

PROGRAM

【October 9th, Wednesday】

Opening Session (13:00-13:10)

Plenary Session (13:10-14:00)

Chair: J. Suda (Nagoya University)

Plenary 13:10 (50min) 1
Recent activities on visible range nanocolumn (NC) emitting devices
- New development on micro LED -
K. Kishino^{***}, K. Narita^{*}, A. Yanagihara^{*}, D. Hatakeyama^{*}, K. Takimoto^{*}, N. Sakakibara^{*}, T. Oto^{****}, Ichiro Nomura^{***} and R. Togashi^{***}
^{*}Sophia University, ^{**}Sophia Nanotechnology Research Center, ^{***}Yamagata University

Session We1: Electron Devices & Spin Devices (14:00-15:12)

Chair: S. Naritsuka (Meijo University)

We1-1 [Invited] 14:00 (30min+poster) 7
Normally-off GaN MOS-HFETs fabricated by etchingless process
T. Nanjo, H. Koyama, A. Imai, T. Hayashida, T. Watahiki and N. Miura
Mitsubishi Electric Corporation

We1-2 14:30 (3min+poster) 9
Evaluation of trap at epi layer of AlGaIn/GaN HEMT with low frequency S parameter
S. Urano, Q. Ma and A. Wakejima
Nagoya Institute of Technology

We1-3 14:33 (3min+poster) 11
Reduction of thermal resistance of GaN HEMT using graphite carbon
A. Fukui, L. Li, Y. Sakaida and A. Wakejima
Nagoya Institute of Technology

We1-4 14:36 (3min+poster) 13
Record breakdown fields of 2.8-3.5 MV/cm in GaN p-n junction diodes
T. Maeda^{*}, T. Narita^{**}, H. Ueda^{**}, M. Kanechika^{**}, T. Uesugi^{**}, T. Kachi^{***}, T. Kimoto^{*}, M. Horita^{****} and J. Suda^{****}
^{*}Kyoto University, ^{**}Toyota Central R&D Labs., Inc., ^{***}Nagoya University

We1-5 14:39 (3min+poster) 15
Time-resolved simulation of the negative capacitance at ferroelectric/semiconductor hetero-junction
K. Takada, T. Yoshimura and N. Fujimura
Osaka Prefecture University

We1-6 14:42 (3min+poster) 17
Magnetic and electrical properties of epitaxial Co₂FeSi/GaN(0001) heterostructures for spintronic applications
S. Yamada, R. Honda, Y. Goto, S. Ichikawa, J. Tatebayashi, Y. Fujiwara and K. Hamaya
Osaka University

We1-7 14:45 (3min+poster) 19
Spin waves transport and estimation in a paramagnetic organic chemical compound
H. Jang, M. Matsushima, R. Ohshima, Y. Ando and M. Shiraishi
Kyoto University

We1-8 14:48 (3min+poster) 21
Fabrication of a spin device with a nonmagnetic metal/topological insulator interface for spin-charge converter
T. Nishijima, Y. Ando, R. Ohshima and M. Shiraishi
Department of Electronic Science and Engineering, Kyoto University

We1-9 14:51 (3min+poster) 23
Evaluation of composition dependence of spin-orbit torque in Pt_{1-x}Mn_x / CoFeB structure
K.V. De Zoysa, R. Itoh, Y. Takeuchi, S. DuttaGupta, S. Fukami and H. Ohno
Tohoku University

We1-10	14:54 (3min+poster)	25
A study on a spin-charge-interconversion phenomenon in an ultrathin Cu film on a ferrimagnetic insulator using an ionic-gating		
S. Yoshitake, R. Ohshima, Y. Ando and M. Shiraishi		
Kyoto University		
We1-11	14:57 (3min+poster)	27
Half-metallic Heusler alloy thin films grown by MBE		
M. Oogane*, A. P. McFadden**, K. Fukuda*, M. Tsunoda*, Y. Ando* and C. J. Palmstrom**		
*Tohoku University, **University of California, Santa Barbara		
We1-12	15:00 (3min+poster)	29
Structure and magnetic properties of sputter-deposited $L1_0$ -MnAl thin films for high-density STT-MRAM		
R. Okuda, T. Saino, Y. Takeuchi, B. Jinnai, S. Ikeda, S. Fukami and H. Ohno		
Tohoku University		
We1-13	15:03 (3min+poster)	31
Asymmetrically antibunching behavior of photon correlation between Zeeman splitting states of positive trion in semiconductor quantum dots : Acceleration of electron spin flip process induced by nuclear field		
H. Sasakura, R. Kaji, R. Matsusaki, K. Oomiya, S. Kamono, S. Yamamoto and S. Adachi		
Hokkaido University		
We1-14	15:06 (3min+poster)	33
Benchmark of nonlinear optical crystals for single-path waveguide optical parametric amplifier		
T. Komatsu, R. Noro, M. Uemukai, T. Tanikawa and R. Katayama		
Osaka University		
We1-15	15:09 (3min+poster)	35
Design of ZnO/ZnMgO MQW microcavity with $\text{SiO}_2/\text{ZrO}_2$ DBR for quantum entangled photon pair generation		
Y. Matsui, T. Yano, M. Uemukai, T. Tanikawa and R. Katayama		
Osaka University		

