Program

November 10 (Sunday)

Opening Session *Okinawa Kariyushi Urban Resort Naha 18:00-18:30*

Anniversary Section reviewing Widegap Conferences
Okinawa Kariyushi Urban Resort Naha 18:30-19:00

Welcome Reception *Okinawa Kariyushi Urban Resort Naha 19:00-20:30*

November 11 (Monday)

Introduction of this Workshop

Auditorium 09:50-10:10

Plenary 1

Auditorium 10:10-11:50

Chair: Tsunenobu Kimoto and Katsumi Kishino

PL-1 (Plenary) *10:10 - 11:00*

Materials Designing Novel Wide Gap Semiconductors

Hideo Hosono
Tokyo Instituteof Technology, Japan

PL-2 (Plenary) *11:00 - 11:50*

Recent progress on the large lattice-mismatched hetero-epitaxy and physical investigation of III-nitride thin films and quantum structures

Bo Shen
Research center of wide bandgap semiconductors and the State key laboratory of artificial microstructures and mesoscopic physics, Peking University, China

Poster Session A

Tunnel Gallery 11:50-13:40

MoP-GR-1 (Poster) *11:50 - 13:40*

HVPE GaN Growth using Hydrogen Radical

Mei Kanda* and Hiroshi Nagayoshi
Department of Electronic Engineering, National Institute of Technology, Tokyo College, Japan

MoP-GR-2 (Poster) *11:50 - 13:40*

The Electronic Structure of Dislocation in GaN with Mg Impurities

Takashi Nakano,*,[1] Yosuke Harashima,[2] Kenta Chokawa,[2] Masaaki Araidai,[1,2] Kenji Shiraishi,[1,2] Atsushi Oshiyama,[2] Akira Kusaba,[3] Yoshihiro Kangawa,[2,4] Atsushi Tanaka,[2] Yoshio Honda,[1,2] and Hiroshi Amano[1,2]
[1]Graduate School of Engineering, Nagoya University, Japan, [2]Institute of Materials and Systems for Sustainability, Nagoya University, Japan, [3]Computer Centre, Gakushuin University, Japan, [4]Research Institute for Applied Mechanics, Kyushu University, Japan

MoP-GR-3 (No Show) *11:50 - 13:40*

Epitaxial growth of high quality GaN layer on boron nitride nanotubes as intermediate layer

Gun Hee Lee,[1] Chil-Hyoung Lee,[2] Jae Won Jeong,[2] Su Jin Kim,[2] Eun Mi Kim,[2] Young-Baek Kim,[2] Gi-Seok Heo,[2] Jongho Lee,[2] Eun-Kyung Suh,[1] and Tae Hoon Seo*,[2]
[1]School of semiconductor and Chemical Engineering, Chonbuk National University, Republic of Korea, [2]Nano-Photonics Convergence Technology Group, Korea Institute of Industrial Technology, Republic of Korea

MoP-GR-4 (Poster) *11:50 - 13:40*

Critical thickness of GaN film in controllable stress-induced self-separation for preparing 2-inch native GaN substrates

Mengda Li,[*,1] Yutian Cheng,[1] Tongjun Yu,[1] Jiejun Wu,[1] Jinmi He,[2] Nanliu Liu,[3] Tong Han,[1] and Guoyi Zhang[1,2,3]
[1]School of Physics, Peking University, China, [2]Sino Nitride Semiconductor CO., LTD., China, [3]Dongguan Institute of Optoelectronics, Peking University, China

MoP-GR-5 (Poster) *11:50 - 13:40*

Computer simulation of bulk GaN crystal growth from Na-Ga solution

Andrei Vorob'ev,[1] Alexey Kondratyev,[1] Vladimir Kalaev,[1] and Yuji Mukaiyama[*,2]
[1]STR Group - Soft Impact, Ltd, Russia, [2]STR Japan K.K, Japan

MoP-GR-6 (Poster) *11:50 - 13:40*

The optical properties of GaN crystal grown by ammonothermal

Tengkun Li,[*,1,2] Guoqiang Ren,[1,2] Xujun Su,[2] Jingjing Yao,[2] Xiaodong Gao,[2] and Ke Xu[1,2,3]
[1]School of Nano Technology and Nano Bionics, University of Science and Technology of China, China, [2]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, [3]Suzhou Nanowin Science and Technology Co, Ltd., China

MoP-GR-7 (No Show) *11:50 - 13:40*

Study on Transferable GaN Grown on Improved AlN/Graphene Composite Substrate

Yanqing Jia,[*] Jing Ning, Chaochao Yan, Jincheng Zhang, and Yue Hao
Department of Micro Electronic, Xidian University, China

MoP-GR-8 (Poster) *11:50 - 13:40*

Reduction of trench defects in InGaN epilayers using Ga-migration-enhanced epitaxy

Hai-Long WANG,[*,1] Ze -Sheng Lv,[1] and Hao JIANG[1,2]
[1]School of Electronics and Information Technology, Sun Yat-sen University, China, [2]State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, China

MoP-GR-9 (Poster) *11:50 - 13:40*

High Crystal Quality AlN Film Grown on Hexagonal Nano-circle Concave Patterned Si (111) Substrate

Jianfei Shen,[*] Xuelin Yang, Jie Zhang, Yuxia Feng, and Bo Shen
School of Physics, Peking University, China

MoP-GR-10 (Poster) *11:50 - 13:40*

HVPE growth of AlN on stripe patterned sapphire substrates with sputter-deposited annealed AlN film

Taichi Nishimori,[*,1] Kazuki Yoshimura,[1] Shiyu Xiao,[2] Kanako Shojiki,[1] and Hideto Miyake[1,2]
[1]Grad. School of Eng, Mie University, Japan, [2]Grad. School of RIS, Mie University, Japan

MoP-GR-11 (Poster) *11:50 - 13:40*

Crystal growth of AlN on Ni-Al solution

Arata Kanbara,[*] Adachi Masayoshi, and Hiroyuki Fukuyama
Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

MoP-GR-12 (Poster) *11:50 - 13:40*

Evaluation of BGaN growth temperature dependence and fabrication of neutron semiconductor detectors

Yuri Takahashi,[*,1] Takayuki Maruyama,[1] Natsuki Yamada,[1] Kazushi Ebara,[1] Yuto Ohta,[1] Hisaya Nakagawa,[1] Shigeyoshi Usami,[2] Yoshio Honda,[3] Hiroshi Amano,[3,4] Kazunobu Kojima,[5] Shigefusa Chichibu,[3,5] Yoku Inoue,[1] Toru Aoki,[6] and Takayuki Nakano[1,6]
[1]Shizuoka University, Japan, [2]Nagoya University, Japan, [3]IMaSS, Nagoya University, Japan, [4]Akasaki Research Center, Japan, [5]IMRAM, Tohoku University, Japan, [6]R.I.E. Shizuoka University, Japan

MoP-GR-13 (Poster) *11:50 - 13:40*

Growth and Characterization of Ultra-Wide Bandgap Gallium Oxide Homoepitaxial Layers Prepared by Plasma-Assisted Molecular-Beam Epitaxy

SOON-KU HONG,* TRONG SI NGO, and DUC DUY LE
Department of Materials Science and Engineering, Chungnam Natioanl University, Daejeon 34134, Republic of Korea

MoP-GR-14 (Poster) *11:50 - 13:40*

Comparison of thermodynamics on growth of In_2O_3 and Ga_2O_3 by halide vapor phase epitaxy using mono- and tri-halides

Nami Tanaka,*,[1] Yuya Saimoto,[1] Kenta Nagai,[1] Rie Togashi,[2] Nao Takekawa,[1] Ken Goto,[1] and Yoshinao Kumagai[1,3]
[1]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan, [2]Department of Engineering and Applied Sciences, Sophia University, Japan, [3]Institute of Global Innovation Research, Tokyo University of Agriculture and Technology, Japan

MoP-GR-15 (Poster) *11:50 - 13:40*

Formation and Characterization of Novel Green Phosphor of Semiconductive Nanoporous ZnMnO:P

Sejoon Lee,*,[1,2] Youngmin Lee,[2] and Deuk Young Kim[1,2]
[1]Department of Semiconductor Science, Dongguk University - Seoul, Seoul 04623, Republic of Korea, [2]Quantum-functional Semiconductor Research Center, Dongguk University - Seoul, Seoul 04623, Republic of Korea

MoP-GR-16 (Poster) *11:50 - 13:40*

Analysis of -Ga_2O_3 (0001) surface structure using first-principles calculations

Hayato Oyama* and Takahiro Kawamura
Graduate School of Engineering, Mie University, Japan

MoP-GR-17 (Poster) *11:50 - 13:40*

Pyramid formation by high pressure and high temperature processing of diamond

Rei Fukuta,*,[1] Yohei Murakami,[1] Ken Otsuyama,[1] Fumitaro Ishikawa,[1,2] Masafumi Matsushita,[1,2] Toru Shinmei,[2] Hiroaki Ohfuji,[2] and Tetsuo Irifune[2]
[1]Ehime University, Japan, [2]Ehime University Geodynamics Research center, Japan

MoP-CH-1 (Poster) *11:50 - 13:40*

Investigation on the size effects of micro-raman scattering in single cone-shape GaN microrod

Hui Liao,* Peijun Wen, Guo Yu, Rui Lang, and Xiaodong Hu
State Key Laboratory for Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking University, China

MoP-CH-2 (Poster) *11:50 - 13:40*

Enhanced High Temperature Performance Using by InGaN-Channel

Hao Lu,*,[1] Xiaohua Ma,[1] Ling Yang,[2] Bin Hou,[1] Meng Zhang,[2] Qing Zhu,[2] Mei Wu,[1] Sheng Wu,[1] Jielong Liu,[2] and Yue Hao[1]
[1]School of Microelectronics, Xidian University, China, [2]School of Advanced Materials and nanotechnology, Xidian University, China

MoP-CH-3 (No Show) *11:50 - 13:40*

Intersubband optical absorption in InGaN/GaN quantum dot with hydrogenic impurity

Yan Xing
School of Physical Science and Technology, Inner Mongolia University, China

MoP-CH-4 (Poster) *11:50 - 13:40*

Influence of Dipole Scattering to Level Broadening and Carrier Transport in AlGaN-based Superlattice Structures

Joosun Yun* and Hideki Hirayama
RIKEN, Japan

MoP-CH-5 (No Show) *11:50 - 13:40*

Sub-quantum-well effect on radiative dynamics of Dislocation-free DUV AlGaN/AlGaN-based Multiple-Quantum-Wells

Idris Ajia,[1] Dhaifallah Almalawi,[1] Zhiqiang Liu,[2] and Iman S. Roqan[*,1]
[1]Physical Science and Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Saudi Arabia, Saudi Arabia, [2]Institute of Semiconductors, Chinese Academy of Science, Beijing 100083, China, China

MoP-CH-6 (No Show) *11:50 - 13:40*

Optical Phonons and Their Transformation in Cylindrical Wurtzite Nitride Core-Multishell Nanowires with Ternary Mixed Crystal Effect

JianXia Wang, Yuan Qu,[*] and Shiliang Ban
Inner Mongolia University, China

MoP-CH-7 (Poster) *11:50 - 13:40*

Height of potential barrier formed around V-pits in InGaN/GaN quantum wells on moderate-temperature GaN layer

Satoshi Kurai,[*,1] Kohei Okawa,[1] Ryoga Makio,[1] Junji Gao,[1] Genki Nobata,[1] Naoya Hayashi,[1] Kohei Sugimoto,[1,2] Narihito Okada,[1] Kazuyuki Tadatomo,[1] and Yoichi Yamada[1]
[1]Yamaguchi University, Japan, [2]Ube Industries, Ltd., Japan

MoP-CH-8 (Poster) *11:50 - 13:40*

Optical and electrical characterizations of the V-shaped defects in Fe-doped bulk GaN

Yumin Zhang,[*,1,2] Jianfeng Wang,[1,2] Demin Cai,[2] Yu Xu,[1,2] Mingyue Wang,[1,2] Xiaojian Hu,[1,2] and Ke Xu[1,2]
[1]Suzhou Institute of Nano-tech and Nano-Bionics, Chinese Academy of Sciences, China, [2]Suzhou Nanowin Science and Technology Co., Ltd., China

MoP-CH-9 (Poster) *11:50 - 13:40*

Relationship between the band gap of InN/AlN SLs and lattice distortion

Yuya Hamaji,[*,1] Takahiro Kawamura,[1] Toru Akiyama,[1] and Yoshihiro Kangawa[2]
[1]Mie Univ., Japan, [2]RIAM, Kyushu Univ., Japan

MoP-CH-10 (Poster) *11:50 - 13:40*

Bonding Strength of Polarity-Inverted GaN Structure Fabricated by Surface-Activated Bonding

Ryo Tanabe,[*] Naoki Yokoyama, Masahiro Uemukai, Tomoyuki Tanikawa, and Ryuji Katayama
Osaka University, Japan

MoP-CH-11 (Poster) *11:50 - 13:40*

Current mapping of non-polar AlGaN/GaN heterjunction structure

Jinjuan Du and Shengrui Xu[*]
School of Microelectronics, Xidian University, China

MoP-CH-12 (Poster) *11:50 - 13:40*

Nonradiative Recombination Centers in UVB AlGaN Quantum Well and Their Temperature Dependence Revealed by Below-Gap Excitation Light

M. Ismail Hossain,[*,1,2] Yuri Itokazu,[1,3] Shunsuke Kuwaba,[1,3] Norihiko Kamata,[1] Noritoshi Maeda,[3] and Hideki Hirayama[3]
[1]Graduate School of Science and Engineering, Saitama University, Saitama 338-8570, Japan, [2]Department of Physics, University of Rajshahi, Rajshahi-6205, Bangladesh, [3]Quantum Optodevice Lab., RIKEN, Wako, Saitama 351-0198, Japan

MoP-CH-14 (Poster) *11:50 - 13:40*

Resistivity of High-Purity Semi-Insulating 4H-SiC Substrates

Chansoon Koo,[*] Mitsuaki Kaneko, and Tsunenobu Kimoto
Kyoto University, Japan

MoP-CH-15 (Poster) *11:50 - 13:40*

Evaluation of heavily B doped HPHT crystals for power device application

Shinichi Shikata,* Kosuke MIyajima, and Naoya Akashi
School of Science and Technology, Kwansei Gakuin University, Japan

MoP-CH-16 (Poster) *11:50 - 13:40*

Abnormal Capacitance-Voltage Behavior of 4H-SiC Trench MOS Capacitor with TEOS Oxide

In Ho Kang,* Ogyun Seok, Jeong Hyun Moon, Moon Kyong Na, Hyoung Woo Kim, Sang Cheol Kim, Wook Bahng, and Nam Kyun Kim
Power Semiconductor Research Center, Korea Electrotechnology Research Institute, Republic of Korea

MoP-CH-17 (Poster) *11:50 - 13:40*

Influence of strong acid on structural and photoluminescence properties of nano-amorphous graphitic carbon nitride dispersed in nitric acid

Takahiro Watanabe,[1] Masaaki Hirai,[2] Ken-ichi Takarabe,[2] and Naoki Ohtani*,[1]
[1]Department of Electronics, Doshisha University, Japan, [2]Faculty of Science, Okayama University of Science, Japan

MoP-OD-1 (No Show) *11:50 - 13:40*

Effect of p-AlGaN / GaN superlattice on InGaN/GaN multiple quantum wells light-emitting diodes

wenkai yue,* zhimin li, peixian li, xiaowei zhou, and xiaoshun luo
School of Advanced Materials and Nanotechnology, Xidian University, China

MoP-OD-2 (Poster) *11:50 - 13:40*

Dual-Wavelength Light-Emitting Diodes with InGaN/GaN Quantum Wells and Mesh-Like Top Electrode

