



[P1] Poster Session 1

Session Date Oct. 17(Thu.), 2024

Session Time 09:00-10:30

Session Room Room B (Vernazza, 3F)

[P1-001]

Double Passivation Effect of AlGaInP Based Red Micro-LEDs

Seung-Hyun Mun, Je-Sung Lee, Soo-Young Choi, Jaeyoung Baik, Jin-Soo Kim, Jeongwoon Kim, Seung-Hyeok Lee, and Dong-Seon Lee

Gwangju Institute of Science and Technology, Korea

[P1-002]

Efficiency Improvement of InGaN-Based Micro-LEDs via Indium Tin Oxide p-Electrodes

Cesur Altinkaya, Daisuke Iida, and Kazuhiro Ohkawa

King Abdullah University of Science and Technology (KAUST), Saudi Arabia

[P1-003]

Acetylenic Coupling on Cupric Oxide Photocathode for Accelerating Solar-to-Hydrogen Conversion

Hoki Son, Periyayya Uthirakumar, and In-Hwan Lee

Korea University, Korea

[P1-004]

Integration of Multiple Blue InGaN/GaN Microrod-LED Alignment Using Dielectrophoresis with Flexible Substrate

Pil-Kyu Jang, Yeong-Hoon Cho, and In-Hwan Lee

Korea University, Korea

[P1-005]

AlGaInP Red Nanohole-Structure LED with Shaped Au/SiO₂ Nanoparticles for Localized Surface Plasmon

Sang-Bum Kim, Pil-Gyu Jang, and In-Hwan Lee

Korea University, Korea

[P1-006]

vdWE(van der Waals Epitaxy) of GaN on Amorphous Substrate through rGO (Reduced Graphene Oxide) Buffer by Sputtering

Gyulim Kim, Hoki Son, and In-Hwan Lee

Korea University, Korea

[P1-007]

Achieving Vertical Alignment of InGaN/GaN Nanorod LEDs in Nanohole Electrodes via Dielectrophoresis

Jiwon Park, Yeong-Hoon Cho, Pil-Kyu Jang, Sangbum Kim, Seungjae Baek, Taehwan Kim, and In-Hwan Lee

Korea University, Korea



[P1-008]

An Arrays of Blue InGaN/GaN Nano-LEDs Integrated with Localized Surface Plasmon of Ag/SiO₂ Nanoparticles

Yeong-Hoon Cho, Seung-Jae Baek, Tae-Hwan Kim, Pil-Gyu Jang, Sang-Bum Kim, Ji-won Park, and In-Hwan Lee

Korea University, Korea

[P1-009]

Low-Temperature GaN Growth by Using Plasma-Assisted Sputtering

Yosep Choi, Yongjun Park, and In-Hwan Lee

Korea University, Korea

[P1-010]

Homogenous Metallization of through-Glass vias with Floating Plating based on the Synergistic Effect of Capillary Rise and van der Waals

Chnagmin Yun, Hoki Son, and Inhwan Lee

Korea University, Korea

[P1-011]

New Solution Growth of AlN Single Crystals Using Fe-Cr Based Fluxes

S. Li, M. Adachi, M. Adachi, and H. Fukuyama

Tohoku University, Japan

[P1-012]

Improved Alignment of GaN Nanorod LEDs Using Insulator-Based Dielectrophoresis

Yeong-Hoon Cho and In-Hwan Lee

Korea University, Korea

[P1-013]

Improved Carrier Confinement in Small-Sized Green Micro-LEDs

A. B. M. H. Islam¹, T. K. Kim², J. Bae³, Y.-J. Cha¹, H. Lee¹, C. Park¹, J. Oh¹, M. Kim¹, I. Choi³, J. W. Seo¹, D.-P. Han⁴, J. O. Song², D.-S. Shin³, J.-I. Shim³, and J. S. Kwak¹

¹*Korea Institute of Energy Technology, Korea*, ²*Wavelord Co., Ltd., Korea*, ³*Hanyang University, Korea*,

⁴*Pkyoung National University, Korea*

[P1-014]

Spectral Imaging Analysis of InGaN Quantum Wells Using Tensor Decomposition

Kazunori Iwamitsu¹, Kenta Sakai², Zentaro Akase¹, Atsushi A. Yamaguchi², and Shigetaka Tomiya¹

¹*Nara Institute of Science and Technology, Japan*, ²*Kanazawa Institute of Technology, Japan*

[P1-015]

Analysis of Thermal Dynamics due to Luminescence of GaN-Based Micro LEDs Using Optical Methods

Jung-ki Park¹, Jae-sun Kim¹, Gyeongun Choi¹, Kyung-rok Kim¹, Hye-jun Yun¹, Sung-min Hwang², Won Taeg Lim², Seoungyoung Lim³, and Jung Hoon Song^{1,3}

¹*Kongju National University, Korea*, ²*Soft-EPI, Korea*, ³*Accu Optotec, Korea*



[P1-016]

Strain Profiling and Temperature Dependence of Single-Photon Emitter in GaN

Gyeong Eun Choi¹, Jae Sun Kim¹, Jung Ki Park¹, Kyung Rok Kim¹, Hye Jun Yun¹, Seong Young Lim², and Jung-Hoon Song^{1,2}

¹Kongju National University, Korea, ²Accu Optotec, Korea

[P1-017]

Enhancing Optical Performance of Flat-Type GaN-Based Light-Emitting Diodes via Multiple Local Breakdown Conductive Channels

Dae-Choul. Choi, Seung Hun. Lee, and Sung-Nam. Lee

Tech University of Korea, Korea

[P1-018]

The Evolution of Dislocations and Strains in AlN Grown by High Temperature Metal-Organic-Chemical-Vapor-Deposition

Qiushuang Chen, Wei Guo, and Jichun Ye

Chinese Academy of Sciences, China

[P1-019]

Integrating Circadian and Visual Benefits in LED Lighting with RGBYW Channels

Lvyun Chen¹, Zhizhong Chen¹, Zhuoyao Ma², Qihong Zhou¹, Lun Song², Zhuojian Pan¹, Chuhan Deng¹, Haodong Zhang¹, Boyan Dong¹, Boyan Dong¹, Yiran Wu¹, and Fei Jiao¹

¹Peking University, China, ²Beijing Institute of Basic Medical Sciences, China

[P1-020]

Effect of Cooling Rate on Solution Growth of AlN Crystal Using Fe-Cr-Ni Flux

Makoto Ohtsuka, Go Shinnoda, Masayoshi Adachi, and Hiroyuki Fukuyama

Tohoku University, Japan

[P1-021]

Examining the Influence of Growth Temperature on n-AlGaIn Buffer Layer and Quantum-Well of (228-230 nm)-Band far-UVC LEDs

M. Ajmal Khan¹, Mitsuhiro Muta², Hiroyuki Oogami², Kohei Fujimoto^{1,3}, Yuya Nagata^{1,3}, Yukio Kashima¹, Eriko Matsuura¹, Hiroyuki Yaguchi³, Yasushi Iwaisako², and Hideki Hirayama¹

¹RIKEN Cluster for Pioneering Research (CPR), Japan, ²Nippon Tungsten Co., Ltd., Japan, ³Saitama University, Japan

[P1-022]

Synthesis of AlN Crystals by Solution Growth Method Using Fe-Cr-Ni Fluxes

Go Shinnoda, Masayoshi Adachi, Makoto Ohtsuka, and Hiroyuki Fukuyama

Tohoku University, Japan

[P1-023]