Break (15:12-15:22)

Session We2: Oxides (15:22-16:52)

Chair: Y. Otoki (SCIONICS)

We2-1 [Invited]	15:22 (30min+poster)	37
Electron microscopy studies of electronic materials		
K. Mitsuishi, K. Kimoto, Y. Irokawa, H. Nabatame and Y. Koide		
National Research Institute for Materials Science		
We2-2	15:52 (3min+poster)	39
Corundum structured wide band gap semiconductors with p-type conductivity		
K. Kaneko*, S. Kan*, T. Shinohe** and S. Fujita*		
*Kyoto University, ** FLOSFIA INC.		
We2-3	15:55 (3min+poster)	41
Thickness dependence of phase transition temperature of α - Ga_2O_3 films on sapphire substrates		
R. Jinno, K. Kaneko and S. Fujita		
Kyoto University		
We2-4	15:58 (3min+poster)	43
Bismuth-assisted effect for the growth of ϵ - Ga_2O_3 films grown on c-plane sapphire substrates by mist chemical vapor deposition		
D. Tahara, H. Nishinaka, Y. Arata, S. Hasegawa and M. Yoshimoto		
Kyoto Institute of Technology		
We2-5	16:01 (3min+poster)	45
Fabrication of periodically-poled structure in MgO:s-LiTaO_3 by voltage application with SiO_2 insulation layer		
R. Noro, M. Uemukai, T. Tanikawa and R. Katayama		
Osaka University		
We2-6	16:04 (3min+poster)	47
Control of epitaxial orientation and crystal structure of HfO_2 : Y/Si films by oxygen partial pressure		
Y. Saho, D. Kamada, K. Takada, D. Kiriya, T. Yoshimura, A. Ashida and N. Fujimura		
Osaka Prefecture University		
We2-7	16:07 (3min+poster)	49
Effects of bottom electrodes on the epitaxial growth of YbFe_2O_4 films		
K. Shimamoto, K. Miura, J. Tanaka, D. Kiriya, Y. Yoshimura, A. Ashida and N. Fujimura		
Osaka Prefecture University		
We2-8	16:10 (3min+poster)	51
Origin of photo-induced current of strongly correlated ferroelectric YMnO_3 epitaxial thin film		
K. Miura, J. Tanaka, D. Kiriya, T. Yoshimura, A. Ashida and N. Fujimura		
Osaka Prefecture University		

We2-9	16:13 (3min+poster)	53
Bandgap control of epitaxial Ni _{1-x} Mg _x O thin film by using mist chemical vapor deposition method T. Ikenoue, M. Miyake and T. Hirato Kyoto University		
We2-10	16:16 (3min+poster)	55
Impact of hydrochloric acid on mist CVD growth of GIO ternary alloys S. Takahashi, K. Rikitake, T. Yamaguchi, H. Nagai, M. Sato, T. Onuma and T. Honda Kogakuin University		
We2-11	16:19 (3min+poster)	57
Effect of temperature on the preparation of MoO ₂ thin films by a mist CVD method Y. Matamura, T. Ikenoue, M. Miyake and T. Hirato Kyoto University		
We2-12	16:22 (3min+poster)	59
Electrical properties of reduced graphene oxide films prepared under an electric field A. Maeta, Y. Sato, Y. Chonan, T. Komiyama, K. Kotani, H. Yamaguchi, T. Aoyama and S. Yamauchi Akita Prefectural University		
We2-13	16:25 (3min+poster)	61
Comparative study on DUV emission properties of rocksalt-structured Mg _x Zn _{1-x} O alloys K. Kudo*, K. Ishii**, M. Ono*, Y. Fujiwara*, K. Kaneko**, T. Yamaguchi*, T. Honda*, S. Fujita** and T. Onuma* *Kogakuin University, **Kyoto University		
We2-14	16:28 (3min+poster)	63
Growth of highly-resistive ZnO films fabricated using non-equilibrium plasma generated near atmospheric pressure S. Takarae, D. Kiriya, T. Yoshimura, A. Ashida and N. Fujimura Osaka Prefecture University		
We2-15	16:31 (3min+poster)	65
Water-organic cosolvent effect on nucleation of solution-synthesized ZnO nanowires K. Nagashima, Y. Akihiro, T. Hosomi, M. Kanai, T. Takahashi, G. Zhang and T. Yanagida Kyushu University		
We2-16	16:34 (3min+poster)	67
Formation and optical characteristics of Eu-doped ZnO nanowires grown by sputtering-assisted metalorganic chemical vapour deposition M. Mishina, J. Tatebayashi, T. Nakajima, S. Ichikawa and Y. Fujiwara Osaka university		
We2-17	16:37 (3min+poster)	69
Observation of the down-conversion behavior in ZnO:Tm,Yb/ZnO core-shell nanowires J. Tatebayashi, T. Nakajima, M. Mishina, D. Timmerman, S. Ichikawa and Y. Fujiwara Osaka University		
We2-18	16:40 (3min+poster)	71
Enhancement of Er luminescence in microdisk resonators with Er,O-codoped GaAs R. Higashi, M. Ogawa, J. Tatebayashi, S. Ichikawa, M. Kondow and Y. Fujiwara Osaka University		
We2-19	16:43 (3min+poster)	73
Efficient laser cooling in rare-earth doped oxides at high temperature Y. Nakayama, Y. Harada and T. Kita Kobe University		
We2-20	16:46 (3min+poster)	75
Chemical vapor deposition of graphitic carbon nitride films and Boron incorporation for carbon based semiconductor systems N. Urakami***, M. Kosaka* and Y. Hashimoto*** *Shinshu University, **Research Initiative for Supra-Materials		
We2-21	16:49 (3min+poster)	77
Statistical study of shape for submonolayer 2D islands of DPh-DNTT prepared by vacuum deposition Y. Hattori, Y. Kimura and M. Kitamura Kobe University		