Irina Khmyrova,*,[1] Yohei Nishidate,[1] Yulia Kholopova,[2] Ivan Maximov,[3] and Sergei Shapoval[2]
[1]University of Aizu, Japan, [2]Russian Academy of Sciences, Russia, [3]Lund University, Sweden

MoP-OD-3 (No Show) *11:50 - 13:40*

Study of Light Field Distribution in GaN Triangular Ridge

Cheng Ge,*,[1] Menghan Liu,[1] Ru Xu,[1] Jing Zhou,[1] Yunfei Yang,[1] Yimeng Li,[1] Haocheng Peng,[1] Peng Chen,[1,2] Bin Liu,[1] Zili Xie,[1] Rong Zhang,[1] and Youdou Zheng[1]
[1]Jiangsu Province Key Laboratory of Advanced Photonic and Electronic Materials and School of Electronic Science and Engineering, Nanjing University, China, [2]Institute of Optoelectronics of Yangzhou, Nanjing University, China

MoP-OD-4 (Poster) *11:50 - 13:40*

Improved performance of AlGaN based ultraviolet LEDs using selective-area grown p-GaN contact layer

Yanan Guo,*,[1,2] Jianchang Yan,[1,2] Yun Zhang,[1,2] Junxi Wang,[1,2] and Jinmin Li[1,2]
[1]Institute of Semiconductors, Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China

MoP-OD-5 (Poster) *11:50 - 13:40*

Smoothing AlGaN surface by photoelectrical chemical etching

Zhongming Zheng,*,[1] Hao Long,[1] Samuel Matta,[2] Mathieu Leroux,[2] Julien Brault,[2] Lerying Ying,[1] Zhiwei Zheng,[1] and Baoping Zhang[1]
[1]Department of Electronic Engineering, Xiamen University, China, [2]Université Côte d'Azur, CNRS, CRHEA, Valbonne, France

MoP-OD-6 (Poster) *11:50 - 13:40*

Enhancement of the electrical and optical properties in GaN-based flip-chip LEDs by optimizing electrode structures

Jong-Ho Kim,*,[1] Yong Won Lee,[2] Hyeong-seop Im,[1] and Tae-Yeon Seong[1,2]
[1]Department of Material Science & Engineering, Korea University, Seoul 02841, South Korea, Republic of Korea, [2]Department of Nanophotonics, Korea University, Seoul 02841, South Korea, Republic of Korea

MoP-OD-8 (Poster) *11:50 - 13:40*

Improvement of light output power of 1024 pixelated flip-chip micro-LED arrays for automotive smart head lamp

Cheol Jeong,* Jea hyeok Lee, Jea Min Lee, Sung Min Cho, Moon Uk Cho, Tae Kyoung Kim, Yu-Jung Cha, Abu Bashar Mohammad Hamidul Islam, and Joon Seop Kwak
sunchon national university, Republic of Korea

MoP-OD-9 (Poster) *11:50 - 13:40*

The influence of different sidewall traps for Micro Light Emitting Diodes

Te-Jen Kung*,[1] and Yuh-Renn Wu[1,2]
[1]Electronic and Optoelectronic System Research Laboratories, Industrial Technology Research Institute, Taiwan, [2]Graduate Institute of Photonics and Optoelectronics and Department of Electrical Engineering, National Taiwan University, Taiwan

MoP-OD-10 (Poster) *11:50 - 13:40*

PA-MBE grown III-nitride nanowires on ITO-coated amorphous silica substrate for perovskite solar cell application

Jung-Wook Min,*,[1] Kwang Jae Lee,[2] Aditya Prabaswara,[1] Jung-Hong Min,[1] Bekir Türedi,[2] Yeong Jae Kim,[3] Huafan Zhang,[1] Davide Priante,[1] Jian-Wei Liang,[1] Young Min Song,[3] Tien Khee Ng,[1] Osman M. Bakr,[2] and Boon S. Ooi[1]
[1]Photonics Laboratory, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, [2]Catalysis Center, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, [3]School of Electrical Engineering and Computer Science, Gwangju Institute of Science and Technology (GIST), Republic of Korea

MoP-OD-11 (Poster) *11:50 - 13:40*

Emission characteristics of AlGaN / AlGaN MQWs by improving n-type AlGaN layer

Kengo Nagata,*,[1,2] Taiji Yamamoto,[1,2] Hiroaki Makino,[1,2] Keita Kataoka,[3] Tetsuo Narita,[3] and Yoshiki Saito[1,2]
[1]TOYODA GOSEI Co., Ltd., Japan, [2]TS Opto Co., Ltd., Japan, [3]Toyota Central R&D Labs. Inc., Japan

MoP-OD-12 (No Show) *11:50 - 13:40*

Vertical Hybrid Heterojunction for Broadband, Self-powered and Transparent Photodetector

Krishnendu Sarkar,[1] Pooja Devi,*,[2] and Praveen KUMAR[1]
[1]Indian Association for the Cultivation of Science, Kolkata, 700032, India, India, [2]Central Scientific Instruments Organization, Sector-30C, Chandigarh- India-160030, India, India

MoP-OD-13 (Poster) *11:50 - 13:40*

Fabrication of UVC AlGaN LEDs on DC-sputtered AlN templates with high-temperature annealing

Yosuke Mogami,*,[1,2] Atsushi Osawa,[3] Kazuto Osaki,[3] Yukitake Tanioka,[3] Atsushi Maeoka,[3] Yuri Itokazu,[1,2] Shunsuke Kuwaba,[1,2] Masafumi Jo,[1] Noritoshi Maeda,[1] Hiroyuki Yaguchi ,[2] and Hideki Hirayama[1]
[1]RIKEN, Japan, [2]Department of Science and Engineering, Saitama University, Japan, [3]SCREEN Finetech Solutions Co. Ltd., Japan

MoP-OD-14 (Poster) *11:50 - 13:40*

Fabrication process development on group III-nitride based three-dimensional light emitting diodes for reduced leakage current

Kie Young Woo,* Young Chul Sim, Kwanjae Lee, Seung-Hyuk Lim, and Yong-Hoon Cho
Department of Physics, Korea Advanced Institute of Science and Technology, Republic of Korea

MoP-OD-15 (Poster) *11:50 - 13:40*

Optical-isolation of micro-LED pixels integrated in Si micro-cup substrate

Kohta Sato,*,[1] Yoshihumi Kamei,[1] Ryosuke Nawa,[1] Shinya Aikawa,[2] Yasuhisa Usida,[3] Takeyoshi Onuma,[1] Tomohiro Yamaguchi,[1] and Tohru Honda[1]
[1]Department of Applied Physics, School of Advanced Engineering and Department of Electrical Engineering and Electronics, Graduate School of Engineering, Kogakuin University, Japan, [2]Department of Electrical and Electronic Engineering, Faculty of Engineering, Kogakuin University, Japan, [3] Institute of Materials and Systems for Sustainability (IMass), Nagoya University, Japan

MoP-OD-16 (No Show) *11:50 - 13:40*

Full-duplex light communication system with OFDM modulation using InGaN/GaN multiple-quantum-well diodes and waveguide

Yan Jiang,* Linning Wang, Mingyuan Xie, Zheng Shi, Yuan Jiang, and Yongjin Wang
Peter Grünberg Research Centre, Nanjing University of Posts and Telecommunications, China

MoP-OD-17 (Poster) *11:50 - 13:40*

Spatial Non-uniform Avalanche Multiplication in 4H-SiC p-i-n APDs

Linlin Su,* Hai Lu, Xiaolong Cai, Dong Zhou, Dunjun Chen, Fangfang Ren, Rong Zhang, and Youdou Zheng
Nanjing University, China

MoP-OD-18 (Poster) *11:50 - 13:40*

Low-Leakage-current SiC Schottky barrier photodiode for DUV and EUV detection

Zhiyuan Wang,* Dong Zhou, Weizong Xu, Fangfang Ren, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

MoP-OD-19 (Poster) *11:50 - 13:40*

Fabrication of ZnO-based UV photodetector by arc discharge deposition of ZnO nanorods

Shahab Sharifi Malvajerdi,*,[1] Masoud Abrari,[1] Morteza Ahmadi,[1] Vahid Karimi,[1] Morteza Asemi,[1] Reza Taheri Ghahrizjani,[1] Majid Ghanaatshoar,[1] and Seyed Majid Mohseni[2]
[1]Laser and Plasma Research Institute, Shahid Beheshti University, Iran, [2]Faculty of Physics, Shahid Beheshti University, Iran

MoP-OD-20 (Poster) *11:50 - 13:40*

Improved thermal characteristics and reliability of blue light-emitting diodes by using via-hole type flip-chip packaging

Won Jung Kim,*,[1,2] Chang Man Lim,[2] Ki Seok Kim,[2] Jeong Tak Oh,[2] Hwan-Hee Jeong,[2] June-O Song,[1] Tae-Yeon Seong,[1] and Hiroshi Amano[3]
[1]Department of Materials Science and Engineering, Korea University, Republic of Korea, [2]LED Divisio,. LG Innotek Co. Ltd., Paju, Gyeonggi 10842, Republic of Korea, [3]Nagoya University, Japan

MoP-ED-1 (Poster) *11:50 - 13:40*

High Breakdown Voltage Vertical GaN p-n Junction Diodes with Reversible Characteristics

Hiroshi Ohta,[1] Naomi Asai,[1] Fumimasa Horikiri,[2] Yoshinobu Narita,[2] Takehiro Yoshida,[2] and Tomoyoshi Mishima*,[1]
[1]Hosei University, Japan, [2]SCIOCS Co. Ltd., Japan

MoP-ED-2 (Poster) *11:50 - 13:40*

Surface activated bonding between GaN and SiC with an ultralow TBR

Fengwen Mu,*,[1,4] Zhe Cheng,[2] Seongbin Shin,[1] Samuel Graham,[2,3] and Tadatomo Suga[1]
[1]Collaborative Research Center, Meisei University, Japan, [2]George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, United States of America, [3]School of Materials Science and Engineering, Georgia Institute of Technology, United States of America, [4]Kagami Memorial Research Institute for Materials Science and Technology, Waseda University, Japan

MoP-ED-3 (Poster) *11:50 - 13:40*

Dependence of Breakdown Voltage Enhancement on Gate-to-Drain Distance of AlGaN/GaN HEMTs with High-k Passivation Layer

Ryo Tomita,* Shingo Ueda, Yuki Kawada, and Kazushige Horio
Faculty of Systems Engineering, Shibaura Institute of Technology, Japan

MoP-ED-4 (No Show) *11:50 - 13:40*

Irradiation traps induced by 2060-MeV $^{86}Kr^{26+}$ ions in AlGaN/GaN HEMTs

Xiao yan Yan,* Ling Lv, and Zheng zhao Lin
Department of Materials Science and Engineering,Xidian University, China

MoP-ED-5 (Poster) *11:50 - 13:40*

Modelling of Trap Mechanism in AlGaN/GaN Fin-HEMT Current Collapse

Kailin Ren,[*,1] Yung Chii Liang,[1] Chih-Fang Huang,[2] and Xiao Gong[1]
[1]Department of Electrical & Computer Engineering, National University of Singapore, Singapore, [2]Department of Electrical Engineering, National Tsing Hua University, Taiwan

MoP-ED-6 (No Show) *11:50 - 13:40*

Normally-Off AlGaN/GaN MISHEMT Using Charge Storage Technique

Ping-Cheng Han,[*,1] Zong-Zheng Yan,[2] Jui-Sheng Wu,[2] Chia-Hsun Wu,[2] and Edward Yi Chang[1,2]
[1]International College of Semiconductor Technology, National Chiao Tung University, Taiwan, [2]Department of Materials Science & Engineering, National Chiao Tung University, Taiwan

MoP-ED-7 (Poster) *11:50 - 13:40*

Suppression of Current Collapse in AlGaN/GaN HEMTs Using a Bilayer SiN Passivation

Jielong Liu,[*,1] Lixiang Chen,[1] Qing Zhu,[1] Fuchun Jia,[2] Hao Lu,[2] Siyu Liu,[1] Jiejie Zhu,[1,2] Ling Yang,[1,2] Xiaohua Ma,[2] and Yue Hao[2]
[1]School of Advanced Materials and Nanotechnology, Xidian University, China, [2]State Key Discipline Laboratory of Wide Bandgap Semiconductor Technology, Xidian University, China

MoP-ED-9 (Poster) *11:50 - 13:40*

Precise control in recessed-gate etching for AlGaN/GaN HEMTs by utilizing photo-electrochemical reactions

Yuto Komatsu,[*] Masachika Toguchi, and Taketomo Sato
Hokkaido University, Japan

MoP-ED-10 (No Show) *11:50 - 13:40*

Investigation of Tri-gate and Dual-gate AlGaN/GaN Fin-HEMTs

Meng Zhang,[*] Ling Yang, Minhan Mi, Bin Hou, Mei Wu, Qing Zhu, Sheng Wu, Yunlong He, and Xiaohua Ma
Xidian University, China

MoP-ED-11 (Poster) *11:50 - 13:40*

Termination and Passivation Solutions towards High Avalanche Capability and Ruggedness in Vertical GaN p-i-n Power Diodes

Kaiwen Nie,[*] Weizong Xu, Fangfang Ren, Dong Zhou, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, Nanjing 210093, China

MoP-ED-12 (Poster) *11:50 - 13:40*

Influence of the Surface Charges on the Edge Fringing Capacitance in GaAs and GaN Schottky Barrier Diodes

Beatriz Orfao,[1] Beatriz G. Vasallo,[1] Diego Moro-Melgar,[2] Tomás González,[1] and Javier Mateos[*,1]
[1]Universidad de Salamanca, Spain, [2]ACST GmbH, Germany

MoP-ED-13 (Poster) *11:50 - 13:40*

High-power-figure-of-merit AlGaN/GaN Schottky Barrier Diode Based on Barrier Recess and Low-temperature Annealing

Yu Lu,[*] Weizong Xu, Fang-Fang Ren, Dong Zhou, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

MoP-ED-14 (Poster) *11:50 - 13:40*

High Breakdown Voltage of AlGaN/GaN HEMTs with Field Plate for RF Application

Chun Wang,[*,1] Heng-Tung Hsu,[2,3,4] Ke-Yow Chen,[2] Ting-Jui Huang,[2] and Yi Chang[1,2,3,4]
[1]Department of Material Science Engineering, National Chiao Tung University, Taiwan, [2]International College of Semiconductor Technology, National Chiao Tung University, Taiwan, [3]Department of Electrical Engineering, National Chiao Tung University, Taiwan, [4]Center for Smart Semiconductor Technologies, National Chiao Tung University, Taiwan

MoP-ED-15 (Poster) *11:50 - 13:40*

Influence of crystal orientation on the formation of Schottky junctions on gallium oxide

Roman Yatskiv,* Stanislav Tiagulskyi, and Jan Grym
Institute of Photonics and Electronics, CAS, Prague, Czech Republic , Czech Republic

MoP-ED-16 (Poster) *11:50 - 13:40*

Detector Mechanism of $ZnGa_2O_4$ Sensors for NO Gas

SHU-HSIEN LIN,*,[1] MIN-RU WU,[1] WEI-ZHONG LI,[1] CHIUNG-YI HUANG,[2] and RAY-HUA HORNG[1]
[1]Institute of Electronics, National Chiao Tung University, Taiwan, [2]Graduate Institute of Precision Engineering , National Chung Hsing University, Taiwan

ED1 Vertical Power Devices

Auditorium 13:50-15:05

Chair: Kevin Jing Chen and Yoshio Honda

ED1-1 (Invited) *13:50 - 14:20*

Demonstration of vertical GaN planar MOSFET fabricated by all ion implantation process

