojin Chang, Byoung-Gue Min, Sungjae Chang, Hyun-Wook Jung, Hyung-Sup Yoon, Jong-Min Lee, and Dong-Min Kang *ETRI*
FP1-095	**Epitaxial Lift-off Technology for Large Scale InGaAs-on-insulator Transistors** Seong Kwang Kim[1], Subin Lee[2], JaeHoon Han[2], Jin Dong Song[2], Dong-Hwan Jun[3], and Sanghyeon Kim[1] *[1]School of Electrical Engineering, KAIST, [2]KIST, [3]Korea Advanced Nano Fab Center*
FP1-096	**The Effect of Si Backside Doped GaN Channel Layer on AlGaN/GaN:Si/AlN Double-hetero Structure HEMT** Donghyeop Jung, Uiho Choi, Minho Kim, Taehoon Jang, Yongjun Nam, and Okhyun Nam *Department of Nano-Optical Engineering, Korea Polytechnic University*
FP1-097	**환원제를 이용한 IGZO 산화물 반도체의 도체화 방법** 성태훈, 권장연 *연세대학교*
FP1-098	**0.13㎛ SiGe HBT를 이용한 94 GHz PA MMIC 설계** 김성일, 이상흥, 장우진, 이종민, 김동영, 강동민 *한국전자통신연구원 ICT창의연구소*
FP1-099	**Growth and Optimization of High Resistivity C-doped GaN by Metal-organic Chemical Vapor Deposition** Jeong-Gil Kim[1], Sung-Beom Bae[2], Seung-Hyeon Kang[1], Jun-Hyeok Lee[1], Hyung-Seok Lee[2], Kyung-Wan Kim[1], Woo-Hyun Ahn[1], Yong-Soo Lee[1], and Jung-Hee Lee[1] *[1]School of Electronics Engineering, Kyungpook National University, [2]ETRI*
FP1-100	**Sub-60 mV/decade Subthreshold Swing in Normally-off AlGaN/GaN MIS-FinFETs with Steep Sidewall Channel** Quan Dai, Ryun-Hwi Kim, Jun-Hyeok Lee, Jeong-Gil Kim, Terirama Thingujam, Seung-Hyeon Kang, Hyeon-Su Lee, Kyung-Wan Kim, Woo-Hyun Ahn, Sindhuri Vodapally, and Jung-Hee Lee *School of Electronics Engineering, Kyungpook National University*
FP1-101	**Microdisk Laser with Multiple Bias Voltages for Mode Selection** Sehwan Chang[1,2], Jin Dong Song[1], and Hong-Gyu Park[2,3] *[1]Center for Opto-electronic Convergence Systems, KIST, [2]Department of Physics, Korea University, [3]KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-102	**Diode Characteristic of Quantum Dot Laser Transferred by Epitaxial Lift-off Technique on Si** Jae-Hoon Han[1], GeunHwan Ryu[1,2], Seung-Yeop Ahn[1,3], DaeHwan Jung[1], SangHyeon Kim[3], Han-Youl Ryu[2], Jin-Dong Song[1,4], and Won Jun Choi[1] *[1]Center for Opto-electronic Materials and Devices, KIST, [2]Inha University, [3]KAIST, [4]University of Science and Technology (UST)*

FP1-103	**Current Collapse-free AlGaN/GaN HEMT with Excellent AlN Buffer Layer** Ryun-Hwi Kim[1], Uiho Choi[2], Vodapally Sindhuri[1], Hyeon-Su Lee[1], Ok-Hyun Nam[2], and Jung-Hee Lee[1] *[1]School of Electronics Engineering, Kyungpook National University,* *[2]Nano-optical Engineering, Korea Polytechnic University*
FP1-104	**Study on GaN-based MISHEMTs with *in-situ* SiN Gate Dielectric Grown by MOCVD** Jun-Hyeok Lee[1], Kyung-Wan Kim[1], Seung-Hyeon Kang[1], Woo-Hyun Ahn[1], Jeong-Gil Kim[1], Sangmin Lee[2], and Jung-Hee Lee[1] *[1]School of Electronics Engineering, Kyungpook National University, [2]Wavice Inc.*
FP1-105	**Capacitance-voltage (C - V) and Current Density-voltage (J - V) Characteristics of AlN on n-GaN with Various Surface Treatments Using NH_3, N_2 Gases** Il-Hwan Hwang[1], Ho-Young Cha[2], and Kwang-Seok Seo[1] *[1]Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University, [2]Electronic and Electrical Engineering, Hongik University*
FP1-106	**ZnO 양자점을 이용한 AlGaN/GaN 이종접합 광트렌지스터의 광반응도 개선 연구** Won-Ho Jang[1], J.-H. Choi[1], Dac Duc Chu[1], Chang-Yeol Han[2], Hee-Sun Yang[2], and Ho-Young Cha *[1]School of Electrical and Electronic Engineering, Hongik University,* *[2]Department of Materials Science and Engineering, Hongik University*
FP1-107	**GaN on GaN 기판을 이용한 수직형 PN 다이오드의 엣지터미네이션 연구** 김정진[1], 최준행[2], 차호영[1,2], 임종원[3], 강동민[3], 배성범[3], 이형석[3] *[1]홍익대학교 메타물질전자소자연구센터, [2]홍익대학교 전자전기공학부, [3]한국전자통신연구원 RF/전력 부품연구실*
FP1-108	**Temperature-dependent Characteristics of Vertical InGaAs TFETs** Ji-Min Baek[1], Tae-Woo Kim[2], and Dae-Hyun Kim[1] *[1]School of Electronics Engineering, Kyungpook National University, [2]University of Ulsan*
FP1-109	**Scaling Behavior of Transconductance in InGaAs HEMTs: From Mobility Relevant to Velocity Saturation** Hyeon-Bhin Jo, Do-Young Yun, Jun-Gyu Kim, and Dae-Hyun Kim *School of Electronics Engineering, Kyungpook National University*
FP1-110	**Improved Virtual-Source Modeling for $In_{0.7}Ga_{0.3}As$ Quantum-well HEMTs** Do-Young Yun and Dae-Hyun Kim *School of Electronics Engineering, Kyungpook National University*
FP1-111	**Impact of Output-conductance on Current-gain Cut-off Frequency** Tae-Beom Rho, Hyeon-Bhin Jo, and Dae-Hyun Kim *School of Electronics Engineering, Kyungpook National University*

G. Device & Process Modeling, Simulation and Reliability

심사위원: 백록현 교수 (POSTECH), 우지용 박사 (한국전자통신연구원)

FP1-112	**Compact Model for P-type L-shaped Tunneling Field-effect-transistor** Faraz Najam and Yun Seop Yu *Department of Electrical and Control Engineering and IITC, Hankyong National University*
FP1-113	**High Performance Graphene Photodetector with Van Der Waals Heterostructure through Tuning Carrier Tunneling** Kye Whan Cho and Woo Jong Yu *Department of Electronic and Electrical Engineering, Sungkyunkwan University*
FP1-114	**Development of High Performance SCR-based ESD Protection Device with High Holding Voltage for 0.18um BCD Technology** Youngbum Eom, Myoungchul Lim, Sanghyun Lee, Sangwook Nam, Jaehee Lee, and Young Chung *R&D Center, SK Hynix Inc.*
FP1-115	**Study of 3D TCAD Simulation on CMOS-compatible Avalanche Photodetectors** Won-Yong Ha[1], Woo-Young Choi[1], and Myung-Jae Lee[2] *[1]Department of Electrical and Electronic Engineering, Yonsei University, [2]Post-silicon Semiconductor Institute, KIST*
FP1-116	**Analysis of the Evolution of Internal Bias Field and Dopants Effects of Ferroelectric HfO_2 by First-order Reversal Curve Diagrams** SeungHyeon Hong, Yoseop Lee, Dante Ahn, WooRi Ham, Sungmun Song, and Seung-Eon Ahn *Department of Nano-Optical Engineering, Korea Polytechnic University*
FP1-117	**Electrical Analysis of NC Effect based on Equivalent Circuit for Silicon Doped HfO_2 Thin Film** Dante Ahn, Yoseop Lee, Seunghyeon Hong, Woori Ham, Sungmun Song, and Seung-Eon Ahn *Department of Nano-Optical Engineering, Korea Polytechnic University*
FP1-118	**TCAD Study of Uniaxial Stress Effect on the Threshold Voltage of MOSFET** Dongyean Oh, Seong-Dong Kim, Seokkiu Lee, and Jinkook Kim *Research and Development Division, SK Hynix Inc.*
FP1-119	**충돌 이온화를 이용한 Underlap 피드백 트랜지스터의 전기적 특성 연구** 손재민, 임두혁, 우솔아, 김상식 *고려대학교 전기전자공학과*
FP1-120	**Highly Reliable Gate Driver Circuit to Prevent Ripple Voltage Using AC-driven Method** Jungwoo Lee[1], Jongsu Oh[1], Eun Kyo Jung[1], KeeChan Park[2], and Yong-Sang Kim[1] *[1]Department of Electrical and Computer Engineering, Sungkyunkwan University,* *[2]Department of Electronics Engineering, Konkuk University*