Break (16:52-17:02)

Poster Session I (We1, We2) (17:02-19:00)

Dinner (19:00-20:00)

Rump Session (20:00-21:30)
“The moment when researchers change their research topic
- Why it happens and How they survive -”

Organizer: J. Suda (Nagoya University)

Panelists: S. Fujita (Kyoto University)
Y. Fujiwara (Osaka University)

【October 10th, Thursday】

Session Th1: Growth (8:30-10:18)

Chair: T. Araki (*Ritsumeikan University*)

Th-1 [Invited] 8:30 (30min+poster)	79
Fabrication of high-crystalline-quality AlN/sapphire template for deep-UV LED H. Miyake, K. Shojiki, S. Xiao, K. Uesugi, H. Koizumi and S. Kuboya Mie University	
Th1-2 9:00 (3min+poster)	83
Comparison of growth method of III-V compounds A. Ubukata*, R. Oshima***, Y. Shoji***, K. Makita***, H. Sodabanlu**, K. Watanabe**, S. Koseki*, T. Sugaya***, Y. Nakano**** and M. Sugiyama**** *Taiyo Nippon Sanso Corp., **Research Center for Advanced Science and Technology, ***National Institute of Advanced Industrial Science and Technology, ****The University of Tokyo	
Th1-3 9:03 (3min+poster)	85
Selective epitaxy of InGaAlAs MQWs using InP-on-insulator substrate for integrating wide-wavelength range III-V devices on Si T. Fujii, T. Sato, K. Takeda, T. Kakitsuka and S. Matsuo NTT Corporation	
Th1-4 9:06 (3min+poster)	87
Crystallinity of recrystallized In _x Ga _{1-x} As layer on In _{0.48} Ga _{0.52} As Y. Horita*, K. Hirayama*, Y. Tominaga*, Y. Ohno**, N. Ikenaga*** and O. Ueda**** *Hiroshima University, **Tohoku University, ***Kanazawa Institute of Technology, ****Meiji University	
Th1-5 9:09 (3min+poster)	89
Solid-phase crystallization for high-quality polycrystalline Ge thin films and its application to GaAs M. Saito, T. Nishida, K. Moto, T. Suemasu and K. Toko University of Tsukuba	
Th1-6 9:12 (3min+poster)	91
High photoresponsivity in polycrystalline GaAs(111) film on glass formed by molecular beam epitaxy on a Ge seed layer T. Nishida, T. Suemasu and K. Toko University of Tsukuba	
Th1-7 9:15 (3min+poster)	93
GaNAsBi heterostructure nanowires showing zincblende and wurtzite related x-ray diffraction peaks S. Mori, M. Yukimune, R. Fujiwara and F. Ishikawa Ehime University	
Th1-8 9:18 (3min+poster)	95
Growth conditions of low-temperature-grown GaAs _{1-x} Bi _x Y. Horita*, Y. Tominaga*, M. Yukimune**, R. Fujiwara** and F. Ishikawa** *Hiroshima University, **Ehime University	
Th1-9 9:21 (3min+poster)	97
Crystallinity evaluation of low-temperature-grown GaAs _{1-x} Bi _x Y. Takagaki*, Y. Horita*, Y. Tominaga*, M. Yukimune**, R. Fujiwara** and F. Ishikawa** *Hiroshima University, **Ehime University	
Th1-10 9:24 (3min+poster)	99
Reduction of threading dislocations of MOVPE-grown AlN on sputtered-annealed AlN with nano-patterned-sapphire substrates Y. Iba, K. Shojiki, K. Uesugi, S. Kuboya, S. Xiao and H. Miyake Mie University,	
Th1-11 9:27 (3min+poster)	101
Growth of GaN single crystals with low oxygen concentration by Li-added Na-flux method T. Nakajima, T. Yamada, K. Murakami M. Imanishi, M. Yoshimura and Y. Mori Osaka University	
Th1-12 9:30 (3min+poster)	103
Evaluation of Al layer formed by TMAI preflow on SiC surface for GaN growth M. Deura, Y. Zhu, T. Momose and Y. Shimogaki The University of Tokyo	
Th1-13 9:33 (3min+poster)	105
Suppression of the inclusions in GaN crystals using flux-film-coated technique in Na-flux method K. Endo, T. Yamada, K. Murakami, M. Imanishi, M. Yoshimura and Y. Mori Osaka University	
Th1-14 9:36 (3min+poster)	107
Surface-pit elimination of GaN-related materials using Eu-doping technique T. Morikawa, S. Ichikawa, J. Tatebayashi and Y. Fujiwara Osaka University	