Shinya Takashima,* Ryo Tanaka, Hideaki Matsuyama, Yuta Fukushima, and Masaharu Edo
Fuji Electric Co., Ltd, Japan

ED1-2 (Invited) *14:20 - 14:50*

Outstanding potential of SiC superjunction MOSFET as a next generation 1.2 kV-class power transistor

Shinsuke Harada,* Takeyoshi Masuda, Yusuke Kobayashi, Shinya Kyogoku, Tadao Morimoto, Yusuke Yamashiro, Teruaki Kumazawa, Manabu Takei, and Hajime Okumura
National Institute of Advanced Industrial Science and Technology, Japan

ED1-3 (Oral) *14:50 - 15:05*

High-Voltage and Low on-resistance Vertical GaN Schottky Barrier Diode with Reverse p-n Junction Termination

Ru Xu,*,[1] Menghan Liu,[1] Jing Zhou,[1] Yunfei Yang,[1] Yimeng Li,[1] Cheng Ge,[1] Haocheng Peng,[1] Peng Chen,[1,2] Bin Liu,[1] Zili Xie,[1] Rong Zhang,[1] and Youdou Zheng[1]
[1]School of Electronic Science and Engineering, Nanjing University, China, [2]Institute of Optoelectronics of Yangzhou, Nanjing University, China

GR1 Nanostructures

Meeting Room 13:50-15:05

Chair: Ryuji Katayama and Euijoon Yoon

GR1-1 (Invited) *13:50 - 14:20*

Group III-nitride semiconductor nanostructures for room-temperature quantum photonic devices

Yong-Hoon Cho
Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

GR1-2 (Oral) *14:20 - 14:35*

Low-cost fabrication technique of shape-controlled ultra-fine GaN nanostructures by maskless hydrogen environment anisotropic thermal etching (HEATE) method with ammonia addition

Yusei Kawasaki,[*,1] Yuki Ooe,[1] Yusuke Moriya,[1] Daichi Ito,[1] and Akihiko Kikuchi[1,2]
[1]Sophia University, Japan, [2]Sophia Photonics Research Center,, Japan

GR1-3 (Oral) *14:35 - 14:50*

Observation of down-conversion behavior in ZnO:Tm,Yb/ZnO core-shell nanowires

Jun Tatebayashi,[*] Tokuhito Nakajima, Masao Mishina, Dolf Timmerman, Shuhei Ichikawa, and Yasufumi Fujiwara
Osaka University, Japan

GR1-4 (Oral) *14:50 - 15:05*

Red Emitting InGaN-based Ordered Nanocolumns Exhibiting Photonic Crystal Effects at 671 nm

Keiji Takimoto,[*,1] Kazuki Narita,[1] Keigo Yoshida,[3] Takao Oto,[4] Tomohiro Yamaguchi,[3] Tohru Honda,[3] Takeyoshi Onuma,[3] Rie Togashi,[1] Ichiro Nomura,[1,2] and Katsumi Kishino[1,2]
[1]Sophia University, Japan, [2]Sophia Nanotechnology Center, Japan, [3]Kogakuin University, Japan, [4]Yamagata University, Japan

Break *15:05 - 15:35*

OD1 Photonic Devices

Auditorium *15:35-17:05*

Chair: Akihiko Kikuchi and Rong Zhang

OD1-1 (Invited) *15:35 - 16:05*

Recent Progress in High-Brightness Photonic-Crystal Lasers

Susumu Noda[*] and Menaka De Zoysa
Kyoto University, Japan

OD1-2 (Oral) *16:05 - 16:20*

Continuous-Wave Electrically Injected GaN-on-Si Microdisk Laser Diodes

Jin Wang,[*,1,2] Meixin Feng,[2] Jianxun Liu,[2] Yingnan Huang,[2] Xiujian Sun,[2] Qian Sun,[2] Xinhe Zheng,[1] and Hui Yang[2]
[1]University of Science and Technology Beijing, China, [2]Key Laboratory of Nano-devices and Applications, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, China

OD1-3 (Oral) *16:20 - 16:35*

Design and Fabrication of GaN Doubly-Resonant Waveguide Microcavity SHG Device

Takumi Nagata,[*,1] Masahiro Uemukai,[1] Toshiki Hikosaka,[2] Shinya Nunoue,[2] Takaya Morikawa,[1] Yasufumi Fujiwara,[1] Tomoyuki Tanikawa,[1] and Ryuji Katayama[1]
[1]Osaka University, Japan, [2]Toshiba Corporation, Japan

OD1-4 (Oral) *16:35 - 16:50*

Effects of lateral optical confinement in GaN VCSELs with double dielectric DBRs

Rongbin Xu,[*,1] Yang Mei,[1] Huan Xu,[1] Leiying Ying,[1] Zhiwei Zheng,[1] Hao Long,[1] Jianping Liu,[2] and Baoping Zhang[1]
[1]Department of Electronic Engineering, Xiamen University, China, [2]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China

OD1-5 (Oral) *16:50 - 17:05*

GaN quantum dots on deep-UV distributed Bragg reflector

Frank Bertram,[*,1] Hannes Schürmann,[1] Gordon Schmidt,[1] Christoph Berger,[1] Sebastian Metzner,[1] Peter Veit,[1] Armin Dadgar,[1] Andre Strittmatter,[1] Jürgen Christen,[1] Stefan Kalinowski,[2] Stefan Jagsch,[2] and Axel Hoffmann[2]
[1]Institute of Physics, Otto-von-Guericke-University Magdeburg, Germany, [2]Institute of Solid-State Physics, Technical University Berlin, Germany

GR2 Novel Growth Technology

Meeting Room 15:35-17:05

Chair: Hajime Fujikura and Jianfeng Wang

GR2-1 (Invited) *15:35 - 16:05*

Homoepitaxial growth of β-Ga_2O_3 by halide vapor phase epitaxy for the preparation of epitaxial wafers for vertical power device application

Yoshinao Kumagai,[*,1,2] Ken Goto,[1] Keita Konishi,[3] Hisashi Murakami,[1,2] Akito Kuramata,[3] Shigenobu Yamakoshi,[4] Bo Monemar,[5] and Masataka Higashiwaki[6]
[1]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan, [2]Institute of Global Innovation Research, Tokyo University of Agriculture and Technology, Japan, [3]Novel Crystal Technology, Inc., Japan, [4]Tamura Corporation, Japan, [5]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [6]National Institute of Information and Communications Technology, Japan

GR2-2 (Invited) *16:05 - 16:35*

Development of 4H-SiC single crystal substrates for power device applications

Noboru Ohtani
Kwansei Gakuin University, School of Science and Technology, Japan

GR2-3 (Oral) *16:35 - 16:50*

Comparative Study of Low-Temperature Grown Hexagonal Boron Nitride on Sapphire by Continuous Flow Mode and Pulsed Flow Mode Epitaxy

Muzafar Ahmad Rather,[*,1] Loganathan Ravi,[1] Kun-Lin Lin,[2] Chien-Ting Wu ,[2] Tung-Yuan Yu,[2] and Jen-Inn Chyi[1]
[1]National Central University, Taiwan, [2] National Applied Research Laboratories, Taiwan Semiconductor Research Institute, Taiwan

GR2-4 (Oral) *16:50 - 17:05*

High-temperature annealing induced evolution of strain in AlN epitaxial films grown on sapphire substrates

Mingxing Wang,[*] Fujun Xu, Zhixin Qin, Jiaming Wang, Yuanhao Sun, Nan Xie, Na Zhang, Jing Lang, and Bo Shen
State Key Laboratory of Artificial Microstructure and Mesoscopic Physics, School of Physics,Peking University , China

November 12 (Tuesday)

Plenary 2

Auditorium 09:00-10:40

Chair: Hiroyuki Fukuyama and Yoichi Kawakami

PL-3 (Plenary) *09:00 - 09:50*

Wide-bandgap semiconductors as key materials in realizing zero emission of greenhouse gases

Hiroshi AMANO
Nagoya University, Japan

PL-4 (Plenary) *09:50 - 10:40*

Self-passivated high-efficiency micro-LEDs using sapphire nano-membrane technology

Euijoon Yoon,[*,1,2,3] Jongmyeong Kim,[1] Seungmin Lee,[1] Jehong Oh,[1] Jungel Ryu,[1] and Yongjo Park[1]
[1]Department of Materials Science and Engineering, Seoul National University, Republic of Korea, [2]Research Institute of Advanced Materials, Seoul National University, Republic of Korea, [3]Inter-university Semiconductor Research Center, Seoul National University, Republic of Korea

Break *10:40 - 11:10*

ED2 HEMT

Auditorium 11:10-12:40

Chair: Kei-May Lau and Shinya Takashima

ED2-1 (Invited) *11:10 - 11:40*

Integration on GaN-on-Si p-GaN gate HEMT Platform

Kevin Jing Chen[*] and Jin Wei
The Hong Kong University of Science and Technology, Hong Kong

ED2-2 (Oral) *11:40 - 11:55*

Improved Device Performance by Integrating Schottky p-GaN Gate Diode and E-mode p-GaN Gate HEMT for 650 V Application

Yi-nan Zhong,[1] Wei-Cheng Ho,[1] Yu-Chen Lai,[1] Yue-ming Hsin,[*,1] Yuan-Ta Hsieh,[2] Hann-Huei Tsai,[2] and Ying-Zong Juang[2]
[1]Department of Electrical Engineering, National Central University, Taiwan, [2]Taiwan Semiconductor Research Institute, National Applied Research Laboratories, Taiwan

ED2-3 (Oral) *11:55 - 12:10*

A Method Based on Transitional-Recessed-Gate Technology to Improve HEMTs' Gain and Linearity Characteristics

Wu Sheng,[*] Mi Minhan, Ma Xiaohua, Yang Ling, Zhang Meng, Wu Mei, Lu Yang, Zhang Hengshuang, Yi Chupeng, and Hao Yue
Xidian University, Xi'an 710071, China, China

ED2-4 (Oral) *12:10 - 12:25*

Impact of selective thermal etching in NH_3/H_2 mixed atmosphere on crystal quality of AlGaN/GaN heterostructures

Yuki Yoshiya,* Takuya Hoshi, Hiroki Sugiyama, and Hideaki Matsuzaki
NTT Device Technology Labs, NTT Corporation, Japan

ED2-5 (Oral) *12:25 - 12:40*

Evaluation of Interfacial Charges at GaN/AlGaN Interfaces Grown by MOVPE using Triethylgallium

Takuya Hoshii,*,[1] Hiromasa Okita,[1] Taihei Matsuhashi,[1] Indraneel Sanyal,[2] Yu-Chih Chen,[2] Ying-Hao Ju,[2] Akira Nakajima,[3] Kuniyuki Kakushima,[1] Hitoshi Wakabayashi,[1] Jen-Inn Chyi,[2] and Kazuo Tsutsui[1]
[1]Tokyo Tech, Japan, [2]National Central Univ., Taiwan, [3]AIST, Japan

GR3 Vapor Phase Epitaxy

Meeting Room 11:10-12:40

Chair: Michal Stanislaw Bockowski and Hisashi Murakami

GR3-1 (Invited) *11:10 - 11:40*

HVPE for GaN and AlN epi-layer growth

Hajime Fujikura,* Taichiro Konno, Takeshi Kimura, Fumimasa Horikiri, and Takehiro Yoshida
SCIOCS, Japan

GR3-2 (Invited) *11:40 - 12:10*

Bulk GaN substrate growth by HVPE technology for GaN-on-GaN devices

Jianfeng Wang,*,[1,2] Ke Xu,[1,2] Guoqiang Ren,[1,2] Yu Xu,[1,2] Demin Cai,[2] Yumin Zhang,[1,2] Mingyue Wang,[1,2] Zongyao Li,[2] and Xiaojian Hu[1,2]
[1]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, [2]Suzhou Nanowin Science and Technology Co. Ltd., China

GR3-3 (Oral) *12:10 - 12:25*

Impact of the Growth Temperature on GaN Crystal Characteristics by Trihalide Vapor Phase Epitaxy

Erina Miyata,*,[1] Syoma Ohtaki,[1] Kenji Iso,[1,2] Hisashi Murakami,[1] and Akinori Koukitu[1]
[1]Department of engineering, Tokyo University of Agriculture and Technology, Japan, [2]Mitsubishi Chemical Corporation, Japan

GR3-4 (Oral) *12:25 - 12:40*

Study on halide vapor phase epitaxy growth of twin-free cubic-indium oxide and its carrier properties

Ken Goto,*,[1] Kenta Nagai,[1] Yuya Saimoto,[1] Nami Tanaka,[1] Nao Takekawa,[1] Rie Togashi,[2] and Yoshinao Kumagai[1,3]
[1]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan, [2]Department of Engineering and Applied Science, Sophia University, Japan, [3]Institute of Global Innovation Research, Tokyo University of Agriculture and Technology, Japan

Poster Session B

Tunnel Gallery 12:40-14:30

TuP-GR-1 (Poster) *12:40 - 14:30*

AlN growth behaviors in ammonia-free high temperature MOVPE

XUQIANG SHEN,* K. Kojima, and H. Okumura
National Institute of Advanced Industrial Science and Technology (AIST), Japan

TuP-GR-2 (Poster) *12:40 - 14:30*

Characterization of AlN Microspheres Grown by HVPE method

Gang Seok Lee,*,[1] Kyoung Hwa Kim,[1] Hyung Soo Ahn,[1] Min Yang,[1] Sam Nyung Yi,[1] Injun Jeon,[2] Chae Ryong Cho,[2] Jae Hak Lee,[3] and Suck-Whan Kim[4]
[1]Department of Electronic Materials Engineering, Korea Maritime and Ocean Universit, Republic of Korea, [2]Department of Nanoenergy Engineering and Department of Nano Fusion Technology, Pusan National University, Republic of Korea, [3]KDMC Co., Ltd, Republic of Korea, [4]Department of Physics, Andong National University, Republic of Korea

TuP-GR-3 (Poster) *12:40 - 14:30*

Growth of $Al_{0.55}Ga_{0.45}N$ thick films on AlN templates with nano-sized patterned grooves

Shohei Teramura,*,[1] Yusuke Sakuragi,[1] Shinji Yasue,[1] Shunya Tanaka,[1] Yuya Ogino,[1] Motoaki Iwaya,[1] Tetsuya Takeuti,[1] Satoshi Kamiyama,[1] Sho Iwayama,[1,3] Isamu Akasaki,[1,2] and HIdeto Miyake[3]
[1]Department of Materials Science and Engineering Meijo University, Japan, [2]Akasaki Research Center, Nagoya University, Japan, [3]Graduate School of Regional Innovation Studies, Mie University, Japan

TuP-GR-5 (Poster) *12:40 - 14:30*

Effect of the miscut angle of GaN substrate on InGaN/GaN MQW grown by metalorganic vapor phase epitaxy

Zhibin Liu,*,[1,3,4] Shugo Nitta,[2] Yoshio Honda,[2] Markus Pristovsek,[2] and Hiroshi Amano[2]
[1]Department of Electrical Engineering and Computer Science, Nagoya University, Japan, [2]Institute of Materials and Systems for Sustainability, Nagoya University, Japan, [3]Institute of Semiconductors, Chinese Academy of Science, China, [4]University of Chinese Academy of Sciences, China

TuP-GR-6 (Poster) *12:40 - 14:30*

Mechanism of AlN Fabrication by Substitutional Reaction between Al Layer and GaN Substrate

Marsetio Noorprajuda,* Makoto Ohtsuka, Masayoshi Adachi, and Hiroyuki Fukuyama
Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, , Japan

TuP-GR-7 (Poster) *12:40 - 14:30*

High crystallinity GaN film growth by sputtering with low oxygen concentration GaN target