An Approach to Enhancing Deep Ultraviolet Luminescence by a Combinatorial Semipolar AlGaIn Quantum Well Structures

Ge Gao, Li Chen, Wei Guo, and Jichun Ye

Chinese Academy of Sciences, China



[P1-024]

Selective Area Regrowth and Characterization of GaN by Hydride Vapor Phase Epitaxy

Hyojung Bae¹, Hae-Gon Oh², Young-Jun Choi², Hae-Yong Lee², and Jin-Woo Ju¹

¹Korea Photonics Technology Institute, Korea, ²LumiGNtech Co., Ltd., Korea

[P1-025]

The Multi-Color MicroLED Technology with High-Pixel Density Implemented through Selectively Lateral Growth Method

Hyung-Gu Kim¹, Chang-Mo Kang², Jun-Beom Park¹, Sang-Hoon Han¹, In-Seong Cho³, and Tak Jeong¹

¹Korea Photonics Technology Institute, Korea, ²Pusan National University, Korea, ³Soft-Epi, Korea

[P1-026]

Low-Temperature Buffer Growth of GaN on Graphene for Exfoliable Micro-Pyramidal GaN Structures

Jeongho Kim, Baul Kim, and Yong-Hoon Cho

Korea Advanced Institute of Science and Technology, Korea

[P1-027]

Etching-Free Fabrication of Sub-Micron Light-Emitting Diode Pixel Arrays by Helium Ion Irradiation

Ji-Hwan Moon, Baul Kim, Minho Choi, Kie Young Woo, Byung Su Kim, Seonghun Ahn, Seongmoon Jun, Yong-Ho Song, and Yong-Hoon Cho

Korea Advanced Institute of Science and Technology, Korea

[P1-028]

Active-Layer Characteristics of Eu-Doped GaN-Based Red Light-Emitting Diodes Investigated by Photoexcitation Measurements

Ilgyu Choi¹, Sangjin Min¹, Dong-Soo Shin¹, Yasufumi Fujiwara², and Jong-In Shim¹

¹Hanyang University, Korea, ²Ritsumeikan University, Japan

[P1-029]

Pure Single-Photon Emission from InGaN Quantum Dot Embedded in a GaN Nanowire Using Focused-Ion-Beam Induced Luminescence Quenching Method

Yubin Je¹, Seongmoon Jun¹, Neul Ha¹, Noelle Gogneau², and Yong-Hoon Cho¹

¹Korea Advanced Institute of Science and Technology, Korea, ²French National Centre for Scientific Research, France

[P1-030]

Indium-Rich InGaN/GaN Multi Quantum Wells Red LEDs

Joonghoong Choi, Won Kwang Yang, and Young Joon Hong

Sejong University, Korea

[P1-031]

Fabrication of GaN Nanorods Using Metal-Assisted Photochemical Etching Technique

ChangSoo Kim and Young Joon Hong

Sejong University, Korea

[P1-032]

High-Efficiency Color Conversion Films based on Three-Dimensional Photonic Crystals

Taehun Kim and Kyungtaek Min

Tech University of Korea, Korea



[P1-033]

Integrated Micro LEDs with Optoelectronic Synapses for Implement Neuromorphic Device

Y.-J. Cha¹, T. K. Kim², J. Oh¹, H. Lee¹, M. Kim¹, C. Park¹, J. W. Seo¹, A. B. M. H. Islam¹, S. W. Cho³, and J. S. Kwak¹

¹Korea Institute of Energy Technology, Korea, ²Wavelord Inc., Korea, ³Sunchon National University, Korea

[P1-034]

Optical Characteristics of InGaN-Based Red μ LED by Changing the Structure of the Emitting Area at 400 μm^2

Sungoh Cho¹, Jung-Hong Min¹, Sung Hoon Jung¹, Shang Hern Lee¹, Hwa Sub Oh¹, and Tae-Hoon Chung^{1,2}

¹Korea Photonics Technology Institute, Korea, ²Chonnam National University, Korea

[P1-035]

Investigated Aging Test of Red/Green Micro-LEDs

Hsin-Ying Lee, Yan-Zhang Chen, Mu-Ju Wu, and Ching-Ting Lee

National Cheng Kung University, Taiwan

[P1-036]

Emission Color Control of InGaN/GaN Nanocolumn Arrays on Si Substrates Grown via Nanotemplate Selective Area Growth

Kota Hoshino, Rie Togashi, and Katsumi Kishinio

Sophia University, Japan

[P1-037]

Fabrication of InGaN-Based Vertical Blue Laser Diodes with p-Contact Formed by Chemical Wet Etching

J. W. Seo¹, A. B. M. H. Islam¹, Y.-J. Cha¹, H. Lee¹, C. Park¹, J. Oh¹, M. Kim¹, S. R. Jeon², and J. S. Kwak¹

¹Korea Institute of Energy Technology, Korea, ²Korea Photonics Technology Institute, Korea

[P1-038]

Structural Characteristics and Optical Properties of Nanoporous GaN for Quantum Dot Embedding

Jaeyoung Baik, Jeongwoon Kim, Je-Seng Lee, Jin-Soo Kim, and Dong-Seon Lee

Gwangju Insititute of Science and Technology, Korea

[P1-039]

Stimulated Emission At 247 nm From AlGaIn/AlN Multiple Quantum Wells on 4H-SiC Substrates

Yanan Guo^{1,2}, Ruijie Zhang^{1,2}, Han Wu^{1,2}, Zhibin Liu^{1,2}, Jianchang Yan^{1,2,3}, Jinmin Li^{1,2,3}, and Junxi Wang^{1,2}

¹Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China, ³Advanced Ultraviolet Optoelectronics Co., Ltd., China

[P1-040]

Analysis of AlGaInP-Based Red Micro Light-Emitting Diodes with Different Quantum-Well Structure

Soo-Young Choi, Seung-Hyun Mun, Je-Sung Lee, and Dong-Seon Lee

Gwangju Institute of Science and Technology, Korea



[P1-041]

Single-Step Epitaxial Growth Of Multicolor InGaN LEDs Using Nanorod-Based Nanopyramid Structures

Min-Seok Lee, Sung-Un Kim, Dae-Young Um, Jeong-Kyun Oh, Bagavath Chandran, Se-Bee Shin, Cheul-Ro Lee, and Yong-Ho Ra

Jeonbuk National University, Korea

[P1-042]

Low-Threshold UV-B Laser Diode With Short-Period Superlattice Upper Waveguide Layer

Rui Ren^{1,2}, Yanan Guo^{1,2}, Zhibin Liu^{1,2}, Jinmin Li^{1,2,3}, Junxi Wang^{1,2}, and Jianchang Yan^{1,2,3}

¹Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China, ³Advanced Ultraviolet Optoelectronics Co., Ltd., China

[P1-043]

Epitaxial Growth of GaN on Glass Substrates via Electron Beam Assisted Sputtering

C. Park, Y.-J. Cha, A. B. M. H. Islam, J. Oh, M. Kim, H. Lee, J. Seo, and J. S. Kwak

Korea Institute of Energy Technology, Korea

[P1-044]

Nano-Engineered InGaN Micro-LEDs towards Chip-to-Chip Interconnections

Zhenhao Li¹, Zengyi Xu², Xianhao Lin², Xinran Zhang¹, Luming Yu¹, Bo Liu¹, Zhibiao Hao¹, Yi Luo¹, Changzheng Sun¹, Bing Xiong¹, Yanjun Han¹, Jian Wang¹, Hongtao Li¹, Lin Gan¹, Nan Chi², and Lai Wang¹

