● Poster Sessions

[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/SiO_2 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/SiO_2 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

[P1-010]

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

Changmin 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. Ohtsuka, 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. Islam[1], T. K. Kim[2], J. Bae[3], Y.-J. Cha[1], H. Lee[1], C. Park[1], J. Oh[1], M. Kim[1], I. Choi[3], J. W. Seo[1], D.-P. Han[4], J. O. Song[2], D.-S. Shin[3], J.-I. Shim[3], and J. S. Kwak[1]

[1]Korea Institute of Energy Technology, Korea, [2]Wavelord Co., Ltd., Korea, [3]Hanyang University, Korea, [4]Pukyong National University, Korea

[P1-014]

Spectral Imaging Analysis of InGaN Quantum Wells Using Tensor Decomposition

Kazunori Iwamitsu[1], Kenta Sakai[2], Zentaro Akase[1], Atsushi A. Yamaguchi[2], and Shigetaka Tomiya[1]

[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 Park[1], Jae-sun Kim[1], Gyeongeun Choi[1], Kyung-rok Kim[1], Hye-jun Yun[1], Sung-min Hwang[2], Won Taeg Lim[2], Seoungyoung Lim[3], 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 Choi[1], Jae Sun Kim[1], Jung Ki Park[1], Kyung Rok Kim[1], Hye Jun Yun[1], Seong Young Lim[2], and Jung-Hoon Song[1,2]

[1]Kongju National Unviersity, Korea, [2]Accu 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

[P1-019]

Integrating Circadian and Visual Benefits in LED Lighting with RGBYW Channels

Lvyun Chen[1], Zhizhong Chen[1], Zhuoyao Ma[2], Qihong Zhou[1], Lun Song[2], Zhuojian Pan[1], Chuhan Deng[1], Haodong Zhang[1], Boyan Dong[1], Yiran Wu[1], and Fei Jiao[1]

[1]Peking University, China, [2]Beijing 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-AlGaN Buffer Layer and Quantum-Well of (228-230 nm)-Band far-UVC LEDs

M. Ajmal Khan[1], Mitsuhiro Muta[2], Hiroyuki Oogami[2], Kohei Fujimoto[1,3], Yuya Nagata[1,3], Yukio Kashima[1], Eriko Matsuura1, Hiroyuki Yaguchi[3], Yasushi Iwaisako[2], and Hideki Hirayama[1]
[1]RIKEN Cluster for Pioneering Research (CPR), Japan, [2]Nippon Tungsten Co., Ltd., Japan, [3]Saitama 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 AlGaN 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 Bae[1], Hae-Gon Oh[2], Young-Jun Choi[2], Hae-Yong Lee[2], and Jin-Woo Ju[1]
[1]Korea Photonics Technology Institute, Korea, [2]LumiGNtech Co., Ltd., Korea

[P1-025]

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

Hyung-Gu Kim[1], Chang-Mo Kang[2], Jun-Beom Park[1], Sang-Hoon Han[1], In-Seong Cho[3], and Tak Jeong[1]
[1]Korea Photonics Technology Institute, Korea, [2]Pusan National University, Korea, [3]Soft-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 Choi[1], Sangjin Min[1], Dong-Soo Shin[1], Yasufumi Fujiwara[2], and Jong-In Shim[1]
[1]Hanyang University, Korea, [2]Ritsumeikan 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 Je[1], Seongmoon Jun[1], Neul Ha[1], Noelle Gogneau[2], and Yong-Hoon Cho[1]
[1]Korea Advanced Institute of Science and Technology, Korea, [2]French 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
Sungkyunkwan University, Korea

[P1-031]

Fabrication of GaN Nanorods Using Metal-Assisted Photochemical Etching Technique

ChangSoo Kim and Young Joon Hong
Sungkyunkwan 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. Cha[1], T. K. Kim[2], J. Oh[1], H. Lee[1], M. Kim[1], C. Park[1], J. W. Seo[1], A. B. M. H. Islam[1], S. W. Cho[3], and J. S. Kwak[1]
[1]Korea Institute of Energy Technology, Korea, [2]Wavelord Inc., Korea, [3]Sunchon National University, Korea