Yuya Tsuchida,*,[1] Yuya Suemoto,[1] Masami Mesuda,[1] Hideto Kuramochi,[1] Liwen Sang,[2] and Takahiro Nagata[2]
[1]Tosoh corporation, Japan, [2]National Institute for Materials Science, Japan

TuP-GR-8 (Poster) *12:40 - 14:30*

Effects of Adatom Kinetics on Facet Formation of GaN during Metalorganic Vapor Phase Epitaxy

Yuki Seta,* Abdul Muizz Pradipto, Toru Akiyama, Kohji Nakamura, and Tomonori Ito
Department of Physics Engineering, Mie University, Japan

TuP-GR-9 (Poster) *12:40 - 14:30*

Thick AlN epilayer grown by using mixed-source hydride vapor phase epitaxy method

Kyoung Hwa Kim,[*,1] Sang Woo Kim,[1] Gang Seok Lee,[1] Hyung Soo Ahn,[1] Min Yang,[1] Sam Nyung Yi,[1] Injun Jeon,[2] Chae Ryong Cho,[2] and Suck-Whan Kim[3]
[1]Department of Electronic Materials Engineering, Korea Maritime and Ocean University, Republic of Korea, [2]Department of Nanoenergy Engineering and Department of Nano Fusion Technology, Republic of Korea, [3]Department of Physics, Andong National University, Republic of Korea

TuP-GR-10 (Poster) *12:40 - 14:30*

Theoretical study for the adsorption-desorption behavior of stepped III-nitrides during MOVPE growth

Takumi Ohka,[*] Toru Akiyama, Abdul Muizz Pradipto, Kohji Nakamura, and Tomonori Ito
Department of Physics Engineering, Mie University, Japan

TuP-GR-11 (No Show) *12:40 - 14:30*

AlN Epitaxial Growth with Very High Growth Rate by HT MOCVD

Byoungtak Lee, Sain Hong, Hwanuk Shin, Taesanbukdoo Lim, and Minho Choi[*]
TOP Engineering, Republic of Korea

TuP-GR-13 (Poster) *12:40 - 14:30*

Formation of 3C-SiC thin film by Si surface carbonization for growth of GaN on Si substrates

Jianwei Wang,[*] Yifu Zhu, Takeshi Momose, Yukihiro Shimogaki, and Momoko Deura
Department of Material Engineering, University of Tokyo, Japan

TuP-GR-14 (Poster) *12:40 - 14:30*

Numerical study on impact of solidification kinetic for β-Ga_2O_3 crystal growth by Czochralski method

Yuji Mukaiyama,[*,1] Masaya Iizuka,[1] Andrei Vorob'ev,[2] Vladimir Artemyev,[2] Vasif Mamedov,[2] and Vladimir Kalaev[2]
[1]STR Japan K.K, Japan, [2]STR Group - Soft Impact, Ltd, Russia

TuP-GR-15 (Poster) *12:40 - 14:30*

Removal Process of Residual Si Impurities on Ga_2O_3 Substrate by CF_4 Reactive Ion Etching Treatment

Yoshiaki Nakata and Masataka Higashiwaki[*]
National Institute of Information and Communications Technology, Japan

TuP-GR-16 (No Show) *12:40 - 14:30*

Solid-liquid interface control and optimization of Ga_2O_3 crystal growth by EFG method

Zhitai Jia,[*] Wenxiang Mu, Bo Fu, Jin Zhang, and Xutang Tao
State key lab of crystal materials, Shandong Univeristy, China

TuP-GR-17 (Poster) *12:40 - 14:30*

Crystal structure of MgZnO deposited by RF sputtering

Maki Kushimoto,[*,1] Tadayoshi Sakai,[1] Manato Deki,[2] Yoshio Honda,[2,3] and Hiroshi Amano[2,4]
[1]Dept. of Electronics, Nagoya Univ., Japan, [2] IMaSS, Japan, [3]Institute of Advanced Resarch, Japan, [4]Akasaki RC, Japan

TuP-CH-1 (No Show) *12:40 - 14:30*

Optical characterization of light extraction behaviors on the light emitting diodes grown on the different patterning substrates

SangMook KIM[*] and Jong Hyeob Baek
Korea Photonics Technology Institute, Republic of Korea

TuP-CH-2 (No Show) *12:40 - 14:30*

Modulation of nanochannel geometry on self-heating in Tri-gate Nanowire GaN HEMTs on Silicon Substrate

Mei Wu,* Qing Zhu, Meng Zhang, Xinchuang Zhang, Ling Yang, Xiaohua Ma, and Yue Hao
State Key Discipline Laboratory of Wide Band-Gap Semiconductor Technology, Xidian University, China

TuP-CH-3 (No Show) *12:40 - 14:30*

Carrier Dynamics of Removing Excitation Pulse in InGaN Quantum Dots

Ming Tian,*[,1,2] Honghui Liu,[1] Jianping Liu,[3] Hui Yang,[3] and Zhe Chuan Feng[1,2]
[1]Laboratory of optoelectronic materials & detection technology, Guangxi Key Laboratory for the Relativistic Astrophysics, School of Physics Science & Technology, Guangxi University, China, [2]Center on Nanoenergy Research, Guangxi University, China, [3]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China

TuP-CH-4 (Poster) *12:40 - 14:30*

Optical Properties of GaN-Based Triangular Ridge Structures under High Excitation

Jing Zhou,* Menghan Liu, Ru Xu, Yunfei Yang, Cheng Ge, Haocheng Peng, Peng Chen, Bin Liu, Zili Xie, Rong Zhang, and Youdou Zheng
School of Electronic Science and Engineering, Nanjing University, China

TuP-CH-5 (No Show) *12:40 - 14:30*

Carrier dynamics in enhanced MQW light emitting diode structures via V-pits

Idris Ajia,[1] Zhiqiang Liu,[2] Paul Edwards,[3] Robert W. Martin,[3] and Iman S. Roqan*[,1]
[1]Physical Science and Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Saudi Arabia, Saudi Arabia, [2]Institute of Semiconductors, Chinese Academy of Science, Beijing 100083, China, China, [3]Department of Physics, SUPA, University of Strathclyde, Glasgow, G4 0NG, United Kingdom, United Kingdom

TuP-CH-6 (Poster) *12:40 - 14:30*

Evaluation of dislocations in AlN single crystal substrates

Yongzhao YAO,*[,1] Yukari ISHIKAWA,[1] Yoshihiro SUGAWARA,[1] Narihito OKADA,[2] and Kazuyuki TADATOMO[2]
[1]Japan Fine Ceramics Center, Japan, [2]Yamaguchi Univ., Japan

TuP-CH-7 (Poster) *12:40 - 14:30*

Leakage Current Mechanisms of Fully Recessed GaN SBDs with Low Turn-ON Voltage

Yanni Zhang,* Jincheng Zhang, Hong Zhou, Tao Zhang, and Yue Hao
State Key Discipline Laboratory of Wide Band Gap Semiconductor Technology, School of Microelectronics, Xidian University, China

TuP-CH-8 (Poster) *12:40 - 14:30*

Study of single-crystalline GaN converted from β-Ga_2O_3 film

Yuewen Li,* Xiangqian Xiu, Xuemei Hua, Zili Xie, Peng Chen, Bin Liu, Dunjun Chen, Rong Zhang, and Youdou Zheng
School of Electronic Science and Engineering, Nanjing University, China

TuP-CH-9 (Poster) *12:40 - 14:30*

Surface Plasmon Coupling around Lateral Interface toward InGaN Nanocolumn Based Plasmonic LEDs with High Efficiencies

Michitaka Oigawa,*[,1] Koichi Okamoto,[2] Rie Togashi,[3] Katsumi Kishino,[4] and Takao Oto[1]
[1]Yamagata University, Japan, [2]Osaka Prefecture University, Japan, [3]Sophia University, Japan, [4]Sophia Nanotechnology Research Center, Japan

TuP-CH-10 (Poster) *12:40 - 14:30*

Development of AlGaN Photodiode for UV-C detection

Thu Thi Thuy Pham,* Hyungtak Kim, Ho-Kyoung Lee, Hyunsik Shin, and Ho-Young Cha
Department of Electronic and Electrical Engineering, Hongik University, Republic of Korea

TuP-CH-11 (Poster) *12:40 - 14:30*

Electronic structures of InGaN alloys

Masataka Imura[*,1] and Yuichi Ota[2]
[1]National Institute for Material Science, Japan, [2]Tokyo Metropolitan Industrial Technology Research Institute, Japan

TuP-CH-12 (Poster) *12:40 - 14:30*

Influence of Carbon Doping on the Background n-type Impurity in GaN

Zhen xing Liu,[*,1] Liu an Li,[1] Ya wen Zhao,[1] Tao tao Que,[1] Jin wei Zhang,[1] Xin Gu,[1] Qiu ling Qiu,[1] Qian shu Wu,[1] and Yang Liu[1,2]
[1]School of Electronics and Information Technology, Sun Yat-Sen University, China, [2]State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, China

TuP-CH-13 (Poster) *12:40 - 14:30*

Surface passivation effect by various oxidation treatment on InGaN/GaN nanostructures fabricated by HEATE

Daichi Ito,[*,1] Yuki Ooe,[1] Yusei Kawasaki,[1] Yuta Moriya,[1] and Akihiko Kikuchi[1,2]
[1]Sophia University, Japan, [2]Sophia Photonics Research Center, Japan

TuP-CH-14 (Poster) *12:40 - 14:30*

Control of the composition range for bipolar doping in $Ni_xCd_{1-x}O$ alloys by oxygen stoichiometry and Li doping

Kingsley Onyekachi Egbo,[*,1] Chao Ping Liu,[1,2] and Kin Man Yu[1,3]
[1]Department of Physics, City University of Hong Kong, Hong Kong, [2]Department of Physics, College of Science, Shantou University, China, [3]Department of Materials Science and Engineering, City University of Hong Kong, Hong Kong

TuP-CH-15 (Poster) *12:40 - 14:30*

VUV Exciton Emission Spectra of MgO Single Crystals

Kanta Kudo,[*,1] Shoma Hoshi,[2] Mizuki Ono,[1] Yuki Fujiwara,[1] Kentaro Kaneko,[2,3,4] Tomohiro Yamaguchi,[1] Tohru Honda,[1] Shizuo Fujita,[2,4] and Takeyoshi Onuma[1]
[1]Department of Applied Physics, School of Advanced Engineering, Graduate School of Engineering, Kogakuin University, Japan, [2]Department of Electronic Science and Engineering, Kyoto University, Japan, [3]Engineering Education Research Center, Kyoto University, Japan, [4]Engineering Education Research Center, Kyoto University, Japan

TuP-CH-16 (Poster) *12:40 - 14:30*

Theoretical Study of Band Structure Effects on Impact Ionization Coefficients in Wide-bandgap Semiconductors

Hajime Tanaka,[*,1,2] Nobuya Mori,[2] and Tsunenobu Kimoto[1]
[1]Kyoto University, Japan, [2]Osaka University, Japan

TuP-OD-1 (Poster) *12:40 - 14:30*

Flexible metal mesh/ultrathin ITO hybrid transparent electrode and their application for GaN-based light-emitting diodes

Woo-Lim Jeong,[*] Jung-Hong Min, Hoe-Min Kwak, and Dong-Seon Lee
Gwangju Institute of Science and Technology, Republic of Korea

TuP-OD-2 (Poster) *12:40 - 14:30*

High-gain visible-blind AlGaN/GaN heterojunction phototransistor with a polarization-doped p-type base

Lijie Sun,[1] Zesheng Lv,[1] and Hao JIANG[*,1,2]
[1]School of Electronics and Information Technology, Sun Yat-sen University, China, [2]State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, China

TuP-OD-3 (Poster) *12:40 - 14:30*

Simulation of light extraction efficiency in multi-quantum-shell-LED fabricated on patterned sapphire substrate (PSS)

Mizuki Terazawa,[*,1] Masaki Ohya,[1,3] Kazuyoshi Iida,[1,3] Naoki Sone,[1,4] Nanami Goto,[1] Hideki Murakami,[1] Yu Okamoto,[1] Weifang Lu,[1] Satoshi Kamiyama,[1] Tetsuya Takeuchi,[1] Motoaki Iwaya,[1] and Isamu Akasaki[1,2]
[1]Meijo University, Japan, [2]Akasaki Research Center, Nagoya University, Japan, [3]Toyoda Gosei Co., Ltd, Japan, [4]Koito Manufacturing CO., LTD, Japan

TuP-OD-4 (Poster) *12:40 - 14:30*

Ni/NiOx nanocatalyst coated n-GaN for efficient photoelectrochemical water splitting

Yen-Hsien Yeh,[*] Chi-Huang Chuang, Tzu-Yi Yu, and Yuh-Jen Cheng
Research Center for Applied Sciences, Academia Sinica, Taiwan

TuP-OD-5 (Poster) *12:40 - 14:30*

Ultraviolet C Light-Emitting Diode with Active Mesa Stripes and Inclined Sidewalls for Enhanced TM mode Light Emission

Wei En Chang,[1,2] Chia Lung Tsai,[*,1] Yuh Renn Wu,[1] Hsueh Hsing Liu,[1] Yi Keng Fu,[1] and Chia Feng Lin[2]
[1]Electronic and Optoelectronic System Research Laboratories, Industrial Technology Research Institute, Taiwan, [2]Department of Materials Science and Engineering, National Chung Hsing University, Taiwan

TuP-OD-8 (Poster) *12:40 - 14:30*

Fabrication of nonpolar InGaN/GaN single-quantum-well-based nanopillar green light-emitting diode using self-assembled nanodots

Abu Bashar Mohammad Hamidul Islam,[*] Min Joo Park, Yu-Jung Cha, and Joon Seop Kwak
sunchon national university, Republic of Korea

TuP-OD-9 (Poster) *12:40 - 14:30*

Mg ion-implantation based GaN p-i-n photodiode for visible-blind ultraviolet detection

Weizong Xu,[*] Yating Shi, Fangfang Ren, Dong Zhou, Linlin Su, Qing Liu, Jiandong Ye, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

TuP-OD-10 (Poster) *12:40 - 14:30*

Improved performance of GaN-based green laser diodes by using ITO cladding layers

Jianping Liu
Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Science, China

TuP-OD-11 (Poster) *12:40 - 14:30*

Effects of the AlGaN/GaN superlattice electron blocking layer on efficiency characteristics of green light emitting diodes

Ruoshi Peng, Shengrui Xu,[*] and Hongchang Tao
Wide Bandap Semiconductor Technology Disciplines State Key Laboratory, Xidian University, China

TuP-OD-12 (Poster) *12:40 - 14:30*

Design of Deep Ultraviolet Second Harmonic Generation Device with Double-Layer Polarity-Inverted AlN Waveguide

Asahi Yamauchi,[*,1] Tenta Komatsu,[1] Kazuhisa Ikeda,[1] Kenjiro Uesugi,[2] Kanako Syojiki,[2] Hideto Miyake,[2] Toshiki Hikosaka,[3] Sinya Nunoue,[3] Takaya Morikawa,[1] Yasufumi Fujiwara,[1] Masahiro Uemukai,[1] Tomoyuki Tanikawa,[1] and Ryuji Katayama[1]
[1]Osaka Univ., Japan, [2]Mie Univ., Japan, [3]Toshiba Corp., Japan

TuP-OD-13 (Poster) *12:40 - 14:30*

Improved emission performance of N-polar GaN-based blue-violet light-emitting diodes with a polarization-induced tunneling junction

Yuantao Zhang,* Gaoqiang Deng, Ye Yu, Yang Wang, and Baolin Zhang
State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, China

TuP-OD-14 (Poster) *12:40 - 14:30*

Optical control of room temperature exciton polariton condensate in one-dimensional structure