¹Tsinghua University, China, ²Fudan University, China

[P1-045]

Exciton-Polariton Condensate in Gallium Nitride Superscar Mode Cavity at Room Temperature

Chan Young Sung¹, Hyun Gyu Song², and Yong Hoon Cho¹

¹Korea Advanced Institute of Science and Technology, Korea, ²Korea Institute of Science and Technology, Korea

[P1-046]

Strain-Relaxed RED-Emission of InGaN Quantum Dots with InAlGaN Bufferlayer on GaN Nanowires

Yong-Ho Kim, Dae-Young Um, Jeong-Kyun Oh, Sung-Un Kim, Vignesh Veeramuthu, and Yong-Ho Ra

Jeonbuk National University, Korea

[P1-047]

Micro-Photoluminescence Spectroscopy of InGaN Quantum Wells on Convex Lens-Shaped GaN Microstructures

Akitoshi Takahama, Yoshinobu Matsuda, Mitsuru Funato, and Yoichi Kawakami

Kyoto University, Japan

[P1-048]

Investigation on Mg Diffusion in InGaN LED Studied by Deep-Level Transient Spectroscopy and Thermal Admittance Spectroscopy

Bo Liu¹, Zilan Wang², Haoyang Li², Zhibiao Hao¹, Yi Luo¹, Changzheng Sun¹, Bing Xiong¹, Yanjun Han¹, Jian Wang¹, Hongtao Li¹, Lin Gan¹, and Lai Wang¹

¹Tsinghua University, China, ²Dalian University of Technology, China



[P1-049]

Structural and Optical Properties of Strain-Stress Relaxed InGaN-Based Micro LED on Nanoporous GaN Double Layer

Sang-Ik Lee, Hoki Son, and In-Hwan Lee
Korea University, Korea

[P1-050]

Excitation Spot Size Dependence of Photonic and Exciton Polaritonic Modes in a GaN Microwire

Gwang Kim¹, Hyun Gyu Song², and Yong Hoon Cho¹
¹*Korea Advanced Institute of Science and Technology, Korea*, ²*Korea Institute of Science and Technology, Korea*

[P1-051]

Homoepitaxial Growth on α -Plane AlN Template by HVPE

Shunki Ito, Ryota Akaike, Hiroki Yasunaga, Takao Nakamura, and Hideo Miyake
Mie University, Japan

[P1-052]

Electron Beam-Excited Light Source Emitting at 230 nm Using AlGaIn/AlN Multiple Quantum Wells

Ryoya Iwase¹, Ryota Akaike¹, Hiroki Yasunaga¹, Takao Nakamura¹, Masayoshi Nagao², Katsuhisa Murakami², and Hideto Miyake¹
¹*Mie University, Japan*, ²*National Institute of Advanced Industrial Science and Technology, Japan*

[P1-053]

The composited High Reflectivity P-type Electrodes with Patterned ITO for AlGaIn-Based Ultraviolet Light Emitting Diodes

Jing Lang, Fujun Xu, Jiaming Wang, Chen Ji, Weikun Ge, and Bo Shen
Peking University, China

[P1-054]

GaInN/GaN Multi Quantum Shell (MQS) Nano Pyramid with a GaInN Layer

Yuta Hattori¹, Weifang Lu², Kosei Kubota¹, Aoi Nakagawa¹, Naoto Hukami¹, Satoshi Kamiyama¹, Tetsuya Takeuchi¹, and Motoaki Iwaya¹
¹*Meijo University, Japan*, ²*Xiamen University, China*

[P1-055]

AlGaIn Quantum Wells Grown on Cubic Boron Nitride

Chen-Da Du¹, Ting-Hao Chang¹, Yun-Chorng Chang², and Kun-Yu Lai¹
¹*National Central University, Taiwan*, ²*Research Center for Applied Sciences, Taiwan*

[P1-056]

AlN/GaN Digital Alloys with High Average Al Compositions and DUV LEDs Grown by Molecular Beam Epitaxy

Siqi Li¹, Pengfei Shao¹, Xiao Liang¹, Songlin Chen¹, Xiaoquan Xing¹, Tao Tao¹, Zili Xie¹, Bin Liu¹, M. Ajmal Khan², Li Wang², T. T. Lin², Hideki Hirayama², Rong Zhang^{1,3}, and Ke Wang^{1,2}
¹*Nanjing University, China*, ²*RIKEN, Japan*, ³*Xiamen University, China*

[P1-057]

HfO₂-Based Memory Transistor for Driving Micro-LED Display

Sim Hun Yuk, Ho Jin Lee, Seok Hee Hong, Sung Keun Choi, and Tae Geun Kim
Korea University, Korea



[P1-058]

Growth of AlGa_N Channel HEMT with Superlattices by MOCVD

Jooyong Park, Joocheol Jeong, Shyam Mohan, Joonhyuk Lee, Jaejin Heo, and Okhyun Nam
Tech University of Korea, Korea

[P1-059]

Study of Normally-Off p-GaN/p-AlGa_N Step Gate HEMT Grown on AlN/SiC

Jaejin Heo, Joocheol Jeong, Shyam Mohan, Jooyong Park, Joonhyuk Lee, and Okhyun Nam
Tech University of Korea, Korea

[P1-060]

Unveiling the Potential of Pulsed Flow Growth Techniques to Realize the Al-Rich AlGa_N Channel HEMT

Shyam Mohan, Joocheol Jeong, Jooyong Park, Joonhyuk Lee, Jaejin Heo, and Okhyun Nam
Tech University of Korea, Korea

[P1-061]

The Influence of Sapphire Substrate Low Angle Grain Boundaries on HVPE Growth of Gallium Nitride Crystal

Yongliang Shao, Baoguo Zhang, Haixiao Hu, Xiaopeng Hao, and Yongzhong Wu
Qilu University of Technology, China

[P1-062]

Power and Thermal Stress Characterizations of AlGa_N/Ga_N HEMTs: A Comprehensive Study at Varying Elevated Temperatures

Surajit Chakraborty and Roy Byung Kyu Chung
Kyungpook National University, Korea

[P1-063]

Gate Leakage Current Reduction for Blocking Voltage Improvement on GaN-on-Si HEMTs

Chen-Hao Wu, Yi-Hong Chen, Yi-Wan Wang, and Yue-ming Hsin
National Central University, Taiwan

[P1-064]

XPS Analysis of Fe-Doped GaN Using First-Principles Calculations

Rina Yabuta and Masato Oda
Wakayama University, Japan

[P1-065]

Short Gate-Drain Distance for 1200 V E-Mode p-GaN Gate AlGa_N/Ga_N HEMT with 6.5 μm Buffer Layer on Si Substrate

Yi-Wen Wang, Chen-Hao Wu, Yi-Hong Chen, Ti-Cheng Tseng, and Yue-ming Hsin
National Central University, Taiwan

[P1-066]

A Study of the Initial Stage of Crystal Growth of NbN on AlN(0001) by First-Principles Calculation

Ryuji Nakagoshi and Masato Oda
Wakayama University, Japan



[P1-067]

Thermal Hot Spot and Its Dissipation to Substrate Investigated by Simultaneous Thermal Imaging of GaN Layer and Si Substrate in Power Device Structure

