

JAPANESE JOURNAL OF APPLIED PHYSICS

Volume 49, Number 1, January 2010 [Issue 1 of 2]

Rapid Communications

- 010201 **Dissolution Behavior of Al and Formation Process of ZnAl₂O₄ Phases in Al₂O₃-Doped ZnO Sintered Bodies** (3 pages)
Keita Shirouzu, Tohru Kawamoto, Naoya Enomoto, Junichi Hojo
- 010202 **Effects of Excitation Power and Temperature on Photoluminescence from Stacking Faults in 4H-SiC Epilayers** (3 pages)
Mitsutaka Nakamura, Masahiro Yoshimoto
- 010203 **Gettering in Large-Grained Thin Polycrystalline Silicon Films on Glass Substrate** (2 pages)
Akito Hara, Tsutomu Salo
- 010204 **Patterning on Cyanine-Dye-Doped Conductive Polymer Films by Ink Jet Method** (3 pages)
Yu Yang, Hajime Imaoka, Kenichi Yamashita, Noriyuki Kamogawa, Hirofumi Watanabe, Masaya Miyazaki, Yuji Oki
- 010205 **Flexible Homeotropic Liquid Crystal Displays Using Low-Glass-Transition-Temperature Poly(ethylene terephthalate) Substrates** (3 pages)
Wen-Yu Teng, Shie-Chang Jeng, Jau-Min Ding, Chia-Wei Kuo, Wei-Kuo Chin
- 010206 **Continuous Emission-Point Shift in Vertical-Cavity Surface-Emitting Laser Controlled by Optical Feedback** (3 pages)
Shogo Ura, Daisuke Nii, Chikara Ito, Shinichiro Shoda, Kenzo Nishio, Yasuhiro Awatsuji, Kenji Kintaka
- 010207 **Propagation of Spontaneous Emission in Birefringent *m*-Axis Oriented Semipolar (1122) (Al,In,Ga)N Waveguide Structures** (3 pages)
Chia-Yen Huang, Anurag Tyagi, You-Da Lin, Matthew T. Hardy, Po Shan Hsu, Kenji Fujito, Jun-Seok Ha, Hiroaki Ohta, James S. Speck, Steven P. DenBaars, Shuji Nakamura
- 010208 **Electronic Structure of Sr-Doped LaScO₃ Single Crystal Annealed under Different Atmospheres** (3 pages)
Yuki Nagao, Jin Liu, Fumitada Iguchi, Tohru Higuchi, Noriko Sata, Hiroo Yugami
- 010209 **Multi-Wavelength Spectroscopic Application Using Rapid and Random Wavelength-Tuned Mid-Infrared Light Source** (3 pages)
Masaki Yumoto, Yasuhiro Maeda, Norihito Saito, Takayo Ogawa, Masafumi Yamashita, Satoshi Wada
- 010210 **Improvement of Thermoelectric Characteristic of [Ca₂CoO₃]_x[CoO₂] Thin Films by Controlling Their Microstructures** (2 pages)
Yutaka Yoshida, Yuta Hayashi, Yusuke Ichino, Yoshiaki Takai
- 010211 **Phase Transitions, Magnetocaloric Effect and Magnetoresistance in Ni–Co–Mn–Sn Ferromagnetic Shape Memory Alloy** (3 pages)
Zhida Han, Dunhui Wang, Bin Qian, Jinfu Feng, Xuefan Jiang, Youwei Du
- 010212 **DC and RF Performance Improvement of 70 nm Quantum Well Field Effect Transistor by Narrowing Source–Drain Spacing Technology** (3 pages)
Chien-I Kuo, Heng-Tung Hsu, Edward Yi Chang, Yasuyuki Miyamoto, Chien-Ying Wu, Yu-Lin Chen, Yu-Lin Hsiao
- 010213 **Indium Tin Oxide Nanofiber Film Electrode for High Performance Dye Sensitized Solar Cells** (3 pages)
Ferry Iskandar, Adi Bagus Suryamas, Masaaki Kawabe, Muhammad Miftahul Munir, Kikuo Okuyama, Takashi Tarao, Takashi Nishitani
- 010214 **Mismatch Strain and Residual Stress of Freestanding Electroplated Ni Thin Film** (3 pages)
Sang-Hyun Kim
- 010215 **Rib-free Ink-Jet Printing Fabrication on Heterogeneous Surfaces** (3 pages)
Huang-Ming P. Chen, Siang-Jhii Wu, Feng-Ching Tong, Jung-An Cheng, Han-Ping D. Shieh
- 010216 **Effect of Organic Additive on Surface Roughness of Polycrystalline Silicon Film after Chemical Mechanical Polishing** (3 pages)
Hee-Sub Hwang, Jin-Hyung Park, Sok-Ho Yi, Ungyu Paik, Jea-Gun Park
- 010217 **H₂ Dissociation into H⁺ in High-Dielectric Media as Viewed from the Crystallinity** (3 pages)
Takahiro Kanegae, Hiroo Takahashi, Jin Mizuguchi