Hyun Gyu Song,* Sunghan Choi, Min Sik Kwon, Kie Young Woo, Chung Hyun Park, and Yong-Hoon Cho
Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

TuP-OD-15 (No Show) *12:40 - 14:30*

Dual-functional InGaN/GaN MQW Diode for Auto Brightness Control

Xumin Gao,* Xinyu Xu, Kang Fu, Linning Wang, Yuan Jiang, and Yongjin Wang
College of Telecommunications and Information Engineering, Nanjing University of Posts and Telecommunications, China

TuP-OD-16 (Poster) *12:40 - 14:30*

Modulation of Circadian Rhythm and Growth Rate of Neurospora Crassa by Using Green Light LED

PEIJUN WEN,*[,1,2] FUYUN TAN,[1,2] HUI LIAO,[1,2] and XIAODONG HU[1,2]
[1]School of Physics, Peking University, China, [2]Research Center For Wide Gap Semiconductor of Peking University, China

TuP-OD-17 (Poster) *12:40 - 14:30*

Room-temperature Weak X-ray Detection Based on 25 mm^2 4H-SiC p-i-n Diodes

Qing Liu,* Weizong Xu, Heng Zhang, Hao Dong, Dong Zhou, Fangfang Ren, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

TuP-OD-18 (Poster) *12:40 - 14:30*

Ion implantation effect on DUV photodetectors performance of Ga_2O_3 epilayer grown by MOCVD

PENG HSUAN HUANG,* YUAN CHU SHEN, LIANG HSING LAI, and RAY HUA HONG
Institute of Electronics Engineering, National Chiao Tung University, Taiwan

TuP-OD-19 (Poster) *12:40 - 14:30*

Realization of a Self-powered InGaZnO MSM UV photodetector by UV-induced asymmetric Schottky Barrier

Yu-Ru Liu and Chun-Ying Huang*
Department of Applied Materials and Optoelectronics Engineering, National Chi Nan University, Taiwan

TuP-OD-20 (Poster) *12:40 - 14:30*

Intramolecular energy transfer effect of Erbium complexes doped optical waveguide amplifier pumped by LED

Dan Zhang,*[,1] Hong Zhan,[1] Zhensheng Lin,[1] Wang Fan,[1] Zhongming Zheng,[1] Hao Long,[1] Zhiwei Zheng,[1] Leiying Ying,[1] Baoping Zhang,[1] and Guomei He[2]
[1]School of Electronic Science and Engineering(National Model Microelectronics College), Xiamen University, China, [2]Department of Materials Science and Engineering, College of Materials, Xiamen University, China

TuP-ED-1 (Poster) *12:40 - 14:30*

Simple Photoelectrochemical Etching for GaN HEMT Application

Fumimasa Horikiri,*[,1] Noboru Fukuhara,[1] Yoshinobu Narita,[1] Takehiro Yoshida,[1] Masachika Toguchi,[2] Kazuki Miwa,[2] and Taketomo Sato[2]
[1]SCIOCS Co. Ltd, Japan, [2]Hokkaido Univ., Japan

TuP-ED-2 (No Show) *12:40 - 14:30*

Enhancement of channel conductivity and suppression of current collapse in C-doped GaN buffer by using the Si δ-doped AlGaN back barrier

Ling Yang,[*,1] Meng Zhang,[1] Bin Hou,[2] Minhan Mi,[2] Mei Wu,[2] Qing Zhu,[1] Jiejie Zhu,[2] Xiaohua Ma,[2] and Yue Hao[2]
[1]School of advanced materials and nanotechnology, Xidian University, China, [2]School of Microelectronics, Xidian University, China

TuP-ED-3 (Poster) *12:40 - 14:30*

Effects of Surface Oxide Reduction Prior to Metallization on Electrical Properties of GaN-on-GaN Schottky Diodes

Kazuki Isobe[*] and Masamichi Akazawa
Hokkaido University, Japan

TuP-ED-4 (No Show) *12:40 - 14:30*

Fin-Gated Nanochannel Array GaN-based Metal-Oxide-Semiconductor High-Electron Mobility Transistors

Ching-Ting Lee[*,1,2] and Hsin-Ying Lee[2]
[1]Department of Electrical Engineering, Yuan Ze University, Taoyuan 320, Taiwan, Republic of China, Taiwan, [2]Department of Photonics, National Cheng Kung University, Tainan 701, Taiwan, Republic of China, Taiwan

TuP-ED-5 (Poster) *12:40 - 14:30*

Evaluation of Radical Production Rate from $S_2O_8^{2-}$ ions for GaN Etching

Masachika Toguchi,[*,1] Kazuki Miwa,[1] Fumimasa Horikiri,[2] Noboru Fukuhara,[2] Yoshinobu Narita,[2] Takehiro Yoshida,[2] and Taketomo Sato[1]
[1]Hokkaido University, Japan, [2]SCIOCS Co. Ltd., Japan

TuP-ED-6 (Poster) *12:40 - 14:30*

A GaN Power Amplifier MMIC for Ka band Satellite Communication

Chupeng Yi,[*,1] Yang Lu,[2] Hengshuang Zhang,[2] Ziyue Zhao,[1] Xiaohua Ma,[2,3] and Yue Hao[2,3]
[1]School of Adanced Materials and Nanotechnology, Xidian University, China, [2]School of Microelectronics, Xidian University, China, [3]Key Laboratory of Wide Band-Gap Semiconductor Technology, Xidian University, China

TuP-ED-7 (Poster) *12:40 - 14:30*

MOVPE-grown GaInN laser diodes with GaN tunnel junctions

Ryosuke iida,[*,1] Kohei Miyoshi,[2] Yuki Kato,[1] Kei Arakawa,[1] Tetsuya Takeuchi,[1] Satoshi Kamiyama,[1] Motoaki Iwaya,[1] and Isamu Akasaki[1,3]
[1]Meijo University, Japan, [2]USHIO OPTO SEMICONDUCTORS, INC, Japan, [3]Nagoya University, Japan

TuP-ED-8 (Poster) *12:40 - 14:30*

Migration Energies of 5-7 Edge Dislocations in GaN

Jesse Chiam Anderson,[*,1] Masato Oda,[1,2] Jun Nara,[2] and Tsuyoshi Miyazaki[2]
[1]Wakayama University, Japan, [2]National Institute for Materials Science, Japan

TuP-ED-9 (Poster) *12:40 - 14:30*

The effects of PDA on the interface characteristics of GaN-based MIS-HEMTs in different atmosphere and temperature

Siyu Liu,[*,1] Mi Ma,[2] Jielong Liu,[1] Fuchun Jia,[2] Qing Zhu,[1] Jiejie Zhu,[1,2] Ling Yang,[1,2] Xiaohua Ma,[2] and Yue Hao[2]
[1]School of Advanced Materials and Nanotechnology,Xidian University, China, [2]State Key Discipline Laboratory of Wide BandGap Semiconductor Materials and Devices,School of Microelectronics,Xidian University, China

TuP-ED-10 (No Show) *12:40 - 14:30*

Comparison of device characteristics between recessed and regular AlGaN/GaN SBDs

Ge Liu,[*] Jincheng Zhang, Shenglei Zhao, Weihang Zhang, and Yue Hao
Key Laboratory of Wide Band Gap Semiconductor Materials and Devices, School of Microelectronics, Xidian University, China

TuP-ED-11 (Poster) *12:40 - 14:30*

AlGaN/GaN HFET with Thin AlGaN Barrier Fabricated Using PECVD SiN_x Passivation

Hyun-Seop Kim,[*,1] Myoung-Jin Kang,[2] Won-Ho Jang,[1] Kwang-Seok Seo,[2] Hyungtak Kim,[1] Ho-Kyoung Lee,[1] Hyungsik Shin,[1] and Ho-Young Cha[1]

[1]School of Electronic and Electrical Engineering, Hongik University, Republic of Korea, [2]Department of Electrical and Computer Engineering, Seoul National University, Republic of Korea

TuP-ED-12 (Poster) *12:40 - 14:30*

Temperature Dependence of Microwave Responsivity of Gated and Ungated Self-Switching Diodes Based on GaN

Javier Mateos,[*,1] Elsa Pérez-Martín,[1] Héctor Sánchez-Martín,[1] Daniel Vaquero,[1] Gaudencio Paz,[1] José Antonio Novoa- López,[1] Susana Pérez,[1] Nicolas Defrance,[2] Christophe Gaquière,[2] Guillaume Ducournau,[2] Tomás González,[1] and Ignacio Íñiguez-de-la-Torre[1]

[1]Universidad de Salamanca, Spain, [2]IEMN, University of Lille 1, France

TuP-ED-13 (Poster) *12:40 - 14:30*

Room temperature NDR in digital alloy AlGaN barrier RTDs

Xinqiang Wang,[*,1] Ding Wang,[1,2] Zhaoying Chen,[1] Tao Wang,[1] Wei Tan,[3] Siping Guo,[4] Jian Zhang,[3] and Bo Shen[2]

[1]School of Physics, Peking University, China, [2]Department of Engineering Physics, Tsinghua University, China, [3]Microsystem and Terahertz Research Center, China, [4]Advanced Micro-Fabrication Equipment Inc, China

TuP-ED-15 (No Show) *12:40 - 14:30*

Hybrid Conductive Filaments Characteristic of the (In, N) co-doped ZnO Memory Device

Sih-Sian Li[1,2] and Yan-Kuin Su[*,1,2]

[1]Institute of Microelectronics, Department of Electrical Engineering, Department of Photonics, National Cheng Kung University, Taiwan, [2]Green Energy Technology Research Center, Department of Electrical Engineering, Kun Shan University, Taiwan

TuP-ED-16 (No Show) *12:40 - 14:30*

Electrical and photocurrent properties of polycrystalline Sn-doped β-Ga_2O_3 thin film with thickness of 100 nm

Younbgin Yoon,[*,1] Sunjae Kim,[2] In Gye Lee,[2] Byung Jin Cho,[3] Myunghun Shin,[1] and Wan Sik Hwang[2]

[1]Department of Electronics and Information Engineering, Korea Aerospace University, Republic of Korea, [2]Department of Materials Engineering, Korea Aerospace University, Republic of Korea, [3]2School of Electrical Engineering, KAIST, Republic of Korea

TuP-ED-17 (Poster) *12:40 - 14:30*

Diamond SAW devices made by Minimal-fab

Ayano Nakasone,[*,1] Satoshi Fujii,[1] Sommawan Khumpuang,[2] Shiro Hara,[2] Haruki Toonoe,[3] and Yasunori Shiba[3]

[1]National Institute of Technology, Okinawa College, Japan, [2]AIST, Japan, [3]Yokogawa Solution Service, Japan

TuP-ED-18 (No Show) *12:40 - 14:30*

Al_2O_3/TiO_2-Passivated $In_{0.17}Al_{0.83}N$/AlN/GaN Γ-Gate MOS-HFETs

Ching-Sung Lee Lee,[*,1] Wei-Chou Hsu,[2] Yun-Jung Lin,[1] and Xue-Cheng Yao[1]

[1]Department of Electronic Engineering, Feng Chia University, Taiwan, [2]Institute of Microelectronics, National Cheng Kung University, Taiwan

TuP-ED-19 (Poster) *12:40 - 14:30*

Flexible electrochromic transistor

Takaki Onozato,[*,1] Hai Jun Cho,[1,2] and Hiromichi Ohta[1,2]

[1]Graduate School of Information Science and Technology (IST), Hokkaido University, Japan, [2]Research Institute for Electronic Science (RIES), Hokkaido University, Japan

OD2 Visible & Novel Devices

Auditorium 14:40-15:55

Chair: Okhyun Nam and Baoping Zhang

OD2-1 (Invited) *14:40 - 15:10*

Enhancement of LED Color Conversion Efficiency through Surface Plasmon Coupling

Wen-Yen Chang, Yao-Tseng Wang, Cheng-Jin Cai, Ruei-Nan Wu, Chia-Chun Ni, Chun-Han Lin, Hsin-Chun Chiang, Yu-Feng Yao, Chi-Chung Chen, Wai Fong Tse, Yang Kuo, Yean-Woei Kiang, and Chih-Chung Yang*

National Taiwan University, Taiwan

OD2-2 (Oral) *15:10 - 15:25*

The Role of Surface Defects in Efficiency Degradation of GaInN-based Green Light-emitting Diodes

Dong-Pyo Han,*,1 Seiji Ishimoto,1 Ryoya Mano,1 Weifang Lu,1 Motoaki Iwaya,1 Tetsuya Takeuchi,1 Satoshi Kamiyama,1 and Isamu Akasaki1,2

1Faculty of Science and Technology, Meijo University, Japan, 2Akasaki Research Center, Nagoya University, Japan

OD2-3 (Oral) *15:25 - 15:40*

Demonstration of near-infrared light-emitting diodes with ultra-stable emission wavelength based on Tm-doped GaN

Naoki Yoshioka,* Shuhei Ichikawa, Jun Tatebayashi, and Yasufumi Fujiwara

Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan

OD2-4 (Oral) *15:40 - 15:55*

The enhanced light output of ODR based UV-LEDs using porous SiO_2 layer

Jeong-won Lee* and Tae-yeon Seong

Department of Nanophotonics Engineering, Korea University, Republic of Korea

CH1 Optical Characterization 1

Meeting Room 14:40-15:55

Chair: Bernard Gil and Atsushi A. Yamaguchi

CH1-1 (Invited) *14:40 - 15:10*

New features of polar InGaN/GaN quantum wells and emitters induced by manipulation of built-in electric field

Tadek Suski,*,1 Grzegorz Staszczak,1 Grzegorz Muziol,1 Krzysztof Korona,2 Anna Kafar,1,4 Szymon Stanczyk,1 Czeslaw Skierbiszewski,1,3 and Piotr Perlin1,3

1Institute of High Pressure Physics, Polish Academy of Sciences, Poland, 2Institute of Experimental Physics, Warsaw University, Poland, 3TopGaN Ltd., Poland, 4Kyoto University, Japan

CH1-2 (Oral) *15:10 - 15:25*

Origin and dynamic properties of intrinsic nonradiative recombination centers in bulk and epitaxial ZnO

Shigefusa F. Chichibu,*,1 Kazunobu Kojima,1 Kazuto Koike,2 Mitsuaki Yano,2 Shun-ichi Gonda,3 Shoji Ishibashi,4 and Akira Uedono5

1Tohoku University, Japan, 2Osaka Institute of Technology, Japan, 3Osaka University, Japan, 4National Institute of Advanced Industrial Science and Technology, Japan, 5University of Tsukuba, Japan

CH1-3 (Oral) *15:25 - 15:40*

Red emission enhancement from InGaN using nanocolumn plasmonic crystals with honeycomb and kagome lattices

Aoto Aihara,[*,1] Kazuma Kikuchi,[2] Koichi Okamoto,[4] Rie Togashi,[2] Katsumi Kishino,[3] and Takao Oto[1]
[1]Yamagata University, Japan, [2]Sophia University, Japan, [3]Sophia Nanotechnology Research Center, Japan, [4]Osaka Prefecture University, Japan

CH1-4 (Oral) *15:40 - 15:55*

High-temperature promoted nonradiative recombination at threading dislocations in blue-emitting InGaN quantum well

Ryota Ishii,[*] Yuji Koyama, Mitsuru Funato, and Yoichi Kawakami
Department of Electronic Science and Engineering, Kyoto University, Japan

Break *15:55 - 16:25*

OD3 UV Devices 1

Auditorium *16:25-17:55*

Chair: Xinqiang Wang and Tim Wernicke

OD3-1 (Invited) *16:25 - 16:55*

Toward the realization of AlGaN-based UVB laser diodes

Motoaki Iwaya,[*,1] Kosuke Sato,[1,2] Sho Iwayama,[1,3] Tetsuya Takeuchi,[1] Satoshi Kamiyama,[1] Isamu Akasaki,[1,4] and Hideto Miyake[3]
[1]Department of Materials Science and Engineering, Meijo Univ., Japan, [2]Asahi-Kasei Corporation, Japan, [3]Graduate School of Regional Innovation Studies, Mie University, Japan, [4]Akasaki Research Center, Nagoya University, Japan