[P1-034]

Optical Characteristics of InGaN-Based Red μLED by Changing the Structure of the Emitting Area at 400 μm²

Sungoh Cho[1], Jung-Hong Min[1], Sung Hoon Jung[1], Shang Hern Lee[1], Hwa Sub Oh[1], and Tae-Hoon Chung[1,2]
[1]Korea Photonics Technology Institute, Korea, [2]Chonnam 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. Seo[1], A. B. M. H. Islam[1], Y.-J. Cha[1], H. Lee[1], C. Park[1], J. Oh[1], M. Kim[1], S. R. Jeon[2], and J. S. Kwak[1]
[1]Korea Institute of Energy Technology, Korea, [2]Korea Photonics Technololgy 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 AlGaN/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]
[1]Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China, [3]Advanced 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

[P1-042]

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]
[1]Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China, [3]Advanced 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 Li[1], Zengyi Xu[2], Xianhao Lin[2], Xinran Zhang[1], Luming Yu[1], Bo Liu[1], Zhibiao Hao[1], Yi Luo[1], Changzheng Sun[1], Bing Xiong[1], Yanjun Han[1], Jian Wang[1], Hongtao Li[1], Lin Gan[1], Nan Chi[2], and Lai Wang[1]
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[P1-045]

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

Chan Young Sung[1], Hyun Gyu Song[2], and Yong Hoon Cho[1]
[1]Korea Advanced Institute of Science and Technology, Korea, [2]Korea Institute of Science and Technology, 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 Liu[1], Zilan Wang[2], Haoyang Li[2], Zhibiao Hao[1], Yi Luo[1], Changzheng Sun[1], Bing Xiong[1], Yanjun Han[1], Jian Wang[1], Hongtao Li[1], Lin Gan[1], and Lai Wang[1]
[1]Tsinghua University, China, [2]Dalian 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 Kim[1], Hyun Gyu Song[2], and Yong Hoon Cho[1]
[1]Korea Advanced of Science and Technology, Korea, [2]Korea Institute of Science and Technology, Korea

[P1-051]

Homoepitaxial Growth on *a*-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 AlGaN/AlN Multiple Quantum Wells

Ryoya Iwase[1], Ryota Akaike[1], Hiroki Yasunaga[1], Takao Nakamura[1], Masayoshi Nagao[2], Katsuhisa Murakami[2], and Hideto Miyake[1]

[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 AlGaN-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 Hattori[1], Weifang Lu[2], Kosei Kubota[1], Aoi Nakagawa[1], Naoto Hukami[1], Satoshi Kamiyama[1], Tetsuya Takeuchi[1], and Motoaki Iwaya[1]

[1]Meijo University, Japan, [2]Xiamen University, China

[P1-055]

AlGaN Quantum Wells Grown on Cubic Boron Nitride

Chen-Da Du[1], Ting-Hao Chang[1], Yun-Chorng Chang[2], and Kun-Yu Lai[1]

[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 Li[1], Pengfei Shao[1], Xiao Liang[1], Songlin Chen[1], Xiaoquan Xing[1], Tao Tao[1], Zili Xie[1], Bin Liu[1], M. Ajmal Khan[2], Li Wang[2], T. T. Lin[2], Hideki Hirayama[2], Rong Zhang[1,3], and Ke Wang[1,2]

[1]Nanjing University, China, [2]RIKEN, Japan, [3]Xiamen University, China

[P1-057]

HfO_2-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 AlGaN 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-AlGaN 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 AlGaN 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 AlGaN/GaN 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

[P1-066]

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 Kim[1], Gyeong Eun Choi[1], Jung Ki Park[1], Kyung Rok Kim[1], Hye Jun Yun[1], Seongyoung Lim[2], Deok Gyu Bae[3], Young Boo Moon[4], and Jung Hoon Song[1,2]
[1]Kongju National University, Korea, [2]Accu Optotec, Korea, [3]Hexasolution Co., Ltd., Korea, [4]UJL Inc., Korea