(Continued on third cover)

Regular Papers**Semiconductors, dielectrics, and organic materials**

- 011001 Point Defects Induced by Physical Sputtering in Wurtzite-Type GaN Crystal (7 pages)
Kenji Harafuji, Katsuyuki Kawamura
- 011701 Omni-Directional Viewing-Angle Switching through Control of the Beam Divergence Angle in a Liquid Crystal Panel (3 pages)
Jong-In Baek, Ki-Han Kim, Jae Chang Kim, Tae-Hoon Yoon
- 011702 Multi-Dimensional Liquid Crystal Alignment Effect of Polymer Wall on Vertically Aligned Liquid Crystal Cell (4 pages)
Dong Han Song, Seong Ryong Lee, Tae-Hoon Yoon, Jae Chang Kim

Photonics, quantum electronics, optics, and spectroscopy

- 012001 Atom Funnel with a Micron-Sized Outlet Using Evanescent Light (4 pages)
Hiroyuki Kashiwagi, Haruhiko Ito
- 012101 Simulation of Ridge-Type Semiconductor Lasers with Selectively Proton-Implanted Cladding Layers (6 pages)
Hazuki Yoshida, Takahiro Numai
- 012102 Increasing the Contrast Ratio of Organic Light-Emitting Diode by Organic-Metal Light-Absorbing Layer in Black Cathode (4 pages)
Peng Yu Chen, Meiso Yokoyama, Heng Yih Ueng
- 012301 Layer Transfer of Cu(In,Ga)Se₂ Thin Film and Solar Cell Fabrication (4 pages)
Takashi Minemoto, Takaya Anegawa, Shintaro Osada, Hideyuki Takakura
- 012401 Effects of Fluoride Dopants in the Starting Materials for BaAl₂S₄:Eu Thin-Film Phosphors (5 pages)
Runhong Guo, Noboru Miura, Hironaga Matsumoto, Ryotaro Nakano
- 012501 Designing a Wide-Angle and Wideband Visible Antireflection Coating Using Vibrating Search Algorithm (4 pages)
Yeh-Yeong Liou, Li-Rang Wang, Shau-Kuei Wang, Wen-Long Liu
- 012701 In vivo Ultrahigh-Resolution Ophthalmic Optical Coherence Tomography Using Gaussian-Shaped Supercontinuum (6 pages)
Masahiro Nishiura, Toshihiro Kobayashi, Muneyuki Adachi, Jun Nakanishi, Tokio Ueno, Yasuki Ito, Norihiro Nishizawa
- 012801 Optical Properties of Strained CdTe/ZnTe Pyramidal Quantum Dots (4 pages)
Seoung-Hwan Park, Woo-Pyo Hong

Device physics

- 014001 Temperature Dependence of Electron Tunneling between Two Dimensional Electron Gas and Si Quantum Dots (4 pages)
Yoko Sakurai, Jun-ichi Iwata, Masakazu Muraguchi, Yasuteru Shigeta, Yukihiko Takada, Shintaro Nomura, Tetsuo Endoh, Shin-ichi Saito, Kenji Shiraishi, Mitsuhsisa Ikeda, Katsunori Makihara, Seiichi Miyazaki
- 014002 Transient Magnetoresponse of Photoexcited Electrons: Oscillating Conductivity and Negative Cyclotron Absorption (4 pages)
P. N. Romanets
- 014101 Characterization of Two-Dimensional Transmission Lines Periodically Loaded with Electronic Switches for Generation of Short Pulses (6 pages)
Koichi Narahara
- 014102 Separating the Contribution of Mobility among Different Quantum Well Subbands (4 pages)
Il-Ho Ahn, G. Hugh Song, Young-Dahl Jho
- 014103 Linearity Characteristics of Field-Plated AlGaN/GaN High Electron Mobility Transistors for Microwave Applications (4 pages)
Jui-Chien Huang, Heng-Tung Hsu, Edward-Yi Chang, Chung-Yu Lu, Chia-Ta Chang, Fang-Yao Kuo, Yi-Chung Chen, Ting-Hung Hsu