Jae Sun Kim¹, Gyeong Eun Choi¹, Jung Ki Park¹, Kyung Rok Kim¹, Hye Jun Yun¹, Seongyoung Lim², Deok Gyu Bae³, Young Boo Moon⁴, and Jung Hoon Song^{1,2}

¹Kongju National University, Korea, ²Accu Optotec, Korea, ³Hexasolution Co., Ltd., Korea, ⁴UJL Inc., Korea

[P1-068]

Small Signal Characteristics of AlGaIn/GaN Light-Emitting HEMTs

Yao-Luen Shen, Po-Chen Chen, and Chih-Fang Huang

National Tsing Hua University, Taiwan

[P1-069]

Enhancing Bonding Energy and High-Temperature Stability through Surface Activated Bonding with Al₂O₃ Auxiliary Layer

Xiangjie Xing^{1,2}, Hongze Zhang^{1,2}, Xinhua Wang^{1,2}, Fengwen Mu³, Sen Huang^{1,2}, Qimeng Jiang^{1,2}, Ke Wei^{1,2}, and Xinyu Liu^{1,2}

¹Institute of Microelectronics of Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China, ³Innovative Semiconductor Substrate Technology Co., Ltd., China

[P1-070]

Theoretical Study on Structural Stability and Polarization Switching of ScAlN Alloys: Effect of Lattice Constraints

Takuto Miyamoto, Toru Akiyama, and Takahiro Kawamura

Mie University, Japan

[P1-071]

High Electron Mobility of Exceeding 2000 cm²/Vs by Sharpening the AlGaIn/GaN Heterointerface Grown on Si Substrate

Jumpei Tajima, Hajime Nago, Shinya Nunoue, and Toshiki Hikosaka

Toshiba Corp., Japan

[P1-072]

Substrate Bias Induced VTH and RON Instability in p-GaN HEMTs

C. Feng, X. Liu, J. Wu, D. Mao, R. Du, Z. Cai, X. Zhang, N. Gong, Y. Shi, K. Wu, C. Li, X. Wang, H. Hu, W. Zeng, D. Zhou, and Y. Wan

Shenzhen Pinghu Laboratory, China

[P1-074]

Device-Level Thermal Management of Ultrawide Bandgap Al_xGa_{1-x}N Channel High Electron Mobility Transistors

Jisu Kim, Jongwon Baek, Changhwan Song, and Jungwan Cho

Sungkyunkwan University, Korea



[P1-075]

Enhancing Breakdown Voltage of GaN HEMTs by Using a ZrO₂ passivation layer

Sheng-Kai Chen¹, Zih-Jyun Hong¹, Yen-Feng Lu¹, Shao-Shing Hsue¹, Chang-Hong Shen², and Jen-Inn Chyi¹

¹National Central University, Taiwan, ²Taiwan Semiconductor Research Institute, Taiwan

[P1-076]

Growth and Characterization of Vertical GaN PIN Structures with Compositionally Graded AlGa_N Drift Layers

Joocheol Jeong, Shyam Mohan, Jooyong Park, Joonhyuk Lee, Jaejin Heo, and Okhyun Nam
Tech University of Korea, Korea

[P1-077]

High Field Effect Mobility in Normally-Off O₂ Plasma-Treated GaN-Based MIS-HEMTs with relatively Thick AlGa_N Barrier Layer

Kishi Sekiyama¹, Masaki Ishiguro¹, Ali Baratov¹, Shogo Maeda¹, Takahiro Igarashi¹, Suguru Terai¹, Akio Yamamoto¹, Masaaki Kuzuhara², Biplab Sarkar^{3,4}, Hiroshi Amano³, and Joel T. Asubar¹

¹University of Fukui, Japan, ²Kwansei Gakuin University, Japan, ³Nagoya University, Japan, ⁴Indian Institute of Technology, India

[P1-078]

A Novel Threshold Voltage Model for GaN Vertical Junctionless Fin MOSFETs

Ankita Mukherjee, Smriti Singh, Tanmoy Pramanik, and Biplab Sarkar
Indian Institute of Technology Roorkee, India

[P1-079]

Enhancement of GaN Vertical Transistor Performance Through Trench Sidewall Treatment

Zhi-Xiang Zhang, Yu-Chuan Chu, Chih-Kang Chang, and Jian-Jang Huang
National Taiwan University, Taiwan

[P1-080]

Optimization and Characterization of P-type Gallium Nitride Contacts for High Power GaN Vertical Device Applications

Donghan Kim^{1,2}, Hongsik Park¹, Sung-Beum Bae², and Hyung-seok Lee²

¹Kyungpook National University, Korea, ²Electronics and Telecommunications Research Institute, Korea

[P1-081]

Quaternary InAlGa_N/GaN HEMTs with Oxygen Plasma Treatment

Juyeong Park¹ and Jae-Hyung Jang²

¹Gwangju Institute of Science and Technology, Korea, ²Naju Korea Institute of Energy Technology, Korea

[P1-082]

Optimizing GaN FinFET Fabrication via TMAH Wet Etching Techniques

Hyun-Woo Lee^{1,2}, Soo-Young Moon^{1,2}, Dong-Han Kim¹, Hyeon-Tak Kwak¹, Sang-Mo Koo², Sung-Bum Bae¹, and Hyung-Seok Lee¹

¹Electronics and Telecommunications Research Institute, Korea, ²Kwangwoon University, Korea



[P1-083]

Influence of Schottky Barrier as a Edge Termination Method And Effect based on Schottky Barrier Height

J. Oh¹, M. Kim¹, H. Lee¹, C. Park¹, Y.-J. Cha¹, J. W. Seo¹, A. B. M. H. Islam¹, J.Cho², and J. S. Kwak¹

¹Korea Institute of Energy Technology, Korea, ²Jeonbuk National University, Korea

[P1-084]

Band Engineering of Polarization Induced 2D Hole Gases in GaN/AlGaIn Heterostructures

Pengfei Shao¹, Siqi Li¹, Hui Guo¹, Tao Tao¹, Zili Xie¹, Bin Liu¹, Dunjun Chen¹, Youdou Zheng¹, Rong Zhang¹, and Ke Wang^{1,2}

¹Nanjing University, China, ²RIKEN, Japan

[P1-085]

The Effects of Different Oxidation Methods on GaN High Electron Mobility Transistors (HEMTs)

Yu-Hsuan Lu, Chin-Yu Liu, Kai-Wen Hsiao, and Chao-Hsin Wu

National Taiwan University, Taiwan

[P1-086]

A Symbolic Regression Derived Analytical Model Framework for Evaluating DIBL in Vertical GaN Fin-FETs

Smriti Singh, Aasim Ashai, Ankita Mukherjee, Tanmoy Pramanik, and Biplab Sarkar

Indian Institute of Technology Roorkee, India



[P2] Poster Session 2

Session Date Oct. 17(Thu.), 2024

Session Time 09:00-10:30

Session Room Room C (Forum 1, 3F)

[P2-001]

Optimizing Normally-Off Operation of β -Ga₂O₃ Heterojunction Field Effect Transistors with p-NiO Integration for Improved Efficiency

Joonhui Park, Hanbit Kim, Sanghun Kim, Tajun Park, Yusup Jung, Taiyoung Kang, and Sinsu Kyoung
Powercubesemi Inc, Korea

[P2-002]

Improving Electrical Properties with NiO/ β -Ga₂O₃ Heterojunction Diode by Inserting Co-doped P-type Li-NiMgO Layer