Th1-15	9:39 (3min+poster)	109
The suppression of change of lattice curvature by addition of CH ₄ gas in OVPE growth K. Ishibashi*, A. Simizu*, M. Kamiyama*, S. Tsuno*, A. Kitamoto*, M. Imanishi*, T. Sumi**, J. Takino**, Y. Okayama***, M. Nobuoka**, M. Hata***, M. Isemura****, M. Yoshimura* and Y. Mori* *Osaka University, **Panasonic Corporation, ***Itochu plastics Inc., ****Sosho-ohshin Inc.		
Th1-16	9:42 (3min+poster)	111
Pulsed DC sputtering growth of Mg-doped GaN thin film Y. Onishi*, S. Imai*, H. Miura**, N. Takahashi**, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Tokyo Electron Technology Solutions Limited		
Th1-17	9:45 (3min+poster)	113
Surface-morphology control using appropriate impurity-doping for vicinal (0001) GaN S. Ichikawa, J. Tatebayashi and Y. Fujiwara Osaka University		
Th1-18	9:48 (3min+poster)	115
Optical characteristics of high In composition GaInN MQWs grown by RF-MBE R. Yoshida, Y. Nakajima, H. Hirukawa, S. Ohno, T. Yamaguchi, T. Onuma and T. Honda Kogakuin University		
Th1-19	9:51 (3min+poster)	117
Heteroepitaxial growth of GaN thin films on sapphire substrates by pulsed DC sputtering deposition S. Imai*, Y. Onishi*, H. Miura**, N. Takahashi**, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Tokyo Electron Technology Solutions Ltd.		
Th1-20	9:54 (3min+poster)	119
Effect of In adlayer on MBE growth of InN by DERI method N. Goto, K. Watanabe, S. Mouri, T. Araki and Y. Nanishi Ritsumeikan University		
Th1-21	9:57 (3min+poster)	121
Impact of the atomic configuration on the electronic structures of In _x Ga _{1-x} N M. Imura* and Y. Ota** *National Institute for Materials Science, **Tokyo Metropolitan Industrial Technology Research Institute		
Th1-22	10:00 (3min+poster)	123
Epitaxial relationship in Cu ₃ N layer grown on c-plane sapphire substrate by Mist CVD N. Wakabayashi, M. Takahashi, T. Yamaguchi, T. Onuma and T. Honda Kogakuin University		
Th1-23	10:03 (3min+poster)	125
Si-Ge intermixing at Si-capped Ge mesa sidewalls selectively grown on Si R. Katamawari, K. Kawashita and Y. Ishikawa Toyohashi University of Technology		
Th1-24	10:06 (3min+poster)	127
Direct conversion of P ion implanted graphite to diamond by high pressure and high temperature technique K. Otsuyama, R. Fukuta, Y. Murakami, F. Ishikawa, M. Matsushita, T. Shinmei, H. Ohfuji and T. Irifune Ehime University		
Th1-25	10:09 (3min+poster)	129
Observation of impurity incorporated regions in hexagonal boron nitride single crystals by high-pressure, high-temperature synthesis K. Watanabe and T. Taniguchi National Institute for Materials Science		
Th1-26	10:12 (3min+poster)	131
Unfolding band structures of cubic BN related alloys Y. Ota Tokyo Metropolitan Industrial Technology Research Institute		
Th1-27	10:15 (3min+poster)	133
Crystal-quality enhancement of sputtered h-BN on sapphire by high-temperature face-to-face annealing R. Kataoka, S. Iwayama, H. Koizumi and H. Miyake Mie University		

Break (10:18-10:28)

Poster Session II (Th1) (10:28-12:00)

Lunch (12:00-13:00)

Session Th2: Nano structures & Solar cells (13:00-14:36)

Chair: N. Fujimura (Osaka Prefecture University)