(Continued on preceding page)

(Continued)

- 014104 Radio Frequency Power Performance Enhancement for Asymmetric Lightly Doped Drain Metal–Oxide–Semiconductor Field-Effect Transistors on SiC Substrate (4 pages)**
Tsui Chang, Hsuan-ling Kao, S. L. Liu, Joseph D. S. Deng, K. Y. Horng, Albert Chin
- 014201 Design, Fabrication, and Actuation of Micro-Electro-Mechanical System-Based Image Stabilizer (7 pages)**
Jin-Chen Chiou, Chen-Chun Hung, Chun-Ying Lin, Yung-Jiun Lin
- 014202 Multilevel Antifuse Cells with Programmable Contact in Pure 90 nm Logic Process (4 pages)**
Chia-En Huang, Yuan-Heng Tseng, Cheng-Hsiung Kuo, Yu-De Chih, Ya-Chin King, Chrong Jung Lin
- 014301 Effect of Gate–Drain Spacing for $In_{0.52}Al_{0.48}As/In_{0.53}Ga_{0.47}As$ High Electron Mobility Transistors Studied by Monte Carlo Simulations (5 pages)**
Akira Endoh, Keisuke Shinohara, Yuji Awano, Kohki Hikosaka, Toshiaki Matsui, Takashi Mimura

Nanoscale science and technology

- 015001 Structural, Compositional, and Optical Characterizations of Vertically Aligned AlAs/GaAs/GaP Heterostructure Nanowires Epitaxially Grown on Si Substrate (6 pages)**
Guoqiang Zhang, Kouta Tateno, Hideki Gotoh, Tetsuomi Sogawa, Hidetoshi Nakano
- 015101 Organic Photoanode of Fullerene/Phthalocyanine Working in the Water Phase with Respect to Preparation Methods of the Bilayer Film (5 pages)**
Toshiyuki Abe, Hiromasa Ichinohe, Seiji Kakuta, Keiji Nagai
- 015201 Nanoimprinting Pre-Patterned Effects on Anodic Aluminum Oxide (4 pages)**
Sheng-Hui Chen, Der-Sheng Chan, Chun-Ko Chen, Te-Hung Chang, Yuh-Hui Lai, Cheng-Chung Lee
- 015202 Fabrication of Self-Ordered Nanoporous Alumina with 69–115 nm Interpore Distances in Sulfuric/Oxalic Acid Mixtures by Hard Anodization (5 pages)**
Mohammad Almasi Kashi, Abdolali Ramazani, Yashar Mayamai, Mohammad Noormohammadi

Crystal growth, surfaces, interfaces, thin films, and bulk materials

- 015501 Enhancement of Crystal Growth in Si Thin-Film Deposition by H-Radical-Assisted Magnetron Sputtering (5 pages)**
Kota Fukaya, Akimori Tabata, Koichi Sasaki
- 015502 Fabrication of Nanocrystalline Silicon Gratings Embedded within a Silicon Nitride Matrix by Femtosecond Laser-Induced Crystallization (4 pages)**
Geon Joon Lee, Kyoung-Min Lee, Wan-Shick Hong, Sung Soo Kim, Hyeonsik Cheong, Chong Seung Yoon, YoungPak Lee
- 015503 Structural and Physical Characteristics of Ultrananocrystalline Diamond/Hydrogenated Amorphous Carbon Composite Films Deposited Using a Coaxial Arc Plasma Gun (4 pages)**
Tsuyoshi Yoshitake, You Nakagawa, Akira Nagano, Ryota Ohtani, Hiroyuki Setoyama, Eiichi Kobayashi, Kazushi Sumitani, Yoshiaki Agawa, Kunihito Nagayama
- 015701 Photocatalytic Characteristics and Structure of TiO_2 Film Deposited by Oxygen-Ion-Assisted Reactive Evaporation at Low Temperature (5 pages)**
Tetsuya Sakai, Gho Ikegaya, Daiki Ishihara, Naonori Osada, Koji Kobayashi, Noriyuki Sato, Shohei Mochiduki, Yoichi Hoshi
- 015702 Real-Time Scanning Tunneling Microscopy Observation of Si(111) Surface Modified by Au^+ Ion Irradiation (5 pages)**
Takefumi Kamioka, Kou Sato, Yutaka Kazama, Iwao Ohdomari, Takanobu Watanabe