FP1-121	**Investigation of the High-k Gate Dielectric Sidewall Effect in Gate-all-around Structure** Donghyun Ryu, Munhyeon Kim, and Byung-Gook Park *Inter-University Semiconductor Research Center (ISRC) and Department of Electrical and Computer Engineering (ECE), Seoul National University*
FP1-122	**First Principles Study on the Ferroelectricity in $(AlN)_m/(ScN)_n$ Superlattices** Kun Hee Ye[1,2], Gyuseung Han[1,2], In Won Yeu[1,2], Beom Yong Kim[2], Cheol Seong Hwang[2], and Jung-Hae Choi[1] *[1]Center for Electronic Materials, KIST, [2]Department of Materials Science and Engineering, and Inter-University Semiconductor Research Center, Seoul National University*
FP1-123	**A Development of High Voltage P-type Isolated GGNMOS for LCD Driver ICs** Jungwoo Han, Jowoon Lee, Wonsuk Park, Youngchul Kim, and Joontae Jang *TEDS Team, DB HiTek*
FP1-124	**Deterministic Wigner Equation Solver based on Spherical Harmonics Expansion** Kyoung Yeon Kim and Byung-gook Park *Seoul National University*
FP1-125	**Reliable Deep Learning Method of Neuromorphic Systems based on Non-ideal Synapse Device** Jae-Eun Lee, ChulJun Lee, Dong-Wook Kim, DaeSeok Lee, and Young-Ho Seo *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-126	**Retention Time Improvement in a BCAT-Based DRAM Core-Cell by Adopting MIS Contact Structure of Source and Drain** Muyeong Son, Seung Geun Jung, Seung Hwan Kim, June Park, Seung Geun Kim, and Hyun-yong Yu *School of Electrical Engineering, Korea University*
FP1-127	**높은 전류 구동능력을 갖는 4H-SCR기반 ESD보호회로에 관한연구 및 제작** 도경일, 서정주, 이병석, 구용서 *단국대학교 전기전자공학부*
FP1-128	**Influence of Interfacial SiO_2 Layer on PBS-induced Instability in Amorphous InGaZnO TFTs with Low Temperature ALD Gate Insulator** Shinyoung Park, Jun Tae Jang, Dongyeon Kang, Dong Myong Kim, Sung-jin Choi, and Dae Hwan Kim *School of Electrical Engineering, Kookmin University*
FP1-129	**Positive and Negative Bias-induced Instability in MOS_2 Field-effect Transistors with CYTOP Passivation** Ga Won Yang[1], Sungju Choi[1], Seung Gi Seo[2], Dong Myong Kim[1], Sung-jin Choi[1], Sung Hun Jin[2], and Dae Hwan Kim[1] *[1]School of Electrical Engineering, Kookmin Univresity, [2]Department of Electronic Engineering, Incheon National University*
FP1-130	**Nanosheet FET의 구조에 따른 Self-Heating Effect 분석** Ju Hwan Lee[1] and So Young Kim[2] *[1]Department of Electronic and Computer Engineering, Sungkyunkwan University,* *[2]Department of Semiconductor Systems Engineering, Sungkyunkwan University*

FP1-131	**Requirements of Electric Field Distribution to Secure BV Characteristics in Super Junction MOSFET** Jaehyun Kim[1], Jongmin Kim[1], Jieun Lee[1], Youngkwon Kim[1], Myoengbum Pyun[2], Youngsuk Kim[2], Youngchul Kim[1], and Joontae Jang[1] *[1]Technology Enabling Design Support Team, DB HiTek,* *[2]Specialized Device Development Part, DB HiTek*

H. Display and Imaging Technologies

심사위원: 전우진 교수 (경희대학교), 임유승 교수 (세종대학교)

FP1-132	**(YOLOv3 + Deep Sort Tracker) NVIDIA AGX Xavier Performance Evaluation** Ali A. Al-hamid and Hyung Won Kim *MSIS LAB., Chungbuk National University*
FP1-133	**2D MoS_2 High Performance Phototransistor for Photo Inverter and Image Sensor** Hyun Soo Ra, Jongtae Ahn, Hyun Tae Choi, and Do Kyung Hwang *Center of Opto-electronic Materials and Devices, Post-silicon Semiconductor Institute, KIST*
FP1-134	**Analysis and Enhancement of Computation Time for Deep Neural Networks on GPU Hardware** Ali A. Al-hamid, Phong Phu Ninh, and Hyung Won Kim *MSIS LAB., Chungbuk National University*
FP1-135	**Confined Magnetic Field-Based Sputtering 기반 IGZO TFT의 공정압력과 투입전력에 따른 신뢰성 특성** 김다솔, 임유승 *세종대학교 지능기전공학부*
FP1-136	**Cross-linking and Patterning of Perovskite Nanocrystal Assembly for Electroluminescence Applications** Seung Ki Shin, Yoon Kyu Kim, and Nuri Oh *Division of Materials Science and Engineering, Hanyang University*
FP1-137	**Effect on the Stress Stability of Polyimide-based Flexible IGO Thin-film Transistors under Physical Stress Condition** 박준희, 임유승 *세종대학교 지능기전공학부*
FP1-138	**Effects of Proton Irradiation on p-type Polycrystalline Thin-film Transistors** Min-gyu Shin, Ha-yun Jeong, Hyo-jun Joo, Hwan-seok Jeong, Dae-hwan Kim, Hyun-seok Cha, and Hyuck-in Kwon *School of Electrical and Electronics Engineering, Chung-Ang University*

FP1-139	**Ethanedithiol Treatment on Zinc Oxide Films for Highly Efficient Quantum Dot Light-emitting Diodes by Reducing Exciton Quenching** Cheyoon Lee[1], Jeon Eun Hwa[1], and Heeyeop Chae[1,2] *[1]School of Chemical Engineering, Sungkyunkwan University, [2]SAINT, Sungkyunkwan University*
FP1-140	**Gate Bias Stability of Solution Processed Indium Zinc Oxide Thin-film Transistors by Doping Aluminum Fluoride** Donghee Choi and Byoungdeog Choi *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-141	**Incorporation of Donor and Accepter Quantum Dots to Understand the Charge Carrier Dynamics in Quantum Dot Light Emitting Diodes** Ji-hyoun Roh, Namyoung Gwak, and Nuri Oh *Division of Materials Science and Engineering, Hanyang University*
FP1-142	**Laser Induced Crystallization of Organic/Inorganic Halide Perovskite Light Emitting Diodes** Jinwoo Byun, Sung Jin Kim, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
FP1-143	**Optical Analysis on Light Outcoupling of Perovskite Light-emitting Diodes relying on the Thicknesses and Refractive Indexes of Indium-tin-oxide and Emitting-layer** Young-jin Jung, Seung-taek Lee, Jee-won Jung, and Jeong-hwan Lee *Department of Materials Science and Engineering, Inha University*
FP1-144	**Optimization of On-chip Convolutional Neural Network for Compact Size with High Accuracy** Muhammad Usman, Phong Phu Ninh, and Hyung Won Kim *MSIS LAB., Chungbuk National University*
FP1-145	**The Role of Carrier Suppressors in Solution-Processed InZnO Thin Film Transistors** Sangmin Lee, Pyungho Choi, and Byoungdeog Choi *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-146	**Vertically Stacked Complementary Inverter Using p-type SnO and n-type IGZO Thin-film Transistors for Logic and Photo-sensor Operation** Hyo-jun Joo, Min-gyu Shin, Hyun-seok Cha, and Hyuck-in Kwon *School of Electrical and Electronics Engineering, Chung-Ang University*
FP1-147	**Gasket Doped Double EML Structured Red PHOLED** Seung-chan Kim and Dong Pil Park *Department of Electrical and Computer Engineering, Sungkyunkwan University*