OD3-2 (Invited) *16:55 - 17:25*

A pathway toward low threshold UVC laser diodes

Zlatko Sitar,[*,1,2] Ronny Kirste,[2] Seiji Mita,[2] Pramod Reddy,[2] Qiang Guo,[1] Biplab Sarkar,[1] Doug Irving,[1] and Ramon Collazo[1]
[1]North Carolina State University, United States of America, [2]Adroit Materials, United States of America

OD3-3 (Oral) *17:25 - 17:40*

42mW light power from AlGaN-based 302nm-band UVB LEDs: a way forward for UVB LDs

Muhammad Ajmal Khan,[*,1,2] Noritoshi Maeda,[1] Masafumi Jo,[1] Sachie Fujikawa,[1,4] Yoichi Yamada,[3] and Hideki Hirayama Hirayama[1,2]
[1]RIKEN Center for Advanced Photonics (RAP), Japan, [2]RIKEN Cluster for Pioneering Research, Japan, [3]Faculty of Engineering, Yamaguchi University, Japan, [4]Tokyo Denki University, Japan

OD3-4 (Oral) *17:40 - 17:55*

High performance of AlGaN deep-ultraviolet light emitting diodes due to improved vertical carrier transport by delta-accelerating quantum barriers

Jing Lang,[*] Fujun Xu, Weikun Ge, Baiyin Liu, Na Zhang, Yuanhao Sun, Jiaming Wang, Mingxing Wang, Nan Xie, and Bo Shen
Peking University, China

CH2 Extended Defects

Meeting Room 16:25-17:55

Chair: Akira Sakai and Bo Shen

CH2-1 (Invited) *16:25 - 16:55*

Control and annihilation of dislocation propagation in diamond by metal-assisted termination

Shinya Ohmagari,* Hideaki Yamada, Nobuteru Tsubouchi, Hitoshi Umezawa, Akiyoshi Chayahara, and Daisuke Takeuchi
National Institute of Advanced Industrial Science and Technology, Japan

CH2-2 (Invited) *16:55 - 17:25*

Nondestructive defect characterization of widegap semiconductors using multiphoton-excitation photoluminescence

Tomoyuki Tanikawa,* Masahiro Uemukai, and Ryuji Katayama
Osaka University, Japan

CH2-3 (Oral) *17:25 - 17:40*

Vacancy assistant dislocation engineering for continuous 10.2 μm-thick GaN films on Si substrates

Jie Zhang, Xuelin Yang,* Jianfei Shen, and Bo Shen
School of Physics, Peking University, China

CH2-4 (Oral) *17:40 - 17:55*

Defect structure analysis of OVPE grown homoepitaxial GaN thick film

Tetsuya Tohei,*,[1] Miki Manabe,[1] Junichi Takino,[2] Tomoaki Sumi,[2] Masayuki Imanishi,[3] Yusuke Mori,[3] and Akira Sakai[1]
[1]Graduate School of Engineering Science, Osaka University, Japan, [2]Panasonic Corporation, Japan, [3]Graduate School of Engineering, Osaka University, Japan

November 13 (Wednesday)

GR4 Novel Process Technology

Auditorium 09:00-10:45

Chair: Motoaki Iwaya and Chih-Chung Yang

GR4-1 (Invited) *09:00 - 09:30*

Threading Dislocation Reduction of Sputter-deposited AlN/sapphire by High-Temperature Annealing

Hideto Miyake,[*,1,2] Kenjiro Uesugi,[1,3] Kanako Shojiki,[2] Shiyu Xiao,[1] Haruhiko Koizumi,[3] and Shigeyuki Kuboya[3]
[1]Graduate School of Regional Innovation Studies, Mie University, Japan, [2]Graduate School of Engineering, Mie University, Japan, [3]Organization for Promotion of Regional Innovation, Mie University, Japan

GR4-2 (Invited) *09:30 - 10:00*

Growth and characterization of widegap III-nitride based optoelectronic and electronic devices using HT-MOCVD

Okhyun Nam
Korea Polytechnic University, Republic of Korea

GR4-3 (Oral) *10:00 - 10:15*

Enhanced doping efficiency of p-GaN grown on free standing GaN substrates

liwen sang,[*] Bing Ren, Raimu Endo, Takuya Masuda, Toshihide Nabatame, Masatomo Sumiya, Yasuo Koide, and Meiyong Liao
National Institute for Materials Science, Japan

GR4-4 (Oral) *10:15 - 10:30*

Carbon and aluminum co-treatment at high temperatures for surface p-type conduction of AlN

Katsuhiro Kishimoto,[*] Mitsuru Funato, and Yoichi Kawakami
Department of Electronic Science and Engineering, Kyoto University, Japan

GR4-5 (Oral) *10:30 - 10:45*

Highly controllable self-assembled AlGaN-quantum wires grown on sapphire with large miscut angle

Yuanhao Sun,[*] Fujun Xu, Mingxing Wang, Jing Lang, Na Zhang, and Bo Shen
State Key Laboratory of Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking university, China

ED3 Novel Electronic Devices

Meeting Room 09:00-10:45

Chair: Masataka Higashiwaki and Nam Kyun Kim

ED3-1 (Invited) *09:00 - 09:30*

Recent progress for inversion channel mobility improvement in diamond MOSFETs

Tsubasa Matsumoto,[*,1] Ukyo Sakurai,[3] Tomoya Yamakawa,[3] Hiromitsu Kato,[2] Toshiharu Makino,[2] Masahiko Ogura,[2] Daisuke Takeuchi,[2] Satoshi Yamasaki,[1,2] Takao Inokuma,[2] and Norio Tokuda[1,2]
[1]Nanomaterials Research Institute, Kanazawa University, Japan, [2]Advanced Power Electronics Research Center, AIST, Japan, [3]Graduate School of Natural Science and Technology, Kanazawa University, Japan

ED3-2 (Invited) *09:30 - 10:00*

Ga_2O_3 Power Device Potential Investigation Based on Its Nano-membrane Channels

Hong Zhou,* Jincheng Zhang, and Yue Hao
Xidian University, China

ED3-3 (Oral) *10:00 - 10:15*

Very high sensitive AlGaN/GaN HEMT sensor for hydrogen detection at room temperature

Kyung-Ho Park,* Chu-Young Cho, Hae-Yong Jeong, Hyeong-Ho Park, Jeong-Min Ju, and Young-Jae Jo
Devices Technology Division, Korea Advanced Nano Fab Center (KANC), Republic of Korea

ED3-4 (Oral) *10:15 - 10:30*

Significant Image Force Lowering at Metal/Heavily-Doped SiC Interfaces

Masahiro Hara,* Satoshi Asada, Takuya Maeda, and Tsunenobu Kimoto
Department of Electronic Science and Engineering, Kyoto University, Japan

ED3-5 (Oral) *10:30 - 10:45*

Lateral GaN SBD for 5.8GHz Microwave Rectifier with A Peak Efficiency of 71% at Input Power of 33.96 dBm

Kui Dang,* Jincheng Zhang, Hong Zhou, and Yue Hao
Xidian University, China

Break *10:45 - 11:15*

OD4 MicroLED

Auditorium *11:15-13:00*

Chair: Jen-Inn Chyi and Jinmin Li

OD4-1 (Invited) *11:15 - 11:45*

Development of Transparent MicroLED Display

Ying-Tsang Liu, Kuan-Yung Liao, Yu-Hung Lai, and Yun-Li Li*
PlayNitride Inc., Taiwan

OD4-2 (Invited) *11:45 - 12:15*

GaN-based integrated micro LED research

Kei May Lau
Department of Electronic and Computer Engr., Hong Kong U. of Science & Technology, Hong Kong

OD4-3 (Oral) *12:15 - 12:30*

Fabrication of Needle-Shaped GaN-μLED Neural Probe for Optogenetics

Hiroki Yasunaga,*,[1] Masahiro Ohsawa,[2] and Hiroto Sekiguchi[1,3]
[1]Toyohashi Tech, Japan, [2]Nagoya city Univ., Japan, [3]JST PRESTO, Japan

OD4-5 (Oral) *12:45 - 13:00*

Integration of GaN LED and Si-CMOS on 200 mm Si Platform

Li Zhang,*,[1] Kwang Hong Lee,[1] Kenneth Lee,[1] Chuan Seng Tan,[1,2] Soo Jin Chua,[1,3] and Eugene A. Fitzgerald[1,4]
[1]Singapore-MIT Alliance for Research and Technology, Singapore, [2]School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, [3]Department of Electrical and Computer Engineering, National University of Singapore, Singapore, [4]Department of Materials Science and Engineering, Massachusetts Institute of Technology, United States of America

CH3 Optical Characterization 2

Meeting Room 11:15-13:00

Chair: Yoshihiro Ishitani and Tadek Suski

CH3-1 (Invited) *11:15 - 11:45*

Phonons, free charge carriers, excitons and band-to-band transitions in beta Ga_2O_3 and related alloys determined by ellipsometry and optical Hall effect

M. Schubert,[*,1,2,3] A. Mock,[4] S. Knight,[1] M. Hilfiker,[1] M. Stokey,[1] V. Darakchieva,[2] A. Papamichail,[2] R. Korlacki,[1] M.J. Tadjer,[5] Z. Galazka,[6] G. Wagner,[6] N. Blumenschein,[7] A. Kuramata,[8] K. Goto,[8,9] H. Murakami,[9] Y. Kumagai,[8] M. Higashiwaki,[10] A. Mauze,[10] Y. Zhang,[11] and J. S. Speck[11]

[1]Department of Electrical and Computer Engineering, University of Nebraska, United States of America, [2]Department of Physics, Chemistry and Biology (IFM), Linkoping University, Sweden, [3]Leibniz Institute for Polymer Research, Germany, [4]National Research Council Postdoctoral Fellow, residing at U.S. Naval Research Laboratory, United States of America, [5]U.S. Naval Research Laboratory Electronics Science and Technology Division,, United States of America, [6]Leibniz-Institut für Kristallzüchtung, Germany, [7]Department of Electrical and Computer Engineering, North Carolina State University, United States of America, [8]Novel Crystal Technology, Inc., Japan, [9]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan, [10]National Institute of Information and Communications Technology, Japan, [11]Materials Department, University of California Santa Barbara, United States of America

CH3-2 (Invited) *11:45 - 12:15*

Deep UV cathodoluminescence properties of rocksalt-structured MgZnO alloys

Takeyoshi Onuma,[*,1] Mizuki Ono,[1] Kanta Kudo,[1] Kyohei Ishii,[2] Kentaro Kaneko,[2,3,4] Shizuo Fujita,[2,4] and Tohru Honda[1]

[1]Department of Applied Physics and Graduate School of Engineering, Kogakuin University, Japan, [2]Department of Electronic Science and Engineering, Kyoto University, Japan, [3]Engineering Education Research Center, Kyoto University, Japan, [4]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

CH3-3 (Oral) *12:15 - 12:30*

Luminescence enhancement of N-polar InGaN/GaN multiple quantum wells grown by flow modulation epitaxy

Chengguo Li

Guangdong Institute of Semiconductor Industrial Technology, China

CH3-4 (Oral) *12:30 - 12:45*

Radiative and Nonradiative Recombination Rates of Excitons and Their Effects on Internal Quantum Efficiency of AlGaN-based UV-B MQWs

Hideaki Murotani,[*,1,2] Hiroyuki Miyoshi,[1] Ryohei Takeda,[1] Muhammad Ajmal Khan,[3] Noritoshi Maeda,[3] Masafumi Jo,[3] Hideki Hirayama,[3] and Yoichi Yamada[1]

[1]Department of Electrical and Electronic Engineering, Yamaguchi University, Japan, [2]National Institute of Technology, Tokuyama College, Japan, [3]RIKEN Cluster for Pioneering Research, Japan

CH3-5 (Oral) *12:45 - 13:00*

Simulation and growth of GaN/AlGaN based terahertz quantum cascade structures

Ke Wang,[*,1,2] Li Wang,[2] Tsung-Tse Lin,[2] Koichi Fukuda,[2] Rong Zhang,[1] and Hideki Hirayama[2]

[1]School of Electronic Science and Engineering, Nanjing University, China, [2]Terahertz Quantum Device team, RAP, RIKEN, Japan

Excursion *13:00 - 18:00*

November 14 (Thursday)

OD5 UV Devices 2

Auditorium 09:00-10:15

Chair: Ryota Ishii and Ke Wang

OD5-1 (Invited) *09:00 - 09:30*

Emerging new techniques for efficient AlGaN DUV LEDs: from 2D to 3D

Jinmin Li
Institute of Semiconductors, Chinese Academy of Science, China

OD5-2 (Invited) *09:30 - 10:00*

Prospects and challenges for UV LEDs and UV lasers with tunnel junctions

Tim Wernicke ,[*,1] Luca Sulmoni,[1] Martin Guttmann,[1] Norman Susilo,[1] Eviathar Ziffer,[1] Christian Kuhn,[1] Frank Mehnke,[1] Anton Muhin,[1] Filip Hjort,[2] Johannes Enslin,[1] Munise Cobet,[1,3] Michael A. Bergmann,[2] Martin Martens,[1] Johan Gustavsson,[2] Åsa Haglund,[2] and Michael Kneissl[1,4]
[1]Technical University of Berlin, Germany, [2]Chalmers University of Technology, Sweden, [3]Johannes Kepler University Linz, Austria, [4]Ferdinand-Braun-Institut, Germany

OD5-3 (Oral) *10:00 - 10:15*

High current operation of UV-B devices fabricated on low dislocation and relaxed AlGaN

Shinji Yasue,[*,1] Kosuke Sato,[1,2] Yusuke Sakuragi,[1] Yuya Ogino,[1] Syunya Tanaka,[1] Shohei Teramura,[1] Sho Iwayama,[1,4] Motoaki Iwaya,[1] Takeuchi Tetsuya,[1] Satoshi Kamiyama,[1] Isamu Akasaki,[1,3] and Hideto Miyake[4]
[1]Department of Materials Science and Engineering, Meijo University, Japan, [2]Asahi-Kasei Corporation, Japan, [3]Akasaki Research Center, Nagoya University, Japan, [4]Graduate School of Regional Innovation Studies, Mie University, Japan

GR5 Bulk Growth

Meeting Room 09:00-10:15

Chair: Yusuke Mori and Zlatko Sitar

GR5-1 (Invited) *09:00 - 09:30*

Acidic Ammonothermal Growth of Bulk GaN

Yutaka Mikawa,[*] Takayuki Ishinabe, Yuji Kagamitani, Hirotaka Ikeda, and Tae Mochizuki
Mitsubishi Chemical Corporation, Japan

GR5-2 (Invited) *09:30 - 10:00*

Bulk growth of GaN. How to overcome the equilibrium crystal shape?