[P1-068]

Small Signal Characteristics of AlGaN/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 Al_2O_3 Auxiliary Layer

Xiangjie Xing[1,2], Hongze Zhang[1,2], Xinhua Wang[1,2], Fengwen Mu[3], Sen Huang[1,2], Qimeng Jiang[1,2], Ke Wei[1,2], and Xinyu Liu[1,2]
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[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 cm^2/Vs by Sharpening the AlGaN/GaN Heterointerface Grown on Si Substrate

Jumpei Tajima, Hajime Nago, Shinya Nunoue, and Toshiki Hikosaka
Toshiba Corporation, Japan

[P1-072]

Substrate Bias Induced V_{TH} and R_{ON} 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 ZrO_2 Passivation Layer

Sheng-Kai Chen[1], Zih-Jyun Hong[1], Yen-Feng Lu[1], Shao-Shing Hsue[1], Chang-Hong Shen[2], and Jen-Inn Chyi[1]
[1]National Central University, Taiwan, [2]Taiwan Semiconductor Research Institute, Taiwan

[P1-076]

Growth and Characterization of Vertical GaN PIN Structures with Compositionally Graded AlGaN 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 O_2 Plasma-Treated GaN-Based MIS-HEMTs with Relatively Thick AlGaN Barrier Layer

Kishi Sekiyama[1], Masaki Ishiguro[1], Ali Baratov[1], Shogo Maeda[1], Takahiro Igarashi[1], Suguru Terai[1], Akio Yamamoto[1], Masaaki Kuzuhara[2], Biplab Sarkar[3,4], Hiroshi Amano[3], and Joel T. Asubar[1]

[1]University of Fukui, Japan, [2]Kwansei Gakuin University, Japan, [3]Nagoya University, Japan, [4]Indian Insitute 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 Park[1], Sung-Beum Bae[2], and Hyung-seok Lee[2]

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

[P1-081]

Quaternary InAlGaN/GaN HEMTs with Oxygen Plasma Treatment

Juyeong Park[1] and Jae-Hyung Jang[2]

[1]Gwangju Institute of Science and Technology, Korea, [2]Naju 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 Kim[1], Hyeon-Tak Kwak[1], Sang-Mo Koo[2], Sung-Bum Bae[1], and Hyung-Seok Lee[1]

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[P1-083]

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

J. Oh[1], M. Kim[1], H. Lee[1], C. Park[1], Y.-J. Cha[1], J. W. Seo[1], A. B. M. H. Islam[1], J.Cho[2], and J. S. Kwak[1]
[1]Korea Institute of Energy Technology, Korea, [2]Jeonbuk National University, Korea

[P1-084]

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

Pengfei Shao[1], Siqi Li[1], Hui Guo[1], Tao Tao[1], Zili Xie[1], Bin Liu[1], Dunjun Chen[1], Youdou Zheng[1], Rong Zhang[1], and Ke Wang[1,2]
[1]Nanjing University, China, [2]RIKEN, 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-Ga_2O_3 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-Ga_2O_3 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-Ga_2O_3 Epitaxial Growth with Control Doping Concentration by Mist-CVD

Jang Hyeok Park[1], Jung Yeop Hong[2], Jung Hee Park[2], Young Kyun Jung[2], and You Seung Rim[1]

[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 Electronics Technology Institute, Korea

[P2-006]

Structural Stability and Electronic Properties of $(RhGa)_2O_3$ and $(RhAl)_2O_3$ 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 Ga_2O_3-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 Ga_2O_3-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 Ga_2O_3 Thin Films

Manami Miyazaki, Iori Yamasaki, Yuma Tanaka, Masatoshi Koyama, Akihiko Fujii, and Toshihiko Maemoto
Osaka Institute of Technology, Japan

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Low Temperature Growth of Amorphous Ga_2O_3 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-Ga_2O_3/α-Ga_2O_3 Hetero-Interface