FP1-148	**Optimizing Lifetime of Blue PHOLED by Managing Hole Transport Layer and Host Materials** Seung-chan Kim, Dong Pil Park *Department of Electrical and Computer Engineering, Sungkyunkwan University*

I. MEMS & Sensors Systems

심사위원: 양대종 교수 (공주대학교), 전민홍 박사 (BISTEP)

FP1-149	**CAB 물질을 이용한 유연한 습도 센서 제작에 관한 연구** Gyu-ri Lim[1,2], Yong Suk Yang[1], Ahreum Kim[1], Mi-hyun Kim[1], Hyun You Kim[2], and Sung-Hoon Hong[1] *[1]Intelligent Sensor Research Laboratory, ETRI, [2]Department of New Material Engineering, Chungnam National University*
FP1-150	**Capillary Electrophoresis-Amperometric Detection of DNA Amplification Using PCR Microfluidic Devices** Hyo Eun Kim[1], Ariadna Schuck[1], Hang-beum Shin[2], and Yong-sang Kim[1] *[1]Department of Electrical and Computer Engineering, Sungkyunkwan University, [2]Corporate R&D, LG Chem, Ltd.*
FP1-151	**Development of Thermal Convection-type High Sensitivity Multi-axis Acceleration and inclinometer Sensor Using MEMS Process** Soon Yeol Kwon, Dong Geon Jung, Young Chan Choi, Jae Yong Lee, Seung Deok Kim, Yu Seong Kim, Seong Mo Koo, and Seong Ho Kong *School of Electronics Engineering, Kyungpook National University*
FP1-152	**Effect of Magnesium Sulfate in the Clot Formation Process Using a Solution-Gate Field-Effect Transistor** Ariadna Schuck, Hyo Eun Kim, and Yong-sang Kim *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-153	**Flexible Branched Electromyography Sensors for Small-area EMG Signal Detection** Bong Jun Choi, Woo Jin Yang, Ju Hwan Kim, Dong-wook Park *School of Electrical and Computer Engineering, University of Seoul*
FP1-154	**Flexible Chipless RFID Resonator for Temperature Sensor** Jong Chan Choe, Joong Hoon Lee, Tae-min Jang, and Suk-won Hwang *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-155	**Flexible Microdevices for Drug Delivery Implanted on Cerebral Cortex** Hoon Namkung, Sanghyun Sung, and Keon Jae Lee *Department of Materials Sciences and Engineering, KAIST*

FP1-156	**Hands-free User Interface for VR Headset by IR-based Facial Gesture Sensing** Jinhyuk Kim, Jaekwang Cha, Dohyun Kim, Ashutosh Mishra, and Shiho Kim *Yonsei University*
FP1-157	**High SNR and Wide Dynamic Range Digital MEMS Microphone ROIC** Yi-gyeong Kim, Min-hyung Cho, Chun-gi Lyuh, and Woo Seok Yang *ICT Creative Research Laboratory, ETRI*
FP1-158	**Hydrogen and Nitrogen Dioxide Gas Sensor based on Pd-AlGaN/GaN HEMT** Cuong Van Nguyen and Hyungtak Kim *School of Electronic and Electrical Engineering, Hongik University*
FP1-159	**Hydrogen Gas Sensor Based Pd-Ni Alloy Decorated MWCNT Sheet** Jae Keon Kim[1,2], Junyeop Lee[1,2], Namgon Do[1,2], Yeong Sam Kim[1], Hee Kyung An[1], Seong Ho Kong[2], and Daewoong Jung[1] *[1]KITECH, [2]Kyungpook National University*
FP1-160	**IGZO Channel Thin Film Transistor-based Biosensor With Monolithic 3-Dimension Integration** Hongrae Cho, Minhyun Jung, and Sanghun Jeon *Department of Electrical Engineering, KAIST*
FP1-161	**IGZO TFT-based Fully Transparent and Sensitivity Programmable Bio-sensor Platforms with Resistance Tunable Layer** Eun-ki Hong and Won-ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-162	**Mercury Ion Setection Using DNA-funtionalized Microparticles in DEP System** Kang In Yeo, Sang Hyun Lee, Seungyeop Choi, and Sang Woo Lee *Department of Biomedical Engineering, Yonsei University*
FP1-163	**Microfluidic-based Patterning for Solution-processed Carbon Nanotube Transistors** Se-hwa Lee, Sang-chan Park, Min-seok Kang, and Jae-hyuk Ahn *Department of Electronic Engineering, Kwangwoon University*
FP1-164	**Multi-Gated IGZO TFT-Based High Sensitivity Urea EnFETs Point-of-care Biosensing Platform** Jin-hyeok Jeon and Won-ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-165	**Normalized Difference Based Intelligent Gas Monitoring** Ashutosh Mishra, Rakesh Shrestha, and Shiho Kim *Yonsei Institute of Convergence Technology, Yonsei University*

FP1-166	**Self-Powered Pressure Sensor with Silk-based Piezoelectric Film for Wearable Electronics** Minhyun Jung[1], Kwang-jae Lee[2], Jae-wook Kang[2], and Sanghun Jeon[1] *[1]School of Electrical Engineering, KAIST, [2]Department of Flexible and Printable Electronics, Jeonbuk National University*
FP1-167	**Sensing Characteristics of the MOSFET-type Gas Sensor with Sputtered WO_3 Sensing Layer** Yujeong Jeong[1], Seongbin Hong[1], Gyuweon Jung[1], Dongkyu Jang[1], Wonjun Shin[1], Jinwoo Park[1], Seung-Ik Han[2], Hyungtak Seo[2], and Jong-Ho Lee[1] *[1]Department of Electrical Engineering, and Inter-University Semiconductor Research Center, Seoul National University, [2]Department of Energy Systems Research, Ajou University*
FP1-168	**Skin Deformation Detection Sensor for the AR Headset Hands-free Interface** Jaekwang Cha, Jinhyuk Kim, and Shiho Kim *School of Integrated Technology, and Yonsei Institute of Convergence Technology, Yonsei University*
FP1-169	**The Construct of RF Dielectrophoretic System for Observing Cellular Behavior above a Few Hundreds MHz** Sang Hyun Lee, Kang In Yeo, Seungyeop Choi, and Sang Woo Lee *Department of Biomedical Engineering, Yonsei University*
FP1-170	**Time-of-flight Sensor 시스템 구축 및 성능 평가** Eunsung Park[1,2], Woo-young Choi[1], and Myung-jae Lee[2] *[1]Department of Electrical and Electronic Engineering, Yonsei University, [2]Post-silicon Semiconductor Institute, KIST*
FP1-171	**Waveguide Piezoelectric Micromachined Ultrasonic Transducers (PMUTs) Using Single-crystalline PMN-PZT Thin Film for Ultrasonic Fingerprint/vein Co-recognition** Jin Soo Park[1,2], Soo Young Jung[3,4], Seung-hyub Baek[3], and Byung Chul Lee[1] *[1]Center for BioMicrosystems, KIST, [2]Department of Electrical Engineering, Korea University, [3]Center for Electronic Materials, KIST, [4]Department of Material Science and Engineering, Seoul National University*
FP1-172	**Wireless, Skin-mountable Wearable EMG Sensor for Human-Machine Interface** Sunggu Kang, Minsu Song, and Jeonghyun Kim *Department of Electronic Convergence Engineering, Kwangwoon University*
FP1-173	**고에너지 이온주입을 이용한 35μm 단위 픽셀 크기를 갖는 실리콘 광증배 (SiPM)소자** 원종일[1], 박건식[1], 조두형[1], 고상춘[1], 이성현[1], 최병건[2], 박성모[2], 박경환[2] *[1]ETRI 반도체융합부품연구실, [2]ETRI 초경량지능형반도체연구실*
FP1-174	**금속 나노파티클이 기능화된 브랜치 형태 나노와이어의 가스센싱 특성 향상** Hyoun Woo Kim[1,2], Myung Sik Choi[1], Jae Hoon Bang[1], Seungmin Han[1], Ha Young Lee[1], and Han Gil Na[1] *[1]Division of Materials Science and Engineering, Hanyang University, [2]The Research Institute of Industrial Science, Hanyang University*