Michal Stanislaw Bockowski
[1]IHPP PAS, Poland, [2]CIRFE, IMaSS, Nagoya University, Japan

GR5-3 (Oral) *10:00 - 10:15*

GaN crystal growth by basic ammonothermal method

Guoqiang Ren,[*,1] Tengkun Li,[1] Xujun Su,[1] Jingjing Yao,[1] Xiaodong Gao,[1] and Ke Xu[1,2]
[1]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, [2]Suzhou Nanowin Science and Technology Co, Ltd., China

Break *10:15 - 10:45*

ED4 Power Devices

Auditorium 10:45-12:30

Chair: Shinsuke Harada and Chih-Fang Huang

ED4-1 (Invited) *10:45 - 11:15*

Development of SiC power devices with low on-resistance

Nam Kyun KIM
Korea Electrotechnology Research Institute (KERI), Republic of Korea

ED4-2 (Invited) *11:15 - 11:45*

Dynamic Performance and Surge Current Capability of Vertical GaN-on-GaN Power Devices

Shu Yang,* Shaowen Han, and Kuang Sheng
College of Electrical Engineering, Zhejiang University, China

ED4-3 (Oral) *11:45 - 12:00*

Impacts of Channel Length on Electrical Characteristics in Side-Gate SiC JFETs

Masashi Nakajima,* Qimin Jin, Mitsuaki Kaneko, and Tsunenobu Kimoto
Kyoto University, Japan

ED4-4 (Oral) *12:00 - 12:15*

Investigation of thin-AlGaN/GaN MOS-HFETs on the AlGaN back-barrier structure for normally-off operation

Jumpei Tajima,* Toshiki Hikosaka, and Shinya Nunoue
Corporate Research & Development Center, Toshiba Corporation, Japan

ED4-5 (Oral) *12:15 - 12:30*

Depth Profiles of Defects Generated by RIE in 4H-SiC Characterized by Deep-level Transient Spectroscopy

Kazutaka Kanegae,*,[1] Takafumi Okuda,[1] Masahiro Horita,[1,2] Jun Suda,[1,2] and Tsunenobu Kimoto[1]
[1]Kyoto Univ., Japan, [2]Nagoya Univ., Japan

CH4 Physical Properties

Meeting Room 10:45-12:30

Chair: Frank Bertram and Shigefusa F. Chichibu

CH4-1 (Invited) *10:45 - 11:15*

Boron nitride from its physics to advanced photonic applications

Bernard GIL
CNRS & University Montpellier, France

CH4-2 (Oral) *11:15 - 11:30*

Electrical spin injection into bulk GaN with Co/MgO spin injector

Xingchen liu,[1] Ning Tang,*,[1] C. Fang,[2] Xiaoyue Zhang,[1] Hongming Guan,[1] Yunfan Zhang,[1] C.H Wan,[2] Weikun Ge,[1] X.F Han,[2] and Bo Shen[1]
[1]State Key Laboratory of Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking University, China, [2]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, China

CH4-3 (Oral) *11:30 - 11:45*

RF sputtering deposition of Mg-doped h-BN films on $Al_{0.7}Ga_{0.3}N$ template

GUODONG HAO,* Manabu Taniguchi, Sachiko Tsuzuki, and Shin-ichiro Inoue
National Institute of Information and Communications Technology (NICT), Japan

CH4-4 (Oral) *11:45 - 12:00*

Energy distributions of interface state density originating from tail states of the conduction band in SiC MOS structures

Koji Ito,* Takuma Kobayashi, and Tsunenobu Kimoto
Kyoto University, Japan

CH4-5 (Oral) *12:00 - 12:15*

Zn-IV-nitrides for integration in electronic and photonic devices

Nicholas Lloyd Adamski,*,[1] Darshana Wickramaratne,[2] and Chris G. Van de Walle[3]
[1]Department of Electrical and Computer Engineering, University of California, Santa Barbara, United States of America, [2]US Naval Research Laboratory, United States of America, [3]Materials Department, University of California, Santa Barbara, United States of America

CH4-6 (Oral) *12:15 - 12:30*

In-situ observation of stacking faults expansion in 4H-SiC at high temperatures by synchrotron X-ray topography

Fumihiro Fujie,*,[1] Shunta Harada,[1] Hiromasa Suo,[2] Tomohisa Kato,[3] and Toru Ujihara[1]
[1]Nagoya University, Japan, [2]Showa Denko K.K., Japan, [3]National Institute of Advanced Industrial Science and Technology (AIST), Japan

Poster **Poster Session C** *Tunnel Gallery 12:30-14:20*

ThP-GR-1 (Poster) *12:30 - 14:20*

In-plane misfits' localization in GaN via graphene-ELOG technology

Yu Xu,*,[1,2] Xujun Su,[1] Bing Cao,[3,4] Zongyao Li,[2] Yi Liu,[3,4] Demin Cai,[2] Yumin Zhang,[1,2] Jianfeng Wang,[1,2] Chinhua Wang,[3,4] and Ke Xu[1,2]
[1]Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), Chinese Academy of Sciences (CAS), Suzhou 215123, China, [2]Suzhou Nanowin Science and Technology Co., Ltd., Suzhou 215123, China, [3]School of Optoelectronic Science and Engineering & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215006, China, [4]Key Lab of Advanced Optical Manufacturing Technologies of Jiangsu Province & Key Lab of Modern Optical Technologies of Education Ministry of China, Soochow University, Suzhou 215006, China

ThP-GR-2 (Poster) *12:30 - 14:20*

Study on p-GaN shell in nanowire core-shell LED

Nanami Goto,*,[1] Naoki Sone,[1,2] Kazuyoshi Iida,[1,3] Weifang Lu,[1] Hideki Murakami,[1] Mizuki Terazawa,[1] Jun Uzuhashi,[4] Tadakatsu Ohkubo,[4] Kazuhiro Hono,[4] Masaki Ohya,[1,3] Satoshi Kamiyama,[1] Tetsuya Takeuchi,[1] Motoaki Iwaya,[1] and Isamu Akasaki[1,5]
[1]Meijo University, Japan, [2]Koito Manufacturing CO., Ltd, Japan, [3]Toyada Gosei Co., Ltd, Japan, [4]National Institute for Materials Science, Japan, [5]Akasaki Research Center, Nagoya Univ., Japan

ThP-GR-3 (Poster) *12:30 - 14:20*

Theoretical Study of the Origins of Carbon Impurities on GaN MOVPE from a Gas Phase Reaction Perspective ~Incorporation of Ga and C Related Molecules~

Yuto Okawachi,*,[1] Kenta Chokawa,[1] Masaaki Araidai,[2] Akira Kusaba,[4] Yoshihiro Kangawa,[2,3] Koichi Kakimoto,[3] Zheng Ye,[1] Yoshio Honda,[1,2] Shugo Nitta,[1,2] Hiroshi Amano,[1,2] and Kenji Shiraishi[1,2]
[1]Graduate School of Engineering, Nagoya Univ, Japan, [2]IMaSS, Nagoya Univ, Japan, [3]RIAM, Kyushu Univ, Japan, [4]Computer Center, Gakushuin Univ, Japan

ThP-GR-4 (Poster) *12:30 - 14:20*

Numerical Modeling of Carbon Doping and Experimental Validation in GaN Epitaxial Growth by MOVPE method

Masaya Iizuka,[*,1] Yuji Mukaiyama,[1] A. V. Lobanova,[2] R. A. Talalaev,[2] and W. Lundin[3]
[1]STR Japan K.K, Japan, [2]STR Group - Soft Impact Ltd, Russia, [3]Ioffe Physical Technical institute, Russia

ThP-GR-5 (Poster) *12:30 - 14:20*

Effect of temperature gradient on AlN crystal growth by PVT method

Lei Zhang,[*,1] Guodong Wang,[1] Yong Wang,[1] Yongliang Shao,[1] Chengmin Chen,[2] Yongzhong Wu*,[1] and Xiaopeng Hao*[1]
[1]State Key Lab of Crystal Materials, Shandong University, China, [2]Energy Research Institute, Qilu University of Technology (Shandong Academy of Sciences), China

ThP-GR-6 (Poster) *12:30 - 14:20*

Realization of p-type gallium nitride by magnesium ion implantation

Yating Shi,[*] Weizong Xu, Xuanhu Chen, Fangfang Ren, Dong Zhou, Jiandong Ye, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

ThP-GR-7 (Poster) *12:30 - 14:20*

3-inch Homogeneous GaN Single Crystal Grown by Na Flux Method

Zong-liang Liu,[*,1] Hong Gu,[1] Xiao-ming Dong,[1] Guo-qiang Ren,[1] Jian-feng Wang,[1,2] and Ke Xu[1,2]
[1]Suzhou Institute of Nano-tech and Nano-bionics, CAS, China, [2]Suzhou Nanowin Science and Technology Co., Ltd., China

ThP-GR-8 (Poster) *12:30 - 14:20*

In-situ observation of AlN crystal growth on Fe-Al melts

Takefumi Yamagata,[*] Masayoshi Adachi, and Hiroyuki Fukuyama
Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Japan

ThP-GR-9 (Poster) *12:30 - 14:20*

GaN growth on SiC buffer layer formed by carbonization on Si substrates

Yifu Zhu,[*] Jianwei Wang, Takeshi Momose, Yukihiro Shimogaki, and Momoko Deura
The University of Tokyo, Japan

ThP-GR-10 (Poster) *12:30 - 14:20*

Laser slicing techniques for cutting out GaN substrate

Atsushi Tanaka,[*,1,2] Yasunori Igasaki,[1] and Hiroshi Amano[1,2,3,4]
[1]Institute of Materials and Systems for Sustainability, Nagoya University, Japan, [2]National Institute for Materials Science, Japan, [3]Akasaki Research Center, Japan, [4]Venture Business Laboratory, Japan

ThP-GR-11 (Poster) *12:30 - 14:20*

Optical characterization of GaN-QPM crystal fabricated by DP-SAG in MOVPE

Kai Matsuhisa,[*,1] Yuto Kobayashi,[1] Hiroki Ishihara,[1] Mako Sugiura,[1] Atsushi Sugita,[1] Yoku Inoue,[1] and Takayuki Nakano[1,2]
[1]Shizuoka Univ., Japan, [2]R.I.E. Shizuoka Univ., Japan

ThP-GR-12 (Poster) *12:30 - 14:20*

Investigation of AlGaN/AlN interface structure and annealing effect for control of strain relaxation

Yuri Itokazu,[*,1,2] Shunsuke Kuwaba,[1,2] Jo Masafumi,[1] Norihiko Kamata,[2] and Hideki Hirayama[1]
[1]RIKEN, Japan, [2]Department of Functional Materials Science, Saitama University, Japan

ThP-GR-13 (Poster) *12:30 - 14:20*

Analysis of Solution Structure in Solution growth of SiC with Na flux

Takuro Murata* and Takahiro Kawamura
Graduate School of Engineering, Mie University, Japan

ThP-GR-14 (Poster) *12:30 - 14:20*

Solid Phase Epitaxy of AB_2O_4 Complex Oxides: $ZnGa_2O_4$ as an Example

Po-Wei Chen, Shiau-Yuan Huang, Shuo-Huang Yuan, and Dong-Sing Wuu*
Department of Materials Science and Engineering, National Chung Hsing University, Taiwan

ThP-GR-15 (Poster) *12:30 - 14:20*

Influence of substrate constraint on the emergence of metastable α-Ga_2O_3

Chika Ohashi,*,[1] Takashi Kamo,[1] Ryo Miura,[1] Nao Takekawa,[1] Rie Togashi,[2] Ken Goto,[1] and Yoshinao Kumagai[1,3]
[1]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan, [2]Department of Engineering and Applied Sciences, Sophia University, Japan, [3]Institute of Global Innovation Research, Tokyo University of Agriculture and Technology, Japan

ThP-GR-16 (Poster) *12:30 - 14:20*

Growth Control of α-Ga_2O_3 Thin Films using Chloride-Based Gallium Source Solutions in Mist Chemical Vapor Deposition

Kazuyuki Uno,* Kazutoshi Matsumoto, and Ichiro Tanaka
Wakayama University, Japan

ThP-GR-17 (Poster) *12:30 - 14:20*

Carrier density control of epitaxial NiO thin films grown using mist CVD method

Takumi Ikenoue,* Masao Miyake, and Tetsuji Hirato
Graduate School of Energy Science, Kyoto University, Japan

ThP-CH-2 (No Show) *12:30 - 14:20*

Studies on Internal Quantum Efficiency and Carrier Dynamics of AlGaN Ultraviolet Radiation B introduced by Lateral-Polarity Structure

Yingda Qian,*,[1] Wei Guo,[2] Kaiyan He,[1] and Zhe Chuan FENG[1]
[1]School of Physical Science & Technology, Guangxi University, China, [2]Ningbo Institute of Materials Technology and Engineering (NIMTE), Chinese Academy of Sciences, China

ThP-CH-4 (Poster) *12:30 - 14:20*

InGaN single quantum well intersected by individual dislocations

Gordon Schmidt, Frank Bertram,* Peter Veit, Sebastian Metzner, Christoph Berger, Armin Dadgar, André Strittmatter, and Jürgen Christen
Institute of Physics, Otto-von-Guericke-University Magdeburg, Germany

ThP-CH-5 (Poster) *12:30 - 14:20*

Unfolding band structures of BAlN and BGaN alloys

Yuichi Ota
Tokyo Metropolitan Industrial Technology Research Institute, Japan

ThP-CH-6 (Poster) *12:30 - 14:20*

Engineering of emission wavelength of InGaN quantum wells by fabrication of spatial off-cut variation

Anna Kafar,*,[1,2] Ryota Ishii,[1] Szymon Stanczyk,[2] Krzysztof Gibasiewicz,[2] Szymon Grzanka,[2,3] Tadeusz Suski,[2] Piotr Perlin,[2,3] Mitsuru Funato,[1] and Yoichi Kawakami[1]
[1]Kyoto University, Japan, [2]Institute of High Pressure Physics PAS, Poland, [3]TopGaN Ltd., Poland

ThP-CH-7 (Poster) *12:30 - 14:20*

Active Efficiency as an Effective Quality Indicator for the Active Layer of Light-Emitting Diodes

Chan-Hyoung Oh,[1] Jong-In Shim,[*,2] Dong-Soo Shin,[2,3] and Hyundon Jung[4]
[1]Department of Electronics and Communication Engineering, Hanyang University ERICA, Republic of Korea, [2]Department of Photonics and Nanoelectronics, Hanyang University ERICA, Republic of Korea, [3] Department of Bionanotechnology, Hanyang University ERICA, Republic of Korea, [4]EtaMax Co. Ltd. , Republic of Korea

ThP-CH-8 (Poster) *12:30 - 14:20*

Influence of the growth direction for SCAAT™ on annealing effects

Kenji Iso,[*] Yutaka Mikawa, Hirotaka Ikeda, Kazuriho Hotta, Tae Mochizuki, and Satoru Izumisawa
Mitsubishi Chemical, Japan

ThP-CH-9 (Poster) *12:30 - 14:20*

Fabrication of GaN nanowires by wet processes using electrodeless photo-assisted electro-chemical etching and alkaline solution treatment

Michihito Shimauchi,[*,1,2] Kazuki Miwa,[1] Masachika Toguchi,[1,2] Taketomo Sato,[1] and Junichi Motohisa[2]
[1]Research Center for Integrated Quantum Electronics, Hokkaido University, Japan, [2]Graduate School of Information Science and Technology, Hokkaido University, Japan

ThP-CH-10 (Poster) *12:30 - 14:20*

Microscopic analysis of heat transport at GaInN/GaN heterointerface with misfit dislocations by two-wavelength Raman measurements

Shungo Okamoto,[1] Bei Ma,[1] Ken Morita,[1] Daisuke Iida,[2] Kazuhiro Ohkawa,[2] and Yoshihiro Ishitani[*,1]
[1]Chiba University, Japan, [2]King Abdullah University of Science and Technology, Saudi Arabia

ThP-CH-12 (Poster) *12:30 - 14:20*

Size-dependent optical characteristics of single InGaN quantum wire grown on c-plane GaN template by MOCVD

Hwan-Seop Yeo,[*,1] Kwanjae Lee,[1] Young Chul Sim,[1] Seoung-Hwan Park,[2] and Yong-Hoon Cho[1]
[1]Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea, [2]Department of Electronics Engineering, Catholic University of Daegu, Republic of Korea