Chan Woong Kim, Ha Young Kang, Yoonho Choi, and Roy Byung Kyu Chung
Kyungpook National University, Korea

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Impact of Fluorine Dopant on the Growth and Phase Stability of κ-Ga_2O_3

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[P2-013]

Shaping of β-Ga_2O_3 Crystal Ingot by Controlling Temperature Distribution in Edge-Defined Film-Fed Growth

Tae-Hun Gu[1,2], A-Ran Shin[1,2], Yun-Ji Shin[1], Seong-Min Jeong[1], Sung-Sik Lee[2], and Si-Young Bae[3]
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[P2-014]

Impurity Control in β-Ga_2O_3 Single Crystals Grown by EFG Method Using Pre-Melt and Post-Annealing

A-Ran Shin[1,2], Tae-Hun Gu[1,2], Yun-Ji Shin[1], Seong-Min Jeong[1], Hee-Soo Lee[2], and Si-Young Bae[3]
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Investigation of Structural and Electrical Properties of F-Doped α-Ga_2O_3

Yoonho Choi, Chan Woong Kim, Ha Young Kang, and Roy Byung Kyu Chung
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Growth of β-Ga_2O_3 Single Crystal Under Ambient Conditions

Byeongcheol Choe, Sungkyun Park, and Jong Mok Ok
Pusan National University, Korea

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Investigation of Chemical Etching Features and Defects on (100) and (001) β-Ga_2O_3 Single Crystals Grown by EFG Method

Mee-Hi Choi[1,2], Soon-Ku Hong[3], Seong-Min Jeong[1], Si-Young Bae[4], and Yun-Ji Shin[1]
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[P2-019]

Properties of La-Doped Gallium Oxide Nanostructure by Electrospinning

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[P2-020]

Sn-Doped β-Ga_2O_3 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 Yang[1], Ran Yao[1], Yuan Xiao Ma[2], Yiyun Zhang[1], Xiaoyan Yi[1], Junxi Wang[1], Yeliang Wang[2], and Jinmin Li[1]

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[P2-022]

2kV-Class β-Ga_2O_3/4H-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

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High Performance Solar-Blind Deep UV Photodetectors based on Ga_2O_3/4H-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 Metastable κ-Phase Ga_2O_3 Grown by MOCVD Using H_2O as an Oxygen Precursor

Dong Wook Lee, Yoon Jae Lee, and Honghyuk Kim

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

Ru He and Flyura Djurabekova

University of Helsinki, Finland

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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

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High-Performance β-Ga_2O_3 Solar-Blind Photodetectors Grown by MOCVD with CF_4 Treatment

An-Na Cha[1], Gieop Lee[1], Sea Cho[1], Jeong Soo Chung[1], Young-Boo Moon[2], Myung Sik Kim[2], Moo Sung Lee[1], and Jun-Seok Ha[1]

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[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

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

Kanghee Shin[1], Dongkyun Kim[1], Minu Kim[1], Junho Park[1], Hyowon Yoon[2], and Ogyun Seok[2]

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[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

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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

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[P2-033]

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

Ju-Hyeong Sun[1], Jae-Hyeon Park[1,2], Yun-Ji Shin[1], Si-Young Bae[3], Won-Jae Lee[4], and Seong-Min Jeong[1]

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[P2-034]

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

Woon-Hyeon Jeong[1], Ga-Ae Ryu[1], Ju-Hyeong Sun[1], Jae-Hyeon Park[1,2], Yun-Ji Shin[1], Si Young Bae[3], Sangil Hyun[1], and Seong-Min Jeong[1]

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[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 Sun[1], Woon-Hyeon Jeong[1], Yun-Ji Shin[1], Si-Young Bae[3], Won-Jae Lee[4], and Seong-Min Jeong[1]

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[P2-036]

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

Min-Yeong Kim, Hyun-Woo Lee, 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 Sun[1], Jungwoo Choi[2], Myung-Ok Kyun[2], Shunta Harada[3], Soon-Ku Hong[4], Seong-Min Jeong[1], Si-Yeong Bae[5], and Yun-Ji SHIN[1]