FP1-175	**마이크로폰 적용을 위한 스프링 타입에 따른 실리콘 나노와이어 Deflection 및 응력 변화 분석** Ailian Jin, 장보배로, 김태엽, 이승현, 조동일 *서울대학교 전기정보공학부, 자동화시스템연구소 (ASRI), 서울대학교 반도체공동연구소 (ISRC)*
FP1-176	**압력센서에 적용하기 위한 혈압감지 방식에 따른 실리콘 나노와이어 응력변화 분석** 장보배로, 김태엽, 이승현, Ailian Jin, 조동일 *서울대학교 전기정보공학부, 자동화시스템연구소 (ASRI), 서울대학교 반도체공동연구소 (ISRC)*
FP1-177	**이온의 가열을 감소시키기 위한 경사진 로딩 슬롯 구조의 MEMS 평면 이온트랩 설계 및 제작** 정창현[1], 홍석준[1,2], 정준호[1], 이민재[1], 박윤재[1], 김태현[3], 조동일[1] *[1]ASRI/ISRC and Department of Electrical and Computer Engineering, Seoul National University, [2]Department of Physics and Astronomy, University of Sussex, [3]Department of Computer Science and Engineering, Seoul National University*
FP1-178	**화학적 도핑 방법을 이용한 그래핀/p-Si 쇼트키 접합 조절 연구** 유태진, 김소영, 김시현, 권민규, 황현준, 이병훈 *Center for Emerging Electric Devices and Systems, School of Material Science and Engineering, GIST*

J. Nano-Science & Technology

심사위원: 이태우 교수 (서울대학교), 오승주 교수 (고려대학교)

FP1-179	**2D MoS_2/p-Si Heterojunction Photodetector Using H_2S Reactive Sputtering** Hye Yeon Jang, Jae Hyeon Nam, and Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
FP1-180	**3T1R Cell Architecture for Binarized Neural Network** Do-Wan Kwon and Kee-Won Kwon *College of Information and Communication Engineering, Sungkyunkwan University*
FP1-181	**Amorphous Molybdenum Sulfide Decorated Graphene Liquid Crystalline Fiber for Improved Hydrogen Evolution Reaction** Ho Seong Hwang, Kyung Eun Lee, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
FP1-182	**Bi-functional Performance of Chalcogenides-based Nanomaterials in An Alkaline Electrolyte** Seung Hwan Jo, Keon Beom Lee, Prakash Ramakrishnan, and Jung Inn Sohn *Division of Physics and Semiconductor Science, Dongguk University*
FP1-183	**Cobalt Phosphosulfide Nanoparticles Embedded Reduced Graphene Oxide Aerogel for Hydrogen Evolution Reaction** Sung Hwan Koo and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*

FP1-184	**Compliant Thermoelectric Generators with Soft Heat Conductors and Interconnection for Self-powered Wearable Applications** Hyeon Cho[1,2], Byeongmoon Lee[2], Kyung Tae Park[1], Seongkwon Hwang[1], Inho Jeong[1], Junho Bae[1], Hyun Joo Cho[1], Heesuk Kim[1], Yongtaek Hong[2], and Seungjun Chung[1] *[1]Photo-electronic Hybrid Research Center, KIST, [2]Department of Electronic and Computer Engineering, Seoul National University*
FP1-185	**Contact Metal에 따른 WS_2 광검출기의 암전류 감소에 관한 연구** 권민규, 유태진, 김시현, 황현준, 이병훈 *Center for Emerging Electric Devices and Systems and School of Material Science and Engineering, GIST*
FP1-186	**Controllable Chloride Molecule Doping for MoS_2 Filed-effect Transistors by Solution Method** Tae Young Kim, Yoon Sok Kim, and Eun Kyu Kim *Department of Physics, Hanyang University*
FP1-187	**Core-Position Controlled CdSe/CdS Dot-in-Rod Heterostructure for Photocatalytic Hydrogen Evolution** Gui-Min Kim and Doh C. Lee *Department of Chemical and Biomolecular Engineering and KAIST Institute for the Nanocentury, KAIST*
FP1-188	**Graphene Nanopowder/teflon Composite Electrode for Chemical Sensor** Bee Lyong Yang[1], Hyun Kim[1], Sang Ho Cho[2], and Byeol I Im[2] *[1]Department of Materials Science and Engineering, Kumoh National Institute of Technology, [2]Amers. Co. Ltd*
FP1-189	**Dipole Orientation of Semiconductor Nanorods/Conducting Polymer Blend Film via Flow-Induced Alignment** Do Joong Shin and Doh C. Lee *Department of Chemical and Biomolecular Engineering, KAIST Institute for the Nanocentury, KAIST*
FP1-190	**High Performance Optoelectronics of the Direct Growth 'Partial Doped p - n Junction'** Ji Eun Kim and Woo Jong Yu *Korea College of Information and Communication Engineering (CICE), Sungkyunkwan University*
FP1-191	**Effective Enhancement of Mechanical Strength and Electrical Conductivity of Adhesive Polydopamine Enforced Graphene Liquid Crystalline Fibers** Jun Beom Kim, In Ho Kim, and Sang Ouk Kim *KAIST*
FP1-192	**Electrical Characteristics of the Molecular Junctions with Inverted Self-assembled Monolayer** Wang-Taek Hwang, Yeonsik Jang, Minwoo Song, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*

FP1-193	**Enhanced Thermal Stability of InP-Based Quantum Dots by Al-Doping: Implication in Electroluminescence Devices** Sungjun Koh, Hyeonjun Lee, Taemin Lee, and Doh C. Lee *Department of Chemical and Biomolecular Engineering and KAIST Institute for the Nanocentury, KAIST*
FP1-194	**Fabrication of Transparent and Stretchable Indium-Tin Oxide Nanofiber Electrode Using High Efficiency Microwave Calcination and Ar Plasma Surface Treatment** Joong-Won Shin and Won-Ju Cho *Department of Electronic Materials Engineering, Kwangwoon University*
FP1-195	**Facile and Spontaneous Self-Assembly of Reduced Graphene Oxide by Gelation for Supercapacitors** Jun Tae Kim, Uday Narayan Maiti, and Sang Ouk Kim *Department of Material Science and Engineering, KAIST*
FP1-196	**Facile Ball Milling Process to Fabricate Nano Bentonite by Adding MoS_2** Sung Hyun Hong[1] and Soo Young Kim[2] *[1]School of Chemical Engineering and Materials Science, Chung-Ang University, [2]School of Material Science and Engineering, Korea University*
FP1-197	**Facile Synthesis of Highly Crystalline Semiconducting Graphene Nanoribbons via Unzipping Nitrogen-Doped Carbon Nanotubes** Ho Jin Lee, Joonwon Lim, and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
FP1-198	**Free-standing Artificial Synapse based on Ferroelectric Organic Field-effect Transistor for Wearable Neuromorphic Computing Systems** Seonghoon Jang[1], Sukjae Jang[2], Eun-Hye Lee[2], Minji Kang[2], Tae-Wook Kim[2], and Gunuk Wang[1] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Applied Quantum Composites Research Center and Institute of Advanced Composite Materials, KIST*
FP1-199	**Gate-Tunable Rectification in $PdSe_2$ Heterostructure FETs** Dongwook Seo, Jae Eun Seo, Tanmoy Das, and Jiwon Chang *UNIST*
FP1-200	**Healing Layer for Recycled Usage of Photoelectrode** Pan Lu and Dor Chang Lee *Department of Chemical and Biomolecular Engineering and KAIST Institute for the Nanocentury, KAIST*
FP1-201	**Highly Active Hydrogen Evolution Catalysis by Uniquely Designed Amorphous/Metal Interface of Core–shell Phosphosulfide/N-Doped CNTs** Gang San Lee, Dong Jun Li, and Sang Ouk Kim *Departmetn of Materials Science and Engineering, KAIST*