Ho Jung Jeon and You Seung Rim
Sejong University, Korea

[P2-003]

Sn-Doped α -Ga₂O₃ Epitaxial Growth with Control Doping Concentration by Mist-CVD

Jang Hyeok Park¹, Jung Yeop Hong², Jung Hee Park², Young Kyun Jung², and You Seung Rim¹
¹*Sejong University, Korea*, ²*Hyundai Motor Group, Korea*

[P2-004]

Enhanced Thermal Management in Next-Generation Power Modules: A Computational Study on Wide Bandgap Semiconductors

G. Lee and B. Ma
Korea Electronic Technology Institute, Korea

[P2-005]

β -Ga₂O₃ Crystals Grown with Varying Fe Doping Concentration

Sun-Yeong Seo¹, Min-Ji Chae¹, Dae-Uk Kim¹, So-Min Shin¹, Yun-Jin Kim^{1,2}, Mi-Seon Park¹, Kwang-Hee Jung¹, Su-Min Choi², Jin-Ki Kang², and Won-Jae Lee¹
¹*Dong-Eui University, Korea*, ²*AXEL, Korea*

[P2-006]

Structural Stability and Electronic Properties of (RhGa)₂O₃ and (RhAl)₂O₃ Alloys: A First-Principles Study

Kenta Matsubara, Toru Akiyama, and Takahiro Kawamura
Mie University, Japan

[P2-007]

Effect of Film Thickness on the Long Term Memory in the Multi-Wavelength Ga₂O₃-Based Optoelectronic Synapse Devices

Hee-Jin Kim, Hye Jin Lee, Dabin Jeon, and Sung-Nam Lee
Tech University of Korea, Korea

[P2-008]

Wavelength-Dependent Optoelectronic Synaptic Properties in Ga₂O₃-Based Memcapacitors

Hye Jin Lee, Seung Hun Lee, Dabin Jeon, Jeong-Hyeon Kim, and Sung-Nam Lee
Tech University of Korea, Korea



[P2-009]

Effect of Post-Annealing on Structural and Optical Properties of Mist-CVD Grown Amorphous Ga₂O₃ Thin Films

Manami Miyazaki, Iori Yamasaki, Yuma Tanaka, Masatoshi Koyama, Akihiko Fujii, and Toshihiko Maemoto

Osaka Institute of Technology, Japan

[P2-010]

Low Temperature Growth of Amorphous Ga₂O₃ on C-plane Sapphire Substrates by Mist Chemical Vapor Deposition

Iori Yamasaki, Manami Miyazaki, Yuma Tanaka, Masatoshi Koyama, Akihiko Fujii, and Toshihiko Maemoto

Osaka Institute of Technology, Japan

[P2-011]

Band Offsets and Interface Engineering of κ -Ga₂O₃/ α -Ga₂O₃ Hetero-Interface

Chan Woong Kim, Ha Young Kang, Yoonho Choi, and Roy Byung Kyu Chung

Kyungpook National University, Korea

[P2-012]

Impact of Fluorine Dopant on the Growth and Phase Stability of κ -Ga₂O₃

Ha Young Kang¹, Chan Woong Kim¹, Yoonho Choi¹, Minseok Choi², and Roy Byung Kyu Chung¹

¹*Kyungpook National University, Korea*, ²*Inha University, Korea*

[P2-013]

Shaping of β -Ga₂O₃ Crystal Ingot by Controlling Temperature Distribution in Edge-Defined Film-Fed Growth

Tae-Hun Gu^{1,2}, A-Ran Shin^{1,2}, Yun-Ji Shin¹, Seong-Min Jeong¹, Sung-Sik Lee², and Si-Young Bae³

¹*Korea Institute of Ceramic Engineering and Technology, Korea*, ²*Pusan National University, Korea*,

³*Pukyong National University, Korea*

[P2-014]

Impurity Control in β -Ga₂O₃ Single Crystals Grown by EFG Method Using Pre-Melt and Post-Annealing

A-Ran Shin^{1,2}, Tae-Hun Gu^{1,2}, Yun-Ji Shin¹, Seong-Min Jeong¹, Hee-Soo Lee², and Si-Young Bae³

¹*Korea Institute of Ceramic Engineering and Technology, Korea*, ²*Pusan National University, Korea*,

³*Pukyong National University, Korea*

[P2-015]

Investigation of Structural and Electrical Properties of F-Doped α -Ga₂O₃

Yoonho Choi, Chan Woong Kim, Ha Young Kang, and Roy Byung Kyu Chung

Kyungpook National University, Korea

[P2-016]

Growth of β -Ga₂O₃ Single Crystal Under Ambient Conditions

Byeongcheol Choe, Sungkyun Park, and Jong Mok Ok

Pusan National University, Korea



[P2-017]

Investigation of Chemical Etching Features and Defects on (100) and (001) β -Ga₂O₃ Single Crystals Grown by EFG Method

Mee-Hi Choi^{1,2}, Soon-Ku Hong³, Seong-Min Jeong¹, Si-Young Bae⁴, and Yun-Ji Shin¹

¹Korea Institute of Ceramic Engineering and Technology, Korea, ²Pusan National University, Korea,

³Chungnam National University, Korea, ⁴Pukyong National University, Korea

[P2-018]

Orientation-Dependent Step-Flow Growth Mechanism in β -Ga₂O₃ Explored by Machine-Learning-Driven Atomistic Simulations

Qi Li¹, Junlei Zhao², Na Lin¹, Zhitai Jia¹, and Mengyuan Hua²

¹Shandong University, China, ²Southern University of Science and Technology, China

[P2-019]

Properties of La-Doped Gallium Oxide Nanostructure by Electrospinning

Hyeongju Cha¹, Heejoong Ryou¹, Sunjae Kim¹, Sung Beom Cho², and Wan Sik Hwang¹

¹Korea Aerospace University, Korea, ²Ajou University, Korea

[P2-020]

Sn-Doped β -Ga₂O₃ Thin Films Grown on Off-Axis Sapphire Substrates by LPCVD Using Ga-Sn Alloy Solid Source

Han Yang^{1,2}, Songhao Wu^{1,2}, Hua Yang¹, Ran Yao¹, Yuan Xiao Ma², Yiyun Zhang¹, Xiaoyan Yi¹, Junxi Wang¹, Yeliang Wang², and Jinmin Li¹

¹Research and Development Center for Wide Bandgap Semiconductors, China, ²Beijing Institute of Technology, China

[P2-021]

Investigating the Impact of Oxygen Vacancy on Ga₂O₃/SiC Heterojunction Diode Grown by PLD

Seung-Hwan Chung¹, Geunpil Kim^{2,3}, Min-Yeong Kim¹, Jongbum Kim², and Sang-Mo Koo¹

¹Kwangwoon University, Korea, ²Korea Institute of Science and Technology, Korea, ³Korea University, Korea

[P2-022]

2kV-Class β -Ga₂O₃/4H-SiC Heterojunction Schottky Barrier Diode by Aerosol Deposition Method

Ji-Hyun Kim, Young-Hun Cho, Ji-Soo Choi, Geon-Hee Lee, and Sang-Mo Koo

Kwangwoon University, Korea

[P2-023]

High Performance Solar-Blind Deep UV Photodetectors based on Ga₂O₃/4H-SiC Heterojunction Diodes by Aerosol Deposition