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[P2-038]

Impact of the Chip Size on Reverse Recovery in SiC MOSFETs

Yeonjun Kim and Hyemin Kang

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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

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Hydrogen (H_2) Gas FET-Sensor based on Ta_2O_5 Film on SiC Substrate

Kyeong-Keun Choi and Sung-Kyu Kim
Pohang University of Science and Technology, Korea

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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 SiO_2/4H-SiC MOSFETs

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[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

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[P2-046]

Carbon Incorporation in MOCVD-Grown hBN and Its Optoelectronic Characteristics

Semi Im, Seokho Moon, and Jong Kyu Kim
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[P2-047]

Remote Moiré Engineering of Exciton Polarons in Monolayer $MoSe_2$ on Twisted hBN

Minhyun Cho[1,2], Biswajit Datta[2], Kwanghee Han[1,2], Saroj B. Chand[3], Pratap Chandra Adak[2], Sichao Yu[2], Kenji Watanabe[4], Takashi Taniguchi[4], James Hone[5], Gabriele Grosso[3], Vinod M. Menon[2], and Young Duck Kim[1]
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[P2-048]

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

Seung Tae Kim[1], Suk Hyun Kim[1], Kyungho Park[1], Minseong Kwon[1,2], Young Gie Lee[1,2], HeeYeon Lee[1], Kenji Watanabe[3], Takashi Taniguchi[3], and Young Duck Kim[1]
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[P2-049]

Tunable Moiré Superlattice Potentials in Twisted Hexagonal Boron Nitride

Taehyung Kim[1], Kwanghee Han[1], Minhyun Cho[1,2], Seung Tae Kim[1], Suk Hyun Kim[1], Sang Hwa Park[3], Sang Mo Yang[3], Kenji Watanabe[4], Takashi Taniguchi[4], Vinod Menon[2], and Young Duck Kim[1]
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[P2-050]

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

Kyeongho Park[1], Seungmin Park[1], Minseong Kwon[1,2], Suk Hyun Kim[1], Kenji Watanabe[3], Takashi Taniguchi[3], and Young Duck Kim[1]

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[P2-051]

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

Min-Jae Maeng[1], Kyu-Myung Lee[1], Jong-Am Hong[1], Sunho Park[1], Hayoung Ko[2], Seung Jin Lee[2], Soo Min Kim[3], Young-Kyun Kwon[1], and Yongsup Park[1]

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[P2-052]

Remote Modulation Doping via Hexagonal Boron Nitride Surface Engineering

Heeyeon Lee[1], Minseong Kwon[1,2], Kenji Watanabe[3], Takashi Taniguchi[3], Chaun Jang[2], and Young Duck Kim[1]

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[P2-053]

High Electric Field Vertical Tunneling Transports in Hexagonal Boron Nitride

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[P2-054]

hBN-Based Photonic Crystal Cavities for Photonic Integrated Circuits

Sunjung An[1], Minhyun Cho[1], Junghyun Sung[2], Su Hyun Gong[2], Kenji Watanabe[3], Takashi Taniguchi[3], and Young Duck Kim[1]

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[P2-055]

Transparent Neutron Shielding Layer based on Boron Nitride for Space Windows

Dobin Kim[1], Geunpil Kim[1], Hwi-Joon Jeong[2], Jinhwan Kim[2], Minjae Isaac Kwon[3], Inkyu Park[3], Jongbum Kim[1], and Jaehyun Park[1]

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[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 Watanabe[3], Takashi Taniguchi[3], Jun Sung Kim[3], Moon-Ho Jo[1,2], and Jonghwan Kim[1,2,3]

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[P2-057]