FP1-202	**Highly Aligned Graphene Oxide Aerogel Fabrication by Liquid Crystallinity** Jin Goo Kim, Kyung Eun Lee, and Sang Ouk Kim *KAIST*
FP1-203	**How Microstructure of Donor-Acceptor Polymers Affects the Synaptic Plasticity of the Ion-gel Gated Synaptic Transistors** Naryung Kim[1], Chun Yan Gao[2], Yeongjun Lee[1], Hea-Lim Park[1], Wanhee Lee[3], Hoichang Yang[2], YunHi Kim[2], and Tae-Woo Lee[1] *[1]Department of Materials Science and Engineering, Seoul National University, [2]Department of Chemical Engineering, Inha University, [3]Department of Chemistry, Gyeongsang National University*
FP1-204	**Identification of Quantum Transport through Metal Cations in Particle-on-film System** Jihye Lee, Deok-Jin Jeon, Sang-Heon Park, and Jong-Souk Yeo *School of Integrated Technology and Yonsei Institute of Convergence Technology, Yonsei University*
FP1-205	**Improvement of Hole Injection on InP Quantum Dot-Based Light-Emitting Diodes** Hyeonjun Lee and Doh C. Lee *Department of Chemical and Biomolecular Engineering, KAIST*
FP1-206	**Increased Electrical Conductivity of Electron Transport Layer of InP Quantum Dot-Based Light-Emitting Diodes** Taemin Lee, Hyeonjun Lee, and Doh C. Lee *Department of Chemical and Biomolecular Engineering and KAIST Institute for the Nanocentury, KAIST*
FP1-207	**Investigation of Structural and Electrical Properties in Core-shell VO_2@Al_2O_3 Nanobeams** Ki Hoon Shin[1], Jongwon Yoon[2], Min-kyu Seo[1], Eun Min Kim[1], Woong-Ki Hong[2], and Jung Inn Sohn[1] *[1]Division of Physics and Semiconductor Science, Dongguk University, [2]Jeonju Center, Korea Basic Science Institute*
FP1-208	**Low-Power Complementary Inverter Using Polymer Electrolyte Gated n- and p-type Graphene Field-Effect Transistors** Myungwoo Son[1], Hanggyu Kim[2], and Moon-ho Ham[2] *[1]Photonic Energy Research Center, KOPTI, [2]School of Materials Science and Engineering, GIST*
FP1-209	**MOS 커패시터가 내장된 그래핀/Ge 쇼트키 접합 광소자** 김시현, 유태진, 권민규, 이용수, 김승모, 황현준, 이병훈 *Center for Emerging Electronic Devices and Systems and School of Materials Science and Engineering, GIST*
FP1-210	**New Type of Transient System Triggered by Chemically Gas-producing Reaction** Jeong-Woong Shin, Jong-Chan Choi, and Suk-Won Hwang *KU-KIST Graduate School of Converging Science and Technology, Korea University*

FP1-211	**Nitrogen Doping Porous Carbon materials as a Zn-Br Battery Electrode** Gyoung Hwa Jeong, and Sang Ouk Kim *National Creative Research Initiative (CRI) Center for Multi-Dimensional Directed Nanoscale Assembly, Department of Materials Science and Engineering, KAIST*
FP1-212	**Non-volatile, Rewritable Magneto-interactive Electroluminescent Display** Seung Won Lee, Soyeon Baek, and Cheolmin Park *Yonsei University*
FP1-213	**Omnidirectional Deformable CNT-PANI Hybrid Textile for Human Joint Movement Compatible Wearable Supercapacitors** Seung-Bo Ko, Joonwon Lim, and Sang Ouk Kim *National Creative Research Initiative Center for Multi-Dimensional Directed Nanoscale Assembly and Department of Materials Science & Engineering, KAIST*
FP1-214	**One-step Nanocasting of TiO_2 Nanoparticle Based Metasurfaces** Kwan Kim[1], Gwanho Yoon[2], Seungho Baek[1], Hojung Kang[1], Jaemin Park[1], Junsuk Rho[2], and Heon Lee[1] *[1]Department of Materials Science and Engineering, Korea University, [2]Department of Mechanical Engineering, POSTECH*
FP1-215	**Open Porous Graphene Nanoribbon Hydrogel via Interfacial Self-Assembly for High-Performance Biosensing and Energy Storage** Hee-Ro Chae[1], Joonwon Lim[2], and Sang Ouk Kim[1] *[1]KAIST, [2]LG Chem, Ltd.*
FP1-216	**Orientation Engineering of Two-Dimensional Perovskite for Optoelectronic Device Applications** Junwoo Kim, Woocheol Lee, Jae-Keun Kim, Heebeom Ahn, Jonghoon Lee, Keehoon Kang, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*
FP1-217	**Pd-coated Carbon Nanotube Composite Based Hydrogen Gas Sensor** Jae Keon Kim[1,2], Junyeop Lee[1,2], Yeil Choi[3], Namgon Do[1,2], Yeong Sam Kim[1], Hee Kyung An[1], Gil Sik Lee, Seong Ho Kong[2], and Daewoong Jung[1] *[1]KITECH, [2]Kyungpook National University, [3]The University of Texas at Dallas*
FP1-218	**Tunable Properties of Janus Graphene Liquid Crystalline Fiber via Ultrafast Flash Reduction for Humidity Sensors** In Ho Kim and Sang Ouk Kim *Department of Materials Science and Engineering, KAIST*
FP1-219	**Polarity Modulation of $PdSe_2$ FETs through Contact Engineering** Jae Eun Seo, Dongwook Seo, Tanmoy Das, and Jiwon Chang *School of Electrical and Computer Engineering, UNIST*

FP1-220	**Polymerization of Polyaniline Chains-CNTs from N-doped Sites of Carbon Nanotubes** Yong Park[1], Atta Ul Haq[2], Joonwon Lim[1], and Sang Ouk Kim[1] *[1]Department of Materials Science & Engineering, KAIST, [2]NIBEC*
FP1-221	**Rapid Interfacial Assembly of Electrochemically Exfoliated Graphene Flakes into Graphene Films for Transparent and Flexible Optoelectronic Applications** Yunho Kang[1], Jongwon Shim[2], Taeyeong Yun[1], and Sang Ouk Kim[1] *[1]KAIST, [2]Dongduk Women's University*
FP1-222	**Self-gating Diode Using Graphene as an Electrode Reach to Ideality Factor** Minji Lee and Woojong Yu *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-223	**Size Selection of Graphene Oxide Using Liquid Crystal Property** Hong Ju Jung, Kyung Eun Lee, and Sang Ouk Kim *KAIST*
FP1-224	**Specific Reactive Oxygen Species (ROS) Generation of Bandgap Engineered Quantum Dots (QDs) for Drug-resistant Bacteria Killing** Ilsong Lee and Doh C. Lee *Korea Department of Chemical and Biomolecular Engineering, KAIST Institute for the Nanocentury, KAIST*
FP1-225	**Sputtering Based Electrocatalyst WSe_2 Layered Nanomaterials for Hydrogen Evolution Reactions** Jae Hyeon Nam, Hye Yeon Jang, Woojin Park, and Byungjin Cho *Department of Advanced Material Engineering, Chungbuk National University*
FP1-226	**Study on Solar-driven H_2 Evolution from Biomass with Surface-modified Cd-free Colloidal Quantum Dots** Nianfang Wang and Doh Chang Lee *Department of Chemical and Biomolecular Engineering (BK21+ Program), KAIST Institute for the NanoCentury, KAIST*
FP1-227	**Study on the Effect of Surface Charge Transfer Doping on Charge Transport of WSe_2** Jae-Keun Kim, Kyungjune Cho, Youngrok Kim, Junseok Seo, Jiwon Shin, Keehoon Kang, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*
FP1-228	**Synthesis of $Cd_xZn_{1-x}Se/ZnS$ Heterostructured Nanoplatelets via Cation Exchange** Da-Eun Yoon and Doh C. Lee *Department of Chemical and Biomolecular Engineering and KAIST Institute for the Nanocentury, KAIST*