Ji-Soo Choi, Ji-Hyun Kim, Seung-Hwan Chung, Geon-Hee Lee, and Sang-Mo Koo

Kwangwoon University, Korea

[P2-024]

Structural, Optical, and Electrical Characteristics of Etastable κ -Phase Ga₂O₃ Grown by MOCVD Using H₂O as an Oxygen Precursor

Dong Wook Lee, Yoon Jae Lee, and Honghyuk Kim

Korea Photonics Technology Institute, Korea



[P2-025]

Atomistic Study of $\beta \rightarrow \gamma$ Phase Transformations in Ga_2O_3

Ru He and Flyura Djurabekova

University of Helsinki, Finland

[P2-026]

Characteristic of Amorphous Oxide-Based Thin Film Transistors Using Capping Layer

Jae-Sung Yoo, Tae-Kyun Moon, Sung-Yun Byun, and Kyoung-Kook Kim

Tech University of Korea, Korea

[P2-027]

High-Performance $\beta\text{-Ga}_2\text{O}_3$ Solar-Blind Photodetectors Grown by MOCVD with CF_4 Treatment

An-Na Cha¹, Gieop Lee¹, Sea Cho¹, Jeong Soo Chung¹, Young-Boo Moon², Myung Sik Kim², Moo Sung Lee¹, and Jun-Seok Ha¹

¹Chonnam National University, Korea, ²UJL Inc., Korea

[P2-028]

Growth of 8 Inches SiC Single Crystal with Low BPD Defect

Fusheng Zhang, Baoguo Zhang, Haixiao Hu, Yongliang Shao, Dong Shi, Mingzhi Yang, Yongzhong Wu, and Xiaopeng Hao

Qilu University of Technology, China

[P2-029]

Effect of Adhesives at Initial Stage of Growth in SiC Single Crystal Grown by PVT Method

G. U. Lee, M. G. Kang, Y. J. Choi, G. J. Song, N. K. Kim, M. S. Park, K. H. Jung, and W. J. Lee

Dong-Eui University, Korea

[P2-030]

A Design of 1.2 kV SiC MOSFET with Split-Gate for Improvement of Breakdown Characteristics and HF-FOM

Kanghee Shin¹, Dongkyun Kim¹, Minu Kim¹, Junho Park¹, Hyowon Yoon², and Ogyun Seok²

¹Kumoh National Institute of Technology, Korea, ²Pusan National University, Korea

[P2-031]

The Third Quadrant Curve Shifts of 4H-SiC SBD-Embedded MOSFETs

Wei-Tse Fu, Kung-Yen Lee, Pei-Chun Liao, Xue-Fen Hu, and Wei-Shan Zou

National Taiwan University, Taiwan

[P2-032]

Influence of Oxidation Time and Method on 4H-SiC MOS Capacitor Characteristics

Young Jae Park, Seongjun Kim, Joon Kim, Hyeon Ju Hwang, Yu Jeong Lee, Kyeong Keun Choi, Woong-Suk Yang, Sung-Woong Han, Dae-Hwan Kang, and Hoon-Kyu Shin

Pohang University of Science and Technology, Korea

[P2-033]

Growth of SiC Single Crystals from Crushed CVD-SiC Block via Physical Vapor Transport Method

Ju-Hyeong Sun¹, Jae-Hyeon Park^{1,2}, Yun-Ji Shin¹, Si-Young Bae⁴, Won-Jae Lee³, and Seong-Min Jeong¹

¹Korea Institute of Ceramic Engineering and Technology, Korea, ²Pusan National University, Korea,

³Dong-Eui University, Korea, ⁴Pukyong National University, Korea



[P2-034]

Development of a Real-Time Simulator for Physical Vapor Transport of SiC by Machine Learning Techniques

Woon-Hyeon Jeong¹, Ga-Ae Ryu¹, Ju-Hyeong Sun¹, Jae-Hyeon Park^{1,2}, Yun-Ji Shin¹, Si Young Bae¹, Sangil Hyun¹, and Seong-Min Jeong¹

¹Institute of Ceramic Engineering and Technology, Korea, ²Pusan National University, Korea

[P2-035]

Control of the Temperature Gradient in the Rapid Growth of Bulk SiC Crystals via the Physical Vapor Transport Method

Jae-Hyeon Park^{1,2}, Ju-Hyeong Sun¹, Woon-Hyeon Jeong¹, Yun-Ji Shin¹, Si-Young Bae³, Won-Jae Lee⁴, and Seong-Min Jeong¹

¹Korea Institute of Ceramic Engineering and Technology, Korea, ²Pusan National University, Korea, ³Pukyong National University, Korea, ⁴Dong-Eui University, Korea

[P2-036]

Impact of Crystallographic Orientation and High-Temperature Bias Stress on 4H-SiC MOSFET Reliability

Min-Yeong Kim, Seung-Hwan Chung, and Sang-Mo Koo

Kwangwoon University, Korea

[P2-037]

Influence of the Temperature Gradient on the Defect Formation Mechanism in the Initial Stage of PVT Growth

Ju-Hyeong Sun¹, Jungwoo Choi², Myung-Ok Kyun², Shunta Harada³, Seong-Min Jeong¹, Si-Yeong Bae¹, and Yun-Ji SHIN¹

¹Korea Institute of Ceramic Engineering and Technology, Korea, ²Senic Inc, Korea, ³Nagoya University, Japan, ⁴Chungnam National University, Korea

[P2-038]

Impact of the Chip Size on Reverse Recovery in SiC MOSFETs

Yeonjun Kim and Hyemin Kang

Korea Institute of Energy Technology, Korea

[P2-039]

Effects of Parasitic Inductance on Current Spike in SiC MOSFETs

Taehyun Jang and Hyemin Kang

Korea Institute of Energy Technology, Korea

[P2-040]

Transport Mechanisms at TiAl Contact on P-type 4H-SiC for CMOS Application

Seongjun Kim, Young Jae Park, Woong-Suk Yang, Sung-Woong Han, Kyeong-Keun Choi, Dae-Hwan Kang, and Hoon-Kyu Shin

Pohang University of Science and Technology, Korea

[P2-041]

Hydrogen (H₂) Gas FET-Sensor based on Ta₂O₅ Film on SiC Substrate

Kyeong-Keun Choi and Sung-Kyu Kim

Pohang University of Science and Technology, Korea



[P2-042]

Investigation of Surface Morphology by Al Ion Implantation and High Temperature Post-Implantation Annealing on 4H-SiC under C-Cap

Sung-Woong Han, Seongjun Kim, Woong-Suk Yang, Kyeong-Keun Choi, Young Jae Park, Joon Kim, Dae-Hwan Kang, and Hoon-Kyu Shin

Pohang University of Science and Technology, Korea

[P2-043]

Effects of Electrical Field During Current Stress on Electrical Characteristics of SiO₂/4H-SiC MOSFETs

Min-Woo Ha¹ and Ogyun Seok²

¹*Myongji University, Korea*, ²*Pusan National University, Korea*

[P2-044]

A TMBS Embedded 1.7 KV SiC UMOSFET

Jia-Wei Hu, Yi-Jie Wu, Chuan-Fu Lin, Kuan-Min Kang, and Chih-Fang Huang

National Tsing Hua University, Taiwan

[P2-045]

Effect of Annealing Temperature on The Properties of Ni/Ti/Au Ohmic Contacts on N-Type SiC