Th2-1 [Invited]	13:00 (30min+poster)	135
Efficiency and stability development of halide perovskite solar cells		
T. Miyasaka ^{*,**}		
[*] Toin University of Yokohama, ^{**} Peccell Technologies		
Th2-2	13:30 (3min+poster)	139
Monolithic networked graphene nanoribbons fabricated by inorganic nanowire mask		
Y. Aoki [*] , Y. Yamada [*] , A. Fukui [*] , T. Yoshimura [*] , A. Ashida [*] , N. Fujimura [*] and D. Kiriya ^{***}		
[*] Osaka Prefecture University, ^{**} JST PRESTO		
Th2-3	13:33 (3min+poster)	141
Fabrication of GaN nanowires by wet etching using electrodeless photo-assisted electrochemical etching and alkaline solution treatment		
M. Shimauchi, K. Miwa, M. Toguchi, T. Sato and J. Motohisa		
Hokkaido University		
Th2-4	13:36 (3min+poster)	143
Characterization of InP nanowire surrounding-gate transistor		
Y. Katsumi, H. Gamo, T. Akamatsu, J. Motohisa and K. Tomioka		
Hokkaido University		
Th2-5	13:39 (3min+poster)	145
InAs/InP core-shell nanowire heterostructure for high-mobility surrounding-gate transistors		
H. Gamo, T. Akamatsu, J. Motohisa and K. Tomioka		
Hokkaido University		
Th2-6	13:42 (3min+poster)	147
Characteristics of GaAs related multi-shell nanowires surrounded by native oxide AlGaO _x layer		
R. Tsutsumi, N. Tsuda and F. Ishikawa		
Ehime University		
Th2-7	13:45 (3min+poster)	149
A bimodal size distribution of GaAs quantum dots causing an anomalous temperature-dependent photoluminescence signal		
Y. Ezoe, Y. Miyauchi, T. Ikari, T. Mano and A. Fukuyama		
University of Miyazaki		
Th2-8	13:48 (3min+poster)	151
Selective etching of GaAs core layer with embedded InAs quantum dot layer towards photonic crystal laser fabrication		
T. Okunaga, Y. Xiong, M. Morifuji, H. Kajii and M. Kondow		
Osaka University		
Th2-9	13:51 (3min+poster)	153
Crystallinity evaluation of femtosecond-laser-induced periodic structures		
R. Miyagawa and O. Eryu		
Nagoya Institute of Technology		
Th2-10	13:54 (3min+poster)	155
Shape control of periodic nanostructures on GaN by wet-etching		
H. Matsuura, R. Miyagawa and O. Eryu		
Nagoya Institute of Technology		
Th2-11	13:57 (3min+poster)	157
LIPSS formation by laser irradiation with different pulse widths		
S. Yoshikawa, R. Miyagawa and O. Eryu		
Nagoya Institute of Technology		
Th2-12	14:00 (3min+poster)	159
Influence of barrier layer height on the carrier transport properties of InGaAs/GaAsP superlattice solar cells		
R. Iwanaga [*] , A. Watanabe [*] , T. Nakamura [*] , T. Ikari [*] , M. Sugiyama ^{**} and A. Fukuyama ^{***}		
[*] University of Miyazaki, ^{**} The University of Tokyo		
Th2-13	14:03 (3min+poster)	161
Quasi-fermi level splitting analysis via absolute photoluminescence spectroscopy on InAs quantum dot solar cells		
R. Tamaki [*] , Y. Shoji ^{**} and Y. Okada [*]		
[*] The University of Tokyo, ^{**} National Institute of Advanced Industrial Science and Technology		
Th2-14	14:06 (3min+poster)	163
Comparison of current density between wire on well and planar superlattice		
M. Asami [*] , K. Watanabe ^{**} , Y. Nakano [*] , Y. Okada ^{***} and M. Sugiyama ^{***}		
[*] The University of Tokyo, ^{**} Research Center for Advanced Science and Technology		
Th2-15	14:09 (3min+poster)	165
Hot-carrier extraction from InAs/GaAs quantum dot superlattices embedded in GaAs solar cells		
Y. Harada, N. Iwata, S. Asahi and T. Kita		
Kobe University		

Th2-16	14:12 (3min+poster)	167
InGaP solar cells grown by hydride vapor phase epitaxy for application to low-cost high-efficiency photovoltaics Y. Shoji*, R. Oshima*, K. Makita*, A. Ubukata** and T. Sugaya* *National Institute of Advanced Industrial Science and Technology, **Taiyo Nippon Sanso Corporation		
Th2-17	14:15 (3min+poster)	169
Photoanode measurement of GaAs nanowires grown on silicon substrates T. Ohno*, M. Yukimune*, R. Fujiwara*, Y. Wang**, Z. Mi** and F. Ishikawa* *Ehime University, **Michigan University		
Th2-18	14:18 (3min+poster)	171
Single CIGS solar cells on p-type GaAs substrates J. Nishinaga and T. Sugaya National Institute of Advanced Industrial Science and Technology		
Th2-19	14:21 (3min+poster)	173
Two-step preparation of high quality perovskite film on mesoporous PbI ₂ underlayer S. Kanbe, J. Kagae and K. Yamashita Kyoto Institute of Technology		
Th2-20	14:24 (3min+poster)	175
Dry/wet hybrid growth of FA _{1-x} MA _x PbI _{3-y} Br _y perovskite films J. Kagae, T. Yamanaka, S. Kanbe and K. Yamashita Kyoto Institute of Technology		
Th2-21	14:27 (3min+poster)	177
Reciprocal change in photocurrent and photoluminescence by intraband transition in two-step photon up-conversion solar cells S. Asahi, N. Kinugawa and T. Kita Kobe University		
Th2-22	14:30 (3min+poster)	179
Response characteristics of AlGaIn/GaN HFET-type visible photosensors R. Fujishima, M. Sakata, M. Iwaya, T. Takeuchi, S. kamiyama and O. Akasaki Meijo University		
Th2-23	14:33 (3min+poster)	181
Infrared photodetector sensitized by InAs quantum dots embedded at a GaAs/Al _{0.3} Ga _{0.7} As hetero-interface T. Murata, S. Asahi and T. Kita Kobe University		

Break (14:36-14:46)

Session Th3: Characterization & Quantum well & 2D materials (14:46-15:58)

Chair: M. Funato (Kyoto University)