FP1-229	**Synthesis of Efficient Blue Emitting $CsPb(Br/Cl)_3$ Nanoparticles via Post-Treatment with Non-coordination Anions and Divalent Metal Ion Doping** Kyung Yeon Jang, Jinwoo Park, and Tae-Woo Lee *Department of Materials Science and Engineering, Institute of Engineering Research, Research Institute of Advanced Materials, Nano Systems Institute (NSI), BK21 PLUS SNU Materials Division for Educating Creative Global Leaders, Seoul National University*
FP1-230	**Synthesis of MoSx/ Ni-MOF-74 Core-Shell Structure for Efficient Hydrogen Evolution Reaction** Ha Huu Do[1] and Soo Young Kim[2] *[1]School of Chemical Engineering and Materials Science and Integrative Research Center for Two-dimensional Functional Materials and Institute of Interdisciplinary Convergence Research, Chung- Ang University, [2]Department of Materials Science and Engineering, Korea University*
FP1-231	**Tailoring the Charge Transport at ZnO/Oxide Interfaces for High Performance of Field-effect-transistor** Hyungjin Kim and Woo Jong Yu *Department of Electrical and Computer Engineering, Center for Integrated Nanostructure Physics (CINAP), Institute for Basic Science (IBS), Sungkyunkwan University*
FP1-232	**Towards a Reliable and Controllable Deposition of Organic-Inorganic Halide Perovskite Materials by Single-Source Flash Evaporation** Jonghoon Lee, Woocheol Lee, Heebeom Ahn, Junwoo Kim, Youngrok Kim, Daekyoung Yoo, Keehoon Kang, and Takhee Lee *Department of Physics and Astronomy, Seoul National University*
FP1-233	**Ultra-Highly-Integrated Waveguide based on Active Meta-Materials** Byoungsu Ko[1,2], Sung-hoon Hong[1], and Junsuk Rho[2] *[1]ETRI, [2]POSTECH*
FP1-234	**ZrO_2/SiO_2 Multilayered Daytime Passive Radiative Cooling Device** Soomin Son, Jaemin Park, Pil-Hoon Jung, Yong Hoon Sung, Dongwoo Chae, Yuting Liu, Junho Jun, and Heon Lee *Korea University*
FP1-235	**흑린 기반 인체삽입형 일시동작 트랜지스터** Min-Kyu Song[1,2], Seok Daniel Namgung[4], Ki Tae Nam[4], Yoon-Sik Lee[3], and Jang-Yeon Kwon[1,2] *[1]School of Integrated Technology, Yonsei University, [2]Yonsei Institute of Convergence Technology, [3]School of Chemical and Biological Engineering, Nano Systems Institute, Seoul National University, [4]Department of Materials Science and Engineering, Seoul National University*
FP1-236	**Directed Self-Assembly via Topological Confinement for Block Copolymer Phase Engineering** 신진용, 정성준 *숭실대학교, 정보통신 소재융합학과*

FP1-237	**강자성체/중금속 이중층에서 강자성층 두께에 따른 Unidirectional Spin Hall Magnetoresistance에 대한 연구** 장희찬[1], 박은강[1], 이년종[1,2], 유천열[2], 김상훈[1] *[1] 울산대학교 물리학과, [2] 대구경북과학기술원 신물질과학전공*
FP1-238	**Spin Logic Devices based on the Magnetic Domain Wall Motion** Geun-Hee Lee, Kyoung-Hoon Kim, Jae-Hyeon Park, and Kab-Jin Kim *Department of Physics, KAIST*
FP1-239	**Topological Guiding of Magnetic Skyrmions for Skrymion Racetrack Memory** Moojune Song[1], Ji-Ho Park[1], Hyeon-Kyu Kim[1], Kyoung-Woong Moon[2], Chanyong Hwang[2], and Kab-Jin Kim[1] *[1]Department of Physics, KAIST, [2]Spin Convergence Research Team, KRISS*
FP1-240	**2차원 자성체 Fe_5GeTe_2에서의 자기저항과 열적 안정성** 김광수[1,2], 안효빈[3], 송경미[2], 이창구[3], 박태언[2], 김상훈[1] *[1]Depertment of Physics, University of Ulsan, [2]Center for Spintronics, KIST, [3]School of Mechanical Engineering, Sungkyunkwan University*

O. System LSI Design

심사위원: 김영민 교수 (홍익대학교), 김지훈 교수 (이화여자대학교)

FP1-241	**0.18 μm CMOS 공정 Autometical Temperature Compensation Circuit** 김창현, 전호진, 김성진, 이강윤 *성균관대학교 전자전기컴퓨터공학과*
FP1-242	**15-60MHz Low Power RC Oscillator Design with 0.18μm CMOS Process for Wireless Power Transfer System** Seok HwangBo, Mu Geun Shin, and Kang Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-243	**80 MHz 12 Bit Current Steering DAC for WAVE Application** Hyun-Jae Lee, Sung-Jin Kim, and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-244	**A Hardware Accelerator without Multipliers for Convolutional Deep Neural Networks Oriented to Embedded Systems** Dohyun Kim, Yeong-kyo Kim, Hyunbin Park, and Shiho Kim *School of Integrated Technology, Yonsei University*

FP1-245	**ADPLL 위상 차 검출을 위한 Vernier 기반의 10ps 해상도를 가지는 TDC** Gunho Park, Muhammad Basim, and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-246	**Analysis and Optimization of FFT Data Paths with SNR and Cost Tradeoff** TaeGeon Lee, YongSeok Na, and HyungWon Kim *Department of Electronic Engineering, College of Electrical Engineering, Chungbuk National University*
FP1-247	**Boost Converter for Energy Harvesting Application** Beak-Hwan Kim, Reza E. Rad, Mu-Guen Shin, and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-248	**Constant on Time Control DC-DC Converter with Fast Transient Response Time** Min-Yeong Kim, Young-Woo Park, and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-249	**DSRC 어플리케이션을 위한 가변 PA Ramp 디지털 컨트롤러** Joon-Hong Park and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-250	**Low Power Sensing Single Detector based on Shared Memory Correlator** Mohammed E. Elbtity and HyungWon Kim *MSIS Lab, Chungbuk National University*
FP1-251	**MASNN: Spiking Neural Network for Multiclass Classification of Moving Objects** DongHyung Yoo, Vladimir Kornijcuk, JeongBae Son, and Doo Seok Jeong *Divison of Materials Science and Engineering, Hanyang University*
FP1-252	**Online Training Scheme for Hardware-Based Neural Networks Using Non-Ideal Synaptic Devices** Dongseok Kwon, Sung-Tae Lee, Hyeong-Su Kim, Gyuho Yeom, and Jong-Ho Lee *Department of Electrical and Computer Engineering and Inter-University Semiconductor Research Center, Seoul National University*
FP1-253	**Phase Interpolator with Skewed Quadrature Clock Input** Hyungrok Do and Deog-kyoon Jeong *Seoul National University*
FP1-254	**Quadruple-Mode Active Rectifier that Supports Four Wireless Charging Standard Modes with One Single Chip** Jae Bin Kim, Tae Young Yoon, Sang Gyu Jeon, and Kang-Yoon Lee *College of Information and Communication Engineering, Sungkyunkwan University*