Plasmas, applied atomic and molecular physics, and applied nuclear physics

- 016101 Diagnostic Study of an RF-Capacitively Coupled Plasma: The Breakdown of the Peripheral Gap Region (6 pages)**
Hung-Wen Chang, Cheng-Che Hsu
- 016201 An Extreme Ultraviolet Source for Photolithographic Applications Based on Rotamak Discharge (4 pages)**
Waheed Hugrass, Masami Ohnishi, Tomonori Chikano, Masanobu Tsukamoto

Device processing, fabrication and measurement technologies, instrumentation

- 016501 The Effect of Thick Interconnections Formed by Gold Electroplating on the Characteristics of Metal–Oxide–Semiconductor Field-Effect Transistors (5 pages)**
Nobuhiro Shimoyama, Norio Sato, Hiromu Ishii, Toshikazu Kamei, Kazuhisa Kudou, Katsuyuki Machida, Toshiaki Tsuchiya

(Continued on preceding page)

- 016502 **Low Threshold Voltage and High Mobility N-Channel Metal–Oxide–Semiconductor Field-Effect Transistor Using Hf–Si/HfO₂ Gate Stack Fabricated by Gate-Last Process** (6 pages)
 Takashi Ando, Tomoyuki Hirano, Kaori Tai, Shinpei Yamaguchi, Shinichi Yoshida, Hayato Iwamoto, Shingo Kadomura, Heiji Watanabe
- 016601 **X-ray Holographic Microscopy by Double-Prism Interferometer** (5 pages)
 Yoshiro Suzuki, Akihisa Takeuchi, Ken Harada
- 016602 **Newly Designed Neutron Diffraction Cell for Fluids at High Temperatures and High Pressures** (3 pages)
 Hiroki Iwase, Nobuyuki Matubayasi, Yasuo Kameda, Keiji Itoh, Toshiya Otomo, Masaru Nakahara
- 016603 **Dual-Band Stimulated Parametric Emission Microscopy** (4 pages)
 Masatomo Yamagiwa, Gen Omura, Yasuyuki Ozeki, Makiko Ishii, Hieu Min Dang, Shin'ichiro Kajiyama, Takeshi Suzuki, Kiichi Fukui, Kazuyoshi Itoh
- 016701 **Substrate Temperature Dependence of the Photoresist Removal Rate Using Atomic Hydrogen Generated by a Hot-Wire Tungsten Catalyst** (6 pages)
 Masashi Yamamoto, Takeshi Maruoka, Akihiko Kono, Hideo Horibe, Hironobu Umemoto

Cross-disciplinary areas

- 017001 **Magnetic Force Switches for Magnetic Fluid Micromixing** (7 pages)
 Zung-Hang Wei, Chiun-Peng Lee, Mei-Feng Lai
- 017101 **Removal of Fluorinated Compound Gases by an Enhanced Methane Microwave Plasma Burner** (6 pages)
 Yongcheol Hong, Taihyeop Lho, Donghun Shin, Han Sup Uhm

Brief Notes

- 018001 **Surface Reconstructions on GaN and InN Semipolar (2021) Surfaces** (2 pages)
 Tomoki Yamashita, Toru Akiyama, Kohji Nakamura, Tomonori Ito
- 018002 **Substrate Heated Spray-Deposition Method for High Efficient Organic Solar Cell: Morphology Inspection** (2 pages)
 Kyu-Jin Kim, Yeong-Seon Kim, Jin-Uk Park, Won-Seok Kang, Byoung-Ho Kang, Se-Hyuk Yeom, Do-Eok Kim, Jae-Ho Kim, Shin-Won Kang
- 018003 **Study on the Perm-Selectivity of Thin Pd–Cu–Ni Ternary Alloy Membrane for Hydrogen Purification and Separation** (2 pages)
 Dong-Won Kim, Yong Joon Park, Byung-II Woo, Seung-Min Kang, Jong-Soo Park

Errata

- 019201 **Erratum: "Near-Edge X-ray Absorption Fine-Structure, X-ray Photoemission, and Fourier Transform Infrared Spectroscopies of Ultrananocrystalline Diamond/Hydrogenated Amorphous Carbon Composite Films"** [48 (2009) 020222] (1 page)
 Tsuyoshi Yoshitake, Akira Nagano, Shinya Ohmagari, Masaru Itakura, Noriyuki Kuwano, Ryota Ohtani, Hiroyuki Setoyama, Eiichi Kobayashi, Kunihito Nagayama