Jongbae Kang¹, Pyeung Hwi Choi^{2,3}, Sang-Hun Lee³, Seong-Ju Park¹, and Jae-Hyung Jang¹

¹*Korea Institute of Energy Technology, Korea*, ²*Samsung Electronics Co., Ltd., Korea*, ³*Gwangju Institute of Science and Technology, Korea*

[P2-046]

Carbon Incorporation in MOCVD-Grown hBN and Its Optoelectronic Characteristics

Semi Im, Seokho Moon, and Jong Kyu Kim

Pohang University of Science and Technology

[P2-047]

Remote Moiré Engineering of Exciton Polarons in Monolayer MoSe₂ on Twisted hBN

Minhyun Cho^{1,2}, Biswajit Datta², Kwanghee Han^{1,2}, Saroj B. Chand², Pratap Chandra Adak², Sichao Yu², Kenji Watanabe³, Takashi Taniguchi⁴, James Hone⁴, Gabriele Grosso², Vinod M. Menon², and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*City College of New York, USA*, ³*National Institute for Materials Science, Japan*, ⁴*Columbia University, USA*

[P2-048]

Deep UV Photoluminescence Characterization of Pristine and Carbon Doped Hexagonal Boron Nitride

Seung Tae Kim¹, Suk Hyun Kim¹, Kyungho Park¹, Minseong Kwon^{1,2}, Young Gie Lee^{1,2}, HeeYeon Lee¹, Kenji Watanabe³, Takashi Taniguchi³, and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*Korea Institute of Science and Technology, Korea*, ³*National Institute for Materials Science, Japan*

[P2-049]

Tunable Moiré Superlattice Potentials in Twisted Hexagonal Boron Nitride

Taehyung Kim¹, Kwanghee Han¹, Minhyun Cho^{1,2}, Seung Tae Kim¹, Suk Hyun Kim¹, Sang Hwa Park³, Sang Mo Yang³, Kenji Watanabe⁴, Takashi Taniguchi⁴, Vinod Menon², and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*City University of New York, USA*, ³*Sogang University, Korea*, ⁴*National Institute for Materials Science, Japan*



[P2-050]

Localized Emission Control in hBN: Stable UV Color Centers via Electric Field

Kyeongho Park¹, Seungmin Park¹, Minseong Kwon^{1,2}, Suk Hyun Kim¹, Kenji Watanabe³, Takashi Taniguchi³, and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*Korea Institute of Science and Technology, Korea*, ³*National Institute for Materials Science, Japan*

[P2-051]

Transport Band Gap Measurement of Large-Area hBN by Using Direct and Inverse Photoemission Spectroscopy

Min-Jae Maeng¹, Kyu-Myung Lee¹, Jong-Am Hong¹, Sunho Park¹, Hayoung Ko², Seung Jin Lee², Soo Min Kim³, Young-Kyun Kwon¹, and Yongsup Park¹

¹*Kyung Hee University, Korea*, ²*Sungkyunkwan University, Korea*, ³*Sookmyung Women's University, Korea*

[P2-052]

Remote Modulation Doping via Hexagonal Boron Nitride Surface Engineering

Heeyeon Lee¹, Minseong Kwon^{1,2}, Kenji Watanabe³, Takashi Taniguchi³, Chaun Jang², and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*Korea Institute of Science and Technology, Korea*, ³*National Institute for Materials Science, Japan*

[P2-053]

High Electric Field Vertical Tunneling Transports in Hexagonal Boron Nitride

YoungJae Kim¹, Seungmin Park¹, Kenji Watanabe², Takashi Taniguchi², and Young Duck Kim^{1,2}

¹*Kyung Hee University, Korea*, ²*National Institute for Materials Science, Japan*

[P2-054]

hBN-Based Photonic Crystal Cavities for Photonic Integrated Circuits

Sunjung An¹, Minhyun Cho¹, Junghyun Sung², Su Hyun Gong², Kenji Watanabe³, Takashi Taniguchi³, and Young Duck Kim¹

¹*Kyung Hee University, Korea*, ²*Korea University, Korea*, ³*National Institute for Materials Science, Japan*

[P2-055]

Transparent Neutron Shielding Layer based on Boron Nitride for Space Windows

Dobin Kim¹, Geunpil Kim¹, Hwi-Joon Jeong², Jinhwan Kim², Minjae Isaac Kwon³, Inkyu Park³, Jongbum Kim¹, and Jaehyun Park¹

¹*Korea Institute of Science and Technology, Korea*, ²*Korea Atomic Energy Research Institute, Korea*, ³*University of Seoul, Korea*

[P2-056]

Deep-Ultraviolet Electroluminescence in Van der Waals Heterostructures of Hexagonal Boron Nitride

Yerin Han^{1,2}, Sangho Yoon^{1,2}, Su-Beom Song^{1,2}, So Young Kim^{2,3}, Sera Yang^{1,2}, Seung-Young Seo^{1,2}, Soonyoung Cha^{1,2}, Kenji Watanabe³, Takashi Taniguchi⁵, Jun Sung Kim³, Moon-Ho Jo^{1,2}, and Jonghwan Kim^{1,2,3}

¹*Institute for Basic Science, Korea*, ²*Pohang University of Science and Technology, Korea*, ³*National Institute for Materials Science, Japan*



[P2-057]

Electroluminescence from Isolated Color Centers in Hexagonal Boron Nitride

Gyuna Park^{1,2}, Ivan Zhigulin³, Hoyoung Jung^{1,2}, Jake Horder³, Karin Yamamura³, Yerin Han^{1,2}, Hyunje Cho^{1,2}, Hyeon-Woo Jeong², Kenji Watanabe⁴, Takashi Taniguchi⁴, Myungchul Oh^{1,2}, Gil-Ho Lee², Moon-Ho Jo^{1,2}, Igor Aharonovich³, and Jonghwan Kim^{1,2}

¹Institute for Basic Science, Korea, ²Pohang University of Science and Technology, Korea, ³University of Technology Sydney, Australia, ⁴National Institute for Materials Science, Japan

[P2-058]

Enhanced Absorption in Hexagonal Boron Nitride via Fabry-Perot Resonance

Seong Joon Jeon^{1,2}, Su Beom Song^{1,2}, Kenji Watanabe³, Takashi Taniguchi³, Moon-ho Jo^{1,2}, and Jonghwan Kim^{1,2}

¹Pohang University of Science and Technology, Korea, ²Institute for Basic Science, Korea, ³National Institute for Materials Science, Japan

[P2-059]

Atomics Sawtooth-Like Metal Films for vdW-Layered Single-Crystal Growth

Hayoung Ko¹, Soo Ho Choi¹, Yunjae Park², Seungjin Lee¹, Chang Seok Oh¹, Sung Youb Kim², Young Hee Lee¹, Soo Min Kim³, Feng Ding^{1,4}, and Ki Kang Kim¹

¹Sungkyunkwan University, Korea, ²Ulsan National Institute of Science and Technology, Korea, ³Sookmyung Women's University, Korea, ⁴Chinese Academy of Science, China

[P2-060]

Unveiling Borazine's Role in Temperature-Dependent hBN Growth on Ni Substrate

Jaewon Kim^{1,2}, Joo Song Lee¹, Yu Jin Kim¹, and Hyeon Suk Shin^{1,2}

¹Institute for Basic Science, Korea, ²Sungkyunkwan University, Korea

[P2-061]

Hexagonal Boron Nitride/Gallium Nitride Heterojunction for High Performance Deep Ultraviolet Photodetection