FP1-255	**Rapid SCADA를 사용한 PV 및 ESS 전력 정보 수집/제어 시스템** 박용희, 최성곤 *충북대학교 정보통신공학부*
FP1-256	**STV 영역에서 작동하는 IoT EISC 프로세서의 성능향상** 박상현, 황병진, 김창현, 김선욱 *School of Electrical and Computer Engineering, Korea University*
FP1-257	**Unsupervised Learning of Features in Spiking Convolutional Neural Networks** Seongbin Oh, Sung Yun Woo, Soochang Lee, Jangsaeng Kim, Byung-Gook Park, and Jong-Ho Lee *Department of Electrical and Computer Engineering, Seoul National University*
FP1-258	**Wide Input Range Controlable RF-DC Converter Using Adaptive Matching** Won-Seok Choi, Sol-Hee In, and Kang-Yoon Lee *Department of Electrical and Computer Engineering, Sungkyunkwan University*
FP1-259	**멤리스터 어레이를 이용한 인공신경망 회로의 음의 가중치 표현 방법** Jaeheum Lee and Kyoungrok Cho *Chungbuk National University*
FP1-260	**생활소음 분류를 위한 딥러닝 기반 환경 적응형 임베디드 시스템 설계** 박선영[1], 김현지[1], 변우석[2], 김지훈[1] *[1] 이화여자대학교, [2] 충남대학교*
FP1-261	**저지연 물리계층보안 기술을 위한 AES+Hash 통합 베이스밴드 시스템** 홍승우, 이영주 *POSTECH 전자전기공학과*
FP1-262	**전력 데이터의 스케줄링을 통한 ESS의 최적 SoC 유지 시스템** 이수호, 최성곤 *충북대학교 전파통신공학과*
FP1-263	**전송 선로를 공유하는 20Gbps 16-QAM 인터페이스 송신 회로 설계** Min-Young Jeong, Ju-Young Mun, and Kyoung-Rok Cho *Chungbuk National University*
FP1-264	**신축성 은 나노와이어 전극 제작 및 연신 능력 분석** Jonghyung Jeong and Jaewook Jeong *School of Information and Communication Engineering, Chungbuk National University*

FP1-265	**Ecoflex 유연 기판상에 제작한 고 신축성 은 전극의 특성 분석** Daehoon Park and Jaewook Jeong *School of Information and Communication Engineering, Chungbuk National University*
FP1-266	**Road Centerline Detection Using Hough Transform and Color Segmentation** Salem Ahmed, Ibrahem Hatem, and Kang Hyun Soo *Chungbuk National University*
FP1-267	**차량 공유 서비스를 위한 커뮤니티 질의응답 시스템** 육대범, 윤준영, 이재성 *Chungbuk National University*

P. Device for Energy (Solar Cell, Power Device, Battery, etc

심사위원: 류학기 교수 (아주대학교), 엄광섭 교수 (GIST)

FP1-268	**Ag_2Se 나노입자 박막과 Si 나노선 복합구조체의 열전도도** 양승건, 조경아, 김상식 *고려대학교 전기전자공학과*
FP1-269	**Atomic-layer-confined Quantum Wells for Efficient 2D Light Emitters** Yoon Seok Kim[1], Sojung Kang[3], Japil So[2], Kangwon Kim[4], Seunghoon Yang[1], Yongjun Shin[4], Seongwon Lee[2], Hyeonsik Cheong[5], Hong-Gyu Park[1,2], Gwang-Hyoung Lee[3,4], and Chul-Ho Lee[1] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Department of Physics, Korea University, [3]Department of Materials Science and Engineering, Yonsei University, [4]Department of Materials Science and Engineering, Seoul National University, [5]Department of Physics, Sogang University*
FP1-270	**Bendable n-type Ag_2Se 나노입자 박막의 열전 특성** 박태호, 조경아, 양승건, 김상식 *고려대학교 전기전자공학과*
FP1-271	**Characterization of Perovskite Solar Cell with Bilayer SnO_2/WO_3 Based Electron Transporting Layer** Maro Kim, Sangmo Kim, Shinkyu Lee, Yoseop Kim, JaeGwon Roh, and Chung Wung Bark *Gachon University*
FP1-272	**Charge Transport Effect and Photovoltaic Conversion of Two-dimensional CdSeS Quantum Dot Monolayer in Inverted Polymer Solar Cells** Guh-hwan Lim, Kyu Seung Lee, Park Young Jae, and Dong Ick Son *Institute of Advanced Composite Materials, KIST*

FP1-273	**Continuous Bandgap Engineering of Wafer-Scale Monolayer $WS_{2x}Se_{2(1-x)}$ Alloys** Hee Seong Kang, Do Hyoung Koo, and Chul-Ho Lee *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-274	**Control of Metal Oxide Crack for Metal Mesh Pattern** Noeul Kim and Hak Ki Yu *Department of Materials Science and Engineering & Department of Energy Systems Research, Ajou University*
FP1-275	**Design of Highly Efficient Catalytic Layers for Alkali Metal Batteries** Jin Hwan Kwak[1], Seong Bak Moon[2], Seung Uk Yoon[2], Sunwoo Park[2], Beom Jin Oh[2], Hyo Won Kwak[3], Hyoung-Joon Jin[2], and Young Soo Yun[4] *[1]Department of Chemical Engineering, Kangwon National University, [2]Department of Polymer Science and Engineering, Inha University, [3]Department of Forest Sciences, Seoul National University, [4]KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-276	**Effective Charge Separation of Inverted Polymer Solar Cells Using Versatile MoS2 Nanosheets as Electron Transport Layer** Kyu Seung Lee, Park Young Jae, Guh-hwan Lim, and Dong Ick Son *Institute of Advanced Composite Materials, KIST*
FP1-277	**Fast Analysis Method to Estimate Physical Limits of Super Junction Considering Rsp, BV, and Process Margin Using 2D TCAD** Jieun Lee[1], Jong Min Kim[1], Myeong Bum Pyun[2], Young Seok Kim[2], Youngchul Kim[1], and Joontae Jang[1] *[1]Technology Enabling Design Support Team, DB HiTek Co., Ltd., [2]Specialized Device Development Part, DB HiTek Co., Ltd.*
FP1-278	**Growth of WSe_2 by Control Reaction and Diffusivity of Selenium for Various Application** Eun Yeong Jang and Hak Ki Yu *Department of Materials Science and Engineering & Department of Energy Systems Research Ajou University*
FP1-279	**Interface-Confined High Crystalline Growth of Semiconducting Polymers at Graphene Fibers for Wearable Energy Storage Devices** Syed Ali Salman Hassan, Suchithra Padmajan Sasikala, and Sang Ouk Kim *Department of Materials Science & Engineering, KAIST*
FP1-280	**Mechanical Property of VO_2 Single-crystal Grown on Position Selective Reduction from V_2O_5 Using Thin Carbon Layer** Hyeonho Cho and Hak Ki Yu *Department of Materials Science and Engineering & Department of Energy Systems Research, Ajou University*

FP1-281	**Monolithic Interface Band Engineering to Boost Optoelectronic Performances of 2D Semiconductor p-n Heterojunctions via Enhancing Charge Extraction** Seunghoon Yang[1], Janghwan Cha[2], Jong Chan Kim[3], Yoon-Seok Kim[1], Seung Won Lee[6], Hong-Hyu Park[1,6], Hu Young Jeong[6], Suklyun Hong[2], Gwan-Hyoung Lee[5], and Chul-Ho Lee[1] *[1]KU-KIST Graduate School of Converging Science and Technology, Korea University, [2]Department of Physics and Graphene Research Institute, Sejong University, [3]School of Materials Science and Engineering, UNIST, [4]UNIST Central Research Facilities (UCRF), UNIST, [5]Department of Materials Science and Engineering, Seoul National University, [6]Department of Physics, Korea University*
FP1-282	**N-type $Bi_2Te_{2.7}Se_{0.3}$를 이용한 슈퍼커패시터의 충전 연구** 박윤범, 조경아, 김상식 *고려대학교 전기전자공학과*
FP1-283	**Output Detection Circuit을 이용한 향상된 Load Transient을 갖는 LDO 레귤레이터** 권상욱, 도경일, 우제욱, 구용서 *단국대학교 전기전자공학부*
FP1-284	**Quantitative Analysis of Pseudocapacitance on Nanocarbons** Jong Chan Hyun[1], Son Ha[1], Ji Seon Yoo[2], Min Eui Lee[2], Se Youn Cho[2], and Young Soo Yun[3] *[1]Department of Chemical Engineering, Kangwon National University, [2]Carbon Composite Materials Research Center, KIST, [3]KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-285	**Spectrally Selective Multilayer Emitter for Passive Daytime Radiative Cooling** Dongwoo Chae, Pil-Hoon Jung, Soomin Son, Yuting Liu, Hojung Kang, HANGYU LIM, and Heon Lee *Korea University*
FP1-286	**Surface Texturing of Conductive Electrodes for Front-illuminated Devices via Metal-assisted Chemical Etching** Haekyun Bong, Kyunghwan Kim, and Jungwoo Oh *School of Integrated Technology and Yonsei Institute of Convergence Technology, Yonsei University*
FP1-287	**Surfactant-assisted Wafer-scale Growth of High Quality Tungsten Disulfides Using Metal-organic Chemical Vapor Deposition** Do Hyoung Koo, Hee Seong Kang, and Chul-Ho Lee *KU-KIST Graduate School of Converging Science and Technology, Korea University*
FP1-288	**전력반도체용 Cu/C 복합재료의 제조 및 방열특성 평가** 이재성[1], 이윤재[2], 이동주[1] *[1]충북대학교 신소재공학과, [2]제이비에이치*