ThP-CH-13 (Poster) *12:30 - 14:20*

Impact of high-temperature nitrogen annealing on interface properties of p-type 4H-SiC/SiO_2

Keita Tachiki,[*] Kazutaka Kanegae, and Tsunenobu Kimoto
Kyoto University, Japan

ThP-CH-14 (Poster) *12:30 - 14:20*

Investigation of Etching Characteristics of HVPE-Grown In_2O_3 Layers by Hydrogen-Environment Anisotropic Thermal Etching

Ryo Kasaba,[*,1] Yuki Ooe,[1] Kenta Nagai,[2] Ken Goto,[2] Rie Togashi,[1] Akihiko Kikuchi,[1] and Yoshinao Kumagai[2]
[1]Department of Engineering and Applied Sciences, Sophia University, Japan, [2]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Japan

ThP-CH-15 (No Show) *12:30 - 14:20*

The Change of Band Gap Energy for the WS_xSe_y Monolayer

Yung-Huang Chang,[*,1] Yuan-Tsung Chen,[2] Chien-Sheng Huang,[3] and Cheng-Jia Tang[3]
[1]Bachelor Program in Interdisciplinary Studies, National Yunlin University of Science and Technology, Taiwan, [2]Graduate School of Materials Science, National Yunlin University of Science and Technology, Taiwan, [3]Department of Electronic Engineering, National Yunlin University of Science and Technology, Taiwan

ThP-OD-1 (Poster) *12:30 - 14:20*

Light Emitting Characteristics of P-GaN on $Al_{0.32}Ga_{0.68}N/Al_{0.07}Ga_{0.93}N$ HEMT

Chih-Yao Chang,* Jun-Lin Wu, and Chih-Fang Huang
Institute of Electronics Engineering, National Tsing Hua University, Taiwan

ThP-OD-2 (Poster) *12:30 - 14:20*

Development of Chip-Scale Package GaN-Based Light-Emitting Diodes with Varistor-embedded Ceramic Substrate

Byongjin Ma,*,1 Kwanhun Lee,1 Young Jun An,2 and Kyung-Whan Woo2
[1]1Korea Electronics Technology Institute (KETI), Republic of Korea, [2]2Amosense Co. Ltd., Republic of Korea

ThP-OD-3 (Poster) *12:30 - 14:20*

Excitation dynamics and efficiency of luminescence of Eu in GaN

Dolf Timmerman,*,1 Masaaki Ashida,2 and Yasufumi Fujiwara1
[1]Graduate School of Engineering, Osaka University, Japan, [2]Graduate School of Engineering Science, Osaka University, Japan

ThP-OD-4 (Poster) *12:30 - 14:20*

Enhanced Resonance of Luminescence in GaN-based Square Microdisks

Menghan Liu,* Peng Chen, Ru Xu, Jing Zhou, Yimeng Li, Cheng Ge, Haocheng Peng, Xiaokang Mao, Zili Xie, Bin Liu, Rong Zhang, and Youdou Zheng
Jiangsu Provincial Key Laboratory of Advanced Photonic and Electronic Materials, School of Electronic Science and Engineering, Nanjing University, China

ThP-OD-5 (Poster) *12:30 - 14:20*

Blue light hazard optimization for multi-chip dynamic white light emitting diodes with high color fidelity

Jingxin Nie,*,1 Zhizhong Chen,1 and Fei Jiao1,2
[1]State Key Laboratory for Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking University, China, [2] State Key Laboratory of Nuclear Physics and Technology, School of Physics, Peking University, China

ThP-OD-6 (Poster) *12:30 - 14:20*

Study of trench defects in green laser diodes

Aiqin Tian,*,1,2 Jianping Liu,1,2 Renlin Zhou,1,2 Liqun Zhang,1,2 Siyi Huang,1,2 Wei Zhou,1,2 Masao Ikeda,1,2 Shuming Zhang,1,2 Deyao Li,1,2 Lingrong Jiang,1,2 and Hui Yang1,2
[1]Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, [2]Key Laboratory of Nanodevices and Applications, Chinese Academy of Sciences, China

ThP-OD-7 (Poster) *12:30 - 14:20*

Study on the size dependent radiative recombination of GaN-based flip-chip micro light-emitting-diodes

Tae Kyoung Kim,* Abu Bashar Mohammad Hamidul Islam, Moon Uk Cho, Yu-Jung Cha, Jae Hyeok Lee, Jae Min Lee, Cheol Jeong, and Joon Seop Kwak
sunchon national university, Republic of Korea

ThP-OD-8 (Poster) *12:30 - 14:20*

Conformational change from V_{Ga} to N_{Ga}-V_N complex in GaN

Taishi Kakihara and Masato Oda*
Department of Applied Physics, Wakayama University, Japan

ThP-OD-9 (Poster) *12:30 - 14:20*

Low threshold and high efficiency GaN-based blue laser diodes with ITO cladding layers

Lei Hu,*,1,2 Xiaoyu Ren,2 Jianping Liu,1,2 Aiqin Tian,2 Liqun Zhang,1,2 and Hui Yang1,2
[1]School of Nano Technology and Nano Bionics, USTC, China, [2]Suzhou Institute of Nano-Tech and Nano-Bionics, CAS, China

ThP-OD-10 (Poster) *12:30 - 14:20*

Investigation of the output power of green light-emitting diodes as functions of chip and V-pit sizes

Da Hoon Lee,[*,1] Daesung Kang,[2] Sang-Youl Lee,[2] Hyeong-Seop Im,[3] Tae-Yeon Seong,[1,3] and Hiroshi Amano[4]
[1]Department of Nanophotonics, Korea University, Seoul 02841, Republic of Korea, [2]LED Division, LG Innotek Co., Ltd., Paju, Gyeonggi 10842, Republic of Korea, [3]Department of Materials Science and Engineering, Korea University, Seoul 02841, Republic of Korea, [4]Center for Integrated Research of Future Electronics, and Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya 464-8603, Japan

ThP-OD-11 (No Show) *12:30 - 14:20*

Modified III-nitrides Nanostructures for Next-generation Energy Harvesters

Praveen KUMAR[*,1] and Pooja Devi[2]
[1]Indian Association for the Cultivation of Science-Kolkata , India, [2]CSIR-Central Scientific Instruments Organisation, Chandigarh, India

ThP-OD-12 (Poster) *12:30 - 14:20*

AlN tunneling layer enhanced photo-detection in graphene heterojunction photodetectors

Lian Liu, Jun Yin,[*] Jing Li, and Junyong Kang
Xiamen University, China

ThP-OD-13 (Poster) *12:30 - 14:20*

Experimental Study on Semipolar $(\bar{1}\,\bar{1}\,2\bar{2})$ LEDs toward Polar-Plane-Free Faceted InGaN LEDs on $(\bar{1}\,\bar{1}\,2\bar{2})$

Yoshinobu Matsuda,[*] Mitsuru Funato, and Yoichi Kawakami
Kyoto University, Japan

ThP-OD-14 (Poster) *12:30 - 14:20*

Development of GaN Waveguide Wavelength Filter for Quantum Optical Application

Tenta Komatsu,[*,1] Masafumi Kihira,[1] Toshiki Hikosaka,[2] Shinya Nunoue,[2] Masahiro Uemukai,[1] Tomoyuki Tanikawa,[1] and Ryuji Katayama [1]
[1]Graduate School of Engineering, Osaka University, Japan, [2]Corporate R&D Center, Toshiba Corporation, Japan

ThP-OD-15 (No Show) *12:30 - 14:20*

Dual-functioning subwavelength vertical-structure LED

Kang Fu,[*] Xumin Gao, Jialei Yuan, Linning Wang, Xinyu Xu, and Yongjin Wang
College of Telecommunications and Information Engineering, Nanjing University of Posts and Telecommunications, China

ThP-OD-16 (Poster) *12:30 - 14:20*

Improving performance of GaN-based ultraviolet LEDs with Double ITO layers

Xiaomeng Fan[*] and Shengrui Xu
Wide Band-Gap Semiconductor Technology Disciplines State Key Laboratory, Xi'dian University,, China

ThP-OD-17 (Poster) *12:30 - 14:20*

Effect of Very High-Fluence Proton Radiation on 40 mm^2 6H-SiC Photoconductive Proton Detectors

Qing Liu,[*,1] Dong Zhou,[1] Weizong Xu,[1] Ming Qi,[2] Dunjun Chen,[1] Fangfang Ren,[1] Rong Zhang,[1] Youdou Zheng,[1] and Hai Lu[1]
[1]School of Electronic Science and Engineering, Nanjing University, China, [2]School of Physics, Nanjing University, China

ThP-OD-18 (Poster) *12:30 - 14:20*

Effect of DEZn flow rate modulation to phototransistors based on $ZnGa_2O_4$ epilayers grown by MOCVD

PENG HSUAN HUANG,[*] YUAN CHU SHEN, CHIUNG YI HUANG, and RAY HUA HONG
Institute of Electronics Engineering, National Chiao Tung University, Taiwan

ThP-OD-19 (Poster) *12:30 - 14:20*

Successive Formation of Metal Oxide and Cesium Lead Halide Perovskites Thin Films Using a Mist Deposition Method for All-Inorganic Perovskite Solar Cells

Yuki Haruta,* Takumi Ikenoue, Masao Miyake, and Tetsuji Hirato
Graduate School of Energy Science, Kyoto University, Japan

ThP-OD-20 (Poster) *12:30 - 14:20*

Enhancement-mode Light Emitting AlGaN/GaN HEMT

Chih-Yao Chang,* Shao-Hsiang Huang, and Chih-Fang Huang
Institute of Electronics Engineering, National Tsing Hua University, Taiwan

ThP-OD-21 (Poster) *12:30 - 14:20*

Optimization of p-Cladding Layer for Improvement of Deep Ultraviolet Light Emitting Diode performance

Yuji Tomita,*,[1] Akira Mishima,[2] Yuya Yamaoka,[1] Tadanobu Arimura,[1] Shuuichi Koseki,[1] Yoshiki Yano,[1] Kou Matsumoto,[1] and Hideki Hirayama[3]
[1]Taiyo Nippon Sanso Corporation, Japan, [2]TNCSE, Japan, [3]RIKEN, Japan

ThP-ED-1 (Poster) *12:30 - 14:20*

Reduction of Self-Heating in GaN HEMT with Micro-Trench Structure on Silicon Substrate

Srikant Kumar Mohanty and Ray Hua Horng*
Institute of Electronics, National Chiao Tung University, Taiwan

ThP-ED-3 (Poster) *12:30 - 14:20*

Stability of all-solid-state AlGaN/GaN based pH sensors integrated a quasi-reference electrode

Jieying Xing,[1] Yaqiong Dai,*,[1] Dejia Huang,[1] Yuebo Liu,[1] Yuan Ren,[1] Xiaobiao Han,[1] Zhisheng Wu,[2] Yang Liu,[1,2] and Baijun Zhang[1,2]
[1]School of Electronics and Information Technology, Sun Yat-sen University, China, [2]State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, China

ThP-ED-4 (Poster) *12:30 - 14:20*

Simulation Design of GaN Vertical Junction Barrier Schottky Diode with High-K/Low-K Compound Dielectric Structure

Kuiyuan Tian, Jiangfeng Du,* Qi Xin, Yong Liu, and Qi Yu
State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, China

ThP-ED-5 (Poster) *12:30 - 14:20*

Effects of Long-Term Low-Temperature Annealing on Mg-Ion Implanted GaN

Shunta Murai,* Ryo Kamoshida, and Masamichi Akazawa
Hokkaido University, Japan

ThP-ED-6 (Poster) *12:30 - 14:20*

Design of an L Band GaN Power Amplifier Based on the Transconductance Modified Model

Ziyue Zhao,*,[1,3] Yang Lu,[2,3] Hengshuang Zhang,[2,3] Chupeng Yi,[1,3] Yuchen Wang,[1,3] Xiaohua Ma,[2,3] and Yue Hao[2,3]
[1]School of Advanced Materials and Nanotechnology, Xidian University, China, [2]School of Microelectronics, Xidian University, China, [3]Key Laboratory for Wide Band-Gap Semiconductor Materials and Devices, Xidian University, China

ThP-ED-8 (No Show) *12:30 - 14:20*

An enhancement mode MOSFET on GaN-on-silicon for monolithic OEIC

Jiabin Yan,* Jinlong Piao, and Yongjin Wang
Peter Grunberg Research Center, Nanjing University of Posts and Telecommunications, China

ThP-ED-9 (Poster) *12:30 - 14:20*

Trapping and temperature effect on performance of GaN vertical nanowire transistor

Terirama Thingujam,* Dong-Hyeok Son, Woo-Hyun Ahn, and Jung-Hee Lee
School of Electronics Engineering, Kyungpook National University, Republic of Korea

ThP-ED-10 (Poster) *12:30 - 14:20*

Highly enhanced gate stability in p-GaN gate HEMTs with post-annealing process catalyzed by Ni gate metal

Changkun Zeng,* Weizong Xu, Fangfang Ren, Dong Zhou, Dunjun Chen, Rong Zhang, Youdou Zheng, and Hai Lu
School of Electronic Science and Engineering, Nanjing University, China

ThP-ED-11 (Poster) *12:30 - 14:20*

Temperature effects of pre-passivation on P-GaN gated AlGaN/GaN HEMT

Won-Ho Jang,* Hyun-Seop Kim, Dac Duc Chu, Hyungtak Kim, Ho-Kyoung Lee, Hyunsik Shin, and Ho-Young Cha
School of Electronic and Electrical Engineering, Hongik University, Republic of Korea

ThP-ED-12 (Poster) *12:30 - 14:20*

Degradation analysis of SiN_x/GaN MIS-HEMTs under negative gate voltage and drain voltage stress

Tao tao Que,*,[1] Ya wen Zhao,[1] Liu an Li,[1] Zhen xing Liu,[1] Jin wei Zhang,[1] Xin Gu,[1] Liang He,[1] and Yang Liu[1,2]
[1]School of Electronics and Information Technology, Sun Yat-Sen University, China, [2]State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, China

ThP-ED-13 (Poster) *12:30 - 14:20*

Performance of NO_2 gas sensor based on Pd-AlGaN/GaN HEMT at high temperatures

Cuong Van Nguyen,* Anh Tuan Vuong, Dongmin Keum, and Hyungtak Kim
School of electronic and electrical engineering, Hongik University, Republic of Korea

ThP-ED-14 (Poster) *12:30 - 14:20*

Impact Ionization Coefficients for 4H-SiC on a-face (11-20) and their Temperature Variations

Dionysios Stefanakis,* Xilun Chi, Takuya Maeda, Mitsuaki Kaneko, and Tsunenobu Kimoto
Dept. of Electronic Sci. & Eng., Kyoto University, Japan

ThP-ED-16 (Poster) *12:30 - 14:20*

Recessed β-Ga_2O_3 Schottky barrier diode

June-Heang Choi* and Ho-Young Cha
School of Electronic and Electrical Engineering, Hongik University, Seoul, Republic of Korea

ThP-ED-17 (Poster) *12:30 - 14:20*

Electrical characteristics of Gallium dopant-induced reduced graphene oxide/GaN Schottky diodes

Beo Deul Ryu,* Min Han, Kang Bok Ko, Gun Hee Lee, and Chang-Hee Hong
Chonbuk National University, Republic of Korea

Plenary 3

Auditorium *14:30-15:20*

Chair: Hideki Hirayama

PL-5 (Plenary) *14:30 - 15:20*

Progress of halide perovskite semiconductors in high performance photovoltaics

Tsutomu Miyasaka
[1]Toin University of Yokohama, Japan, [2]Peccell Technologies, Inc., Japan

Closing

Auditorium *15:20-15:50*