Th3-1 [Invited]	14:46 (30min+poster)	183
Theoretical approach to impurity incorporation mechanism in GaN MOVPE Y. Kangawa***, P. Kempisty***, and K. Shiraishi** *Kyushu University, **Nagoya University, ***Polish Academy of Sciences		
Th3-2	15:16 (3min+poster)	187
Improved crystallinity of III-V-N alloys by proton beam irradiation and thermal annealing R. Futamura*, K. Yamane*, S. Genjo*, M. Imaizumi**, T. Ohshima*** and A. Wakahara* *Toyohashi University of Technology, **Japan Aerospace Exploration Agency, ***National Institutes for Quantum and Radiological Science and Technology		
Th3-3	15:19 (3min+poster)	189
Nitrogen and gallium displacement related deep levels introduced by electron-beam irradiation in MOVPE-grown homoepitaxial n-type GaN M. Horita and J. Suda Nagoya University		
Th3-4	15:22 (3min+poster)	191
Electron traps formed by gamma-ray irradiation in homoepitaxial n-type GaN K. Aoshima, K. Kanegae, M. Horita and J. Suda Nagoya University		
Th3-5	15:25 (3min+poster)	193
Evaluation of hole traps introduced by electron beam irradiation in homoepitaxial n-type GaN M. Endo, K. Kanegae, M. Horita and J. Suda Nagoya University		

Th3-6	15:28 (3min+poster)	195
Development of accurate and quick measurement method for hole trap density in n-type GaN layers by optical isothermal capacitance transient spectroscopy		
K. Kanegae****, T. Narita**, K. Tomita**, T. Kachi***, M. Horita****, T. Kimoto* and J. Suda****		
*Kyoto University, **Toyota Central R&D Labs. Inc., ***Nagoya University		
Th3-7	15:31 (3min+poster)	197
Rutherford backscattering spectrometry for Bi segregation in low-temperature-grown GaAs _{1-x} Bi _x		
S. Fujino, Y. Horita, Y. Takagaki and Y. Tominaga		
Hiroshima University		
Th3-8	15:34 (3min+poster)	199
Structural analysis of Ga _{1-x} In _x N/GaN five-quantum wells grown on side-walls of GaN nano-wires by using an X-ray nano-beam from synchrotron radiation		
T. Kondo*, T. Ichikawa*, H. Akasaki*, K. Uno*, R. Kobayashi*, Y. Imai**, K. Sumitani**, S. Kimura**, N. Goto*, D. Imai*, S. Kamiyama* and T. Miyajima*		
*Meijo University, **Japan Synchrotron Radiation Research Institute		
Th3-9	15:37 (3min+poster)	201
Measurements of internal quantum efficiency in various InGaN single quantum wells with different qualities by simultaneous photoacoustic and photoluminescence spectroscopy		
K. Mori*, Y. Takahashi*, A. A. Yamaguchi*, S. Kusanagi**, Y. Kanitani**, Y. Kudo** and S. Tomiya**		
*Kanazawa Institute of Technology, **SONY Corporation		
Th3-10	15:40 (3min+poster)	203
Experimental studies and model analysis on potential fluctuation in InGaN quantum-well layers		
T. Fujita*, S. Sakai*, Y. Ikeda*, A. A. Yamaguchi*, S. Kusanagi**, Y. Kanitani**, Y. Kudo and S. Tomiya**		
*Kanazawa Institute of Technology, **Sony Corporation		
Th3-11	15:43 (3min+poster)	205
Semipermanent chemical gating of MoS ₂ by wrapping with ionic polymer		
D. Kimura*, K. Matsuyama*, Y. Yamada*, Y. Aoki*, A. Fukui*, T. Yoshimura*, A. Ashida*, N. Fujimura* and D. Kiriya***		
*Osaka Prefecture University, **JST PRESTO		
Th3-12	15:46 (3min+poster)	207
Anomalous charge transfer process of amide molecules to 2D layered material		
A. Fukui*, Y. Hijikata**, J. Pirillo**, Y. Aoki*, Y. Yamada*, T. Yoshimura*, A. Ashida*, N. Fujimura* and D. Kiriya****		
*Osaka Prefecture University, **Hokkaido University, ***JST PRESTO		
Th3-13	15:49 (3min+poster)	209
Strong molecular electron transfer system for transition metal dichalcogenides		
K. Matsuyama*, A. Fukui*, Y. Yamada*, Y. Aoki*, D. Kimura*, T. Yoshimura*, A. Ashida*, N. Fujimura* and D. Kiriya***		
*Osaka Prefecture University, **JST PRESTO		
Th3-14	15:52 (3min+poster)	211
Large area strong photoluminescence in molecular-treated MoS ₂		
Y. Yamada*, Y. Aoki*, A. Fukui*, T. Yoshimura*, A. Ashida*, N. Fujimura*, K. Shinokita**, K. Matsuda** and D. Kiriya****		
*Osaka Prefecture University, **Kyoto University, ***JST PRESTO,		
Th3-15	15:55 (3min+poster)	213
X-ray in situ observation of graphene precipitating directly on sapphire substrate		
S. Naritsuka, J. Yamada, Y. Ueda, A. Nakashima, T. Kashio and T. Maruyama		
Meijo University		

Break (15:58-16:08)

Poster Session III (Th2, Th3) (16:08-18:25)

Break (18:25-18:45)

Banquet (18:45-21:00)

【October 11th, Friday】

Session Fr1: Optical devices (8:30-10:00)

Chair: M. Iwaya (Meijo University)