Electroluminescence from Isolated Color Centers in Hexagonal Boron Nitride

Gyuna Park[1,2], Ivan Zhigulin[3], Hoyoung Jung[1,2], Jake Horder[3], Karin Yamamura[3], Yerin Han[1,2], Hyunje Cho[1,2], Hyeon-Woo Jeong[2], Kenji Watanabe[4], Takashi Taniguchi[4], Myungchul Oh[1,2], Gil-Ho Lee[2], Moon-Ho Jo[1,2], Igor Aharonovich[3], and Jonghwan Kim[1,2]

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[P2-058]

Enhanced Absorption in Hexagonal Boron Nitride via Fabry-Perot Resonance

Seong Joon Jeon[1,2], Su Beom Song[1,2], Kenji Watanabe[3], Takashi Taniguchi[3], Moon-ho Jo[1,2], and Jonghwan Kim[1,2]

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[P2-059]

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

Hayoung Ko[1], Soo Ho Choi[1], Yunjae Park[2], Seungjin Lee[1], Chang Seok Oh[1], Sung Youb Kim[2], Young Hee Lee[1], Soo Min Kim[3], Feng Ding[1,4], and Ki Kang Kim[1]

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[P2-060]

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

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[P2-061]

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

Jawon Kim, Seokho Moon, and Jong Kyu Kim
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[P2-062]

Inducing Photoluminescence in Hexagonal Boron Nitride by Dichloromethane Treatment

Kyeongseo Cho[1], Duhee Yoon[1], Young Duck Kim[2], Dmitrii Litvinov[3], Maciej Koperski[3], and Hyeonsuk Shin[1]
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[P2-063]

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

Seungjin Lee[1], Hayoung Ko[1], Soo Min Kim[2], and Ki Kang Kim[1]
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[P2-064]

High Crystalline Quality Heteroepitaxial Diamond Growth Using Epitaxial Lateral Overgrowth

Yoonseok Nam[1], Taemyung Kwak[1], Geunho Yoo[1], Joocheol Jeong[1], Yeonghwa Kwon[1], Seong-Woo Kim[2], and Okhyun Nam[1]
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[P2-065]

Heteroepitaxial Growth of Twin-Free Single Crystal (111) Diamond on R-Plane Al_2O_3 Substrate

Seolyoung Oh, Taemyung Kwak, Yeonghwa Kwon, Yoonseok Nam, Eonhee Roh, Geunho Yoo, and Okhyun Nam
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[P2-066]

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

Eonhee Roh[1], Taemyung Kwak[1], Seolyoung Oh[1], Yeonghwa Kwon[1], Yoonseok Nam[1], Geunho Yoo[1], Seongwoo Kim[2], and Okhyun Nam[1]

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[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

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[P2-068]

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

Ki-Yeol Woo[1,2], Gi-Ryeo Seong[1], Nhat-Minh Phung[1,3], Si-Young Bae[2], Yun-Ji Shin[1], and Seong Min Jeong[1]

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[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 Seong[1], Si-Young Bae[3], Yun-Ji Shin[1], and Seong Min Jeong[1]

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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

[P2-072]

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, and Michał Parniak
University of Warsaw, Poland

[P2-075]

WO_3 Nanosheets Integrated Ti_3C_2 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 Kim[1], Hyuk Jun Lee[2], Jongil Kim[3], Jaeyoung Baik[1], Seoung Hyeok Lee[1], Jinsoo Kim[1], Hoe-Min Kwak[4], Sangho Oh[3], Young Jun Joo[2], and Dong-Seon Lee[1]
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[P2-080]

Room-Temperature Operated NO_2 Gas Sensor of n-ZnO/*p*-Ag_2O Nanomaterials with UV Photon Energy

Jae-Hun Jeong, Jun-Young Lee, Sunwoo Lim, Yoojin Kim, and Kyoung-Kook Kim
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[P2-081]

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

Yong Soo Lee[1], Taemyung Kwak[2], Ye-Eun Choi[1], Chan-Gu Kang[1], Jaepil Park[1], Sang-Wook Han[1], Seungwoo Jeon[1], Chul-ki Kim[1], Junghyun Lee[1], Okhyun Nam[2], and Dongyeon Daniel Kang[1]

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