FP1-289	**화학적 도핑에 따른 대면적 그래핀 열전 소자 특성 분석** 황현준, 김소영, 이상경, 이병훈 *Center for Emerging Electric Devices and Systems, School of Material Science and Engineering, GIST*
FP1-290	**고전압에 특화된 Si기반 Super Junction IGBT의 Planar Gate와 Trench Gate Type구조의 전기적 특성 및 장단점** Geon Hee Lee, Byoung Sub Ahn, and Ey Goo Kang *Far East University*
FP1-291	**1,200V Trench Gate Field-Stop IGBT 전계 특성 연구** Hae Seock Lee, Chang Hyun Jo, Byoung Sup Ahn, and Ey Goo Kang *Department of Energy IT, Far East University*
FP1-292	**900 V Super Junction Trench Power MOSFET의 최적화 특성에 관한 연구** Youn Young Huh, Chun Qing Li, Byoung Sup Ahn, and Ey Goo Kang *Department of Energy IT, Far East University*
FP1-293	**Gate 구조에 따른 60V POWER MOSFET에 대한 실험과 분석** Hyeong Seong Jo, Li Chao, Byoung Sup Ahn, and Ey Goo Kang *Department of Energy IT, Far East University*
FP1-294	**Electrical Characteristics According to 1,200 V Reverse Conducting-IGBT** Se-Young Kim, Chang Hyeon Jo, Byoung Sup Ahn, and Ey-Goo Kang *Department of Energy IT, Far East University*
FP1-304	**Ultrasensitive Plasmon-free Surface-enhanced Raman Spectroscopy with Femtomolar Detection Limit from 2D van der Waals Heterostructure** Jihyung Seo, Junghyun Lee, Yongchul Kim, Donghwan Koo, Geunsik Lee, and Hyesung Park *UNIST*
FP1-305	**Highly Efficient and Stable Perovskite Solar Cells produced via Incorporation of Semiconducting Acceptor as Efficient Chemical Additive** Donghwan Koo, Yongjoon Cho, Changduk Yang, and Hyesung Park *Department of Energy Engineering, School of Energy and Chemical Engineering, Low Dimensional Carbon Materials Center, Perovtronics Research Center, UNIST*
FP1-306	**Multifaceted Role of a Dibutylhydroxytoluene Processing Additive in Enhancing the Efficiency and Stability of Planar Perovskite Solar Cells** Sujit Kumar[1], Yunseong Choi[1], So-Huei Kang[1], Nam Khen Oh[1], Junghyun Lee[1], Jihyung Seo[1], Mingyu Jeong[1], Hyoung Woo Kwon[2], Sang Il Seok[2], Changduk Yang[1], and Hyesung Park[1] *[1]Department of Energy Engineering, School of Energy and Chemical Engineering, Low Dimensional Carbon Materials Center, Perovtronics Research Center, UNIST, [2]Department of Energy Engineering, School of Energy and Chemical Engineering, Perovtronics Research Center, UNIST*

FP1-307	**Suppressed Interdiffusion and Degradation in Transparent Metal Electrode-Based Flexible Perovskite Solar Cells Using Graphene Interlayer** Gyujeong Jeong, Donghwan Koo, Seungon Jung, Yunseong Choi, Junghyun Lee, Jihyung Seo, and Hyesung Park *UNIST*
FP1-308	**Zwitterion Functionalization of Graphene with pH Independent Dispersion Stability: Efficient Electron Mediator for Oxygen Evolution Reaction in Acidic Medium** Ungsoo Kim[1], Yongjoon Cho[1], Dasom Jeon[2], Yongchul Kim[3], Sanghyeon Park[1], Jihyung Seo[1], Junghyun Lee[1], Nam Khen Oh[1], Geunsik Lee[3], Jungki Ryu[2], Changduk Yang[1], and Hyesung Park[1] *[1]Department of Energy Engineering, School of Energy and Chemical Engineering, Low Dimensional Carbon Materials Center, Perovtronics Research Center, UNIST, [2]Department of Energy Engineering, School of Energy and Chemical Engineering, UNIST, [3]Department of Chemistry, UNIST*

Q. Metrology, Inspection, and Yield Enhancement

심사위원: 정용우 박사 (SK하이닉스), 조용재 박사 (한국표준과학연구원)

FP1-295	**Development of Scanning-Element Mueller-Matrix Ellipsometer** Yong Jai Cho, Won Chegal, Dong Hyung Kim, and Hyun Mo Cho *KRISS*
FP1-296	**Numerical Investigation of the Feasibility of Through-focus Scanning Optical Microscopy (TSOM) Based Defect Inspection of NAND Trench Structure** Shin-Woong Park[1], Byeong Geon You[2], Junho Lee[2], and Hwi Kim[1] *[1]Korea University, [2]Kongju National University*
FP1-297	**Raman Spectroscopy로 측정한 실리콘 전자 렌즈의 특성 변화** 이영복, 김형우, 유용진, 이건우, 김대욱, 안승준, 김호섭 *선문대학교 나노과학과, 차세대반도체기술연구소*
FP1-298	**Strain Visualization in Nanoscale-triangular SiGe Patterns by Dark-field Electron Holography** Jun-Mo Yang, Kyung Jin Park, Yun Chang Park, and Jung Ho Yoo *Department of Measurement and Analysis, National Nanofab Center*
FP1-299	**Study of Non-destructive Test for Reliability of Power Devices** You-Cheol Jang[1], Min-Woo Ha[2], and Yong-Sang Kim[1] *[1]Sungkyunkwan University, [2]Myongji University*

FP1-300	**Study on Highly Anisotropic Dielectric Function of α-SnS at 27 K by Spectroscopic Ellipsometry** V. L. Le[1,3], D.C. Do[2], X.A. Nguyen[1], H. T. Nguyen[1], H. G. Park[1], M. H. Nguyen[2], S.-L. Cho[2], H. M. Cho[3], Y. J. Cho[3], W. Chegal[3], D. H. Kim[3], S. H. Rhim[2], S. C. Hong[2], T. J. Kim[1], and Y. D. Kim[1] *[1]Department of Physics, Kyung Hee University, [2]Department of Physics and Energy Harvest-Storage Research Center, University of Ulsan, [3]Semiconductor Integrated Metrology Team, KRISS*
FP1-301	**반도체 웨이퍼 표면 금속성 불순물 이온 자동화 검출 및 분석 설비 시스템 개발** 오문식, 전혁, 김태형, 정광환, 이동춘, 김정환 *㈜엔비스아나*
FP1-302	**저전압 SEM을 이용한 MoS_2 박막의 층수와 결함 측정연구** 박병천[1], 라케쉬[1], 홍성구[1], 강영호[2] *[1] 한국표준과학연구원 산업표준본부, [2] 전남대학교 물리교육과*
FP1-303	**광학 검사 장비를 이용한 미세 Particle 검사 방법 개발** Seuri Jeong, Kyuyoung Kim, Deokin Kim, Changhwan Lee, Jinhee Han, Seongmin Ma, and Byoungho Lee *SK Hynix Inc.*