Fr1-1 [Invited]	8:30 (30min+poster)	215
Gallium nitride based vertical-cavity surface-emitting lasers having curved mirror T. Hamaguchi, H. Nakajima, M. Tanaka, T. Jyoukawa, M. Ito, N. Kobayashi, M. Ohara, T. Matou, K. Hayashi, H. Watanabe, Y. Hoshina, R. Koda and K. Yanashima Sony Corporation		
Fr1-2	9:00 (3min+poster)	219
Fabrication of nanofiber Bragg cavity with high-Q factor using a He ion microscope H. Takashima*, A. Fukuda*, T. Tashima*, A. W. Schell** and S. Takeuchi* *Kyoto University, **Central European Institute of Technology		
Fr1-3	9:03 (3min+poster)	221
Design and fabrication of InGaN single-mode laser with periodically slotted structure D. Tazuke*, A. Higuchi*, T. Hikosaka**, T. Oka**, S. Nunoue**, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Toshiba Corporation		
Fr1-4	9:06 (3min+poster)	223
130°C stage-temperature operation of lateral-current-injection membrane lasers on SiC substrates S. Yamaoka, R. Nakao, T. Fujii, K. Takeda, T. Hiraki, H. Nishi, T. Kakitsuka, T. Tsuchizawa and S. Matsuo NTT Corporation		
Fr1-5	9:09 (3min+poster)	225
Fabrication of photonic crystal laser structure with output high-mesa waveguide K. Hagura, T. Yamaguchi, Y. Xiong, M. Morifuji, H. Kajii and M. Kondow Osaka University		
Fr1-6	9:12 (3min+poster)	227
Selective dry etching of GaAs/AlO ₃ with photonic crystal structure for wavelength division multiplexing Y. Xiong, Y. Tani, X. Cong, M. Morifuji, M. Uemukai, H. Kajii, A. Maruta and M. Kondow Osaka University		
Fr1-7	9:15 (3min+poster)	229
Circular dichroism in a three-dimensional chiral photonic crystal fabricated by optical microscope micro-manipulator E. Kimura*, S. Takahashi*, K. Yamashita*, J. Tatebayashi**, S. Iwamoto** and Y. Arakawa** *Kyoto Institute of Technology, **University of Tokyo		
Fr1-8	9:18 (3min+poster)	231
Enhanced modal gain of InGaAs/GaAs quantum dot lasers with stacked high-density quantum dots M. Kakuda, J. Kwoen, K. Watanabe and Y. Arakawa The University of Tokyo		
Fr1-9	9:21 (3min+poster)	233
Optimization of annealing temperature to reduce contact resistance on p-GaN toward fabrication of InGaN single-mode laser A. Higuchi, D. Tazuke, T. Hikosaka, T. Oka, S. Nunoue, M. Uemukai, T. Tanikawa and R. Katayama Osaka University, Toshiba Corporation		
Fr1-10	9:24 (3min+poster)	235
Fabrication of GaN doubly-resonant waveguide microcavity SHG device T. Nagata*, S. Umeda*, T. Hikosaka**, S. Nunoue**, T. Morikawa*, Y. Fujiwara*, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Toshiba Corporation		
Fr1-11	9:27 (3min+poster)	237
Design of GaN doubly-resonant waveguide microcavity SHG device S. Umeda*, T. Nagata*, T. Hikosaka**, S. Nunoue**, T. Morikawa*, Y. Fujiwara*, M. Uemukai*, T. Tanikawa*, R. Katayama* *Osaka University, **Toshiba Corporation		
Fr1-12	9:30 (3min+poster)	239
GaN waveguide directional coupler and wavelength filter for quantum optical application M. Maeda*, T. Komatsu*, M. Kihira*, T. Hikosaka**, S. Nunoue**, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Toshiba Corporation		
Fr1-13	9:33 (3min+poster)	241
Input grating coupler for AlN channel waveguide wavelength conversion device Y. Morioka*, M. Uemukai*, K. Uesugi**, K. Shojiki**, H. Miyake**, T. Morikawa*, Y. Fujiwara*, T. Tanikawa* and R. Katayama* *Osaka University, **Mie University		