Jawon Kim, Seokho Moon, and Jong Kyu Kim

Pohang University of Science and Technology, Korea

[P2-062]

Inducing Photoluminescence in Hexagonal Boron Nitride by Dichloromethane Treatment

Kyeongseo Cho¹, Duhee Yoon¹, Young Duck Kim², Dmitrii Litvinov³, Maciej Koperski³, and Hyeonsuk Shin¹

¹Sungkyunkwan University, Korea, ²Kyung Hee University, Korea, and ³National University of Singapore, Singapore

[P2-063]

Synthesis of Thickness-Controllable Uniform Crystallized Hexagonal Boron Nitride for High-Performance Memristor

Seungjin Lee

Sungkyunkwan University, Korea

[P2-064]

High Crystalline Quality Heteroepitaxial Diamond Growth Using Epitaxial Lateral Overgrowth

Yoonseok Nam¹, Taemyung Kwak¹, Geunho Yoo¹, Joocheol Jeong¹, Yeonghwa Kwon¹, Seong-Woo Kim², and Okhyun Nam¹

¹Tech University of Korea, ²Orbray Co., Ltd., Japan



[P2-065]

Heteroepitaxial Growth of Twin-Free Single Crystal (111) Diamond on R Plane Al₂O₃ Substrate

Seolyoung Oh, Taemyung Kwak, Yeonghwa Kwon, Yoonseok Nam, Eonhee Roh, Geunho Yoo, and Okhyun Nam

Tech University of Korea, Korea

[P2-066]

High Power Boron-Doped Diamond Metal Semiconductor Field Effect Transistor Using Selective Grown P+Layer

Eonhee Roh¹, Taemyung Kwak¹, Seolyoung Oh¹, Yeonghwa Kwon¹, Yoonseok Nam¹, Geunho Yoo¹, Seongwoo Kim², and Okhyun Nam¹

¹*Tech University of Korea, Korea*, ²*Orbray Co., Ltd., Japan*

[P2-067]

Heteroepitaxial Diamond Grown on Compliant Substrate Using SOI Air-Void Structure

Yeonghwa Kwon, Uiho Choi, Seolyoung Oh, Yoonseok Nam, Taemyung Kwak, Joocheol Jeong, Eonhee Roh, Geunho Yoo, and Okhyun Nam

Tech University of Korea, Korea

[P2-068]

Growth of Heteroepitaxial Diamond on 4H-SiC Single Crystals by Microwave Plasma Chemical Vapor Deposition

Ki-Yeol Woo^{1,2}, Gi-Ryeo Seong¹, Nhat-Minh Phung^{1,3}, Si-Young Bae², Yun-Ji Shin¹, and Seong Min Jeong¹

¹*Korea Institute of Ceramic Engineering and Technology, Korea*, ²*Pukyong National University, Korea*, ³*Changwon National University, Korea*

[P2-069]

Design of Substrate Holders for the Rapid Growth of Diamond via Microwave Plasma Chemical Vapor Deposition Method

Nhat-Minh Phung^{1,2}, Ki-Yeol Woo^{1,3}, Gi-Ryeo Seong¹, Si-Young Bae⁴, Yun-Ji Shin¹, and Seong Min Jeong¹

¹*Korea Institute of Ceramic Engineering and Technology, Korea*, ²*Changwon National University, Korea*, ³*Pukyong National University, Korea*

[P2-070]

Joint Frequency-Temperature Analysis of High-Temperature Hopping Conduction in Heavily Boron-Doped Diamond

Anna Solomnikova and Vasily Zubkov

St. Petersburg State Electrotechnical University, Russia

[P2-071]

All-Solution Processed Green Quantum-Dot Lighting Device with PEDOT:PSS:PMA P-type Conducting Layer

Guanning Shao and Young Joon Hong

Sejong University, Korea



[P2-072]

Effect of Thermal Treatment on Long Term Memory Properties of ZnO Nanoparticles-Based Optoelectronic Synapse Devices

Dabin Jeon, Seung Hun Lee, Hye Jin Lee, Hee-Jin Kim, and Sung Nam Lee
Tech University of Korea, Korea

[P2-073]

Improvement of Long-Term Memory Characteristics of Carbon Nanotube Based Optoelectronic Synapse Devices Using Spin Coating Process

Seung Hun Lee, Jeong-Hyeon Kim, Hye Jin Lee, Dabin Jeon, Hee-Jin Kim, and Sung-Nam Lee
Tech University of Korea, Korea

[P2-074]

Super-Resolution Spectroscopy of Single-Photon-Level Emission

Michał Lipka^{1,2}, and Michał Parniak^{1,2}
¹*University of Warsaw, Poland*, ²*University of Warsaw, Poland*

[P2-075]

WO₃ Nanosheets Integrated Ti₃C₂ Heterojunctions with Synergistic Effects for Enhanced Water Splitting

Dong Jin Lee, Deuk Young Kim, and P. Ilanchezhiyan
Dongguk University, Korea

[P2-076]

Crystallization Kinetics of α -Aluminum Oxide on Graphene via Solid Phase Epitaxy

Jeongwoon Kim¹, Hyuk Jun Lee², Jongil Kim³, Jaeyoung Baik¹, Seoung Hyeok Lee¹, Jinsoo Kim¹, Hoe-Min Kwak⁴, Sangho Oh³, Young Jun Joo², and Dong-Seon Lee¹
¹*Gwangju Institute of Science and Technology, Korea*, ²*Korea Institute of Ceramic Engineering and Technology, Korea*, ³*Korea Institute of Energy Technology, Korea*, ⁴*Electronics and Telecommunications Research Institute, Korea*

[P2-077]

Photoelectrochemical Yellow Sea-Water Splitting Using Graphene Oxide/GaN NWs Core-Shell Photoelectrode

Sang-Wook Lee, Bagavath Chandran, Jeong-Kyun Oh, Dae-Young Um, Sung-Un Kim, Jae-Hong Ju, Cheul-Ro Lee, and Yong-Ho Ra
Jeonbuk National University

[P2-078]

Machine Learning-Based Thermal Property Imaging

Jongwon Baek, Jihyun Kim, and Jungwan Cho
Sungkyunkwan University, Korea

[P2-079]

Amplified Photodetection by Integration of Surface Plasmon Nanoparticles and III-Nitride Nanorod Structures

Shuo Han, Jeong-Kyun Oh, Dae-Young Um, Sung-Un Kim, Bagavath Chandran, Jin-Seo Park, and Yong-Ho Ra
Jeonbuk National University



[P2-080]

Room-Temperature Operated NO₂ Gas Sensor of n-ZnO/p-Ag₂O Nanomaterials with UV Photon Energy

Jae-Hun Jeong, Jun-Young Lee, Sunwoo Lim, Yoojin Kim, and Kyoung-Kook Kim

Tech University of Korea, Korea

[P2-081]

Engineering of Nitrogen Delta-Doped Diamond NV Centers for Quantum Repeater Applications

Yong Soo Lee¹, Taemyung Kwak², Ye-Eun Choi¹, Chan-Gu Kang¹, Jaepil Park¹, Sang-Wook Han¹,
Seungwoo Jeon¹, Chul-ki Kim¹, Junghyun Lee¹, Okhyun Nam², and Dongyeon Daniel Kang¹

¹*Korea Institute of Science and Technology, Korea*, ²*Korea Polytechnic University, Korea*