Fr1-14	9:36 (3min+poster)	243
Design and evaluation of electrical and optical characteristics of ITO electrode for electric-field driven optical waveguide devices A. Tomibayashi, M. Kihira, T. Komatsu, M. Uemukai, T. Tanikawa and R. Katayama Osaka University		
Fr1-15	9:39 (3min+poster)	245
Development status of low-cost UV-LED process including AlN templates A. Mishima, Y. Tomita, A. Ubukata, T. Arimura, S. Koseki, K. Fuchigami and T. Arai Taiyo Nippon Sanso Corporation		
Fr1-16	9:42 (3min+poster)	247
Design of deep ultraviolet second harmonic generation device with double-layer polarity-inverted AlN waveguide A. Yamauchi*, T. Komatsu*, K. Ikeda*, K. Uesugi**, K. Shojiki**, H. Miyake*, T. Hikosaka***, S. Nunoue***, T. Morikawa*, Y. Fujiwara*, M. Uemukai*, T. Tanikawa* and R. Katayama* *Osaka University, **Mie University, ***Toshiba Corporation		
Fr1-17	9:45 (3min+poster)	249
Optical properties of AlGaIn multiple quantum wells grown on n-AlGaIn using sputter-deposited AlN templates K. Kawabata, S. Kuboya, K. Shojiki, K. Uesugi and H. Miyake Mie University		
Fr1-18	9:48 (3min+poster)	251
Raman scattering evaluation of strain evolution during surface-activated bonding of GaN and removal of Si substrate R. Tanabe*, N. Yokoyama*, M. Uemukai*, T. Hikosaka**, S. Nunoue**, K. Shojiki***, H. Miyake***, M. Kushimoto****, H. J. Cheong****, Y. Honda****, H. Amano**** and R. Katayama* *Osaka University, **Toshiba corporation, ***Mie University, ****Nagoya University		
Fr1-19	9:51 (3min+poster)	253
Bonding strength optimization of polarity-inverted GaN/GaN structure fabricated by surface-activated bonding N. Yokoyama, R. Tanabe, M. Uemukai, T. Tanikawa and R. Katayama Osaka University		
Fr1-20	9:54 (3min+poster)	255
Remarkably wavelength-stable near-infrared emission of Tm-doped GaN light-emitting diodes N. Yoshioka, S. Ichikawa, J. Tatebayashi and Y. Fujiwara Osaka University		
Fr1-21	9:57 (3min+poster)	257
Design and fabrication of a silicon nitride ring resonator for on-chip broadband entangled photon sources Z. Yin*, K. Sugiura*, X. Cheng**, H. Takashima*, R. Okamoto*, S. Yokoyama** and S. Takeuchi* *Kyoto University, **Kyushu University		

Break (10:00-10:10)

Session Fr2: Novel devices (10:10-11:01)

Chair: A. Wakejima (Nagoya Institute of Technology)

Fr2-1 [Invited]	10:10 (30min+poster)	259
Research and development of compound semiconductor electron devices for terahertz-wave wireless communications I. Watanabe, Y. Yamashita and A. Kasamatsu National Institute of Information and Communications Technology		
Fr2-2	10:40 (3min+poster)	263
Needle-type neural electrical recording probe for monolithically integration with blue micro LEDs T. Takagi*, H. Yasunaga*, D. Shinko*, Y. Nakayama*, M. Ohsawa** and H. Sekiguchi*** *Toyoashi University of Technology, **Nagoya City University, ***Precursory Research for Embryonic Science and Technology		
Fr2-3	10:43 (3min+poster)	265
Paper-based disposable molecular sensor constructed from oxide nanowires, cellulose nanofibers, and pencil-drawn electrodes K. Nagashima***, H. Koga**, G. Zhang*, T. Takahashi*, M. Nogi*** and T. Yanagida* *Kyushu University, **Osaka University		
Fr2-4	10:46 (3min+poster)	267
Neuromorphic system using an LSI chip and a-IGZO thin-film devices M. Kimura**, K. Ikushima*, D. Yamakawa*, H. Yamane** and Y. Nakashima** *Ryukoku University, **Nara Institute of Science and Technology		
Fr2-5	10:49 (3min+poster)	269
MBE growth of AlGaAs superlattice for photocathode I. Morita*, F. Ishikawa*, T. Nishitani** and M. Tabuchi** *Ehime University, **Nagoya University		
Fr2-6	10:52 (3min+poster)	271
Photoelectrochemical etching for GaN MEMS T. Yamada*, Y. Ando*, H. Watanabe*, M. Deki*, A. Tanaka***, S. Nitta*, M. Kushimoto*, Y. Honda*, H. Amano*** *Nagoya University, **National Institute for Material Science		

Fr2-7 10:55 (3min+poster) 273
Electrical conduction mechanism of TaO_x based resistive switching cells
T. Miyatani, Y. Nishi and T. Kimoto
Kyoto University

Fr2-8 10:58 (3min+poster) 275
All-inorganic perovskite thick film formed by using mist deposition method and its X-ray detection properties
Y. Haruta, T. Ikenoue, M. Miyake and T. Hirato
Kyoto University

Poster Session IV (Fr1) (11:01-12:30)

Lunch (12:30-13:30)

Tutorial (13:30-14:20)

Chair: K. Watanabe (National Institute for Materials Science)

Tutorial 13:30 (50min+poster) 277
NV center in diamond: Properties, fabrication, and applications to quantum devices
J. Isoya
University of Tsukuba

Special Session (14:20-16:00)

“Forefront of wide bandgap semiconductor power devices”

Chair: J. Suda (Nagoya University)

SP-1 [Invited] 14:20 (30min+poster) 281
Recent progress of fabrication process of GaN vertical device
T. Kachi, T. Narita, H. Sakurai, S. Yamada and J. Suda
Nagoya University

Break (14:50-15:00)

SP-2 [Invited] 15:00 (30min+poster) 285
Development of corundum-structured gallium oxide power devices by MIST EPITAXY®
T. Shinohe
FLOSFIA Inc.

SP-3 [Invited] 15:30 (30min+poster) 287
Forefront of SiC power devices
Y. Yonezawa, R. Kosugi, K. Nakayama, S. Harada and H. Okumura
National Institute of Advanced Industrial Science and Technology

Closing Session (16:00-16:20)